$35.00

# Draft
# Environmental Impact Report

*Project*
**Valley Christian Center Expansion Program**

**PA #00-017**

**Lead Agency:**
**City of Dublin**

**SCH# 2002012070**

**October 2002**

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# 1.0 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATIONS

Table 1 below summarizes the environmental impacts and mitigations which are discussed in detail in the remainder of this Draft Environmental Impact Report.

## Summary of Environmental Impacts and Mitigations

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| **4.1-1** | **Aesthetics.** Construction of the proposed expansion would result in significant impacts with regard to views of the site from the I-580 freeway and from Dublin Boulevard, since new buildings on the periphery of the core complex would be out of scale with existing development in the western Dublin area *(potentially significant impact).* | **4.1-1:** Consideration shall be given during the Site Development Review process to:<br><br>a) The proposed senior center and chapel buildings should be restricted to one story construction, consistent with the County Scenic Route Element, and set back from the top of slope the distance of the building height to reduce visibility from the I-580 freeway. Consideration should also be given to reducing the apparent heights of the two buildings by designing low rooflines, using earth tone building colors, using non-reflective surfaces and appropriate landscape screening. | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| | | b) For the residential component of the proposed project, consideration shall be given to providing a greater building setback from the Dublin Boulevard/Inspiration Drive intersection, limiting the buildings on the south side of the complex to a single story, using intensive landscaping on the corner to screen the residences and using earth tone colors and non-reflective surfaces. | |
| 4.1-2 | **Landform and topography:** No impacts with regard to landform or topographic changes are anticipated with regard to approval and implementation of the proposed expansion plan since grading has already occurred. Minor grading is anticipated for final building pads and trenching for building foundations and utilities (*no impact*). | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.1-3 | **Light and glare:** Construction of new buildings and other uses within the Valley Christian Center complex would increase the amount of light and potentially glare due to additional parking lot and building lights. Future lighting of playing fields could result in spillover of unwanted lights on surrounding residential areas (*potentially significant impact*). | **4.1-2:** The following measures shall be taken: the Site Development Review process to:<br>a) Ensure that all exterior light fixtures be equipped with cut-off lenses, directed downward, and limited in height to the maximum necessary for adequate illumination to minimize excess light and glare.<br>b) Require that any future proposals to light the playing fields be subject to Planning Commission approval following a noticed public hearing. | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.2-1 | **Construction impacts:** The effects of project construction activities would be increased dustfall and locally elevated levels of PM10 downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties *(potentially significant impact).* | **4.2-1:** The following measures are recommended, based on BAAQMD standards, to reduce construction impacts to a less-than-significant level. The following construction practices should be required during all phases of construction on the project site:<br><br>a) Water all active construction areas as needed;<br>b) Watering or covering of stockpiles of debris, soil, sand or other materials that can be blown by the wind;<br>c) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard;<br>d) Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites; | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| | | e) Sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites;<br>f) Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;<br>g) Hydroseed or apply non-toxic soil.<br>h) Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);<br>i) Limit traffic speeds on unpaved roads to 15 mph;<br>j) Install sandbags or other erosion control measures to prevent silt runoff.<br>k) Replant vegetation in disturbed areas as quickly as possible. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.2-2 | **Local long-term air quality impacts:** Incremental increases in air pollution could be anticipated with the construction of the proposed project, however, such increases would be below the standard of air quality significance through as established by the BAAQMD since no major intensification of land use is proposed *(less-than-significant impact)*. | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.3-1 | **Wetland and riparian habitat impacts:** Proposed development activities shown on the proposed Planned Development Plan would place residential uses within a jurisdictional wetland area located on the west side of the site. Other wetlands may also exist on the project site (*potentially significant impact*). | **4.3-1**: A protocol-level wetlands delineation shall be performed on the project site. Based on the results of this analysis, the development plan should be modified to avoid all wetland areas. If avoidance is not possible, a wetland mitigation plan shall be prepared by a qualified biologist to include identification of replacement wetland area at a ratio of 2:1 on or near the project site. Necessary regulatory permits shall also be obtained from the U.S. Army Corps of Engineers, Fish and Wildlife Service, California Department of Fish and Game and Regional Water Quality Control Board. | **Less than significant** |

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|---|---|---|---|
| 4.4-1 | **Archeological and Native American resources:** Although no prehistoric or archeologically significant resources have been identified within the project area, construction of new buildings, underground utility lines and similar facilities could result in disturbance to archeological and/or Native American underground resources *(potentially significant impact).* | **4.4-1**: If an archeological or Native American artifact is identified, work on the project shall cease immediately until a resource protection plan conforming to CEQA Guideline Section 15064.5 (e) is prepared by a qualified archeologist and approved by the Dublin Community Development Director. Project work may be resumed in compliance with such plan. If human remains are encountered, the County Coroner shall be contacted immediately. | **Less than significant** |
| 4.4-2 | **Historic resources:** Based on a cultural resources records search supplemented by a site visit, no historic resources exist on the site *(no impact).* | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.5-1 | **Seismic hazard:** During a major earthquake on a segment of one of the nearby faults, moderate to strong ground shaking can be expected to occur on the project site. Strong shaking during an earthquake could result in damage to buildings, roads, utility lines and other structures with associated risk to residents, employees and visitors in the area, especially due to the presence of a previous landslide that has not been fully remediated *(significant impact).* | No mitigation measures are required. | |
| 4.5-2 | **Expansive soils and landslides:** Additional development occurring on the project site may be subject to foundation damage caused by expansive soils, differential settlement and similar hazards related to expansive soils. In addition a potential exists for landslides on the site that have not been properly remediated to support buildings or structures. Of special concerns identified in the project geotechnical report is the site of future residential uses (*potentially significant impact*). | **4.5-1**: A site specific geotechnical investigation shall be required for each building constructed as part of the proposed expansion by a California-registered geologist or California-registered engineering geologist. The report(s) shall address the potential for extension of the Dublin fault on the site, expansive soils and the potential for future landslides on the site. Specific measures to reduce seismic hazards, expansive soils and landslide hazards to a less-than-significant level shall be included in the report(s). | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.5-3 | **Site grading:** Approval of the proposed Valley Christian expansion would cause increased limited amounts of site grading and excavation for construction of new buildings, parking areas and other improvements, Grading operations would proceed based on grading plans approved by the City of Dublin (*less-than-significant impact*). | See above. | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.6-1 | **Soil erosion:** During construction, short-term increases of soil erosion could result as the project area is stripped of the natural vegetation and exposed to wind and water erosion (*potentially significant impact).* | **4.6-1**: An erosion and sedimentation control plan shall be prepared by a California-registered civil engineer for implementation throughout all phases of project construction. The plan should be prepared in accordance with City of Dublin and RWQCB design standards and shall be approved by the Dublin Public Works Director prior to issuance of a grading permit. It is recommended that this plan, at a minimum, include the following provisions:<br><br>a) Existing vegetated areas should be left undisturbed until construction of improvements on each portion of the development site is actually ready to commence;<br>b) All disturbed areas should be immediately revegetated or otherwise protected from both wind and water erosion upon the completion of grading activities;<br>c) Stormwater runoff should be collected into stable drainage channels, from small drainage basins, to prevent the buildup of large, potentially erosive stormwater flows; | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| | | d) Specific measures should be implemented to control erosion from stockpiled earth and exposed soil;<br>e) Runoff should be directed away from all areas disturbed by construction;<br>f) Sediment ponds or siltation basins should be used to trap eroded soils before runoff is discharged into on-site or offsite drainage culverts and channels;<br>g) To the extent possible, major site development work involving excavation and earth moving shall be scheduled during the dry season. | |
| **4.6-2** | **Non-point source pollution:** On-going operation of the facility could impact surface water quality through deposition of oil, grease and other chemicals from parking areas, use of lawn chemicals and other sources (*potentially significant impact)* | **4.6-2:** A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared by a California-registered civil engineer to RWQCB and City of Dublin standards to ensure Best Management Practices will be employed to reduce surface water pollution to a less-than-significant level. The SWPPP shall be approved by the Dublin Public Works Director prior to issuance to a grading permit. | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.6-3 | **Stormwater runoff:** New construction on the project site could impact existing downstream stormwater drainage facilities by increasing overall and peak flows (*potentially significant impact*). | **4.6.3:** The project sponsor shall submit a hydrology study for the proposed project, prepared by a California-registered civil engineer, documenting the amount of current stormwater runoff from the site, estimated future quantities of runoff, and the ability of downstream facilities to accommodate increased stormwater quantities. The report shall also identify needed downstream improvements needed to accommodate increased storm flows and the applicant's financial participation in funding needed improvements, if required. | |
| 4.7-1 | **On-site land use impacts:** Approval of the proposed Valley Christian Center expansion plan would represent a logical continuation of the current development pattern on the site and no impacts are anticipated (*no impact*). | No mitigations are required. | |

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|---|---|---|---|
| 4.7-2 | **Surrounding land use impacts**: Since the proposed Valley Christian Center expansion plan would represent a continuation of current uses as well as residential uses consistent with the type and density of surrounding uses, less-than-significant impacts are anticipated (*less-than-significant impact*). | No mitigation measures are required. | |
| 4.7-3 | **Regulatory impacts:** Approval and implementation of the proposed Valley Christian Center expansion program, including the proposed General Plan Amendment and rezonings, would be consistent with the goals and policies of the Dublin General Plan and the Dublin Zoning Ordinance (*No impact).* | No mitigation measures required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.8-1 | **Construction noise impacts:** Residents of dwellings surrounding the project site would be subject to short-term but potentially significant noise due to construction of new buildings, parking areas and associated improvements. Existing residents west of the project site along Dublin Boulevard would be the most impacted (*potentially significant impact*). | **4.8-1:** The following construction noise reduction measures shall be implemented as part of all construction.<br><br>a) Limit construction time to be 8:00 a.m. to 6:00 p.m. Monday-Saturday, except state and federal holidays. Exceptions may be granted in writing by the City Building Official for emergency or extenuating circumstances<br>b) Noisy stationary equipment should be located away from the homes.<br>c) All construction equipment should be in good working order and the mufflers should be inspected for proper functioning.<br>d) Designate a construction noise coordinator. This coordinator shall be available to respond to complaints from neighbors and take appropriate measures to reduce noise. | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.8-2 | **Future residential noise impacts:** The upper floors of residential dwellings proposed at the northwest corner of Dublin Boulevard and Inspiration Drive would be subject to noise levels ranging from 71 to 74 CNEL, which is considered an unacceptable noise level (*potentially significant impact*). | **4.8-2:** As part of Site Development Review applications for the housing portion of the project, a detailed acoustic study shall be completed by a qualified consultant to identify specific noise exposure of the dwellings and recommend specific measures to ensure that City interior and exterior noise exposure limits are met. | **Less than significant** |
| 4.8-3 | **Non-residential noise impacts:** The main campus of the Center would be exposed to future significant noise levels from the I-580 freeway (*potentially significant impact*). | **4.8-3:** As part of the Site Development Review application for the chapel, an acoustic study shall be performed to identify specific noise exposure of the building and identify measures to reduce interior and exterior noise acceptable interior and exterior levels. Appropriate mitigation may include, but is not limited to sound rated windows, construction of sound walls or berms or use the building as a shield for outdoor spaces. | **Less than significant** |

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|---|---|---|---|
| 4.8-4 | **Impacts of future evening activities:** Commencement of future evening activities that could be allowed with installation of lights could generate significant noise on surrounding residential neighborhoods (*potentially significant impact*). | **4.8-4:** An acoustical analysis shall be completed prior to commencement of evening outdoor activities to estimate noise effects on surrounding residential areas. If the anticipated noise levels would exceed City noise exposure levels, the acoustic report shall contain specific methods to reduce noise levels to acceptable levels. | **Less than significant** |
| 4.8-5 | **Impacts of project traffic:** Additional traffic added to local streets near the project site would increase noise on adjacent properties less than 1 decibel (DNL) at full build out (*less-than-significant impact*). | No mitigation measures are required. | |
| 4.9-1 | **Housing and population:** Approval of the proposed project would facilitate the addition of 22 new dwelling units and approximately 59 residents to the City of Dublin. Since proposed land uses and construction of the dwellings would generally be consistent with regional housing and population projections used for planning purposes, this impact would be less-than-significant (*less-than-significant impact*). | No mitigation measures are required. | |

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|---|---|---|---|
| 4.9-2 | **Housing affordability:** Approval of the proposed Valley Christian Center project would contribute to meeting the City's fair share allocation of affordable housing units (*beneficial impact*). | No mitigation measures are required. | |
| 4.10-1 | **Intersection impacts:** Approval and construction of the proposed expansion would contribute additional traffic to the existing significantly impacted intersection of Dublin Boulevard and Silvergate Drive and would contribute additional traffic to the existing significantly impacted intersection of Dublin Boulevard and Inspiration Drive (*significant impact*). | **4.10-1:** The project sponsor shall contribute a fair-share contribution to the funding of traffic signals at the Dublin Boulevard/Silvergate Drive and Dublin Boulevard/Inspiration Drive. | **Less than significant** |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.10-2 | **Local street impacts.** Expansion of the Valley Christian Center may increase traffic on local streets near the project site, in spite of existing turning controls on project driveways (*significant impact*). | **4.10-2:** Monitoring of the peak hour turning movements at project driveways be conducted on one typical school day every six months following the completion of the school expansion and reported to the City, to demonstrate that the expansion does not increase the rate of vehicles violating these restrictions. If the number of violators increases after the expansion, more stringent enforcement or other measures may be required by the school administration to limit the number of vehicles accessing the project site to or from Bay Laurel Street, as determined by the City of Dublin Public Works Director. | **Less than significant** |
| 4.10-3 | **Cumulative traffic.** Approval of the proposed expansion would contribute traffic to Dublin Boulevard, resulting in future traffic volumes above the City's threshold of significance (*significant impact*). | **4.10-3:** The project sponsor shall make a fair share contribution toward the funding of the future widening of Dublin Boulevard between Hansen Drive and Silvergate Drive from two to four lanes. | **Less than significant** |
| 4.10-4 | **Public transit impacts.** Approval of the proposed Valley Christian Center expansion would have no impact to the local public transit provider, since public transit facilities are presently operating below capacity (*no impact*). | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.10.5 | **Parking impacts.** Since the proposed project includes sufficient on-site parking to accommodate each of the various activities included within the project and would comply with City of Dublin parking standards, no impacts regarding parking are anticipated (*no impact).* | No mitigation measures are required. | |
| 4.11-1 | **Fire protection.** Approval and implementation of the proposed expansion would increase the number of calls for service for fire protection and emergency medical response. However, compliance with current Fire and Building Codes for all new buildings would reduce this impact to a less-than-significant level *(less-than-significant impact).* | No mitigation measures are required | |
| 4.11-2 | **Police protection:** Approval and implementation of the proposed Valley Christian Center expansion program is expected to increase calls for police services. Adherence to standard Police Department safety and security standards would reduce any impacts to a less-than-significant level *(less-than-significant impact).* | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.11-3 | **Schools:** Implementation of the proposed project would generate an estimated 2 new elementary school students, 1 middle school student and 4 high school students, which has not been planned for the Dublin Unified School District (*potentially significant impact*). | **4.11-1:** Prior to issuance of the first residential building permit, the project applicant shall enter into a school mitigation program with the Dublin Unified School District to ensure that a fair share fee towards off-setting costs to provide educational services to the District is provided. | **Less than significant** |
| 4.11-4 | **Solid waste disposal:** Based on discussions with the solid waste hauler for the City of Dublin, approval of the proposed expansion program would increase the amount of solid waste entering the waste stream. Additional quantities of solid waste, including construction debris could be accommodated at the nearest landfill. Additional capital equipment and personnel would be funded from user fees and charges (*less-than-significant impact*). | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.11-5 | **Water demand):** Additional water would be need to serve new structures, uses and irrigation of new landscaped areas. Specific quantities of water will be determined at the time precise development proposals are submitted to the City of Dublin. According to staff of the Dublin-San Ramon Services District, adequate water supplies exist to serve the proposed project (*less-than-significant impact*). | No mitigation measures are required. | |
| 4.11-6 | **Wastewater generation and treatment:** Implementation of the proposed expansion project would increase the amount of wastewater generation. The current expansion of DSRSD's wastewater treatment plant is anticipated to have sufficient capacity to accommodate future growth through 2010, which would likely accommodate the proposed project (*less-than-significant impact*). | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.11-7 | **Electrical and natural gas systems:** Approval and implementation of the proposed project would result in incremental increases in the demand for electrical power and natural gas; however, the primary power provider has indicated that urban uses have occupied the site for a number of years and capacity exists to serve planned uses. Existing and future uses on the site may be subject to periodic rolling blackouts and brownouts until a reliable, long-term energy supply can be secured (*less-than-significant impact*). | No mitigation measures are required. | |
| 4.12-1 | **Local parks and recreation facilities):** Construction of the proposed 22 townhouse units as part of the proposed project would increase demand for local park and recreation facilities; however, payment of required Public Facilities Fees to fund new parks within the community would reduce this impact to a less-than-significant level (*less-than-significant significant impact*). | No mitigation measures are required. | |

| Impact | Topic/Impact | Mitigation Measure | Net Impact After Mitigation |
|---|---|---|---|
| 4.12-2 | **Regional parks:** Construction of the proposed 22 dwellings as part of the proposed project would increase demand for regional park facilities; however, payment of increased property taxes and fees for facility use would reduce this to a less-than-significant impact (*less-than-significant significant impact*). | No mitigation measures are required. | |

**Areas of Known Controversy:** Local traffic, noise, geology and aesthetics

## 2.1 Purpose and Overview of the Environmental Review Process

This document is a Draft Environmental Impact Report (to be known hereafter in this document as the DEIR), prepared pursuant to the California Environmental Quality Act of 1970 (CEQA), as amended. This DEIR describes existing environmental conditions within and adjacent to the proposed project area within the City of Dublin. The DEIR also includes measures which could be incorporated into the project to mitigate (lessen) anticipated environmental impacts to a level of insignificance or eliminate them entirely. Finally, this DEIR identifies and analyzes feasible alternatives to the proposed project, cumulative impacts of this and other projects on the environment, and other mandatory elements as required by CEQA.

Responses to comments received regarding this DEIR during the public review period will be included in the Final Environmental Impact Report (FEIR). Together, the DEIR and FEIR constitute the full Environmental Impact Report (EIR) for the project.

As provided in CEQA and implementing guidelines, public agencies are charged with the responsibility of avoiding or minimizing environmental damage to the fullest extent feasible. In fulfilling this responsibility, public agencies must balance a variety of objectives, including economic, environmental and social factors. As an informational document to local officials, governmental agencies and members of the public, the purpose of the EIR is to serve as a disclosure document, identifying potential impacts, mitigation measures and alternatives.

Approval of the EIR by the lead agency does not constitute approval of the underlying project, in this instance, approval of the proposed expansion program for the existing Valley Christian Center and associated land use entitlements.

## 2.2 Lead Agency

The City of Dublin is the lead agency for preparation of the EIR, as defined by Section 21067 of CEQA. This means that the City of Dublin is designated as the public agency which has the principal responsibility for approving or carrying out the proposed project and for assessing likely environmental effects of the proposal.

Preparation of this EIR is in accord with CEQA, including all amendments thereto, and CEQA Guidelines for Implementation of the California Environmental Quality Act.

Methodologies used for determining standards of significance for each impact category analyzed in the EIR are based on CEQA Guidelines and are described in Section 4 of this DEIR. By applying appropriate significance criteria, impacts under each environmental topic have been categorized as either "significant" or "less than significant." Methods used to determine the level of significance of potential impacts vary depending on the environmental topic, as described in the individual subsections.

## 2.4 Topics Not Addressed in the EIR

The following environmental topics have been deemed not to have a potential for significant environmental impacts and therefore are not addressed in this document.

- Agricultural Resources: The project site is located in an urbanized area, has not been used for agricultural production and is not encumbered by a Williamson Act Land Conservation Agreement.

- Energy and Mineral Resources: New construction would be built to the most recent building codes and standards to ensure maximum conservation of energy resources. No unusual quantities of energy or mineral resources are anticipated to be needed.

- Hazardous Materials: The site has been vacant or used for grazing for a number of years. No significant use, handling, transport or storage of hazardous materials other than normal and customary quantities of cleaning solvents and lawn and garden supplies are anticipated.

## 2.5 Content and Organization of the Document

Sections 15122 through 15132 of the CEQA Guidelines describe the content requirements of EIRs. EIRs must include:

- a description of the proposed project, including objectives to be achieved by the project;
- a description of existing environmental conditions;
- an analysis of the anticipated impacts on the environment should the project be built or carried out as proposed;
- feasible measures which can be taken by the proponent or the City to lessen or mitigate identified environmental impacts;
- project alternatives, including the "no project" alternative;
- significant irreversible environmental changes;
- growth inducing impacts;
- cumulative impacts, including environmental impacts of the proposed project viewed over time in conjunction with related past, present and reasonably foreseeable probable future projects whose potential impacts may compound or interrelate with the proposed project.

## 2.6 Notice of Preparation

The City of Dublin has completed a Notice of Preparation (NOP) for the proposed project and has circulated the NOP to all Responsible Agencies, other public agencies and interested citizens as required by CEQA. Copies of the NOP and responses received by the Lead Agency during the NOP review period are included within the appendix of this document (Appendices 8.1 and 8.2).

### 3.1 Project Location and Context

Exhibit 1 shows the location of Dublin in relation to surrounding communities and other major features. Exhibit 2 depicts the location of the proposed project area in relationship to major community features, nearby streets and freeways.

The proposed project area is located within the westerly portion of Dublin (see Exhibit 2) and contains approximately 54 acres of land in a general rectangular configuration. Portions of the site has been graded and currently accommodate existing uses, which are described more fully below.

The site is located north of the I-580 freeway and Dublin Boulevard and west of the terminus of Betlan Drive. The address of Valley Christian Church is 7500 Inspiration Drive. Assessors Parcel Numbers for the site include 941-0022-002-06 & -07.

### 3.2 Site History

Valley Christian Center was approved under a Conditional Use Permit granted by Alameda County in 1978, prior to the incorporation of the area by Dublin in 1982 (source: City of Dublin Planning Commission staff report 8/11/98). Subsequent approvals were granted on the site by the City, the most notable being approval of the elementary school in 1994. A playfield expansion was allowed by the City in 1995. In 1998, the City granted Site Development Review approval to locate two temporary classrooms on the property.

At the present time, the following buildings exist on the campus:

- Sanctuary/Fellowship Hall building (including pre-school/day care uses) with 550 sanctuary seats (14,400 square feet);
- Pre-school building serving 100 students (10,000 square feet);
- Junior/Senior high school serving 450 students (one building of 8,800 square feet, one building of 32,600 square feet);
- Elementary School serving 750 students (52,500 square feet).

Existing buildings on the site total 118,300 square feet. The site also contains 510 surface parking spaces, a turfed sports playfield and an asphalt play area that also serves as an overflow parking lot.

### 3.3 Project Description

*Proposed development program*

The proposed project includes approval of a development program for Valley Christian Center to allow the following uses:

- Expansion of existing building area on the site to include 90,000 additional square feet to the sanctuary (increasing the seating capacity to 2,000), pre-school, fellowship hall and administration building (anticipated to be 3 story construction), an additional 1,000 square feet to another pre-school facility (1 story), construction of a 45,000 square feet junior and senior high school administration building (3 stories) , construction of a new 15,000 sports building (2 stories), construction of a new 30,000 square foot senior activity center (2 stories) and construction of a 6,000 square foot chapel building (2 stories). With the exception of the chapel, which would be sited on the easterly portion of the site, new and expanded uses described above would be constructed adjacent to existing uses and buildings on the project site.
- Construction of 22 multi-family dwelling units on the northwest corner of Dublin Boulevard and Inspiration Drive. No specific design has yet been proposed for the residential component of the project. Dwelling units would be sold at market-rate prices.
- New parking areas are proposed to be constructed along the west side of Inspiration Drive near existing parking areas.
- With one exception, no new identification signs are proposed as part of this project. The one exception is the addition of a LED-readout changeable message sign proposed to located on the south side of the school administration building. The sign would be mounted against the building and would measure 12 feet wide by 30 inches tall. The actual lighted portion of the sign would be less than this.

The proposed development plan is intended to describe the ultimate development configuration on the site. The precise location and design of individual buildings are subject to additional review by the City of Dublin as part of future Site Development Review (SDR) applications, however, the City will require that the maximum amount of development as identified in this EIR not be exceeded.

Exhibit 3 shows the proposed Stage 1 and Stage 2 Development Plan for the project.

Activities envisioned within the expanded campus include church worship services presently occurring at 9 am and 10:45 am on Sundays (no mid-week services are planned), weddings, funerals, group activities, concerts, conferences, child and adult day care and pre-school, adult day care, private educational activities (K-12, music school and bible school), book and media sales, outdoor sports activities, senior living services, including Alzheimer care. Temporary uses, including but not limited to crafts fairs, Christmas tree sales, school carnivals, fireworks sales and similar uses would also occur. Many of these activities are presently on-going and would be expanded under this development proposal.

Under the proposed expansion, the number of people at the site would increase for various activities as follows:

**Table 2. On-Site Populations**

| Activity | Existing | Proposed (build out) |
|---|---|---|
| Worship Services | 550 | 2,000 |
| Pre-school | 100 | No change |
| Elementary School (K-6) | 750 | No change |
| Junior/Senior High (7-12) | 450 | 650 |
| Church admin. Staff | 25 | 35 |
| School staff | 145 | 155 |

Source: Project Applicant

No new worship service days or times are proposed from the existing schedule.

*Site access and parking*
Primary vehicular access to the project area would continue to be provided from Dublin Boulevard to Inspiration Drive. Three existing driveways along the west side of Inspiration Drive would continue to be used. Secondary site accesses would also continue to be provided north of the site, along Inspiration Circle to Bay Laurel Street, which connects to Silvergate Drive and ultimately to Dublin Boulevard and San Ramon Road.

A total of 540 surface parking spaces presently exist on the site, located along the westerly side of Inspiration Drive along the site frontage. Overflow parking has been provided on the asphalt play area on the west side of the site.

An additional 230 surface parking spaces are proposed to be on the site in close proximity to existing parking areas.

Parking for the proposed use is described more fully in Section 4.10, Traffic and Circulation.

*Landscaping*
A Master Landscape Plan has been prepared as part of the application. Under this plan, existing landscaping would remain. New plantings of California Live Oak and redwood trees would occur along the easterly property line to assist in screening the site from areas to the east. Similar buffer plantings would occur on the north side of the site, just east of Inspiration Drive. New landscaping would also occur adjacent to the proposed chapel building, the senior activity building within the proposed parking area and adjacent to other proposed buildings on the site.

*Grading and utilities*
The project has been graded to accommodate existing structures and uses as well as Inspiration Drive. According to the applicant, only minor amounts of grading would be needed as part of the proposed development program to expand existing buildings, add parking lot areas and construct the proposed chapel and senior center. Minor grading would also be needed for the proposed housing units on the northwest corner of Dublin Boulevard and Inspiration Drive.

Existing buildings and uses are served by water, sewer, natural gas and electrical power services. Additional connections may be needed to supply increased quantities of water and sewage generation. This topic is described more fully in Section 4.11, Utilities and Community facilities.

*Phasing*
The proposed expansion would not be constructed at one time. Phasing information as supplied by the project applicant is shown on Exhibit 4.

*Land use entitlements*
The following land use entitlements are requested of the City of Dublin in order to assist in implementing the Valley Christian Center development program.

*General Plan Amendment*
A General Plan Amendment is being requested for approximately 1.3 acres of the site located on the northwest corner of Dublin Boulevard and Inspiration Drive to accommodate the residential component of the proposed project. The Existing General Plan land use designation for this portion of the site is ""Public/Semi-Public," which allows limited residential uses with approval of a PD-Planned Development rezoning. The proposed land use designation is "Medium-High Density Residential," which permits residential development within a range of 14.1 to 25 units per acre. The density of the proposed residential component of the project would be 17 units per gross acre, which is less than the mid-point density (19.5 units/acre).

Exhibit 5 depicts the proposed General Plan Amendment area.

The proposed General Plan Amendment must be acted upon by the Dublin City Council following a recommendation made at a public hearing by the Planning Commission.

*Stage 1 and Stage 2 PD-Planned Development Rezoning*
The applicants have requested both a Stage 1 and Stage 2 PD-Planned Development to rezone the site from the existing A-Agricultural zoning district. This rezoning is being pursued under the "Planned Development" Zoning District of the Dublin Zoning Ordinance (Chapter 8.32). The purpose of the Planned Development zoning district is to create a more desirable use of the land and a more coordinated development than would otherwise be possible under a single zoning district.

The Zoning Ordinance differentiates between a Stage 1 PD and a Stage 2 PD in that the information required for a Stage 1 Planned Development rezoning is more general than the information required for a Stage 2 Planned Development action. A Stage 1 Planned Development application requires basic information about proposed land uses and densities, maximum amount of development proposed, a phasing plan, a master landscape plan and statements requiring consistency with the General Plan and any applicable Specific Plan.

Stage 2 Planned Development rezoning requests must be accompanied by all of the Stage 1 information plus development regulations, architectural standards and other more detailed information.

Under the Zoning Ordinance, a Planned Development must receive both Stage 1 and Stage 2 approvals. These can be done simultaneously or sequentially.

For the Valley Christian Center, the applicants have requested both Stage 1 and Stage 2 Planned Development approvals for the 37 acres located in the approximate center of the site which is the location of the proposed expansion of the church and school facilities.

A Stage 1 Planned Development approval has also been requested for the 1.3 acre proposed residential portion of the site and the 12.3 acres of the site located on the east side of Inspiration Drive. Subsequent Stage 2 Planned Development rezonings must be approved for these two portions of the site prior to any future development in this area.

Assuming that all of the rezoning requests are approved by the City, all new buildings will be subject to Site Development Review (SDR) approvals by the Planning Commission. Specific site plans, building elevations, parking and access configurations, detailed landscaping and similar detailed project information will be addressed at this stage of project review.

Approval of the Planned Development rezonings requires action by the City Council based on a recommendation of the Planning Commission. Public hearings are required by both bodies.

*Tentative Subdivision Map*

The applicant has submitted a request to subdivide the 57-acre site into three smaller parcels as shown on Exhibit 6. Parcel 1 would be the largest parcel with 37.06 acres and would include all existing improvements associated with Valley Christian Center. Parcel A conforms to the boundary of the Stage 1 and Stage 2 Planned Development rezoning request.

Parcel B, to consist of 1.39 acres of land, is located on the northwest corner of Dublin Boulevard and Inspiration Drive. This parcel conforms to the requested General Plan

Amendment and Stage 1 Planned Development area for future residential use.

Parcel C 1 would be located on the east side of Inspiration Drive and would contain 12.71 acres of land. This area has been included in the application for master planning purposes but no specific land uses have yet been identified for this parcel.

The Tentative Subdivision Map will be acted upon at a public hearing by the Planning Commission.

If the above entitlements are granted by the City of Dublin, the applicants will be required to obtain other permits and entitlements prior to commencing construction. These include:

- Stage 2 PD-Planned Development rezonings for Parcels B and C of the Tentative Subdivision Map.
- Site Development Reviews (SDRs) for all new buildings.
- A Final Subdivision Map.
- A Notice of Intent from the State Water Resources Control Board.
- Building grading and encroachment permits.
- Additional sewer and water connections from the Dublin San Ramon Services District.
- Permits and approvals from U.S. Army Corps of Engineers, California Department of Fish and Game and Regional Water Quality Control Board for on-site wetlands.

### 3.3 Project Objectives

Objectives to be achieved through the approval and development of the project include:

1) To allow the continued buildout of the Valley Christian Center by 187,000 square feet of floor area as a place of worship as well as an educational and social service provider in the community.
2) To provide 22 units of medium density housing on the site.
3) To provide for new land uses that are generally compatible in scale, design and character with existing buildings on the site.
4) To incorporate additional landscaping on the site to assisting in buffering and screening new buildings.
5) To allow for the subdivision of the project site consistent with the level of requested land use entitlements.

### 3.4 Actions Addressed in EIR

Specific actions addressed in this Environmental Impact Report include:

1) Certification of the EIR.
2) Consideration of a General Plan Amendment to change land use designations from "Public/Semi-Public" to "Medium Density Residential" for a 1.39-acre portion of the project site.
3) Consideration of Stage 1 and Stage 2 PD-Planned Development Rezoning for 37 acres of the site adjacent to existing uses.
4) Consideration of a Stage 1 PD-Planned Development rezoning for two smaller portions of the site, one consisting of the 1.3-acre proposed residential site, the second to include 12.71 acres of land on the east side of Inspiration Drive for which no development is presently proposed.
5) Consideration of a Tentative Subdivision Map for the site, to create three smaller parcels.

Future environmental reviews for subsequent portions of the project will not be required, so long as the City of Dublin determines that such projects are consistent with the scope of the project reviewed in this EIR.

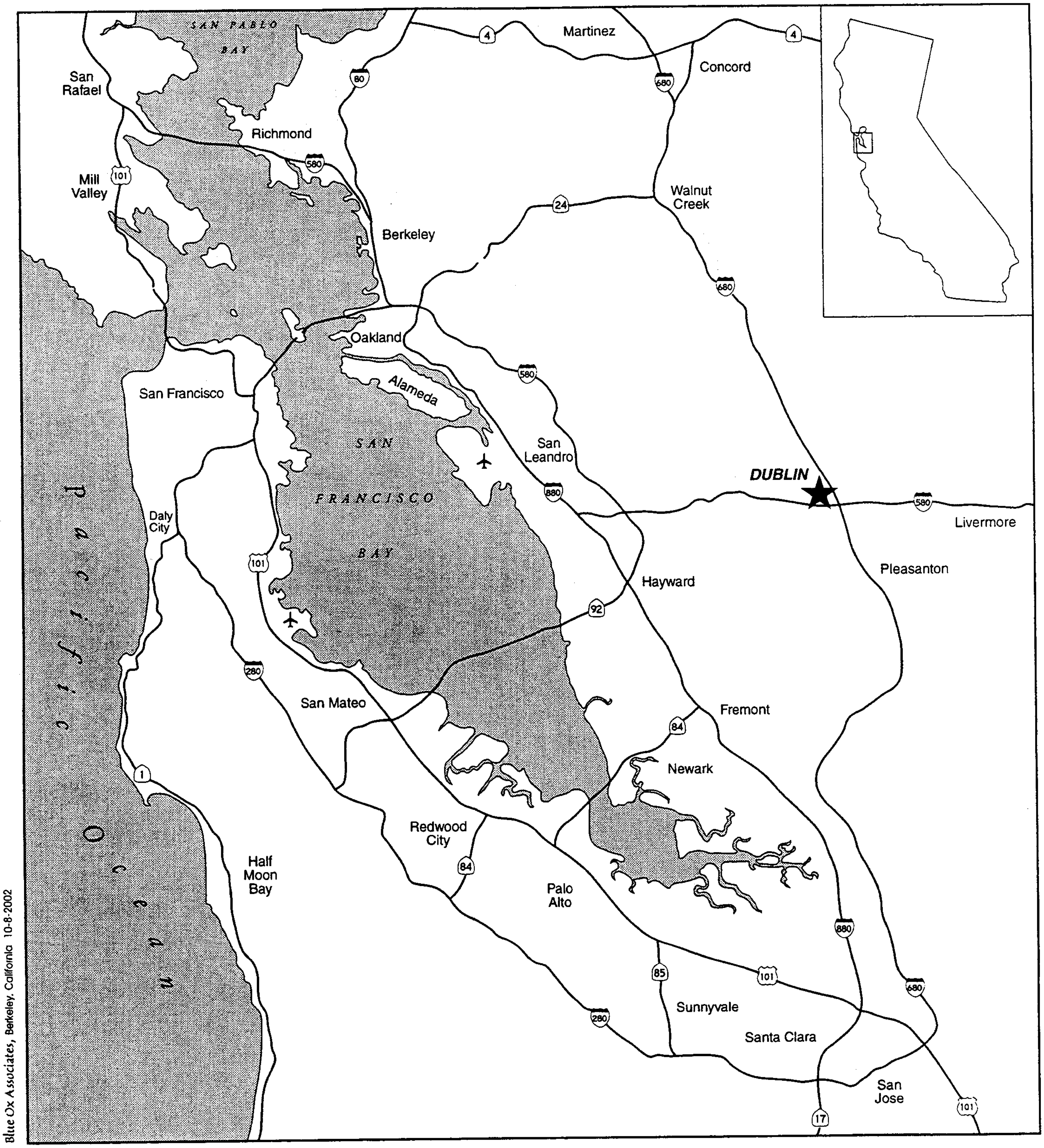



Exhibit 1

**REGIONAL LOCATION**

0 2 4 6 8 10 miles

N

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

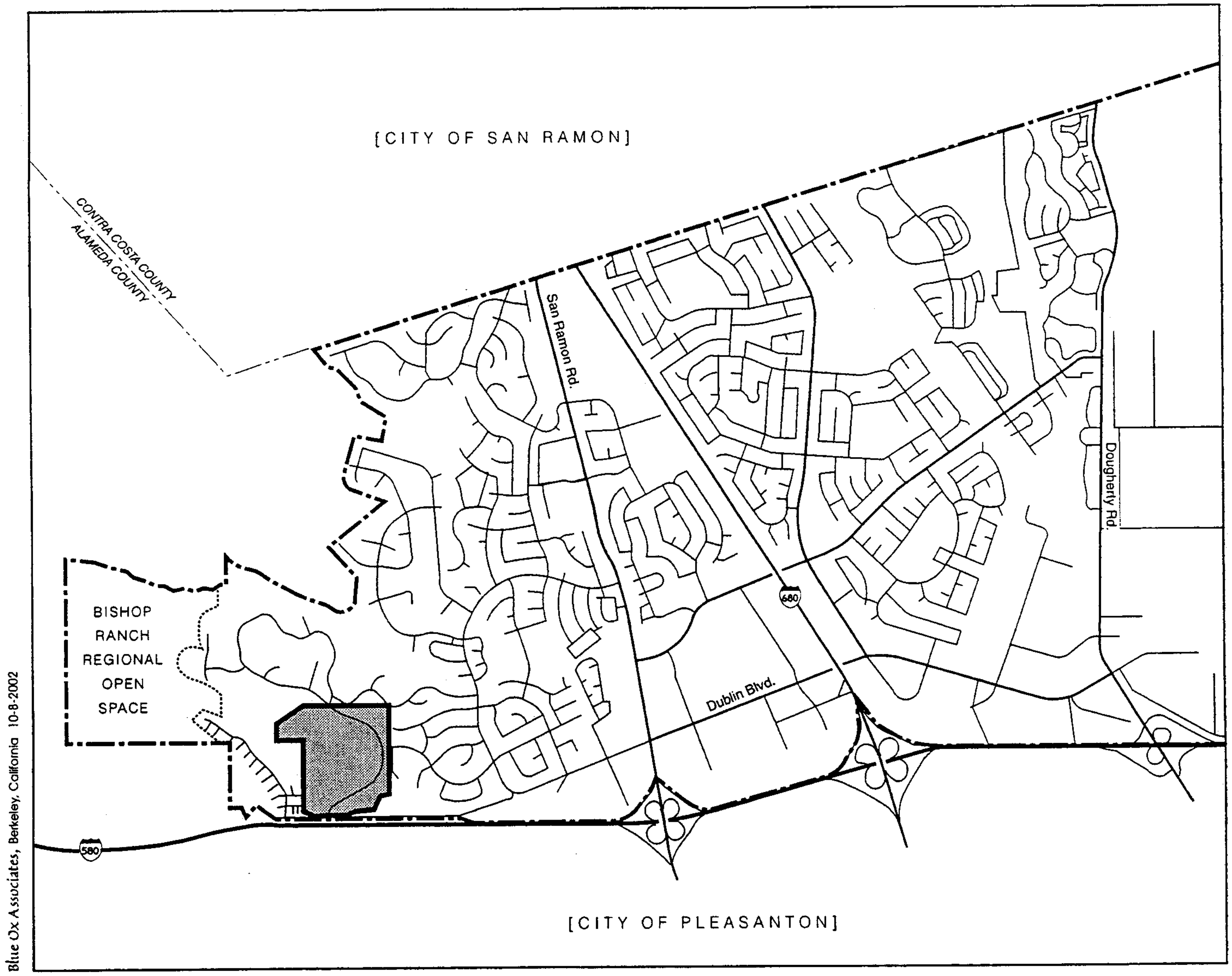
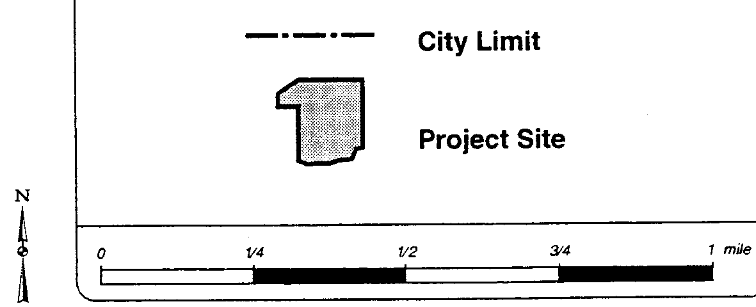
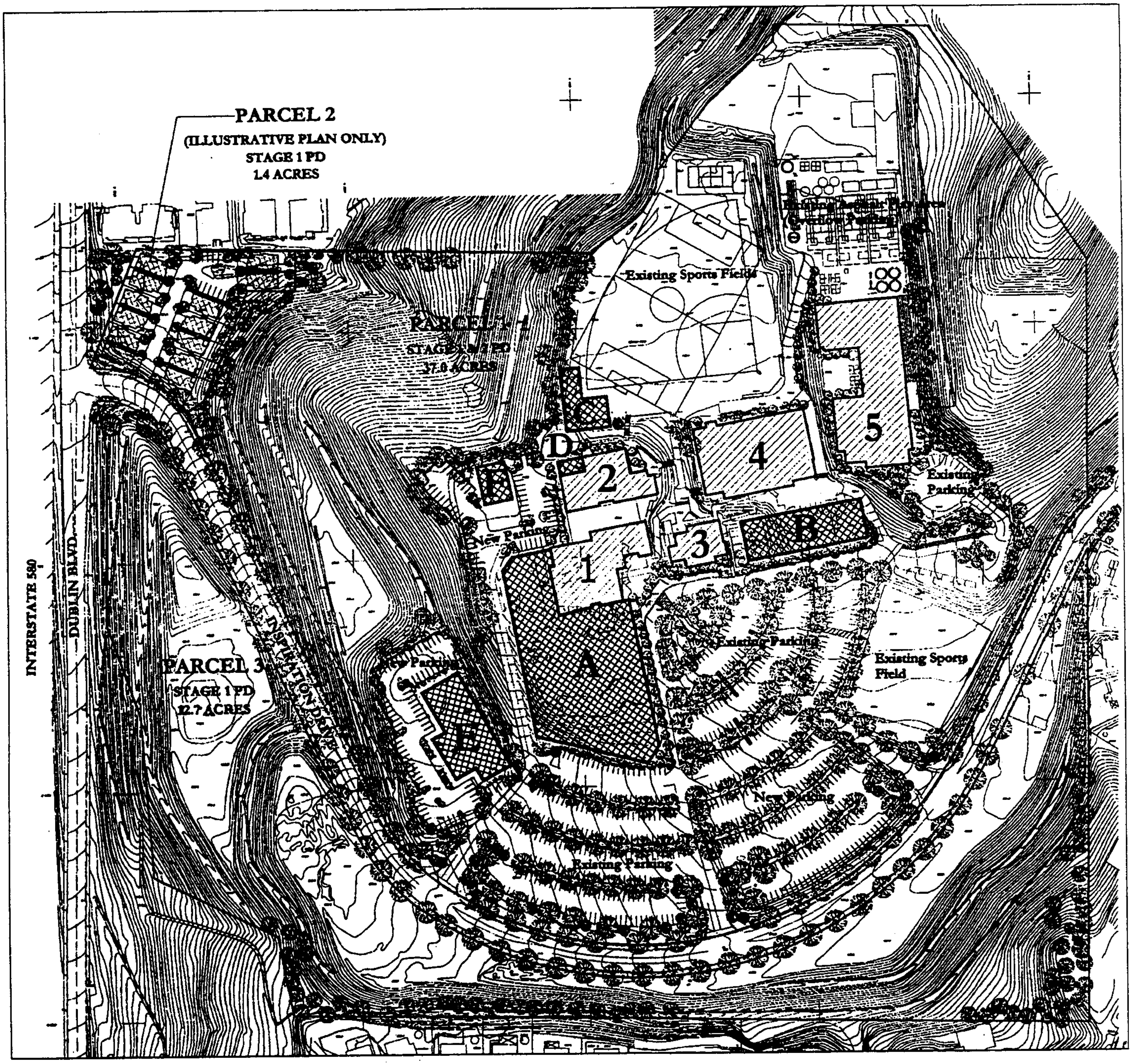



**Exhibit 2**

**PROJECT CONTEXT WITHIN CITY OF DUBLIN**




**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**




SOURCE: *Loving & Campos Architects Inc., 12/7/2001, rev. 7-26-2002.*

**Exhibit 3**

**PROPOSED DEVELOPMENT PLAN, STAGE 1 AND STAGE 2**

| | |
|---|---|
| A, 1 | Sanctuary, Pre-school/Day Care, Fellowship Hall, Admin. |
| D, 2 | Pre-school / Day Care |
| 3 | Jr./Sr. High School |
| 4 | Jr./Sr. High School |
| 5 | Elementary School |
| B | Jr./Sr. High School Administration |
| C | Sports |
| E | Senior Center, Counseling, Club/Activity Center |
| F | Chapel |

N

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**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

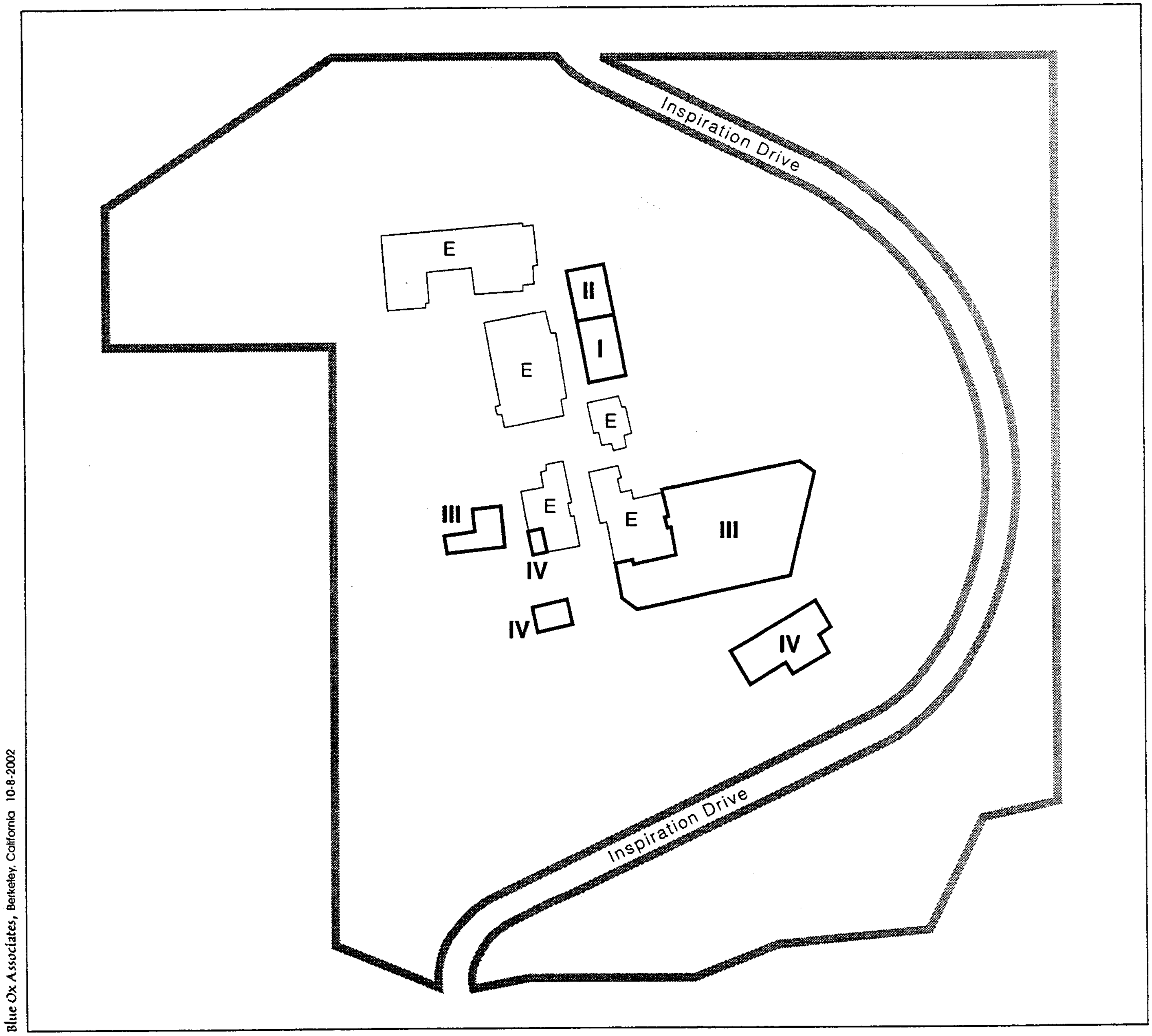


**Exhibit 4**

## PROPOSED PHASING PLAN

| | |
|---|---|
| Phase I | 2001 - 2003 |
| Phase II | 2004 - 2007 |
| Phase III | 2006 - 2012 |
| Phase IV | 2010 - 2020 |
| E | Existing Building |

Site Boundary

0 250 500 feet

N

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**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

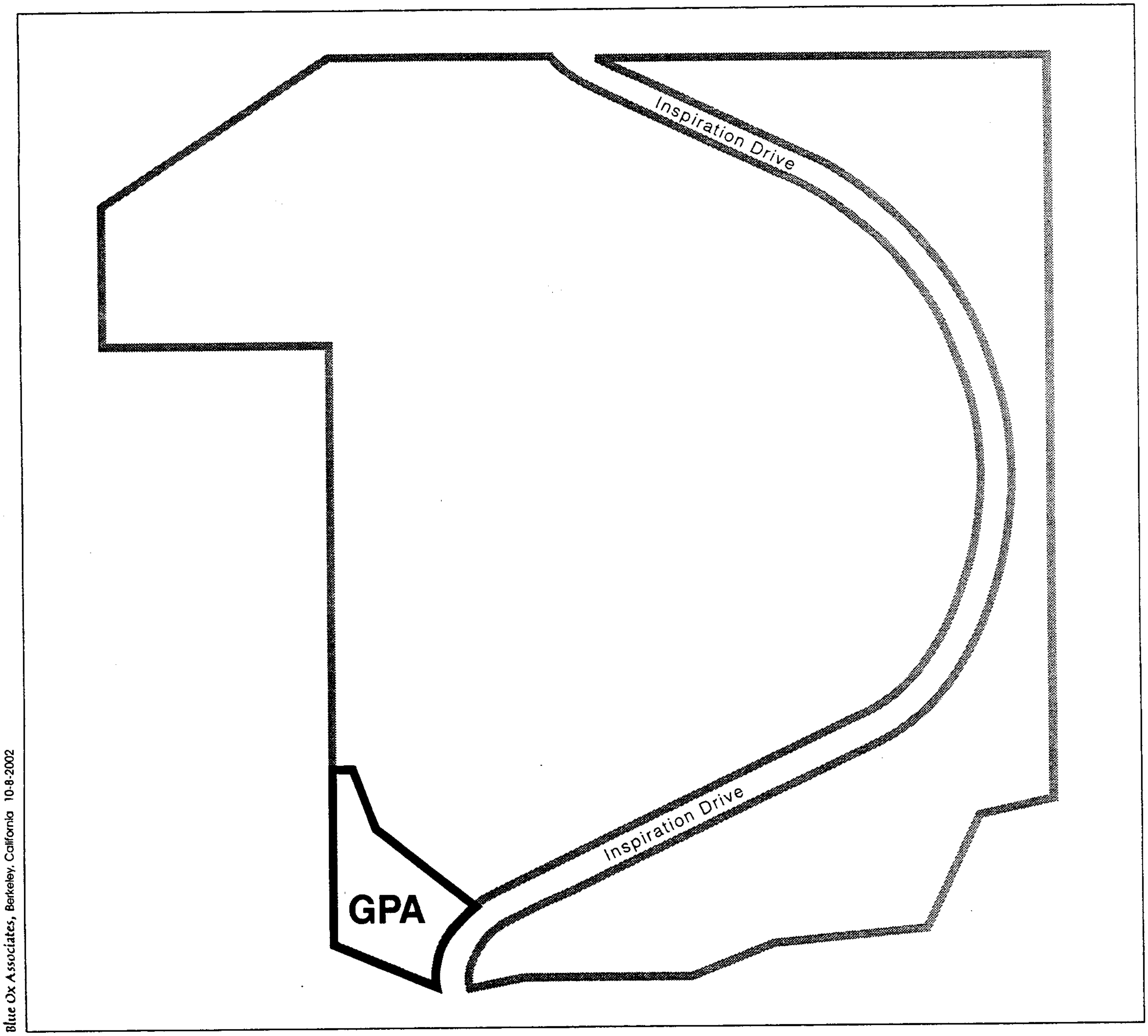


**Exhibit 5**

**PROPOSED GENERAL PLAN AMENDMENT (GPA)**

Site Boundary

0 250 500 feet

N

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**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

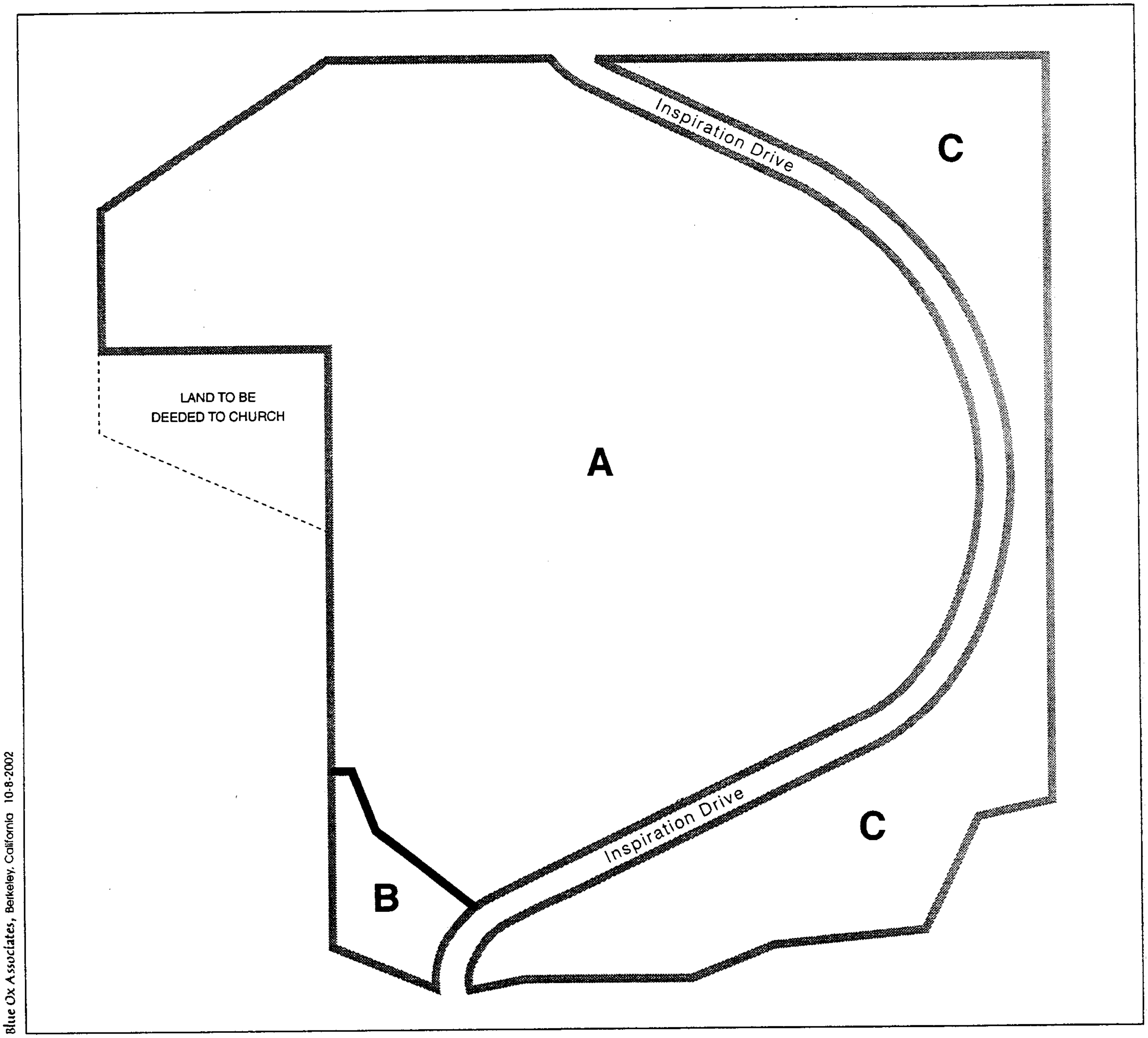



**Exhibit 6**

## TENTATIVE PARCELIZATION

| | | |
|---|---|---|
| Parcel A | 1,614,455 sq.ft. | (37.06 ac) |
| Parcel B | 60,725 sq.ft. | (1.39 ac) |
| Parcel C | 553,510 sq.ft. | (12.71 ac) |
| TOTAL | 2,228,750 sq.ft. | (50.17 ac) |

Site Boundary

0 250 500 feet

N

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

**Topics Addressed in the DEIR**
This section of the DEIR identifies specific environmental areas which may be affected as a result of the implementation of the proposed project. The impact areas are discussed individually in subsections 4.1 through 4.13:

4.1 Aesthetics and Light and Glare
4.2 Air Quality
4.3 Biological Resources
4.4 Cultural Resources
4.5 Geology and Soils
4.6 Water and Hydrology
4.7 Land Use
4.8 Noise
4.9 Population and Housing
4.10 Transportation and Circulation
4.11 Utilities and Public Services
4.12 Parks and Recreation

Each topic area is covered in the following manner:

A. <u>Environmental Issues</u>
An overview of issues related to the topic area.

B. <u>Environmental Setting</u>
A discussion of existing conditions, facilities, services and general environmental conditions on and around the project sites.

C. <u>Environmental Impacts</u>
An identification and evaluation of potential impacts on the environment, should the project be constructed as proposed. Standards of environmental significance will also be listed which set forth the basis on which the identification of environmental impacts will be made. Standards of significance for this DEIR are based on such standards listed in the California Environmental Quality Act.

Environmental impacts addressed in this document include the following:

- Potentially significant impact, which means that the identified impact would exceed the environmental standards of significance. In some instances, impacts may be positive rather than adverse.
- Beneficial impact, where implementation of the proposed project would

result in improved environmental conditions.

- Less-than-significant impact, which means that although an impact could be considered significant, it would not exceed the minimum environmental thresholds of significance.
- No impact, means that no environmental impact would be expected for a particular environmental topic.

D. Mitigation Measures and Impacts After Mitigation

An identification of specific efforts and measures which can be incorporated into the project to reduce identified environmental impacts to a level of insignificance.

## 4.1 AESTHETICS AND LIGHT AND GLARE

### ENVIRONMENTAL ISSUES

Visual impacts would include obstruction of views and vistas or the creation of an aesthetically offensive view to the public. The potential effects of new light and glare sources are also addressed.

### ENVIRONMENTAL SETTING

*Existing landforms*
The project site is located on a large knoll within western Dublin, overlooking central Dublin to the west and portions of Pleasanton to the south. The site is characterized by steeply sloping hillsides facing Dublin Boulevard and the I-580 freeway and properties to the east. Existing topographic elevations range from a low of approximately 550 feet above sea level to a height of approximately 830 feet at the top of a small knoll at the very northerly portion of the site.

The project site was previously graded to create the roadbed for Inspiration Drive that provides access to existing improvements on the site. Grading has also occurred to accommodate existing buildings, parking areas and outdoor playfields, as described in Section 3.2, Site History. Other portions of the site, including the hillside that forms the easterly boundary of the site, a small knoll on the north side of the site and portions of the southwest portion of the site, remain in a natural, ungraded condition.

*Built environment*
Development has occurred on the site to accommodate existing operations associated with Valley Christian Center. Development is located in the approximate center of the site and includes an existing sanctuary building, a preschool building, school buildings, paved parking areas and sports fields. Existing buildings include a mix of two and three story buildings of recent construction.

*Views and vistas*
Views of the project site are shown on Exhibit 7a through c. These Exhibits show existing views with proposed construction of new facilities superimposed on the site. The impact of the proposed project on views and vistas will be discussed later in this section of the DEIR.

Portions of the project are visible from downtown Dublin (Dublin Boulevard at Golden Gate Drive) as shown on Exhibit 7a. However, many of the existing buildings on the project site are obscured by buildings in the downtown area or mature trees planted along major streets or within parking lots.

Exhibit 7b shows a view of the site taken from the eastbound lane of the I-580 freeway just west of the project site. Low rooflines of existing buildings are visible.

Exhibit 8c shows the project site from the northwest corner of Dublin Boulevard and Inspiration Drive, which is currently vacant.

*Light and glare*
There are existing sources of light on the project site, including street lights along Inspiration Drive, within parking areas and lights on existing buildings and nearby pathways. Outdoor playfields are not presently lighted, according to the applicant's representative.

*Regulatory framework*
The aesthetic appearance of new buildings and related improvements within the Valley Christian Center site is regulated by Chapter 8.104 of the Dublin Zoning Ordinance, Site Development Review. The Site Development Review (SDR) process has been established by the City of Dublin to promote orderly, attractive and harmonious development for new development projects that are compatible with surrounding properties and neighborhoods. Adopted Site Development Review Guidelines are used to guide SDR applications. The SDR process also allows the City to ensure compliance with all development regulations and requirements established in the Zoning Ordinance.

Pursuant to the SDR process, proposed buildings and structures are reviewed by either the City of Dublin Community Development Director (if no other discretionary permits are being sought) or the Dublin Planning Commission (in conjunction with other discretionary permits). Findings must be made prior to any SDR approval, as specified in Section 8.104.070 of the Zoning Ordinance. Required Findings include consistency with the General Plan, consistency with any applicable Specific Plan, impacts to views, impacts to existing slopes and topographic features, and architectural considerations.

The City has adopted Site Development Review Guidelines (1992) that are used to guide SDR applications. The guidelines provide criteria for evaluating the quality of the project's site planning and landscape design, and also important details such as signage and lighting. The intent is to insure that development will make a conscientious effort toward a compatible relationship with the natural setting, neighboring properties and community design goals.

The Circulation and Scenic Highways Element of the Dublin General Plan identifies the I-580 freeway as a Scenic Highway, since this thoroughfare was adopted as a Scenic Highway by Alameda County in 1966 (prior to the incorporation of Dublin in 1982).

The text of the Scenic Highways Element states that:" [Scenic Highways] are the routes from which people traveling through Dublin gain their impression of the City; therefore, it is important that the quality of views be protected."

Guiding Policy A of Section 5.6 of the Scenic Highways Element requires the City to "Incorporate County-designated scenic routes, and the proposed Fallon Road extension, in the General Plan as adopted scenic routes, and work to enhance a positive image of Dublin as seen by through travelers." Additionally, the City has adopted the County policies by reference in the Element.

The Scenic Route Element of the Alameda County General Plan (adopted 1966, updated in May, 1994) identifies the I-580 Freeway through Dublin as part of the County Scenic Route Plan. The table on page 17 of the Element includes a maximum width of 500 feet from the edge of the scenic highway as the maximum width of scenic corridors within suburban areas, such as the project site.

One of the Scenic Corridor Development standards included in the Element is:

- In corridors along scenic routes with outstanding distant views above the roadbed, no building structure of more than one story in height should be permitted where it would obstruct views, excepting within and immediately adjacent to central business locations (p. 18).

## STANDARDS OF SIGNIFICANCE

The following standards of significance are used to assess potential environmental impacts related to view obstruction, aesthetics and light and glare in accordance with the CEQA Guidelines. If one of the following conditions occur, a significant impact is assumed to result.

- Be incompatible with the scale or visual character of the surrounding area;
- Eliminate or substantially alter significant visual features, view corridors or public vista points;
- Result in substantial alteration of natural landforms;
- Create significant new sources light and glare in the project vicinity.

## ENVIRONMENTAL IMPACTS

*Aesthetic conditions and views*
Construction of the proposed project would add new building massing within and along the periphery of the existing Valley Christian Center complex. Exhibits 7a-c show proposed bulk and mass of the proposed expansion plan and is not intended to depict specific architectural designs, styles, colors or use of materials, since specific designs have not yet been selected by the project applicant.

Exhibit 7a shows a simulation of project construction as may be seen from downtown Dublin. The sanctuary building and other buildings would be visible, however, as noted in the Environmental Setting section, many views of the project site from Downtown Dublin are filtered by existing street trees and buildings. Although visual simulations were not made at freeway bridges or flyovers, it is assumed that the buildings constructed as part of the expanded Valley Christian Center would be more visible from these locations than from downtown, but only for short periods of time due to the speed of traffic. Based on the Standards of Significance, this view would be less-than-significant.

From the I-580 freeway, views of the proposed chapel would be prominent, with a lesser view of the proposed senior center visible over the brow of the ridge (reference Exhibit 7b). Based upon the Standards of Significance, this would be a potentially significant impact since the proposed two-story buildings would be out of scale with surrounding buildings, which are primarily residential in nature. These two proposed buildings would also substantially alter view corridors and public vista points from the adjacent freeway, an identified Scenic Route, since the existing hillsides on the project site are undeveloped. Construction of the proposed building would also substantially alter the existing visual features of the undeveloped hillside and be in conflict with the City's Site Development Review policy that requires building design and architecture to exemplify a sense of proportion to the physical site and surrounding properties.

Construction of the proposed two-story buildings located adjacent to the edge of the existing slope would not be consistent with the intent of the County Scenic Route Element (also adopted by the City of Dublin) or the implementing policy which recommends a limitation of one story construction within scenic corridors.

The final photosimulation (Exhibit 7c) shows the visual impact of constructing the proposed 22-unit residential complex on the northwest corner of Inspiration Drive and Dublin Boulevard. This exhibit shows a highly visible building mass in close proximity to the intersection and, based on the Standards of Significance, would represent a significant visual impact since is would not be in scale with surrounding residential densities.

**<u>Impact 4.1-1 (aesthetics):</u> Construction of the proposed expansion would result in significant impacts with regard to views of the site from the I-580 freeway and from Dublin Boulevard, since new buildings on the periphery of the core complex would be out of scale with existing development in the western Dublin area (*significant impact and mitigation measures required*).**

*Landform and topography*

Minimal amounts of site grading are anticipated to accommodate proposed buildings, parking areas and expanded playing fields. The site was previously graded for existing improvements associated with the facility and only a minor amount of final grading are anticipated as part of the proposed expansion program.

Minor trenching is also anticipated for undergrounding of utilities and building foundations.

Existing knolls and hillsides would not be graded.

**<u>Impact 4.1-2 (landform and topography):</u> No impacts with regard to landform or topographic changes are anticipated with regard to approval and implementation of the proposed expansion plan since grading has already occurred. Minor grading is anticipated for final building pads and trenching for building foundations and utilities (*no impacts and no mitigation required*).**

*Light and glare*
Construction of new buildings and other uses, such as parking areas, would add additional levels of exterior lighting for safety and security purposes.

The project applicant has indicated that although the playing fields located in the northwest corner of the site are not lighted for night use, although lighting of the fields is anticipated in the future. If the playing fields are lighted in the future, this could be a significant impact to surrounding residential neighborhoods, depending on the location and height of light standards, type of light fixtures used and levels of light.

As part of future City Site Development Review (SDR) for individual buildings within the Valley Christian Center, the City will examine proposed lighting plans to ensure that light and glare from new light fixtures will not spill over onto adjacent streets or properties.

Impact 4.1-3 (light and glare): Construction of new buildings and other uses within the Valley Christian Center complex would increase the amount of light and potentially glare due to additional parking lot and building lights. Future lighting of playing fields could result in spillover of unwanted lights on surrounding residential areas (potentially significant impact and mitigation required).

*Sign impacts*
A portion of the proposed project would include the addition of a new LED lighted reader board sign to the west side of the junior/senior high school building (Building 3 on Exhibit 3). The sign would be a 12 feet long by 30 inch cabinet sign used to identify school events. According to the applicant, the intent is to orient the sign towards the parking area for use by campus users and visitors.

The proposed sign would be screened from both Inspiration Drive and from nearby residences since it would be screened by the existing school building. No impacts are anticipated with regard to the proposed sign.

## MITIGATION MEASURES

*Aesthetics and views*
The following mitigation measure is recommended to reduce aesthetic impacts to a less-than-significant level.

Mitigation Measure 4.1-1 (aesthetics and views): **Consideration shall be given during the Site Development Review process to:**

a) **The proposed senior center and chapel buildings should be restricted to one story construction, consistent with the County Scenic Route Element, and set back from the top of slope the distance of the building height to reduce visibility from the I-580 freeway. Consideration should also be given to reducing the apparent heights of the two buildings by designing low rooflines, using earth tone building colors, using non-reflective surfaces and appropriate landscape screening.**

b) **For the residential component of the proposed project, consideration shall be given to providing a greater building setback from the Dublin Boulevard/Inspiration Drive intersection, limiting the buildings on the south side of the complex to a single story , using intensive landscaping on the corner to screen the residences and using earth tone colors and non-reflective surfaces.**

*Light and glare*

Then following mitigation measure is recommended to reduce light and glare impacts to a less-than-significant level.

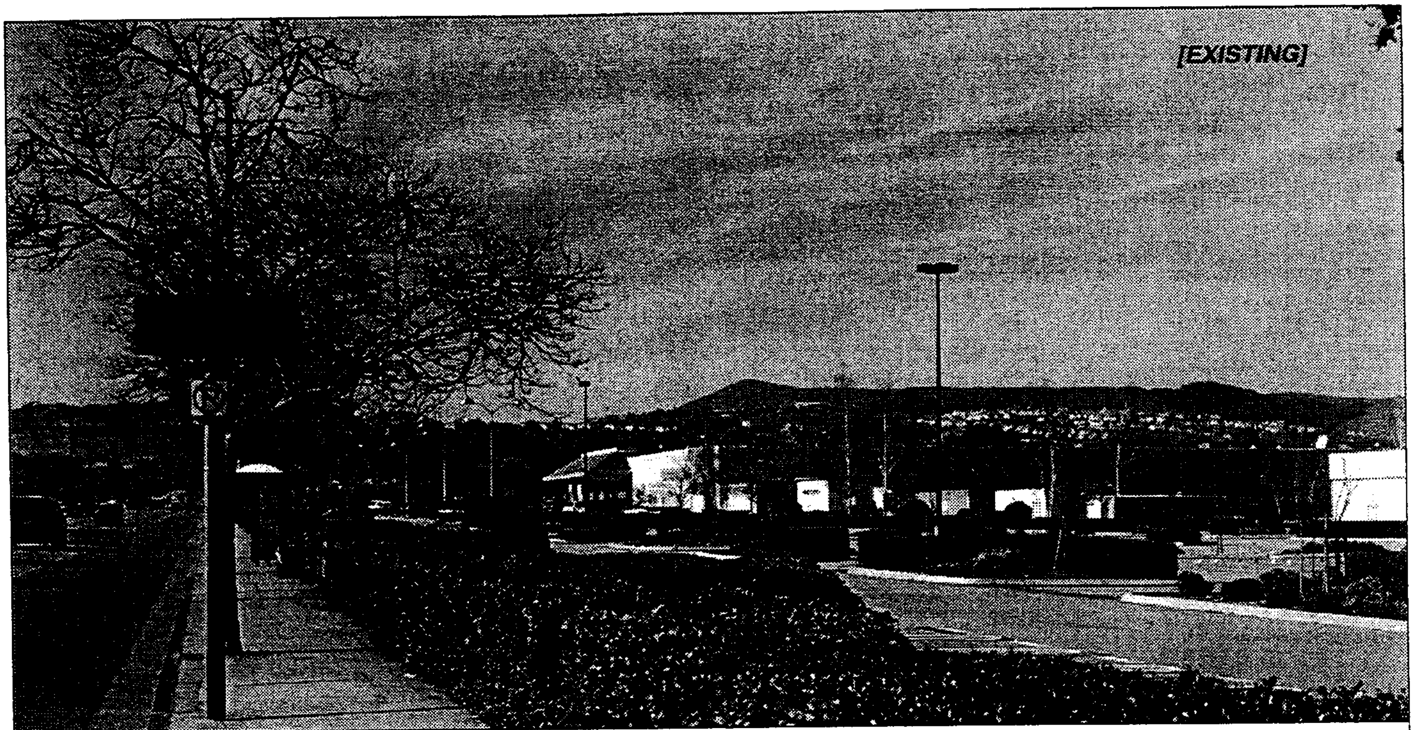
Mitigation Measure 4.1-2 (light and glare): **The following measures shall be taken: the Site Development Review process to:**

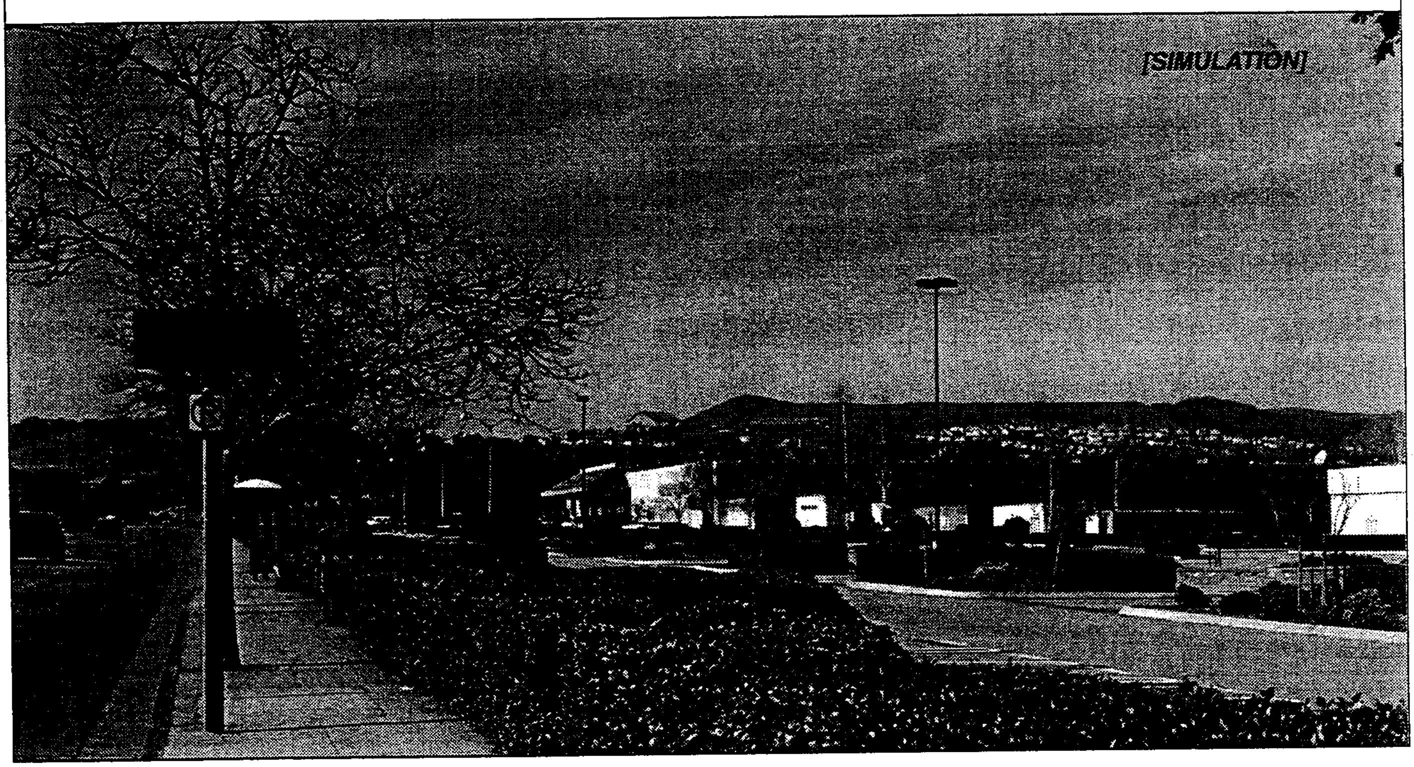
a) **Ensure that all exterior light fixtures be equipped with cut-off lenses, directed downward, and limited in height to the maximum necessary for adequate illumination to minimize excess light and glare.**

b) **Require that any future proposals to light the playing fields be subject to Planning Commission approval following a noticed public hearing.**

## SIGNIFICANCE AFTER MITGATION

Visual impacts would be reduced to a level of less-than-significant after adherence to the mitigation measure.

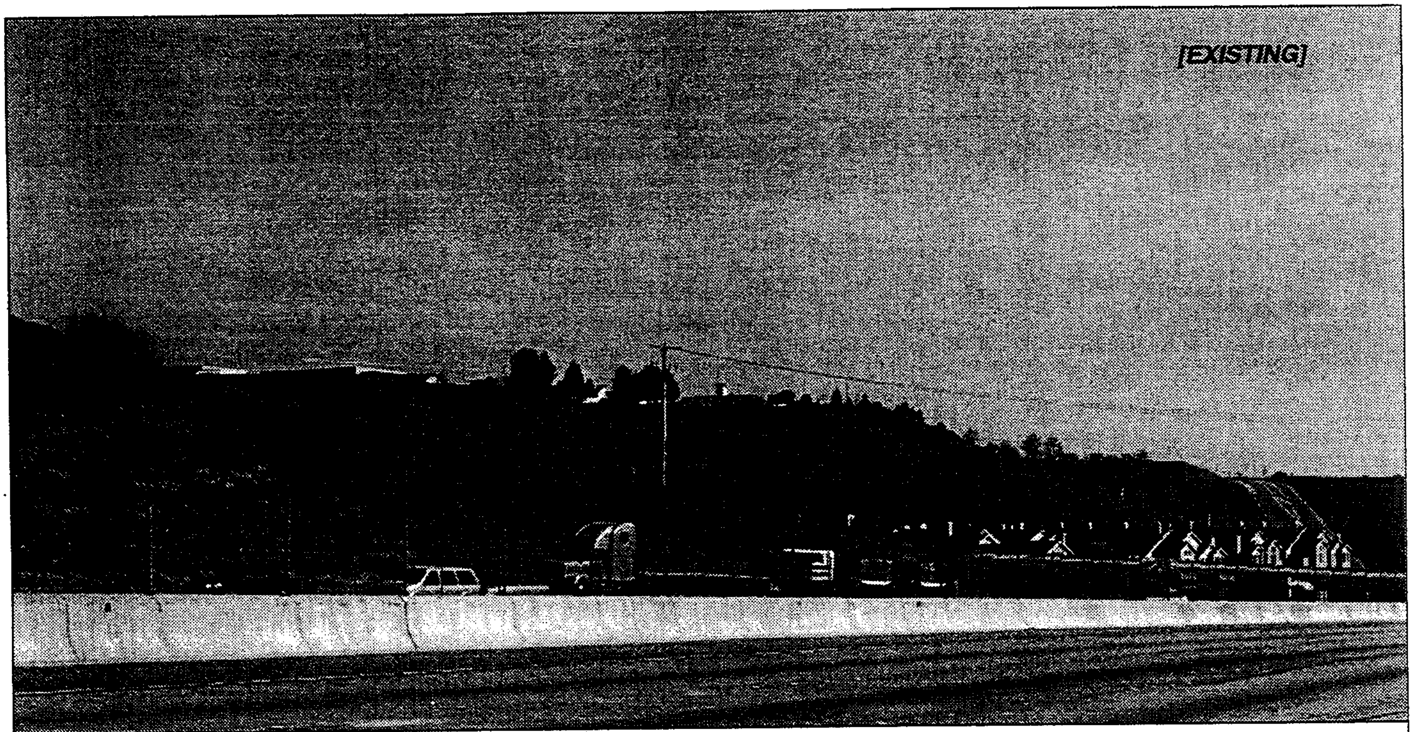


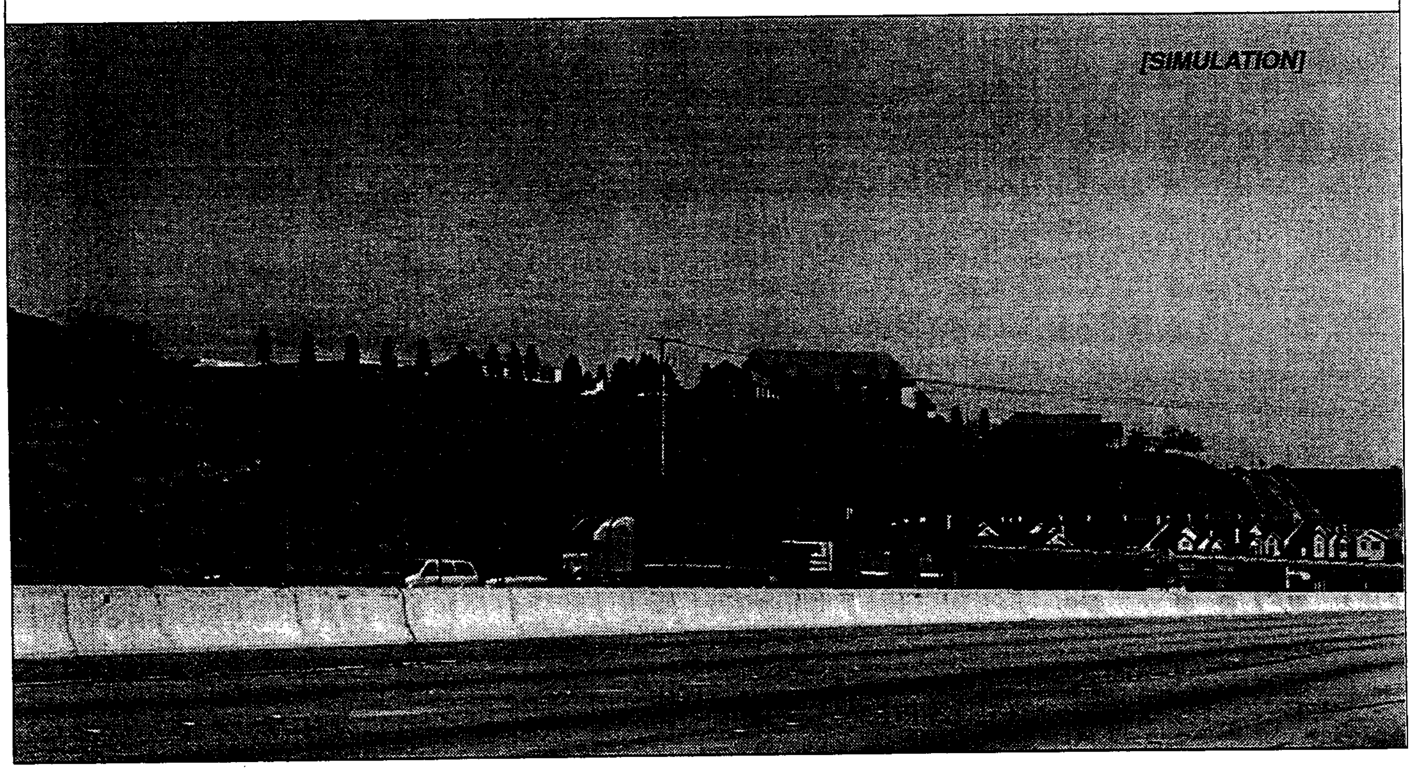




SOURCE: *Environmental Vision, 3/20/2002.*

**Exhibit 7a**

**VIEW FROM THE CORNER OF DUBLIN BLVD. AND GOLDEN GATE, LOOKING WEST**

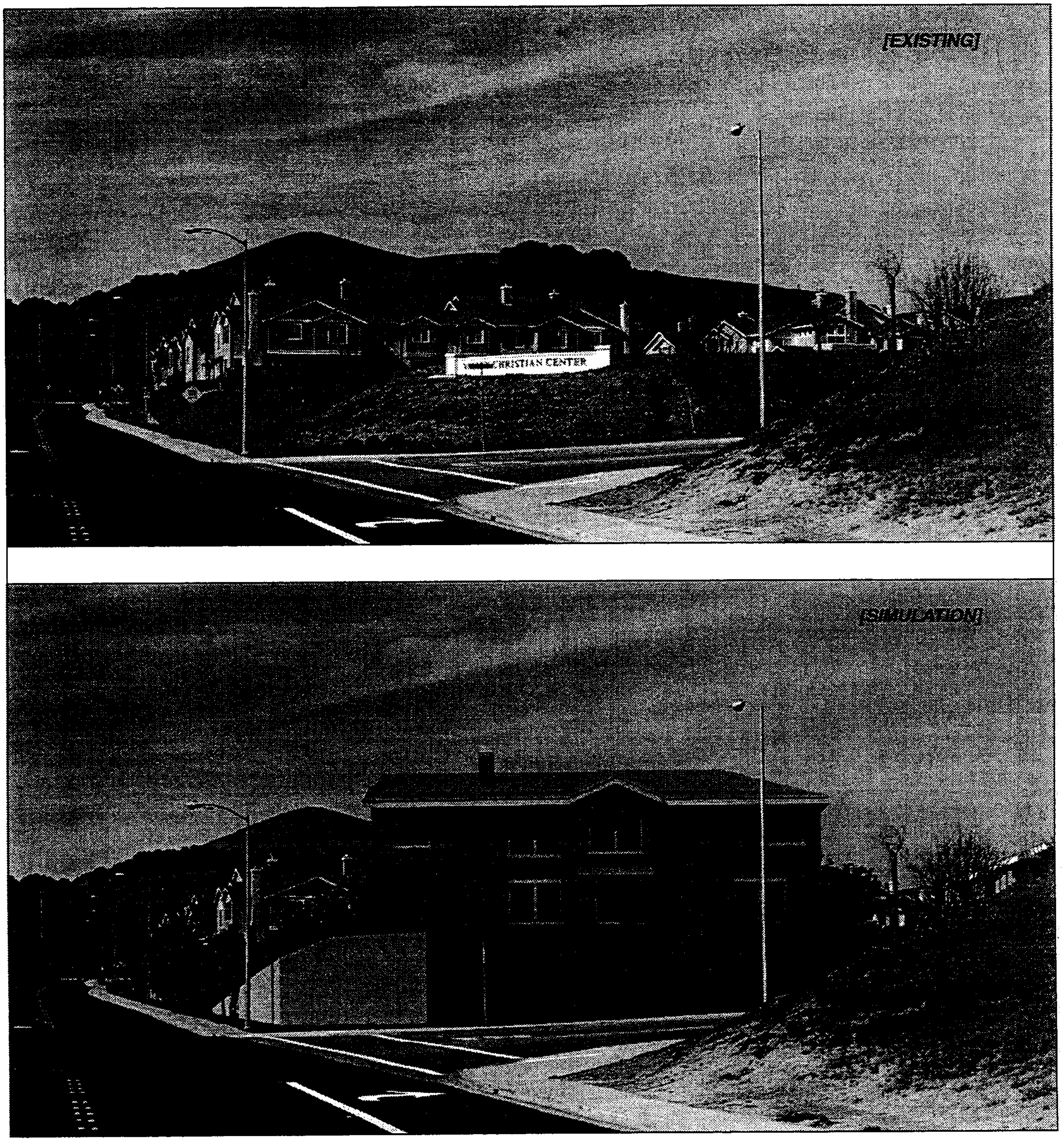



*SOURCE: Environmental Vision, 8/26/2002.*

**Exhibit 7b**

**VIEW FROM I-580, EASTBOUND**




*SOURCE: Environmental Vision, 3/20/2002.*

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

**Exhibit 7c**

**VIEW FROM DUBLIN BLVD., LOOKING WEST**

# 4.2 AIR QUALITY

## ENVIRONMENTAL ISSUES

This EIR section describes the impacts of the proposed project on local and regional air quality.

## ENVIRONMENTAL SETTING

*Air pollution climatology*
The project is within the Amador Valley, a part of the Livermore sub-regional air basin distinct from the larger San Francisco Bay Area Air Basin. The Livermore sub-air basin is surrounded on all sides by high hills or mountains. Significant breaks in the hills surrounding the air basin are Niles Canyon and the San Ramon Valley, which extends northward into Contra Costa County.

The terrain of the Amador Valley influences both the climate and air pollution potential of the sub-regional air basin. As an inland, protected valley, the area has generally lighter winds and a higher frequency of calm conditions when compared to the greater Bay Area.

The occurrence of episodes of high atmospheric stability, known as inversion conditions, severely limits the ability of the atmosphere to disperse pollutants vertically. Inversions can be found during all seasons in the Bay Area, but are particularly prevalent in the summer months when they are present about 90% of the time in both morning and afternoon.

According to the Bay Area Air Quality Management District, air pollution potential is high in the Livermore-Amador Valley, especially for ozone in the summer and fall. High temperatures increase the potential for ozone, and the valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from upwind portions of the greater Bay Area. Transport of pollutants also occurs between the Livermore Valley and the San Joaquin Valley to the east.

During the winter, the sheltering effect of terrain and its inland location results in frequent surface-based inversions. Under these conditions pollutants such as carbon monoxide from automobiles and particulate matter generated by fireplaces and agricultural burning can become concentrated.

*Ambient air quality standards*
Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient

air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 2 (next page) identifies the major criteria pollutants, characteristics, health effects and typical sources.

The federal and California ambient air quality standards are summarized in Table 3 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both federal and state standards are intended to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and PM10.

Table 3. Federal and State Ambient Air Quality Standards

**Table 3. Federal and State Ambient Air Quality Standards**

| **Pollutant** | **Averaging Time** | **Federal Primary Standard** | **State Standard** |
|---|---|---|---|
| Ozone | 1-Hour<br>8-Hour | 0.12 PPM<br>0.08 PPM | 0.09 PPM<br>-- |
| Carbon Monoxide | 8-Hour<br>1-Hour | 9 PPM<br>35 PPM | 9.0 PPM<br>20.0 PPM |
| Nitrogen Dioxide | Annual Average<br>1-Hour | 0.05 PPM<br>-- | --<br>0.25 PPM |
| Sulfur Dioxide | Annual Average<br>24-Hour<br>1-Hour | 0.03 PPM<br>0.14 PPM<br>-- | --<br>0.05 PPM<br>0.25 PPM |
| $PM_{10}$ | Annual Average<br>24-Hour | 50 _g/$m^3$<br>150 _g/$m^3$ | 30 _g/$m^3$<br>50 _g/$m^3$ |
| $PM_{2.5}$ | Annual<br>24-Hour | 15 _g/$m^3$<br>65 _g/$m^3$ | --<br>-- |

PPM = Parts per Million
_g/m3 = Micrograms per Cubic Meter
Source: Donald Ballanti

The U.S. Environmental Protection Agency in 1997 adopted new national air quality standards for ground-level ozone and for fine Particulate Matter. The existing 1-hour ozone standard of 0.12 PPM will be phased out and replaced by an 8-hour standard of 0.08 PPM. New national standards for fine Particulate Matter (diameter 2.5 microns or less) have also been established for 24-hour and annual averaging periods. The current PM10 standards were retained, but the method and form for determining compliance with the standards were revised.

Implementation of the new ozone and Particulate Matter standards has been complicated by a lawsuit. On May 14, 1999 the Court of Appeals for the District of Columbia Circuit issued a decision ruled that the Clean Air Act as applied in setting the new public health standards for ozone and particulate matter, was unconstitutional as an improper delegation of legislative authority to the Environmental Protection Agency. The decision has been appealed, but the legal status of the new standards will probably remain uncertain for some time.

*Ambient Air Quality*
The project is within the nine-county Bay Area Air Basin. The Bay Area Air Quality Management District (BAAQMD) operates a network of air quality monitoring sites in the region, including one in central Livermore on Old First Street. Table 4 shows a summary of air quality data for this monitoring site for the period 1995-1999. Data are shown for ozone, carbon monoxide, PM10 and nitrogen dioxide. The number of days exceeding each standard are shown for each year.

## Table 4. Air Quality Data for Livermore, 1995-1999

| Pollutant | Standard | Days Exceeding Standard In: | | | | |
|---|---|---|---|---|---|---|
| | | 1995 | 1996 | 1997 | 1998 | 1999 |
| Ozone | Federal 1-Hour | 7 | 8 | 0 | 6 | 2 |
| Ozone | State 1-Hour | 20 | 22 | 3 | 21 | 14 |
| Ozone | Federal 8-Hour | 11 | 10 | 0 | 10 | 5 |
| Carbon Monoxide | State/Federal 8-Hour | 0 | 0 | 0 | 0 | 0 |
| $PM_{10}$ | State 24-Hour | 6 | 6 | 12 | 12 | 18 |
| $PM_{10}$ | Federal 24-Hour[1] | 0 | 0 | 0 | 0 | 0 |
| Nitrogen Dioxide | State 1-Hour | 0 | 0 | 0 | 0 | 0 |

Source: Air Resources Board Aerometric Data Analysis and Management System (ADAM)

Table 4 shows that concentrations of carbon monoxide and nitrogen dioxide at the Livermore monitoring site meet state/federal standards. Ozone concentrations exceed both the state and federal standards, and exhibit wide variations from year-to-year related to meteorological conditions. Years where the summer months tend to be warmer than average tend to have higher average ozone concentrations while years with cooler than average temperatures tend to have lower average ozone concentrations.

Levels of PM10 at Livermore meet the federal ambient standards but exceed the more stringent state standard.

*Attainment status*

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate air basins within the state where the federal or state ambient air quality standards are not met as "nonattainment areas." Because of the differences between the federal and state standards, the designation of nonattainment areas is different under the federal and state legislation.

The Bay Area is currently a nonattainment area for the federal 1-hour ozone standard. Under the California Clean Air Act the Bay Area is a nonattainment area for ozone and PM10.

To meet federal Clean Air Act requirements, the District has adopted an Ozone

Attainment Demonstration Plan. In addition, to meet California Clean Air Act requirements, the District has also adopted and updated a Clean Air Plan addressing the California ozone standard. The control strategy contained in these plans include new limits on emissions from industry, prohibitions on sources of hydrocarbons, regional transit and HOV programs, buy back programs for older vehicles and educational programs.

The California Legislature, when it passed the California Clean Air Act in 1988, recognized the relative intractability of the PM10 problem with respect to the state ambient standard and excluded it from the basic planning requirements of the Act. The Act did require the CARB to prepare a report to the Legislature regarding the prospect of achieving the State ambient air quality standard for PM10. This report recommended a menu of actions, but did not recommend imposing a planning process similar to that for ozone or other pollutants for achievement of the standard within a certain period of time.

*Sensitive receptors*
The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to located. These land uses include residences, schools playgrounds, child-care centers, retirement homes, convalescent homes, hospitals and medical clinics. There are no such sensitive receptors in the project vicinity.

## STANDARDS OF SIGNIFICANCE

The Bay Area Air Quality Management District's document BAAQMD CEQA Guidelines (BAAQMD, June, 1999) establishes thresholds of significance for construction and operation phases of projects.

The BAAQMD significance threshold for construction dust impacts is based on the appropriateness of construction dust controls. The BAAQMD CEQA Guidelines provide feasible control measures for construction emission of PM10. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less-than-significant.

The Bay Area Air Quality Management District's document BAAQMD CEQA Guidelines establishes the following significance criteria for the operation of projects:

- A project contributing to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours or 20 ppm for 1 hour would be considered to have a significant impact.
- A project that generates criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds would be considered to have a significant air quality impact, both singularly and cumulatively. The current thresholds are 15 tons/year or 80 pounds/day for Reactive Organic Gases (ROG), Nitrogen

Oxides (NOx) or PM10.

- Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

- Any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

## ENVIRONMENTAL IMPACTS

Three potential air quality impacts are identified: short term construction impacts, long term operational impacts and cumulative regional impacts.

*Short term construction impacts*
Construction dust would affect local and regional air quality at various times during the build-out period of the Project. The dry, windy climate of the area during the summer months combined with the fine, silty soils of the region create a high potential for dust generation. Emissions during the grading phase of construction are primarily associated with the exhaust of large earth moving equipment and the dust which is generated through grading activities. Emissions in later stages of construction are primarily associated with construction employee commute vehicles, asphalt paving, mobile equipment, stationary equipment, and architectural coatings.

The effects of construction activities would be increased dustfall and locally elevated levels of PM10 near the construction activity. Depending on the weather, soil conditions, the amount of activity taking place, and nature of dust control efforts, these impacts could affect existing or future residential areas within or near the project.

**<u>Impact 4.2-1 (construction impacts)</u>: The effects of project construction activities would be increased dustfall and locally elevated levels of PM10 downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties (*potentially significant impact*).**

*Long-term local impacts*
The project would generate additional traffic volumes as described in Section 4.10, Traffic and Transportation, increasing local levels of carbon monoxide. However, no major changes to the City's General Plan are proposed which would result in significantly new amounts of vehicle trips that would potentially create significant and major amounts of air pollutants.

**<u>Impact 4.2-2 (local long-term air quality impacts)</u>: Incremental increases in air pollution could be anticipated with the construction of the proposed project, however, such increases would be below the standard of air quality significance through as established by the BAAQMD since no major intensification of land use is proposed**

*(less-than-significant impact an no mitigation required).*

MITIGATION MEASURES

**Mitigation Measure 4.2-1 (construction impacts): The following measures are recommended, based on BAAQMD standards, to reduce construction impacts to a less-than-significant level. The following construction practices should be required during all phases of construction on the project site:**

**a) Water all active construction areas as needed;**
**b) Watering or covering of stockpiles of debris, soil, sand or other materials that can be blown by the wind;**
**c) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard;**
**d) Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites;**
**e) Sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites;**
**f) Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;**
**g) Hydroseed or apply non-toxic soil stabilizers to inactive construction areas**
**h) Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);**
**i) Limit traffic speeds on unpaved roads to 15 mph;**
**j) Install sandbags or other erosion control measures to prevent silt runoff to public roadways;**
**k) Replant vegetation in disturbed areas as quickly as possible.**

SIGNIFICANCE AFTER MITGATION

Air quality impacts would be reduced to a level of less-than-significant after adherence to the mitigation measure.

## 4.3 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES

This section describes the methods used to assess biological resources within the project area, including regulatory requirements, plant and wildlife resources, the presence or potential presence of special-status species, and potential impacts to wetlands on the site and measures to mitigate these impacts.

## ENVIRONMENTAL SETTING

*Existing plant and animal species*
The project site has been largely graded to accommodate existing improvements, including buildings, parking areas, Inspiration Drive and play fields.

Small portions of the site have been left in a natural, undeveloped state.

Based on a field observation of the site (January 2002), the project site contains a mix of introduced landscaped species, including trees, shrubs, groundcover and turf near buildings, within parking lots and play fields. Undeveloped portions of the site contain native ruderal species and small trees.

The City of Dublin has not adopted any Habitat Conservation Plans within the community.

*Existing wetlands and other waters of the U.S.*
A preliminary site reconnaissance on the site was performed in May 2002 by staff of the firm of LSA Associates. Based on this reconnaissance, it appears the existing drainage channel on the westerly side of the site is a tributary of the Donlan Canyon drainage system and is likely a wetland area under the jurisdiction of the U.S. Army Corps of Engineers. This opinion is based on the presence of flowing water within the channel and the presence of a scoured channel.

*Regulatory framework*

U.S. Fish and Wildlife Service

Federal Endangered Species Act. The U.S. Fish and Wildlife Service (Service) has jurisdiction over species that are formally listed as threatened or endangered under the Federal Endangered Species Act. The Endangered Species Act protects listed wildlife species from harm or "take." The term "take" is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An activity is defined as a "take" even if it is unintentional or accidental.

Section 9 of the Endangered Species Act and its applicable regulations restrict certain activities with respect to endangered and threatened plants. However, these restrictions are less stringent than those applicable to fish and wildlife species. The provisions prohibit the removal of, malicious damage to, or destruction of any listed plant species "from areas under federal jurisdiction." Listed plants may not be cut, dug up, damaged or destroyed, or removed from any other area (including private lands) in knowing violation of a state law or regulation.

An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all, or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. The Fish and Wildlife Service also maintains a list of species proposed for listing. Proposed species are those species for which a proposed rule to list as endangered or threatened has been published in the Federal Register.

In addition to endangered, threatened, and proposed species, the Service maintains a list of candidate species. Candidate (formerly category 1 candidate) species are those species for which the Service has on file sufficient information to support issuance of a proposed listing rule.

Any activities that could result in take of a federally listed species will require an Section 10 take permit from the U.S. Fish and Wildlife Service before allowing take activities to commence. Should another federal agency, such as the U.S. Army Corps of Engineers (Corps) under the Clean Water Act, acting as the lead agency be involved with permitting the project, Section 7 of the Endangered Species Act requires the federal lead agency to consult with the Service before permitting any activities that may take listed species.

California Department of Fish and Game

California Endangered Species Act. The California Department of Fish and Game has jurisdiction over threatened or endangered species that are formally listed by the State under the California Endangered Species Act. The California Endangered Species Act is similar to the federal Endangered Species Act both in process and substance; it is intended to provide additional protection to threatened and endangered species in California. The California Endangered Species Act does not supersede the federal Act, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both state and federal laws would apply) or under only one act.

Under Fish and Game Code 2050 -2068, the California Endangered Species Act policy is to conserve, protect, restore, and enhance any threatened or endangered species and its habitat (including acquiring lands for habitat). Compliance with the California Endangered Species Act is required because the project area is within habitats historically or currently occupied by state-listed species. If project field assessments indicate that there is a likelihood of "take" of these species, consultation with the California Department of Fish and Game is required to be in compliance with Fish and Game Code 2050 and 2091.

The California endangered species laws prohibit the take of any plant listed as threatened, endangered, or rare. In California an activity on private lands (such as development) will violate Section 9 of the federal Endangered Species Act if a plant species, listed under both state and federal endangered species laws, is intentionally removed, damaged, or destroyed.

The Department of Fish and Game maintains informal lists of species of special concern. These species are broadly defined as plants and wildlife that are of concern to the Department because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California. These species are inventoried in the California Natural Diversity Data Base.

Streambed Alteration Agreement. The California Department of Fish and Game requires that a proponent of a project notify the Department if project activities would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as such by the Department under Fish and Game Code Section 1600, a streambed alteration agreement could be required from the Department to conduct stream line construction activities (pouring concrete in augured holes and installing pipe supports) adjacent to and in creeks, channels, sloughs crossed by the linear elements of the project. If project activities are likely to affect areas under California Department of Fish and Game jurisdiction, a streambed alteration agreement is required.

California Native Plant Society

The California Native Plant Society has developed lists of plants of special concern in California (Skinner and Pavlik 1994). A List IA plant is a species, subspecies, or variety that is considered to be extinct. A List 1B plant is considered rare, threatened, or endangered in California and elsewhere. A List 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A List 3 plant is a species for which the California Native Plant Society lacks necessary information to determine if it should be assigned to a list or not. A List 4 plant has a limited distribution in California.

All of the plant species on List 1 and List 2 meet the requirements of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. Therefore, List 1 and 2 species should be considered under CEQA. Some List 3 plant species also meet the requirements of these portions of the Fish and Game Code and are eligible for state listing. Few List 4 plants are eligible for listing but may be locally important and their listing status could be elevated if conditions change.

U.S. Army Corps of Engineers

Clean Water Act. The Clean Water Act addresses water pollution through permitting to control and eventually eliminate water pollution. The Clean Water Act establishes regulations and permitting requirements regarding construction activities that affect storm water, dredge and fill material operations, and water quality standards. This regulatory program requires that discharges to surface waters be controlled under the National Pollutant Discharge Elimination System permitting requirements. The permitting requirements apply to sources of water runoff, industrial and public facilities.

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers is responsible for regulating the discharge of fill material into waters of the United States. Jurisdiction falls within the San Francisco District of the Corps. Waters of the United States and their lateral limits are defined in 33 CFR (Code of Federal Regulations) Part 328.3 (a). The term "waters" includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulation (CFR). The definition of "waters of the U.S." includes "...intrastate lakes, rivers, streams (including intermittent streams)... the use, degradation or destruction of which could affect interstate or foreign commerce..." and tributaries of water defined as "waters of the United States." Areas that meet the definition of "waters of the U.S." or the definition of wetlands would be under U.S. Army Corps of Engineers jurisdiction. Wetlands that are not adjacent to waters of the United States are termed "isolated wetlands" and may be subject to Corps jurisdiction.

In addition, under Section 401 of the Clean Water Act if project activities affect "waters of the U.S.," a water quality certification waiver is also required from the California Regional Water Quality Control Board.

In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the U.S. The type of permit depends on the amount of acreage and the purpose of the proposed fill and is subject to discretion from the Corps. There are two categories of Corps permits: individual and nationwide (general) permits. Where specified activities would have minimal adverse impacts, nationwide permits may be used. Eligibility for a nationwide permit simplifies the permit review process. Nationwide permits cover construction and fill of waters of the U.S. for a variety of routine activities such as minor road crossings, utility line crossings, streambank protection, recreational facilities and outfall structures.

<u>Regional Water Quality Control Board</u>
Pursuant to Section 401 of the Clean Water Act, projects that apply for a Corps permit for discharge of dredge or fill material, and projects that qualify for a Nationwide Permit, must obtain water quality certification from the Regional Water Quality Control Board (RWQCB) that the project will uphold state water quality standards. Alternatively, the RWQCB may elect to notify an applicant that the State may issue Waste Discharge Charge Requirements in lieu of a Section 401 certification for a project.

**STANDARDS OF SIGNIFICANCE**

Project effects on biological resources would be considered significant if it results in any of the following:

- a substantial effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.

- a substantial effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.
- a substantial effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.
- substantially interfere with movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impeded use of native wildlife nursery sites.
- conflict with any local policies or ordinances protecting biological resources.
- conflicts with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

## ENVIRONMENTAL IMPACTS

*Wetlands and riparian habitat*
Based on a field reconnaissance conducted on the project site, implementation of the proposed project would encroach into a wetland channel area on the west side of the site, within the proposed residential area. Proposed residential land uses are shown within a jurisdictional wetland area. This portion of the proposed project would result in a significant impact to wetlands and riparian habitat. Other wetlands may exist on the project site as well.

**Impact 4.3-1 (wetland and riparian habitat impacts): Proposed development activities shown on the proposed Planned Development Plan would place residential uses within a jurisdictional wetland area located on the west side of the site. Other wetlands may also exist on the project site (*significant impact and mitigation is required*).**

*Plant and animal species and related habitats*
Other than the potential wetland area, no plants or animals of special concern have been observed on the site. Given the level of existing development on the site and the presence of nearby developments on all sides of the project site, the potential for effect on special status plants or animals is considered low.

## MITIGATION MEASURES

The following measure shall be followed to ensure that impacts to riparian plants and animals and their respective habitats are reduced to a less-than-significant level.

**Mitigation Measure 4.3-1 (wetland and riparian habitat impacts): A protocol-level wetlands delineation shall be performed on the project site. Based on the results of this analysis, the development plan should be modified to avoid all wetland areas. If**

**avoidance is not possible, a wetland mitigation plan shall be prepared by a qualified biologist to include identification of replacement wetland area at a ratio of 2:1 on or near the project site. Necessary regulatory permits shall also be obtained from the U.S. Army Corps of Engineers, Fish and Wildlife Service, California Department of Fish and Game and Regional Water Quality Control Board.**

### SIGNIFICANCE AFTER MITIGATION

No significant impacts would remain after the implementation of the recommended mitigation measures.

## 4.4 CULTURAL RESOURCES

### ENVIRONMENTAL ISSUES

This section of the EIR addresses potential impacts to historical, archeological cultural resources.

### ENVIRONMENTAL SETTING

(Note: The following information has been taken from a cultural records survey conducted by the Northwest Information Center at Sonoma State University in February, 2002).

*Native American resources*
At the time of the European-American contact the Native Americans that lived in the Tri-Valley area spoke Chochenyo, one of the Costanoan languages. Native American archeological sites in this portion of Alameda County tend to situate along ridgetop, midslope terraces, alluvial flats, near ecotones and near sources of water. The project site is located on moderate slopes of with midslope terraces and adjacent to Dublin Creek. A Native American archeological site has been recorded south of the site. Given the environmental setting of and the archeological sensitive nature of the general area, there is a moderate potential for finding native American sites in the project area.

*Historic and archeological resources*
A review of historical literature and maps on file with the Northwest Information Center, no evidence of historic structures or sites has been found on or near the project site. This includes archeological resources.

### STANDARDS OF SIGNIFICANCE

The project, or follow-on construction based on the approved project, would have a significant impact if one or more of the following were to occur:

- Eliminate important examples of major periods of California history or prehistory;
- Disrupt, alter, or adversely affect a prehistoric or historic archeological site or a property
- Result in an adverse physical or aesthetic change to a prehistoric or historic building, structure or object;
- Potentially cause a physical change that would affect unique ethnic cultural values; or
- Have the potential to cause damage to an important archeological resource as defined in Appendix K of the CEQA Guidelines, as follows:
- Is associated with an event or person of recognized significance in California or American history, or recognized scientific importance in prehistory;
- Can provide useful information which is both of demonstrable public interest and useful in addressing consequential and reasonable or archeological research questions;
- Has a special or particular quality such as oldest, best example, largest or last surviving example of its kind;
- Is at least 100 years old and possesses substantial stratigraphic integrity; and
- Involves important research questions that historical research has shown can be answered only with archeological methods.

## ENVIRONMENTAL IMPACTS

*Archeological or Native American resources*
Although no records exist as to the presence of archeological resources, there is a possibility of unrecorded archeological or Native American artifacts within the project area based on information provided by the Northwest Information Center.

<u>Impact 4.4-1 (archeological and Native American resources)</u>: **Although no prehistoric or archeologically significant resources have been identified within the project area, construction of new buildings, underground utility lines and similar facilities could result in disturbance to archeological and/or Native American underground resources (*potentially significant and mitigation is required*).**

*Historic resources*
Based on information contained in the cultural resources survey supplemented by a site survey by the EIR author, no historic buildings or structures exist on the project site.

<u>Impact 4.4-2 (historic resources)</u>: **Based on a cultural resources records search supplemented by a site visit, no historic resources exist on the site (<u>no impact and no mitigation required</u>).**

MITIGATION MEASURES

**Mitigation Measure 4.4-1 (archeological and Native American resources): If an archeological or Native American artifact is identified, work on the project shall cease immediately until a resource protection plan conforming to CEQA Guideline Section 15064.5 (e) is prepared by a qualified archeologist and approved by the Dublin Community Development Director. Project work may be resumed in compliance with such plan. If human remains are encountered, the County Coroner shall be contacted immediately.**

SIGNIFICANCE AFTER MITIGATION

No significant impacts would remain after the implementation of the recommended mitigation measures.

## 4.5 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES

This section of the DEIR addresses soil conditions, existing topographic and geologic features, potential impacts related to site grading and the potential for seismic-related hazards. Information contained in this section is based on information contained in geotechnical feasibility report prepared for the proposed project by Robert Chew Geotechnical, Inc, in January 2000.

ENVIRONMENTAL SETTING

*Regional geologic and topographic conditions*
The project site is located within the Coast Ranges geomorphic province, characterized by northwest-southeast trending valleys and ridges, controlled by faults and folds resulting from the collision of the Farallon and North American plates and subsequent shearing along the San Andreas Fault system. Bedrock in the vicinity consists of Miocene to Pliocene age marine and non-marine sedimentary rocks.

The project site exhibits topographic elevations between 825 feet above sea level near the northwest corner of the site to approximately 540 feet near Dublin Boulevard to the south.

*Local soils and landslides*
The project site itself is primarily underlain by Miocene-age sedimentary bedrock, which has been cut and filled to develop earlier phases of the Valley Christian project. Exposed outcrops on the property reveal that the bedrock underlying the site generally consists of thinly bedded sandstone that is considered moderately weak to strong,

moderately to highly weathered and moderately to highly fractured and locally fossilferous.

Subsurface investigations of the site typically encountered up to 4 feet of colluvium overlying the bedrock on steeper slopes, with as much as 14 feet of colluvium observed on the southeast corner of the site. Colluvium generally thickens in drainage swale areas and predominantly consist of dark brown to dark gray silty clay and sandy clay, with low to high plasticity and moderate to high expansion potential.

Previous mass grading of the site resulted in removal of colluvium in cut areas; however, remnants of colluvium may still exist, particularly beneath fill at former drainage swales.

Three areas of thick fill (greater than 10 feet thick) have been constructed on the site in multiple stages. Thick fill occupies the northeast, east and southerly portions of the property. Fill in portions of the drainage swale may be on the order of 70 feet thick. No information was made available to the geotechnical firm (Robert Chew Geotechnical, Inc.) regarding density testing of placement of fill material.

A large landslide was mapped on the site in 1975 in the southeastern portion of the property, which extended past the southerly property line of the project site and includes portions of current Dublin Boulevard and I-580. Grading was performed as part of a previous residential subdivision (Hansen Hills) and the re-routing of Inspiration Drive to remediate the historic landslide. Based on other previous geotechnical reports, the lower portion of the landslide, near Dublin Boulevard, was not fully remediated.

Two other smaller shallow landslides were identified at the southwestern portion of the site.

*Groundwater*

A small spring was observed on the site in a drainage swale within the southwestern portion of the project site. Seepage from the spring flows into an unlined drainage ditch at the base of the slope, and then south into a culvert. Previously, springs were observed on the site prior to mass grading of the site to accommodate existing site development.

*Seismic hazards*

The project is located within the seismically active San Francisco Bay Region. A number of major earthquake faults in the region are capable of generating strong earthquakes (magnitudes of 6.0 + on the Richter scale). The site is located near the following faults: San Andreas (26 miles southwest), Hayward (7 miles west), Calaveras (0.7 northeast and Rogers Creek fault (42 miles northwest). Based on the Earthquake Fault Zone Map prepared by the California Division of Mines and Geology, the project site is not located within an Earthquake Fault Zone (formerly Alquist-Priolo Zone).

Recent data gathered by the United States Geological Survey suggests a 36 to 50 percent probability of a 7.5-magnitude earthquake on the Hayward fault by the year 2010. A major earthquake with an 8.0 + magnitude on the Bay area segments of the San Andreas Fault is expected every 100 years.

Other non-mapped faults have been are believed to exist near the project site. The nearest of these faults is the Dublin fault, with is oriented in a north-south direction approximately 700 feet west of the project site. A previous geotechnical report recommended a minimum 100-foot wide setback from this fault zone where it crosses the Hansen Hill subdivision. Based on more recent site analysis, it appears unlikely that the southward projection of the Dublin Fault extends on the project site, although, it may extend across the southwest corner of the property if the fault trends more southeasterly.

Potential seismic hazards within the project area include moderate to strong groundshaking and ground rupture. Other, lesser hazards include liquefaction (the transformation of granular materials, such as loose, wet sand, into a fluid-like state such as quicksand) and subsidence (sinking of ground surface because of settling of compressible earth). The degree of hazard depends on the location of the seismic epicenter, the magnitude and duration of groundshaking, the nature of topography, the type of building construction and groundwater conditions.

The Dublin fault has the potential for sympathetic movement during a large seismic event on the Calaveras Fault. A previous analysis indicates a potential for an earthquake of a magnitude 5 to 5.5 on this fault.

## STANDARDS OF SIGNIFICANCE

The following standards of significance are used to assess potential environmental impacts related to geological, landform and topographic issues of the proposed project:

- Exposure of people and property to the risk of harm from geological hazards and/or soil or seismic conditions;
- Presence of an Earthquake Safety Zone (formerly Alquist-Priolo Seismic Study Zone), an active fault or an area characterized by surface rupture that could be related to fault activity;
- Increases over present levels of soil erosion.

## ENVIRONMENTAL IMPACTS

Should the Valley Christian Center expansion project be approved and implemented, the following environmental impacts are anticipated: seismic risk, expansive soils and additional site grading and excavation. Potential soil erosion impacts are discussed in Section 4.7 Hydrology and Water Quality.

*Seismic impacts*
As noted in the Environmental Setting section, the Bay area is one of the most seismically active areas in the world. Approval and construction of the proposed project would expose additional site employees, visitors and residents as well as improvements on the site to seismic risk.

Of special concern is the possible presence of a not fully remediated landslide repair on the property and the potential for extension of the unmapped Dublin fault on the southwest corner of the site, where future residential dwellings are proposed.

**Impact 4.5-1 (seismic hazard): During a major earthquake on the Dublin fault or other nearby faults, moderate to strong ground shaking can be expected to occur on the project site. Strong shaking during an earthquake could result in damage to buildings, roads, utility lines and other structures with associated risk to residents, employees and visitors in the area, especially due to the presence of a previous landslide that has not been fully remediated (*significant impact and mitigation required*).**

*Expansive soils and landslides*
A portion of the site has been filled to achieve existing topographic grades. According to the site geotechnical reconnaissance, colluvium found on the site has moderate to high expansion potential. This could impact future building foundations and underground utilities.

The recent geotechnical reconnaissance also indicates the potential for presence of historic landslides that may not have been corrected to a level that could support buildings or structures. This could be a potential impact if future structures are to be located over such a repaired slide.

**Impact 4.5-2 (expansive soils and landslides): Additional development occurring on the project site may be subject to foundation damage caused by expansive soils, differential settlement and similar hazards related to expansive soils. In addition a potential exists for landslides on the site that have not been properly remediated to support buildings or structures. Of special concerns identified in the project geotechnical report is the site of future residential uses (*potentially significant impact and mitigation required*).**

*Site grading*
The project site has been previously mass graded to accommodate existing buildings, play fields, parking areas, Inspiration Drive and other site features. According to the applicant, minimal additional grading is anticipated to construct proposed new buildings and other improvements envisioned in the expansion plan. The project applicant will be required by the City to obtain a grading permit based on standard City development procedures.

**Impact 4.5-3 (site grading): Approval of the proposed Valley Christian expansion would cause increased limited amounts of site grading and excavation for construction of new buildings, parking areas and other improvements, Grading operations would proceed based on grading plans approved by the City of Dublin (*less-than-significant impact and no mitigation required*).**

MITIGATION MEASURES

The following mitigation measure is recommended to reduce potential seismic hazards to a less than significant level.

**Mitigation Measure 4.5-1 (seismic hazard, expansive soils and landslides): A site specific geotechnical investigation shall be required for each building constructed as part of the proposed expansion by a California-registered geologist or California-registered engineering geologist. The report(s) shall address the potential for extension of the Dublin fault on the site, expansive soils and the potential for future landslides on the site. Specific measures to reduce seismic hazards, expansive soils and landslide hazards to a less-than-significant level shall be included in the report(s).**

SIGNIFICANCE AFTER MITIGATION

No significant impacts would remain after the implementation of the recommended mitigation measures.

## 4.6 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES

This section of the EIR addresses potential impacts related to increased stormwater runoff, water quality and flooding potential.

ENVIRONMENTAL SETTING

*Climate*
The City of Dublin has a Mediterranean climate, characterized by warm summers and moderately cool winters. Average annual temperatures range from approximately 40 to 75 degrees Fahrenheit. Average annual rainfall is approximately 25 inches, falling between November and April.

*Local and regional drainage*
The project site is located on a relatively steep hill in the westerly portion of the community. Stormwater runoff is generally accommodated in a number of underground pipes and open culverts on and adjacent to the site in a southerly

direction to Dublin Creek, south of the project site. Dublin Creek ultimately discharges into Las Positas Creek and flows south to San Francisco Bay.

Local drainage facilities are owned and maintained by the City of Dublin. Regional drainage facilities are maintained by Zone 7 Flood Control and Water Conservation District.

The quantity of stormwater discharge from the site into existing drainage facilities is not known at this time.

*Water quality*
Water quality in California is regulated by the U.S. Environmental Protection Agency's National Pollution Discharge Elimination System (NPDES), which controls the discharge of pollutants to water bodies from point and non-point sources. In the San Francisco Bay area, this program is administered by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Federal regulations issued in November 1990 expanded the authority of the RWQCB to include permitting of stormwater discharges from municipal storm sewer systems, industrial processes, and construction sites that disturb areas larger than five acres. The City of Dublin is a co-permittee of the Alameda County Clean Water Program, which is a coordinated effort by local governments in Alameda County to improve water quality in San Francisco Bay.

In 1994, the RWQCB issued a set of recommendations for New and Redevelopment Controls for Storm Water Programs. These recommendations include policies that define watershed protection goals, set forth minimum non-point source pollutant control requirements for site planning, construction and post-construction activities, and establish criteria for ongoing reporting of water quality constriction activities. Watershed protection goals are based on policies identified in the San Francisco Bay Basin Water Quality Control Plan (Basin Plan), and the entire program relies on the implementation of Best Management Practices to limit pollutant contact with stormwater runoff at its source and to remove pollutants before they are discharged into receiving waters. The California Stormwater Quality Task Force has published a series of Best Management Practices handbooks for use in the design of source control; and treatment programs to achieve the water quality objectives identified by the Basin Plan for the beneficial uses of surface waters, groundwaters, wetland and marshes.

Existing surface water quality is affected by a number of pollutants generated from existing structures, parking area and open space uses on the project site, including but not limited to petrochemicals (oil and grease), yard and landscape chemicals (herbicides, pesticides and fertilizers), erosion from construction sites and similar sources.

*Flooding*
Given the elevation of the site above the valley floor (approximately 540 feet above sea level at the lowest point), none of the project site is located within a 100-year flood

plain.

*Groundwater depletion*
This topic is addressed in Section 4.11. Utilities and Public Services.

## STANDARDS OF SIGNIFICANCE

The following standards of significance are used to assess potential environmental impacts related to drainage and water quality issues of the proposed project:

- Exposure of people and structures to new or increased flooding hazards;
- Loss of flood carrying capacities within downstream storm drain facilities and receiving waters;
- Decline in local surface or groundwater quality as a result of project development, including impacts from future occupants of the project as well as construction-related impacts; and
- Decline in the quantity of available groundwater.

## ENVIRONMENTAL IMPACTS

Should the project be approved and implemented, the following environmental impacts are anticipated: soil erosion, potential degradation of water quality from non-point source pollution, and potentially increased quantities of stormwater runoff from the site.

*Soil erosion*
Since disturbance of the soil is anticipated to implement new buildings and other improvements envisioned as part of the Valley Christian Center expansion plan, a potential for erosion of earthern material and construction debris exist. Soil erosion would have the effect of degrading surface water quality within adjacent drainage swales, Dublin Creek and other nearby bodies of water.

**Impact 4.6-1 (soil erosion): During construction, short-term increases of soil erosion could result as the project area is stripped of the natural vegetation and exposed to wind and water erosion (*potentially significant impact and mitigation required*).**

*Surface water quality*
Following the completion of construction, it is likely that the threat of onsite erosion would be substantially reduced, because virtually all disturbed areas would be stabilized underneath buildings, pavement, and landscaping. Construction sites, if properly protected during project construction, should not experience significant soils losses.

On-going operation of the facility is anticipated to have the potential to degrade surface water quality due to runoff from parking areas, use of fertilizers and lawn chemicals for maintenance of play areas, landscaping and other activities. This could be a potentially significant impact.

**<u>Impact 4.6-2 (non-point source pollution)</u>: On-going operation of the facility could impact surface water quality through deposition of oil, grease and other chemicals from parking areas, use of lawn chemicals and other sources (potentially significant impact and mitigation required).**

*Stormwater runoff*
Approval of the expansion plan for Valley Christian Center would increase the amount of stormwater runoff from the site due to an increase of impervious surfaces on the property. Increased amounts of stormwater could impact downstream drainage facilities operated by the City of Dublin and Zone 7.

**<u>Impact 4.6-3 (stormwater runoff)</u>: New construction on the project site could impact existing downstream stormwater drainage facilities by increasing overall and peak flows (*potentially significant impact and mitigation is required*).**

*Flooding*
No flooding impacts are anticipated due to the elevation of the site.

MITIGATION MEASURES

*Soil erosion*
The following mitigation measure is recommended to reduce soil erosion impacts to a less-than-significant level.

**<u>Mitigation Measure 4.6-1 (soil erosion)</u>: An erosion and sedimentation control plan shall be prepared by a California-registered civil engineer for implementation throughout all phases of project construction. The plan should be prepared in accordance with City of Dublin and RWQCB design standards and shall be approved by the Dublin Public Works Director prior to issuance of a grading permit. It is recommended that this plan, at a minimum, include the following provisions:**

**a) Existing vegetated areas should be left undisturbed until construction of improvements on each portion of the development site is actually ready to commence;**
**b) All disturbed areas should be immediately revegetated or otherwise protected from both wind and water erosion upon the completion of grading activities;**
**c) Stormwater runoff should be collected into stable drainage channels, from small drainage basins, to prevent the buildup of large, potentially erosive stormwater flows;**
**d) Specific measures should be implemented to control erosion from stockpiled earth and exposed soil;**
**e) Runoff should be directed away from all areas disturbed by construction;**
**f) Sediment ponds or siltation basins should be used to trap eroded soils before runoff is discharged into on-site or offsite drainage culverts and channels;**

**g) To the extent possible, major site development work involving excavation and earth moving shall be scheduled during the dry season.**

*Non-point source pollution*
The following measure is recommended to reduce non-point source surface water pollution to a less-than-significant level.

<u>Mitigation Measure 4.6-2 (non-point source pollution)</u>: **A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared by a California-registered civil engineer to RWQCB and City of Dublin standards to ensure Best Management Practices will be employed to reduce surface water pollution to a less-than-significant level. The SWPPP shall be approved by the Dublin Public Works Director prior to issuance to a grading permit.**

*Stormwater runoff*
Construction of new structures and improvements on the project site would increase both the total and peak hour quantity of stormwater runoff from the site.

<u>Mitigation Measure 4.6-3 (stormwater runoff):</u> **The project sponsor shall submit a hydrology study for the proposed project, prepared by a California-registered civil engineer, documenting the amount of current stormwater runoff from the site, estimated future quantities of runoff, and the ability of downstream facilities to accommodate increased stormwater quantities. The report shall also identify needed downstream improvements needed to accommodate increased storm flows and the applicant's financial participation in funding needed improvements, if required.**

### SIGNIFICANCE AFTER MITIGATION

No significant impacts would remain after the implementation of the recommended mitigation measures.

## 4.7 LAND USE

### ENVIRONMENTAL ISSUES

Issues addressed in this section include potential impacts to existing land uses within the project area, to land uses surrounding the project area and consistency of the proposed project with regulatory plans and programs.

### ENVIRONMENTAL SETTING

*On-site land use*
As noted in the Project Description and the Aesthetics (4.1), the project site has been

developed as a church complex for a number of years. Approximately 118,300 square feet of building area has been built, consisting of a sanctuary, preschool, K-12 private school and similar uses.

*Surrounding land use*
Land uses surrounding the site includes Dublin Boulevard and the I-580 freeway to the south, and townhouses and open spaces immediately west of the site and also a recent subdivision fronting on Dublin Boulevard. A low-density single family residential neighborhood has been developed north of the site, with a small ridge separating the Valley Christian Center from the neighborhood. Single-family residences have also been constructed east of the project site and are separated from the majority of buildings and uses on the project site by a relatively steep downslope. To the west, an attached townhouse project has been developed (California Highlands) with a Medium-High residential density (14.1-25 dwelling units per acre).

<u>Regulatory framework</u>

<u>Dublin General Plan</u>: The City of Dublin adopted a General Plan in 1985 to regulate land use and development in the community. It has been since amended to reflect annexations in Eastern and Western Dublin and other changes.

The General Plan contains both goals and policies relating to development as well as a diagram which establishes a range of residential, commercial, industrial, public, semi-public and open space land uses within Dublin.

The General Plan document contains the following elements that regulate different aspects of development: Land Use, Parks and Open Space, Schools, Public Lands and Utilities, Circulation and Scenic Highways, Housing, Conservation, Seismic Safety and Safety and Noise.

Policies contained in the Land Use Element of the General Plan applicable to the proposed expansion of Valley Christian Center include:

- <u>2.1.</u>1 Housing Availability

  Guiding Policy A: Encourage housing of varied types, sizes and process to meet current and future needs of Dublin residents.

  Implementing Policy B: Designated sites available for residential development in the primary planning area for medium to medium-high density where site capability and access are suitable and where higher density would be compatible with existing residential development nearby.

- 2.1.3: Residential Compatibility

  Guiding Policy A: Avoid abrupt transitions between single-family development and higher density development on adjoining sites.

Implementing Policy B: Require all site plans to respect the privacy and scale of residential development nearby.

Implementing Policy C: Require a Planned Development zoning process for all development proposals over 6 units per gross residential area.

The General Plan Land Use Map, adopted as a part of the General Plan, designates the project site as a "Public/Semi-Public Facility." This designation allows for public and private schools, churches and the Civic Center. Maximum development capacity is limited to a Floor Area Ratio of 0.50. Housing may be allowed within a Public/Semi-Public land use designation through a re-zoning process to a PD- Planned Development zoning district.

Table 2.2 contained in the Land Use Element identifies the Valley Christian Center as a potential housing site in the community and notes that 90-120 dwellings could be accommodated on a 15-acre portion of the site. This is shown in the General Plan on a conceptual basis only and actual development of housing would require additional studies.

Dublin Zoning Ordinance: Existing zoning on the project is "A-Agriculture," that permits a range of animal keeping activities, crop production and similar uses. Community facilities are allowed with the issuance of a conditional use permit by the City of Dublin.

Surrounding properties are zoned for Planned Development residential uses.

The Zoning Ordinance establishes permitted and conditionally permitted land uses for each individual zoning district. The Zoning Ordinance also includes development standards for each district, regulating building intensity, height, setbacks and similar requirements, as well as requiring on-site parking and loading, signs and similar development provisions.

Copies of all the documents referenced above are available at the Dublin Development Services Department during normal business hours.

## STANDARDS OF SIGNIFICANCE

The following criteria have been used to define instances of a significant land use impact:

- if the proposed project is incompatible with on-site and/or adjacent land uses, causing the potential for a substantial adverse change in the types or intensity of existing land use patterns;
- if a proposed project is not consistent with adopted land use policies, or would

require a change in such policies in order to achieve consistency;
- if a proposed project disrupts or divides the physical arrangement of an established community.

## ENVIRONMENTAL IMPACTS

Potential impacts include impacts to on-site land uses, impacts to adjacent or nearby off-site land uses and consistency with appropriate regulatory plans.

*On-site land use impacts*
The applicant has requested various land use approvals and entitlements to allow the proposed expansion plan for Valley Christian Center to be built. These entitlements are discussed in Section 3.3, and include a General Plan Amendment to allow for residential uses on the northwest corner of Dublin Boulevard and Inspiration Drive, a Stage 1 and Stage 2 PD-Planned Development Rezoning for the central portion of the site to allow the ultimate construction of approximately 187,000 square feet of additional floor space for the Center, and a subdivision map to create smaller parcels on the 54-acre site.

Approval of a PD-Planned Development rezoning application is required by the Dublin Zoning Ordinance to allow for the expansion of the church complex.

Since the project site already contains facilities owned and operated by Valley Christian and the proposed project would include an expansion of existing facilities, no impacts are anticipated with regard to on-site land use impacts.

A secondary land use impact would occur related to the aesthetics of a portion of the proposed expansion. Aesthetic impacts are discussed in Section 4.1 of this DEIR.

<u>Impact 4.7-1 (on-site land use impacts)</u>: **Approval of the proposed Valley Christian Center expansion plan would represent a logical continuation of the current development pattern on the site and no impacts are anticipated (*no impact and no mitigation measures required*).**

*Surrounding land use*
Land uses surrounding the project site to the north and east are primarily low density single family residential with areas of permanent open spaces reserved along the northwest corner of the site.

Land use west of the site consists of two story townhouses with approximately the same density and product type as proposed by Valley Christian Center.

Construction of the proposed project would have less than-significant land use impacts on surrounding land uses since the general type and intensity of uses would be consistent with surrounding uses. The location of the proposed new uses and buildings, with two exceptions, would be located within the central core campus and would not be sited near existing surrounding residences. The two exceptions would include the proposed Senior Center and the Chapel, both proposed to be located at the edge of existing slope areas. These impacts have been addressed in Section 4.1, Aesthetics.

**Impact 4.7-2 (surrounding land use impacts): Since the proposed Valley Christian Center expansion plan would represent a continuation of current uses as well as residential uses consistent with the type and density of surrounding uses, less-than-significant impacts are anticipated (*less-than-significant impacts and no mitigation required*).**

*Regulatory framework*

The proposed project would be consistent with the Dublin General Plan policies that allow for placement of housing within a Public/Semi-Public land use designation. The proposed density range is consistent with the allowed density permitted in the Medium-High Density range contained in the Land Use Element. In addition, the applicant has requested approval of a PD-Planned Development district, which is required by the General Plan, to expand the existing Valley Christian Center complex. In accordance with the Planned Development district regulations, development standards particular to the proposed Valley Christian Center project would be created as part of the PD-Planned Development rezoning, including but not limited to setback, height and similar standards.

Future individual buildings within the complex will be required to obtain Site Development Review (SDR) approvals from the Dublin Planning Commission, which require public hearings. SDR approvals entail review of overall building design and architecture, use of materials, exterior colors, signs, landscaping and lighting.

Stage 2 PD-Planned Development rezonings would still be required for the residential component of the proposed project and for the undeveloped portion of the property lying east of Inspiration Drive. Stage 2 PD-Planned Development rezonings require both Planning Commission and City Council public hearings and must include more detailed information about proposed land uses. Also, future development on these two portions of the project will require SDR approvals by the Dublin Planning Commission. For the undeveloped portion of the site, additional land use entitlements and permits may be needed, depending on the nature of the proposed land use.

**Impact 4.7-3 (regulatory impacts): Approval and implementation of the proposed Valley Christian Center expansion program, including the proposed General Plan Amendment and rezonings, would be consistent with the goals and policies of the Dublin General Plan and the Dublin Zoning Ordinance (*no impact and no mitigation required*).**

## MITIGATION MEASURES

None required.

# 4.8 NOISE

## ENVIRONMENTAL ISSUES

This section addresses potential noise impacts of the project, including short-term construction noise, and long -term permanent noise as well as potential impacts from existing noise sources, such as truck noise associated with existing land uses.

Information contained in this section is based on an acoustic report prepared by Charles Salter Associates, contained in Appendix 8.4 of the DEIR.

## ENVIRONMENTAL SETTING

*Overview of noise concepts*
Noise is defined as unwanted sound. Sound levels are measured and expressed in decibels (dB), with a dB of "0" corresponding approximately to the threshold of human hearing.

The method commonly used to quantify environmental noise involve measurement of all audible frequencies of sound, with an adjustment to reflect the fact that human hearing is less sensitive to low and high frequencies than to mid-range frequencies. This measurement is called "A" weighting, and a noise reading using this technique is called "A-weighted noise level" (dBA).

Environmental noise fluctuates in intensity over time. Therefore, time-averaged noise level computations are typically used to quantify noise levels and determine impacts. The two average noise level descriptors most commonly used to describe 24-hour daily average are LDN (day-night average noise levels) and CNEL (Community Noise Equivalent Level). The LDN measurement includes a 10 decibel penalty added to nighttime noise levels (10:00 p.m. to 7 a.m.) to account for the greater human sensitivity to noise during this period. The CNEL noise metric includes both a 5 dBA penalty for evening (7:00 p.m. to 10 p.m.) noise and a 10 dBA for night noise events.

*Regulatory framework*
Applicable criteria for this project are contained in Section 9 of the City's Noise Element (City of Dublin's General Plan, dated 1998) and in the City of Dublin's Municipal Code.

The Noise Element of the General Plan provides a basis for decisions on the location of land uses in relation to noise exposure. The City's guidelines for acceptable noise exposure are contained in Table 5, Land Use Compatibility for Community Noise Environments. The guidelines are expressed in terms of Community Noise Equivalent Level (CNEL). Appendix A of the full text of the acoustic report includes a discussion of overall noise concepts. All sound levels presented in this report are A-weighted (dBA).

**Table 5. Land Use Compatibility for Community Noise Environments**

| Land Use Category | Community Noise Exposure Level - CNEL (dBA) | | | |
|---|---|---|---|---|
| | Normally Acceptable | Conditionally Acceptable | Normally Unacceptable | Clearly Unacceptable |
| Residential | 60 or less | 60 – 70 | 70 – 75 | Over 75 |
| Motels, Hotels | 60 or less | 60 – 70 | 70 – 80 | Over 80 |
| Schools Churches, Nursing Homes | 60 or less | 60 – 70 | 70 – 80 | Over 80 |
| Neighborhood Parks | 60 or less | 60 – 65 | 65 – 70 | Over 70 |
| Offices, retail commercial | 70 or less | 70 – 75 | 75 – 80 | Over 80 |
| Industrial | 70 or less | 70 – 75 | Over 75 | |
| *Normally Acceptable*<br>Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special insulation requirements. | | | | |
| *Conditionally Acceptable*<br>New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. | | | | |
| *Normally Unacceptable*<br>New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. | | | | |
| *Clearly Unacceptable*<br>New construction or development clearly should not be undertaken. | | | | |

Source: Charles Salter Associates

In addition, the Noise Element requires that all new housing projects exposed to a CNEL of 60 dBA or higher have an acoustical consultant assess mitigation procedures to reduce the indoor CNEL to 45 dBA.

The Dublin Municipal Code limits the maximum noise from mechanical equipment such that it does not exceed a maximum sound level of 70 dBA on neighboring residential land uses.

*Existing noise levels*

The major noise sources affecting the project site and its surroundings are vehicular traffic on I-580 and Dublin Boulevard. Various noise measurements were conducted to quantify the existing noise level at the nearest residential property line and on the project site. Table 6 summarizes the results of the measurements.

## Table 6. Existing Noise Measurements

| Measurement Location | Duration | Location | Date / Start Time | A-weighted Sound Level, (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{10}$ | $L_{33}$ | $L_{50}$ | $L_{90}$ | $L_{eq}$ | CNEL |
| A | 24 hr. | Existing Parking on Site | 11 Mar 2002 1:00 p.m. | ** | ** | ** | ** | ** | 71 |
| B | 24 hr. | Along Dublin Blvd. | 11 Mar 2002 2:00 p.m. | ** | ** | ** | ** | ** | 74 |
| C | 15 min. | Proposed Building 'B' | 11 Mar 2002 1:45 – 2:00 p.m. | 51 | 48 | 47 | 45 | 49 | 60* |
| D | 15 min. | Proposed Building 'E' | 11 Mar 2002 2:15 – 2:30 p.m. | 65 | 64 | 63 | 62 | 63 | 66* |
| E | 15 min. | New Housing 5 feet high | 11 Mar 2002 2:45 – 3:00 p.m. | 67 | 65 | 65 | 63 | 65 | 70* |
| F | 15 min. | New Housing 15 feet high | 11 Mar 2002 2:45 – 3:00 p.m. | 71 | 70 | 69 | 67 | 70 | 74* |

*DNL estimated based on correlation with simultaneous measurement at 24-hour location.
Source: Charles Salter Associates

Measurement locations A, C and D represent the existing noise levels at the church and school. Locations B, E and F represent the existing ambient noise levels at the nearest residential receivers and proposed new housing development. Exhibit 8 depicts these noise measurement locations.

In summary, the project site is exposed to noise levels ranging from a CNEL of 60 dBA to 71 dBA. According to the City's guidelines, this noise exposure is "conditionally acceptable" to "normally unacceptable" for churches and schools. The future residences would be exposed to noise levels equal to or greater than a CNEL of 70 dBA. According to the County's guidelines, this noise exposure is "normally unacceptable."

### STANDARDS OF SIGNIFICANCE

A noise impact would be considered significant if it would exceed the interior or exterior noise exposure limits established by the Noise Element of the Dublin General Plan or Dublin Municipal Code.

### ENVIRONMENTAL IMPACTS

*Construction noise*

Construction of the new houses will result in elevated short-term construction noise at existing adjacent land uses. Residences are located in close proximity (west) of the developing area. Construction typically happens over the course of several months. Typically, noise levels from construction range from 80 to 90 dBA at 50 feet.

Construction is permitted between the hours of 8:30 a.m. to 5:00 p.m. on weekends and holidays under provisions of the City of Dublin Noise Ordinance. The City of Dublin does not have specific guidelines for construction during the week. Due to the proximity of existing residences on three sides of the project site, construction could generate a significant short-term impact.

**<u>Impact 4.8-1 (construction noise impacts)</u>: Residents of dwellings surrounding the project site would be subject to short-term but potentially significant noise due to construction of new buildings, parking areas and associated improvements. Existing residents west of the project site along Dublin Boulevard would be the most impacted (*potentially significant and mitigation required*).**

*Permanent noise impacts*
The proposed expansion of Valley Christian Center facilities, including a new sanctuary, chapel, senior center and school administration facility, would result in increased activities on the site. These activities would generally occur indoors and would not be expected to cause significant noise outdoors. However, there is a potential for mechanical equipment to be located on or near buildings. The nearest residences are located approximately 320 feet from the nearest building that could have roof-top mounted mechanical equipment. Due to the size of the building, it is unlikely this equipment's noise would exceed the City's maximum criteria of 70 dBA and would therefore result in a less-than-significant impact.

For proposed residential uses along Dublin Boulevard, an approximately 11-foot high sound wall along the north side of the I-580 freeway shields existing residences and the proposed housing site within the project area from freeway noise. The noise level behind the wall at grade is a CNEL of 70 dBA. Upper floors of proposed dwellings would likely be exposed to a CNEL of 74 dBA since they would have less shielding provided by the existing barrier.

In the future, traffic noise on I-580 may increase. Although no traffic projections are available at this time, a 25% increase in future traffic volume has been assumed to account for possible increase. This corresponds to a 1 dB increase in the CNEL. The future noise levels would range from a CNEL of 71 dBA to 75 dBA. This is considered "normally unacceptable" and, therefore is considered a potentially significant impact.

**<u>Impact 4.8-2 (future residential noise impacts)</u>: The upper floors of residential dwellings proposed at the northwest corner of Dublin Boulevard and Inspiration Drive would be subject to noise levels ranging from 71 to 74 CNEL, which is considered an unacceptable noise level (*potentially significant and mitigation required*).**

In terms of future noise impacts to non-residential buildings on the site, the existing CNEL near the main campus is 64 dBA to 71 dBA, primarily due to traffic from Interstate 580. According to the City's Noise Element, these noise levels are "conditionally acceptable" to "normally unacceptable" for churches and schools.

In the future, the site would be exposed to a CNEL of 65 dBA to 72 dBA. These noise levels are still "conditionally acceptable" to "normally unacceptable" and considered a potentially significant impact.

Of specific concern is the proposed chapel building, located facing I-580, which would be exposed to a CNEL of 72.

**<u>Impact 4.8-3 (non-residential noise impacts)</u>: The main campus of the Center would be exposed to future significant noise levels from the I-580 freeway (*potentially significant and mitigation required*).**

If Valley Christian Center elects to commence evening sports and related outside events on the playfield related to the installation of lights, noise in excess of City standards could be generated. Mitigation Measure 4.1-2 (b) would require evening activities to be undertaken following a noticed public hearing by the Dublin Planning Commission.

**<u>Impact 4.8-4 (impacts of future evening activities)</u>: Commencement of future evening activities that could be allowed with installation of lights could generate significant noise on surrounding residential neighborhoods (*potentially significant and mitigation required*).**

*Traffic generated noise*
Existing and future traffic volumes were obtained from Fehr and Peers Transportation Consultants. Roads that were analyzed include Inspiration Drive and Dublin Boulevard. Future noise levels were calculated using the Federal Highway Administration Traffic Noise Prediction Method (FHWA RD-77-108).

Based on calculations prepared by Charles Salter Associates, project generated traffic would increase the DNL by 1 dBA along Inspiration Drive and 1 dBA along Dublin Boulevard. (See Table 7). These increases are considered a less than significant impact.

**Table 7. Future Traffic Noise Levels (50 Ft. from Centerline)**

| Location | DNL in dB (Change Between Conditions) | | |
|---|---|---|---|
| | Existing | Existing + Project | Existing + Project + Future |
| Inspiration Drive | 64 | 65 (+1) | 65 (+1) |
| Dublin Boulevard | 64 | 65 (+1) | 65 (+1) |

Source: Charles Salter Associates

Impact 4.8-5 (impacts of project traffic): Additional traffic added to local streets near the project site would increase noise on adjacent properties less than 1 decibel (DNL) at full build out (*less than significant impact and no mitigation required*).

## MITIGATION MEASURES

Mitigation Measure 4.8-1 (construction noise impacts) : The following construction noise reduction measures shall be implemented as part of all construction.

a) Limit construction time to be 8:00 a.m. to 6:00 p.m. Monday-Saturday, except state and federal holidays. Exceptions may be granted in writing by the City Building Official for emergency or extenuating circumstances
b) Noisy stationary equipment should be located away from the homes.
c) All construction equipment should be in good working order and the mufflers should be inspected for proper functioning.
d) Designate a construction noise coordinator. This coordinator shall be available to respond to complaints from neighbors and take appropriate measures to reduce noise.

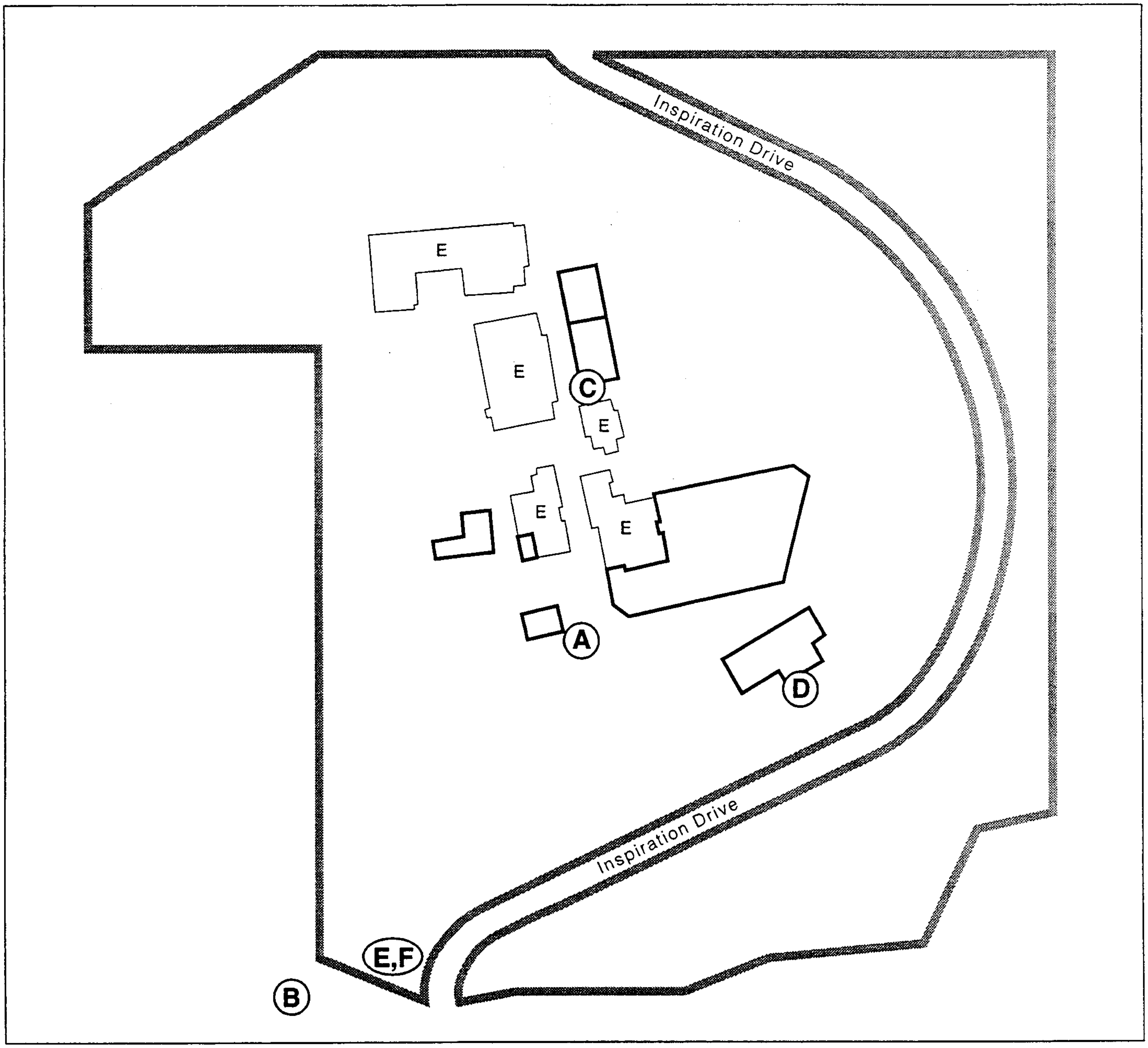
Mitigation Measure 4.8-2 (residential noise impacts): As part of Site Development Review applications for the housing portion of the project, a detailed acoustic study shall be completed by a qualified consultant to identify specific noise exposure of the dwellings and recommend specific measures to ensure that City interior and exterior noise exposure limits are met.

Mitigation Measure 4.8-3 (non-residential noise impacts): As part of the Site Development Review application for the chapel, an acoustic study shall be performed to identify specific noise exposure of the building and identify measures to reduce interior and exterior noise acceptable interior and exterior levels. Appropriate mitigation may include, but is not limited to sound rated windows, construction of sound walls or berms or use the building as a shield for outdoor spaces.

Mitigation Measure 4.8-4 (impacts of future evening activities): An acoustical analysis shall be completed prior to commencement of evening outdoor activities to estimate noise effects on surrounding residential areas. If the anticipated noise levels would exceed City noise exposure levels, the acoustic report shall contain specific methods to reduce noise levels to acceptable levels.

## LEVEL OF SIGNIFICANCE AFTER MITIGATION

No significant noise impacts would remain after the implementation of the recommended mitigation measures.




Blue Ox Associates, Berkeley, California 10-8-2002

**Exhibit 8**

## NOISE MEASUREMENT LOCATIONS

A – F Measurement Location

E Existing Building

Proposed Building

Site Boundary

0 250 500 feet

N

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

## 4.9 POPULATION, HOUSING AND EMPLOYMENT

### ENVIRONMENTAL ISSUES

This sections addresses demographic changes that could be anticipated should the proposed project be approved and constructed, including increases of local housing within the community and region. Employment impacts will also be reviewed.

### ENVIRONMENTAL SETTING

*Regional population*
The Association of Bay Area Governments (ABAG), the Council of Governments organization responsible for preparing and tracking population and demographic changes within the Bay Area region anticipates that the Bay Area will continue to grow at a steady rate. Factors contributing to this growth include a favorable climate, recreational activities, top universities and career opportunities. Over the next 20 years, the population is expected to increase to more than 8 million persons, a 16% increase over the current (2002) population. Population increases are expected to be primarily due to increases in births and longer life expectancies rather than significant in-migration.

Table 8 depicts anticipated comparative growth in the Bay Area, Alameda County and Dublin.

**Table 8. Regional, County and Dublin Total Population (Pop) & Household (HH) Projections[1]**

| | 2000 | | 2010 | | 2020 | |
|---|---|---|---|---|---|---|
| | Pop. | HHs | Pop. | HHs | Pop. | HHs |
| Region | 6,783,760 | 2,466,019 | 7,513,800 | 2,697,080 | 8,014,100 | 2,894,370 |
| Alameda Co. | 1,443,741 | 523,366 | 1,588,900 | 526,010 | 1,669,400 | 595,400 |
| Dublin | 30,007 | 9,335 | 47,500 | 15,330 | 57,900 | 19,260 |

Source: ABAG Projections 2002

Alameda County's growth is expected to reach a level of 1.67 million over the next 20 years, making it the second most populous county in the ABAG region behind Santa Clara County. ABAG notes that the Tri-Valley areas are anticipated to experience the highest growth rates in Alameda County over the next 20 years.

*Housing affordability and regional housing needs*

The State of California has determined that each local agency must be responsible for providing their respective fair share of the total housing need. This includes affordable housing for all income levels, including very low (below 50% of median County income), low (between 50 and 80% of median County income), moderate (80-120% of median County income) and above moderate (120+% of median County income) households. The Association of Bay Area Governments (ABAG) is responsible for allocating region-wide fair share housing goals among member agencies. Housing goals are established for seven years periods. Identification of appropriate housing sites and implementation strategies to assist in the achievement of these targets is to be carried out through Housing Elements of the General Plan for each community.

For the City of Dublin ABAG has established the total number of new dwellings within the seven-year period (1999-2006) is 5,436 units. This includes: Very Low income households (796 dwellings), Low income households (531 dwellings), Moderate income households (1,441 dwellings), and Above Moderate income households (2,668 dwellings).

The City's existing Housing Element was adopted in 1985 and is currently undergoing an update process to accommodate new fair share housing targets.

The City of Dublin Zoning Ordinance includes an inclusionary housing section (Chapter 8.68), which requires that each new residential project containing 20 or more units shall provide 5% of the number of units to be affordable to Very Low (2%), Low (2%) and Moderate (1%) income households. Inclusionary dwelling units are required to be income restricted for a period of at least 30 years. As part of the Housing Element update being completed by the City, the percentage of inclusionary dwellings may be increased in the future.

Employment

Based on information submitted by the applicant, the current Valley Christian Center employs 145, including school and church staff members.

## STANDARDS OF SIGNIFICANCE

A population and housing impact would be considered significant if a proposed project would induce substantial population growth, either directly or indirectly, or cause a significant increase in local employment.

## ENVIRONMENTAL IMPACTS

*Housing and population*
Approval of the proposed project would add 22 new housing units to the Dublin housing stock. Based on an average of 2.7 persons per dwelling (ABAG, Projections 2002), there would be an increase of 59 persons.

This increase would be consistent with the City's population forecast prepared by ABAG and, because of the relatively small size of the increase, this would not be considered a significant impact.

As noted in the Land Use Section (Section 4.7), the Valley Christian Center site is considered in the Land Use Element of the General Plan as a potential housing site.

**Impact 4.9-1 (housing and population): Approval of the proposed project would facilitate the addition of 22 new dwelling units and approximately 59 residents to the City of Dublin. Since proposed land uses and construction of the dwellings would generally be consistent with regional housing and population projections used for planning purposes, this impact would be less-than-significant (*less-than-significant impact and no mitigation measures required*).**

Approval of the proposed project would also offer the City an opportunity to increase the number of affordable housing units within the community. Based on current zoning standards, one of the dwelling units within the proposed project would need to be income-restricted for a period of 30 years. This requirement may increase if the City's inclusionary housing standard is increased as part of the Housing Element update process. The actual number of units required will be determined at the Stage 2 PD-Planned Development rezoning phase of the project.

**Impact 4.9-2 (housing affordability): Approval of the proposed Valley Christian Center project would contribute to meeting the City's fair share allocation of affordable housing units (*beneficial impact and no mitigation measures required*).**

*Employment*
As proposed by the project applicant, on-site employment would increase from 145 staff on the site to 165.

This is not considered a significant increase or impact and no mitigation measures are required.

## MITIGATION MEASURES

None required.

# 4.10 TRANSPORTATION AND CIRCULATION

## ENVIRONMENTAL ISSUES

This section of the document deals with potential increases in project traffic, cumulative traffic impacts to public transit systems and parking.

The following analysis is based on a traffic impact analysis for the project prepared by Fehr & Peers Associates (May 2001). This report is contained in Appendix 8.3 of the DEIR.

## ENVIRONMENTAL SETTING

*Existing street network*
Regional access to the project site is provided by Interstate 680 (I-680) from the north and south and Interstate 580 (I-580) from the east and west. Local access is provided by Amador Valley Boulevard, San Ramon Road, Dublin Boulevard, Bay Laurel Street, and Inspiration Drive. Each roadway is described below. The project site is not served by any fixed-route transit.

*I-680* is a north-south freeway that extends from Interstate 80 in Solano County south to San Jose. Through Dublin, I-680 carries approximately 136,000 vehicles per day across eight travel lanes. Local interchanges are located at Stoneridge Drive, I-580, and Alcosta Boulevard.

*I-580* is an east-west freeway that extends from U.S. 101 in San Rafael to I-5 south of Tracy. Through Dublin, I-580 carries approximately 164,000 vehicles per day across six travel lanes. Local interchanges are located at Dougherty Road, I-680, and San Ramon Road.

*Amador Valley Boulevard* is a major east-west arterial that extends from a condominium complex just west of San Ramon Road, through downtown Dublin, to Dougherty Road. Amador Valley Boulevard provides four lanes of travel between San Ramon Road and Village Parkway and two lanes of travel at either end beyond this segment. Amador Valley Boulevard is a designated bicycle route with Class II bicycle lanes in both directions.

*San Ramon Road* is a major north-south arterial that turns into Hartz Avenue in Danville and turns into Foothill Road south of I-580. San Ramon Road provides four lanes of travel north of Amador Valley Boulevard and six lanes of travel south of Amador Valley Boulevard. This roadway is classified as a Metropolitan Transportation System (MTS) roadway under the county's Congestion Management Program.

*Dublin Boulevard* is a major east-west arterial that extends from just west of Brigadoon Way at the western City limit, through Dublin parallel to I-580, to Tassajara Road. Dublin Boulevard provides six travel lanes between San Ramon Road and Village Parkway and two to four lanes east and west of this segment. This roadway (east of San Ramon Road) is classified as a Metropolitan Transportation System (MTS) roadway under the Alameda County's Congestion Management Program.

*Bay Laurel Street* is a residential east-west street that extends from Inspiration Circle, near the project site, to Silvergate Drive. Bay Laurel Street provides two lanes of travel along its entire length, and has a painted double-yellow centerline. The speed limit along this road is 25 miles per hour (mph). This street mainly provides access between the residential neighborhood and Silvergate Drive. At Silvergate Drive, drivers can access either Dublin Boulevard to the right or San Ramon Road to the left.

*Inspiration Drive* is a minor street that extends from Dublin Boulevard to the south to Inspiration Circle to the north. Inspiration Drive provides access to the project site via three driveways and also to the residential neighborhood to the north, at Inspiration Circle. Inspiration Drive has a speed limit of 25 mph and has two directions of travel, separated by a painted double-yellow line. At the project driveways, long left-turn pockets are provided to accommodate peak period traffic flows generated by the school on the site. The two northernmost driveways (referred to as Driveways #1 and #2 in this report) have signs posted that prohibit left turns out and right turns in between the hours of 7 a.m. and 5 p.m. on school days only. These turn restrictions serve to prevent school traffic from cutting through the residential neighborhood to the north in order to access the project site. Residents of the neighborhood can access the project site via the southernmost driveway (Driveway #3).

*Regional access*

Regional access to the site is provided by Interstate 880 (I-880). I-880 extends from Oakland to the San Jose region and provides the primary travel route for communities in Alameda and Santa Clara counties. The facility is a six- to ten-lane divided freeway with auxiliary merging/weaving lanes provided at interchanges. Within the project area, I-880 is a ten-lane freeway with a high occupancy vehicle (HOV) lane in each direction. The posted speed limit is 65 mph.

*Existing traffic operations*

The operations of the study intersections were analyzed under weekday a.m. and p.m. peak hour conditions. Peak conditions usually occur during the morning and evening commute periods between 7:00 a.m. and 9:00 a.m. and 4:00 p.m. and 6:00 p.m., respectively. Intersection operations were evaluated for the peak one-hour volume counted during each of these two periods. The three project driveways were evaluated during the a.m. peak only. Recent traffic counts were either collected by Fehr & Peers Associates or obtained from traffic studies for other developments in the area. The Existing turning movement count data collection sheets are included in Appendix A of the full traffic report.

In addition to peak hour volumes at the study intersections mentioned throughout the report, the average daily traffic volumes (ADT) for the roadway segments of Dublin Boulevard between Hansen Drive and Silvergate Drive and on Inspiration Drive, just south of the project site are calculated and reported under all four scenarios. Table 9, below, presents the results of counts provided by the City of Dublin.

**Table 9. Existing Average Daily Traffic (ADT) Volumes**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr.) | 8,200 |
| Inspiration Drive (just north of Dublin Boulevard) | 5,250 |

Source: City of Dublin.

*Level of Service methodology*

To determine the operating conditions of an intersection or roadway, the concept of level of service (LOS) is commonly used. The LOS grading system is a rating scale ranging from LOS A to LOS F, where LOS A represents free-flow conditions and LOS F represents jammed (gridlock) conditions. A unit of measure, such as the volume-to-capacity (v/c) ratio or average delay, generally accompanies the LOS designation By Dublin standards, LOS D or better is considered acceptable, and LOS E or F is considered unacceptable.

The City of Dublin uses the intersection LOS analysis methodology outlined in Contra Costa Transportation Authority's (CCTA) Technical Procedures, termed CCTALOS, which relates service level grades to a v/c ratio. The v/c ratio relates the total traffic volume for critical opposing movements to the theoretical capacity for those movements. This methodology can only be applied to signalized locations. Unsignalized intersections are analyzed based on the Transportation Research Board's Highway Capacity Manual (2000) methodology. This method determines the level of service for each movement based on the average control delay per vehicle. Control delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. Table 10 summarizes the LOS criteria for the CCTA (signalized) methodology, and Table 11 summarizes the LOS criteria for the HCM (unsignalized) methodology.

**Table 10. Signalized Intersection Level of Service Criteria**

| LOS | Sum of Critical V/C |
|---|---|
| A | < 0.60 |
| B | 0.61 – 0.70 |
| C | 0.71 – 0.80 |
| D | 0.81 – 0.90 |
| E | 0.91 – 1.00 |
| F | > 1.00 |

Source: Contra Costa Transportation Authority, Technical Procedures, 1997.

**Table 11. Unsignalized Intersection Level of Service Criteria**

| LOS | Delay (Seconds) |
|---|---|
| A | _10 |
| B | >10 and _15 |
| C | >15 and _25 |
| D | >25 and _35 |
| E | >35 and _50 |
| F | >50 |

Source: Transportation Research Board, Highway Capacity Manual, 2000

*Existing Levels of Service*

The existing lane configurations and the peak hour turning movement volumes were used to determine the levels of service for the study intersections. The results are presented in Table 12. For the signalized intersections, the v/c ratio and LOS are presented. For the unsignalized intersections, average control delay per vehicle and LOS are reported. In addition, for the unsignalized intersection of Dublin Boulevard/Inspiration Drive, the average delay and level of service for the approach with the highest delay (southbound) is shown. The LOS calculation worksheets are provided in Appendix B of the full traffic report.

As shown in Table 12, the intersection of Dublin Boulevard/Silvergate Drive operates at unacceptable LOS F under a.m. peak hour conditions. All other intersections operate at an acceptable LOS D or better during both peak hours.

## Table 12. Existing Intersection Levels of Service

| Intersection | Control[1] | AM Peak | | PM Peak | |
|---|---|---|---|---|---|
| | | V/C Ratio[2] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[2] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.31 | A | 0.54 | A |
| 2. Dublin/Amador Plaza | SIG | 0.32 | A | 0.56 | A |
| 3. Amador Plaza/St. Patrick/I-680 | AWS | 11.0 | B | 11.0 | B |
| 4. Dublin/San Ramon | SIG | 0.63 | B | 0.58 | A |
| 5. Dublin/Silvergate | AWS | 76.2 | F | 11.1 | B |
| 6. Dublin/Inspiration | SSS | 7.1 (17.6) 3 | A (C) 3 | 3.7 (10.4) 3 | A (B) 3 |
| 7. San Ramon/Silvergate | SIG | 0.62 | B | 0.63 | B |
| 8. Amador Valley/San Ramon | SIG | 0.54 | A | 0.57 | A |
| 9. Inspiration Dr./Inspiration Ct | AWS | 7.2 | A | 7.0 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.0 | A | 1.3 | A |
| 11. Inspiration/Driveway #1 | SSS | 6.5 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 6.4 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.5 | A | N/A | N/A |

Source: Fehr & Peers Associates; Contra Costa Transportation Authority, Technical Procedures, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.

Notes:

1. SIG = signal-controlled intersection
   AWS = unsignalized, all-way stop-controlled intersection
   SSS = unsignalized intersection, with side-street stop-control only
2. Volume-to capacity ratio determined for all signalized intersections (SIG) using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
3. Average delay / level of service for southbound stop movement shown in parentheses.

*Baseline traffic estimates*

Based on City requirements, Baseline conditions were developed by adding traffic generated by approved and pending projects to Existing traffic. The approved and pending projects are listed in Table 13.

## Table 13. Baseline (Approved + Pending Development)

| Project | Description |
|---|---|
| Hacienda Crossings | 50 acres mixed-use commercial-retail |
| General Motors Auto Mall | 15 acres auto dealerships |
| Koll Dublin Corporate Center | 34 acres mixed-use office, retail, hotel |
| Dublin Ranch Areas B-E | 72.6 acres commercial |
| Arlen Ness | 2.12 acres motorcycle parts distributor |
| Dublin Ranch Town Center | 304 commercial office |
| Chrysler Auto Dealership | 4.2 acres auto dealership |
| Corrie Center Phase 2 | 46,400 square feet new office building |
| Home Depot Expo | 93,130 square feet design center |
| Volkswagen Auto Dealership | 1.5 acres auto dealership |
| Park Sierra Apartments | 283 multi-family apartments |
| Hansen Ranch Phase II | 108 single family homes |
| Starward Drive | 31 single family homes |
| Archstone Communities | 177 multi-family apartments |
| Trumark Companies | 60 townhomes |
| Shamrock Marketplace | 75,380 square feet commercial-retail |
| Hexcel Facilities Expansion | Relocation of 150 employees |
| Dublin Safeway Center | 55,256 square feet supermarket, 9 pump island gas station, 10, 743 square feet additional |
| Kindercare | 180-student children's daycare |
| **Armstrong Garden Center** | **Need more info** |
| **Legacy Partners Cor-o-van** | **Need more info** |

Source: City of Dublin.

The first 15 development projects listed in Table 13 were analyzed in the Village Parkway, Downtown Core, and West Dublin BART Station Specific Plans transportation study. The traffic volumes and trip distribution associated with these developments were obtained from this study. The volumes and distributions of the other projects in Table 13 were obtained from their respective traffic studies. These trips plus existing traffic volumes are represented in Exhibit 9b.

Several roadway improvements are planned within the study area and are represented in the baseline conditions analysis. These improvements include the following list:

- Upon completion of the I-680 southbound on-ramp that will intersect Amador Plaza Road and St. Patrick Way, the intersection will be signalized. This modification was assumed under Baseline conditions, including the addition of a southbound left-turn lane for vehicles to turn onto the on-ramp.
- Addition of a westbound left-turn lane at the Dublin Blvd./Village Parkway

intersection.

- Addition of an exclusive eastbound right-turn lane at Dublin Blvd./Village Parkway and conversion of the through/right-lane to a through lane.
- Addition of a southbound left-turn lane at Dublin Blvd./Amador Plaza Rd.
- Conversion of a westbound through lane to a left-turn lane at Dublin Blvd. /Amador Plaza, conversion of a through/right lane into a through lane and the addition of a westbound right-turn lane.

Baseline volumes for the Amador Plaza Rd./St. Patrick Way/I-680 intersection were taken directly from the Village Parkway, Downtown Core and West Dublin BART Station Specific Plans study and include redistribution of trips due to the opening of the on-ramp.

*Baseline intersection Levels of Service*

Levels of service were calculated for the study intersections using the Baseline traffic volumes and roadway improvements listed above. Table 14 presents the LOS results for Baseline conditions. The LOS calculation sheets are included in Appendix B of the full report.

Most intersections would continue to operate at LOS A or B during both of the peak hours with the addition of approved and pending project traffic and the planned intersection and roadway improvements. More notable differences include the change at the intersection of Dublin Boulevard/San Ramon Road from LOS B to LOS C during the a.m. peak hour and from LOS A to LOS C in the p.m. peak hour, and the change from LOS A to LOS D at Dublin Boulevard/Amador Plaza Road in the p.m. peak hour.

As shown in Table 14, the intersection operating unacceptably is Dublin Boulevard/ Silvergate Drive. During the a.m. peak hour, this intersection operates at LOS F under both Existing and Baseline conditions. During the p.m. peak hour, the intersection of Dublin Boulevard/Silvergate Drive deteriorates from LOS B to LOS E under Baseline conditions.

*Recommended improvements*

Two of the study intersections, Dublin Boulevard/Silvergate Drive and Dublin Boulevard/Inspiration Drive, were both evaluated to determine if signalization was warranted at these locations. This analysis was conducted based on Warrant 11 of the California Department of Transportation (Caltrans) Traffic Manual (September, 1992) and estimated peak hour traffic volumes. Based on these warrant criteria and Existing peak hour volumes, both intersections warrant traffic signals under existing conditions regardless of the proposed project (See Appendix C for signal warrant sheets, contained in the full traffic analysis).

## Table 14. Baseline (No Project) Intersection Levels of Service

| Intersection | Control[2] | Existing | | | | Baseline (No Project) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.31 | A | 0.54 | A | 0.40 | A | 0.67 | B |
| 2. Dublin/Amador Plaza | SIG | 0.32 | A | 0.56 | A | 0.51 | A | 0.86 | D |
| 3. Amador Plaza Rd./ St. Patrick Way/I-680 | AWS/SIG[4] | 11.0 | B | 11.0 | B | 0.43 | A | 0.55 | A |
| 4. Dublin/San Ramon | SIG | 0.63 | B | 0.58 | A | 0.79 | C | 0.74 | C |
| 5. Dublin/Silvergate | AWS | ***76.2*** | ***F*** | 11.1 | B | ***>100*** | ***F*** | ***47.1*** | ***E*** |
| 6. Dublin/Inspiration | SSS | 7.1 (17.6)[5] | A (C)[5] | 3.7 (10.4)[5] | A (B)[5] | 10.6 (25.9)[5] | B (D)[5] | 4.2 (12.1)[5] | A (B)[5] |
| 7. San Ramon/Silvergate | SIG | 0.62 | B | 0.63 | B | 0.66 | B | 0.68 | B |
| 8. Amador Plaza Rd. /San Ramon | SIG | 0.54 | A | 0.57 | A | 0.60 | A | 0.65 | B |
| 9. Inspiration Dr./Inspiration Ct | AWS | 7.2 | A | 7.0 | A | 7.8 | A | 7.4 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.0 | A | 1.3 | A | 2.3 | A | 1.4 | A |
| 11. Inspiration/Driveway #1 | SSS | 6.5 | A | N/A | N/A | 4.4 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 6.4 | A | N/A | N/A | 5.8 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.5 | A | N/A | N/A | 1.4 | A | N/A | N/A |

Source: Fehr & Peers Associates; Contra Costa Transportation Authority, Technical Procedures, 1997; Transportation Research Board, Highway Capacity Manual, 2000.

Notes:

1. Unacceptable operations highlighted.
2. SIG = signal-controlled intersection, AWS = unsignalized, all-way stop-controlled intersection, SSS = unsignalized intersection, with side-street stop-control only
3. Volume-to- capacity ratio determined for all signalized intersections (SIG) using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
4. The Amador Plaza/St. Patrick/I-680 intersection is unsignalized under Existing conditions and assumed signalized under Baseline conditions.
5. Average delay / level of service for southbound stop movement shown in parentheses.

The intersection of Silvergate Drive/Bay Laurel Street was also analyzed to determine if four-way stop control was warranted. This analysis followed the methodology for multiway stop sign warrants set forth by the Federal Highway Administration (FHWA) in the Manual on Uniform Traffic Control Devices (MUTCD) (1998 Edition). Based on these warrants, the intersection of Bay Laurel Street/Silvergate Drive does not warrant all-way stop or signal control.

It is recommended that the two intersections that warrant signal control be signalized. These signal installations would not be mitigation for the proposed project, since both intersections warrant signals under existing and baseline conditions without the project. Based on this recommendation, both intersections were also analyzed as signalized intersections under Project conditions. If signalized, under Baseline conditions, both intersections would operate at LOS A in both the a.m. and the p.m. peak hours, as shown in Table 15.

**Table 15. Baseline (No Project) Intersection Levels of Service with Recommended Improvements**

| Intersection | Stop Sign Control | | | | Signal Control[2] | | | |
|---|---|---|---|---|---|---|---|---|
| | AM | | PM | | AM | | PM | |
| | Avg. delay/ Veh. [1] (sec.) | LOS | Avg. delay/ Veh. [1] (sec.) | LOS | V/C ratio | LOS | V/C ratio | LOS |
| 5. Dublin/Silvergate | *10.6* | *F* | *47.1* | *E* | 0.60 | A | 0.36 | A |
| 6. Dublin/Inspiration | | B | 4.2 | A | 0.49 | A | 0.23 | A |

Source: Fehr & Peers Associates; Contra Costa Transportation Authority, *Technical Procedures*, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.

*Notes:*

1. Volume-to-capacity (v/c) ratio determined for all signalized intersections using the CCTALOS methodology. For the unsignalized intersections, average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
2. In addition to signalization at both intersections, it was assumed that the westbound approach to Dublin Blvd./Silvergate Dr., which is currently a shared through-right lane, would be converted to a single through lane and a single right-turn lane.

It is important to note that in performing this intersection analysis, it was assumed that for the intersection of Dublin Blvd./Silvergate Dr., the current lane configuration would be modified slightly with signalization. Specifically, the westbound approach, which currently consists of a shared lane for the through and right-turn movements, would be converted into a single through-only lane and a single right-turn-only lane. No other modifications to the existing lane configuration would be needed to achieve levels of service consistent with City of Dublin standards.

*Average Daily Traffic (ADT)*
The increase in ADT on Dublin Boulevard and Inspiration Drive with the approved and pending projects in the locations discussed previously was determined by multiplying the number of p.m. peak hour trips to be added under Baseline conditions by a factor of 10. This increase in ADT was then added to the Existing ADT provided by the City of Dublin to obtain Baseline conditions ADT, as shown in Table 16, below.

**Table 16. Baseline (No Project) Average Daily Traffic**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr.) | 13,620 |
| Inspiration Drive (just north of Dublin Boulevard) | 6,550 |

Source: Fehr & Peers Associates

*Public transit*
The City of Dublin and other cities in the Tri-Valley area (Livermore and Pleasanton) are served by the Livermore-Amador Valley Transit Authority (LAVTA) that operates WHEELS, consisting of a fixed bus route system, dial-a-ride paratransit and prime time commuter express and shuttle service.

According to LAVTA service planners (pers. comm. with Cyrus Sheik, 3/29/02), the nearest fixed bus service to the project site is provided by Route 4, which runs along Dublin Boulevard and then north along Silvergate Boulevard. This route provides service to downtown Dublin and north Pleasanton. Busses providing service on Route 4 are presently operating at less than full capacity due to less than expected ridership.

*Parking*
Several parking lots have been constructed as part of the existing Valley Christian Center complex. According to the submitted Stage 1 and Stage 2 PD-Planned Development application, 510 parking spaces exist on the site.

There is no record of complaints received by the Dublin Community Development Department regarding overflow of parking in adjacent neighborhoods.

## STANDARDS OF SIGNIFICANCE

The City of Dublin considers a project impact to be significant if the addition of project-generated traffic causes one or more of the following:

- Generates traffic that would cause operations at an intersection to deteriorate from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F) with the addition of project trips;
- Generates traffic volumes that would cause traffic signal warrants to be met or exceeded at unsignalized intersections;
- Causes adverse effects on the operation of the transit, pedestrian, or bicycle circulation network;
- Causes a noticeable traffic safety or functional problem; or,
- Creates a lack of on-site parking.

## ENVIRONMENTAL IMPACTS

*Project trip generation*
The proposed project includes the addition of 187,000 square feet (SF) of junior and senior high school space to an existing K-12 school, a senior center, a sports facility, a new chapel, an expansion of an existing pre-school facility, and an expansion of the existing sanctuary and church administration complex. In addition, the project would provide up to 30 multi-family dwelling units (22 are presently proposed) near the intersection of Inspiration Drive and Dublin Boulevard.

To estimate the amount of traffic generated by the proposed project, two types of data were considered. First, the existing, site-specific trip generation rate was computed based on morning peak hour traffic counts conducted at the three project driveways and the number of students at the existing facility. Second, standard trip generation rates from the Institute of Transportation Engineers' (ITE) Trip Generation (6th Edition) were reviewed.

The existing, site-specific trip generation rate based on existing morning peak hour counts and the number of students in the pre-school, elementary school, junior high school, and high school was determined to be 0.83 trips per student. This rate was then compared with the trip generation rate published by the ITE for a private K-12 school of 0.92 trips per student during the morning peak hour. Based on this comparison, it appears that the published ITE trip generation rate is conservatively higher than the site-specific rate. Thus, it was determined that the ITE trip generation rates would be used for the purposes of this study. However, because the school expansion will only result in the addition of students to the junior and senior high school, the ITE "High School" land use average rate of 0.46 peak hour trips per student in the a.m. peak hour and 0.15 peak hour trips per student during the p.m. peak hour was used for the trip generation estimates for this portion of the project.

The proposed project consists of a number of land use types. The school expansion plan calls for the addition of 200 new students. Thus, as discussed above, the average peak hour trip rates of 0.46 trips per student in the a.m. peak and 0.15 trips per student during the p.m. peak hour were applied to estimate the number of new trips to the school facility. For the expansion and addition of the senior center and counseling area portion of the proposed project, the ITE "Church" land use average rates of 0.72 peak hour trips per thousand square feet (ksf) in the a.m. peak hour and 0.66 peak hour trips per ksf in the evening were applied to the 30,000 square feet of proposed new construction. The "Church" average rate was used because the ITE Trip Generation manual states that it incorporates all ancillary uses that may accompany a church campus, including counseling and day care. The ITE "Apartment" land use average trip generation rates of 0.51 peak hour trips per dwelling unit in the morning and 0.62 peak hour trips per dwelling unit in the evening were applied to the 30 multi-family dwelling units proposed under the project. Finally, it was assumed that for the other proposed uses, which include new sanctuary, nursery, pre-school, seminar, fellowship hall, and church administration space, that there would be approximately one peak hour trip per new church employee that would be added to the church staff upon completion of the proposed expansion. Currently, the church anticipates the hiring of ten additional staff members. Therefore, 10 additional peak hour trips were assumed to be generated as a result of this portion of the expansion.

As shown in Table 17, during the morning peak hour, 139 new trips would be generated by the project; and during the evening peak hour, 78 trips would be generated. The inbound/outbound directional distribution of peak hour trips was also based on Trip Generation. Daily trip generation estimates should be calculated in the future when project-specific plans are submitted by the applicant.

*Trip distribution*
The trip distribution pattern for the proposed project was based on the residence location for both school students and church members, which was provided by City of Dublin staff. This project would draw traffic from both the local and regional population. Traffic residing in the City of Dublin was assigned to the local roadway network based on Existing traffic volumes and patterns. Traffic residing in other cities was generally assumed to travel to and from the nearest appropriate freeway on- and off-ramps.

The major directions of approach and departure, based on the information regarding church member and student residence location provided by the City of Dublin, assumed for the proposed project are shown in the full traffic report contained in the Appendix. Regional traffic is assumed to include 28 percent to/from I-680 north, 13 percent to/from I-680 south, 8 percent to/from I-580 west, and 25 percent to/from I-580 east. The remaining 26 percent includes local traffic and is distributed throughout the area.

## Table 17. Project Trip Generation Rates and Estimates

| Use | Units | Trip Generation Rates per Unit | | | | | | Project Trip Generation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total |
| Building A, 1 Sanctuary, Nursery, Pre-school, Seminar Rooms, Fellowship Hall Administration | 10 Employees | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 10 | 0 | 10 | 0 | 10 | 10 |
| Building B Jr. / Sr. High School, Administration | 200 Students | 0.32 | 0.14 | 0.46 | 0.06 | 0.09 | 0.15 | 64 | 28 | 92 | 12 | 18 | 30 |
| Building E Senior Center, Counseling | 30 ksf[1] | 0.39 | 0.33 | 0.72 | 0.36 | 0.30 | 0.66 | 12 | 10 | 22 | 11 | 9 | 20 |
| Parcel 2 Apartments | 30 DU[2] | 0.08 | 0.43 | 0.51 | 0.42 | 0.20 | 0.62 | 2 | 13 | 15 | 13 | 6 | 19 |
| **Total Net New Trips** | | | | | | | | **88** | **51** | **139** | **35** | **43** | **78** |

Source: Institute of Transportation Engineers, *Trip Generation*, 6th Edition.
Notes:
1. ksf = 1000 square feet
2. DU = Dwelling Unit

*Trip assignment*
Trips generated by the proposed project were distributed across the roadway system based on the directions of approach and departure described above. The actual routes assigned were determined based on existing travel patterns.

As mentioned above in the description of Inspiration Drive, turn restrictions have been placed on Driveways #1 and #2. These restrictions prohibit right-turns into and left-turns out of the project site between the hours of 7 a.m. and 5 p.m. These regulations were put in place in order to reduce the number of trips to and from the project site using Bay Laurel Street to "cut-through" the residential neighborhood to the northeast, thereby bypassing Dublin Boulevard.

These turn restrictions went into effect on the first day of school in 1999, and were immediately enforced by City of Dublin Police. In the month of October 1999, counts were conducted to determine the effectiveness of these measures. These counts revealed that only four vehicles made illegal movements into and out of the project site during the morning peak on the day on which the counts were conducted. Counts conducted by Fehr & Peers in February 2001 reveal that while the restrictions are still highly effective relative to the number of vehicles using Bay Laurel Street to "cut-through" before the turn restrictions were put in place, the number has grown slightly to 20 vehicles. This may indicate that the number of vehicles using Bay Laurel Street to access the project site is gradually increasing. Therefore, it is recommended that monitoring be conducted on a school day approximately every six months for a period of two years following the completion of the school's expansion and reported to the City, in order to monitor the number of violations, which would indicate the number of vehicles using Bay Laurel Street. Based on this monitoring, if it is determined that the number of violations is increasing, additional measures, such as increased enforcement, could be taken to limit the number of vehicles traveling along Bay Laurel Street.

*Project related traffic impact*
There would be no significant impacts due to the project under Baseline conditions, assuming that the recommended improvements mentioned previously are constructed. All intersections continue to operate at LOS D or better, except for Dublin Boulevard/Silvergate Drive, which would continue to operate at LOS F if no traffic signal were installed. However, as noted previously, both Dublin Boulevard/Silvergate Drive and Dublin Boulevard/Inspiration Drive currently meet the criteria set forth under Warrant 11 in the California Department of Transportation (Caltrans) Traffic Manual (September, 1992) for signalization under existing peak hour traffic conditions. If these intersections are, in fact, signalized, they will operate at LOS C or better, which falls within the standards of the City of Dublin for signalized intersections.

<u>Impact 4.10-1 (intersection impacts</u>) **Approval and construction of the proposed expansion would contribute additional traffic to the existing significantly impacted intersection of Dublin Boulevard and Silvergate Drive and would contribute additional traffic to the existing significantly impacted intersection of Dublin Boulevard and Inspiration Drive (*significant impact mitigation is required*).**

*Impacts to local streets*
The likelihood of project traffic traveling along Bay Laurel Street was also analyzed. Because of the turn restrictions in place, which prohibit movements at the project driveways to and from Bay Laurel Street between the hours of 7 a.m. and 5 p.m. on school days from Driveways #1 and #2 (Intersections #11 and #12), and based on traffic counts conducted by Fehr & Peers Associates, there is a low violation rate, which indicates a low rate of vehicles traveling to and from the project site using Bay Laurel Street. Therefore, it is expected that any expansion to the existing facility would result in no significant increase in traffic at Inspiration Drive/Inspiration Circle and at Silvergate Drive/Bay Laurel Street. Compared to counts conducted immediately after

the restrictions were put in place, however, it appears that the violation rate is gradually increasing.

<u>Impact 4.10-2 (local street impacts)</u>. **Expansion of the Valley Christian Center may increase traffic on local streets near the project site, in spite of existing turning controls on project driveways (*significant impact and mitigation is required*).**

*Average Daily Traffic*
The increase in ADT on Dublin Boulevard and Inspiration Drive at the locations discussed previously as a result of the project was again determined by multiplying the number of p.m. peak hour project trips to be added by a factor of 10. This increase in ADT was then added to the Baseline conditions ADT presented earlier in this report to obtain Baseline plus Project conditions ADT, as shown in Table 18.

**Table 18. Baseline Plus Project Average Daily Traffic**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr.) | 14,250 |
| Inspiration Drive (just north of Dublin Boulevard) | 7,210 |

Source: Fehr & Peers, Associates

Cumulative traffic impact
Based on City requirements, cumulative conditions were developed by adding Existing traffic, Baseline traffic, and additional traffic generated by planned long-term development. The long-term projects include those to be developed as part of the Downtown Core Specific Plan and the West Dublin BART Specific Plan. A complete list of the land use changes associated with these plans is available in the transportation impact report for the Village Parkway, Downtown Core, and West Dublin BART Station Specific Plans. The traffic volumes and trip distribution associated with the Downtown Core Specific Plan and West Dublin BART Station Specific Plan were obtained from the report. These trips added onto Existing, Baseline, and project traffic volumes are represented in Exhibit 9c.

A number of roadway improvements are planned within the study area and are represented in the Cumulative plus Project conditions analysis. These improvements include the following:

- Addition of an exclusive northbound right-turn lane at Dublin Blvd./Amador Plaza Rd. and conversion of the through/right lane to a through lane.
- Addition of an exclusive southbound right-turn lane at Dublin/Amador Plaza and conversion of the through/right-lane to a through lane.

- Addition of an exclusive eastbound right-turn lane at Dublin Blvd./Amador Plaza Rd. and conversion of the through/right lane to a through lane.
- Conversion of the westbound right-turn lane at Dublin Blvd./Amador Plaza to a combination through/right-turn lane.

## Table 19. Baseline Plus Project Traffic Intersection Levels of Service

| Intersection | Control[2] | Baseline (No Project) | | | | Baseline Plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.40 | A | 0.67 | B | 0.40 | A | 0.67 | B |
| 2. Dublin/Amador Plaza | SIG | 0.51 | A | 0.86 | D | 0.51 | A | 0.87 | D |
| 3. Amador Plaza/St. Patrick/I-680 | SIG | 0.43 | A | 0.55 | A | 0.44 | A | 0.56 | A |
| 4. Dublin/San Ramon | SIG | 0.79 | C | 0.74 | C | 0.80 | C | 0.75 | C |
| 5. Dublin/Silvergate | AWS | ***>100*** | ***F*** | ***47.1*** | ***E*** | ***> 100*** | ***F*** | ***57.6*** | ***F*** |
| 5. Dublin/Silvergate | SIG[4] | 0.60 | A | 0.36 | A | 0.63 | B | 0.38 | A |
| 6. Dublin/Inspiration | SSS | 10.6 (25.9)[5] | B (D)[5] | 4.2 (12.1)[5] | A (B)[5] | 13.3 (32.6)[5] | B (D)[5] | 4.8 (12.7)[5] | A (B)[5] |
| 6. Dublin/Inspiration | SIG[4] | 0.49 | A | 0.23 | A | 0.54 | A | 0.25 | A |
| 7. San Ramon/Silvergate | SIG | 0.66 | B | 0.68 | B | 0.67 | B | 0.68 | B |
| 8. Amador Valley/San Ramon | SIG | 0.60 | A | 0.65 | B | 0.60 | A | 0.65 | B |
| 9. Inspiration Dr./Inspiration Ct | AWS | 7.8 | A | 7.4 | A | 7.8 | A | 7.5 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.3 | A | 1.4 | A | 2.3 | A | 1.4 | A |
| 11. Inspiration/Driveway #1 | SSS | 4.4 | A | N/A | N/A | 4.7 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 5.8 | A | N/A | N/A | 6.2 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.4 | A | N/A | N/A | 1.5 | A | N/A | N/A |

Source: Fehr & Peers Associates; Contra Costa Transportation Authority, Technical Procedures, 1997; Transportation Research Board, Highway Capacity Manual, 2000.

Notes:
1. Unacceptable operations highlighted.
2. SIG = signal-controlled intersection
   AWS = unsignalized, all-way stop-controlled intersection
   SSS = unsignalized intersection, with side-street stop-control only

3. Volume-to capacity ratio determined for all signalized (SIG) intersections using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
4. Intersections 5 & 6 were analyzed both under Existing control (all-way stop) and under recommended control (traffic signal).
5. Average delay / level of service for southbound stop movement shown in parentheses.

## Table 20. Cumulative Plus Project Traffic Intersection Levels of Service[1]

| Intersection | Control[2] | Baseline Plus Project | | | | Cumulative Plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.40 | A | 0.67 | B | 0.47 | A | 0.77 | C |
| 2. Dublin/Amador Plaza | SIG | 0.51 | A | 0.87 | D | 0.42 | A | 0.77 | C |
| 3. Amador Plaza/St. Patrick/I-680 | SIG | 0.44 | A | 0.56 | A | 0.62 | B | 0.76 | C |
| 4. Dublin/San Ramon | SIG | 0.80 | C | 0.75 | C | 0.85 | D | 0.85 | D |
| 5. Dublin/Silvergate | AWS | ***> 100*** | ***F*** | ***57.6*** | ***F*** | ***> 100*** | ***F*** | ***> 100*** | ***F*** |
| 5. Dublin/Silvergate | SIG[4] | 0.63 | B | 0.38 | A | 0.66 | B | 0.44 | A |
| 6. Dublin/Inspiration | AWS | 13.3 (32.6)[5] | B (D)[5] | 4.8 (12.7)[5] | A (B)[5] | 14.1 (34.6)[5] | B (D)[5] | 5.0 (13.3)[5] | A (B)[5] |
| 6. Dublin/Inspiration | SIG[4] | 0.54 | A | 0.25 | A | 0.54 | A | 0.27 | A |
| 7. San Ramon/Silvergate | SIG | 0.67 | B | 0.68 | B | 0.72 | C | 0.71 | C |
| 8. Amador Valley/San Ramon | SIG | 0.60 | A | 0.65 | B | 0.61 | B | 0.70 | B |
| 9. Inspiration Dr./Inspiration Ct | SSS | 7.8 | A | 7.5 | A | 7.9 | A | 7.6 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.3 | A | 1.4 | A | 2.4 | A | 1.4 | A |
| 11. Inspiration/Driveway #1 | SSS | 4.7 | A | N/A | N/A | 4.7 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 6.2 | A | N/A | N/A | 6.2 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.5 | A | N/A | N/A | 1.5 | A | N/A | N/A |

Source: Fehr & Peers Associates; Contra Costa Transportation Authority, Technical Procedures, 1997; Transportation Research Board, Highway Capacity Manual, 2000.

Notes:

1. Unacceptable operations highlighted.
2. SIG = signal-controlled intersection
   AWS = unsignalized, all-way stop-controlled intersection
   SSS = unsignalized intersection, with side-street stop-control only

3. Volume-to capacity ratio determined for all signalized intersections (SIG) using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
4. Intersections 5 & 6 were analyzed both under Existing control (all-way stop) and under recommended control (traffic signal).
5. Average delay / level of service for southbound stop movement shown in parentheses.

Levels of service were calculated for the study intersections using the Cumulative plus Project traffic volumes and roadway improvements listed above. Table 20, located at the end of this section, presents the LOS results.

The results are compared to Baseline plus Project levels of service. The LOS calculation sheets are included in Appendix B, contained in the full traffic report.

The intersection of Dublin Boulevard/Silvergate Drive would continue to operate at LOS F if no traffic signal is installed. If Dublin Boulevard/Silvergate Drive and Dublin Boulevard/Inspiration Drive are signalized, they would both operate at LOS D or better under Cumulative Plus Project conditions, and fall within City of Dublin Standards. All other intersections during both peak hours would operate at an acceptable LOS D or better under Cumulative Plus Project conditions. Therefore, the project's traffic impacts would not be significant and no mitigation would be necessary.

*Average Daily Traffic (ADT)*
Increase in ADT on Dublin Boulevard and Inspiration Drive in the locations discussed previously as a result of the addition of Cumulative trips was again determined by multiplying the number of p.m. peak hour trips to be added under Cumulative conditions by a factor of 10. This increase in ADT was then added to the Baseline plus Project conditions ADT presented earlier in this report to obtain Cumulative plus Project conditions ADT, as shown in Table 21, below.

**Table 21. Cumulative Plus Project Average Daily Traffic**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr. | 16,210 |
| Inspiration Drive (just north of Dublin Boulevard) | 7,460 |

Source: Fehr & Peers, Associates

The City of Dublin uses an upper threshold of 15,600 vehicles per day to maintain an LOS D on two-lane roadway segments. Based on this ADT threshold, Dublin Boulevard between Hansen Drive and Silvergate Drive should be widened from two lanes to four lanes under the Cumulative plus Project scenario.

__Impact 4.10-3 (cumulative traffic).__ **Approval of the proposed expansion would contribute traffic to Dublin Boulevard, resulting in future traffic volumes above the City's threshold of significance (__significant impact and mitigation is required__).**

*Public transit impacts*
Based on a recent discussion with the service planning staff from LAVTA, busses serving Route 4, near the project site, are currently operating at less than full capacity and the addition of new employees and visitors to the Valley Christian Center would not create a significant impact on LAVTA facilities.

__Impact 4.10-4 (public transit impacts)__. **Approval of the proposed Valley Christian Center expansion would have no impact to the local public transit provider, since public transit facilities are presently operating below capacity (*no impact and no mitigation is required*).**

*Parking impacts*
The Stage 1 & Stage 2 PD-Planned Development plan indicates that 250 new paved and 100 unpaved overflow parking spaces would be provided on the site. This would bring the total number of on-site parking spaces to 860, and would include a mix of full size parking stalls, compact spaces and handicap-accessible spaces.

The following analysis has been prepared to analyze the adequacy of project parking.

**Table 22. Project Parking Analysis**

| Land Use Component | Quantity | Parking Ratio[1] | Required Parking |
|---|---|---|---|
| Worship Space | 2000 seats | 1 sp./3 seats | 667 sp. |
| Preschool Facility (assume 1 staff per each 8 students) | 100 students | 1 per employee | 13 |
| Elementary School[2] (assume 20 students per classroom) | 750 students (37 classes) | 2 per classroom | 74 |
| High School[2] (assume 25 students per classroom) | 450 students (18 classes) | 1/room + 4 per student | 131 |
| Church Admin. Staff[2] | 35 | 1/staff | 35 |
| School staff[2] | 155 | (covered in school ratios) | -- |
| **Total—Worship services**<br>**Total—Other Uses** | | | **667 sp.**<br>**253 sp.** |

Notes:
(1) Parking Ratio from City of Dublin Zoning Ordinance
(2) Denotes use not is session during worship services

Based on the above analysis, the peak 667 parking space demand for worship services could be met by the 860 spaces available on the site. Therefore, adequate on-site parking would be provided to meet parking demand for the various land uses and activities proposed for the project and there would therefore be no parking impacts associated with the proposal.

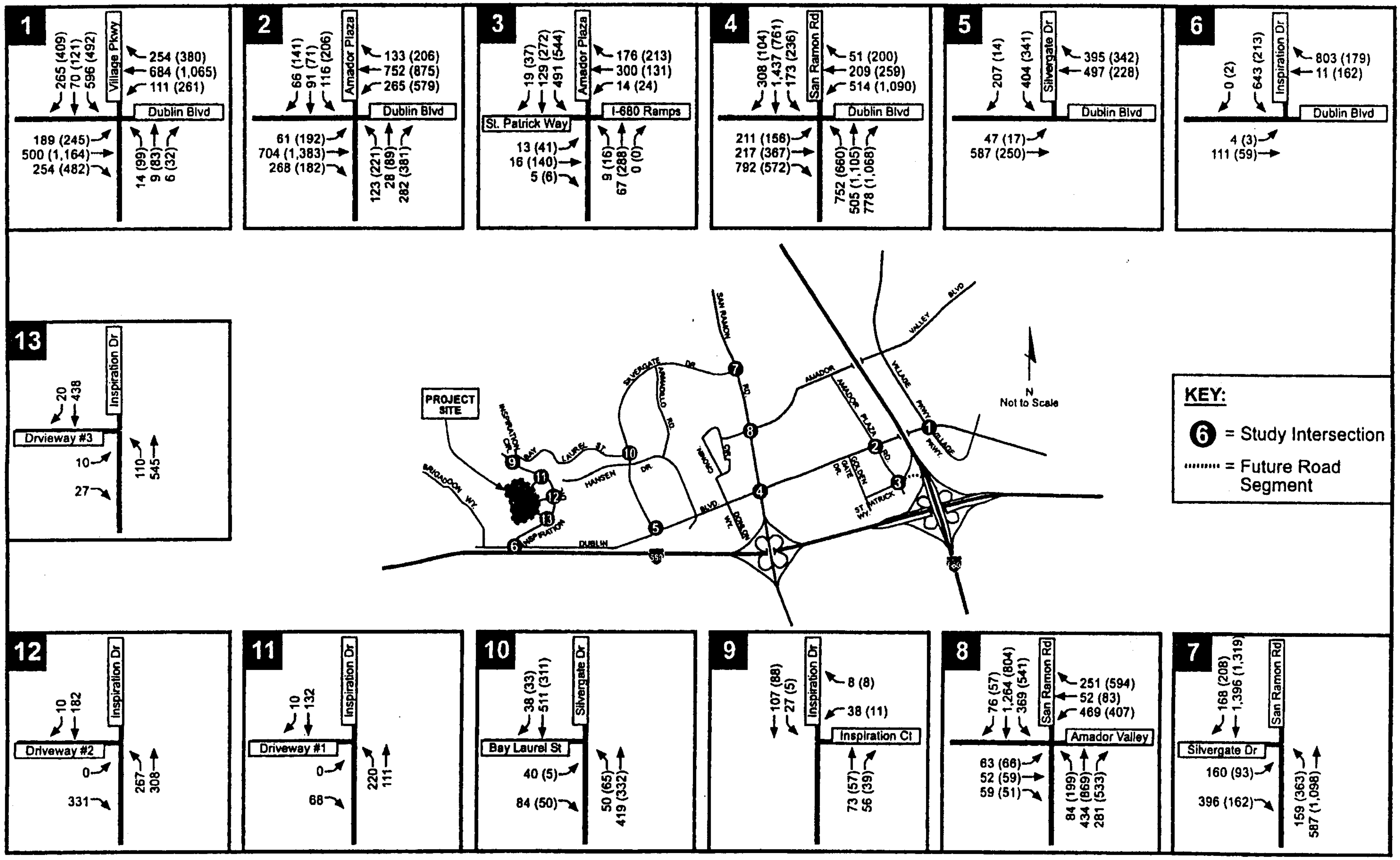
**Impact 4.10-5 (parking impacts). Since the proposed project includes sufficient on-site parking to accommodate each of the various activities included within the project and would comply with City of Dublin parking standards, no impacts regarding parking are anticipated (*no impact and no mitigation is required*).**

MITIGATION MEASURES

**Mitigation Measure 4.10-1 (intersection impacts) The project sponsor shall contribute a fair-share contribution to the funding of traffic signals at the Dublin Boulevard/Silvergate Drive and Dublin Boulevard/Inspiration Drive.**

**Mitigation Measure 4.10-2 (local street impacts). Monitoring of the peak hour turning movements at project driveways be conducted on one typical school day every six months following the completion of the school expansion and reported to the City, to demonstrate that the expansion does not increase the rate of vehicles violating these restrictions. If the number of violators increases after the expansion, more stringent enforcement or other measures may be required by the school administration to limit the number of vehicles accessing the project site to or from Bay Laurel Street, as determined by the City of Dublin Public Works Director.**

**Mitigation Measure 4.10-3 (cumulative traffic). The project sponsor shall make a fair share contribution toward the funding of the future widening of Dublin Boulevard between Hansen Drive and Silvergate Drive from two to four lanes.**

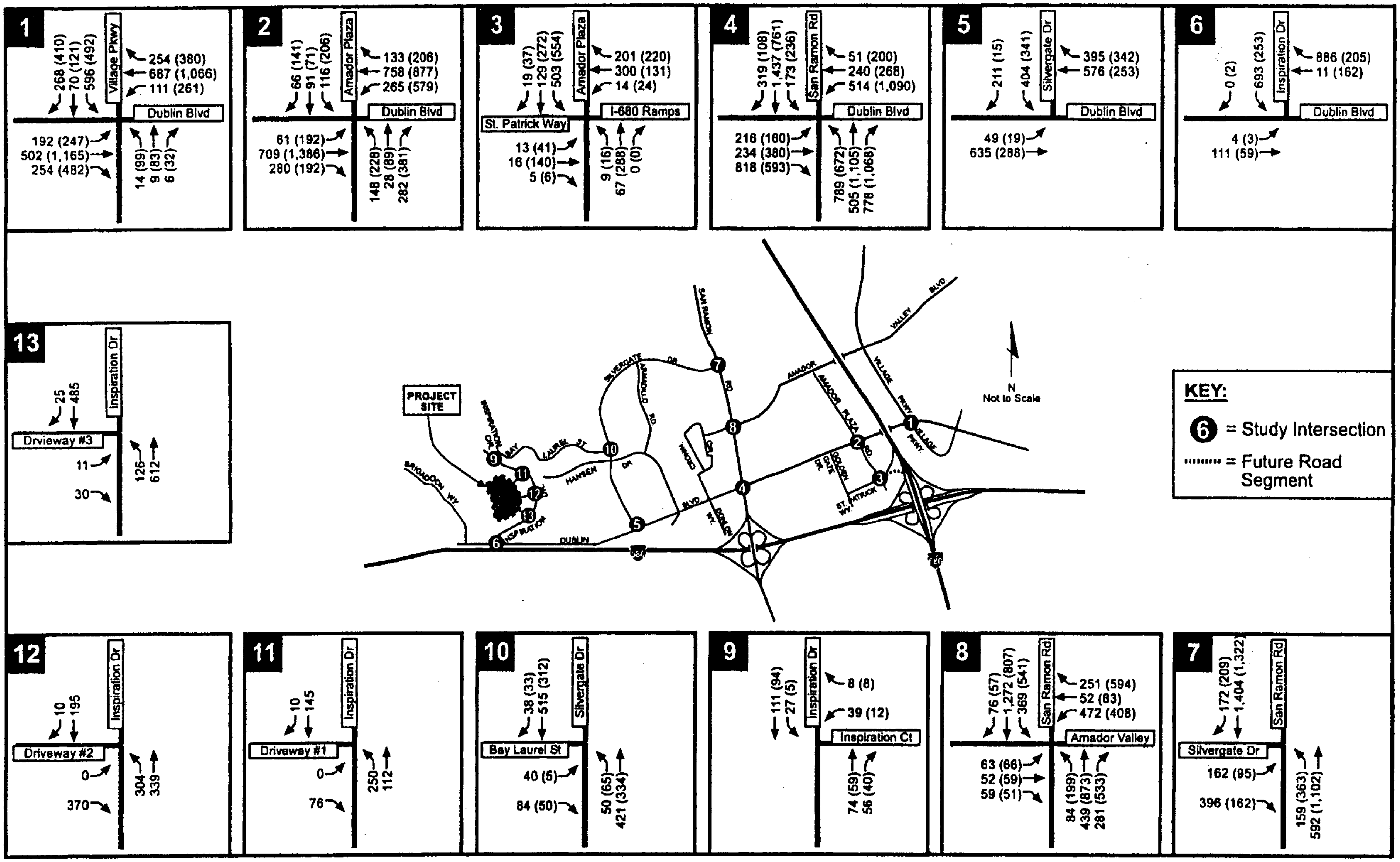



SOURCE: Fehr & Peers Associates, Inc., Transportation Consultants, May 2001.

**Exhibit 9a**

**BASELINE PEAK HOUR INTERSECTION VOLUMES**

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

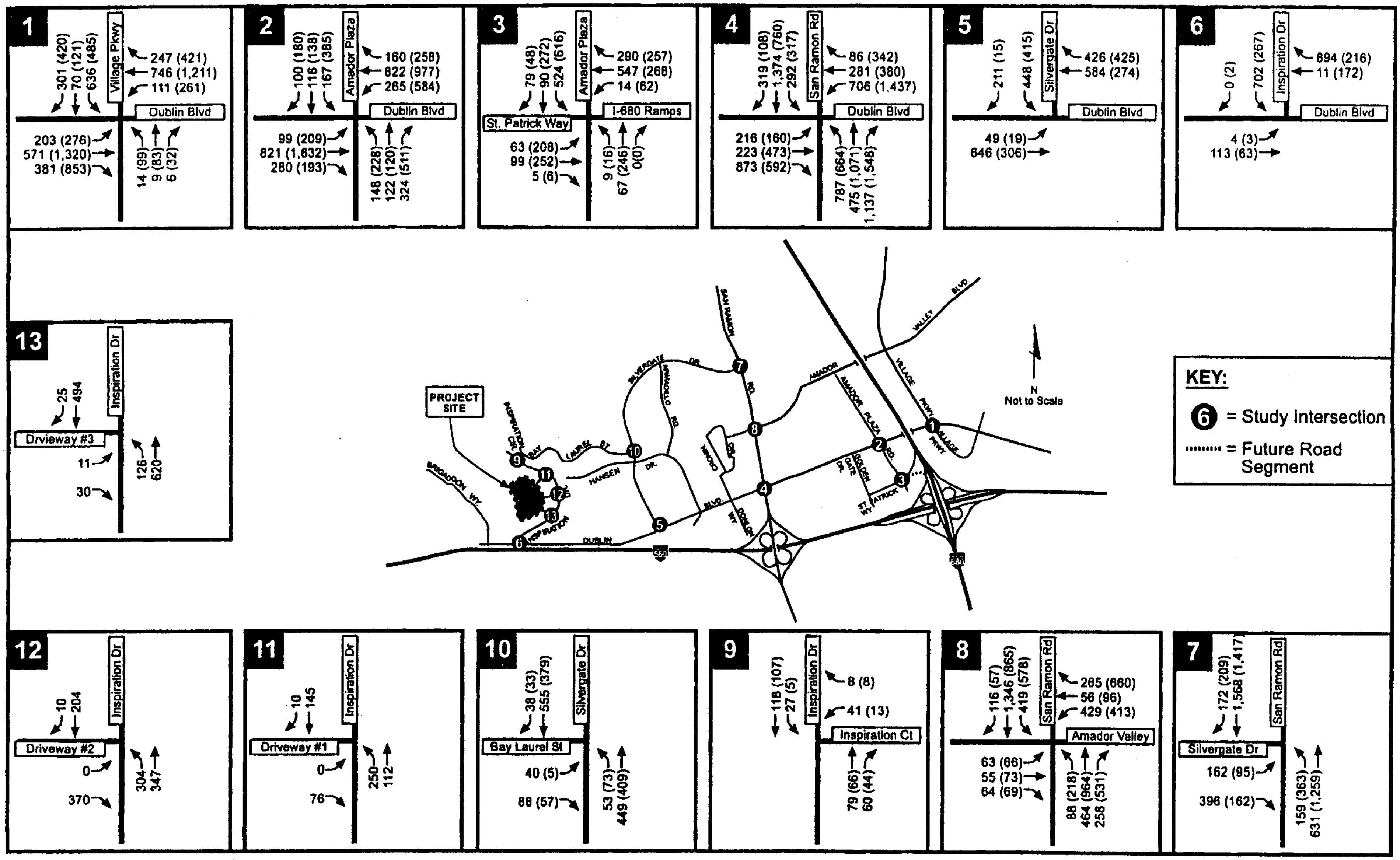



SOURCE: *Fehr & Peers Associates, Inc., Transportation Consultants, May 2001.*

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

**Exhibit 9b**

**BASELINE + PROJECT PEAK HOUR INTERSECTION VOLUMES**




*SOURCE: Fehr & Peers Associates, Inc., Transportation Consultants, May 2001.*

**CITY OF DUBLIN**
**VALLEY CHRISTIAN CENTER**
**ENVIRONMENTAL IMPACT REPORT**

**Exhibit 9c**

**CUMULATIVE + PROJECT PEAK HOUR INTERSECTION VOLUMES**

## 4.11 UTILITIES AND PUBLIC SERVICES

### ENVIRONMENTAL ISSUES

This section of the EIR discusses provision of community services, including fire and police services and utility systems, including water, sewer, natural gas, electricity and telecommunication systems.

### ENVIRONMENTAL SETTING

*Fire service*
Fire service to the project site is provided by the Alameda County Fire Department, which is under contract to the City of Dublin to provide fire suppression, inspection to ensure conformity with the Uniform Fire Code, and emergency medical response.

Fire stations are staffed by Fire Department personnel on a 24-hour basis and would have a response time of 5 minutes or less to the project site. The Alameda County Fire Department maintains existing mutual aid agreements with surrounding fire departments in San Ramon, Pleasanton, Livermore, Lawrence Livermore Laboratory, Camp Parks and the San Ramon Valley Fire Protection District.

The City of Dublin currently levies a fire protection fee for new development to offset the cost of providing new stations, equipment and personnel. Fees are paid to the City at the time of building permit issuance based on square footage of the respective building(s).

*Police protection*
The Dublin Police Services Department provides crime prevention investigation services and traffic control services to the City of Dublin and the project site. The Department is actually a part of the Alameda County Sheriff's Department, however, personnel are assigned to the City of Dublin on a long-term basis.

Services are provided out of a main headquarters facility at Dublin Civic Center, The Department maintains a full-time staffing ratio of 1.6 officer-to-1,000 population, with a current complement of 40 sworn officers and 7.5 non-sworn civilian staff. The Department also maintains a variety of vehicles and support equipment. Responses times for calls for service average 3.5 minutes for emergency calls and 12 minutes for non-emergency calls.

*Schools*
The Dublin Unified School District (DUSD) provides K through 12 public educational services to residents of the City of Dublin and the residential portion of the proposed project.

*Solid waste disposal*

The Livermore-Dublin Waste Disposal service has a franchise with the City of Dublin to provide solid waste and recycling collection to both residences and businesses within Dublin. Solid waste is transported to the Altamont landfill site in eastern Alameda County on Greenville Road. Approvals were recently granted to expand the area and capacity of the landfill, and the landfill has an estimated remaining capacity of 25+years.

The City of Dublin is also mandated by State law (AB 939) to reduce the quantity of solid waste entering the landfill. The City is complying with this mandate, however, targeted reductions have been less than expected. Livermore-Dublin Solid Waste Disposal is currently undertaking activities to increase recycling efforts. The City of Dublin has adopted an ordinance to require submittal of plans for recycling of construction debris for all development projects.

*Water demand and supply*

Water service to the project site and to the City of Dublin is provided by the Dublin San Ramon Services District (DSRSD), headquartered in Dublin. DSRSD owns and operates a water distribution system, including transmission lines, pump stations and water turnouts. DSRSD obtains water from Zone 7 of the Alameda County Flood Control and Water Conservation District, which is discussed below. DSRSD was formed in 1953, formerly known as the Valley Community Services District.

Treated water is supplied to DSRSD by Zone 7 from Zones 7's Cross Valley Aqueduct through four turnouts. Turnout No. 1 is located at the intersection of Dougherty Road and the Iron Horse Trail. Turnout No. 2 is located at the intersection of Amador Valley Boulevard and Stagecoach Road. The third turnout is in the vicinity of Arnold Drive and Altamirano Road. The fourth turnout is within Camp Parks in Eastern Dublin.

Water received from the turnouts is distributed throughout Dublin via a grid of underground water transmission lines delivery to residences, businesses and other customers within the District's service area.

District facilities serving present uses on the project site include a 12-inch diameter pipe located within Inspiration Drive and an 8-inch diameter pipe from Betlen Drive to the east. According to the District (letter from S. Delight, District Engineer, 4/22/02), the current facility uses 164,560 gallons on a bi-monthly basis. The average summer irrigation water use of 1,870,000 gallons, bi-monthly.

The District has recently begun providing recycled (reclaimed) water for irrigation and non-potable uses. DSRSD Ordinance No. 280 requires recycled water use for approved customer categories for all new land uses, including commercial, multi-family residential and institutional irrigation uses within the DSRSD potable water service area. A Water Efficient Landscape Ordinance has also been adopted by DSRSD to promote the use of drought tolerant landscaping to minimize use of irrigation water.

In order to supply water to meet the anticipated growth in demand, DSRSD plans to use a combination of potable and recycled water supplies as well as use of conservation methods to reduce impact on water resources.

The wholesale supplier of water to DSRSD is Zone 7. Zone 7 relies on a combination of supplies to meet retail water needs. Existing water sources include:

*State Water Project*: Zone 7 has a 75-year contract with the California Department of Water Resources (DWR) to receive water from the State Water Project (SWP). SWP water is delivered to Zone 7 from the Feather River Watershed via the Sacramento-San Joaquin Delta. This water is then transported to Zone 7 through the California Aqueduct to the South Bay Aqueduct and Lake Del Valle. Water enters the Zone 7 system from the South Bay Aqueduct and from Lake Del Valle at two Zone 7 treatment plants: the Patterson Pass Treatment Plant and the Del Valle Water Treatment Plant.

Zone 7 reached its full entitlement of 46,000 acre feet per year in 1997. Actual water deliveries vary, depending on hydrologic conditions, requests by other contractors, delivery capacity and environmental/regulatory requirements. Zone 7 anticipates a long-term annual average delivery of 75% of its entitlement.

*Byron-Bethany Irrigation District*: Since 1994, Zone 7 has been receiving water via a short-term water transfer from the Byron-Bethany Irrigation District. Zone 7 has made arrangements with this District to make this a long-term (15) year arrangement. The agreement calls for delivery of 2,000 acre feet per year.

*Berrenda Mesa Water District*: Additional water from the SWP is available to Zone 7 through the Berrenda Mesa Water District in Southern California. A water transfer was approved by the Zone 7 Board of Directors in January 1998 to provide 7,000 acre feet of water per year, principally for use in the Dougherty Valley.

*Local Surface Water*: Lake Dell Valle is a local storage reservoir operated as part of the SWP, however, Zone 7 has rights to 7,000 acre-feet of water per year from the lake's watershed.

*Local Groundwater*: Zone 7 and DSRSD uses the local underground aquifer basin as a storage facility for imported water. The aquifer is also naturally recharged by rainwater falling in the watershed area. It is estimated that a safe yield of 13,200 acre-feet of water per year can be withdrawn from the basin. DSRSD operates pumping facilities near the intersection of Stoneridge Drive and Johnson Drive in Pleasanton, although the yield from these pumps is low.

Future water sources anticipated by DSRSD and Zone 7 include additional pumping from the underground basin and an additional water entitlement agreement with the Berrenda Mesa Water District. Both DSRSD and Zone 7 have adopted contingency plans for water cutbacks in the event of a drought.

DSRSD currently charges connection and other fees on new development within the District's service area. Fees are used for construction of planned water system capital improvements including storage, pumping, transmission and on-going system water maintenance and improvements.

*Wastewater collection, treatment and disposal*
Collection and treatment of wastewater in the Cities of Dublin and the south one-half of San Ramon are the responsibility of DSRSD. Disposal of treated wastewater is under the jurisdiction of the Livermore-Amador Valley Wastewater Authority.

DSRSD has constructed a comprehensive grid of sewer trunks, mains and laterals throughout their service area. Near the project area, wastewater is collected in 12-inch diameter mains within Inspiration Drive and Dublin Boulevard.

Wastewater collected from the City of Dublin, including the project site, travels by gravity to the DSRSD wastewater treatment plant which is located near the southeast corner of I-580 and I-680 in the City of Pleasanton. The plant has a rated dry-weather capacity of 11.5 mgd (million gallons per day) and is currently being enlarged to accommodate a daily flow of 17.0 mgd. The expansion is anticipated to accommodate future growth in DSRSD's service area until approximately 2010.

DSRSD currently charges wastewater connection and other fees on new development within the District's service area. Fees are used for construction of planned wastewater treatment and collection system capital improvements as well as on-going wastewater system maintenance.

Disposal of treated effluent from DSRSD's wastewater treatment plant in Pleasanton is the responsibility of the Livermore Amador Valley Water Management Agency (LAVWMA), formerly known as the Tri-Valley Wastewater Authority. LAVWMA currently exports secondary treated wastewater to the East Bay Dischargers Authority (EBDA) interceptor pipeline for ultimate discharge to San Francisco Bay via a deepwater outfall. The original LAVWMA export pipeline system was constructed in 1979 with a built-in capacity limit of 21 million gallons per day (mgd). This original system has been in continuous operation since that time.

By the mid-1990s, continuing development in the Livermore-Amador Valley resulted in the need for additional export capacity. In 1997/1998, average dry-weather flow in the LAVWMA export system was 14.3 mgd, and peak wet-weather flow was at or near the system capacity of 21 mgd. In August 1997, LAVWMA's member agencies agreed to proceed with a project to expand LAVWMA wet weather disposal capacity from 21 to 41.2 mgd through rehabilitation of the existing LAVWMA export pipeline, installation of a new pipeline, and construction of a new 41.2-mgd pumping station, Currently, member agencies have agreed to funding improvements and the design of project improvements is underway. The expanded disposal pipeline is anticipated to be completed by approximately the Fall of 2003.

*Power*
Electrical and natural gas power is provided to the City of Dublin and the region by Pacific Gas and Electric Company. Existing buildings within the Valley Christian Center campus currently receive both electrical and natural gas service from PG&E.

*Telecommunications*
Pacific Bell provides telephone and telecommunication facilities to the project area and surrounding communities.

## STANDARDS OF SIGNIFICANCE

The proposed project would be considered to result in a significant impact if there is a demonstrable need for:

- Additional fire, police or emergency service personnel to serve the maximum amount of development envisioned in the project; and/or

- New or enlarged facilities, including water supplies or facilities, wastewater collection, treatment or disposal facilities, solid waste capacity, telecommunications or energy supplies would be required to serve the amount of development envisioned in the proposed project.

## ENVIRONMENTAL IMPACTS

The following environmental impacts are anticipated should the project be approved.

*Fire protection*
Approval of the proposed project would increase fire risk to future visitors, employees and residents on the site by adding new floor space and residential dwellings. The number of calls for service related to increases medical emergencies based on a higher resident and visitor population.

Individual buildings and building complexes proposed within the campus will be reviewed by the Alameda County Fire Department as a normal procedure for City review of the Stage 2 Planned Development (PD) rezoning and Site Development Reviews for compliance with the Uniform Fire Code. At that time, normal City fire protection requirements, including but not limited to meeting minimum fire flow for the type of construction proposed, providing access to all structures, installation of fire hydrants, built-in fire alarms systems, meeting life safety and exiting requirements, provision of site addresses and other provisions will be required to be incorporated into the project.

Impact 4.11-1 (fire protection). **Approval and implementation of the proposed expansion would increase the number of calls for service for fire protection and emergency medical response. However, compliance with current Fire and Building Codes for all new buildings would reduce this impact to a less-than-significant level *(less-than-significant impact and no mitigation is required).***

*Police protection*

According to Police Department representatives, the amount of additional development proposed in the expansion program would represent an incremental increase in calls for service to the Police Department. Residential development typically includes calls for service for burglary and theft, domestic disputes and auto theft. Increases in calls for police services will be evaluated periodically as part of the City's normal budget cycle and Police Department resources supplemented with appropriate increases in future budget years.

Individual non-residential buildings proposed to be constructed on the project site will be reviewed by the Dublin Police Department for compliance with the City's Security Ordinance and other standard safety and security requirements, including providing adequate security access, providing building addresses, provision of security lighting, adoption of graffiti removal programs and compliance with the City of Dublin Residential and Non-Residential Security Ordinance during the subsequent Stage 2 PD-Planned Development rezoning and Site Development Review (SDR) process.

Impact 4.11-2 (police protection): **Approval and implementation of the proposed Valley Christian Center expansion program is expected to increase calls for police services. Adherence to standard Police Department safety and security standards would reduce any impacts to a less-than-significant level *(less-than-significant and no mitigation is required).***

*Schools*

Based on standard student generation rates contained in a school mitigation agreement approved between the Alameda County Surplus Property Authority and the Dublin Unified School District, each high density residential dwelling would generate 0.08 elementary students, 0.04 middle school students and 0.16 high school students. For the maximum buildout of the residential portion of the Valley Christian Center, the following student yield is expected:

- Elementary Students: 2
- Middle School Students: 1
- High School Students: 4

Since the project applicant has requested an amendment to the General Plan to add new dwellings not currently planned for, this number of additional students could result in an incremental impact to local public within the service area of the proposed project.

**Impact 4.11-3 (schools): Implementation of the proposed project would generate an estimated 2 new elementary school students, 1 middle school student and 4 high school students, which has not been planned for the Dublin Unified School District *(potentially significant impact and mitigation is required).***

*Solid waste disposal*
Based on discussions with the Livermore-Dublin Solid Waste Disposal Company, approval and construction of the proposed project would increase the amount of short-term construction debris and the long-term quantity of solid waste from the site. Additional equipment and personnel would be needed to collect this increased amount of solid waste; however, increased fees and user charges would offset any increased capital and/or personnel costs. Adequate capacity exists within the local landfill to accommodate anticipated increases in the amount of solid waste.

When submitted, individual site plans and subdivisions would be reviewed by the Livermore-Dublin Solid Waste Disposal Company to ensure that an appropriate number of solid waste and recycling facilities are provided and that solid waste collection trucks have adequate access to such facilities.

**Impact 4.11-4 (solid waste disposal): Based on discussions with the solid waste hauler for the City of Dublin, approval of the proposed expansion program would increase the amount of solid waste entering the waste stream. Additional quantities of solid waste, including construction debris could be accommodated at the nearest landfill. Additional capital equipment and personnel would be funded from user fees and charges *(less-than-significant impacts and no mitigation is required*).**

*Water demand*
The proposed expansion would increase the quantity of water required to provide adequate fire flows, domestic and for irrigation use. The amount of increased use will be calculated at the time precise development plans are submitted for City review and approval. Based on information supplied by DRRSD (Delight letter, 4/22/02), the District anticipates that sufficient water is available to serve the proposed expansion of Valley Christian Center. New development proposals will be required to adhere to the District's Water Efficient Landscape Ordinance.

**Impact 4.11-5 (water demand): Additional water would be need to serve new structures, uses and irrigation of new landscaped areas. Specific quantities of water will be determined at the time precise development proposals are submitted to the City of Dublin. According to staff of the Dublin-San Ramon Services District, adequate water supplies exist to serve the proposed project *(less-than-significant impacts and no mitigation measures are required).***

*Wastewater generation and treatment*
Wastewater treatment service is currently available from DSRSD, although such service is available on a "first come-first serve " basis and there is no guarantee that

service will be available at the time development permits for the proposed project are requested. According to District representatives, adequate wastewater treatment capacity is anticipated to be available through 2010.

The District's sewer master plan recommends that existing sewer lines within Dublin Boulevard, from Hansen Drive to Gateway Boulevard, be upgraded to accommodate future growth in the western Dublin area. This upgrade must be in place prior to occupancy of any of the buildings proposed for expansion as part of this project.

<u>Impact 4.11-6 (wastewater generation and treatment):</u> **Implementation of the proposed expansion project would increase the amount of wastewater generation. The current expansion of DSRSD's wastewater treatment plant is anticipated to have sufficient capacity to accommodate future growth through 2010, which would likely accommodate the proposed project *(less-than-significant impacts and no mitigation measures are required)*.**

An expanded LAVWMA export pipeline is presently under construction and is anticipated to provide sufficient wastewater disposal capacity to accommodate the proposed project.

<u>Impact 4.11-7 (wastewater disposal):</u> **The expanded wastewater export under construction by LAVWMA is anticipated to be sufficient to accommodate the proposed project *(no impacts and no mitigation measures are required)*.**

*Power*

According to utility service planners for Pacific Gas & Electric Company, adequate capacity is available in existing and planned facilities to accommodate increases in electrical and natural gas required for the construction and operation of new residential and non-residential uses planned for the project site. As is true of the entire PG&E service area, existing and future customers will likely be subject to power brown outs and rolling blackouts until long-term sources of electrical and natural gas energy are secured by PG&E.

<u>Impact 4.11-8 (electrical and natural gas systems):</u> **Approval and implementation of the proposed project would result in incremental increases in the demand for electrical power and natural gas; however, the primary power provider has indicated that urban uses have occupied the site for a number of years and capacity exists to serve planned uses. Existing and future uses on the site may be subject to periodic rolling blackouts and brownouts until a reliable, long-term energy supply can be secured *(less-than-significant impact and no mitigation required)*.**

MITIGATION MEASURES

<u>Mitigation Measure 4.11-1 (schools):</u> **Prior to issuance of the first residential building permit, the project applicant shall enter into a school mitigation program with the Dublin Unified School District to ensure that a fair share fee towards off-setting costs**

**to provide educational services to the District is provided.**

SIGNIFICANCE AFTER MITIGATION

All impacts will re reduced to a less than significant level.

## 4.12 PARKS AND RECREATION

### ENVIRONMENTAL ISSUES

This section of the EIR discusses potential impacts to local parks facilities.

### ENVIRONMENTAL SETTING

*Local parks*
The City of Dublin maintains parks within the community as well as provides a wide range of recreational opportunities for residents.

The two local parks near the project site include Dolan Park, containing 5 acres of land located west of Castilian Road and southwest of Pardee Way, and Mape Park, containing 3 acres of land located south of the terminus of San Sabana and Calle Verde just south of Silvergate Drive. The City also operates Shannon Park and the Community Center located near the northwest corner of Shannon Drive and San Ramon Road. This facility consists of 10 acres of land and is the major park and recreation facility in Western Dublin.

*Regional parks*
Regional park facilities are maintained by the East Bay Regional Park District, headquartered in Oakland. The closest regional facilities include the Iron Horse Trail, a multi-purpose trail planned to link north Contra Costa County with the Dublin and Pleasanton along a former railroad right-of-way. Major portions of the trail presently exist and the remaining portions are under construction.

Other regional park and open space facilities are operated by the District, however, they are primarily in the eastern Dublin area. None are located near this project site.

### ENVIRONMENTAL IMPACTS

*Local parks*
Approval and implementation of the proposed Valley Christian Center expansion program would increase the demand for local and community parks and recreational facilities within the Western Dublin area due to an increase in the number of permanent residents within the area. However, the relatively small number of dwellings proposed (22) would not represent a significant increase in demand for

parks and/or recreational services. Payment of the standards Public Facilities fee by the housing developer as required by City Resolution No. 60-99 would offset any increase in local park use. A portion of the Public Facilities Fee includes a contribution to the City's park development fund to assist in paying for new parks within the community.

Since payment of the Public Facilities Fee is a standard condition of residential development within Dublin, this is not considered a mitigation measure.

**<u>Impact 4.12-1 (local parks and recreation facilities)</u>. Construction of the proposed 22 townhouse units as part of the proposed project would increase demand for local park and recreation facilities; however, payment of required Public Facilities Fees to fund new parks within the community would reduce this impact to a less-than-significant level (*less-than-significant significant impact and no mitigation is required*).**

*Regional parks*

The proposed development of 22 residential dwelling units as part of the proposed project would increase the demand for and use of regional park and trail facilities operated by the East Bay Regional Park District. The small number of dwellings (22) proposed as part of the project would result in a less-than-significant impact. The District would also realize increased property tax revenues from the site as well as collecting fees for use of facilities. Increased fees and taxes are anticipated to off-set any future increase in facility use.

**<u>Impact 4.12-1 (regional parks).</u> Construction of the proposed 22 dwellings as part of the proposed project would increase demand for regional park facilities; however, payment of increased property taxes and fees for facility use would reduce this to a less-than-significant impact (*less-than-significant significant impact and no mitigation is required*).**

## MITIGATION MEASURES

None required.

The California Environmental Quality Act requires identification and comparative analysis of feasible alternatives to the proposed project which have the potential of achieving project objectives, but would avoid or substantially lessen any significant impacts of the project.

The following discussion considers alternative development scenarios. Through comparison of these alternatives to the preferred project, the advantages of each can be weighed and considered by the public and by decision-makers. CEQA Guidelines require a range of alternatives "governed by the rule of reason" and require the EIR to set forth a range of alternatives necessary to permit a reasoned choice.

Alternatives selected for analysis in this document include:

- Alternative 1: "No Project" (required by CEQA to be considered).
- Alternative 2: Housing Development
- Alternative 3: Alternative Site Plan

An off-site alternative is also discussed.

Alternatives are described and evaluated below.

## 5.1 No Project

CEQA requires an analysis of a "no project" alternative. Under this alternative, it is assumed that the existing 118,000 square feet of development would remain in their respective current conditions and no additional development would occur on the site.

This alternative would avoid the range of environmental impacts described in this document, including:

- *Aesthetics and Light and Glare*: There would be no aesthetic change to the project area. Existing worship, school and other uses and buildings would remain as they presently exist. The vacant portion within the project site would continue to remain vacant. Existing levels of light and glare would remain.
- *Air Quality*: Existing source of air emissions would remain. There would be no short-term air quality impacts associated with construction of new buildings and other public improvements envisioned in the Master Plan. Long-term air quality emissions would not change, since no new auto traffic would be attracted to the site.
- *Biological Resources*: There would be no impacts to existing on-site biological resources, since no additional development would occur on the site that would

affect existing wetlands.

- Cultural Resources: There would be no impacts to cultural resources since construction and disruption of the soil would not occur.
- *Geology and Soils*: No excavation, grading or related impacts would occur so that erosion impacts would not occur. Existing building improvements, employees, students and visitors would be exposed to the potential for seismic hazards.
- *Water and Hydrology*: Existing hydrologic and drainage patterns would remain unchanged.
- *Land Use*: Land use within the project area would remain as presently constituted, including existing buildings, parking areas and outdoor sports fields. There would be no opportunity for the addition of 22 new residential units to the City's housing stock.
- *Noise*: Existing major noise generators on and near the area would remain, including vehicular-generated noise from local roadways, the 880 freeway and other existing sources. Noise from on-going operations would continue.
- *Population and Housing*: There would be no increase in on-site population or employment than currently exists.
- *Transportation, parking and circulation:* Existing traffic generation and use of nearby streets would continue as currently found. The proposed project would not be required to contribute to the costs of new traffic signals in the project vicinity.
- *Utilities and Public Services*: No new or increased demand would be created for new and/or upgraded utilities and community services, since the existing level of development would remain.
- *Recreation*: There would be no increased use or demand for local or regional recreational facilities since the population of the site would not increase.

## 5.2 Alternative 2: Residential Land Use

The second alternative assumes that the existing uses and structures on the site would remain; however, instead of the proposed expansion of Valley Christian Center within the center portion of the site, residential development would be constructed. Based on a proposed floor area of 187,000, an estimated 94 dwellings could be considered on the site, assuming an average floor area of 2,000 square feet per dwelling. The proposed 22 dwellings would still be constructed on the northwest corner of Dublin Boulevard and Inspiration Drive, so that a total of 116 dwellings would be considered.

Anticipated impacts of Alternative 2 would be:

- *Aesthetics and Light and Glare*: Anticipated aesthetic impacts related to the implementation of Alternative 2 would be less than the proposed plan. Under Alternative 2, construction of the proposed senior center and the chapel would not occur. These two buildings are the most visible from adjacent streets and the I-580 freeway. Light and glare impacts would likely the same as associated with the proposed project, since additional street lights, building and yard lights would be installed.

- *Air Quality*: Alternative 2 would generate approximately the same air quality impacts as the preferred Plan: short-term demolition and construction-related impacts and long-term local impacts. All air quality impacts could be mitigated to less-than-significant levels.
- *Biological Resources*: The same type and level of impacts would be created as the proposed project since approximately the same area of development would occur on the project site.
- *Cultural Resources*: The same type and level of impacts would be created as the proposed project, since essentially the same location of development would occur on the project site.
- *Geology and Soils*: Approximately the same amount of excavation, grading and earth moving would occur as anticipated for the preferred project since the same amount of the site would be developed. Approximately, the same potential would exist for soil erosion from wind and water. Fewer numbers of employees and visitors would be subject to potential of seismic hazards, although a greater number of permanent residents would be subject to these hazards.
- *Water and Hydrology*: The same general drainage and surface water quality impacts would occur under Alternative 2 as would occur with the proposed project since approximately the same surface area of the site would be developed.
- *Land Use*: Land use impacts on the project site and surrounding areas would be somewhat less than the proposed project, since fewer visitors would be attracted during peak worship hours. There would be potentially greater land use compatibility issues, since a large number of residents would be in close proximity to a school and church complex.
- *Noise*: Somewhat less noise impacts would result with Alternative 2, since a smaller population would reside on the site to be impacted with short- and long-term noise. The amount of increased noise impact is not anticipated to be significant however.
- *Population and Housing*: A larger population would result under Alternative 2, since a greater number of dwelling units would be constructed. A greater number of affordable dwelling units (very low, low and moderate household income units) would be credited toward the City's regional fair share housing allocation requirements based on current City inclusionary requirements.
- *Transportation and Circulation*: Trip generation for construction of all residential use would be expected to be less during the AM peak hour (59 trips v. 124 trips), based on a trip generation rate of 0.51 AM trips from the Institute of Traffic Engineers "apartment" trip rate, as identified in the Fehr & Peers traffic analysis. During the PM peak hour, 13 more trips would be generated, based on a trip generation of 0.62 trips/unit. The amount of increase is not anticipated to be significant and traffic impacts would be approximately the same as the proposed project.
- *Utilities and Public Services*: It is anticipated that greater impacts to water and

sewer use would occur in comparison with the proposed project due to greater irrigated yard areas typically associated with residential development. Greater sewer generation would also result due to a higher on-site population. A greater number of school-aged children would be generated by residential development, a number of which would likely use off-site public school facilities. Police and Fire Department calls for service could also be greater due to a larger number of permanent residents on the site.

- *Recreation*: There would be a greater demand for local and regional recreational facilities as the proposed project, since a greater number of dwellings and an associated on-site population would be constructed.

This alternative would not meet the project objective of expanding the existing Valley Christian Center complex on the site. There would be less significant impacts related to aesthetics than the proposed project, but greater impacts related to utilities and services, schools and recreation. Traffic and transportation impacts would be approximately the same as the proposed project.

### 5.3 Alternative 3: Alternative Site Configuration

Alternative 3 assumes the same amount and type of land uses as the proposed project, however, the 2-story 30,000 sq. ft. senior center complex, proposed to be located on the southeast corner of the site, and the 6,000 square foot chapel proposed for the easterly side of the site, would be relocated to the existing parking lot just north of the sanctuary building.

Anticipated impacts associated with this alternative would include:

- *Aesthetics and Light and Glare*: Aesthetic impacts related to the implementation of Alternative 3 would be less than the proposed plan, since the two major buildings that would be most visible from the I-580 freeway and other portions of the community would no longer be visible. The anticipated aesthetic impact of the housing complex located on the northwest corner of Dublin Boulevard and Inspiration Drive would be the same as the proposed project. Light and glare impacts would be somewhat less than the proposed project to residents to the east, since building lights associated with the Senior Center building would be replaced with parking lot lighting.
- *Air Quality*: Alternative 3 would generate the same air quality impacts as the proposed project and Alternative 2: short-term demolition and construction-related impacts, long-term local impacts and cumulative regional impacts. All air quality impacts could be mitigated to less-than-significant levels.
- *Biological Resources*: Approximately the same type and level of impacts would be created as the proposed project and Alternative 2, since the same general type, intensity and location of development would occur. Proposed building relocations should have the same impacts on any potential on-site wetland areas.
- *Cultural Resources*: Essentially the same type and level of impacts would be

created as the proposed project and Alternative 2, since the approximate same type, location and intensity of development would occur within the project area.

- *Geology and Soils*: Fewer impacts to soils and geological constraints would result, since the two buildings that would be relocated would not be located on or hear historic landslides. Other impacts would be the same.
- *Water and Hydrology*: The same drainage and surface water quality impacts would occur under Alternative 3 as would occur with the proposed project and Alternative 2 since the same location and amount of impervious surfaces would occur.
- *Land Use*: Land use impacts on the project site and surrounding areas would be the same as the proposed project and Alternative 2, since the same amount, type and intensity of new square footage would be constructed.
- *Noise*: Less intensive noise impacts would result under Alternative 3, since the Senior Center building would be sited further away from existing residences just east of the site. Therefore, both short-term construction noise and long-term operational noise would be less than the proposed project.
- *Population and Housing*: The same impacts would occur relative to population and housing as under the proposed project, since the same number of dwellings would be created.
- *Transportation and Circulation*: Traffic impacts on nearby streets would be the same as associated with the proposed project and Alternative 2, since the same amount, type and intensity of land use would be constructed.
- *Utilities and Public Services*: The same impacts to utility and service providers would likely occur as under the proposed project and Alternative 2, since the same amount and type of development would occur.
- *Recreation*: The same impacts would occur under Alternative 3 as anticipated under the proposed project, since the same number of dwellings would be constructed.

This alternative would meet the project objectives of expanding the existing Valley Christian Center and constructing 22 residential dwellings on the site.

## 5.4 Off-Site Alternative

An off-site alternative was also discussed, whereby the proposed expansion area would be placed on another site in Dublin. Due to the requirement to have the proposed expansion in close proximity to the current Valley Christian Center campus, this alternative was rejected.

## 5.5 Environmentally Superior Alternative

Section 15126 (d) (4) of the State of California CEQA Guidelines states that if the environmentally superior alternative is the "No Project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The Draft EIR identifies no significant and unavoidable impacts with the proposed project, so that none of the four alternative roadway alignments (excepting the "No Project" Alternative) would need to reduce significant and unavoidable impacts to less-than-significant levels.

Alternative 3 proposes the same amount, type and intensity of uses for the expansion of the Valley Christian Center as the proposed project. Many of the environmental impacts associated with Alternative 3 would be the same as the proposed project, including, but not limited to, traffic and circulation, air quality, biological resources, cultural resources and hydrology. Other impacts would be somewhat to significantly less than the proposed project, including aesthetics, noise, land use and soils and geology.

Alternative 3 therefore represents an environmentally superior alternative than the proposed project.

This section of the DEIR addresses the potential long-term effects of implementing the proposed project, as required by CEQA.

### 6.1 Short-Term Uses v. Long-Term Productivity

Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

CEQA mandates that all EIRs consider the relationship between short- term use of resources, such as land for development purposes, versus the long-term benefits of allowing the subject property to remain as undeveloped open space. The relationship between short-term use of environmental resources and the maintenance of long-term productivity is often one of trade-off, or of balancing social, economic, environmental and similar concerns over time. In some instances, a relatively short-term benefit may have adverse effects, with the possibility that future generations may be burdened with unwarranted social or economic costs. The opposite situation, in which long-term benefits occur at the expense of short-term impacts may also occur. The ultimate decision as to the unique balance of factors lies with the City of Dublin.

The project under consideration is the proposed expansion of the existing Valley Christian Center, along with land use entitlements requested to be approved by the City of Dublin.

Short-term impacts anticipated to be associated with the project would include construction-related noise, grading and site preparation for new building pads and parking areas, potential for erosion of construction debris, and generation of construction related traffic and noise. Potential long-term impacts would include exposure of additional people and properties to seismic risk, increased traffic and air quality emissions, increased sources of light from the site, increased consumption of utilities and public services, noise generation related to increased traffic, increased storm water runoff, potential impacts to wetland areas, and visual and aesthetic impacts.

As demonstrated in Section 4 of the DEIR each of the above are considered less-than-significant impacts or can be mitigated to a less-than-significant level.

### 6.2 Irretrievable Commitment of Resources

Significant Irreversible Environmental Changes and Irretrievable Commitment of Resources

Approval of the proposed project would indirectly result in irretrievable commitment and use of energy and non-renewable resources for construction and operation of future residential and non-residential uses, including such resources as sand and gravel, lumber and other forest products, asphalt, petrochemicals and metals. The level and amount of commitment of such resources is commensurate with similar development projects undertaken in the Bay Area and throughout California and the nation.

## 6.3 Significant Irreversible Impacts

This section of the DEIR identifies significant environmental effects of the proposed project which cannot be mitigated using all feasible mitigation measures. No such impacts have been identified in this EIR.

## 6.4 Growth Inducing Impacts of the Proposed Project

All EIRs must consider the potential growth inducement of projects. A project is generally considered to be growth inducing if it will foster economic or population growth or will cause the construction of new housing, either directly or indirectly, within a given geographic area. Projects which remove obstacles to population growth are also deemed to be growth inducing. Increases in population may strain existing community services or utility systems, so consideration must be given to this impact. The characteristics of a project that may encourage or facilitate other growth activities which could significantly affect the environment, either individually or cumulatively, must also be discussed.

Approval of the proposed project could not be considered growth inducing, since the project proposes expansion of an existing church and school complex. Although a small portion of the site would remain underdeveloped under the proposed project, the steepness of this are would likely limit future development of this area. Utilities and public service facilities are currently in place to serve the amount of proposed development envisioned in the proposed project. Surrounding properties have been developed for residential uses so that no significant amount of additional growth could be induced should the project be approved by the City of Dublin.

## 6.5 Cumulative Impacts

Cumulative impacts are those which taken individually may be minor but, when combined with similar impacts associated with existing development, proposed development projects and planned but not built projects, have the potential to generate more substantial impacts. CEQA requires that cumulative impacts be evaluated when they are significant and that the discussion describe the severity of the impacts and the estimated likelihood of their occurrence. CEQA also states that the discussion of cumulative impacts contained in an EIR need not be as detailed as that provided for the project alone. Cumulative impacts may be addressed using one of two methods:

- a listing of past, present and reasonable anticipated future and probable projects, within or adjacent to the community containing the project site, which could produce related or cumulative impacts; or
- a summary of projections contained in the adopted General Plan or related planning documents which evaluated regional environmental impacts of a number of projects within a given geographic area.

For purposes of this EIR the first approach has been chosen to address cumulative impacts. A listing of such projects is included in the Transportation and Circulation Section (Section 4.10), which includes a number of projects in adjacent communities.

A summary of expected cumulative impacts follows

- *Aesthetics and Light and Glare*: Limited cumulative impacts on aesthetic resources would occur, including incremental increases in light and glare. However, since the site is located in a substantially urbanized area with existing sources of light and glare, cumulative impacts are considered less than significant.
- Air Quality: Cumulative air quality impacts are addressed in Section 4.2.
- *Biological Resources*: Impacts of the project on biological impacts are limited and would not be considered cumulative.
- *Cultural Resources*: Potential impacts to cultural resources are not considered cumulative.
- *Geology and Soil*: Potential impacts to geology and soils are not considered cumulative.
- *Water and Hydrology*: Limited cumulative drainage and stormwater runoff impacts are anticipated, since the project site currently largely developed. Approval and implementation of the proposed project would increase the amount of pervious surfaces within the area.
- *Land Use*: No cumulative land use impacts are anticipated should the project be approved. The site is already developed with early phases of the Valley Christian Center and the project represents an expansion of this use.
- *Noise:* Cumulative noise impacts are anticipated occur, based on additional construction and the operation of more square footage of quasi-public uses. This increase is anticipated to be less-than-significant in terms of cumulative increases however.
- *Population and Housing*: Because of the small residential component of the proposed project (22 units), cumulative impacts to population and housing is not anticipated.
- *Transportation, parking and circulation*: Cumulative impacts to population, employment and housing is addressed in Section 4.9.
- *Utilities and Public Services*: There would be less-than-significant cumulative impacts to utility and service providers project, since existing uses are presently served with water, sewer, police, fire and solid waste services.

- Recreation: No cumulative impacts to recreational facilities would occur given the small number of residential dwellings proposed as part of the project.

## 6.6 Significant and Unavoidable Environmental Impacts

Unavoidable significant adverse impacts are those impacts that cannot be mitigated to a less-than-significant level. CEQA requires decision-makers to balance the benefits of a proposed project against its unavoidable impacts in considering whether to approve the underlying project. If the benefits of the proposed project outweigh the anticipated unavoidable impacts, the adverse environmental impacts may be considered acceptable by the Lead Agency. To approve the project without significantly reducing or eliminating an adverse impact, the Lead Agency must make a Statement of Overriding Consideration supported by the information in the record.

No such unavoidable impacts have been identified in this EIR.

# 7.0 Organizations and Persons Consulted

## 7.1 Persons and Organizations

*EIR Preparers*

The following individuals participated in the preparation of this document.

Jerry Haag, Urban Planner (project manager)
Alan T. Rosen, Charles Salter Associates (acoustics)
Eric Yee, Charles Salter Associates (acoustics)
Jane Maxwell, Blue Ox Associates (graphics)

*City of Dublin Staff*

Eddie Peabody, Jr. AICP, Community Development Director
Jeri Ram, AICP, Planning Manager
Janet Harbin, Senior Planner
Mike Stella, P.E. Associate Civil Engineer
Ray Kuzbari, P.E., Traffic Engineer
Edward Laudani, Fire Department
Diane Lowart, Parks and Recreation Director

Other Agencies and Organizations Contacted

Dublin San Ramon Services District-Rhodora Biagton
Pacific Gas & Electric-Jerry O'Hara

## 7.2 References

The following documents, in addition to those included in the Appendix, were used in the preparation of this DEIR.

City of Dublin General Plan, 1985, as amended

City of Dublin Zoning Ordinance, 1997.

Geotechnical Feasibility Study Planned Expansion Valley Christian Center, Dublin CA, Robert Chew Geotechnical, Inc. January 2000.

Valley Christian Center Proposed Expansion Traffic Impact Study, Fehr & Peers Associates, May 2001.

# 8.0 Appendices

# Appendix 8.1

# Notice of Preparation

CITY OF DUBLIN

100 Civic Plaza, Dublin, California 94568

Website: http://www.ci.dublin.ca.us

# Notice of Preparation

**To: Distribution List (see attached)**

**Subject: Notice of Preparation of a Draft Environmental Impact Report**

**Lead Agency:**

*City of Dublin*
*Community Development Department*
*100 Civic Plaza*
*Dublin, CA 94568*
***Contact:** Janet Harbin, Senior Planner, (925) 833-6610*

The City of Dublin will be the Lead Agency and hereby invites comments on the proposed scope and content of the Environmental Impact Report for the project identified below. Your agency may need to use the EIR prepared by the Lead Agency when considering regulatory permits or subsequent approvals for this project.

**Project Title:** Valley Christian Center Master Plan (PA 00-17).

**Project Location:** Immediately north of the I-580 Freeway and Dublin Boulevard, west of the terminus of Betlan Drive. Site address is 7500 Inspiration Drive, Dublin (Assessor's Parcel Numbers 941-0022-002-06 & -07).

**Project Description**: Approval and construction of a additional improvements on a 50.17 acre site, including an expansion to the existing church sanctuary/day care/fellowship hall/administration building, a new school administration building, a sports complex, a senior center/counseling building, a new chapel and twenty-two (22) dwelling units on an adjacent lot. New parking areas would also be constructed on the site. A lighted reader board sign has also been requested along the project's I-580 frontage. The total amount of new building area is anticipated to include 187,000 square feet, primarily of 2 and 3 story construction. Requested entitlements include an amendment to the Dublin General Plan to allow development of the dwelling units on the site, a Stage 1 and Stage 2 Planned Development rezoning, and a tentative tract map.

The attached supplement identifies potential environmental effects anticipated to be discussed in the Environmental Impact Report.

Due to time limits mandated by State law, your response must be returned at the earliest possible time, **but not later than 30 days following receipt of this notice.** Please send your response to the contact person identified above.

Date: January 18, 2002

Signature: 
Title: Senior Planner
Telephone: (925) 833-6610

City of Dublin

# Notice of Preparation
## Supplemental Information

**Project Title:** Valley Christian Center Master Plan (PA 00-17)

**Date:** January 18, 2002

**Discussion of**
**Potential Environmental Impacts:**

1) Aesthetics and Light and Glare: Including site grading and construction of proposed improvements, including the proposed reader board sign adjacent to the I-580 freeway, potential blockage of views and increased light and glare to adjacent sites.

2) Air Quality: Including short-term air quality impacts.

3) Cultural Resources: Including potential impacts to historic, cultural, archaeological and paleontologic resources.

4) Soils and Geology: Including potential impacts to soils, grading operations, topographic features, soil erosion and seismic hazards.

5) Water and Hydrology: Including potential impacts to surface water quality, increased storm water runoff and flooding.

6) Land Use: Including potential impacts to existing on-site land uses, surrounding land uses and land use regulatory programs.

7) Noise: Including potential impacts related to construction noise, long term operational noise of future land uses and noise associated vehicular transportation.

8) Population and Housing: Including potential impacts to the local and regional population base.

9) Transportation and Circulation: Including potential impacts to local and regional roadways and freeways, public transit and pedestrian and bicycle circulation systems.

10) Public Services and Utilities: Including potential impacts related to the provision of police, fire, schools, solid waste services, and local and regional water, sewer, storm drain, energy and communications systems, to support the proposed development.

11) Recreation: Including impacts to local, community and regional recreational facilities.

12) Cumulative Impacts: Including cumulative impacts related to population and employment increases, recreational use, traffic, air quality, water use, sewage generation and storm water runoff.

## NOTICE OF PREPARATION DISTRIBUTION LIST

### Valley Christian Center Master Plan Project
### PA 00-017

### January 2002

California State Clearinghouse – Terry Roberts
Dublin San Ramon Services District (Rhodora Biagton) *
Dublin Unified School District – John Sugiyama
LAVTA – Austin O'Dell
Zone 7, ACFC&WCD - Yan Kee Chan
Alameda County Planning Department - Adolph Martinelli
Alameda County Public Works Department
Alameda County Airport Land Use Commission
East Bay Regional Parks District
PG&E
Pacific Bell
TCI Cable
Livermore Dublin Disposal Service - Dan Borges
U.S. Postal Service - Postmaster
City of Pleasanton Planning Department
City of Livermore Planning Department
City of San Ramon Planning Department
CalTrans - District 4 CEQA Coordinator and Project Development
BART - Mary Ann Payne
U.S. Army Corps of Engineers - Regulatory Branch
California Department of Fish and Game - Ken Aasen, Caitlin Bean, & Officer Powell
U.S. Fish and Wildlife Service - State Supervisor
Regional Water Quality Control Board
Bay Area Air Quality Management District
Alameda County Congestion Management Agency
Metropolitan Transportation Commission

**City Departments & Divisions**

Diane Lowart, Parks and Community Services Director
Lee Thompson, Public Works Director
Eddie Peabody, Jr., Community Development Department Director
Kevin Van Katwyk, Senior Civil Engineer
Police Services
Fire Department
Maintenance Division (MCE)

**Property Owners & Others**

Property Owners within 300 feet
Hansen Hill Ranch Homeowners' Assoc.

# Appendix 8.2

# Response to Notice of Preparation

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
State Clearinghouse

Gray Davis
GOVERNOR

Steven A. Nissen
DIRECTOR

**Notice of Preparation**

January 23, 2002

To: Reviewing Agencies

Re: Valley Christian Center Master Plan (PA 00-17)
SCH# 2002012070

Attached for your review and comment is the Notice of Preparation (NOP) for the Valley Christian Center Master Plan (PA 00-17) draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

**Janet Harbin**
**City of Dublin**
**Community Development Department**
**100 Civic Plaza**
**Dublin, CA 94568**

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan for K.S.J.

Katie Shulte Joung
Associate Planner, State Clearinghouse

Attachments
cc: Lead Agency

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JAN 2 5 2002
DUBLIN PLANNING

# Document Details Report
## State Clearinghouse Data Bas

**SCH#** **2002012070**
**Project Title** Valley Christian Center Master Plan (PA 00-17)
**Lead Agency** Dublin, City of

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**Type** **NOP** Notice of Preparation

**Description** Approval and construction of a additional improvements on a 50.17 acre site, including an expansion to the existing church sancturary/day care/fellowship hall/administration building, a new school administration building, a sports complex, a senoir center/counseling building, a new chapel and twenty-two (22) dwelling units on an adjacent lot. New parking areas would also be constructed on the site. A lighted reader board has also been requested along the project's I-580 frontage. The total amount of new building area is anticipated to include 187,000 square feet, primarily of 2 and 3 story construction. Requested entitlements include an amendment to the Dublin General Plan to allow development of the dwelling units on the site, a Stage 1 and Stage 2 Planned Development rezoning, and a tentative tract map.

---

## Lead Agency Contact

**Name** Janet Harbin
**Agency** City of Dublin
**Phone** 925-833-6610 **Fax**
**email**
**Address** Community Development Department
100 Civic Plaza
**City** Dublin **State** CA **Zip** 94568

---

## Project Location

**County** Alameda
**City** Dublin
**Region**
**Cross Streets** 7500 Inspiration Drive
**Parcel No.** 941-002-002-06 & 07
**Township** **Range** **Section** **Base**

---

## Proximity to:

**Highways** I-580
**Airports**
**Railways**
**Waterways**
**Schools**
**Land Use**

---

**Project Issues** Aesthetic/Visual; Air Quality; Geologic/Seismic; Soil Erosion/Compaction/Grading; Water Quality; Landuse; Noise; Population/Housing Balance; Traffic/Circulation; Public Services; Recreation/Parks; Cumulative Effects

---

**Reviewing Agencies** Resources Agency; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; Department of Fish and Game, Region 3; Native American Heritage Commission; State Lands Commission; Caltrans, District 4; California Highway Patrol; Regional Water Quality Control Board, Region 2; Department of Toxic Substances Control

---

**Date Received** 01/22/2002 **Start of Review** 01/22/2002 **End of Review** 02/20/2002

Note: Blanks in data fields result from insufficient information provided by lead agency.

# NOP Distribution List

County: Alameda SCH# 2002012070

## Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Bill Curry
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [x] **Dept. of Conservation**
  Roseanne Taylor
- [ ] **Dept. of Forestry & Fire Protection**
  Allen Robertson
- [x] **Office of Historic Preservation**
  Hans Kreutzberg
- [x] **Dept of Parks & Recreation**
  Resource Mgmt. Division
- [ ] **Reclamation Board**
  Pam Bruner
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

## Health & Welfare

- [ ] **Health & Welfare**
  Wayne Hubbard
  Dept. of Health/Drinking Water

## Food & Agriculture

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture

## Fish and Game

- [ ] **Dept. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Dept. of Fish & Game 1**
  Donald Koch
  Region 1
- [ ] **Dept. of Fish & Game 2**
  Banky Curtis
  Region 2
- [x] **Dept. of Fish & Game 3**
  Robert Floerke
  Region 3
- [ ] **Dept. of Fish & Game 4**
  William Laudermilk
  Region 4
- [ ] **Dept. of Fish & Game 5**
  Don Chadwick
  Region 5, Habitat Conservation Program
- [ ] **Dept. of Fish & Game 6**
  Gabrina Gatchel
  Region 6, Habitat Conservation Program
- [ ] **Dept. of Fish & Game 6 I/M**
  Tammy Allen
  Region 6, Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  Tom Napoli
  Marine Region

## Independent Commissions

- [ ] **California Energy Commission**
  Environmental Office
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Ken Lewis
- [x] **State Lands Commission**
  Betty Silva
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse Planner

---

- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Lyn Barnett
- [ ] **Office of Emergency Services**
  John Rowden, Manager
- [ ] **Delta Protection Commission**
  Debby Eddy
- [ ] **Santa Monica Mountains Conservancy**
  Paul Edelman

## Dept. of Transportation

- [ ] **Dept. of Transportation 1**
  IGR/Planning
  District 1
- [ ] **Dept. of Transportation 2**
  Vicki Roe
  Local, Development Review, District 2
- [ ] **Dept. of Transportation 3**
  Jeff Pulverman
  District 3
- [x] **Dept. of Transportation 4**
  Jean Finney
  District 4
- [ ] **Dept. of Transportation 5**
  Lawrence Newland
  District 5
- [ ] **Dept. of Transportation 6**
  Marc Birnbaum
  District 6
- [ ] **Dept. of Transportation 7**
  Stephen J. Buswell
  District 7
- [ ] **Dept. of Transportation 8**
  Mike Sim
  District 8
- [ ] **Dept. of Transportation 9**
  Colleen O'Brien
  District 9
- [ ] **Dept. of Transportation 10**
  Chris Sayre
  District 10
- [ ] **Dept. of Transportation 11**
  Lou Salazar
  District 11
- [ ] **Dept. of Transportation 12**
  Aileen Kennedy
  District 12

## Business, Trans & Housing

- [ ] **Housing & Community Development**
  Cathy Creswell
  Housing Policy Division
- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [x] **California Highway Patrol**
  Lt. Julie Page
  Office of Special Projects
- [ ] **Dept. of Transportation**
  Ron Helgeson
  Caltrans - Planning
- [ ] **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section

**Air Resources Board**

- [ ] Airport Projects
  Jim Lerner
- [ ] Transportation Projects
  Ann Geraghty
- [ ] Industrial Projects
  Mike Tollstrup

---

- [ ] **California Integrated Waste Management Board**
  Sue O'Leary
- [ ] **State Water Resources Control Board**
  Diane Edwards
  Division of Clean Water Programs
- [ ] **State Water Resources Control Board**
  Greg Frantz
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Mike Falkenstein
  Division of Water Rights
- [x] **Dept. of Toxic Substances Control**
  CEQA Tracking Center

## Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [x] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Jonathan Bishop
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

**DEPARTMENT OF TRANSPORTATION**
P. O. BOX 23660
OAKLAND, CA 94623-0660
(510) 286-4444
(510) 286-4454 TDD

*Flex your power!*
*Be energy efficient!*

February 5, 2002

ALA-580-21.42
File #ALA580728
SCH #2002012070

Ms. Janet Harbin
City of Dublin
Community Development Department
100 Civic Plaza
Dublin, CA 94568

Dear Ms. Harbin:

**Valley Christian Center Master Plan (PA 99-17) – Notice of Preparation**

Thank you for including the California Department of Transportation in the early stages of the environmental review process for the above-referenced project. We have examined the Notice of Preparation (NOP) and have the following comments to offer:

Our primary concern with the project is the potential impact it may have on existing traffic volumes and congestion on State highways in the vicinity of the project including State Route 238 (SR238, Mission Boulevard). In order to adequately address our concerns regarding the operation of this State Route, please ensure the following information is provided in the environmental document:

a. Information on the project's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed.

b. Average Daily Traffic (ADT) and AM and PM peak hour volumes on all significantly affected streets and highways, including crossroads and controlled intersections for the following scenarios: 1) existing, 2) existing plus project, and 3) cumulative.

c. Schematic illustration of the traffic conditions should include trip distribution percentages and volumes for the scenarios described above. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the facilities being evaluated.

d. Mitigation measures that consider highway and non-highway improvements and services. Special attention should be given to the development of alternative solutions to circulation problems which do not rely on increased highway construction.

e. Financing, scheduling, implementation responsibilities, and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Also, for information purposes, there are State requirements for placing a lighted display visible from a public highway. For further details, the applicant should review the Department's internet website at: http://www.dot.ca.gov/hq/row/oda/

We look forward to reviewing the environmental document for this project. We do expect to receive a copy from the State Clearinghouse, but in order to expedite our review, you may send two copies in advance to:

Paul Svedersky
Office of Transportation Planning B
California Dept of Transportation District 4
P.O. Box 23660
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please call Paul Svedersky of my staff at (510) 622-1639.

Sincerely,

Jean CR Finney

JEAN C. R. FINNEY
District Branch Chief
IGR/CEQA

c: Katie Shulte Joung, State Clearinghouse

5-8
2/21/02

ZONE 7 WATER RESOURCES MANAGEMENT

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588-5127 • PHONE (925) 484-2600 FAX (925) 462-3914

February 20, 2002

Ms. Janet Harbin
Senior Planner
Community Development Department
City of Dublin
100 Civic Plaza
Dublin, CA 94568

Re: Notice of Preparation of a Draft Environmental Impact Report
Valley Christian Center Master Plan

Dear Ms. Harbin:

Zone 7 received this document on January 22, 2002. Within our Zone 7 Livermore-Amador Valley service area, Zone 7 provides wholesale treated water, untreated water for agriculture and irrigated turf, flood protection, and groundwater management. The proposed project is an expansion of an existing church/ administration building and new construction for a school administration building, sports complex, parking spaces, and 22 dwelling units. We have reviewed the proposed scope and the list of potential environmental impacts to be discussed in the Draft EIR, and have the following comments:

**"Water and Hydrology" Impacts:**

Although this proposed project is not located near any authorized Zone 7 Special Drainage Area 7-1 (SDA 7-1) flood control facilities, please be advised that mitigation for impacts to Zone 7's flood control facilities downstream of the proposed project is handled through the collection of appropriate drainage fees for the SDA 7-1 program. Appropriate erosion control must be provided to minimize impacts to our downstream facilities.

When available, please send to my attention four copies of the Draft EIR for Zone 7 review. We appreciate the opportunity to comment on this document. Please feel free to contact me at (925) 484-2600, ext. 400, or Jack Fong at ext. 245 if you have any questions.

Very truly yours,

Jack Fong FOR

Jim Horen
Principal Engineer
Advance Planning Section

JPH:JF:arr

Cc: Ed Cummings
John Mahoney
Diana Gaines
Jack Fong

*P:\Advplan\CEQA-ValleyChristianCenterNOP.doc*

**DUBLIN SAN RAMON SERVICES DISTRICT**

7051 Dublin Boulevard
Dublin, California 94568
FAX: 925 829 1180

925 828 0515

February 21, 2002

Ms. Janet Harbin, Senior Planner
City of Dublin
Community Development Department
100 Civic Plaza
Dublin, CA 94568

**Subject: Notice of Preparation, Draft EIR for Valley Christian Center Master Plan (PA 00-17)**

Dear Ms. Harbin:

Thank you for the opportunity to provide comments on the scope and content of the environmental review for the Valley Christian Center Master Plan. Issues of concern to the District include: (1) the provision of wastewater services to the project by the District, (2) the provision of potable water services to the project by the District; and (3) the on and off-site impacts associated with the provision of recycled water services.

The EIR should include a complete analysis of the effects on demand for District services resulting from the proposed General Plan and Specific Plan amendments, and any impacts associated with necessary service or trunk line extensions.

<u>Wastewater Services</u>

The District has included the project area in its current master planning for increases to wastewater effluent disposal capacity. However, the portion of the EIR discussing wastewater services should adequately assess the impacts of collecting, treating and disposing of wastewater generated from the project. It will be necessary to carefully analyze the demand for wastewater service represented by the proposed land uses. In addition, the District has an Area Wide Facilities Agreement with Alameda County that may affect sewer service. It is necessary to analyze those impacts, if any, on sewer service to the proposed project. In particular, the impacts of our existing 8-inch diameter sewer main on Dublin Blvd. west of San Ramon Road should be carefully analyzed as it is near capacity.

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Potable Water Supply and Service

The project area is within the service area of the District. The portion of the EIR discussing water services should assess the impacts of providing an adequate water supply and storing and distributing it within the area. In addition, it will be necessary to carefully analyze the water demand represented by the proposed land uses as compared to the General Plan land use. Increased demand, if any, will have to be analyzed.

Recycled Water Service

District Ordinance 280 requires that new development located within the potable water service area of the District, which represents landscape irrigation demand for recycled water, must provide for and utilize recycled water. Recycled water for landscape irrigation will be an element of the overall water supply for the project and is supported by the District's Urban Water Management Plan. The EIR must examine the impacts, which may be associated with the provision of recycled water service.

If you have any questions, please feel free to contact me at (925) 551-7230, extension 112.

Sincerely,

GREGORY TAYLOR,
Engineering Technician/GIS Specialist II

GT:jg

Cc: David Behrens, DSRSD
Dave Requa, DSRSD

# ALAMEDA COUNTY CONGESTION MANAGEMENT AGENCY



February 21, 2002

Ms. Janet Harbin
Community Development Department
City of Dublin
100 Civic Plaza
Dublin, CA 94568

SUBJECT: Comments on Notice of Preparation of a Draft Environmental Impact Report for the Valley Christian Center Master Plan (PA 00-17) in the City of Dublin

Dear Janet:

Thank you for the opportunity to review the City of Dublin's Notice of Preparation of a Draft Environmental Impact Report for the Valley Christian Center Master Plan. The project is located on a 50 acre site at 7500 Inspiration Drive. The project would consist of an expansion to the existing church sanctuary/day care/fellowship hall/administration building, a new school administration building, a sports complex, a senior center/counseling building, a new chapel and 22 dwelling units. The project is located at 7500 Inspiration Drive in the City of Dublin.

Based our review of the NOP and conversations with you, the ACCMA has no comment because the project does not appear to meet the Tier 1 requirements of generating 100 or more p.m. peak hour trips over baseline conditions. Therefore it is exempt from the Land Use Analysis Program of the CMP.

Once again, thank you for the opportunity to comment on this NOP. Please do not hesitate to contact me at 510/836-2560 ext. 13 if you require additional information.

Sincerely,

Elizabeth A Walukas

Beth Walukas
Senior Transportation Planner

cc: file: CMP/Environmental Review Opinions - Responses - 2002

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FEB 22 2002
DUBLIN PLANNING

inston H. Hickox
*Secretary for Environmental Protection*

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
*Governor*


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DUBLIN PLANNING

Date: March 22, 2002
File No. 2198.09 (EL)

Ms. Janet Harbin
City of Fremont
100 Civic Plaza
Dublin, CA 94568

**Re: Valley Christian Center Master Plan (SCH# 2002012070)**

Dear Ms. Harbin:

We have reviewed the Notice of Preparation (NOP) for the above referenced project involving the amendment of the General Plan and the construction of additional improvements on a 50.17-acre site. The project includes the expansion of the existing structures and the construction of new facilities, including twenty-two residential units. Based on the information provided in the NOP, we offer the following comments. These comments are to advise the City of Fremont and the project sponsor of our concerns, so they may be incorporated into the planning and design process at an early date. Regional Board staff is available to work with the project sponsor to develop a project in compliance with State water quality standards.

The NOP indicates that there will be potential impacts to surface water and an increase in stormwater runoff and flooding. The project should minimize the potential for impacts to water quality from project construction by incorporating appropriate construction Best Management Practices (BMPs). This can be accomplished by developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). A SWPPP is required by the State NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (General Permit), which is discussed below. The SWPPP should be consistent with the terms of the General Permit, policies and recommendations of the local urban runoff program (city and/or county), and the recommendations of the RWQCB. Implementation of the SWPPP should be enforced during the construction period via appropriate options such as citation, stop work orders, or withholding occupancy permits.

The SWPPP should include a long-term Storm Water Management Plan (SWMP) to protect water quality after construction. Post-construction stormwater concerns may include significant changes in the hydrograph of the receiving waters caused by stormwater runoff, or discharge of pollution such as fertilizers, pesticides, petroleum products and animal waste to a waterway. Regional Board staff encourages the use of innovative site designs that reduce impermeable surfaces and incorporate BMPs to protect and treat stormwater. These considerations should be incorporated into the project design as early in the planning phase as possible. Regional Board staff recommends obtaining a copy of "Start at the Source – Design Guidance Manual for Stormwater Quality Protection." The manual provides innovative design techniques for structures, parking lots, drainage systems and landscaping. This manual may be obtained at most cities planning offices, or by calling (510) 622-2321. Incorporation and implementation long-term stormwater management and protection features should be made a condition of project construction permitting.

The proposed project will disturb 50.17 acres of land during construction and must be covered under the General Permit). This can be accomplished by filing a Notice of Intent with the State Water Resources Control Board, Division of Water Quality. The project applicant can obtain an NOI and the General Permit from the State Water Resources Control Board web page at www.swrcb.ca.gov. The project sponsor must propose and implement control measures that are consistent with the General Permit and with the recommendations and policies of the local agency and the RWQCB.

For further information about our regulations and requirements, please refer to the **General Comments** documents, which discusses the Regional Board's areas of responsibility, and which should be of assistance to the project sponsor.

If you have any question, please call Peggy Olofson at (510) 622-2402.

Sincerely,

Peggy Olofson
Water Resource Control Engineer

Enclosure: General Comments

## General Comments

The San Francisco Regional Water Quality Control Board (Regional Board or RWQCB) is charged with the protection of the Waters of the State of California in the San Francisco Bay Region, including wetlands and stormwater quality. The Regional Board is responsible for administering the regulations established by the Federal Clean Water Act. Additionally, the California Water Code establishes broad state authority for regulation of water quality. The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) explains the Regional Board's strategy for regulating water quality. The Basin Plan also describes the range of responses available to the Regional Board with regard to actions and proposed actions that degrade or potentially degrade the beneficial uses of the Waters of the State of California.

### NPDES

Water quality degradation is regulated by the Federal National Pollutant Discharge Elimination System (NPDES) Program, established by the Clean Water Act, which controls and reduces pollutants to water bodies from point and nonpoint discharges. In California, the program is administered by the California Regional Water Quality Control Boards. The Regional Board issues NPDES permits for discharges to water bodies in the San Francisco Bay Area, including Municipal (area- or county-wide) Stormwater Discharge Permits.

Projects disturbing more than five acres of land during construction must be covered under the State NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (General Permit). This can be accomplished by filing a Notice of Intent with the State Water Resources Control Board. An NOI and the General Permit can be obtained from the Board at (510) 622-2300. The project sponsor must propose and implement control measures that are consistent with the General Permit and with the recommendations and policies of the local agency and the RWQCB.

Projects that include facilities with discharges of Storm Water Associated with Industrial Activity must be covered under the State NPDES General Permit for Discharges of Storm Water Associated with Industrial Activity. This may be accomplished by filing a Notice of Intent. The project sponsor must propose control measures that are consistent with this, and with recommendations and policies of the local agency and the RWQCB. In a few cases, the project sponsor may apply for (or the RWQCB may require) issuance of an individual (industry- or facility-specific) permit.

The RWQCB's Urban Runoff Management Program requires Bay Area municipalities to develop and implement storm water management plans (SWMPs). The SWMPs must include a program for implementing new development and construction site storm water quality controls. The objective of this component is to ensure that appropriate measures to control pollutants from new development are: considered during the planning phase, before construction begins; implemented during the construction phase; and maintained after construction, throughout the life of the project.

## Impacts and Mitigation Measures

### Wetlands

Wetlands enhance water quality through such natural functions as flood and erosion control, stream bank stabilization, and filtration and purification of contaminants. Wetlands also provide critical habitats for hundreds of species of fish, birds, and other wildlife, offer open space, and provide many recreational opportunities. Water quality impacts occur in wetlands from construction of structures in waterways, dredging, filling, and altering drainage to wetlands.

The Regional Board must certify that any permit issued by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act (covering, dredging, or filling of Waters of the United States, including wetlands) complies with state water quality standards, or waive such certification. Section 401 Water Quality Certification is necessary for all 404 Nationwide permits, reporting and non-reporting, as well as individual permits.

All projects must be evaluated for the presence of jurisdictional wetlands and other Waters of the State. Destruction of or impact to these waters should be avoided. If the proposed project impacts wetlands or other Waters of the State and the project applicant is unable to demonstrate that the project was unable to avoid those adverse impacts, water quality certification will most likely be denied. 401 Certification may also be denied based on significant adverse impacts to wetlands or other Waters of the State. In considering proposals to fill wetlands, the Regional Board has adopted the California Wetlands Conservation Policy (Executive Order W-59-93, signed August 23, 1993). The goals of the Policy include ensuring "no overall net loss and achieving a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values." Under this Policy, the Regional Board also considers the potential post-construction impacts to wetlands and Waters of the State and evaluates the measures proposed to mitigate those impacts (see Storm Water Quality Control, below).

The Regional Board has adopted U.S. EPA's Clean Water Act Section 404(b)(1) "Guidelines for Specification of Disposal Sites for Dredge or Fill Material," dated December 24, 1980, in the Board's Basin Plan for determining the circumstances under which fill may be permitted.

Section 404(b)(1) Guidelines prohibit all discharges of fill material into regulated waters of the United States, unless a discharge, as proposed, constitutes the least environmentally damaging practicable alternative that will achieve the basic project purpose. For non-water dependent projects, the guidelines assume that there are less damaging alternatives, and the applicant must rebut that assumption.

The Section 404(b)(1) Guidelines sequence the order in which proposals should be approached. First, impacts to wetlands or Waters of the State must be avoided to the maximum extent practicable. Second, the remaining impacts must be minimized. Finally, the remaining unavoidable adverse impacts to wetlands or Waters of the State must be mitigated. Mitigation will be preferably in-kind and on-site, with no net destruction of habitat value. A proportionately greater amount of mitigation is required for projects that are out-of-kind and/or off-site. Mitigation will preferably be completed prior to, or at least simultaneous to, the filling or other loss of existing wetlands.

Successful mitigation projects are complex tasks and difficult to achieve. This issue will be strongly considered during agency review of any proposed wetland fill. Wetland features or ponds created as mitigation for the loss of existing jurisdictional wetlands or Waters of the United States cannot be used as storm water treatment controls.

In general, if a proposed project impacts wetlands or Waters of the State and the project applicant is unable to demonstrate that the project was unable to avoid adverse impacts to wetlands or Waters of the State, water quality certification will be denied. 401 Certification may also be denied based on significant adverse impacts to wetlands or other Waters of the State.

**Storm Water Quality Control**

Storm water is the major source of fresh water to creeks and waterways. Storm water quality is affected by a variety of land uses and the pollutants generated by these activities. Development and construction activities cause both site-specific and cumulative water quality impacts. Water quality degradation may occur during construction due to discharges of sediment, chemicals, and wastes to nearby storm drains or creeks. Water quality degradation may occur after construction is complete, due to discharges of petroleum hydrocarbons, oil, grease, and metals from vehicles, pesticides and fertilizers from landscaping, and bacteria from pets and people. Runoff may be concentrated and storm water flow increased by newly developed impervious surfaces, which will mobilize and transport pollutants deposited on these surfaces to storm drains and creeks. Changes in runoff quantity or velocity may cause erosion or siltation in streams. Cumulatively, these discharges will increase pollutant loads in creeks and wetlands within the local watershed, and ultimately in San Francisco Bay.

To assist municipalities in the Bay Area with complying with an area-wide NPDES Municipal Storm Water Permit or to develop a Baseline Urban Runoff Program (if they are not yet a co-permittee with a Municipal Storm Water Permit), the Regional Board distributed the *Staff Recommendations for New and Redevelopment Control for Storm Water Programs* (Recommendations) in April 1994. The Recommendations describe the Regional Board's expectations of municipalities in protecting storm water quality from impacts due to new and redevelopment projects, including establishing policies and requirements to apply to development areas and projects; initiating appropriate planning, review, approval, and inspection procedures; and using best management practices (BMPs) during construction and post-construction.

Project impacts should be minimized by developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). A SWPPP is required by the State Construction Storm Water General Permit (General Permit). The SWPPP should be consistent with the terms of the General Permit, the Manual of Standards for Erosion & Sedimentation Control Measures by the Association of Bay Area Governments (ABAG), policies and recommendations of the local urban runoff program (city and/or county), and the Recommendations of the RWQCB. SWPPPs should also be required for projects that may have impacts, but which are not required to obtain an NPDES permit. Preparation of a SWPPP should be a condition of development. Implementation of the SWPPP should be enforced during the construction period via appropriate options such as citations, stop work orders, or withholding occupancy permits.

Impacts identified should be avoided and minimized by developing and implementing the types of controls listed below. Explanations of the controls are available in the Regional Board's construction *Field Manual*, available from Friends of the San Francisco Estuary at (510) 286-0924, in BASMAA's *Start at the Source*, and in the *California Storm Water Best Management Practice Handbooks*.

## Site Planning

The project should minimize impacts from project development by incorporating appropriate site planning concepts. This should be accomplished by designing and proposing site planning options as early in the project planning phases as possible. Appropriate site planning concepts to include, but are not limited to the following:

- Phase construction to limit areas and periods of impact.
- Minimize directly connected impervious areas.
- Preserve natural topography, existing drainage courses and existing vegetation.
- Locate construction and structures as far as possible from streams, wetlands, drainage areas, etc.
- Provide undeveloped, vegetated buffer zones between development and streams, wetlands, drainage areas, etc.
- Reduce paved area through cluster development, narrower streets, use of porous pavement and/or retaining natural surfaces.
- Minimize the use of gutters and curbs which concentrate and direct runoff to impermeable surfaces.
- Use existing vegetation and create new vegetated areas to promote infiltration.
- Design and lay out communities to reduce reliance on cars.
- Include green areas for people to walk their pets, thereby reducing build-up of bacteria, worms, viruses, nutrients, etc. in impermeable areas, or institute ordinances requiring owners to collect pets' excrement.
- Incorporate low-maintenance landscaping.
- Design and lay out streets and storm drain systems to facilitate easy maintenance and cleaning.
- Consider the need for runoff collection and treatment systems.
- Label storm drains to discourage dumping of pollutants into them

## Erosion

The project should minimize erosion and control sediment during and after construction. This should be done by developing and implementing an erosion control plan, or equivalent plan. This plan should be included in the SWPPP. The plan should specify all control measures that will be used or which are anticipated to be used, including, but not limited to, the following:

- Limit access routes and stabilize access points.
- Stabilize denuded areas as soon as possible with seeding, mulching, or other effective methods.
- Protect adjacent properties with vegetative buffer strips, sediment barriers, or other effective methods.
- Delineate clearing limits, easements, setbacks, sensitive areas, vegetation and drainage courses by marking them in the field.
- Stabilize and prevent erosion from temporary conveyance channels and outlets.
- Use sediment controls and filtration to remove sediment from water generated by dewatering or collected on-site during construction. For large sites, stormwater settling basins will often be necessary.

### Chemical and Waste Management

The project should minimize impacts from chemicals and wastes used or generated during construction. This should be done by developing and implementing a plan or set of control measures. The plan or control measures should be included in the SWPPP. The plan should specify all control measures that will be used or which are anticipated to be used, including, but not limited to, the following:

- Designate specific areas of the site, away from streams or storm drain inlets, for storage, preparation, and disposal of building materials, chemical products, and wastes.
- Store stockpiled materials and wastes under a roof or plastic sheeting.
- Store containers of paint, chemicals, solvents, and other hazardous materials stored in containers under cover during rainy periods.
- Berm around storage areas to prevent contact with runoff.
- Cover open Dumpsters securely with plastic sheeting, a tarp, or other cover during rainy periods.
- Designate specific areas of the site, away from streams or storm drain inlets, for auto and equipment parking and for routine vehicle and equipment maintenance.
- Routinely maintain all vehicles and heavy equipment to avoid leaks.
- Perform major maintenance, repair, and vehicle and equipment washing off-site, or in designated and controlled areas on-site.
- Collect used motor oil, radiator coolant or other fluids with drip pans or drop cloths.
- Store and label spent fluids carefully prior to recycling or proper disposal.
- Sweep up spilled dry materials (cement, mortar, fertilizers, etc.) immediately--do not use water to wash them away.
- Clean up liquid spills on paved or impermeable surfaces using "dry" cleanup methods (e.g., absorbent materials, cat litter, rags) and dispose of cleanup materials properly.
- Clean up spills on dirt areas by digging up and properly disposing of the soil.
- Keep paint removal wastes, fresh concrete, cement mortars, cleared vegetation, and demolition wastes out of gutters, streams, and storm drains by using proper containment and disposal.

### Post-Construction

The project should minimize impacts from pollutants that may be generated by the project following construction, when the project is complete and occupied or in operation. These pollutants may include: sediment, bacteria, metals, solvents, oil, grease, and pesticides, all of which are typically generated during the life of a residential, commercial, or industrial project after construction has ceased. This should be done by developing and implementing a plan and set of control measures. The plan or control measures should be included in the SWPPP.

The plan should specify all control measures that will be used or which are anticipated to be used, including, but not limited to, the source controls and treatment controls listed in the Recommendations. Appropriate control measures are discussed in the Recommendations, in:

- Table 2: Summary of residential post-construction BMP selection
- Table 3: Summary of industrial post-construction BMP selection
- Table 4: Summary of commercial post-construction BMP selection

Additional sources of information that should be consulted for BMP selection include the *California Storm Water Best Management Practice Handbooks;* the Bay Area Preamble to the *California Storm Water Best Management Practice Handbooks and New Development Recommendations*; the BASMAA New Development Subcommittee meetings, minutes, and distributed information; and Regional Board staff. Regional Board staff also have fact sheets and other information available for a variety of structural stormwater treatment controls, such as grassy swales, porous pavement and extended detention ponds.

Janet Harbin
100 Civic Plaza
Dublin, CA

February 7, 2002

RE: Valley Christian Church EIR and Master Plan

Janet,

I recently was forwarded a letter sent out by the city explaining the request by Valley Christian Church to amend their master plan. As a neighbor who lives very close to the church I was first surprised that I hadn't received the letter as well. Regardless, as requested by you in the letter I am communicating with you some concerns I have regarding VCCs request.

First and foremost in my mind is the affect of additional traffic that we could realize in our neighborhood due to these requests. As the city is well aware, the community I live in Hansen Hill/The Ridge, continues to experience a substantial amount of traffic driving through our neighborhood streets. With the vague information provided in the Notice of Preparation it's hard to estimate just how much more traffic could be realized with this plan. For example, the statement "to allow development of the dwelling units on the site, a Stage 1 and Stage 2 Planned Development rezoning, and a tentative tract map", what exactly is VCC asking for?

My understanding is the request to build 22 units is located at the intersection of Inspiration Drive and Dublin Blvd. What I don't understand is if and where additional dwelling units are being proposed for Stage 1, Stage 2 and further stages down the road. Just analyzing the 22 units that I believe are requested to be built that adds traffic to the already overburdened Dublin Blvd. This two-lane road is already chronically backed up during peak drop off and pick up hours during school hours. Although 22 homes may not appear to be a significant amount of more vehicles on the road, when you are already living a traffic nightmare why would you even consider adding to it. It also adds to the potential safety risks as well.

I don't see any mention in the plans to widen Dublin Blvd from Hansen to Inspiration from at least 2 lanes in each direction. In addition, I would expect serious consideration to be given to add streetlights and traffic signals from Silvergate to Inspiration as well. This must be a requirement to avoid further congestion and safety issues on this street. This congestion further tempts parents and members of VCC to either continue or begin using Bay Laurel as an alternate traffic venue.

In addition to the serious traffic concern I worry about soil studies being done prior to any consideration of building. I also worry about noise and aesthetic issues. Specific to the aesthetic issue is the request for a neon sign to be placed at Inspiration near 580. This is appalling to say the least. We live in what can arguably be considered the most prestigious development in the City of Dublin. To have a neon sign greeting homeowners and visitors who enter from Inspiration Drive cheapens that to say the very least. I am also curious as to what VCC plans on achieving with this neon sign.

The hills are a beautiful and welcome site for the west side of Dublin. Adding additional homes that block that view, add traffic congestion, noise and may contribute to unsafe conditions are not the answer. Valley Christian Church has been a good neighbor and they maintain a beautiful campus, I would hate to see that relationship compromised. I personally called the new Business Administrator, Bryan, about 2 weeks ago to inquire about their plans but unfortunately he shared with me he was too new to give me the complete information. He also explained that VCC would contact the President of our HOA to setup meetings with our community and VCC to discuss the plan. Unfortunately that hasn't happened either, which would have been a much more preferable solution rather than writing this letter.

I have other questions as well and could go on and on but feel this letter gets my initial point across. Prior to any approval by the City of Dublin I ask that you bring together the neighbors surrounding VCC and work out a plan that we can all understand and agree upon. There are far too many questions unanswered to even consider approving any portion of this request.

Sincerely,

Peggy Atwell

Wayne & Peggy Atwell
11203 Bay Laurel St

## Janet Harbin

**From:** Jeri Ram
**Sent:** Monday, February 11, 2002 8:18 AM
**To:** 'Brent Wood'
**Cc:** Janet Harbin
**Subject:** RE: Valley Christian Center Master Plan

Dear Mr. Wood - thank you very much for your comments on the VCC project. I am forwarding a copy of your comments to the Project Planner, Janet Harbin. Ms. Harbin is presently working on the environmental document for the project. I am sure that she will find your comments interesting and ensure that they are addressed in the Study. We will keep the HOA informed of our progress.

Jeri Ram
Planning Manager

-----Original Message-----
**From:** Brent Wood [mailto:bwood999@attbi.com]
**Sent:** Sunday, February 10, 2002 3:29 PM
**To:** Jeri.Ram@ci.dublin.ca.us
**Subject:** Valley Christian Center Master Plan

Dear Ms. Ram: I am writing you to express my concern regarding part of the Valley Christian Center (VCC) Planned Development. Specifically, I am concerned with the potential for severe traffic problems and accidents at the foot of Inspiration Drive where it intersects Dublin Blvd. The drawing of PARCEL 2 ( the twenty-two dwelling units) shows the driveway going onto Inspiration Drive very close to the corner. If you are ever at that intersection on any weekday that there is school, you would see a line of vehicles from the intersection to the top of the hill. Anyone turning off of Dublin Blvd. and wanting to turn into the planned development would face the daunting challenge of getting through that line of cars while being stopped just after a blind corner (on a narrow street) where parents are coming to pick up their children. I strongly feel this is the recipe for rear-end collisions. If the driveway were to be placed on the North side of the development (next to the existing condominiums) and exit onto Dublin Blvd., it would be on a straight street with less traffic and much better sight lines for the drivers.

I am also concerned with the increased enrollment at the school. I come home at about 3:00 pm and every day I see several vehicles make illegal left turns out of the two driveways that are marked "No Left Turn". Some of these vehicles are driven by students of VCC and some are driven by parents that want to avoid the back-up turning onto Dublin Blvd. The school has informed both the parents and the students about obeying those signs, but is unable to enforce the requirements. Students have been informed that they will lose their parking privileges if they violate those signs. To date, I haven't seen the school do much to enforce that edict!

I am NOT against the school adding the dwelling units at the bottom of the hill, nor am I against them increasing the enrollment and adding the planned senior counseling center. I am concerned about the increased traffic and safety hazards posed by parts of this development.

If there were a traffic signal at the intersection of Dublin Blvd. and Inspiration Drive that would allow for better traffic flow during school hours, it would mitigate some of the pressure on Bay Laurel. Perhaps the school could redesign the two driveways to preclude left turns during school.

Thank you for your time and attention.

Sincerely yours,
Brent A. Wood
10750 Inspiration Circle
Dublin CA. 94568

Mark Nornhold
7306 Croy Lane
Dublin, CA 94568
February 18, 2002
In reply to: Valley Christian Center Master Plan (PA 00-17)

RECEIVED
FEB 22 2002
DUBLIN PLANNING

Janet Harbin, Senior Planner
City of Dublin
Community Development Department
100 Civic Plaza
Dublin, CA 94568

Dear Janet Harbin, Senior Planner:

In reviewing the Valley Christian Center Master Plan (PA 00-17), I am concerned about the following impact elements of the plan as proposed.

**Traffic Congestion/Road Improvements**

Current traffic congestion problems along Dublin Blvd exist with morning and evening school drop-off/pickup. The traffic congestion during this period typically backs up to Silvergate Drive. Road improvements recently completed at the Dublin Blvd and Hansen Drive intersection have helped reduced the bottleneck problem but have not eliminated the traffic problems. The proposed Valley Christian Master Plan will likely only increase congestion and traffic problems along this section of Dublin Blvd. The current Valley Christian Center Master Plan does not incorporate any additional mass transit, bus programs, or carpool programs to offset the additional traffic. Currently WHEELS (Livermore Armador Valley Transportation) does have a bus line that operates along Silvergate Drive but is not utilized effectively by the Valley Christian Center.

Acceptance of the current Valley Christian Plan will require the city to make upgrades to the western section of Dublin Blvd to accommodate the increased traffic. The associated cost of these improvements should be considered and passed onto Valley Christian Center when evaluating this plan for approval.

**Land Use/Housing**

The proposed additions of the twenty-two dwelling units seems to me to be a significantly higher density housing than is currently present in the area. I am concerned that the addition of this high-density housing would have a negative impact on the property values surrounding this development. A lower density housing development would be more complementary to the existing neighborhood.

Regardless of the number of dwelling units that are approved, the development should incorporate a minimum of two parking spaces per unit plus a least one guest parking space for every five units. Since no street parking is permitted in the existing area, adequate parking in the development is essential to avoid parking problems in the adjacent Dublin Highlands development.

**Aesthetics and Light and Glare**

The proposed addition of a "lighted reader board sign" along the frontage of I-580 will create an eyesore that will spoil the view and aesthetics of the Dublin hills. This section of Dublin Blvd is primarily a residential neighborhood and the proposed reader board does not belong or fit in this setting. In addition to the aesthetics problems, the light and glare from the sign will adversely affect the residents of the Dublin Highlands development. Primarily residents located on the following streets: Croy Lane, Ian Lane, Bower Lane, McPeak Lane, and Glengary Lane can expect to receive glare from proposed sign.

Both the aesthetics and light/glare from the proposed sign can be expected to have a negative effect on the property values for the residence of California Dublin Highlands.

If the sign is intended as only a "high tech message pad" for parents dropping their children off at Valley Christian Center School, Can the placement of the proposed sign be moved into the school drop off area as to avoid the aesthetics and light/glare problem? If this is not possible, I would suggest that the lighted reader board sign be removed from the plan.

Respectfully yours,
Mark Nornhold
Mark Nornhold

# Appendix 8.3

## Traffic Analysis

PA 00-017

# *Valley Christian Center Proposed Expansion Traffic Impact Study*

***Prepared for:***
***City of Dublin***

***Prepared by***
***Fehr & Peers Associates, Inc.***

***May 2001***

***1001-1583***
***Phase 1***

FEHR & PEERS ASSOCIATES, INC.
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# EXECUTIVE SUMMARY

This report presents the findings of the traffic impact analysis conducted for the proposed expansion to the Valley Christian Center on Inspiration Drive in Dublin, California. The proposed project includes the addition of 187,000 square feet (SF) of junior and senior high school space, a senior center, a sports facility, a new chapel, an expansion of an existing pre-school facility, and an expansion of the existing sanctuary and church administration complex. In addition, the project would provide 30 multi-family dwelling units near the intersection of Inspiration Drive / Dublin Boulevard. The purpose of this analysis is to identify the potential impacts of the proposed development on the transportation system in the project vicinity.

Ten key study intersections in the project vicinity were evaluated during the morning (a.m.) and evening (p.m.) peak hours. The three existing project driveways were also evaluated during the morning (a.m.) peak hour. The study intersections include:

1. Dublin Boulevard / Village Parkway
2. Dublin Boulevard / Amador Plaza Road
3. Amador Plaza Road / St. Patrick Way / I-680 southbound off-ramp (unsignalized)
4. Dublin Boulevard / San Ramon Road
5. Dublin Boulevard / Silvergate Drive (unsignalized)
6. Dublin Boulevard / Inspiration Drive (unsignalized)
7. San Ramon Road / Silvergate Drive
8. Amador Valley Boulevard / San Ramon Road
9. Inspiration Drive / Inspiration Circle (unsignalized)
10. Bay Laurel Street / Silvergate Drive (unsignalized)
11. Inspiration Drive / Project Driveway #1 (unsignalized)
12. Inspiration Drive / Project Driveway #2 (unsignalized)
13. Inspiration Drive / Project Driveway #3 (unsignalized)

Intersection service levels were determined at each study intersection under four analysis scenarios, including:

**Scenario 1:** *Existing Conditions* - Existing traffic volumes obtained from recent counts.

**Scenario 2:** *Baseline (Existing plus Approved plus Pending)* – Future Baseline traffic volumes based on "approved and pending" projects (as provided by City of Dublin staff), but without the proposed project.

**Scenario 3:** *Baseline (Existing plus Approved plus Pending) plus the Project* – Future Baseline traffic volumes based on approved plus pending projects plus project-generated traffic.

**Scenario 4:** *Cumulative plus Project* – Future traffic volumes based on Cumulative plus Project-generated traffic.

City of Dublin standards require intersection operations of Level of Service (LOS) D or better. Under Existing conditions, the unsignalized intersection of Dublin Boulevard / Silvergate Drive operates at unacceptable LOS F under a.m. peak hour conditions. All other intersections operate at an acceptable LOS D or better during both peak hours.

Baseline conditions were evaluated by adding existing traffic counts to projected traffic generated by near-term future approved and pending projects. In addition, near-term planned roadway improvements were assumed complete. At most locations, operations at intersections would continue to operate at LOS A or B during both of the peak hours with the addition of approved and pending project traffic and the planned intersection and roadway improvements. More notable differences include the change at the intersection of Dublin Boulevard / San Ramon Road from LOS B to LOS C during the a.m. peak hour and from LOS A to LOS C in the p.m. peak hour and the change from LOS A to LOS D at Dublin Boulevard / Amador Plaza Road in the p.m. peak hour.

During the a.m. peak hour, Dublin Boulevard / Silvergate Drive would continue to operate unacceptably. During the a.m. peak hour, this intersection operates at LOS F under both Existing and Baseline conditions. During the p.m. peak hour, the intersection of Dublin Boulevard / Silvergate Drive deteriorates to LOS E from LOS B under Baseline conditions.

Two of the study intersections, Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive, were evaluated to determine if signalization was warranted. This analysis was conducted based on Warrant 11 of the California Department of Transportation (Caltrans) *Traffic Manual* (September, 1992) and estimated peak hour traffic volumes. Based on these warrant criteria and existing peak hour volumes, both Dublin Boulevard / Inspiration Drive and Dublin Boulevard / Silvergate Drive would warrant traffic signals.

The intersection of Silvergate Drive / Bay Laurel Street was also analyzed to determine if all-way stop control was warranted. This analysis followed the methodology for multiway stop sign warrants set forth by the Federal Highway Administration (FHWA) in the *Manual on Uniform Traffic Control Devices (MUTCD)* (1998 Edition). Based on these warrants, the intersection of Bay Laurel Street / Silvergate Drive does not warrant all-way stop control.

It is recommended that the two intersections that warrant signal control be signalized. These signal installations would not be mitigation for the proposed project, since both intersections warrant signals under Baseline conditions without the project. Based on this recommendation, both intersections were also analyzed as signalized intersections under Project conditions. If signalized, under Baseline conditions, both intersections would operate at LOS A in the a.m. and p.m. peak hours.

The methodology for developing proposed project trip generation, distribution, and assignment is outlined in this report. The addition of project traffic to Baseline volumes results in Baseline plus Project conditions. Comparison of the LOS results for this scenario to the results from Baseline conditions defines the project traffic impacts. With the addition of project trips, most of the intersections continue to operate at similar levels of service. Dublin Boulevard / Silvergate Drive, which would operate at LOS F during the a.m. and p.m. peak hours is the only intersection that would operate unacceptably. Installation of traffic signals at the intersection of Dublin Boulevard / Silvergate Drive and at Dublin Boulevard / Inspiration Drive, as noted earlier, would improve the LOS at this intersection to acceptable levels. Therefore, the project does not have any significant impacts to the study intersections, as defined by the City of Dublin.

The likelihood of project traffic traveling along Bay Laurel Street was also analyzed. Because of the turn restrictions in place, which prohibit movements at the project driveways to and from Bay Laurel Street between the hours of 7 a.m. and 5 p.m. on school days from Driveways #1 and #2 (Intersections #11 and #12), and based on traffic counts conducted by Fehr & Peers, there is a low violation rate, which indicates a low rate of vehicles traveling to and from the project site using Bay Laurel Street. Therefore, it is expected that any expansion to the existing facility would result in no significant increase in traffic at Inspiration Drive / Inspiration Circle and at Silvergate Drive / Bay Laurel Street. Compared to counts conducted immediately after the restrictions were put in place, however, it appears that the violation rate is gradually increasing. Therefore, it is suggested that monitoring of the peak hour turning movements at the project driveways be conducted on one typical school day every six months or so following the completion of the school expansion, in order to demonstrate that the expansion does not increase the rate of vehicles violating these restrictions. If the number of violators increases after the expansion, increased enforcement or other measures may be taken to limit the number of vehicles accessing the project site to or from Bay Laurel Street.

Finally, Cumulative plus Project conditions were investigated. This scenario was developed by adding traffic projections from long-term planned projects. Long-term roadway improvements were also assumed complete in the analysis. Assuming that Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive are signalized, all study intersections would operate at acceptable LOS D or better under Cumulative plus Project conditions. Therefore, the project impacts are less than significant, and no mitigation is necessary.

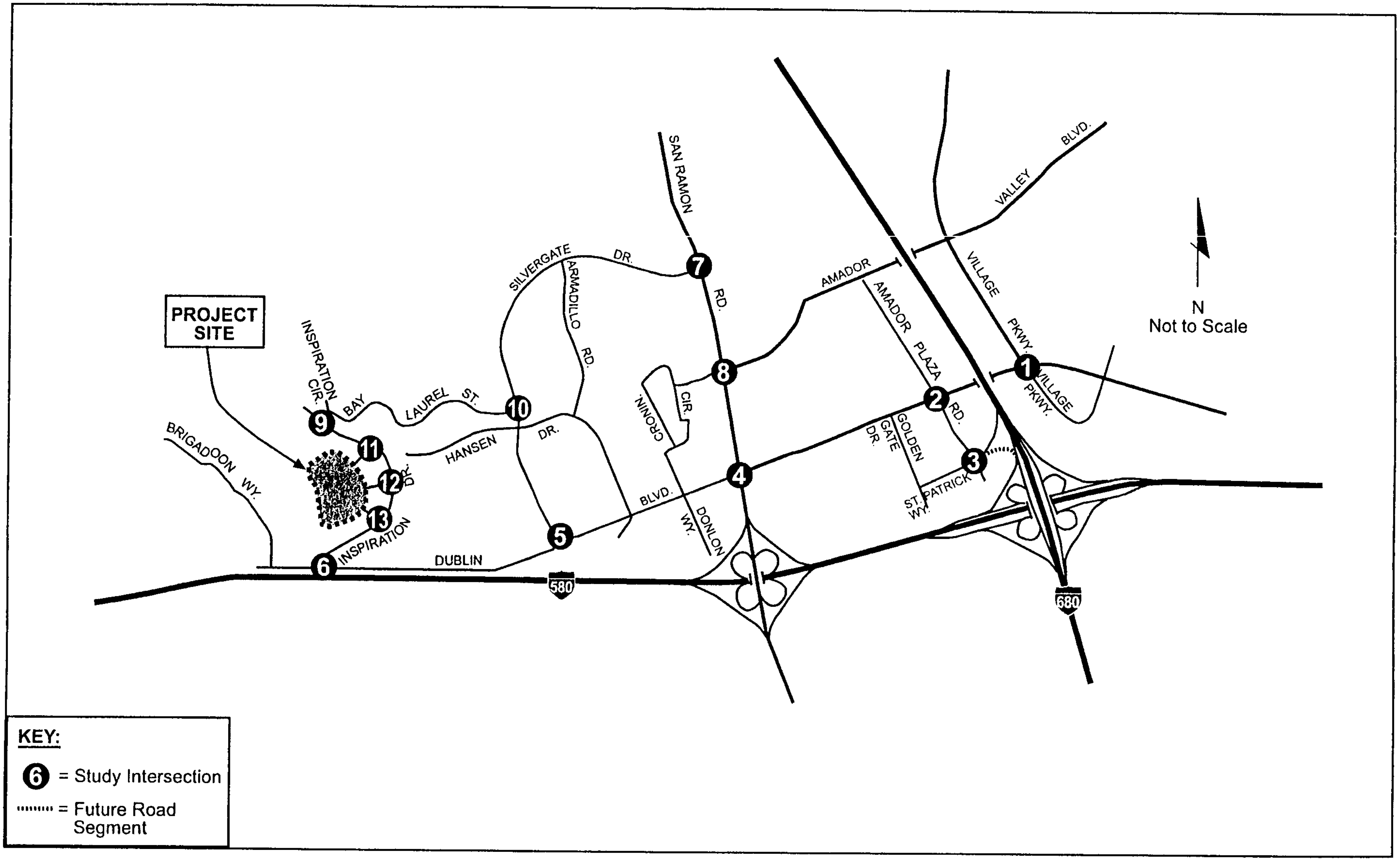
# CHAPTER 1 – INTRODUCTION

This report presents the findings of the traffic impact analysis conducted for the proposed expansion of the Valley Christian Center on the Inspiration Drive in Dublin, California. The proposed project includes the addition of 187,000 square feet (SF) of junior and senior high school to an existing K-12 school, a senior center, a sports facility, a new chapel, an expansion of an existing pre-school facility, and an expansion of the existing sanctuary and church administration complex. In addition, the project would provide 30 multi-family dwelling units near the intersection of Inspiration Drive / Dublin Boulevard. The site location and surrounding roadway network is presented as Figure 1.

The purpose of this analysis is to identify the potential traffic impacts of the proposed development on the transportation system in the project vicinity. Project impacts were analyzed following the guidelines of the City of Dublin. The traffic operations at 13 key intersections were evaluated for this analysis:

1. Dublin Boulevard / Village Parkway
2. Dublin Boulevard / Amador Plaza Road
3. Amador Plaza Road / St. Patrick Way / I-680 southbound off-ramp (unsignalized)
4. Dublin Boulevard / San Ramon Road
5. Dublin Boulevard / Silvergate Drive (unsignalized)
6. Dublin Boulevard / Inspiration Drive (unsignalized)
7. San Ramon Road / Silvergate Drive
8. Amador Valley Boulevard / San Ramon Road
9. Inspiration Drive / Inspiration Circle (unsignalized)
10. Bay Laurel Street / Silvergate Drive (unsignalized)
11. Inspiration Drive / Project Driveway #1 (unsignalized)
12. Inspiration Drive / Project Driveway #2 (unsignalized)
13. Inspiration Drive / Project Driveway #3 (unsignalized)

Five of the study intersections are currently controlled by traffic signals. In addition, the intersection of Amador Plaza Road / St. Patrick Way / I-680 off-ramp will be signalized in the future with the completion of construction of an on-ramp to I-680.




FEHR & PEERS ASSOCIATES, INC.
*Transportation Consultants*

May 2001
1583-11a

Valley Christian Center

**PROJECT LOCATION AND STUDY INTERSECTIONS**

**FIGURE 1**

The key intersections were evaluated during the morning (a.m.) and evening (p.m.) peak periods for the following scenarios:

**Scenario 1:** *Existing Conditions* - Existing traffic volumes obtained from counts.

**Scenario 2:** *Baseline (Existing plus Approved plus Pending)* – Future Baseline traffic volumes based on "approved and pending" projects (as provided by the City), but without the proposed project.

**Scenario 3:** *Baseline (Existing plus Approved plus Pending) plus the Project* – Future Baseline traffic volumes based on approved plus pending projects plus project-generated traffic.

**Scenario 4:** *Cumulative plus Project* – Future traffic volumes based on Cumulative plus Project-generated traffic.

The remainder of this report is divided into six chapters. Chapter 2 presents the existing transportation system and operating conditions (Scenario 1) at the study intersections. Chapter 3 describes near-term operating conditions assuming Baseline volumes (Scenario 2). The development of project-generated trips and their effects on Baseline conditions (Scenario 3) are presented in Chapter 4. Chapter 5 presents the future Cumulative operations at the study intersections (Scenario 4). The conclusions are provided in Chapter 6.

# CHAPTER 2 – EXISTING CONDITIONS

This chapter describes the existing road network, as well as existing operating conditions at the study intersections.

## *Roadway Network*

Regional access to the project site is provided by Interstate 680 (I-680) from the north and south and Interstate 580 (I-580) from the east and west. Local access is provided by Amador Valley Boulevard, San Ramon Road, Dublin Boulevard, Bay Laurel Street, and Inspiration Drive. Each roadway is described below and shown on Figure 1. The project site is not served by any fixed-route transit.

*I-680* is a north-south freeway that extends from Interstate 80 in Solano County south to San Jose. Through Dublin, I-680 carries approximately 136,000 vehicles per day across eight travel lanes[1]. Local interchanges are located at Stoneridge Drive, I-580, and Alcosta Boulevard.

*I-580* is an east-west freeway that extends from U.S. 101 in San Rafael to I-5 south of Tracy. Through Dublin, I-580 carries approximately 164,000 vehicles per day across six travel lanes[2]. Local interchanges are located at Dougherty Road, I-680, and San Ramon Road.

*Amador Valley Boulevard* is a major east-west arterial that extends from a condominium complex just west of San Ramon Road, through downtown Dublin, to Dougherty Road. Amador Valley Boulevard provides four lanes of travel between San Ramon Road and Village Parkway and two lanes of travel at either end beyond this segment. Amador Valley Boulevard is a designated bicycle route with Class II bicycle lanes in both directions.

*San Ramon Road* is a major north-south arterial that turns into Hartz Avenue in Danville and turns into Foothill Road south of I-580. San Ramon Road provides four lanes of travel north of Amador Valley Boulevard and six lanes of travel south of Amador Valley Boulevard. This roadway is classified as a Metropolitan Transportation System (MTS) roadway under the county's Congestion Management Program.

*Dublin Boulevard* is a major east-west arterial that extends from just west of Brigadoon Way at the western City Limit, through Dublin parallel to I-580, to Tassajara Road. Dublin Boulevard

[1] Freeway volumes from Caltrans' *1999 Traffic Volumes on California State Highways*.
[2] Ibid.

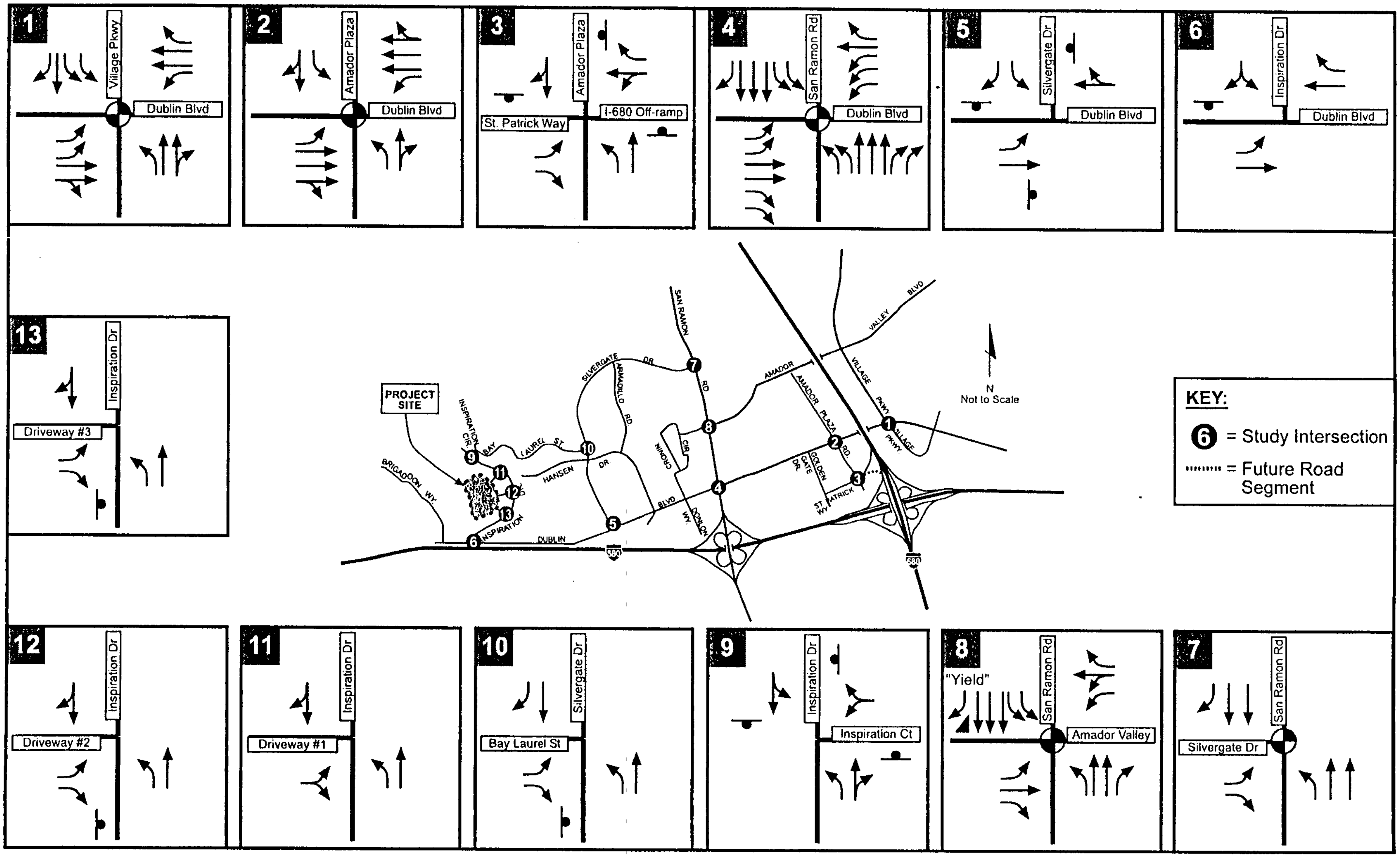
provides six travel lanes between San Ramon Road and Village Parkway and two to four lanes east and west of this segment. This roadway (east of San Ramon Road) is classified as a Metropolitan Transportation System (MTS) roadway under the county's Congestion Management Program.

*Bay Laurel Street* is a residential east-west street that extends from Inspiration Circle, near the project site, to Silvergate Drive. Bay Laurel Street provides two lanes of travel along its entire length, and has a painted double-yellow centerline. The speed limit along this road is 25 miles per hour (mph). This street mainly provides access between the residential neighborhood and Silvergate Drive. At Silvergate Drive, drivers can access either Dublin Boulevard to the right or San Ramon Road to the left.

*Inspiration Drive* is a minor street that extends from Dublin Boulevard to the south to Inspiration Circle to the north. Inspiration Drive provides access to the project site via three driveways and also to the residential neighborhood to the north, at Inspiration Circle. Inspiration Drive has a speed limit of 25 mph and has two directions of travel, separated by a painted double-yellow line. At the project driveways, long left-turn pockets are provided to accommodate peak period traffic flows generated by the school on the site. The two northernmost driveways (referred to as Driveways #1 and #2 in this report) have signs posted that prohibit left turns out and right turns in between the hours of 7 a.m. and 5 p.m. on school days only. These turn restrictions serve to prevent school traffic from cutting through the residential neighborhood to the north in order to access the project site. Residents of the neighborhood can access the project site via the southernmost driveway (Driveway #3).

### Existing Traffic Volumes and Intersection Lane Geometry

The operations of the study intersections were analyzed under weekday a.m. and p.m. peak hour conditions. Peak conditions usually occur during the morning and evening commute periods between 7:00 a.m. and 9:00 a.m. and 4:00 p.m. and 6:00 p.m., respectively. Intersection operations were evaluated for the peak one-hour volume counted during each of these two periods. The three project driveways (Intersections #11, #12, and #13 on Figure 1) were evaluated during the a.m. peak only. Recent traffic counts were either collected by Fehr & Peers Associates or obtained from traffic studies for other developments in the area. Figures 2 and 3 present the Existing lane configurations and turning movement counts for the study intersections. The Existing turning movement count data collection sheets are included in Appendix A.

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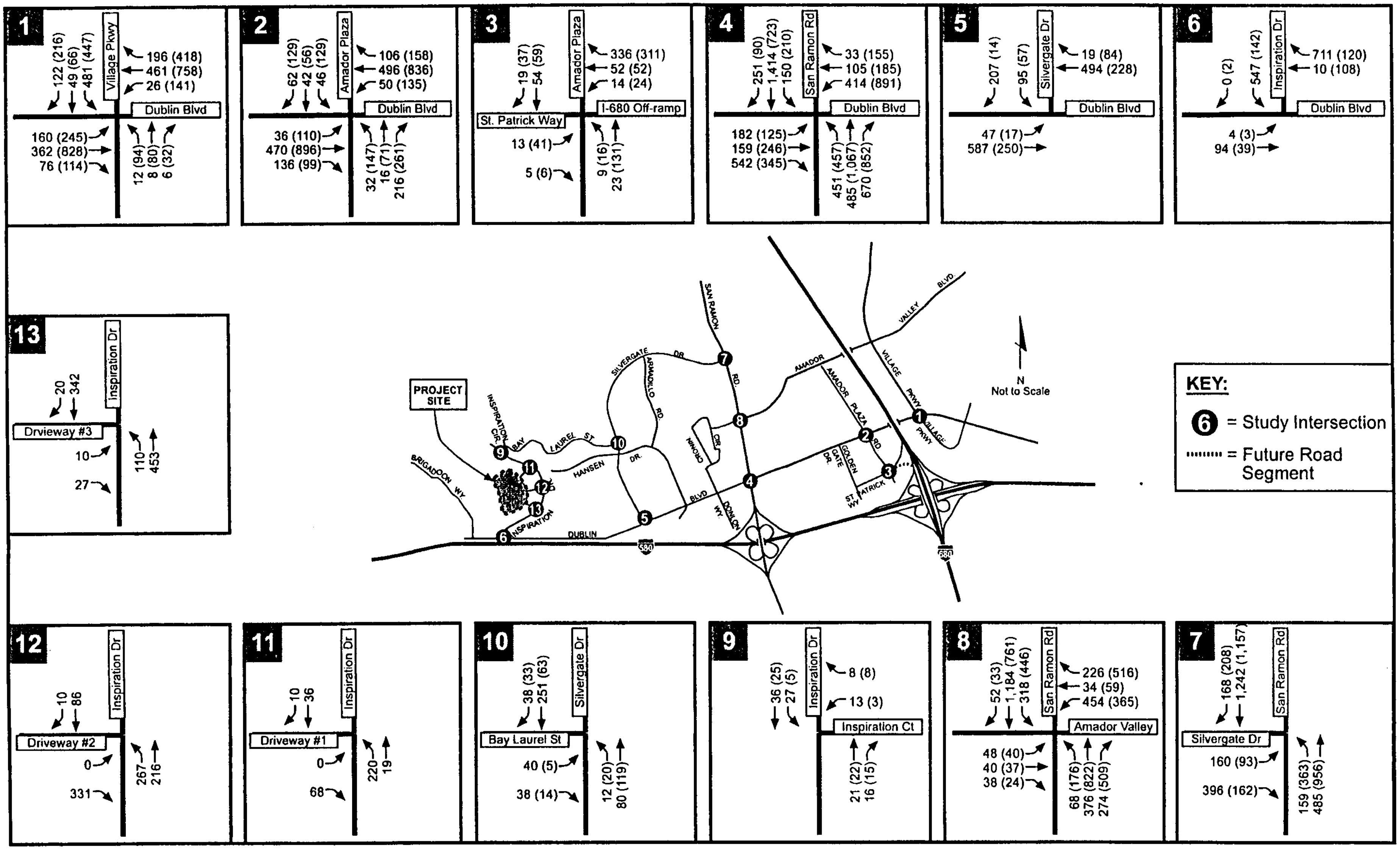
## EXISTING LANE CONTROL AND CONFIGURATION

**FIGURE 2**

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**EXISTING**

**PEAK HOUR INTERSECTION VOLUMES**

**FIGURE 3**

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In addition to peak hour volumes at the study intersections mentioned throughout the report, the average daily traffic volumes (ADT) for the roadway segments of Dublin Boulevard between Hansen Drive and Silvergate Drive and on Inspiration Drive, just south of the project site are calculated and reported under all four scenarios. Table 1, below, presents the results of counts provided by the City of Dublin.

**Table 1**
**Existing**
**Average Daily Traffic (ADT) Volumes**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr.) | 8,200 |
| Inspiration Drive (just north of Dublin Boulevard) | 5,250 |

*Source:* City of Dublin.

### *Level of Service Methodologies*

To determine the operating conditions of an intersection or roadway, the concept of level of service (LOS) is commonly used. The LOS grading system is a rating scale ranging from LOS A to LOS F, where LOS A represents free-flow conditions and LOS F represents jammed conditions. A unit of measure, such as the volume-to-capacity (v/c) ratio or average delay, generally accompanies the LOS designation. By Dublin standards, LOS D or better is considered acceptable, and LOS E or F is considered unacceptable.

The City of Dublin uses the intersection LOS analysis methodology outlined in Contra Costa Transportation Authority's (CCTA) *Technical Procedures*, termed CCTALOS, which relates service level grades to a v/c ratio. The v/c ratio relates the total traffic volume for critical opposing movements to the theoretical capacity for those movements. This methodology can only be applied to signalized locations. Unsignalized intersections are analyzed based on the Transportation Research Board's *Highway Capacity Manual* (2000) methodology. This method determines the level of service for each movement based on the average control delay per vehicle. Control delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. Table 2 summarizes the LOS criteria for the CCTA (signalized) methodology, and Table 3 summarizes the LOS criteria for the HCM (unsignalized) methodology.

| Table 2<br>Signalized Intersection Level of Service Criteria | |
|---|---|
| **LOS** | **Sum of Critical V/C** |
| A | < 0.60 |
| B | 0.61 – 0.70 |
| C | 0.71 – 0.80 |
| D | 0.81 – 0.90 |
| E | 0.91 – 1.00 |
| F | > 1.00 |

*Source:* Contra Costa Transportation Authority, *Technical Procedures*, 1997.

| Table 3<br>Unsignalized Intersection Level of Service Criteria | |
|---|---|
| **LOS** | **Delay (Seconds)** |
| A | ≤10 |
| B | >10 and ≤15 |
| C | >15 and ≤25 |
| D | >25 and ≤35 |
| E | >35 and ≤50 |
| F | >50 |

*Source:* Transportation Research Board, *Highway Capacity Manual*, 2000

### *Existing Levels of Service*

The Existing lane configurations and the peak hour turning movement volumes were used to determine the levels of service for the study intersections. The results are presented in Table 4. For the signalized intersections, the v/c ratio and LOS are presented. For the unsignalized intersections, average control delay per vehicle and LOS are reported. In addition, for the unsignalized intersection of Dublin Boulevard / Inspiration Drive, the average delay and level of service for the approach with the highest delay (southbound) is shown. The LOS calculation worksheets are provided in Appendix B.

As shown in Table 4, the intersection of Dublin Boulevard / Slivergate Drive operates at unacceptable LOS F under a.m. peak hour conditions. All other intersections operate at an acceptable LOS D or better during both peak hours.

**Table 4**
**Existing Traffic Intersection Levels of Service**

| | | AM Peak | | PM Peak | |
|---|---|---|---|---|---|
| **Intersection** | **Control**[1] | **V/C Ratio**[2] **or Delay Per Vehicle (seconds)** | **Level of Service** | **V/C Ratio**[2] **or Delay Per Vehicle (seconds)** | **Level of Service** |
| 1. Dublin/Village Parkway | SIG | 0.31 | A | 0.54 | A |
| 2. Dublin/Amador Plaza | SIG | 0.32 | A | 0.56 | A |
| 3. Amador Plaza/St. Patrick/I-680 | AWS | 11.0 | B | 11.0 | B |
| 4. Dublin/San Ramon | SIG | 0.63 | B | 0.58 | A |
| 5. Dublin/Silvergate | AWS | 76.2 | F | 11.1 | B |
| 6. Dublin/Inspiration | SSS | 7.1 (17.6) [3] | A (C) [3] | 3.7 (10.4) [3] | A (B) [3] |
| 7. San Ramon/Silvergate | SIG | 0.62 | B | 0.63 | B |
| 8. Amador Valley/San Ramon | SIG | 0.54 | A | 0.57 | A |
| 9. Inspiration Dr./Inspiration Ct | AWS | 7.2 | A | 7.0 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.0 | A | 1.3 | A |
| 11. Inspiration/Driveway #1 | SSS | 6.5 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 6.4 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.5 | A | N/A | N/A |

*Source:* Fehr & Peers Associates; Contra Costa Transportation Authority, *Technical Procedures*, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.
*Notes:*

1. SIG = signal-controlled intersection

   AWS = unsignalized, all-way stop-controlled intersection

   SSS = unsignalized intersection, with side-street stop-control only

2. Volume-to capacity ratio determined for all signalized intersections (SIG) using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.

3. Average delay / level of service for southbound stop movement shown in parentheses.

# CHAPTER 3 – BASELINE CONDITIONS

This chapter discusses the operations of the study intersections under Baseline conditions, which includes Existing traffic plus traffic generated by approved and pending projects. The methodology for determining Baseline traffic volumes is described, and levels of service are presented. Also, recommended improvements to Existing intersection controls are presented.

## *Baseline Traffic Estimates*

Based on City requirements, Baseline conditions were developed by adding traffic generated by approved and pending projects to Existing traffic. The approved and pending projects are listed in Table 5.

**Table 5**
**Baseline (Approved + Pending) Development**

| Project | Description |
|---|---|
| Hacienda Crossings | 50 acres mixed-use commercial-retail |
| General Motors Auto Mall | 15 acres auto dealerships |
| Koll Dublin Corporate Center | 34 acres mixed-use office, retail, hotel |
| Dublin Ranch Areas B-E | 72.6 acres commercial |
| Arlen Ness | 2.12 acres motorcycle parts distributor |
| Dublin Ranch Town Center Area F, G, H | 304 commercial office |
| Chrysler Auto Dealership | 4.2 acres auto dealership |
| Corrie Center Phase 2 | 46,400 square feet new office building |
| Home Depot Expo | 93,130 square feet design center |
| Volkswagen Auto Dealership | 1.5 acres auto dealership |
| Park Sierra Apartments | 283 multi-family apartments |
| Hansen Ranch Phase II | 108 single family homes |
| Starward Drive | 31 single family homes |
| Archstone Communities | 177 multi-family apartments |
| Trumark Companies | 60 townhomes |
| Shamrock Marketplace Expansion | 75,380 square feet commercial-retail |
| Hexcel Facilities Expansion | Relocation of 150 employees |
| Dublin Safeway Center | 55,256 square feet supermarket, 9 pump island gas station, 10, 743 square feet additional retail |
| Kindercare | 180-student children's daycare |

*Source:* City of Dublin.

The first 15 development projects listed in Table 5 were analyzed in the Village Parkway, Downtown Core, and West BART Station Specific Plans transportation study[3]. The traffic volumes and trip distribution associated with these developments were obtained from this study. The volumes and distributions of the other projects in Table 5 were obtained from their respective traffic studies. These trips added onto Existing traffic volumes are represented in Figure 4.

Several roadway improvements are planned within the study area and are represented in the Baseline conditions analysis. These improvements include the following list:

- Upon completion of the I-680 southbound on-ramp that will intersect Amador Plaza Road and St. Patrick Way, the intersection will be signalized. This modification was assumed under Baseline conditions, including the addition of a southbound left-turn lane for vehicles to turn onto the on-ramp.
- Addition of a westbound left-turn lane at Dublin/Village Parkway.
- Addition of an exclusive eastbound right-turn lane at Dublin/Village Parkway and conversion of the through/right lane to a through lane.
- Addition of a southbound left-turn lane at Dublin/Amador Plaza.
- Conversion of a westbound through lane to a left-turn lane at Dublin/Amador Plaza, conversion of a through/right lane into a through lane and the addition of a westbound right-turn lane.

Baseline volumes for the Amador Plaza/St. Patrick/I-680 intersection were taken directly from the Village Parkway, Downtown Core and West BART Station Specific Plans study and include redistribution of trips due to the opening of the on-ramp[4].

### *Baseline Intersection Levels of Service*

Levels of service were calculated for the study intersections using the Baseline traffic volumes and roadway improvements listed above. Table 6 presents the LOS results for Baseline conditions. The LOS calculation sheets are included in Appendix B.

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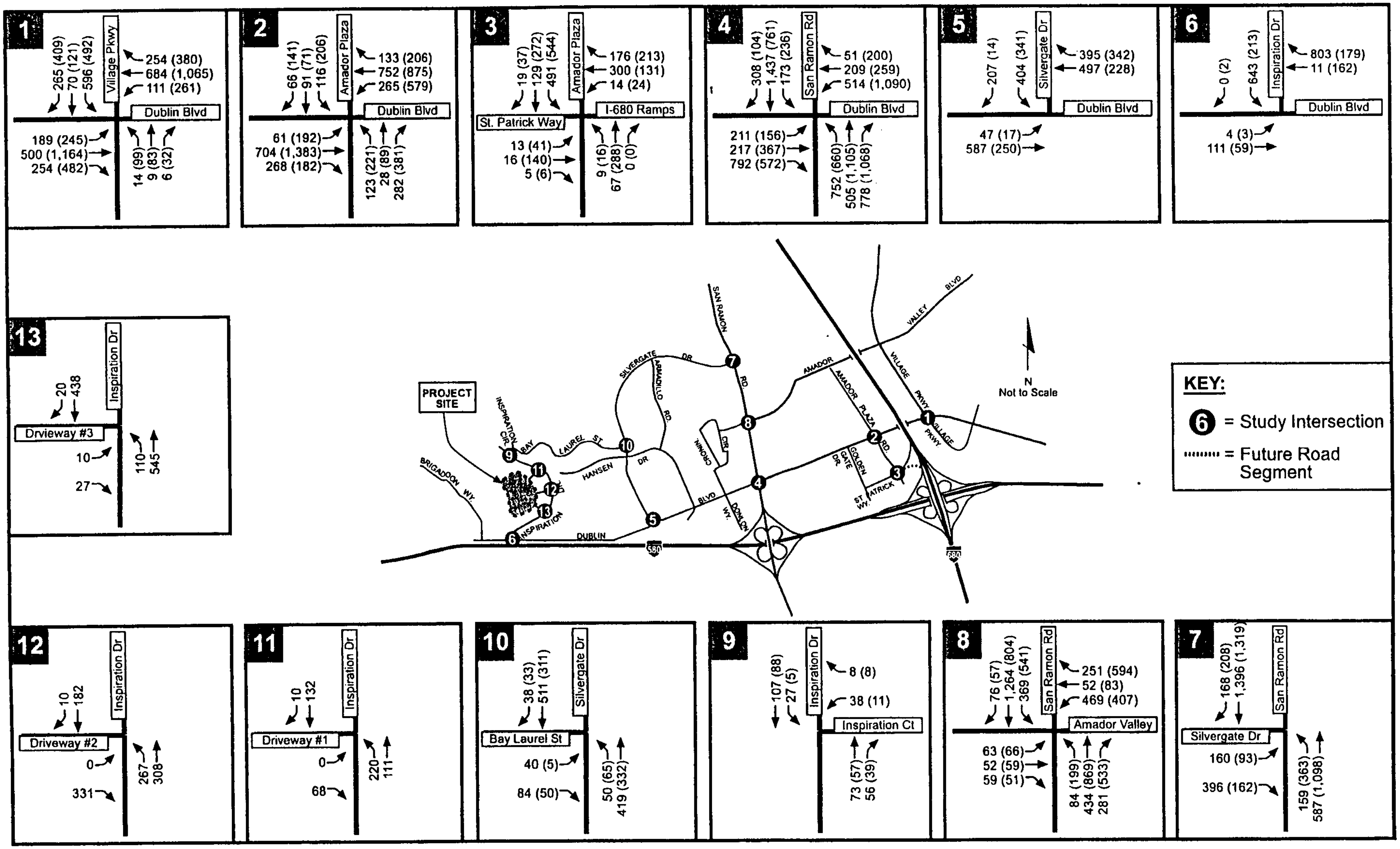
[3] Omni Means, *Village Parkway, Downtown Core, and West BART Station Specific Plans Traffic Study*, September 2000.
[4] Ibid.

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**BASELINE**
**PEAK HOUR INTERSECTION VOLUMES**
**FIGURE 4**

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**Table 6**

**Baseline (No Project) Traffic Intersection Levels of Service[1]**

| Intersection | Control[2] | Existing | | | | Baseline (No Project) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.31 | A | 0.54 | A | 0.40 | A | 0.67 | B |
| 2. Dublin/Amador Plaza | SIG | 0.32 | A | 0.56 | A | 0.51 | A | 0.86 | D |
| 3. Amador Plaza/St. Patrick/I-680 | AWS/SIG[4] | 11.0 | B | 11.0 | B | 0.43 | A | 0.55 | A |
| 4. Dublin/San Ramon | SIG | 0.63 | B | 0.58 | A | 0.79 | C | 0.74 | C |
| 5. Dublin/Silvergate | AWS | ***76.2*** | ***F*** | 11.1 | B | ***>100*** | ***F*** | ***47.1*** | ***E*** |
| 6. Dublin/Inspiration | SSS | 7.1 (17.6)[5] | A (C)[5] | 3.7 (10.4)[5] | A (B)[5] | 10.6 (25.9)[5] | B (D)[5] | 4.2 (12.1)[5] | A (B)[5] |
| 7. San Ramon/Silvergate | SIG | 0.62 | B | 0.63 | B | 0.66 | B | 0.68 | B |
| 8. Amador Valley/San Ramon | SIG | 0.54 | A | 0.57 | A | 0.60 | A | 0.65 | B |
| 9. Inspiration Dr./Inspiration Ct | AWS | 7.2 | A | 7.0 | A | 7.8 | A | 7.4 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.0 | A | 1.3 | A | 2.3 | A | 1.4 | A |
| 11. Inspiration/Driveway #1 | SSS | 6.5 | A | N/A | N/A | 4.4 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 6.4 | A | N/A | N/A | 5.8 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.5 | A | N/A | N/A | 1.4 | A | N/A | N/A |

*Source:* Fehr & Peers Associates; Contra Costa Transportation Authority, *Technical Procedures*, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.

*Notes:*

1. Unacceptable operations highlighted.
2. SIG = signal-controlled intersection

   AWS = unsignalized, all-way stop-controlled intersection

   SSS = unsignalized intersection, with side-street stop-control only
3. Volume-to capacity ratio determined for all signalized intersections (SIG) using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
4. The Amador Plaza/St. Patrick/I-680 intersection is unsignalized under Existing conditions and assumed signalized under Baseline conditions.
5. Average delay / level of service for southbound stop movement shown in parentheses.

Most intersections would continue to operate at LOS A or B during both of the peak hours with the addition of approved and pending project traffic and the planned intersection and roadway improvements. More notable differences include the change at the intersection of Dublin Boulevard / San Ramon Road from LOS B to LOS C during the a.m. peak hour and from LOS A to LOS C in the p.m. peak hour, and the change from LOS A to LOS D at Dublin Boulevard / Amador Plaza Road in the p.m. peak hour.

As shown in Table 6, the intersection operating unacceptably is Dublin Boulevard / Silvergate Drive. During the a.m. peak hour, this intersection operates at LOS F under both Existing and Baseline conditions. During the p.m. peak hour, the intersection of Dublin Boulevard / Silvergate Drive deteriorates from LOS B to LOS E under Baseline conditions.

### Recommended Improvements

Two of the study intersections, Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive were both evaluated to determine if signalization were warranted. This analysis was conducted based on Warrant 11 of the California Department of Transportation (Caltrans) *Traffic Manual* (September, 1992) and estimated peak hour traffic volumes. Based on these warrant criteria and Existing peak hour volumes, both intersections warrant traffic signals under Existing conditions (See Appendix C for signal warrant sheets).

The intersection of Silvergate Drive / Bay Laurel Street was also analyzed to determine if 4-way stop control was warranted. This analysis followed the methodology for multiway stop sign warrants set forth by the Federal Highway Administration (FHWA) in the *Manual on Uniform Traffic Control Devices (MUTCD)* (1998 Edition). Based on these warrants, the intersection of Bay Laurel Street / Silvergate Drive does not warrant all-way stop control.

It is recommended that the two intersections that warrant signal control be signalized. These signal installations would not be mitigation for the proposed project, since both intersections warrant signals under Existing and Baseline conditions without the project. Based on this recommendation, both intersections were also analyzed as signalized intersections under Project conditions. If signalized, under Baseline conditions, both intersections would operate at LOS A in both the a.m. and the p.m. peak hours, as shown in Table 7.

**Table 7**
**Baseline (No Project) Intersection Levels of Service With Recommended Improvements**

| Intersection | Stop Sign Control | | | | Signal Control[2] | | | |
|---|---|---|---|---|---|---|---|---|
| | AM | | PM | | AM | | PM | |
| | Average Delay per Vehicle[1] (Seconds) | LOS | Average Delay per Vehicle[1] (Seconds) | LOS | V/C Ratio[1] | LOS | V/C Ratio[1] | LOS |
| 5. Dublin / Silvergate | *>100* | *F* | *47.1* | *E* | 0.60 | A | 0.36 | A |
| 6. Dublin / Inspiration | 10.6 | B | 4.2 | A | 0.49 | A | 0.23 | A |

*Source:* Fehr & Peers Associates; Contra Costa Transportation Authority, *Technical Procedures*, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.
*Notes:*

1. Volume-to capacity ratio determined for all signalized intersections using the CCTALOS methodology. For the unsignalized intersections, average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
2. In addition to signalization on both intersections, it was assumed that the westbound approach to Dublin / Silvergate, which is currently a shared through-right lane, would be converted to a single through lane and a single right-turn lane.

It is important to note that in performing this intersection analysis, it was assumed that for the intersection of Dublin / Silvergate, the current lane configuration would be modified slightly with signalization. Specifically, the westbound approach, which currently consists of a shared lane for the through and right-turn movements, would be converted into a single through-only lane and a single right-turn-only lane. No other modifications to the existing lane configuration would be needed to achieve levels of service consistent with City of Dublin standards.

## *Average Daily Traffic (ADT)*

Increase in ADT on Dublin Boulevard and Inspiration Drive in the locations discussed previously was determined by multiplying the number of p.m. peak hour trips to be added under Baseline conditions by a factor of 10. This increase in ADT was then added to the Existing ADT provided by the City of Dublin to obtain Baseline conditions ADT, as shown in Table 8, below.

**Table 8**
**Baseline (No Project)**
**Average Daily Traffic (ADT) Volumes**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr. | 13,620 |
| Inspiration Drive (just north of Dublin Boulevard) | 6,550 |

*Source:* Fehr & Peers Associates May 2001

# CHAPTER 4 – PROJECT CONDITIONS

The impacts of the proposed development on the surrounding transportation system are discussed in this chapter. First, the methodology used to estimate the amount of traffic generated by the proposed project is described. Then, results of the level of service calculations for Project conditions are presented. Project conditions are defined as Baseline conditions plus traffic generated by the proposed project. Project impacts are identified by comparing the LOS results under Project conditions to those under Baseline conditions.

## *Project Traffic Estimates*

The amount of traffic associated with a project is estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In the first step, the amounts of traffic entering and exiting the project site are estimated on a daily and peak-hour basis. In the second step, the directions the trips use to approach and depart the site are estimated. The trips are assigned to specific segments and intersection turning movements in the third step. The results of this process for this analysis are described in the following sections.

### Trip Generation

The proposed project includes the addition of 187,000 square feet (SF) of junior and senior high school space to an existing K-12 school, a senior center, a sports facility, a new chapel, an expansion of an existing pre-school facility, and an expansion of the existing sanctuary and church administration complex. In addition, the project would provide 30 multi-family dwelling units near the intersection of Inspiration Drive / Dublin Boulevard.

To estimate the amount of traffic generated by the proposed project, two types of data were considered. First, the existing, site-specific trip generation rate was computed based on morning peak hour traffic counts conducted at the three project driveways and the number of students at the existing facility. Second, standard trip generation rates from the Institute of Transportation Engineers' (ITE) *Trip Generation* (6$^{th}$ Edition) were reviewed.

The existing, site-specific trip generation rate based on existing morning peak hour counts and the number of students in the pre-school, elementary school, junior high school, and high school was determined to be 0.83 trips per student. This rate was then compared with the trip generation rate published by the ITE for a private K-12 school of 0.92 trips per student during the morning peak hour. Based on this comparison, it appears that the published ITE trip generation rate is conservatively higher than the site-specific rate. Thus, it was determined that the ITE trip generation rates would be used for the purposes of this study. However, because the school expansion will only result in the addition of students to the junior and senior high school, the ITE "High School" land use average rate of 0.46 peak hour trips per student in the a.m. peak hour and 0.15 peak hour trips per student during the p.m. peak hour was used for the trip generation estimates for this portion of the project.

The proposed project consists of a number of land use types. The school expansion plan calls for the addition of 200 new students. Thus, as discussed above, the average peak hour trip rates of 0.46 trips per student in the a.m. peak and 0.15 trips per student during the p.m. peak hour were applied to estimate the number of new trips to the school facility. For the expansion and addition of the senior center and counseling area portion of the proposed project, the ITE "Church" land use average rates of 0.72 peak hour trips per thousand square feet (ksf) in the a.m. peak hour and 0.66 peak hour trips per ksf in the evening were applied to the 30,000 square feet of proposed new construction. The "Church" average rate was used because the ITE *Trip Generation* manual states that it incorporates all ancillary uses that may accompany a church campus, including counseling and day care. The ITE "Apartment" land use average trip generation rates of 0.51 peak hour trips per dwelling unit in the morning and 0.62 peak hour trips per dwelling unit in the evening were applied to the 30 multi-family dwelling units proposed under the project. Finally, it was assumed that for the other proposed uses, which include new sanctuary, nursery, pre-school, seminar, fellowship hall, and church administration space, that there would be approximately one peak hour trip per new church employee that would be added to the church staff upon completion of the proposed expansion. Currently the church anticipates the hiring of ten additional staff members. Therefore, 10 peak hour trips were assumed to be generated as a result of this portion of the expansion.

As shown in Table 9, during the morning peak hour, 139 new trips would be generated by the project; and during the evening peak hour, 78 trips would be generated. The inbound/outbound directional distribution of peak hour trips was also based on *Trip Generation.* Daily trip generation estimates should be calculated in the future when project-specific plans are submitted by the applicant.

## Trip Distribution

The trip distribution pattern for the proposed project was based on the residence location for both school students and church members, which was provided by City of Dublin staff. This project would draw traffic from both the local and regional population. Traffic residing in the City of Dublin was assigned to the local roadway network based on Existing traffic volumes and patterns. Traffic residing in other cities was generally assumed to travel to and from the nearest appropriate freeway on- and off-ramps.

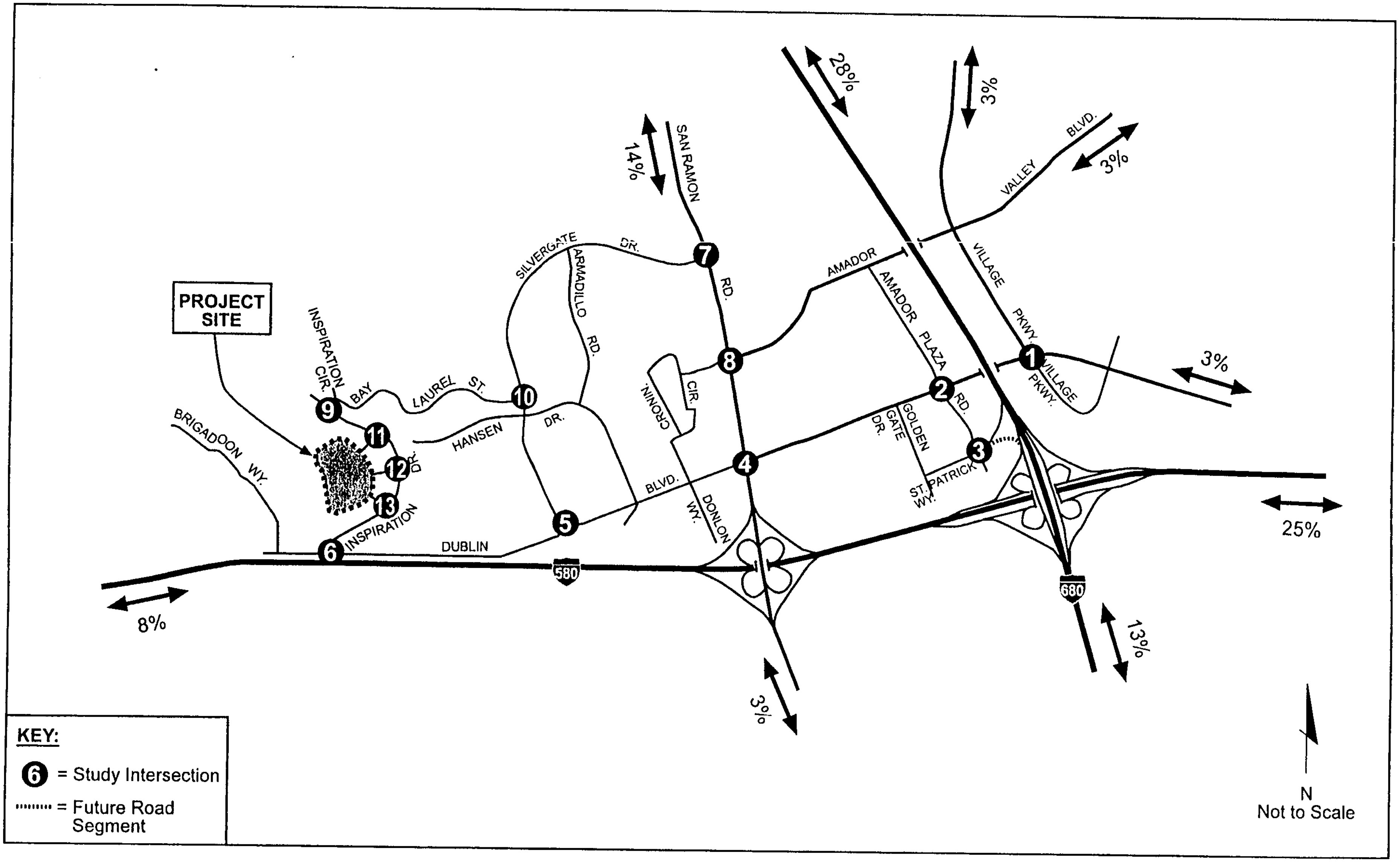
The major directions of approach and departure, based on the information regarding church member and student residence location provided by the City of Dublin, that were assumed for the proposed project are shown on Figure 5. Regional traffic is assumed to include 28 percent to/from I-680 north, 13 percent to/from I-680 south, 8 percent to/from I-580 west, and 25 percent to/from I-580 east. The remaining 26 percent includes local traffic and is distributed throughout the area.

**Table 9**

**Project Trip Generation Rates and Estimates**

| Use | Units | Trip Generation Rates per Unit | | | | | | Project Trip Generation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total |
| Building A, 1 Sanctuary, Nursery, Pre-school, Seminar Rooms, Fellowship Hall Administration | 10 Employees | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 10 | 0 | 10 | 0 | 10 | 10 |
| Building B Jr. / Sr. High School, Administration | 200 Students | 0.32 | 0.14 | 0.46 | 0.06 | 0.09 | 0.15 | 64 | 28 | 92 | 12 | 18 | 30 |
| Building E Senior Center, Counseling | 30 ksf[1] | 0.39 | 0.33 | 0.72 | 0.36 | 0.30 | 0.66 | 12 | 10 | 22 | 11 | 9 | 20 |
| Parcel 2 Apartments | 30 DU[2] | 0.08 | 0.43 | 0.51 | 0.42 | 0.20 | 0.62 | 2 | 13 | 15 | 13 | 6 | 19 |
| **Total Net New Trips** | | | | | | | | **88** | **51** | **139** | **35** | **43** | **78** |

*Source:* Institute of Transportation Engineers, *Trip Generation*, 6th Edition.
Notes:
1. ksf = 1000 square feet
2. DU = Dwelling Unit

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**PROJECT TRIP DISTRIBUTION**

**FIGURE 5**

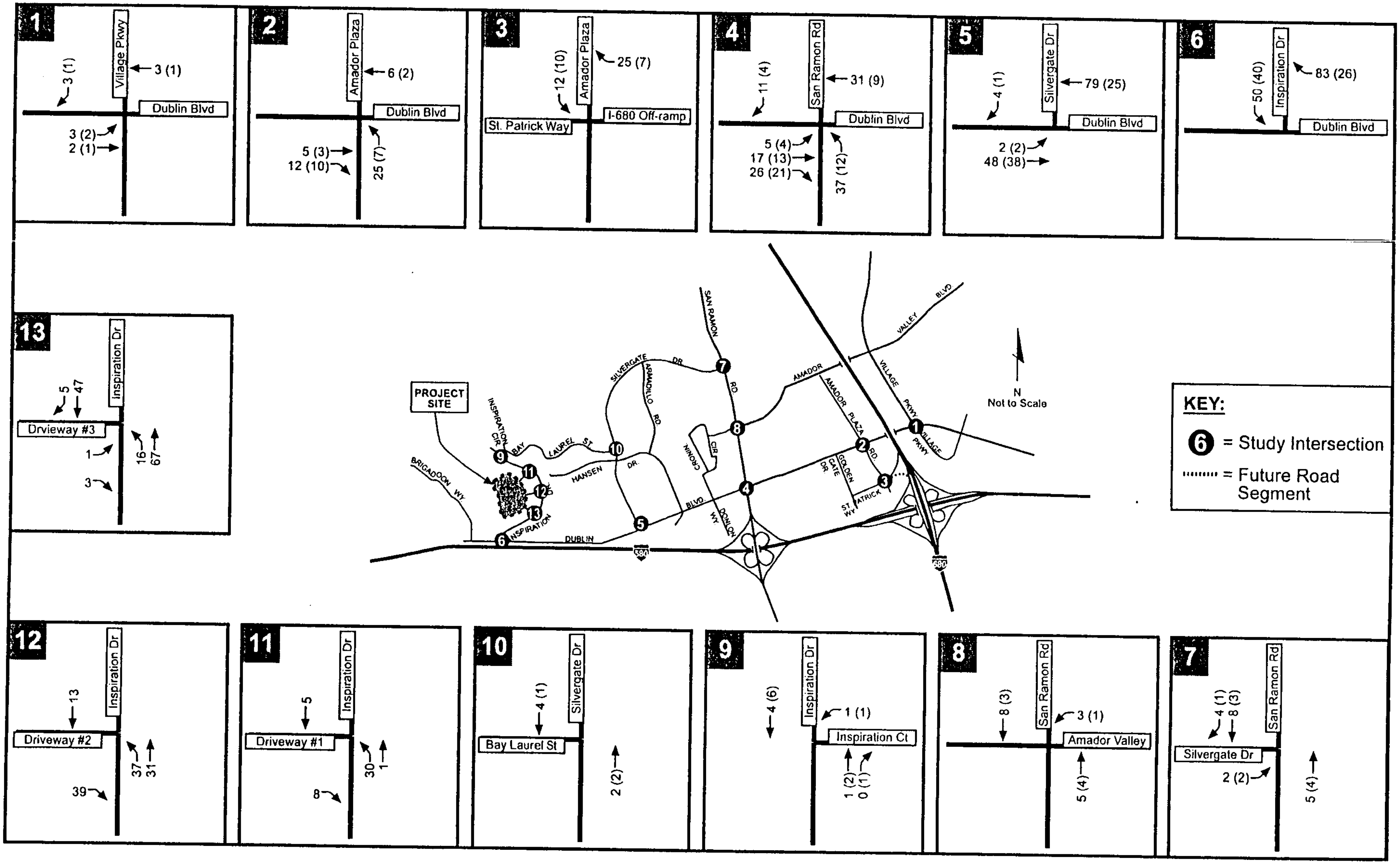
## Trip Assignment

Trips generated by the proposed project were distributed across the roadway system based on the directions of approach and departure described above. The actual routes assigned were determined based on existing travel patterns. Project trip assignments for both peak hours are shown on Figure 6. Project trips added to Baseline traffic volumes to establish Project conditions are shown in Figure 7.

As mentioned above in the description of Inspiration Drive, turn restrictions have been placed on Driveways #1 and #2. These restrictions prohibit right turns into and left turns out of the project site between the hours of 7 a.m. and 5 p.m. These regulations were put in place in order to reduce the number of trips to and from the project site using Bay Laurel Street to "cut-through" the residential neighborhood to the northeast, bypassing Dublin Boulevard.

These turn restrictions went into effect on the first day of school in 1999, and were immediately enforced by City of Dublin Police. In the month of October 1999, counts were conducted to determine the effectiveness of these measures. These counts revealed that only four vehicles made illegal movements into and out of the project site during the morning peak on the day on which the counts were conducted.[5] Counts conducted by Fehr & Peers in February 2001 reveal that while the restrictions are still highly effective relative to the number of vehicles using Bay Laurel Street to "cut-through" before the turn restrictions were put in place, the number has grown slightly to 20 vehicles. This may indicate that the number of vehicles using Bay Laurel Street to access the project site is gradually increasing. Therefore, it is recommended that monitoring be conducted on a school day every six months or so for a period of two years following the completion of the school's expansion, in order to monitor the number of violations, which would indicate the number of vehicles using Bay Laurel Street. Based on this monitoring, if it is determined that the number of violations is increasing, additional measures, such as increased enforcement, could be taken to limit the number of vehicles traveling along Bay Laurel Street.

[5] TJKM, *Valley Christian Center Traffic Analysis*, October 2000.

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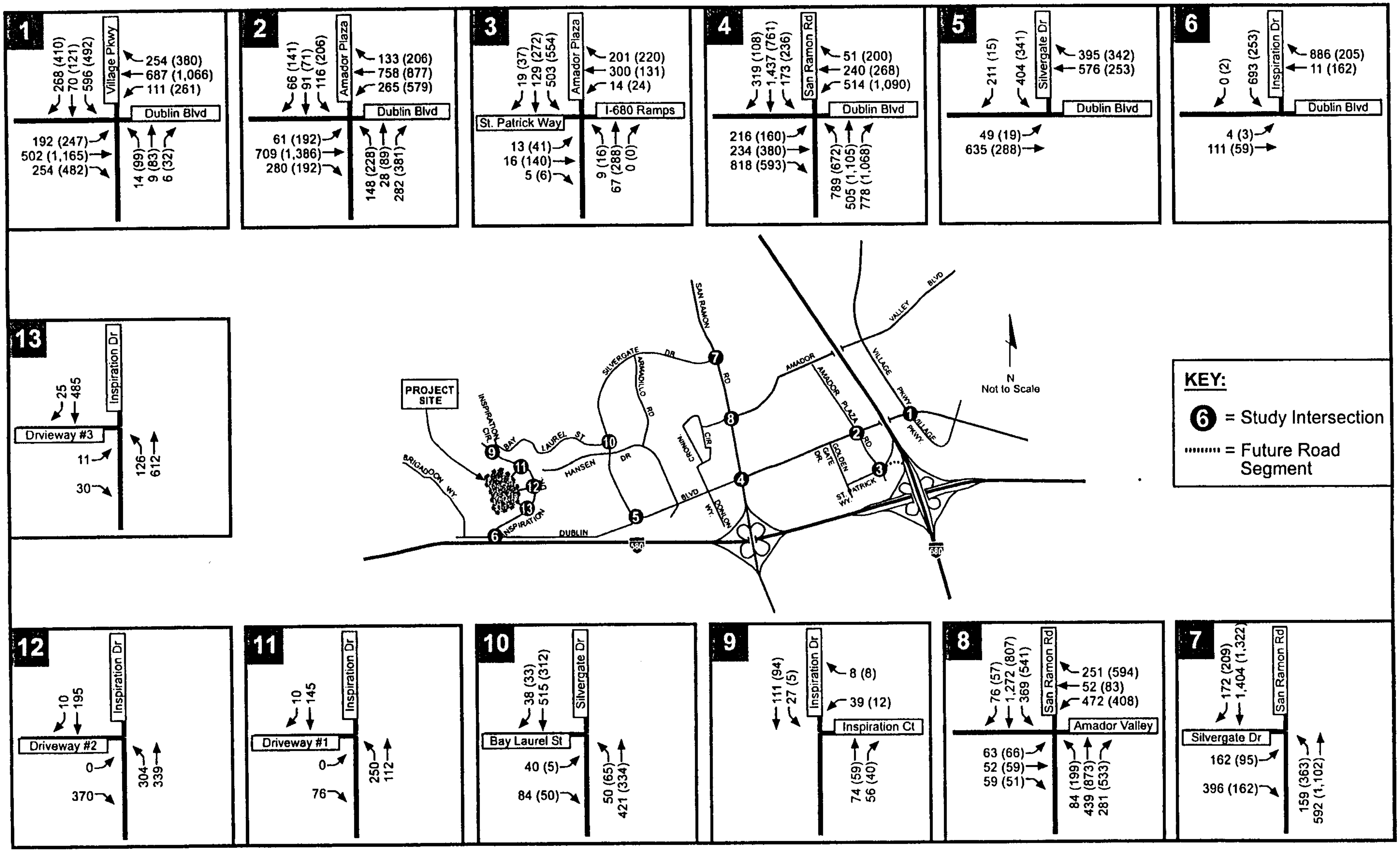
1583-16a

## PROJECT TRIP ASSIGNMENT
## FIGURE 6




Valley Christian Center

**BASELINE PLUS PROJECT**
**PEAK HOUR INTERSECTION VOLUMES**
**FIGURE 7**

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## Significance Criteria

City of Dublin standards require that intersections operate at LOS D or better. When determining the impacts of project trips on the road network, the following criterion is to be used:

- An impact is significant if operations at an intersection deteriorate from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F) with addition of project trips.

When the project creates significant impacts, an appropriate mitigation measure must be recommended.

## Project Intersection Levels of Service

Intersection level of service analyses were conducted to evaluate intersection operations under Project conditions. The results for Baseline and Project conditions are compared in Table 11. The corresponding LOS calculation worksheets are included in Appendix B.

## Project Impacts

There would be no significant impacts due to the project under Baseline conditions, assuming that the recommended improvements mentioned in the previous chapter are constructed. All intersections continue to operate at LOS D or better, except for Dublin Boulevard / Silvergate Drive, which would continue to operate at LOS F if no traffic signal were installed. However, as noted in the previous chapter, both Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive meet the criteria set forth under Warrant 11 in the California Department of Transportation (Caltrans) *Traffic Manual* (September, 1992) for signalization. If these intersections are, in fact, signalized, they will operate at LOS C or better, which falls within the standards of the City of Dublin for signalized intersections.

## Average Daily Traffic (ADT)

Increase in ADT on Dublin Boulevard and Inspiration Drive at the locations discussed previously as a result of the project was again determined by multiplying the number of p.m. peak hour project trips to be added by a factor of 10. This increase in ADT was then added to the Baseline conditions ADT presented earlier in this report to obtain Baseline plus Project conditions ADT, as shown in Table 10, on the following page.

**Table 10**
**Baseline Plus Project**
**Average Daily Traffic (ADT) Volumes**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr.) | 14,250 |
| Inspiration Drive (just north of Dublin Boulevard) | 7,210 |

*Source:* Fehr & Peers, Associates May 2001

**Table 11**

**Baseline Plus Project Traffic Intersection Levels of Service[1]**

| Intersection | Control[2] | Baseline (No Project) | | | | Baseline Plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.40 | A | 0.67 | B | 0.40 | A | 0.67 | B |
| 2. Dublin/Amador Plaza | SIG | 0.51 | A | 0.86 | D | 0.51 | A | 0.87 | D |
| 3. Amador Plaza/St. Patrick/I-680 | SIG | 0.43 | A | 0.55 | A | 0.44 | A | 0.56 | A |
| 4. Dublin/San Ramon | SIG | 0.79 | C | 0.74 | C | 0.80 | C | 0.75 | C |
| 5. Dublin/Silvergate | AWS | ***>100*** | ***F*** | ***47.1*** | ***E*** | ***> 100*** | ***F*** | ***57.6*** | ***F*** |
| 5. Dublin/Silvergate | SIG[4] | 0.60 | A | 0.36 | A | 0.63 | B | 0.38 | A |
| 6. Dublin/Inspiration | SSS | 10.6 (25.9)[5] | B (D)[5] | 4.2 (12.1)[5] | A (B)[5] | 13.3 (32.6)[5] | B (D)[5] | 4.8 (12.7)[5] | A (B)[5] |
| 6. Dublin/Inspiration | SIG[4] | 0.49 | A | 0.23 | A | 0.54 | A | 0.25 | A |
| 7. San Ramon/Silvergate | SIG | 0.66 | B | 0.68 | B | 0.67 | B | 0.68 | B |
| 8. Amador Valley/San Ramon | SIG | 0.60 | A | 0.65 | B | 0.60 | A | 0.65 | B |
| 9. Inspiration Dr./Inspiration Ct | AWS | 7.8 | A | 7.4 | A | 7.8 | A | 7.5 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.3 | A | 1.4 | A | 2.3 | A | 1.4 | A |
| 11. Inspiration/Driveway #1 | SSS | 4.4 | A | N/A | N/A | 4.7 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 5.8 | A | N/A | N/A | 6.2 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.4 | A | N/A | N/A | 1.5 | A | N/A | N/A |

*Source:* Fehr & Peers Associates; Contra Costa Transportation Authority, *Technical Procedures*, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.

*Notes:*

1. Unacceptable operations highlighted.
2. SIG = signal-controlled intersection

   AWS = unsignalized, all-way stop-controlled intersection

   SSS = unsignalized intersection, with side-street stop-control only
3. Volume-to capacity ratio determined for all signalized (SIG) intersections using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
4. Intersections 5 & 6 were analyzed both under Existing control (all-way stop) and under recommended control (traffic signal).
5. Average delay / level of service for southbound stop movement shown in parentheses.

# CHAPTER 5 – CUMULATIVE PLUS PROJECT CONDITIONS

This chapter discusses the operations of the study intersections under Cumulative plus Project conditions, which includes Existing traffic, traffic generated by approved and pending short-term and long-term development, and proposed project traffic. The methodology for determining Cumulative plus Project traffic volumes is described, and levels of service are presented.

## *Cumulative Plus Project Traffic Estimates*

Based on City requirements, Cumulative conditions were developed by adding Existing traffic, Baseline traffic, and additional traffic generated by planned long-term development. The long-term projects include those to be developed as part of the Downtown Core Specific Plan and the West Dublin BART Specific Plan. A complete list of the land use changes associated with these plans is available in the transportation impact report for the Village Parkway, Downtown Core, and West BART Station Specific Plans[6]. The traffic volumes and trip distribution associated with the Downtown Core Specific Plan and West Dublin BART Station Specific Plan were obtained from the report. These trips added onto Existing, Baseline, and project traffic volumes are represented in Figure 8.

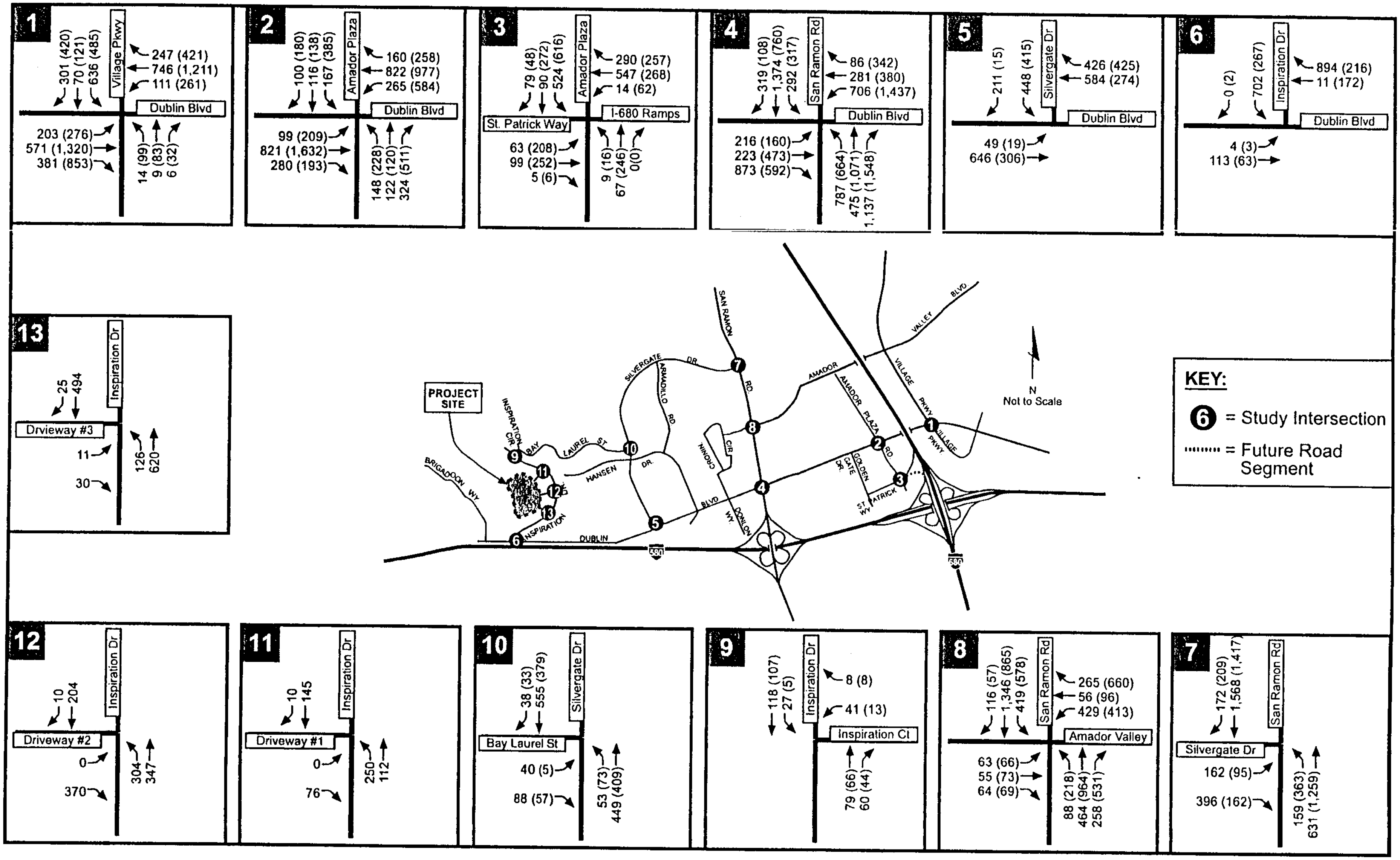
A number of roadway improvements are planned within the study area and are represented in the Cumulative plus Project conditions analysis. These improvements include the following:

- Addition of an exclusive northbound right-turn lane at Dublin/Amador Plaza and conversion of the through/right lane to a through lane.
- Addition of an exclusive southbound right-turn lane at Dublin/Amador Plaza and conversion of the through/right lane to a through lane.
- Addition of an exclusive eastbound right-turn lane at Dublin/Amador Plaza and conversion of the through/right lane to a through lane.
- Conversion of the westbound right-turn lane at Dublin/Amador Plaza to a through/right lane.

## *Cumulative Plus Project Intersection Levels of Service*

Levels of service were calculated for the study intersections using the Cumulative plus Project traffic volumes and roadway improvements listed above. Table 12 presents the LOS results.

[6] Omni Means, *Village Parkway, Downtown Core, and West BART Station Specific Plans Traffic Study*, September 2000.




Valley Christian Center

**CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION VOLUMES**

**FIGURE 8**

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**Table 12**

**Cumulative Plus Project Traffic Intersection Levels of Service[1]**

| Intersection | Control[2] | Baseline Plus Project | | | | Cumulative Plus Project | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service | V/C Ratio[3] or Delay Per Vehicle (seconds) | Level of Service |
| 1. Dublin/Village Parkway | SIG | 0.40 | A | 0.67 | B | 0.47 | A | 0.77 | C |
| 2. Dublin/Amador Plaza | SIG | 0.51 | A | 0.87 | D | 0.42 | A | 0.77 | C |
| 3. Amador Plaza/St. Patrick/I-680 | SIG | 0.44 | A | 0.56 | A | 0.62 | B | 0.76 | C |
| 4. Dublin/San Ramon | SIG | 0.80 | C | 0.75 | C | 0.85 | D | 0.85 | D |
| 5. Dublin/Silvergate | AWS | ***> 100*** | ***F*** | ***57.6*** | ***F*** | ***> 100*** | ***F*** | ***> 100*** | ***F*** |
| 5. Dublin/Silvergate | SIG[4] | 0.63 | B | 0.38 | A | 0.66 | B | 0.44 | A |
| 6. Dublin/Inspiration | AWS | 13.3 (32.6)[5] | B (D)[5] | 4.8 (12.7)[5] | A (B)[5] | 14.1 (34.6)[5] | B (D)[5] | 5.0 (13.3)[5] | A (B)[5] |
| 6. Dublin/Inspiration | SIG[4] | 0.54 | A | 0.25 | A | 0.54 | A | 0.27 | A |
| 7. San Ramon/Silvergate | SIG | 0.67 | B | 0.68 | B | 0.72 | C | 0.71 | C |
| 8. Amador Valley/San Ramon | SIG | 0.60 | A | 0.65 | B | 0.61 | B | 0.70 | B |
| 9. Inspiration Dr./Inspiration Ct | SSS | 7.8 | A | 7.5 | A | 7.9 | A | 7.6 | A |
| 10. Bay Laurel/Silvergate | SSS | 2.3 | A | 1.4 | A | 2.4 | A | 1.4 | A |
| 11. Inspiration/Driveway #1 | SSS | 4.7 | A | N/A | N/A | 4.7 | A | N/A | N/A |
| 12. Inspiration/Driveway #2 | SSS | 6.2 | A | N/A | N/A | 6.2 | A | N/A | N/A |
| 13. Inspiration/Driveway #3 | SSS | 1.5 | A | N/A | N/A | 1.5 | A | N/A | N/A |

*Source:* Fehr & Peers Associates; Contra Costa Transportation Authority, *Technical Procedures*, 1997; Transportation Research Board, *Highway Capacity Manual*, 2000.

*Notes:*

1. Unacceptable operations highlighted.
2. SIG = signal-controlled intersection

   AWS = unsignalized, all-way stop-controlled intersection

   SSS = unsignalized intersection, with side-street stop-control only
3. Volume-to capacity ratio determined for all signalized intersections (SIG) using the CCTALOS methodology. For the unsignalized intersections (AWS or SSS), average intersection control delay (in seconds per vehicle) is calculated using the 2000 *Highway Capacity Manual* methodology.
4. Intersections 5 & 6 were analyzed both under Existing control (all-way stop) and under recommended control (traffic signal).
5. Average delay / level of service for southbound stop movement shown in parentheses.

The results are compared to Baseline plus Project levels of service. The LOS calculation sheets are included in Appendix B.

The intersection of Dublin Boulevard / Silvergate Drive would continue to operate at LOS F if no traffic signal is installed. If Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive are signalized, they would both operate at LOS D or better under Cumulative Plus Project conditions, and fall within City of Dublin Standards. All other intersections during both peak hours would operate at an acceptable LOS D or better under Cumulative Plus Project conditions. Therefore, the project's traffic impacts would not be significant and no mitigation would be necessary.

### *Average Daily Traffic (ADT)*

Increase in ADT on Dublin Boulevard and Inspiration Drive in the locations discussed previously as a result of the addition of Cumulative trips was again determined by multiplying the number of p.m. peak hour trips to be added under Cumulative conditions by a factor of 10. This increase in ADT was then added to the Baseline plus Project conditions ADT presented earlier in this report to obtain Cumulative plus Project conditions ADT, as shown in Table 13, below.

**Table 13**
**Cumulative Plus Project**
**Average Daily Traffic (ADT) Volumes**

| Roadway Segment | ADT (vehicles per day) |
|---|---|
| Dublin Blvd. (between Hansen Dr. and Silvergate Dr. | 16,210 |
| Inspiration Drive (just north of Dublin Boulevard) | 7,460 |

*Source:* Fehr & Peers, Associates — May 2001

The City of Dublin uses an upper threshold of 15,600 vehicles per day to maintain an LOS D on two-lane roadway segments. Based on this ADT threshold, Dublin Boulevard between Hansen Drive and Silvergate Drive should be widened from two lanes to four lanes under the Cumulative plus Project scenario.

# CHAPTER 6 – CONCLUSIONS

City of Dublin standards require that intersections operate at Level of Service (LOS) D or better. Under Existing conditions, the intersection of Dublin Boulevard / Silvergate Drive operates at LOS F during the a.m. peak hour, while all other intersections operate at an acceptable LOS D or better. During the p.m. peak hour, all study intersections operate within City of Dublin standards, at LOS D or better.

Under Baseline conditions, the intersection of Dublin Boulevard / Silvergate Drive would continue to operate unacceptably in the morning peak. In addition, this intersection would operate at LOS E during the p.m. peak hour. All other study intersections would continue to operate at acceptable LOS D or better during both morning and evening peak hours under Baseline conditions. Traffic signal warrant analyses were conducted for the unsignalized intersections of Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive based on the criteria set forth in Warrant 11 by the California Department of Transportation (Caltrans) *Traffic Manual* (September, 1992) to determine if signalization of these intersections were warranted. Based on the peak hour volumes of these two intersections and the criteria described above, it is recommended that traffic signals be installed at these two intersections. With the installation of these signals, both intersections would operate within City of Dublin standards, at LOS D or better under Baseline conditions.

With the addition of project traffic, under Baseline plus Project conditions, all study intersections would continue to operate at LOS D or better during both peak hours, assuming that traffic signals are installed at the intersections of Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive. These operations would comply with City of Dublin standards. Therefore, the project does not have any significant impacts, as defined by the City of Dublin, under Baseline conditions.

Under Cumulative plus Project conditions, assuming that traffic signals are installed at the intersections of Dublin Boulevard / Silvergate Drive and Dublin Boulevard / Inspiration Drive, all study intersections would continue to operate at acceptable LOS D or better. Therefore, the project does not have any significant impacts, as defined by the City of Dublin, under Cumulative plus Project Conditions, and no mitigation is necessary.

The likelihood of project traffic traveling along Bay Laurel Street was also analyzed. Because of the turn restrictions in place, which prohibit movements at the project driveways to and from Bay Laurel Street between the hours of 7 a.m. and 5 p.m. on school days from Driveways #1 and #2

(Intersections #11 and #12), and based on traffic counts conducted by Fehr & Peers, there is a low violation rate, which indicates a low rate of vehicles traveling to and from the project site using Bay Laurel Street. Therefore, it is expected that any expansion to the existing facility would result in no significant increase in traffic at Inspiration Drive / Inspiration Circle and at Silvergate Drive / Bay Laurel Street. Compared to counts conducted immediately after the restrictions were put in place, however, it appears that the violation rate is gradually increasing. Therefore, it is suggested that monitoring of the peak hour turning movements at the project driveways be conducted on one typical school day every six months or so following the completion of the school expansion, in order to demonstrate that the expansion does not increase the rate of vehicles violating these restrictions. If the number of violators increases after the expansion, increased enforcement or other measures may be taken to limit the number of vehicles accessing the project site to or from Bay Laurel Street.

# APPENDICES

# APPENDIX A

## Existing Intersection Counts

**Table A-1**
**Existing Peak Hour Intersection Volumes**

| Intersection | Peak Hour | NB | | | SB | | | EB | | | WB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | T | R | L | T | R | L | T | R | L | T | R |
| Dublin Boulevard / Village Parkway | AM | 12 | 8 | 6 | 481 | 49 | 122 | 160 | 362 | 76 | 26 | 461 | 196 |
| | PM | 94 | 80 | 32 | 447 | 66 | 216 | 245 | 828 | 114 | 141 | 758 | 418 |
| Dublin Boulevard / Amador Plaza | AM | 32 | 16 | 216 | 46 | 42 | 62 | 36 | 470 | 136 | 50 | 496 | 106 |
| | PM | 147 | 71 | 261 | 129 | 56 | 129 | 110 | 896 | 99 | 135 | 836 | 158 |

Source: City of Dublin

May 2001

CITY OF DUBLIN

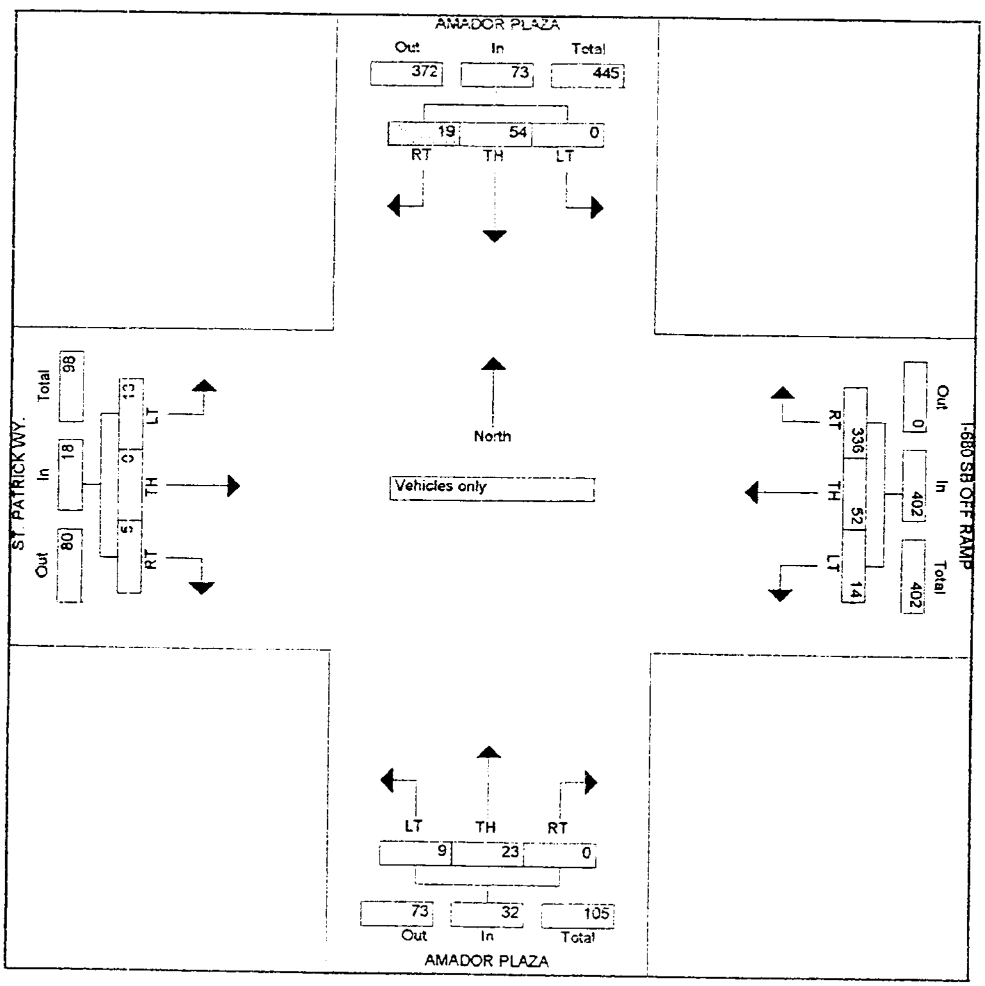
MARKS TRAFFIC DATA SERVICE

File Name : amador_680sb-
Site Code : 00000000
Start Date : 01/24/2001
Page : 1

Groups Printed: Vehicles only

| | AMADOR PLAZA Southbound | | | | I-680 SB OFF RAMP Westbound | | | | AMADOR PLAZA Northbound | | | | ST. PATRICK WY. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 0 | 4 | 0 | 4 | 53 | 13 | 4 | 70 | 0 | 2 | 1 | 3 | 2 | 0 | 1 | 3 | 80 |
| 07:15 | 4 | 8 | 0 | 12 | 60 | 14 | 2 | 76 | 0 | 5 | 2 | 7 | 0 | 0 | 2 | 2 | 97 |
| 07:30 | 4 | 13 | 0 | 17 | 81 | 9 | 2 | 92 | 0 | 5 | 0 | 5 | 0 | 0 | 1 | 1 | 115 |
| 07:45 | 3 | 12 | 0 | 15 | 96 | 12 | 3 | 111 | 0 | 6 | 1 | 7 | 2 | 0 | 3 | 5 | 138 |
| Total | 11 | 37 | 0 | 48 | 290 | 48 | 11 | 349 | 0 | 18 | 4 | 22 | 4 | 0 | 7 | 11 | 430 |
| 08:00 | 5 | 14 | 0 | 19 | 98 | 16 | 5 | 119 | 0 | 7 | 4 | 11 | 2 | 0 | 5 | 7 | 156 |
| 08:15 | 7 | 15 | 0 | 22 | 61 | 15 | 4 | 80 | 0 | 5 | 4 | 9 | 1 | 0 | 4 | 5 | 116 |
| 08:30 | 4 | 15 | 0 | 19 | 56 | 10 | 1 | 67 | 0 | 6 | 3 | 9 | 1 | 0 | 2 | 3 | 98 |
| 08:45 | 4 | 6 | 0 | 10 | 58 | 20 | 4 | 82 | 0 | 7 | 3 | 10 | 0 | 0 | 5 | 5 | 107 |
| Total | 20 | 50 | 0 | 70 | 273 | 61 | 14 | 348 | 0 | 25 | 14 | 39 | 4 | 0 | 16 | 20 | 477 |
| Grand Total | 31 | 87 | 0 | 118 | 563 | 109 | 25 | 697 | 0 | 43 | 18 | 61 | 8 | 0 | 23 | 31 | 907 |
| Apprch % | 26.3 | 73.7 | 0.0 | | 80.8 | 15.6 | 3.6 | | 0.0 | 70.5 | 29.5 | | 25.8 | 0.0 | 74.2 | | |
| Total % | 3.4 | 9.6 | 0.0 | 13.0 | 62.1 | 12.0 | 2.8 | 76.8 | 0.0 | 4.7 | 2.0 | 6.7 | 0.9 | 0.0 | 2.5 | 3.4 | |

| | AMADOR PLAZA Southbound | | | | I-680 SB OFF RAMP Westbound | | | | AMADOR PLAZA Northbound | | | | ST. PATRICK WY. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 19 | 54 | 0 | 73 | 336 | 52 | 14 | 402 | 0 | 23 | 9 | 32 | 5 | 0 | 13 | 18 | 525 |
| Percent | 26.0 | 74.0 | 0.0 | | 83.6 | 12.9 | 3.5 | | 0.0 | 71.9 | 28.1 | | 27.8 | 0.0 | 72.2 | | |
| High Int. | 08:15 | | | | 08:00 | | | | 08:00 | | | | 08:00 | | | | 08:00 |
| Volume | 7 | 15 | 0 | 22 | 98 | 16 | 5 | 119 | 0 | 7 | 4 | 11 | 2 | 0 | 5 | 7 | 156 |
| Peak Factor | | | | 0.830 | | | | 0.845 | | | | 0.727 | | | | 0.643 | 0.841 |



# MARKS TRAFFIC DATA SERVICE

TY OF DUBLIN

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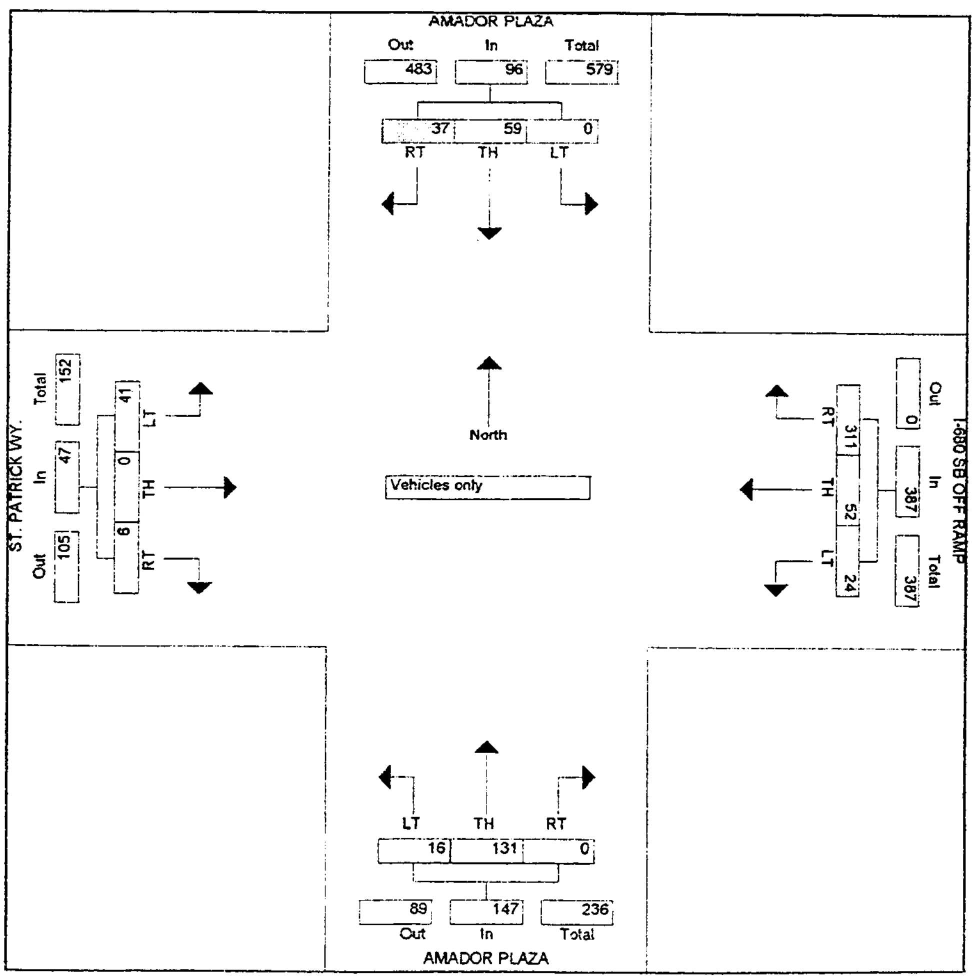
Site Code : 00000000
Start Date : 01/24/2001
Page : 1

*Groups Printed: Vehicles only*

| | AMADOR PLAZA Southbound | | | | I-680 SB OFF RAMP Westbound | | | | AMADOR PLAZA Northbound | | | | ST. PATRICK WY. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 16:00 | 8 | 13 | 0 | 21 | 66 | 12 | 8 | 86 | 0 | 30 | 0 | 30 | 1 | 0 | 7 | 8 | 145 |
| 16:15 | 14 | 16 | 0 | 30 | 56 | 9 | 9 | 74 | 0 | 31 | 0 | 31 | 1 | 0 | 14 | 15 | 150 |
| 16:30 | 5 | 15 | 0 | 20 | 57 | 13 | 6 | 76 | 0 | 35 | 6 | 41 | 3 | 0 | 10 | 13 | 150 |
| 16:45 | 5 | 14 | 0 | 19 | 64 | 9 | 6 | 79 | 0 | 30 | 3 | 33 | 3 | 0 | 6 | 9 | 140 |
| *Total* | 32 | 58 | 0 | 90 | 243 | 43 | 29 | 315 | 0 | 126 | 9 | 135 | 8 | 0 | 37 | 45 | 585 |
| 17:00 | 10 | 15 | 0 | 25 | 101 | 14 | 9 | 124 | 0 | 45 | 4 | 49 | 1 | 0 | 13 | 14 | 212 |
| 17:15 | 10 | 13 | 0 | 23 | 47 | 3 | 4 | 54 | 0 | 30 | 4 | 34 | 0 | 0 | 8 | 8 | 119 |
| 17:30 | 6 | 15 | 0 | 21 | 70 | 26 | 8 | 104 | 0 | 25 | 6 | 31 | 3 | 0 | 16 | 19 | 175 |
| 17:45 | 11 | 16 | 0 | 27 | 93 | 9 | 3 | 105 | 0 | 31 | 2 | 33 | 2 | 0 | 4 | 6 | 171 |
| *Total* | 37 | 59 | 0 | 96 | 311 | 52 | 24 | 387 | 0 | 131 | 16 | 147 | 6 | 0 | 41 | 47 | 677 |
| Grand Total | 69 | 117 | 0 | 186 | 554 | 95 | 53 | 702 | 0 | 257 | 25 | 282 | 14 | 0 | 78 | 92 | 1262 |
| *Apprch %* | 37.1 | 62.9 | 0.0 | | 78.9 | 13.5 | 7.5 | | 0.0 | 91.1 | 8.9 | | 15.2 | 0.0 | 84.8 | | |
| Total % | 5.5 | 9.3 | 0.0 | 14.7 | 43.9 | 7.5 | 4.2 | 55.6 | 0.0 | 20.4 | 2.0 | 22.3 | 1.1 | 0.0 | 6.2 | 7.3 | |

| | AMADOR PLAZA Southbound | | | | I-680 SB OFF RAMP Westbound | | | | AMADOR PLAZA Northbound | | | | ST. PATRICK WY. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| ak Hour From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 17:00 | | | | | | | | | | | | | | | | |
| Volume | 37 | 59 | 0 | 96 | 311 | 52 | 24 | 387 | 0 | 131 | 16 | 147 | 6 | 0 | 41 | 47 | 677 |
| Percent | 38.5 | 61.5 | 0.0 | | 80.4 | 13.4 | 6.2 | | 0.0 | 89.1 | 10.9 | | 12.8 | 0.0 | 87.2 | | |
| High Int. | 17:45 | | | | 17:00 | | | | 17:00 | | | | 17:30 | | | | 17:00 |
| Volume | 11 | 16 | 0 | 27 | 101 | 26 | 9 | 124 | 0 | 45 | 6 | 49 | 3 | 0 | 16 | 19 | 212 |
| ?eak Factor | | | | 0.889 | | | | 0.780 | | | | 0.750 | | | | 0.618 | 0.798 |



CITY OF DUBLIN

# MARKS TRAFFIC DATA SERVICE

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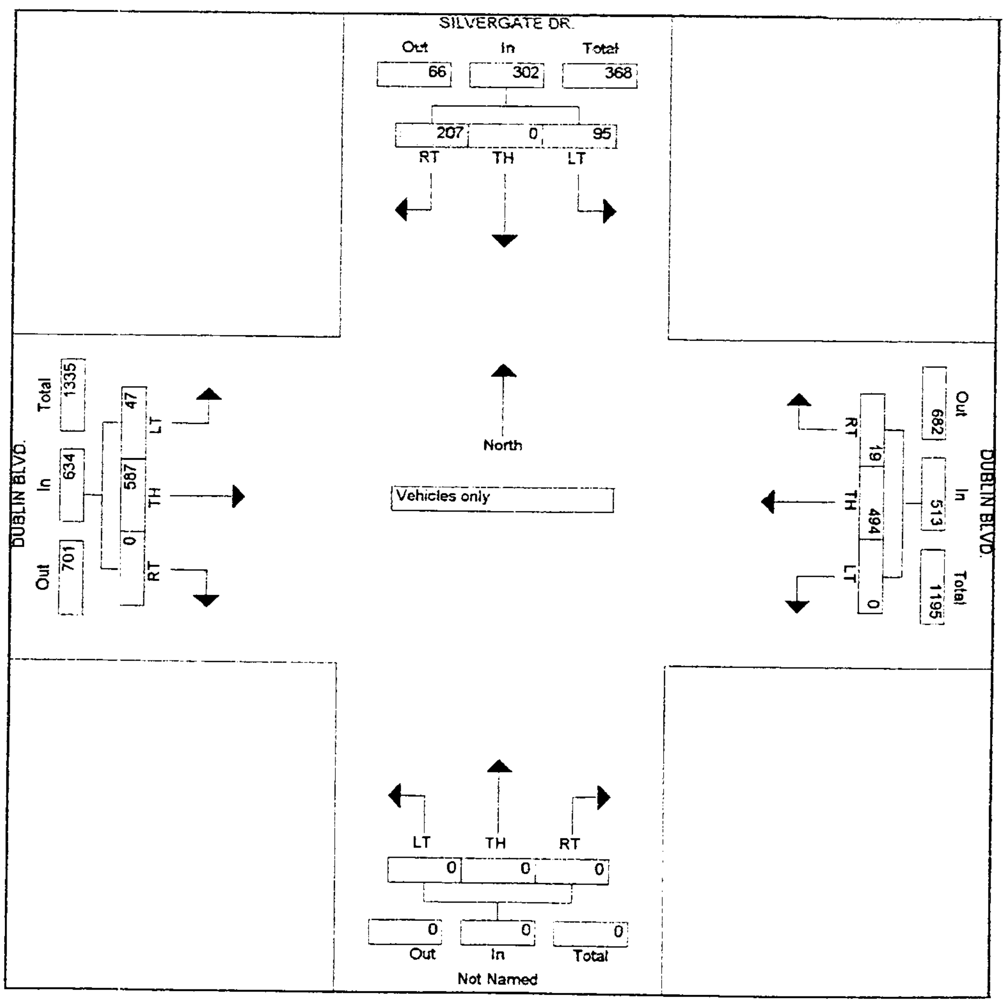
Start Date : 01/30/2001
Page : 1

Groups Printed: Vehicles only

| | SILVERGATE DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | In Tot |
| 07:00 | 4 | 0 | 31 | 35 | 4 | 35 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 34 | 10 |
| 07:15 | 17 | 0 | 16 | 33 | 6 | 84 | 0 | 90 | 0 | 0 | 0 | 0 | 0 | 61 | 2 | 63 | 18 |
| 07:30 | 111 | 0 | 29 | 140 | 1 | 141 | 0 | 142 | 0 | 0 | 0 | 0 | 0 | 137 | 9 | 146 | 42 |
| 07:45 | 48 | 0 | 22 | 70 | 6 | 137 | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 188 | 16 | 204 | 41 |
| *Total* | *180* | *0* | *98* | *278* | *17* | *397* | *0* | *414* | *0* | *0* | *0* | *0* | *0* | *420* | *27* | *447* | 113 |
| 08:00 | 39 | 0 | 22 | 61 | 5 | 139 | 0 | 144 | 0 | 0 | 0 | 0 | 0 | 157 | 11 | 168 | 37 |
| 08:15 | 9 | 0 | 22 | 31 | 7 | 77 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 105 | 11 | 116 | 23 |
| 08:30 | 7 | 0 | 12 | 19 | 8 | 62 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 51 | 1 | 52 | 14 |
| 08:45 | 1 | 0 | 15 | 16 | 7 | 27 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 53 | 2 | 55 | 10 |
| *Total* | *56* | *0* | *71* | *127* | *27* | *305* | *0* | *332* | *0* | *0* | *0* | *0* | *0* | *366* | *25* | *391* | 85 |
| Grand Total | 236 | 0 | 169 | 405 | 44 | 702 | 0 | 746 | 0 | 0 | 0 | 0 | 0 | 786 | 52 | 838 | 198 |
| *Apprch %* | *58.3* | *0.0* | *41.7* | | *5.9* | *94.1* | *0.0* | | *0.0* | *0.0* | *0.0* | | *0.0* | *93.8* | *6.2* | | |
| Total % | 11.9 | 0.0 | 8.5 | 20.4 | 2.2 | 35.3 | 0.0 | 37.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.5 | 2.6 | 42.1 | |

| | SILVERGATE DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | In Tota |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 207 | 0 | 95 | 302 | 19 | 494 | 0 | 513 | 0 | 0 | 0 | 0 | 0 | 587 | 47 | 634 | 144 |
| Percent | 68.5 | 0.0 | 31.5 | | 3.7 | 96.3 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 92.6 | 7.4 | | |
| High Int. | 07:30 | | | | 08:00 | | | | 6:45:00 AM | | | | 07:45 | | | | 07:30 |
| Volume | 111 | 0 | 29 | 140 | 7 | 141 | 0 | 144 | 0 | 0 | 0 | 0 | 0 | 186 | 16 | 204 | 42 |
| Peak Factor | | | | 0.539 | | | | 0.891 | | | | | | | | 0.777 | 0.84 |



MARKS TRAFFIC DATA SERVICE

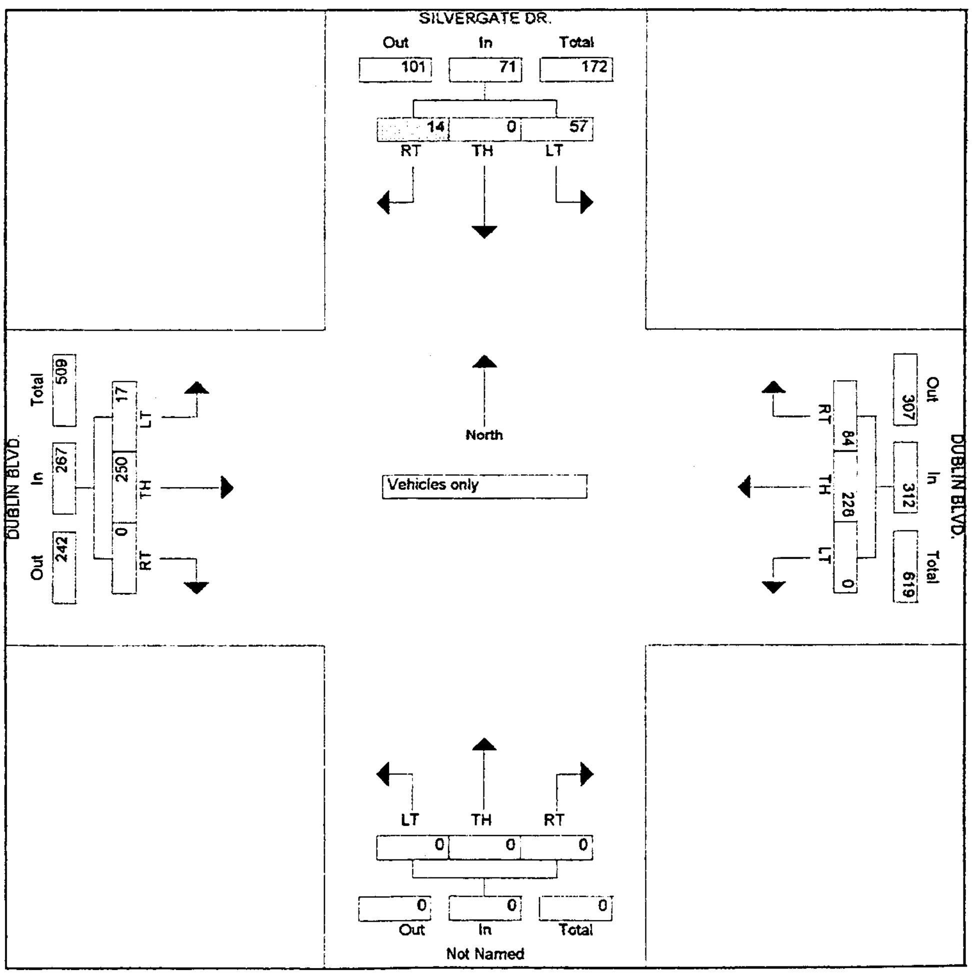
TY OF DUBLIN

File Name : silvergate_dublin-p
Site Code : 00000000
Start Date : 01/31/2001
Page : 1

Groups Printed: Vehicles only

| | SILVERGATE DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 16:00 | 4 | 0 | 16 | 20 | 13 | 34 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 62 | 4 | 66 | 133 |
| 16:15 | 4 | 0 | 10 | 14 | 17 | 41 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 50 | 4 | 54 | 126 |
| 16:30 | 4 | 0 | 8 | 12 | 15 | 42 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 52 | 4 | 56 | 125 |
| 16:45 | 3 | 0 | 8 | 11 | 25 | 41 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 31 | 3 | 34 | 111 |
| Total | 15 | 0 | 42 | 57 | 70 | 158 | 0 | 228 | 0 | 0 | 0 | 0 | 0 | 195 | 15 | 210 | 495 |
| 17:00 | 3 | 0 | 15 | 18 | 22 | 67 | 0 | 89 | 0 | 0 | 0 | 0 | 0 | 85 | 9 | 94 | 201 |
| 17:15 | 4 | 0 | 10 | 14 | 15 | 65 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 65 | 1 | 66 | 160 |
| 17:30 | 5 | 0 | 11 | 16 | 21 | 45 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 60 | 4 | 64 | 146 |
| 17:45 | 2 | 0 | 21 | 23 | 26 | 51 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 40 | 3 | 43 | 143 |
| Total | 14 | 0 | 57 | 71 | 84 | 228 | 0 | 312 | 0 | 0 | 0 | 0 | 0 | 250 | 17 | 267 | 650 |
| Grand Total | 29 | 0 | 99 | 128 | 154 | 386 | 0 | 540 | 0 | 0 | 0 | 0 | 0 | 445 | 32 | 477 | 1145 |
| Apprch % | 22.7 | 0.0 | 77.3 | | 28.5 | 71.5 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 93.3 | 6.7 | | |
| Total % | 2.5 | 0.0 | 8.6 | 11.2 | 13.4 | 33.7 | 0.0 | 47.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 38.9 | 2.8 | 41.7 | |

| | SILVERGATE DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 17:00 | | | | | | | | | | | | | | | | |
| Volume | 14 | 0 | 57 | 71 | 84 | 228 | 0 | 312 | 0 | 0 | 0 | 0 | 0 | 250 | 17 | 267 | 650 |
| Percent | 19.7 | 0.0 | 80.3 | | 26.9 | 73.1 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 93.6 | 6.4 | | |
| High Int. | 17:45 | | | | 17:00 | | | | 3:45:00 PM | | | | 17:00 | | | | 17:00 |
| Volume | 5 | 0 | 21 | 23 | 26 | 67 | 0 | 89 | 0 | 0 | 0 | 0 | 0 | 85 | 9 | 94 | 201 |
| Peak Factor | | | | 0.772 | | | | 0.876 | | | | | | | | 0.710 | 0.808 |



CITY OF DUBLIN

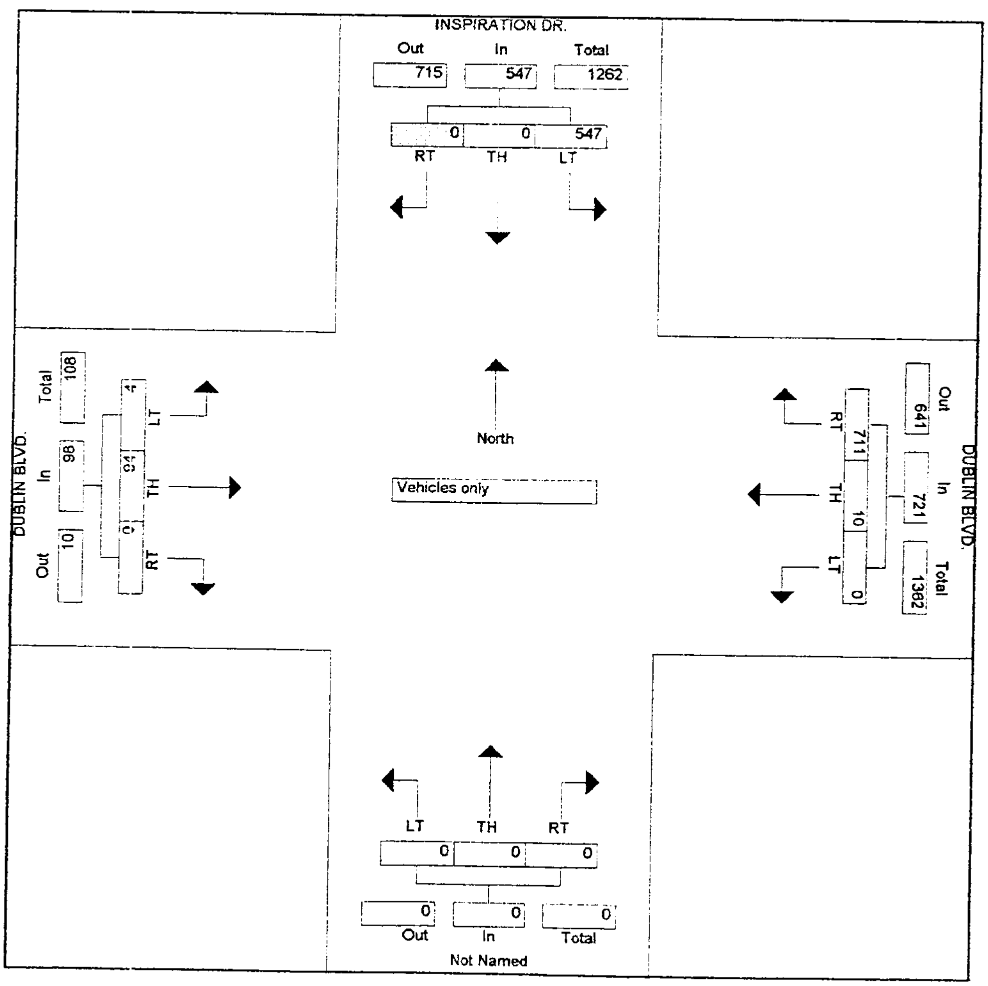
MARKS TRAFFIC DATA SERVICE

File Name : inspiration_dublin-
Site Code : 00000000
Start Date : 02/01/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 0 | 0 | 26 | 26 | 39 | 1 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 17 | 83 |
| 07:15 | 0 | 0 | 41 | 41 | 111 | 1 | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 23 | 1 | 24 | 177 |
| 07:30 | 0 | 0 | 139 | 139 | 238 | 2 | 0 | 240 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 24 | 403 |
| 07:45 | 0 | 0 | 158 | 158 | 204 | 2 | 0 | 206 | 0 | 0 | 0 | 0 | 0 | 30 | 2 | 32 | 396 |
| Total | 0 | 0 | 364 | 364 | 592 | 6 | 0 | 598 | 0 | 0 | 0 | 0 | 0 | 94 | 3 | 97 | 1059 |
| 08:00 | 0 | 0 | 157 | 157 | 197 | 1 | 0 | 198 | 0 | 0 | 0 | 0 | 0 | 23 | 2 | 25 | 380 |
| 08:15 | 0 | 0 | 93 | 93 | 72 | 5 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 17 | 187 |
| 08:30 | 2 | 0 | 51 | 53 | 26 | 5 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 16 | 100 |
| 08:45 | 1 | 0 | 23 | 24 | 17 | 2 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 50 |
| Total | 3 | 0 | 324 | 327 | 312 | 13 | 0 | 325 | 0 | 0 | 0 | 0 | 0 | 63 | 2 | 65 | 717 |
| Grand Total | 3 | 0 | 688 | 691 | 904 | 19 | 0 | 923 | 0 | 0 | 0 | 0 | 0 | 157 | 5 | 162 | 1776 |
| Apprch % | 0.4 | 0.0 | 99.6 | | 97.9 | 2.1 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 96.9 | 3.1 | | |
| Total % | 0.2 | 0.0 | 38.7 | 38.9 | 50.9 | 1.1 | 0.0 | 52.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.8 | 0.3 | 9.1 | |

| | INSPIRATION DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 0 | 0 | 547 | 547 | 711 | 10 | 0 | 721 | 0 | 0 | 0 | 0 | 0 | 94 | 4 | 98 | 1366 |
| Percent | 0.0 | 0.0 | 100.0 | | 98.6 | 1.4 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 95.9 | 4.1 | | |
| High Int. | 07:45 | | | | 07:30 | | | | 6:45:00 AM | | | | 07:45 | | | | 07:30 |
| Volume | 0 | 0 | 158 | 158 | 238 | 5 | 0 | 240 | 0 | 0 | 0 | 0 | 0 | 30 | 2 | 32 | 403 |
| Peak Factor | | | | 0.866 | | | | 0.751 | | | | | | | | 0.766 | 0.847 |



# MARKS TRAFFIC DATA SERVICE

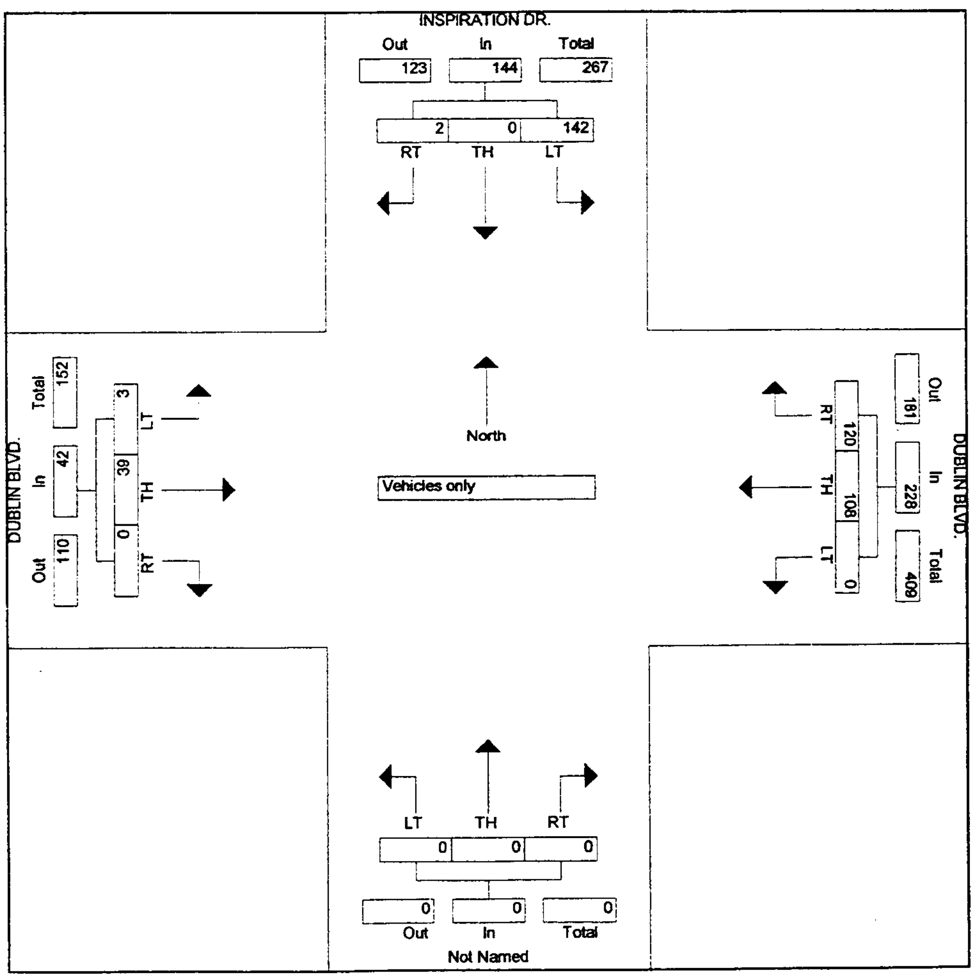
ITY OF DUBLIN

File Name : inspiration_dublin-p
Site Code : 00000000
Start Date : 02/01/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 16:15 | 1 | 0 | 22 | 23 | 21 | 8 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 55 |
| 16:30 | 0 | 0 | 36 | 36 | 24 | 9 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 9 | 78 |
| 16:45 | 0 | 0 | 43 | 43 | 42 | 13 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 106 |
| 17:00 | 1 | 0 | 50 | 51 | 30 | 21 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 107 |
| Total | 2 | 0 | 151 | 153 | 117 | 51 | 0 | 168 | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 25 | 346 |
| 17:15 | 0 | 0 | 33 | 33 | 19 | 17 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 10 | 79 |
| 17:30 | 2 | 0 | 24 | 26 | 33 | 33 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 100 |
| 17:45 | 0 | 0 | 55 | 55 | 32 | 29 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 11 | 127 |
| 18:00 | 0 | 0 | 30 | 30 | 36 | 29 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 11 | 2 | 13 | 108 |
| Total | 2 | 0 | 142 | 144 | 120 | 108 | 0 | 228 | 0 | 0 | 0 | 0 | 0 | 39 | 3 | 42 | 414 |
| Grand Total | 4 | 0 | 293 | 297 | 237 | 159 | 0 | 396 | 0 | 0 | 0 | 0 | 0 | 63 | 4 | 67 | 760 |
| Apprch % | 1.3 | 0.0 | 98.7 | | 59.8 | 40.2 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 94.0 | 6.0 | | |
| Total % | 0.5 | 0.0 | 38.6 | 39.1 | 31.2 | 20.9 | 0.0 | 52.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 0.5 | 8.8 | |

| | INSPIRATION DR. Southbound | | | | DUBLIN BLVD. Westbound | | | | Northbound | | | | DUBLIN BLVD. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 16:15 to 18:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 17:15 | | | | | | | | | | | | | | | | |
| Volume | 2 | 0 | 142 | 144 | 120 | 108 | 0 | 228 | 0 | 0 | 0 | 0 | 0 | 39 | 3 | 42 | 414 |
| Percent | 1.4 | 0.0 | 98.6 | | 52.6 | 47.4 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 92.9 | 7.1 | | |
| High Int. | 17:45 | | | | 17:30 | | | | 4:00:00 PM | | | | 18:00 | | | | 17:45 |
| Volume | 2 | 0 | 55 | 55 | 36 | 33 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 11 | 2 | 13 | 127 |
| Peak Factor | | | | 0.655 | | | | 0.864 | | | | | | | | 0.808 | 0.815 |



CITY OF DUBLIN

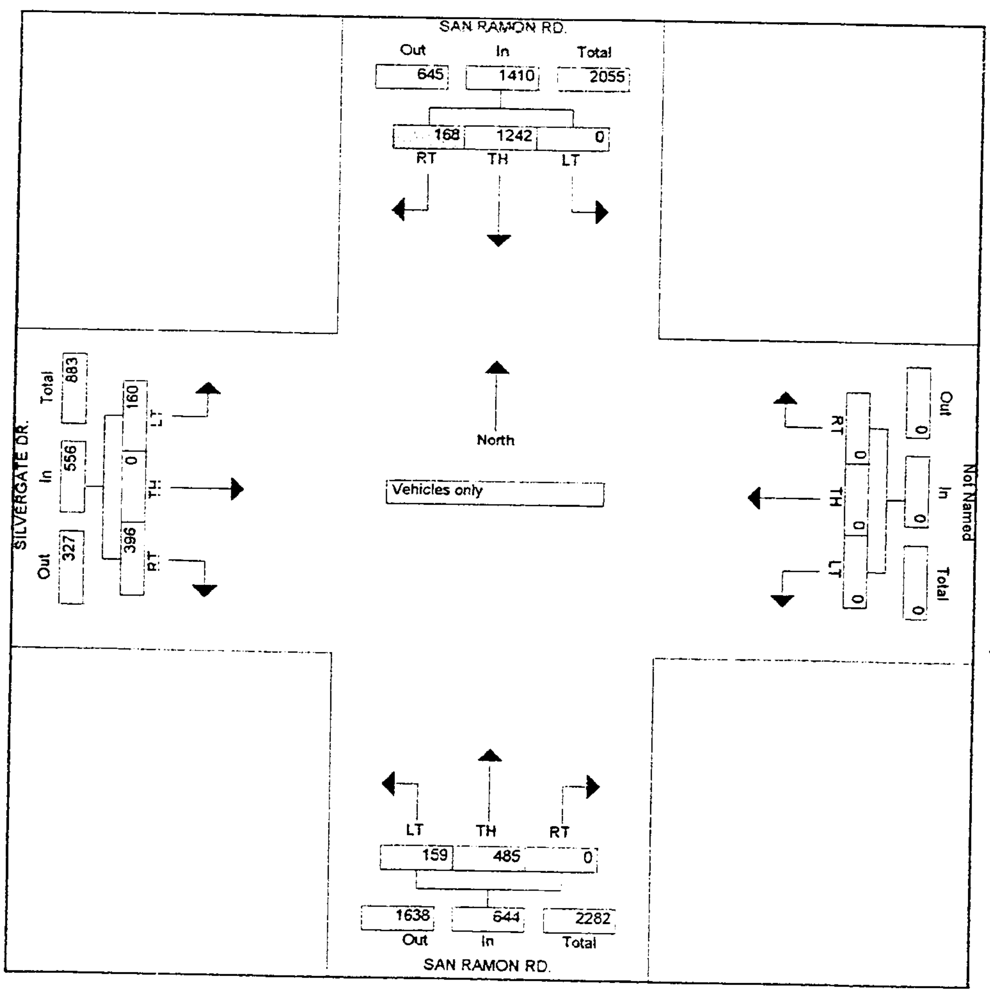
MARKS TRAFFIC DATA SERVICE

File Name : san-ramon_silvergate-a
Site Code : 00000000
Start Date : 01/24/2001
Page : 1

Groups Printed: Vehicles only

| | SAN RAMON RD. Southbound | | | | Westbound | | | | SAN RAMON RD. Northbound | | | | SILVERGATE DR. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 12 | 194 | 0 | 206 | 0 | 0 | 0 | 0 | 0 | 45 | 10 | 55 | 49 | 0 | 25 | 74 | 335 |
| 07:15 | 36 | 275 | 0 | 311 | 0 | 0 | 0 | 0 | 0 | 60 | 12 | 72 | 64 | 0 | 32 | 96 | 479 |
| 07:30 | 54 | 310 | 0 | 364 | 0 | 0 | 0 | 0 | 0 | 82 | 22 | 104 | 97 | 0 | 37 | 134 | 602 |
| 07:45 | 58 | 328 | 0 | 386 | 0 | 0 | 0 | 0 | 0 | 170 | 41 | 211 | 156 | 0 | 55 | 211 | 808 |
| Total | 160 | 1107 | 0 | 1267 | 0 | 0 | 0 | 0 | 0 | 357 | 85 | 442 | 366 | 0 | 149 | 515 | 2224 |
| 08:00 | 29 | 310 | 0 | 339 | 0 | 0 | 0 | 0 | 0 | 139 | 69 | 208 | 83 | 0 | 39 | 122 | 669 |
| 08:15 | 27 | 294 | 0 | 321 | 0 | 0 | 0 | 0 | 0 | 94 | 27 | 121 | 60 | 0 | 29 | 89 | 531 |
| 08:30 | 25 | 290 | 0 | 315 | 0 | 0 | 0 | 0 | 0 | 69 | 19 | 88 | 52 | 0 | 35 | 87 | 490 |
| 08:45 | 19 | 214 | 0 | 233 | 0 | 0 | 0 | 0 | 0 | 84 | 27 | 111 | 41 | 0 | 19 | 60 | 404 |
| Total | 100 | 1108 | 0 | 1208 | 0 | 0 | 0 | 0 | 0 | 386 | 142 | 528 | 236 | 0 | 122 | 358 | 2094 |
| Grand Total | 260 | 2215 | 0 | 2475 | 0 | 0 | 0 | 0 | 0 | 743 | 227 | 970 | 602 | 0 | 271 | 873 | 4318 |
| Apprch % | 10.5 | 89.5 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 76.6 | 23.4 | | 69.0 | 0.0 | 31.0 | | |
| Total % | 6.0 | 51.3 | 0.0 | 57.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 5.3 | 22.5 | 13.9 | 0.0 | 6.3 | 20.2 | |

| | SAN RAMON RD. Southbound | | | | Westbound | | | | SAN RAMON RD. Northbound | | | | SILVERGATE DR. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 168 | 1242 | 0 | 1410 | 0 | 0 | 0 | 0 | 0 | 485 | 159 | 644 | 396 | 0 | 160 | 556 | 2610 |
| Percent | 11.9 | 88.1 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 75.3 | 24.7 | | 71.2 | 0.0 | 28.8 | | |
| High Int. | 07:45 | | | | 6:45:00 AM | | | | 07:45 | | | | 07:45 | | | | 07:45 |
| Volume | 58 | 328 | 0 | 386 | 0 | 0 | 0 | 0 | 0 | 170 | 69 | 211 | 156 | 0 | 55 | 211 | 808 |
| Peak Factor | | | | 0.913 | | | | | | | | 0.763 | | | | 0.659 | 0.808 |



C Y OF DUBLIN

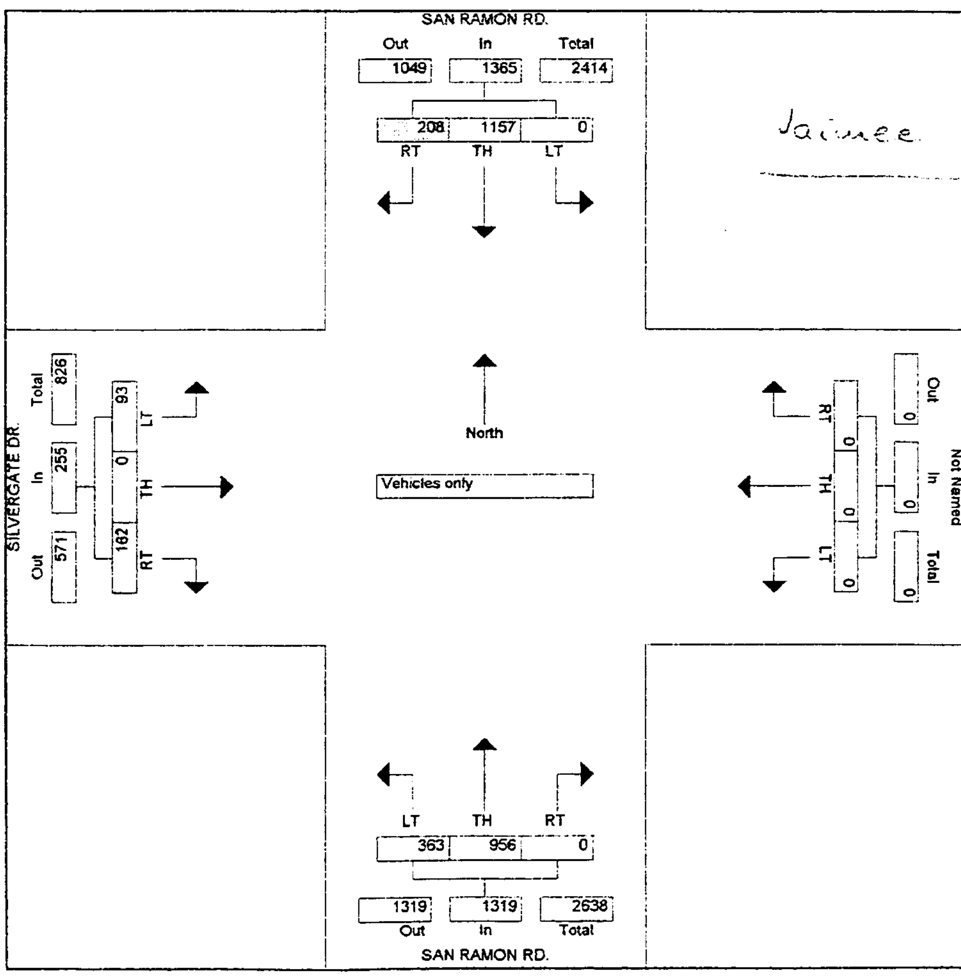
MARKS TRAFFIC DATA SERVICE

File Name : san-ramon_silvergate-p
Site Code : 00000000
Start Date : 01/24/2001
Page : 1

Groups Printed: Vehicles only

| | SAN RAMON RD. Southbound | | | | Westbound | | | | SAN RAMON RD. Northbound | | | | SILVERGATE DR. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 16:00 | 18 | 199 | 0 | 217 | 0 | 0 | 0 | 0 | 0 | 187 | 38 | 225 | 23 | 0 | 20 | 43 | 485 |
| 16:15 | 23 | 187 | 0 | 210 | 0 | 0 | 0 | 0 | 0 | 202 | 63 | 265 | 30 | 0 | 14 | 44 | 519 |
| 16:30 | 32 | 169 | 0 | 201 | 0 | 0 | 0 | 0 | 0 | 186 | 71 | 257 | 32 | 0 | 23 | 55 | 513 |
| 16:45 | 30 | 191 | 0 | 221 | 0 | 0 | 0 | 0 | 0 | 206 | 76 | 282 | 39 | 0 | 20 | 59 | 562 |
| Total | 103 | 746 | 0 | 849 | 0 | 0 | 0 | 0 | 0 | 781 | 248 | 1029 | 124 | 0 | 77 | 201 | 2079 |
| 17:00 | 50 | 212 | 0 | 262 | 0 | 0 | 0 | 0 | 0 | 221 | 91 | 312 | 35 | 0 | 26 | 61 | 635 |
| 17:15 | 40 | 279 | 0 | 319 | 0 | 0 | 0 | 0 | 0 | 257 | 87 | 344 | 45 | 0 | 17 | 62 | 725 |
| 17:30 | 46 | 349 | 0 | 395 | 0 | 0 | 0 | 0 | 0 | 255 | 94 | 349 | 36 | 0 | 29 | 65 | 809 |
| 17:45 | 72 | 317 | 0 | 389 | 0 | 0 | 0 | 0 | 0 | 223 | 91 | 314 | 46 | 0 | 21 | 67 | 770 |
| Total | 208 | 1157 | 0 | 1365 | 0 | 0 | 0 | 0 | 0 | 956 | 363 | 1319 | 162 | 0 | 93 | 255 | 2939 |
| Grand Total | 311 | 1903 | 0 | 2214 | 0 | 0 | 0 | 0 | 0 | 1737 | 611 | 2348 | 286 | 0 | 170 | 456 | 5018 |
| Apprch % | 14.0 | 86.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 74.0 | 26.0 | | 62.7 | 0.0 | 37.3 | | |
| Total % | 6.2 | 37.9 | 0.0 | 44.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 34.6 | 12.2 | 46.8 | 5.7 | 0.0 | 3.4 | 9.1 | |

| | SAN RAMON RD. Southbound | | | | Westbound | | | | SAN RAMON RD. Northbound | | | | SILVERGATE DR. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| eak Hour From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 17:00 | | | | | | | | | | | | | | | | |
| Volume | 208 | 1157 | 0 | 1365 | 0 | 0 | 0 | 0 | 0 | 956 | 363 | 1319 | 162 | 0 | 93 | 255 | 2939 |
| Percent | 15.2 | 84.8 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 72.5 | 27.5 | | 63.5 | 0.0 | 36.5 | | |
| High Int. | 17:30 | | | | 3:45:00 PM | | | | 17:30 | | | | 17:45 | | | | 17:30 |
| Volume | 72 | 349 | 0 | 395 | 0 | 0 | 0 | 0 | 0 | 257 | 94 | 349 | 46 | 0 | 29 | 67 | 809 |
| Peak Factor | | | | 0.864 | | | | | | | | 0.945 | | | | 0.951 | 0.908 |




Jaimee Hicks

MARKS TRAFFIC DATA SERVICE

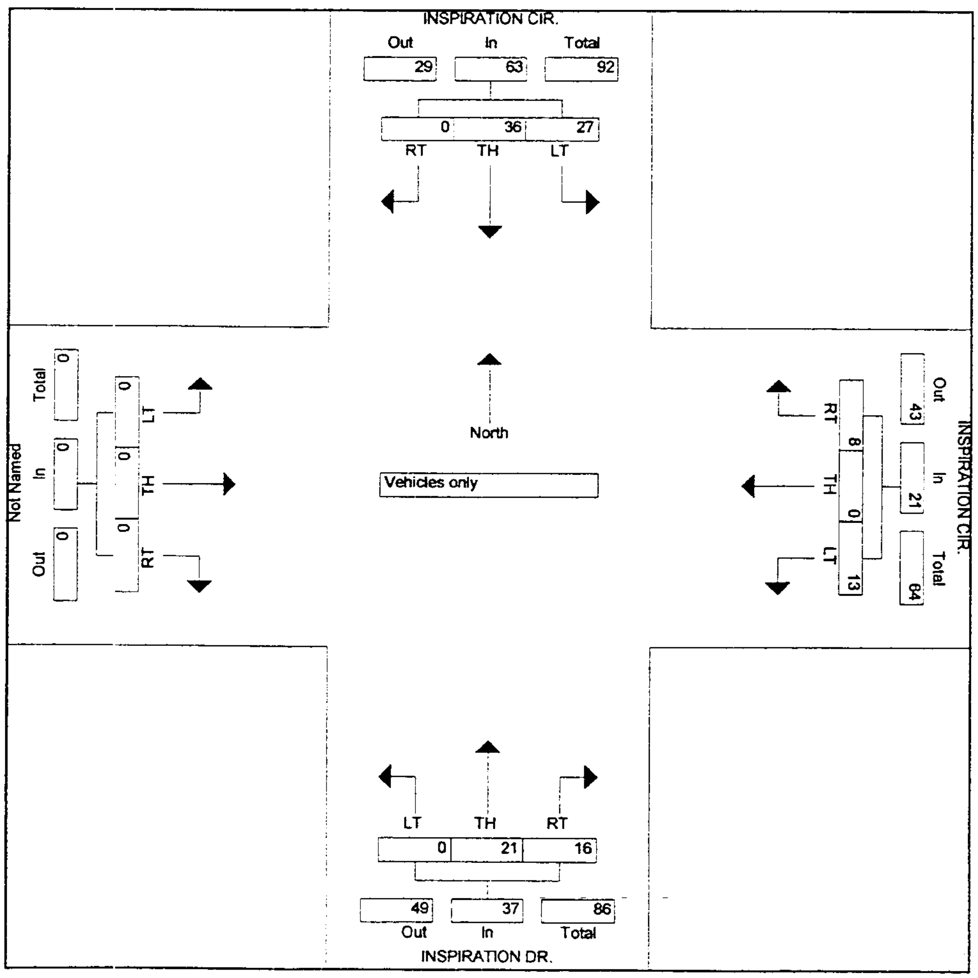
CITY OF DUBLIN

File Name : inspiration_inspiration-a
Site Code : 00000000
Start Date : 01/31/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION CIR. Southbound | | | | INSPIRATION CIR. Westbound | | | | INSPIRATION DR. Northbound | | | | Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:15 | 0 | 3 | 2 | 5 | 0 | 0 | 1 | 1 | 1 | 11 | 0 | 12 | 0 | 0 | 0 | 0 | 18 |
| 07:30 | 0 | 8 | 1 | 9 | 0 | 0 | 2 | 2 | 2 | 6 | 0 | 8 | 0 | 0 | 0 | 0 | 19 |
| 07:45 | 0 | 7 | 6 | 13 | 0 | 0 | 4 | 4 | 3 | 8 | 0 | 11 | 0 | 0 | 0 | 0 | 28 |
| 08:00 | 0 | 5 | 8 | 13 | 1 | 0 | 8 | 9 | 6 | 5 | 0 | 11 | 0 | 0 | 0 | 0 | 33 |
| Total | 0 | 23 | 17 | 40 | 1 | 0 | 15 | 16 | 12 | 30 | 0 | 42 | 0 | 0 | 0 | 0 | 98 |
| | | | | | | | | | | | | | | | | | |
| 08:15 | 0 | 14 | 5 | 19 | 4 | 0 | 1 | 5 | 4 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 30 |
| 08:30 | 0 | 10 | 8 | 18 | 3 | 0 | 0 | 3 | 3 | 6 | 0 | 9 | 0 | 0 | 0 | 0 | 30 |
| 08:45 | 0 | 9 | 1 | 10 | 4 | 0 | 0 | 4 | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 23 |
| 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 33 | 14 | 47 | 11 | 0 | 1 | 12 | 9 | 16 | 0 | 25 | 0 | 0 | 0 | 0 | 84 |
| | | | | | | | | | | | | | | | | | |
| Grand Total | 0 | 56 | 31 | 87 | 12 | 0 | 16 | 28 | 21 | 46 | 0 | 67 | 0 | 0 | 0 | 0 | 182 |
| Apprch % | 0.0 | 64.4 | 35.6 | | 42.9 | 0.0 | 57.1 | | 31.3 | 68.7 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| Total % | 0.0 | 30.8 | 17.0 | 47.8 | 6.6 | 0.0 | 8.8 | 15.4 | 11.5 | 25.3 | 0.0 | 36.8 | 0.0 | 0.0 | 0.0 | 0.0 | |

| | INSPIRATION CIR. Southbound | | | | INSPIRATION CIR. Westbound | | | | INSPIRATION DR. Northbound | | | | Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:15 to 09:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:45 | | | | | | | | | | | | | | | | |
| Volume | 0 | 36 | 27 | 63 | 8 | 0 | 13 | 21 | 16 | 21 | 0 | 37 | 0 | 0 | 0 | 0 | 121 |
| Percent | 0.0 | 57.1 | 42.9 | | 38.1 | 0.0 | 61.9 | | 43.2 | 56.8 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| High Int. | 08:15 | | | | 08:00 | | | | 07:45 | | | | 7:00:00 AM | | | | 08:00 |
| Volume | 0 | 14 | 8 | 19 | 4 | 0 | 8 | 9 | 6 | 8 | 0 | 11 | 0 | 0 | 0 | 0 | 33 |
| Peak Factor | | | | 0.829 | | | | 0.583 | | | | 0.841 | | | | | 0.917 |



TY OF DUBLIN

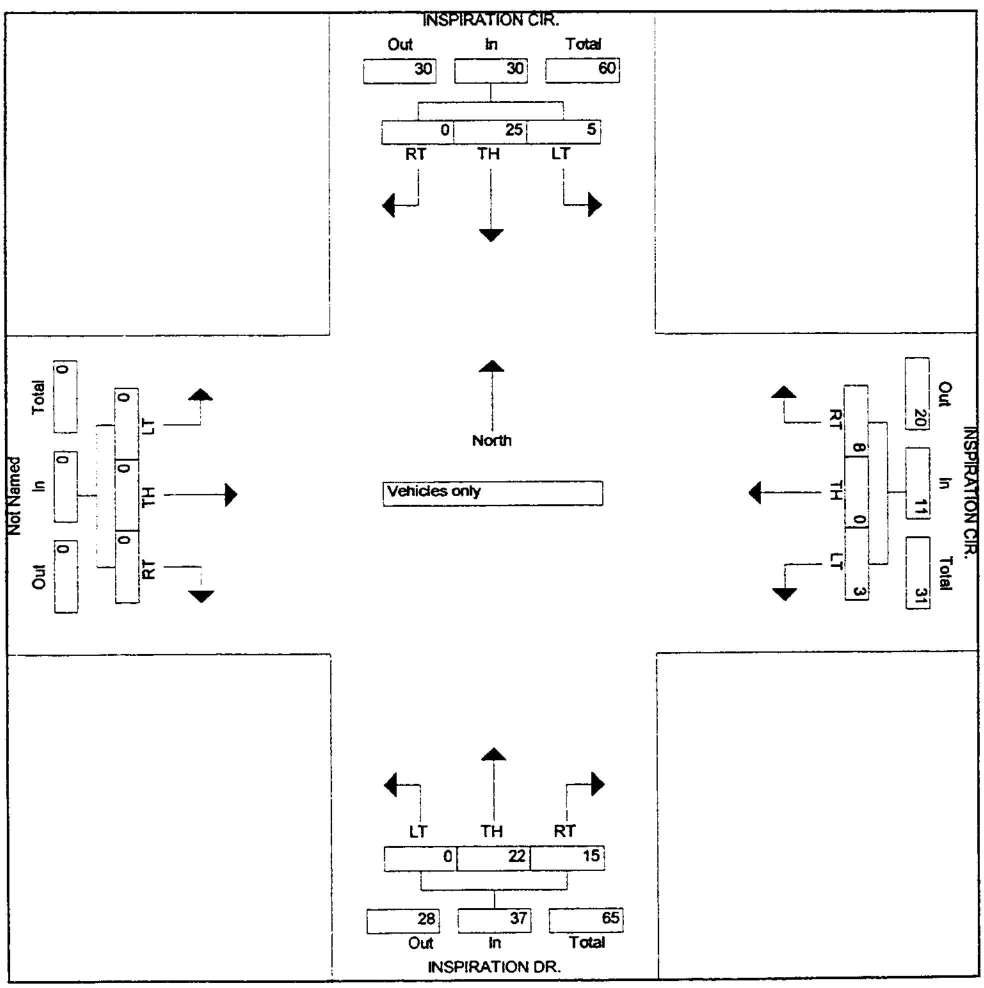
File Name : inspiration_inspiration-p
Site Code : 00000000
Start Date : 02/01/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION CIR. Southbound | | | | INSPIRATION CIR. Westbound | | | | INSPIRATION DR. Northbound | | | | Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 16:15 | 0 | 7 | 1 | 8 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 8 | 0 | 0 | 0 | 0 | 16 |
| 16:30 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 6 | 0 | 0 | 0 | 0 | 15 |
| 16:45 | 0 | 8 | 1 | 9 | 2 | 0 | 1 | 3 | 2 | 6 | 0 | 8 | 0 | 0 | 0 | 0 | 20 |
| 17:00 | 0 | 4 | 3 | 7 | 4 | 0 | 2 | 6 | 6 | 6 | 0 | 12 | 0 | 0 | 0 | 0 | 25 |
| Total | 0 | 27 | 6 | 33 | 6 | 0 | 3 | 9 | 10 | 24 | 0 | 34 | 0 | 0 | 0 | 0 | 76 |
| 17:15 | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 7 | 3 | 0 | 10 | 0 | 0 | 0 | 0 | 14 |
| 17:30 | 0 | 11 | 0 | 11 | 1 | 0 | 0 | 1 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 19 |
| 17:45 | 0 | 4 | 2 | 6 | 4 | 0 | 0 | 4 | 2 | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 16 |
| 18:00 | 0 | 5 | 0 | 5 | 2 | 0 | 1 | 3 | 7 | 7 | 0 | 14 | 0 | 0 | 0 | 0 | 22 |
| Total | 0 | 22 | 3 | 25 | 8 | 0 | 1 | 9 | 16 | 21 | 0 | 37 | 0 | 0 | 0 | 0 | 71 |
| Grand Total | 0 | 49 | 9 | 58 | 14 | 0 | 4 | 18 | 26 | 45 | 0 | 71 | 0 | 0 | 0 | 0 | 147 |
| Apprch % | 0.0 | 84.5 | 15.5 | | 77.8 | 0.0 | 22.2 | | 36.6 | 63.4 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| Total % | 0.0 | 33.3 | 6.1 | 39.5 | 9.5 | 0.0 | 2.7 | 12.2 | 17.7 | 30.6 | 0.0 | 48.3 | 0.0 | 0.0 | 0.0 | 0.0 | |

Peak Hour From 16:15 to 18:00 - Peak 1 of 1

| | INSPIRATION CIR. Southbound | | | | INSPIRATION CIR. Westbound | | | | INSPIRATION DR. Northbound | | | | Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Intersection | 16:45 | | | | | | | | | | | | | | | | |
| Volume | 0 | 25 | 5 | 30 | 8 | 0 | 3 | 11 | 15 | 22 | 0 | 37 | 0 | 0 | 0 | 0 | 78 |
| Percent | 0.0 | 83.3 | 16.7 | | 72.7 | 0.0 | 27.3 | | 40.5 | 59.5 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| High Int. | 17:30 | | | | 17:00 | | | | 17:00 | | | | 4:00:00 PM | | | | 17:00 |
| Volume | 0 | 11 | 3 | 11 | 4 | 0 | 2 | 6 | 7 | 7 | 0 | 12 | 0 | 0 | 0 | 0 | 25 |
| Peak Factor | | | | 0.682 | | | | 0.458 | | | | 0.771 | | | | | 0.780 |



CITY OF DUBLIN

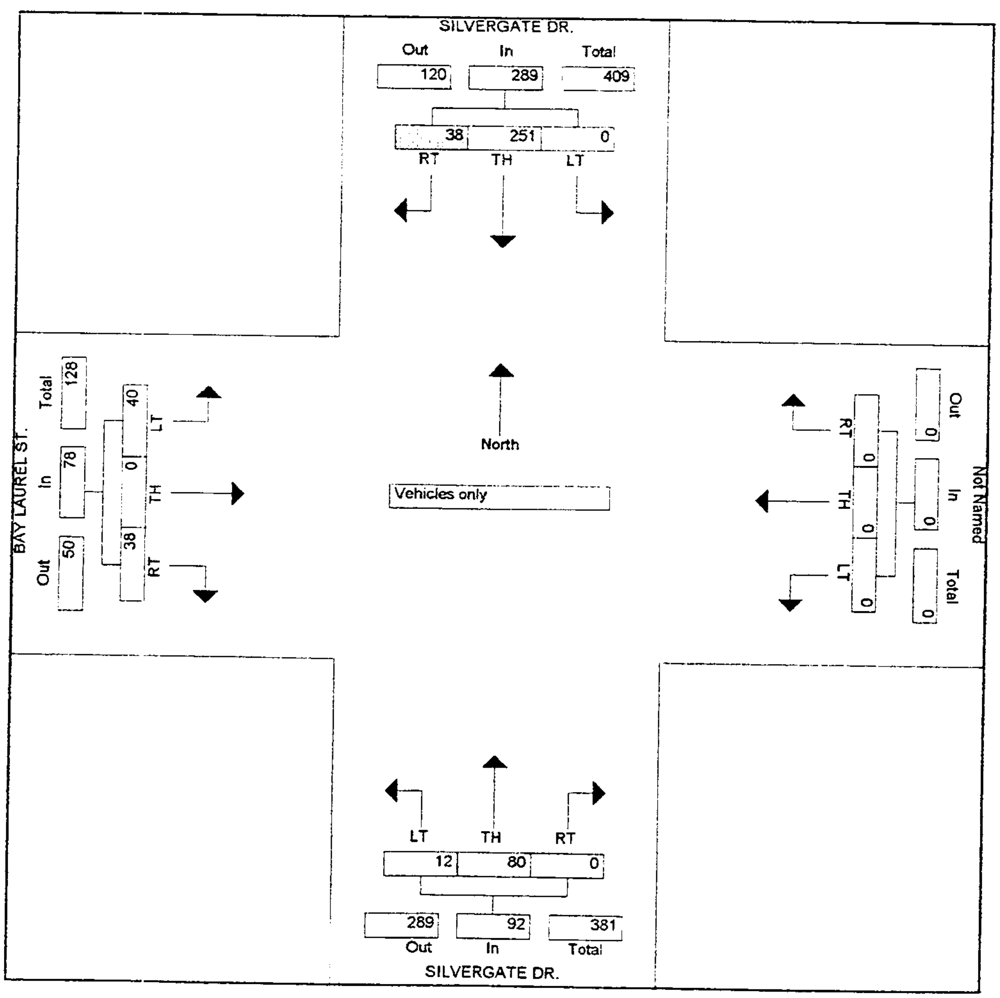
# MARKS TRAFFIC DATA SERVICE

File Name : silvergate_bay-laurel-
Site Code : 00000000
Start Date : 01/31/2001
Page : 1

Groups Printed: Vehicles only

| | SILVERGATE DR. Southbound | | | | Westbound | | | | SILVERGATE DR. Northbound | | | | BAY LAUREL ST. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 1 | 28 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 14 | 2 | 16 | 6 | 0 | 4 | 10 | 55 |
| 07:15 | 1 | 39 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 15 | 2 | 17 | 9 | 0 | 3 | 12 | 69 |
| 07:30 | 17 | 94 | 0 | 111 | 0 | 0 | 0 | 0 | 0 | 23 | 8 | 31 | 14 | 0 | 9 | 23 | 165 |
| 07:45 | 7 | 70 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 21 | 7 | 0 | 11 | 18 | 116 |
| Total | 26 | 231 | 0 | 257 | 0 | 0 | 0 | 0 | 0 | 72 | 13 | 85 | 36 | 0 | 27 | 63 | 405 |
| | | | | | | | | | | | | | | | | | |
| 08:00 | 6 | 51 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 20 | 9 | 0 | 12 | 21 | 98 |
| 08:15 | 8 | 36 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 18 | 2 | 20 | 8 | 0 | 8 | 16 | 80 |
| 08:30 | 3 | 24 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 14 | 2 | 16 | 5 | 0 | 3 | 8 | 51 |
| 08:45 | 1 | 17 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 18 | 2 | 0 | 6 | 8 | 44 |
| Total | 18 | 128 | 0 | 146 | 0 | 0 | 0 | 0 | 0 | 69 | 5 | 74 | 24 | 0 | 29 | 53 | 273 |
| | | | | | | | | | | | | | | | | | |
| Grand Total | 44 | 359 | 0 | 403 | 0 | 0 | 0 | 0 | 0 | 141 | 18 | 159 | 60 | 0 | 56 | 116 | 678 |
| Apprch % | 10.9 | 89.1 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 88.7 | 11.3 | | 51.7 | 0.0 | 48.3 | | |
| Total % | 6.5 | 52.9 | 0.0 | 59.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.8 | 2.7 | 23.5 | 8.8 | 0.0 | 8.3 | 17.1 | |

| | SILVERGATE DR Southbound | | | | Westbound | | | | SILVERGATE DR. Northbound | | | | BAY LAUREL ST. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 38 | 251 | 0 | 289 | 0 | 0 | 0 | 0 | 0 | 80 | 12 | 92 | 38 | 0 | 40 | 78 | 459 |
| Percent | 13.1 | 86.9 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 87.0 | 13.0 | | 48.7 | 0.0 | 51.3 | | |
| High Int. | 07:30 | | | | 6:45:00 AM | | | | 07:30 | | | | 07:30 | | | | 07:30 |
| Volume | 17 | 94 | 0 | 111 | 0 | 0 | 0 | 0 | 0 | 23 | 8 | 31 | 14 | 0 | 12 | 23 | 165 |
| Peak Factor | | | | 0.651 | | | | | | | | 0.742 | | | | 0.848 | 0.695 |



TY OF DUBLIN

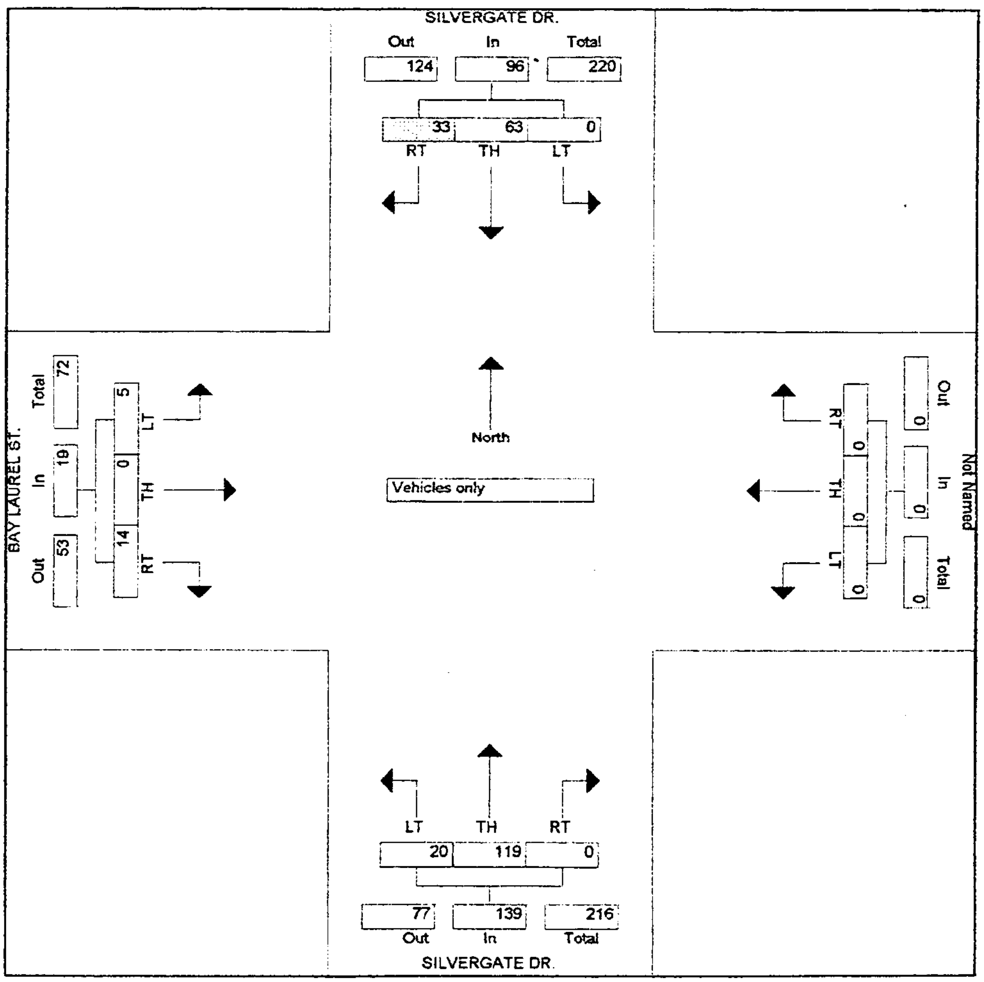
MARKS TRAFFIC DATA SERVICE

File Name : silvergate_bay-laurel-p
Site Code : 00000000
Start Date : 01/31/2001
Page : 1

Groups Printed: Vehicles only

| | SILVERGATE DR. Southbound | | | | Westbound | | | | SILVERGATE DR. Northbound | | | | BAY LAUREL ST. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 16:00 | 5 | 22 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 27 | 1 | 28 | 4 | 0 | 0 | 4 | 59 |
| 16:15 | 3 | 20 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 24 | 5 | 29 | 0 | 0 | 0 | 0 | 52 |
| 16:30 | 4 | 21 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 22 | 4 | 26 | 2 | 0 | 1 | 3 | 54 |
| 16:45 | 4 | 19 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 22 | 0 | 0 | 0 | 0 | 45 |
| Total | 16 | 82 | 0 | 98 | 0 | 0 | 0 | 0 | 0 | 95 | 10 | 105 | 6 | 0 | 1 | 7 | 210 |
| 17:00 | 7 | 14 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 35 | 4 | 39 | 3 | 0 | 4 | 7 | 67 |
| 17:15 | 9 | 16 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 36 | 5 | 41 | 4 | 0 | 0 | 4 | 70 |
| 17:30 | 7 | 13 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 22 | 7 | 29 | 3 | 0 | 0 | 3 | 52 |
| 17:45 | 10 | 20 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 26 | 4 | 30 | 4 | 0 | 1 | 5 | 65 |
| Total | 33 | 63 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 119 | 20 | 139 | 14 | 0 | 5 | 19 | 254 |
| Grand Total | 49 | 145 | 0 | 194 | 0 | 0 | 0 | 0 | 0 | 214 | 30 | 244 | 20 | 0 | 6 | 26 | 464 |
| Apprch % | 25.3 | 74.7 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 87.7 | 12.3 | | 76.9 | 0.0 | 23.1 | | |
| Total % | 10.6 | 31.3 | 0.0 | 41.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 46.1 | 6.5 | 52.6 | 4.3 | 0.0 | 1.3 | 5.6 | |

| | SILVERGATE DR. Southbound | | | | Westbound | | | | SILVERGATE DR. Northbound | | | | BAY LAUREL ST. Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| k Hour From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 17:00 | | | | | | | | | | | | | | | | |
| Volume | 33 | 63 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 119 | 20 | 139 | 14 | 0 | 5 | 19 | 254 |
| Percent | 34.4 | 65.6 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 85.6 | 14.4 | | 73.7 | 0.0 | 26.3 | | |
| High Int. | 17:45 | | | | 3:45:00 PM | | | | 17:15 | | | | 17:00 | | | | 17:15 |
| Volume | 10 | 20 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 36 | 7 | 41 | 4 | 0 | 4 | 7 | 70 |
| Peak Factor | | | | 0.800 | | | | | | | | 0.848 | | | | 0.679 | 0.907 |



MARKS TRAFFIC DATA SERVICE

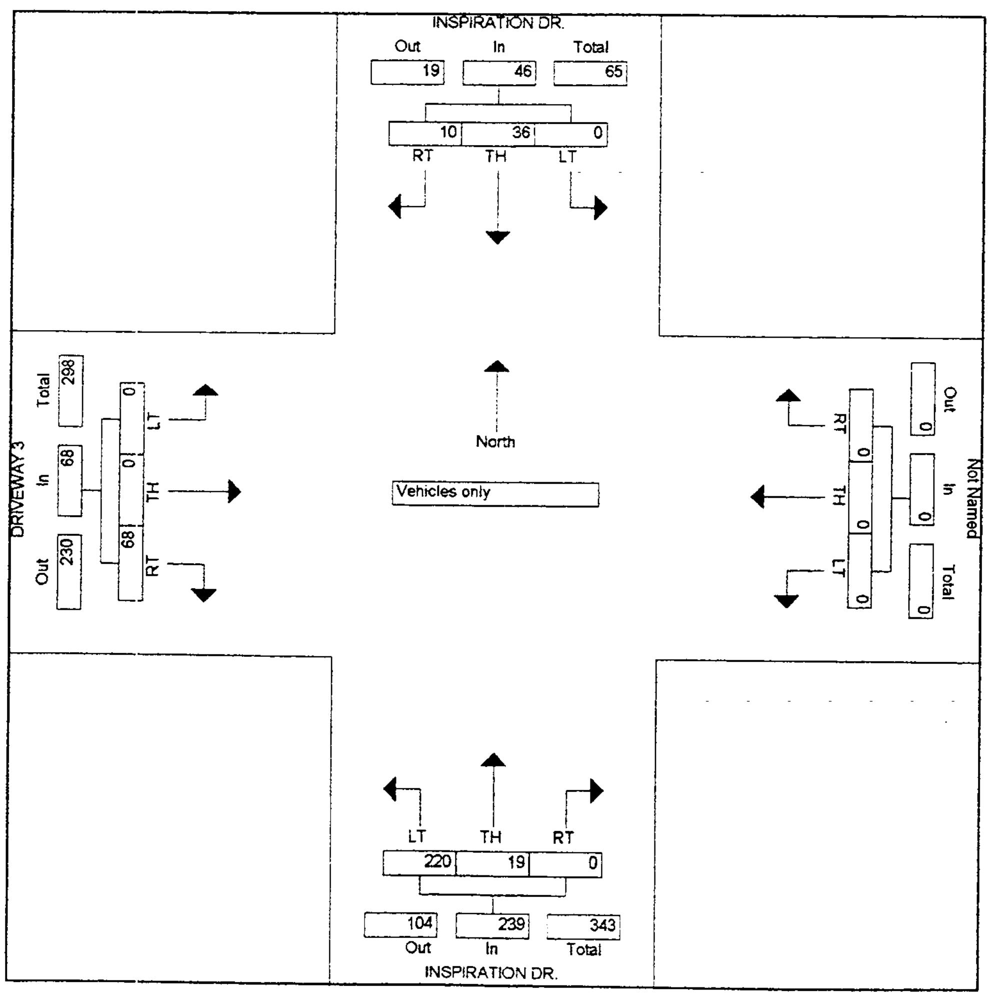
CITY OF DUBLIN

File Name : inspiration_dwy3-
Site Code : 00000000
Start Date : 02/20/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION DR. Southbound | | | | Westbound | | | | INSPIRATION DR. Northbound | | | | DRIVEWAY ~~3~~ 1 Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 12 | 10 | 22 | 4 | 0 | 0 | 4 | 28 |
| 07:15 | 7 | 7 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 16 | 4 | 0 | 0 | 4 | 34 |
| 07:30 | 5 | 11 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 2 | 34 | 36 | 37 | 0 | 0 | 37 | 89 |
| 07:45 | 2 | 5 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 70 | 75 | 16 | 0 | 0 | 16 | 98 |
| Total | 15 | 24 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 22 | 127 | 149 | 61 | 0 | 0 | 61 | 249 |
| | | | | | | | | | | | | | | | | | |
| 08:00 | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 8 | 90 | 98 | 3 | 0 | 0 | 3 | 113 |
| 08:15 | 3 | 8 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 26 | 30 | 12 | 0 | 0 | 12 | 53 |
| 08:30 | 0 | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 10 | 2 | 0 | 0 | 2 | 21 |
| 08:45 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 8 | 5 | 0 | 0 | 5 | 19 |
| Total | 3 | 35 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 27 | 119 | 146 | 22 | 0 | 0 | 22 | 206 |
| | | | | | | | | | | | | | | | | | |
| Grand Total | 18 | 59 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 49 | 246 | 295 | 83 | 0 | 0 | 83 | 455 |
| Apprch % | 23.4 | 76.6 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 16.6 | 83.4 | | 100.0 | 0.0 | 0.0 | | |
| Total % | 4.0 | 13.0 | 0.0 | 16.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 54.1 | 64.8 | 18.2 | 0.0 | 0.0 | 18.2 | |

| | INSPIRATION DR. Southbound | | | | Westbound | | | | INSPIRATION DR. Northbound | | | | DRIVEWAY 3 Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 10 | 36 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 19 | 220 | 239 | 68 | 0 | 0 | 68 | 353 |
| Percent | 21.7 | 78.3 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 7.9 | 92.1 | | 100.0 | 0.0 | 0.0 | | |
| High Int. | 07:30 | | | | 6:45:00 AM | | | | 08:00 | | | | 07:30 | | | | 08:00 |
| Volume | 5 | 12 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 8 | 90 | 98 | 37 | 0 | 0 | 37 | 113 |
| Peak Factor | | | | 0.719 | | | | | | | | 0.610 | | | | 0.459 | 0.781 |



MARKS TRAFFIC DATA SERVICE

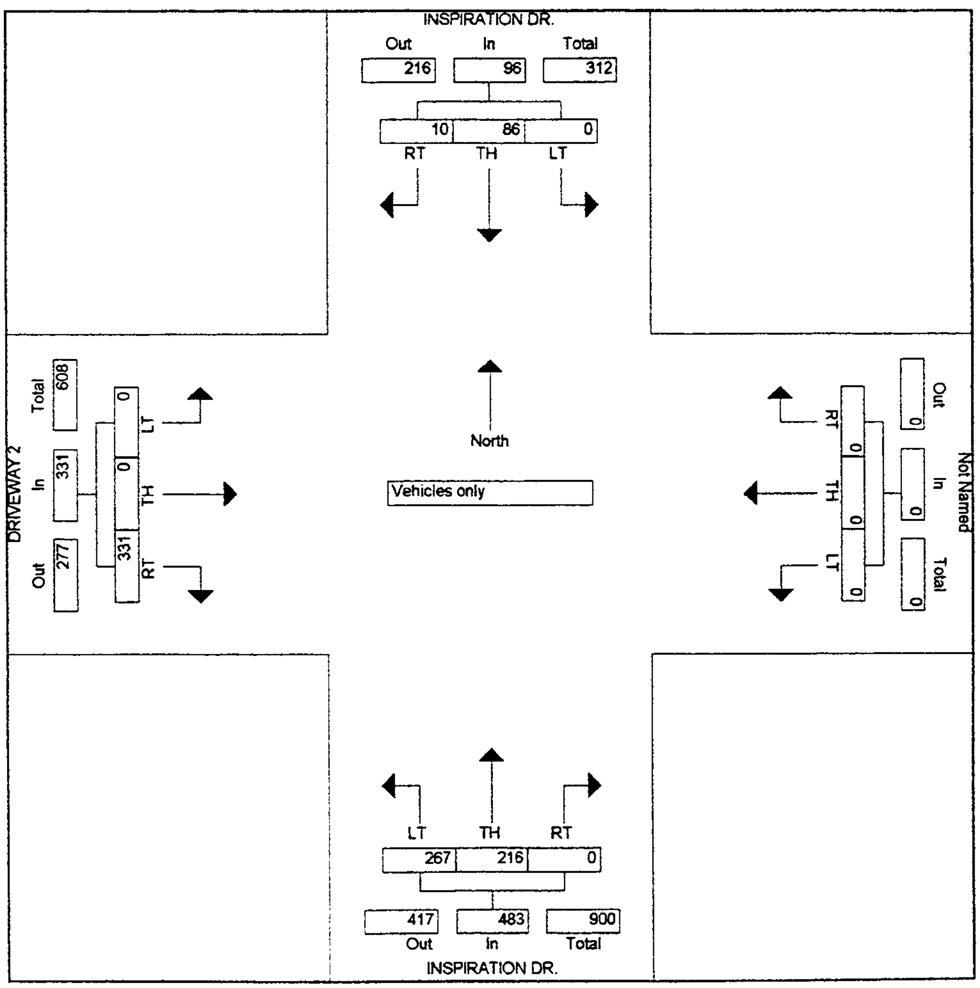
Y OF DUBLIN

File Name : inspiration_dwy2-a
Site Code : 00000000
Start Date : 02/22/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION DR. Southbound | | | | Westbound | | | | INSPIRATION DR. Northbound | | | | DRIVEWAY 2 Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 0 | 14 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 16 | 10 | 26 | 11 | 0 | 0 | 11 | 51 |
| 07:15 | 0 | 16 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 24 | 28 | 52 | 15 | 0 | 0 | 15 | 83 |
| 07:30 | 7 | 15 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 52 | 111 | 163 | 56 | 0 | 0 | 56 | 241 |
| 07:45 | 3 | 37 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 70 | 75 | 145 | 115 | 0 | 0 | 115 | 300 |
| Total | 10 | 82 | 0 | 92 | 0 | 0 | 0 | 0 | 0 | 162 | 224 | 386 | 197 | 0 | 0 | 197 | 675 |
| 08:00 | 0 | 16 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 60 | 73 | 133 | 116 | 0 | 0 | 116 | 265 |
| 08:15 | 0 | 18 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 34 | 8 | 42 | 44 | 0 | 0 | 44 | 104 |
| 08:30 | 0 | 13 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 14 | 8 | 22 | 4 | 0 | 0 | 4 | 39 |
| 08:45 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 12 | 6 | 18 | 3 | 0 | 0 | 3 | 31 |
| Total | 0 | 57 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 120 | 95 | 215 | 167 | 0 | 0 | 167 | 439 |
| Grand Total | 10 | 139 | 0 | 149 | 0 | 0 | 0 | 0 | 0 | 282 | 319 | 601 | 364 | 0 | 0 | 364 | 1114 |
| Apprch % | 6.7 | 93.3 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 46.9 | 53.1 | | 100.0 | 0.0 | 0.0 | | |
| Total % | 0.9 | 12.5 | 0.0 | 13.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.3 | 28.6 | 53.9 | 32.7 | 0.0 | 0.0 | 32.7 | |

| | INSPIRATION DR. Southbound | | | | Westbound | | | | INSPIRATION DR. Northbound | | | | DRIVEWAY 2 Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| k Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:30 | | | | | | | | | | | | | | | | |
| Volume | 10 | 86 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 216 | 267 | 483 | 331 | 0 | 0 | 331 | 910 |
| Percent | 10.4 | 89.6 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 44.7 | 55.3 | | 100.0 | 0.0 | 0.0 | | |
| High Int. | 07:45 | | | | 6:45:00 AM | | | | 07:30 | | | | 08:00 | | | | 07:45 |
| Volume | 7 | 37 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 70 | 111 | 163 | 116 | 0 | 0 | 116 | 300 |
| Peak Factor | | | | 0.600 | | | | | | | | 0.741 | | | | 0.713 | 0.758 |



CITY OF DUBLIN

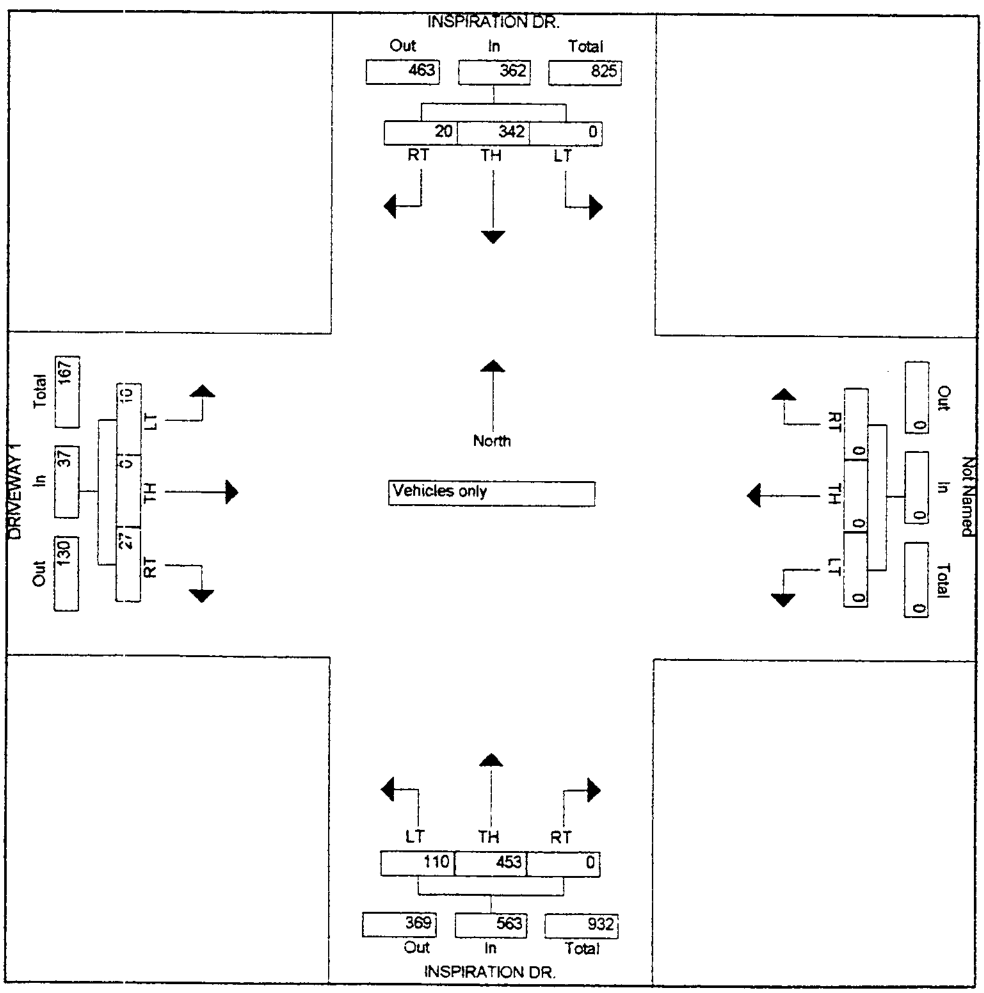
MARKS TRAFFIC DATA SERVICE

File Name : inspiration_dwy1-
Site Code : 00000000
Start Date : 02/21/2001
Page : 1

Groups Printed: Vehicles only

| | INSPIRATION DR. Southbound | | | | Westbound | | | | INSPIRATION DR. Northbound | | | | DRIVEWAY ~~1~~ 3 Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| 07:00 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 16 | 1 | 0 | 0 | 1 | 28 |
| 07:15 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 48 | 10 | 58 | 1 | 0 | 0 | 1 | 84 |
| 07:30 | 8 | 100 | 0 | 108 | 0 | 0 | 0 | 0 | 0 | 181 | 52 | 233 | 5 | 0 | 4 | 9 | 350 |
| 07:45 | 4 | 134 | 0 | 138 | 0 | 0 | 0 | 0 | 0 | 151 | 15 | 166 | 10 | 0 | 2 | 12 | 316 |
| Total | 12 | 270 | 0 | 282 | 0 | 0 | 0 | 0 | 0 | 396 | 77 | 473 | 17 | 0 | 6 | 23 | 778 |
| 08:00 | 8 | 83 | 0 | 91 | 0 | 0 | 0 | 0 | 0 | 73 | 33 | 106 | 11 | 0 | 4 | 15 | 212 |
| 08:15 | 3 | 27 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 26 | 13 | 39 | 12 | 0 | 1 | 13 | 82 |
| 08:30 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 11 | 16 | 5 | 0 | 1 | 6 | 29 |
| 08:45 | 2 | 13 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 16 | 5 | 0 | 0 | 5 | 36 |
| Total | 13 | 130 | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 114 | 63 | 177 | 33 | 0 | 6 | 39 | 359 |
| Grand Total | 25 | 400 | 0 | 425 | 0 | 0 | 0 | 0 | 0 | 510 | 140 | 650 | 50 | 0 | 12 | 62 | 1137 |
| Apprch % | 5.9 | 94.1 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 78.5 | 21.5 | | 80.6 | 0.0 | 19.4 | | |
| Total % | 2.2 | 35.2 | 0.0 | 37.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 44.9 | 12.3 | 57.2 | 4.4 | 0.0 | 1.1 | 5.5 | |

| | INSPIRATION DR. Southbound | | | | Westbound | | | | INSPIRATION DR. Northbound | | | | DRIVEWAY 1 Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | RT | TH | LT | App. Total | Int. Total |
| Peak Hour From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Intersection | 07:15 | | | | | | | | | | | | | | | | |
| Volume | 20 | 342 | 0 | 362 | 0 | 0 | 0 | 0 | 0 | 453 | 110 | 563 | 27 | 0 | 10 | 37 | 962 |
| Percent | 5.5 | 94.5 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 80.5 | 19.5 | | 73.0 | 0.0 | 27.0 | | |
| High Int. | 07:45 | | | | 6:45:00 AM | | | | 07:30 | | | | 08:00 | | | | 07:30 |
| Volume | 8 | 134 | 0 | 138 | 0 | 0 | 0 | 0 | 0 | 181 | 52 | 233 | 11 | 0 | 4 | 15 | 350 |
| Peak Factor | | | | 0.656 | | | | | | | | 0.604 | | | | 0.617 | 0.687 |



# APPENDIX B

## Level of Service Calculation Worksheets

# Existing Conditions

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Existing AM Peak 05/21/01

INTERSECTION 1 VILLAGE PARKWAY/DUBLIN BLVD DUBLIN

Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                        8-PHASE SIGNAL
-----------            122   49  481
                         |    |    |
              ^          |    |    |         ^
              |        <---   v   --->       | Split? N
LEFT   160 ---  2.0    1.0  1.0  2.0   1.0 ---  196  RIGHT
                                                              STREET NAME:
THRU   362 ---> 2.1   (NO. OF LANES)   3.0<---  461  THRU    DUBLIN BLVD

RIGHT   76 ---  1.1    1.0  2.0  1.9   1.0 ---   26  LEFT
              |        <---   ^   --->       |
              v          |    |    |         v
  N                      |    |    |                         SIG WARRANTS:
W + E                   12    8    6                          Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: VILLAGE PARKWAY
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 6 | 6 | 1650 | 0.0036 | |
| THRU (T) | 8 | 8 | 3300 | 0.0024 | 0.0024 |
| LEFT (L) | 12 | 12 | 1650 | 0.0073 | |
| SB RIGHT (R) | 122 | 34 * | 1650 | 0.0206 | |
| THRU (T) | 49 | 49 | 1650 | 0.0297 | |
| LEFT (L) | 481 | 481 | 3000 | 0.1603 | 0.1603 |
| EB RIGHT (R) | 76 | 76 | 1650 | 0.0461 | |
| THRU (T) | 362 | 362 | 3300 | 0.1097 | |
| LEFT (L) | 160 | 160 | 3000 | 0.0533 | |
| T + R | | 438 | 3300 | 0.1327 | 0.1327 |
| WB RIGHT (R) | 196 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 461 | 461 | 4950 | 0.0931 | |
| LEFT (L) | 26 | 26 | 1650 | 0.0158 | 0.0158 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.31

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Existing AM Peak                                  05/21/01
=====================================================================
INTERSECTION     2 AMADOR PLAZA/DUBLIN BLVD         DUBLIN
Count Date                    Time             Peak Hour AM
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                   8-PHASE SIGNAL
-----------             62   42   46
                         |    |    |
             ^           |    |    |          ^
             |        <---    v    --->       |  Split? N
LEFT    36 ---  1.0   1.1  1.1  1.0   1.1 ---  106  RIGHT
                                                    STREET NAME:
THRU   470 ---> 3.1   (NO. OF LANES)  3.1<---  496  THRU  DUBLIN BLVD

RIGHT  136 ---  1.1   1.0  1.1  1.1   1.0 ---   50  LEFT
             |        <---    ^    --->       |
             v           |    |    |          v
  N                      |    |    |                SIG WARRANTS:
W + E                   32   16  216                  Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 216 | 216 | 1650 | 0.1309 | |
| THRU (T) | 16 | 16 | 1650 | 0.0097 | |
| LEFT (L) | 32 | 32 | 1650 | 0.0194 | |
| T + R | | 232 | 1650 | 0.1406 | 0.1406 |
| SB RIGHT (R) | 62 | 62 | 1650 | 0.0376 | |
| THRU (T) | 42 | 42 | 1650 | 0.0255 | |
| LEFT (L) | 46 | 46 | 1650 | 0.0279 | 0.0279 |
| T + R | | 104 | 1650 | 0.0630 | |
| EB RIGHT (R) | 136 | 136 | 1650 | 0.0824 | |
| THRU (T) | 470 | 470 | 4950 | 0.0949 | |
| LEFT (L) | 36 | 36 | 1650 | 0.0218 | |
| T + R | | 606 | 4950 | 0.1224 | 0.1224 |
| WB RIGHT (R) | 106 | 106 | 1650 | 0.0642 | |
| THRU (T) | 496 | 496 | 4950 | 0.1002 | |
| LEFT (L) | 50 | 50 | 1650 | 0.0303 | 0.0303 |
| T + R | | 602 | 4950 | 0.1216 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.32

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Existing AM Peak                                   05/21/01
======================================================================
INTERSECTION    1 VILLAGE PARKWAY/DUBLIN BLVD       DUBLIN
Count Date                    Time                 Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     8-PHASE SIGNAL
-----------            122   49  481
                         |    |   |
             ^           |    |   |          ^
             |        <---    v   --->       | Split? N
LEFT   160 ---  2.0   1.0  1.0  2.0   1.0 ---  196  RIGHT
                                                         STREET NAME:
THRU   362 ---> 2.1  (NO. OF LANES)   3.0<---  461  THRU  DUBLIN BLVD

RIGHT   76 ---  1.1   1.0  2.0  1.9   1.0 ---   26  LEFT
             |        <---    ^   --->       |
             v           |    |   |          v
  N                      |    |   |                   SIG WARRANTS:
W + E                   12    8   6                     Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: VILLAGE PARKWAY
======================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 6 | 6 | 1650 | 0.0036 | |
| THRU (T) | 8 | 8 | 3300 | 0.0024 | 0.0024 |
| LEFT (L) | 12 | 12 | 1650 | 0.0073 | |
| SB RIGHT (R) | 122 | 34 * | 1650 | 0.0206 | |
| THRU (T) | 49 | 49 | 1650 | 0.0297 | |
| LEFT (L) | 481 | 481 | 3000 | 0.1603 | 0.1603 |
| EB RIGHT (R) | 76 | 76 | 1650 | 0.0461 | |
| THRU (T) | 362 | 362 | 3300 | 0.1097 | |
| LEFT (L) | 160 | 160 | 3000 | 0.0533 | |
| T + R | | 438 | 3300 | 0.1327 | 0.1327 |
| WB RIGHT (R) | 196 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 461 | 461 | 4950 | 0.0931 | |
| LEFT (L) | 26 | 26 | 1650 | 0.0158 | 0.0158 |

```
======================================================================
   TOTAL VOLUME-TO-CAPACITY RATIO:                           0.31
   INTERSECTION LEVEL OF SERVICE:                              A
======================================================================
```

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=======================================================================
Condition: Existing AM Peak                                    05/21/01
=======================================================================
INTERSECTION    2 AMADOR PLAZA/DUBLIN BLVD        DUBLIN
Count Date                   Time              Peak Hour AM
-----------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                        8-PHASE SIGNAL
-----------            62   42   46
                        |    |    |
             ^          |    |    |        ^
             |      <---     v    --->     | Split? N
LEFT    36 --- 1.0   1.1  1.1  1.0   1.1 --- 106  RIGHT
                                                      STREET NAME:
THRU   470 ---> 3.1  (NO. OF LANES)  3.1<--- 496  THRU  DUBLIN BLVD

RIGHT  136 --- 1.1   1.0  1.1  1.1   1.0 ---  50  LEFT
             |      <---     ^    --->     |
             v          |    |             v
  N                     |    |                        SIG WARRANTS:
W - E                  32   16  216                     Urb=Y, Rur=Y
  S                 LEFT THRU RIGHT Split? N

              STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 216 | 216 | 1650 | 0.1309 | |
| THRU (T) | 16 | 16 | 1650 | 0.0097 | |
| LEFT (L) | 32 | 32 | 1650 | 0.0194 | |
| T + R | | 232 | 1650 | 0.1406 | 0.1406 |
| SB RIGHT (R) | 62 | 62 | 1650 | 0.0376 | |
| THRU (T) | 42 | 42 | 1650 | 0.0255 | |
| LEFT (L) | 46 | 46 | 1650 | 0.0279 | 0.0279 |
| T + R | | 104 | 1650 | 0.0630 | |
| EB RIGHT (R) | 136 | 136 | 1650 | 0.0824 | |
| THRU (T) | 470 | 470 | 4950 | 0.0949 | |
| LEFT (L) | 36 | 36 | 1650 | 0.0218 | |
| T + R | | 606 | 4950 | 0.1224 | 0.1224 |
| WB RIGHT (R) | 106 | 106 | 1650 | 0.0642 | |
| THRU (T) | 496 | 496 | 4950 | 0.1002 | |
| LEFT (L) | 50 | 50 | 1650 | 0.0303 | 0.0303 |
| T + R | | 602 | 4950 | 0.1216 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.32

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (veh/h) | 13 | 0 | 5 | 14 | 52 | 336 | 9 | 23 | 0 | 0 | 54 | 19 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 14 | 0 | 5 | 15 | 57 | 365 | 10 | 25 | 0 | 0 | 59 | 21 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 14 | 5 | 72 | 365 | 10 | 25 | 79 |
| Volume Left (vph) | 14 | 0 | 15 | 0 | 10 | 0 | 0 |
| Volume Right (vph) | 0 | 5 | 0 | 365 | 0 | 0 | 21 |
| Hadj (s) | 0.2 | -0.6 | 0.1 | -0.6 | 0.2 | 0.0 | -0.1 |
| Departure Headway (s) | 5.5 | 4.7 | 5.8 | 5.1 | 6.0 | 5.8 | 5.5 |
| Degree Utilization, x | 0.02 | 0.01 | 0.11 | 0.52 | 0.02 | 0.04 | 0.12 |
| Capacity (veh/h) | 634 | 733 | 506 | 608 | 565 | 583 | 644 |
| Control Delay (s) | 7.4 | 6.5 | 8.3 | 12.3 | 7.9 | 7.8 | 9.3 |
| Approach Delay (s) | 7.1 | | 11.7 | | 7.8 | | 9.3 |
| Approach LOS | A | | B | | A | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.0 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 39.3% | ICU Level of Service | A |

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Existing AM Peak                                   05/21/01
======================================================================
INTERSECTION    4 SAN RAMON RD/DUBLIN BLVD          DUBLIN
Count Date                  Time               Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    8-PHASE SIGNAL
-----------            251 1414  150
                         |   |   |
             ^           |   |   |        ^
             |        <---   v   --->     | Split? N
LEFT   182 --- 2.0   1.0  3.0  2.0   1.0 ---  33  RIGHT
                                                         STREET NAME:
THRU   159 ---> 2.0  (NO. OF LANES)  1.0<--- 105  THRU  DUBLIN BLVD

RIGHT  542 --- 2.0   2.0  3.0  2.5   3.0 --- 414  LEFT
             |        <---   ^   --->     |
             v           |   |   |        v
 N                       |   |   |                   SIG WARRANTS:
W + E                  451  485  670                   Urb=Y, Rur=Y
 S                    LEFT THRU RIGHT Split? N

              STREET NAME: SAN RAMON RD
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 670 | 381 * | 3000 | 0.1270 | |
| THRU (T) | 485 | 485 | 4950 | 0.0980 | |
| LEFT (L) | 451 | 451 | 3000 | 0.1503 | 0.1503 |
| SB RIGHT (R) | 251 | 151 * | 1650 | 0.0915 | |
| THRU (T) | 1414 | 1414 | 4950 | 0.2857 | 0.2857 |
| LEFT (L) | 150 | 150 | 3000 | 0.0500 | |
| EB RIGHT (R) | 542 | 294 * | 3000 | 0.0980 | 0.0980 |
| THRU (T) | 159 | 159 | 3300 | 0.0482 | |
| LEFT (L) | 182 | 182 | 3000 | 0.0607 | |
| WB RIGHT (R) | 33 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 105 | 105 | 1650 | 0.0636 | |
| LEFT (L) | 414 | 414 | 4304 | 0.0962 | 0.0962 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 47 | 587 | 494 | 19 | 95 | 207 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 51 | 638 | 537 | 21 | 103 | 225 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 51 | 638 | 558 | 103 | 225 |
| Volume Left (vph) | 51 | 0 | 0 | 103 | 0 |
| Volume Right (vph) | 0 | 0 | 21 | 0 | 225 |
| Hadj (s) | 0.2 | 0.0 | 0.0 | 0.2 | -0.6 |
| Departure Headway (s) | 6.6 | 6.4 | 7.0 | 7.7 | 6.9 |
| Degree Utilization, x | 0.09 | 1.14 | 1.08 | 0.22 | 0.43 |
| Capacity (veh/h) | 532 | 567 | 527 | 462 | 518 |
| Control Delay (s) | 9.1 | 103.5 | 88.3 | 11.7 | 13.8 |
| Approach Delay (s) | 96.5 | | 88.3 | 13.1 | |
| Approach LOS | F | | F | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 76.2 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | A |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 4 | 94 | 10 | 711 | 547 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 4 | 102 | 11 | 773 | 595 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 784 | | | | 122 | 11 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 32 | 100 |
| cM capacity (veh/h) | 835 | | | | 869 | 1070 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 4 | 102 | 11 | 773 | 595 |
| Volume Left | 4 | 0 | 0 | 0 | 595 |
| Volume Right | 0 | 0 | 0 | 773 | 0 |
| cSH | 835 | 1700 | 1700 | 1700 | 869 |
| Volume to Capacity | 0.01 | 0.06 | 0.01 | 0.45 | 0.68 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 140 |
| Control Delay (s) | 9.3 | 0.0 | 0.0 | 0.0 | 17.6 |
| Lane LOS | A | | | | C |
| Approach Delay (s) | 0.4 | | 0.0 | | 17.6 |
| Approach LOS | | | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.1 | | |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | A |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Existing AM Peak                                   05/21/01
======================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE           DUBLIN
Count Date                   Time              Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                     4-PHASE SIGNAL
-----------           168 1242    0
                        |   |   |
            ^           |   |   |        ^
            |        <---   v   --->     | Split? N
LEFT   160 --- 1.0   1.0  2.0  0.0   0.0 ---    0  RIGHT
                                                     STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   0.0<---    0  THRU  SILVERGATE

RIGHT  396 --- 1.0   1.0  2.0  0.0   0.0 ---    0  LEFT
            |        <---   ^   --->     |
            v           |   |   |        v
  N                     |   |   |                    SIG WARRANTS:
W + E                 159  485    0                    Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
```

| | | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | THRU (T) | 485 | 485 | 3300 | 0.1470 | |
| | LEFT (L) | 159 | 159 | 1650 | 0.0964 | 0.0964 |
| SB | RIGHT (R) | 168 | 8 * | 1650 | 0.0048 | |
| | THRU (T) | 1242 | 1242 | 3300 | 0.3764 | 0.3764 |
| EB | RIGHT (R) | 396 | 237 * | 1650 | 0.1436 | 0.1436 |
| | LEFT (L) | 160 | 160 | 1650 | 0.0970 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.62

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Existing AM Peak                                   05/21/01
======================================================================
INTERSECTION    8 SAN RAMON/AMADOR VALLEY          DUBLIN
Count Date                   Time               Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                   6-PHASE SIGNAL
-----------             52 1184  318
                         |    |    |
            ^            |    |    |        ^
            |         <---    v   --->      | Split? Y
LEFT    48 ---  1.0   1.0  3.0  2.0   1.9 ---  226  RIGHT
                                                        STREET NAME:
THRU    40 ---> 1.0   (NO. OF LANES)   1.1<---   34  THRU  AMADOR VALLEY

RIGHT   38 ---  1.0   1.0  2.0  1.0   2.1 ---  454  LEFT
            |         <---    ^   --->      |
            v            |    |    |        v
  N                      |    |    |                 SIG WARRANTS:
W + E                   68  376  274                   Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 274 | 24 * | 1650 | 0.0145 | |
| THRU (T) | 376 | 376 | 3300 | 0.1139 | 0.1139 |
| LEFT (L) | 68 | 68 | 1650 | 0.0412 | |
| SB RIGHT (R) | 52 | 4 * | 1650 | 0.0024 | |
| THRU (T) | 1184 | 1184 | 4950 | 0.2392 | 0.2392 |
| LEFT (L) | 318 | 318 | 3000 | 0.1060 | |
| EB RIGHT (R) | 38 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 40 | 40 | 1650 | 0.0242 | |
| LEFT (L) | 48 | 48 | 1650 | 0.0291 | 0.0291 |
| WB RIGHT (R) | 226 | 226 | 1650 | 0.1370 | |
| THRU (T) | 34 | 34 | 1650 | 0.0206 | |
| LEFT (L) | 454 | 454 | 3000 | 0.1513 | |
| T + L | | 488 | 3000 | 0.1627 | 0.1627 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.54

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.AMV,CAP=

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 13 | 8 | 21 | 16 | 27 | 36 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 14 | 9 | 23 | 17 | 29 | 39 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 23 | 40 | 68 |
| Volume Left (vph) | 14 | 0 | 29 |
| Volume Right (vph) | 9 | 17 | 0 |
| Hadj (s) | -0.1 | -0.2 | 0.1 |
| Departure Headway (s) | 4.0 | 3.8 | 4.1 |
| Degree Utilization, x | 0.03 | 0.04 | 0.08 |
| Capacity (veh/h) | 630 | 930 | 872 |
| Control Delay (s) | 7.1 | 6.9 | 7.4 |
| Approach Delay (s) | 7.1 | 6.9 | 7.4 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.2 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 14.0% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 40 | 38 | 12 | 80 | 251 | 38 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 43 | 41 | 13 | 87 | 273 | 41 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 386 | 273 | 314 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 95 | 99 | | | |
| cM capacity (veh/h) | 611 | 766 | 1246 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 43 | 41 | 13 | 87 | 273 | 41 |
| Volume Left | 43 | 0 | 13 | 0 | 0 | 0 |
| Volume Right | 0 | 41 | 0 | 0 | 0 | 41 |
| cSH | 611 | 766 | 1246 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.05 | 0.01 | 0.05 | 0.16 | 0.02 |
| Queue Length (ft) | 6 | 4 | 1 | 0 | 0 | 0 |
| Control Delay (s) | 11.3 | 10.0 | 7.9 | 0.0 | 0.0 | 0.0 |
| Lane LOS | B | A | A | | | |
| Approach Delay (s) | 10.7 | | 1.0 | | 0.0 | |
| Approach LOS | B | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 24.4% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 68 | 220 | 19 | 36 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 74 | 239 | 21 | 39 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 543 | 45 | 50 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 93 | 85 | | | |
| cM capacity (veh/h) | 424 | 1025 | 1557 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 74 | 239 | 21 | 50 |
| Volume Left | 0 | 239 | 0 | 0 |
| Volume Right | 74 | 0 | 0 | 11 |
| cSH | 1025 | 1557 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.15 | 0.01 | 0.03 |
| Queue Length (ft) | 6 | 14 | 0 | 0 |
| Control Delay (s) | 8.8 | 7.7 | 0.0 | 0.0 |
| Lane LOS | A | A | | |
| Approach Delay (s) | 8.8 | 7.1 | | 0.0 |
| Approach LOS | A | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.5 | | |
| Intersection Capacity Utilization | 31.2% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 331 | 267 | 216 | 86 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 360 | 290 | 235 | 93 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 914 | 99 | 104 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 62 | 80 | | | |
| cM capacity (veh/h) | 244 | 957 | 1487 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 0 | 360 | 290 | 235 | 104 |
| Volume Left | 0 | 0 | 290 | 0 | 0 |
| Volume Right | 0 | 360 | 0 | 0 | 11 |
| cSH | 1700 | 957 | 1487 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.38 | 0.20 | 0.14 | 0.06 |
| Queue Length (ft) | 0 | 44 | 18 | 0 | 0 |
| Control Delay (s) | 0.0 | 11.0 | 8.0 | 0.0 | 0.0 |
| Lane LOS | A | B | A | | |
| Approach Delay (s) | 11.0 | | 4.4 | | 0.0 |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.4 | | |
| Intersection Capacity Utilization | 34.5% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 10 | 27 | 110 | 453 | 342 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 11 | 29 | 120 | 492 | 372 | 22 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1114 | 383 | 393 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 96 | 90 | | | |
| cM capacity (veh/h) | 207 | 665 | 1165 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 11 | 29 | 120 | 492 | 393 |
| Volume Left | 11 | 0 | 120 | 0 | 0 |
| Volume Right | 0 | 29 | 0 | 0 | 22 |
| cSH | 207 | 665 | 1165 | 1700 | 1700 |
| Volume to Capacity | 0.05 | 0.04 | 0.10 | 0.29 | 0.23 |
| Queue Length (ft) | 4 | 3 | 9 | 0 | 0 |
| Control Delay (s) | 23.4 | 10.7 | 8.4 | 0.0 | 0.0 |
| Lane LOS | C | B | A | | |
| Approach Delay (s) | 14.1 | | 1.6 | | 0.0 |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 40.8% | ICU Level of Service | A |

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
====================================================================
Condition: Existing PM Peak                                05/21/01
====================================================================
INTERSECTION    1 VILLAGE PARKWAY/DUBLIN BLVD      DUBLIN
Count Date                   Time               Peak Hour
--------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                  8-PHASE SIGNAL
-----------            216   66  447
                        |    |    |
             ^          |    |    |         ^
             |        <---   v   --->       | Split? N
LEFT   245 --- 2.0   1.0  1.0  2.0   1.0 --- 418  RIGHT
                                                      STREET NAME:
THRU   828 ---> 2.1  (NO. OF LANES)   3.0<--- 758  THRU  DUBLIN BLVD

RIGHT  114 --- 1.1   1.0  2.0  1.9   1.0 --- 141  LEFT
             |        <---   ^   --->       |
             v          |    |    |         v
  N                     |    |    |                   SIG WARRANTS:
W + E                  94   80   32                     Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N

            STREET NAME: VILLAGE PARKWAY
====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 32 | 32 | 1650 | 0.0194 | |
| THRU (T) | 80 | 80 | 3300 | 0.0242 | 0.0242 |
| LEFT (L) | 94 | 94 | 1650 | 0.0570 | |
| SB RIGHT (R) | 216 | 81 * | 1650 | 0.0491 | |
| THRU (T) | 66 | 66 | 1650 | 0.0400 | |
| LEFT (L) | 447 | 447 | 3000 | 0.1490 | 0.1490 |
| EB RIGHT (R) | 114 | 114 | 1650 | 0.0691 | |
| THRU (T) | 828 | 828 | 3300 | 0.2509 | |
| LEFT (L) | 245 | 245 | 3000 | 0.0817 | |
| T + R | | 942 | 3300 | 0.2855 | 0.2855 |
| WB RIGHT (R) | 418 | 172 * | 1650 | 0.1042 | |
| THRU (T) | 758 | 758 | 4950 | 0.1531 | |
| LEFT (L) | 141 | 141 | 1650 | 0.0855 | 0.0855 |

```
====================================================================
   TOTAL VOLUME-TO-CAPACITY RATIO:                          0.54
   INTERSECTION LEVEL OF SERVICE:                             A
====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLIN.INT,VCL=...EX.PMV,CAP=
```

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Existing PM Peak 05/21/01

INTERSECTION 2 AMADOR PLAZA/DUBLIN BLVD DUBLIN

Count Date Time Peak Hour

```
CCTA METHOD          RIGHT THRU LEFT                     8-PHASE SIGNAL
-----------           129   56  129
                        |    |    |
             ^          |    |    |        ^
             |       <---    v   --->      | Split? N
LEFT  110 ---  1.0    1.1  1.1  1.0   1.1 --- 158  RIGHT
                                                      STREET NAME:
THRU  896 ---> 3.1   (NO. OF LANES)   3.1<--- 836  THRU  DUBLIN BLVD

RIGHT  99 ---  1.1    1.0  1.1  1.1   1.0 --- 135  LEFT
             |       <---    ^   --->      |
             v          |    |    |        v
  N                     |    |    |                   SIG WARRANTS:
W + E                 147   71  261                    Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N

               STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 261 | 261 | 1650 | 0.1582 | |
| THRU (T) | 71 | 71 | 1650 | 0.0430 | |
| LEFT (L) | 147 | 147 | 1650 | 0.0891 | |
| T + R | | 332 | 1650 | 0.2012 | 0.2012 |
| SB RIGHT (R) | 129 | 129 | 1650 | 0.0782 | |
| THRU (T) | 56 | 56 | 1650 | 0.0339 | |
| LEFT (L) | 129 | 129 | 1650 | 0.0782 | 0.0782 |
| T + R | | 185 | 1650 | 0.1121 | |
| EB RIGHT (R) | 99 | 99 | 1650 | 0.0600 | |
| THRU (T) | 896 | 896 | 4950 | 0.1810 | |
| LEFT (L) | 110 | 110 | 1650 | 0.0667 | |
| T + R | | 995 | 4950 | 0.2010 | 0.2010 |
| WB RIGHT (R) | 158 | 158 | 1650 | 0.0958 | |
| THRU (T) | 836 | 836 | 4950 | 0.1689 | |
| LEFT (L) | 135 | 135 | 1650 | 0.0818 | 0.0818 |
| T + R | | 994 | 4950 | 0.2008 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.56

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.PMV,CAP=

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (veh/h) | 41 | 0 | 6 | 24 | 52 | 311 | 16 | 131 | 0 | 0 | 59 | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 45 | 0 | 7 | 26 | 57 | 338 | 17 | 142 | 0 | 0 | 64 | 40 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 45 | 7 | 83 | 338 | 17 | 142 | 104 |
| Volume Left (vph) | 45 | 0 | 26 | 0 | 17 | 0 | 0 |
| Volume Right (vph) | 0 | 7 | 0 | 338 | 0 | 0 | 40 |
| Hadj (s) | 0.2 | -0.6 | 0.1 | -0.6 | 0.2 | 0.0 | -0.2 |
| Departure Headway (s) | 6.0 | 5.2 | 6.2 | 5.5 | 6.1 | 5.9 | 5.8 |
| Degree Utilization, x | 0.07 | 0.01 | 0.14 | 0.52 | 0.03 | 0.23 | 0.17 |
| Capacity (veh/h) | 561 | 644 | 495 | 573 | 555 | 575 | 605 |
| Control Delay (s) | 8.3 | 7.0 | 9.0 | 13.0 | 8.1 | 9.5 | 9.9 |
| Approach Delay (s) | 8.1 | | 12.2 | | 9.4 | | 9.9 |
| Approach LOS | A | | B | | A | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.0 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 41.8% | ICU Level of Service | A |

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```
=======================================================================
Condition: Existing PM Peak                                    05/21/01
=======================================================================
INTERSECTION     4 SAN RAMON RD/DUBLIN BLVD          DUBLIN
Count Date                    Time                Peak Hour
-----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                       8-PHASE SIGNAL
-----------            90  723  210
                        |    |    |
            ^           |    |    |        ^
            |         <---   v   --->      | Split? N
LEFT   125 ---  2.0   1.0  3.0  2.0   1.0 ---  155  RIGHT
                                                      STREET NAME:
THRU   246 ---> 2.0  (NO. OF LANES)   1.0<---  185  THRU  DUBLIN BLVD

RIGHT  345 ---  2.0   2.0  3.0  2.5   3.0 ---  891  LEFT
            |         <---   ^   --->      |
            v           |    |    |        v
 N                      |    |    |                   SIG WARRANTS:
W + E                 457 1067  852                     Urb=Y, Rur=Y
 S                    LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON RD
```

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 852 | 231 * | 3000 | 0.0770 | |
| | THRU (T) | 1067 | 1067 | 4950 | 0.2156 | |
| | LEFT (L) | 457 | 457 | 3000 | 0.1523 | 0.1523 |
| SB | RIGHT (R) | 90 | 21 * | 1650 | 0.0127 | |
| | THRU (T) | 723 | 723 | 4950 | 0.1461 | 0.1461 |
| | LEFT (L) | 210 | 210 | 3000 | 0.0700 | |
| EB | RIGHT (R) | 345 | 94 * | 3000 | 0.0313 | |
| | THRU (T) | 246 | 246 | 3300 | 0.0745 | 0.0745 |
| | LEFT (L) | 125 | 125 | 3000 | 0.0417 | |
| WB | RIGHT (R) | 155 | 40 * | 1650 | 0.0242 | |
| | THRU (T) | 185 | 185 | 1650 | 0.1121 | |
| | LEFT (L) | 891 | 891 | 4304 | 0.2070 | 0.2070 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.58

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.PMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 17 | 250 | 228 | 84 | 57 | 14 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 18 | 272 | 248 | 91 | 62 | 15 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 18 | 272 | 339 | 62 | 15 |
| Volume Left (vph) | 18 | 0 | 0 | 62 | 0 |
| Volume Right (vph) | 0 | 0 | 91 | 0 | 15 |
| Hadj (s) | 0.2 | 0.0 | -0.1 | 0.2 | -0.6 |
| Departure Headway (s) | 5.2 | 5.0 | 5.1 | 6.2 | 5.4 |
| Degree Utilization, x | 0.03 | 0.38 | 0.48 | 0.11 | 0.02 |
| Capacity (veh/h) | 671 | 697 | 589 | 554 | 630 |
| Control Delay (s) | 7.2 | 9.9 | 12.8 | 8.7 | 7.3 |
| Approach Delay (s) | 9.7 | | 12.8 | 8.5 | |
| Approach LOS | A | | B | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 28.7% | ICU Level of Service | A |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 3 | 39 | 108 | 120 | 142 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 3 | 42 | 117 | 130 | 154 | 2 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 248 | | | | 166 | 117 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 81 | 100 |
| cM capacity (veh/h) | 1318 | | | | 822 | 935 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 3 | 42 | 117 | 130 | 157 |
| Volume Left | 3 | 0 | 0 | 0 | 154 |
| Volume Right | 0 | 0 | 0 | 130 | 2 |
| cSH | 1318 | 1700 | 1700 | 1700 | 824 |
| Volume to Capacity | 0.00 | 0.02 | 0.07 | 0.08 | 0.19 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 17 |
| Control Delay (s) | 7.7 | 0.0 | 0.0 | 0.0 | 10.4 |
| Lane LOS | A | | | | B |
| Approach Delay (s) | 0.6 | | 0.0 | | 10.4 |
| Approach LOS | | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.7 | | |
| Intersection Capacity Utilization | 21.5% | ICU Level of Service | A |

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Condition: Existing PM Peak 05/21/01

INTERSECTION 7 SAN RAMON/SILVERGATE DUBLIN

Count Date Time Peak Hour

```
CCTA METHOD          RIGHT THRU LEFT                     4-PHASE SIGNAL
-----------           208 1157    0
                        |    |    |
            ^           |    |    |       ^
            |         <---   v   --->     | Split? N
LEFT    93 --- 1.0   1.0  2.0  0.0   0.0 ---    0  RIGHT
                                                    STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)  0.0<---    0  THRU  SILVERGATE

RIGHT  162 --- 1.0   1.0  2.0  0.0   0.0 ---    0  LEFT
            |         <---   ^   --->     |
            v           |        |        v
  N                     |        |                  SIG WARRANTS:
W + E                  363  956    0                  Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB THRU (T) | 956 | 956 | 3300 | 0.2897 | |
| LEFT (L) | 363 | 363 | 1650 | 0.2200 | 0.2200 |
| SB RIGHT (R) | 208 | 115 * | 1650 | 0.0697 | |
| THRU (T) | 1157 | 1157 | 3300 | 0.3506 | 0.3506 |
| EB RIGHT (R) | 162 | 0 * | 1650 | 0.0000 | |
| LEFT (L) | 93 | 93 | 1650 | 0.0564 | 0.0564 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=======================================================================
Condition: Existing PM Peak                                    05/21/01
=======================================================================
INTERSECTION     8 SAN RAMON/AMADOR VALLEY          DUBLIN
Count Date                    Time               Peak Hour
-----------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                       6-PHASE SIGNAL
-----------            33  761  446
                        |    |    |
             ^          |    |    |          ^
             |       <---    v    --->       | Split? Y
LEFT    40 ---  1.0   1.0  3.0  2.0   1.9 ---  516  RIGHT
                                                         STREET NAME:
THRU    37 ---> 1.0   (NO. OF LANES)   1.1<---   59  THRU  AMADOR VALLEY

RIGHT   24 ---  1.0   1.0  2.0  1.0   2.1 ---  365  LEFT
             |       <---    ^    --->       |
             v          |    |    |          v
  N                     |    |    |                      SIG WARRANTS:
W + E                 176  822  509                        Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? Y

               STREET NAME: SAN RAMON
```

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 509 | 308 * | 1650 | 0.1867 | |
| | THRU (T) | 822 | 822 | 3300 | 0.2491 | 0.2491 |
| | LEFT (L) | 176 | 176 | 1650 | 0.1067 | |
| SB | RIGHT (R) | 33 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 761 | 761 | 4950 | 0.1537 | 0.1537 |
| | LEFT (L) | 446 | 446 | 3000 | 0.1487 | |
| EB | RIGHT (R) | 24 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 37 | 37 | 1650 | 0.0224 | |
| | LEFT (L) | 40 | 40 | 1650 | 0.0242 | 0.0242 |
| WB | RIGHT (R) | 516 | 516 | 1650 | 0.3127 | |
| | THRU (T) | 59 | 59 | 1650 | 0.0358 | |
| | LEFT (L) | 365 | 365 | 3000 | 0.1217 | |
| | T + L | | 424 | 3000 | 0.1413 | 0.1413 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.57

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLIN.INT,VOL=...EX.PMV,CAP=

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 3 | 8 | 22 | 15 | 5 | 25 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 3 | 9 | 24 | 16 | 5 | 27 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 12 | 40 | 33 |
| Volume Left (vph) | 3 | 0 | 5 |
| Volume Right (vph) | 9 | 16 | 0 |
| Hadj (s) | -0.3 | -0.2 | 0.1 |
| Departure Headway (s) | 3.7 | 3.7 | 4.0 |
| Degree Utilization, x | 0.01 | 0.04 | 0.04 |
| Capacity (veh/h) | 663 | 954 | 888 |
| Control Delay (s) | 6.7 | 6.9 | 7.2 |
| Approach Delay (s) | 6.7 | 6.9 | 7.2 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.0 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 13.3% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 5 | 14 | 20 | 119 | 63 | 33 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 5 | 15 | 22 | 129 | 68 | 36 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 241 | 68 | 104 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 99 | 98 | 99 | | | |
| cM capacity (veh/h) | 736 | 995 | 1487 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 5 | 15 | 22 | 129 | 68 | 36 |
| Volume Left | 5 | 0 | 22 | 0 | 0 | 0 |
| Volume Right | 0 | 15 | 0 | 0 | 0 | 36 |
| cSH | 736 | 995 | 1487 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.01 | 0.02 | 0.01 | 0.08 | 0.04 | 0.02 |
| Queue Length (ft) | 1 | 1 | 1 | 0 | 0 | 0 |
| Control Delay (s) | 9.9 | 8.7 | 7.5 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | A | | | |
| Approach Delay (s) | 9.0 | | 1.1 | | 0.0 | |
| Approach LOS | A | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.3 | | |
| Intersection Capacity Utilization | 16.8% | ICU Level of Service | A |

# Baseline Conditions

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
====================================================================
Condition: Existing Plus Approved Plus Pending AM Peak        05/21/01
====================================================================
INTERSECTION     1 VILLAGE PARKWAY/DUBLIN BLVD       DUBLIN
Count Date                    Time                Peak Hour AM
--------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     8-PHASE SIGNAL
-----------            265   70  596
                         |    |   |
              ^          |    |   |          ^
              |        <---   v   --->       | Split? N
LEFT   189 --- 2.0   1.0  1.0  2.0   1.0 ---  254  RIGHT
                                                      STREET NAME:
THRU   500 ---> 2.0  (NO. OF LANES)   3.0<--- 684  THRU  DUBLIN BLVD

RIGHT  254 --- 1.0   1.0  2.0  1.9   2.0 ---  111  LEFT
              |        <---   ^   --->       |
              v          |    |   |          v
  N                      |    |   |                   SIG WARRANTS:
W + E                   14    9    6                    Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: VILLAGE PARKWAY
====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 6 | 6 | 1650 | 0.0036 | |
| THRU (T) | 9 | 9 | 3300 | 0.0027 | 0.0027 |
| LEFT (L) | 14 | 14 | 1650 | 0.0085 | |
| SB RIGHT (R) | 265 | 161 * | 1650 | 0.0976 | |
| THRU (T) | 70 | 70 | 1650 | 0.0424 | |
| LEFT (L) | 596 | 596 | 3000 | 0.1987 | 0.1987 |
| EB RIGHT (R) | 254 | 240 * | 1650 | 0.1455 | |
| THRU (T) | 500 | 500 | 3300 | 0.1515 | |
| LEFT (L) | 189 | 189 | 3000 | 0.0630 | 0.0630 |
| WB RIGHT (R) | 254 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 684 | 684 | 4950 | 0.1382 | 0.1382 |
| LEFT (L) | 111 | 111 | 3000 | 0.0370 | |

```
====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                       0.40
     INTERSECTION LEVEL OF SERVICE:                          A
====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Existing Plus Approved Plus Pending AM Peak        05/22/01
=====================================================================
INTERSECTION     2 AMADOR PLAZA/DUBLIN BLVD          DUBLIN
Count Date                    Time                 Peak Hour AM
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      8-PHASE SIGNAL
-----------             66   91  116
                         |    |    |
            ^            |    |    |          ^
            |          <---   v   --->        | Split? N
LEFT    61 ---  1.0   1.1  1.1  2.0   1.0 ---  133  RIGHT
                                                          STREET NAME:
THRU   704 ---> 3.1  (NO. OF LANES)   2.0<---  752  THRU  DUBLIN BLVD

RIGHT  268 ---  1.1   1.0  1.1  1.1   2.0 ---  265  LEFT
            |          <---   ^   --->        |
            v            |    |    |          v
  N                      |    |    |                  SIG WARRANTS:
W + E                  123   28  282                    Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: AMADOR PLAZA
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 282 | 282 | 1650 | 0.1709 | |
| THRU (T) | 28 | 28 | 1650 | 0.0170 | |
| LEFT (L) | 123 | 123 | 1650 | 0.0745 | |
| T + R | | 310 | 1650 | 0.1879 | 0.1879 |
| SB RIGHT (R) | 66 | 66 | 1650 | 0.0400 | |
| THRU (T) | 91 | 91 | 1650 | 0.0552 | |
| LEFT (L) | 116 | 116 | 3000 | 0.0387 | 0.0387 |
| T + R | | 157 | 1650 | 0.0952 | |
| EB RIGHT (R) | 268 | 268 | 1650 | 0.1624 | |
| THRU (T) | 704 | 704 | 4950 | 0.1422 | |
| LEFT (L) | 61 | 61 | 1650 | 0.0370 | |
| T + R | | 972 | 4950 | 0.1964 | 0.1964 |
| WB RIGHT (R) | 133 | 69 * | 1650 | 0.0418 | |
| THRU (T) | 752 | 752 | 3300 | 0.2279 | |
| LEFT (L) | 265 | 265 | 3000 | 0.0883 | 0.0883 |

```
=====================================================================
    TOTAL VOLUME-TO-CAPACITY RATIO:                          0.51
    INTERSECTION LEVEL OF SERVICE:                             A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=
```

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Existing Plus Approved Plus Pending AM Peak        05/23/01
=====================================================================
INTERSECTION    3 AMADOR PLAZA/ST PATRICKS/S680     DUBLIN
Count Date                    Time               Peak Hour
---------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                      3-PHASE SIGNAL
-----------             19  129  491
                         |    |    |
             ^           |    |    |          ^
             |        <---    v   --->        | Split? N
LEFT     13 --- 1.0   1.1  1.1  2.1   1.0 ---  176  RIGHT
                                                        STREET NAME:
THRU     16 ---> 1.1  (NO. OF LANES)  1.1<---  300  THRU  ST PATRICKS/S680

RIGHT     5 --- 1.1   1.0  1.1  1.1   1.1 ---   14  LEFT
             |        <---    ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    9   67    0                       Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

               STREET NAME: AMADOR PLAZA
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 0 | 0 | 1720 | 0.0000 | |
| THRU (T) | 67 | 67 | 1720 | 0.0390 | 0.0390 |
| LEFT (L) | 9 | 9 | 1720 | 0.0052 | |
| T + R | | 67 | 1720 | 0.0390 | |
| SB RIGHT (R) | 19 | 19 | 1720 | 0.0110 | |
| THRU (T) | 129 | 129 | 1720 | 0.0750 | |
| LEFT (L) | 491 | 491 | 3127 | 0.1570 | |
| T + R | | 148 | 1720 | 0.0860 | |
| T + L | | 620 | 3127 | 0.1983 | |
| T + R + L | | 639 | 3127 | 0.2043 | 0.2043 |
| EB RIGHT (R) | 5 | 5 | 1720 | 0.0029 | |
| THRU (T) | 16 | 16 | 1720 | 0.0093 | |
| LEFT (L) | 13 | 13 | 1720 | 0.0076 | 0.0076 |
| T + R | | 21 | 1720 | 0.0122 | |
| WB RIGHT (R) | 176 | 0 * | 1720 | 0.0000 | |
| THRU (T) | 300 | 300 | 1720 | 0.1744 | |
| LEFT (L) | 14 | 14 | 1720 | 0.0081 | |
| T + L | | 314 | 1720 | 0.1826 | 0.1826 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.43

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...APPROVED.AMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=================================================================
Condition: Existing Plus Approved Plus Pending AM Peak       05/21/01
=================================================================
INTERSECTION     4 SAN RAMON RD/DUBLIN BLVD          DUBLIN
Count Date                  Time                Peak Hour AM
-----------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                  8-PHASE SIGNAL
-----------             308 1437  173
                          |    |    |
            ^             |    |    |           ^
            |         <---    v    --->         | Split? N
LEFT   211 --- 2.0    1.0  3.0  2.0    1.0 ---   51  RIGHT
                                                      STREET NAME:
THRU   217 ---> 2.0  (NO. OF LANES)    1.0<---  209  THRU  DUBLIN BLVD

RIGHT  792 --- 2.0    2.0  3.0  2.5    3.0 ---  514  LEFT
            |         <---    ^    --->         |
            v             |    |    |           v
  N                       |    |    |                SIG WARRANTS:
W + E                   752  505  778                  Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: SAN RAMON RD
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 778 | 420 * | 3000 | 0.1400 | |
| THRU (T) | 505 | 505 | 4950 | 0.1020 | |
| LEFT (L) | 752 | 752 | 3000 | 0.2507 | 0.2507 |
| SB RIGHT (R) | 308 | 192 * | 1650 | 0.1164 | |
| THRU (T) | 1437 | 1437 | 4950 | 0.2903 | 0.2903 |
| LEFT (L) | 173 | 173 | 3000 | 0.0577 | |
| EB RIGHT (R) | 792 | 378 * | 3000 | 0.1260 | 0.1260 |
| THRU (T) | 217 | 217 | 3300 | 0.0658 | |
| LEFT (L) | 211 | 211 | 3000 | 0.0703 | |
| WB RIGHT (R) | 51 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 209 | 209 | 1650 | 0.1267 | |
| LEFT (L) | 514 | 514 | 4304 | 0.1194 | 0.1194 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.79

INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 47 | 587 | 497 | 395 | 404 | 207 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 51 | 638 | 540 | 429 | 439 | 225 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 51 | 638 | 970 | 439 | 225 |
| Volume Left (vph) | 51 | 0 | 0 | 439 | 0 |
| Volume Right (vph) | 0 | 0 | 429 | 0 | 225 |
| Hadj (s) | 0.2 | 0.0 | -0.2 | 0.2 | -0.6 |
| Departure Headway (s) | 7.7 | 7.5 | 6.7 | 7.7 | 6.9 |
| Degree Utilization, x | 0.11 | 1.32 | 1.81 | 0.94 | 0.43 |
| Capacity (veh/h) | 461 | 491 | 543 | 461 | 517 |
| Control Delay (s) | 10.4 | 180.8 | 388.3 | 54.3 | 13.8 |
| Approach Delay (s) | 168.2 | | 388.3 | 40.6 | |
| Approach LOS | F | | F | E | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 223.6 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | D |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Baseline (W/ Signalization) AM Peak                05/21/01
======================================================================
INTERSECTION     5 Silvergate Drive/Dublin Boulevard Dublin
Count Date                    Time                 Peak Hour
----------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------             207    0  404
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    47 ---  1.0    1.0  0.0  1.0    1.0 ---  395  RIGHT
                                                       STREET NAME:
THRU   587 ---> 1.0   (NO. OF LANES)    1.0<---  497  THRU  Dublin Boulevard

RIGHT    0 ---  0.0    0.0  0.0  0.0    0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                   SIG WARRANTS:
W + E                    0    0    0                     Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: Silvergate Drive
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 207 | 160 * | 1650 | 0.0970 | |
| LEFT (L) | 404 | 404 | 1650 | 0.2448 | 0.2448 |
| EB THRU (T) | 587 | 587 | 1650 | 0.3558 | 0.3558 |
| LEFT (L) | 47 | 47 | 1650 | 0.0285 | |
| WB RIGHT (R) | 395 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 497 | 497 | 1650 | 0.3012 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 4 | 111 | 11 | 803 | 643 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 4 | 121 | 12 | 873 | 699 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 885 | | | | 141 | 12 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 17 | 100 |
| cM capacity (veh/h) | 765 | | | | 847 | 1069 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 4 | 121 | 12 | 873 | 699 |
| Volume Left | 4 | 0 | 0 | 0 | 699 |
| Volume Right | 0 | 0 | 0 | 873 | 0 |
| cSH | 765 | 1700 | 1700 | 1700 | 847 |
| Volume to Capacity | 0.01 | 0.07 | 0.01 | 0.51 | 0.83 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 235 |
| Control Delay (s) | 9.7 | 0.0 | 0.0 | 0.0 | 25.9 |
| Lane LOS | A | | | | D |
| Approach Delay (s) | 0.3 | | 0.0 | | 25.9 |
| Approach LOS | | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.6 | | |
| Intersection Capacity Utilization | 64.0% | ICU Level of Service | B |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

======================================================================

Condition: Baseline (W/ Signalization) AM Peak 05/21/01

======================================================================

INTERSECTION 6 Inspiration Dr./Dublin Boulevard Dublin

Count Date Time Peak Hour

```
-----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                  4-PHASE SIGNAL
-----------            0    0  643
                       |    |   |
          ^            |    |   |           ^
          |        <---     v    --->       | Split? N
LEFT    4 --- 1.0   1.1  0.0  1.1   1.0 --- 803  RIGHT
                                                      STREET NAME:
THRU  111 ---> 1.0  (NO. OF LANES)  1.0<---   11  THRU  Dublin Boulevard

RIGHT   0 --- 0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
          |        <---     ^    --->       |
          v            |    |   |           v
 N                     |    |   |                     SIG WARRANTS:
W + E                  0    0   0                       Urb=Y, Rur=Y
 S                   LEFT THRU RIGHT Split? N

               STREET NAME: Inspiration Dr.
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 0 | 0 | 1650 | 0.0000 | |
| LEFT (L) | 643 | 643 | 1650 | 0.3897 | 0.3897 |
| T + R + L | | 643 | 1650 | 0.3897 | |
| EB THRU (T) | 111 | 111 | 1650 | 0.0673 | |
| LEFT (L) | 4 | 4 | 1650 | 0.0024 | 0.0024 |
| WB RIGHT (R) | 803 | 160 * | 1650 | 0.0970 | 0.0970 |
| THRU (T) | 11 | 11 | 1650 | 0.0067 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.49

INTERSECTION LEVEL OF SERVICE: A

======================================================================

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Existing Plus Approved Plus Pending AM Peak          05/21/01
======================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE              DUBLIN
Count Date                     Time              Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------             168 1396    0
                          |    |    |
               ^          |    |    |         ^
               |        <---   v   --->       | Split? N
LEFT   160 --- 1.0    1.0  2.0  0.0    0.0 ---    0  RIGHT
                                                           STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    0.0<---    0  THRU  SILVERGATE

RIGHT  396 --- 1.0    1.0  2.0  0.0    0.0 ---    0  LEFT
               |        <---   ^   --->       |
               v          |    |    |         v
  N                       |    |    |                  SIG WARRANTS:
W + E                   159  587    0                    Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB THRU (T) | 587 | 587 | 3300 | 0.1779 | |
| LEFT (L) | 159 | 159 | 1650 | 0.0964 | 0.0964 |
| SB RIGHT (R) | 168 | 8 * | 1650 | 0.0048 | |
| THRU (T) | 1396 | 1396 | 3300 | 0.4230 | 0.4230 |
| EB RIGHT (R) | 396 | 237 * | 1650 | 0.1436 | 0.1436 |
| LEFT (L) | 160 | 160 | 1650 | 0.0970 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.66

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Existing Plus Approved Plus Pending AM Peak        05/21/01
=====================================================================
INTERSECTION     8 SAN RAMON/AMADOR VALLEY          DUBLIN
Count Date                    Time               Peak Hour AM
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     6-PHASE SIGNAL
-----------            76 1264  369
                        |    |    |
            ^           |    |    |           ^
            |        <---    v    --->        | Split? Y
LEFT    63 ---  1.0   1.0  3.0  2.0   1.9 ---  251  RIGHT
                                                         STREET NAME:
THRU    52 ---> 1.0   (NO. OF LANES)   1.1<---   52  THRU  AMADOR VALLEY

RIGHT   59 ---  1.0   1.0  2.0  1.0   2.1 ---  469  LEFT
            |        <---    ^    --->        |
            v           |    |    |           v
  N                     |    |    |                      SIG WARRANTS:
W + E                  84  434  281                        Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? Y

              STREET NAME: SAN RAMON
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 281 | 23 * | 1650 | 0.0139 | |
| THRU (T) | 434 | 434 | 3300 | 0.1315 | 0.1315 |
| LEFT (L) | 84 | 84 | 1650 | 0.0509 | |
| SB RIGHT (R) | 76 | 13 * | 1650 | 0.0079 | |
| THRU (T) | 1264 | 1264 | 4950 | 0.2554 | 0.2554 |
| LEFT (L) | 369 | 369 | 3000 | 0.1230 | |
| EB RIGHT (R) | 59 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 52 | 52 | 1650 | 0.0315 | |
| LEFT (L) | 63 | 63 | 1650 | 0.0382 | 0.0382 |
| WB RIGHT (R) | 251 | 251 | 1650 | 0.1521 | |
| THRU (T) | 52 | 52 | 1650 | 0.0315 | |
| LEFT (L) | 469 | 469 | 3000 | 0.1563 | |
| T + L | | 521 | 3000 | 0.1737 | 0.1737 |

```
=====================================================================
    TOTAL VOLUME-TO-CAPACITY RATIO:                           0.60
    INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV,CAP=
```

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 38 | 8 | 73 | 56 | 27 | 107 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 41 | 9 | 79 | 61 | 29 | 116 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 50 | 140 | 146 |
| Volume Left (vph) | 41 | 0 | 29 |
| Volume Right (vph) | 9 | 61 | 0 |
| Hadj (s) | 0.1 | -0.2 | 0.1 |
| Departure Headway (s) | 4.4 | 3.9 | 4.2 |
| Degree Utilization, x | 0.06 | 0.15 | 0.17 |
| Capacity (veh/h) | 599 | 893 | 847 |
| Control Delay (s) | 7.7 | 7.6 | 8.1 |
| Approach Delay (s) | 7.7 | 7.6 | 8.1 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.8 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 22.0% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 40 | 84 | 50 | 419 | 511 | 38 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 43 | 91 | 54 | 455 | 555 | 41 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1120 | 555 | 597 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 80 | 83 | 94 | | | |
| cM capacity (veh/h) | 216 | 531 | 980 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 43 | 91 | 54 | 455 | 555 | 41 |
| Volume Left | 43 | 0 | 54 | 0 | 0 | 0 |
| Volume Right | 0 | 91 | 0 | 0 | 0 | 41 |
| cSH | 216 | 531 | 980 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.20 | 0.17 | 0.06 | 0.27 | 0.33 | 0.02 |
| Queue Length (ft) | 18 | 15 | 4 | 0 | 0 | 0 |
| Control Delay (s) | 25.8 | 13.2 | 8.9 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | B | A | | | |
| Approach Delay (s) | 17.3 | | 0.9 | | 0.0 | |
| Approach LOS | C | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 41.6% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 68 | 220 | 111 | 132 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 74 | 239 | 121 | 143 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 748 | 149 | 154 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 92 | 83 | | | |
| cM capacity (veh/h) | 316 | 898 | 1426 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 74 | 239 | 121 | 154 |
| Volume Left | 0 | 239 | 0 | 0 |
| Volume Right | 74 | 0 | 0 | 11 |
| cSH | 898 | 1426 | 1700 | 1700 |
| Volume to Capacity | 0.08 | 0.17 | 0.07 | 0.09 |
| Queue Length (ft) | 7 | 15 | 0 | 0 |
| Control Delay (s) | 9.4 | 8.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | |
| Approach Delay (s) | 9.4 | 5.3 | | 0.0 |
| Approach LOS | A | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.4 | | |
| Intersection Capacity Utilization | 36.0% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 331 | 267 | 308 | 182 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 360 | 290 | 335 | 198 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1118 | 203 | 209 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 57 | 79 | | | |
| cM capacity (veh/h) | 180 | 837 | 1362 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 0 | 360 | 290 | 335 | 209 |
| Volume Left | 0 | 0 | 290 | 0 | 0 |
| Volume Right | 0 | 360 | 0 | 0 | 11 |
| cSH | 1700 | 837 | 1362 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.43 | 0.21 | 0.20 | 0.12 |
| Queue Length (ft) | 0 | 55 | 20 | 0 | 0 |
| Control Delay (s) | 0.0 | 12.5 | 8.4 | 0.0 | 0.0 |
| Lane LOS | A | B | A | | |
| Approach Delay (s) | 12.5 | | 3.9 | | 0.0 |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.8 | | |
| Intersection Capacity Utilization | 40.0% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 10 | 27 | 110 | 545 | 438 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 11 | 29 | 120 | 592 | 476 | 22 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1318 | 487 | 498 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 95 | 89 | | | |
| cM capacity (veh/h) | 154 | 581 | 1066 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 11 | 29 | 120 | 592 | 498 |
| Volume Left | 11 | 0 | 120 | 0 | 0 |
| Volume Right | 0 | 29 | 0 | 0 | 22 |
| cSH | 154 | 581 | 1066 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.05 | 0.11 | 0.35 | 0.29 |
| Queue Length (ft) | 6 | 4 | 9 | 0 | 0 |
| Control Delay (s) | 30.2 | 11.5 | 8.8 | 0.0 | 0.0 |
| Lane LOS | D | B | A | | |
| Approach Delay (s) | 16.6 | | 1.5 | | 0.0 |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 46.3% | ICU Level of Service | A |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Existing Plus Approved Plus Pending PM Peak 05/21/01

```
INTERSECTION     1 VILLAGE PARKWAY/DUBLIN BLVD       DUBLIN
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    8-PHASE SIGNAL
-----------           409  121  492
                        |    |    |
            ^           |    |    |          ^
            |         <---   v   --->        | Split? N
LEFT   245 ---  2.0   1.0  1.0  2.0   1.0 ---  380  RIGHT
                                                    STREET NAME:
THRU  1164 ---> 2.0  (NO. OF LANES)   3.0<--- 1065  THRU  DUBLIN BLVD

RIGHT  482 ---  1.0   1.0  2.0  1.9   2.0 ---  261  LEFT
            |         <---   ^   --->        |
            v           |    |    |          v
  N                     |    |    |                 SIG WARRANTS:
W + E                  99   83   32                   Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

            STREET NAME: VILLAGE PARKWAY
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 32 | 32 | 1650 | 0.0194 | |
| THRU (T) | 83 | 83 | 3300 | 0.0252 | |
| LEFT (L) | 99 | 99 | 1650 | 0.0600 | 0.0600 |
| SB RIGHT (R) | 409 | 274 * | 1650 | 0.1661 | 0.1661 |
| THRU (T) | 121 | 121 | 1650 | 0.0733 | |
| LEFT (L) | 492 | 492 | 3000 | 0.1640 | |
| EB RIGHT (R) | 482 | 383 * | 1650 | 0.2321 | |
| THRU (T) | 1164 | 1164 | 3300 | 0.3527 | 0.3527 |
| LEFT (L) | 245 | 245 | 3000 | 0.0817 | |
| WB RIGHT (R) | 380 | 109 * | 1650 | 0.0661 | |
| THRU (T) | 1065 | 1065 | 4950 | 0.2152 | |
| LEFT (L) | 261 | 261 | 3000 | 0.0870 | 0.0870 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Existing Plus Approved Plus Pending PM Peak        05/22/01
=====================================================================
INTERSECTION     2 AMADOR PLAZA/DUBLIN BLVD         DUBLIN
Count Date                  Time               Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     8-PHASE SIGNAL
-----------            141   71  206
                         |    |    |
              ^          |    |    |          ^
              |       <---    v    --->       | Split? N
LEFT   192 ---  1.0    1.1  1.1  2.0   1.0 ---  206  RIGHT
                                                          STREET NAME:
THRU  1383 ---> 3.1   (NO. OF LANES)   2.0<---  875  THRU  DUBLIN BLVD

RIGHT  182 ---  1.1    1.0  1.1  1.1   2.0 ---  579  LEFT
              |       <---    ^    --->       |
              v          |    |    |          v
  N                      |    |    |                  SIG WARRANTS:
W + E                 221   89  381                     Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

               STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 381 | 381 | 1650 | 0.2309 | |
| THRU (T) | 89 | 89 | 1650 | 0.0539 | |
| LEFT (L) | 221 | 221 | 1650 | 0.1339 | |
| T + R | | 470 | 1650 | 0.2848 | 0.2848 |
| SB RIGHT (R) | 141 | 141 | 1650 | 0.0855 | |
| THRU (T) | 71 | 71 | 1650 | 0.0430 | |
| LEFT (L) | 206 | 206 | 3000 | 0.0687 | 0.0687 |
| T + R | | 212 | 1650 | 0.1285 | |
| EB RIGHT (R) | 182 | 182 | 1650 | 0.1103 | |
| THRU (T) | 1383 | 1383 | 4950 | 0.2794 | |
| LEFT (L) | 192 | 192 | 1650 | 0.1164 | |
| T + R | | 1565 | 4950 | 0.3162 | 0.3162 |
| WB RIGHT (R) | 206 | 93 * | 1650 | 0.0564 | |
| THRU (T) | 875 | 875 | 3300 | 0.2652 | |
| LEFT (L) | 579 | 579 | 3000 | 0.1930 | 0.1930 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.86

INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Existing Plus Approved Plus Pending PM Peak         05/23/01
======================================================================
INTERSECTION     3 AMADOR PLAZA/ST PATRICKS/S680     DUBLIN
Count Date                  Time                Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------             37  272  544
                         |        |
             ^           |        |          ^
             |        <---   v   --->        | Split? N
LEFT    41 ---  1.0   1.1  1.1  2.1   1.0 ---  213  RIGHT
                                                         STREET NAME:
THRU   140 ---> 1.1  (NO. OF LANES)   1.1<---  131  THRU  ST PATRICKS/S680

RIGHT    6 ---  1.1   1.0  1.1  1.1   1.1 ---   24  LEFT
             |        <---   ^   --->        |
             v           |        |          v
  N                      |        |                      SIG WARRANTS:
W + E                   16  288    0                       Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

               STREET NAME: AMADOR PLAZA
======================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 0 | 0 | 1720 | 0.0000 | |
| THRU (T) | 288 | 288 | 1720 | 0.1674 | 0.1674 |
| LEFT (L) | 16 | 16 | 1720 | 0.0093 | |
| T + R | | 288 | 1720 | 0.1674 | |
| SB RIGHT (R) | 37 | 37 | 1720 | 0.0215 | |
| THRU (T) | 272 | 272 | 1720 | 0.1581 | |
| LEFT (L) | 544 | 544 | 3127 | 0.1740 | |
| T + R | | 309 | 1720 | 0.1797 | |
| T + L | | 816 | 3127 | 0.2610 | |
| T + R + L | | 853 | 3127 | 0.2728 | 0.2728 |
| EB RIGHT (R) | 6 | 6 | 1720 | 0.0035 | |
| THRU (T) | 140 | 140 | 1720 | 0.0814 | |
| LEFT (L) | 41 | 41 | 1720 | 0.0238 | 0.0238 |
| T + R | | 146 | 1720 | 0.0849 | |
| WB RIGHT (R) | 213 | 0 * | 1720 | 0.0000 | |
| THRU (T) | 131 | 131 | 1720 | 0.0762 | |
| LEFT (L) | 24 | 24 | 1720 | 0.0140 | |
| T + L | | 155 | 1720 | 0.0901 | 0.0901 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.55

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...APPROVED.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Existing Plus Approved Plus Pending PM Peak        05/21/01
=====================================================================
INTERSECTION    4 SAN RAMON RD/DUBLIN BLVD          DUBLIN
Count Date                  Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      8-PHASE SIGNAL
-----------            104  761  236
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   156 ---  2.0    1.0  3.0  2.0    1.0 ---  200  RIGHT
                                                      STREET NAME:
THRU   367 ---> 2.0   (NO. OF LANES)    1.0<---  259  THRU  DUBLIN BLVD

RIGHT  572 ---  2.0    2.0  3.0  2.5    3.0 --- 1090  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                  SIG WARRANTS:
W + E                  660 1105 1068                    Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON RD
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 1068 | 308 * | 3000 | 0.1027 | |
| THRU (T) | 1105 | 1105 | 4950 | 0.2232 | |
| LEFT (L) | 660 | 660 | 3000 | 0.2200 | 0.2200 |
| SB RIGHT (R) | 104 | 18 * | 1650 | 0.0109 | |
| THRU (T) | 761 | 761 | 4950 | 0.1537 | 0.1537 |
| LEFT (L) | 236 | 236 | 3000 | 0.0787 | |
| EB RIGHT (R) | 572 | 209 * | 3000 | 0.0697 | |
| THRU (T) | 367 | 367 | 3300 | 0.1112 | 0.1112 |
| LEFT (L) | 156 | 156 | 3000 | 0.0520 | |
| WB RIGHT (R) | 200 | 70 * | 1650 | 0.0424 | |
| THRU (T) | 259 | 259 | 1650 | 0.1570 | |
| LEFT (L) | 1090 | 1090 | 4304 | 0.2533 | 0.2533 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.74

INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 17 | 250 | 228 | 342 | 341 | 14 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 18 | 272 | 248 | 372 | 371 | 15 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 18 | 272 | 620 | 371 | 15 |
| Volume Left (vph) | 18 | 0 | 0 | 371 | 0 |
| Volume Right (vph) | 0 | 0 | 372 | 0 | 15 |
| Hadj (s) | 0.2 | 0.0 | -0.3 | 0.2 | -0.6 |
| Departure Headway (s) | 7.0 | 6.8 | 6.1 | 7.2 | 6.4 |
| Degree Utilization, x | 0.04 | 0.52 | 1.05 | 0.74 | 0.03 |
| Capacity (veh/h) | 492 | 514 | 595 | 492 | 552 |
| Control Delay (s) | 9.1 | 15.7 | 75.4 | 26.4 | 8.3 |
| Approach Delay (s) | 15.3 | | 75.4 | 25.7 | |
| Approach LOS | C | | F | D | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 47.1 | | |
| HCM Level of Service | E | | |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B |

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Baseline (W/ Signalization) PM Peak                05/21/01
=====================================================================
INTERSECTION     5 Silvergate Drive/Dublin Boulevard Dublin
Count Date                  Time                 Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------             14    0  341
                         |    |    |
             ^           |    |    |         ^
             |         <---   v   --->       | Split? N
LEFT    17 ---  1.0    1.0  0.0  1.0   1.0 ---  342  RIGHT
                                                      STREET NAME:
THRU   250 ---> 1.0   (NO. OF LANES)   1.0<---  228  THRU  Dublin Boulevard

RIGHT    0 ---  0.0    0.0  0.0  0.0   0.0 ---    0  LEFT
             |         <---   ^   --->       |
             v           |    |    |         v
  N                      |    |    |                  SIG WARRANTS:
W + E                    0    0    0                    Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: Silvergate Drive
=====================================================================
               ORIGINAL   ADJUSTED                  V/C      CRITICAL
   MOVEMENT     VOLUME     VOLUME*   CAPACITY      RATIO       V/C
---------------------------------------------------------------------
SB  RIGHT (R)     14          0 *      1650       0.0000
    LEFT (L)     341        341        1650       0.2067      0.2067
---------------------------------------------------------------------
EB  THRU (T)     250        250        1650       0.1515      0.1515
    LEFT (L)      17         17        1650       0.0103
---------------------------------------------------------------------
WB  RIGHT (R)    342          1 *      1650       0.0006
    THRU (T)     228        228        1650       0.1382
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                           0.36
     INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=
```

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 3 | 59 | 162 | 179 | 213 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 3 | 64 | 176 | 195 | 232 | 2 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 371 | | | | 247 | 176 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 69 | 100 |
| cM capacity (veh/h) | 1188 | | | | 740 | 867 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 3 | 64 | 176 | 195 | 234 |
| Volume Left | 3 | 0 | 0 | 0 | 232 |
| Volume Right | 0 | 0 | 0 | 195 | 2 |
| cSH | 1188 | 1700 | 1700 | 1700 | 741 |
| Volume to Capacity | 0.00 | 0.04 | 0.10 | 0.11 | 0.32 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 34 |
| Control Delay (s) | 8.0 | 0.0 | 0.0 | 0.0 | 12.1 |
| Lane LOS | A | | | | B |
| Approach Delay (s) | 0.4 | | 0.0 | | 12.1 |
| Approach LOS | | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.2 | | |
| Intersection Capacity Utilization | 28.9% | ICU Level of Service | A |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Baseline (W/ Signalization) PM Peak 05/21/01

```
INTERSECTION    6 Inspiration Dr./Dublin Boulevard  Dublin
Count Date                Time                 Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     4-PHASE SIGNAL
-----------              2    0  213
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT     3 --- 1.0   1.1  0.0  1.1   1.0 ---  179  RIGHT
                                                      STREET NAME:
THRU    59 ---> 1.0  (NO. OF LANES)  1.0<---  162  THRU  Dublin Boulevard

RIGHT    0 --- 0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                  SIG WARRANTS:
W + E                    0    0    0                   Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: Inspiration Dr.
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 2 | 2 | 1650 | 0.0012 | |
| LEFT (L) | 213 | 213 | 1650 | 0.1291 | |
| T + R + L | | 215 | 1650 | 0.1303 | 0.1303 |
| EB THRU (T) | 59 | 59 | 1650 | 0.0358 | |
| LEFT (L) | 3 | 3 | 1650 | 0.0018 | 0.0018 |
| WB RIGHT (R) | 179 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 162 | 162 | 1650 | 0.0982 | 0.0982 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.23

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=======================================================================
Condition: Existing Plus Approved Plus Pending PM Peak          05/21/01
=======================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE               DUBLIN
Count Date                   Time                  Peak Hour
-----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                          4-PHASE SIGNAL
-----------            208 1319    0
                         |   |   |
             ^           |   |   |          ^
             |         <---  v  --->        | Split? N
LEFT    93 ---  1.0    1.0  2.0  0.0    0.0 ---    0  RIGHT
                                                         STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    0.0<---    0  THRU  SILVERGATE

RIGHT  162 ---  1.0    1.0  2.0  0.0    0.0 ---    0  LEFT
             |         <---  ^  --->        |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                  363 1098    0                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
=======================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB THRU (T) | 1098 | 1098 | 3300 | 0.3327 | |
| LEFT (L) | 363 | 363 | 1650 | 0.2200 | 0.2200 |
| SB RIGHT (R) | 208 | 115 * | 1650 | 0.0697 | |
| THRU (T) | 1319 | 1319 | 3300 | 0.3997 | 0.3997 |
| EB RIGHT (R) | 162 | 0 * | 1650 | 0.0000 | |
| LEFT (L) | 93 | 93 | 1650 | 0.0564 | 0.0564 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.68

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Existing Plus Approved Plus Pending PM Peak        05/21/01
=====================================================================
INTERSECTION     8 SAN RAMON/AMADOR VALLEY           DUBLIN
Count Date                    Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD            RIGHT THRU LEFT                     6-PHASE SIGNAL
-----------               57  804  541
                           |    |    |
               ^           |    |    |          ^
               |         <---   v   --->        | Split? Y
LEFT    66 ---  1.0    1.0  3.0  2.0   1.9 ---  594  RIGHT
                                                      STREET NAME:
THRU    59 ---> 1.0   (NO. OF LANES)   1.1<---   83  THRU  AMADOR VALLEY

RIGHT   51 ---  1.0    1.0  2.0  1.0   2.1 ---  407  LEFT
               |         <---   ^   --->        |
               v           |    |    |          v
 N                         |    |    |                SIG WARRANTS:
W + E                  199  869  533                   Urb=Y, Rur=Y
 S                     LEFT THRU RIGHT Split? Y

               STREET NAME: SAN RAMON
=====================================================================
```

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 533 | 309 * | 1650 | 0.1873 | |
| | THRU (T) | 869 | 869 | 3300 | 0.2633 | 0.2633 |
| | LEFT (L) | 199 | 199 | 1650 | 0.1206 | |
| SB | RIGHT (R) | 57 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 804 | 804 | 4950 | 0.1624 | |
| | LEFT (L) | 541 | 541 | 3000 | 0.1803 | 0.1803 |
| EB | RIGHT (R) | 51 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 59 | 59 | 1650 | 0.0358 | |
| | LEFT (L) | 66 | 66 | 1650 | 0.0400 | 0.0400 |
| WB | RIGHT (R) | 594 | 594 | 1650 | 0.3600 | |
| | THRU (T) | 83 | 83 | 1650 | 0.0503 | |
| | LEFT (L) | 407 | 407 | 3000 | 0.1357 | |
| | T + L | | 490 | 3000 | 0.1633 | 0.1633 |

```
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.65
     INTERSECTION LEVEL OF SERVICE:                             B
=====================================================================
```

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV,CAP=

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 11 | 8 | 57 | 39 | 5 | 88 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 12 | 9 | 62 | 42 | 5 | 96 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 21 | 104 | 101 |
| Volume Left (vph) | 12 | 0 | 5 |
| Volume Right (vph) | 9 | 42 | 0 |
| Hadj (s) | -0.1 | -0.2 | 0.0 |
| Departure Headway (s) | 4.0 | 3.8 | 4.1 |
| Degree Utilization, x | 0.02 | 0.11 | 0.11 |
| Capacity (veh/h) | 630 | 921 | 875 |
| Control Delay (s) | 7.1 | 7.3 | 7.6 |
| Approach Delay (s) | 7.1 | 7.3 | 7.6 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.4 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 15.8% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | ↰ | ↑ | ↑ | ↱ |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 5 | 50 | 65 | 332 | 311 | 33 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 5 | 54 | 71 | 361 | 338 | 36 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 840 | 338 | 374 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 92 | 94 | | | |
| cM capacity (veh/h) | 315 | 704 | 1185 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 5 | 54 | 71 | 361 | 338 | 36 |
| Volume Left | 5 | 0 | 71 | 0 | 0 | 0 |
| Volume Right | 0 | 54 | 0 | 0 | 0 | 36 |
| cSH | 315 | 704 | 1185 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.08 | 0.06 | 0.21 | 0.20 | 0.02 |
| Queue Length (ft) | 1 | 6 | 5 | 0 | 0 | 0 |
| Control Delay (s) | 16.6 | 10.5 | 8.2 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | B | A | | | |
| Approach Delay (s) | 11.1 | | 1.3 | | 0.0 | |
| Approach LOS | B | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 35.0% | ICU Level of Service | A |

# Baseline Plus Project Conditions

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Existing + Pending + Approved + Proj. AM Peak        05/22/01
======================================================================
INTERSECTION     1 VILLAGE PARKWAY/DUBLIN BLVD        DUBLIN
Count Date                      Time                Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      8-PHASE SIGNAL
-----------            268   70  596
                         |    |    |
            ^            |    |    |         ^
            |          <---   v   --->       | Split? N
LEFT   192 ---   2.0    1.0  1.0  2.0   1.0 ---  254  RIGHT
                                                         STREET NAME:
THRU   502 ---> 2.0   (NO. OF LANES)   3.0<---  687  THRU  DUBLIN BLVD

RIGHT  254 ---   1.0    1.0  2.0  1.9   2.0 ---  111  LEFT
            |          <---   ^   --->        |
            v            |    |    |          v
  N                      |    |    |                    SIG WARRANTS:
W + E                   14    9    6                      Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: VILLAGE PARKWAY
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 6 | 6 | 1650 | 0.0036 | |
| THRU (T) | 9 | 9 | 3300 | 0.0027 | 0.0027 |
| LEFT (L) | 14 | 14 | 1650 | 0.0085 | |
| SB RIGHT (R) | 268 | 162 * | 1650 | 0.0982 | |
| THRU (T) | 70 | 70 | 1650 | 0.0424 | |
| LEFT (L) | 596 | 596 | 3000 | 0.1987 | 0.1987 |
| EB RIGHT (R) | 254 | 240 * | 1650 | 0.1455 | |
| THRU (T) | 502 | 502 | 3300 | 0.1521 | |
| LEFT (L) | 192 | 192 | 3000 | 0.0640 | 0.0640 |
| WB RIGHT (R) | 254 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 687 | 687 | 4950 | 0.1388 | 0.1388 |
| LEFT (L) | 111 | 111 | 3000 | 0.0370 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.40

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

=====================================================================

Condition: Existing + Pending + Approved + Proj. AM Peak 05/22/01

=====================================================================

```
INTERSECTION    2 AMADOR PLAZA/DUBLIN BLVD          DUBLIN
Count Date                     Time             Peak Hour AM
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    8-PHASE SIGNAL
-----------            66   91  116
                        |    |   |
          ^             |    |   |         ^
          |           <---   v   --->      | Split? N
LEFT    61 ---  1.0   1.1  1.1  2.0   1.0 ---  133  RIGHT
                                                          STREET NAME:
THRU   709 ---> 3.1   (NO. OF LANES)   2.0<---  758  THRU  DUBLIN BLVD

RIGHT  280 ---  1.1   1.0  1.1  1.1   2.0 ---  265  LEFT
          |           <---   ^   --->      |
          v             |    |   |         v
                                                          SIG WARRANTS:
  N                     |    |   |                          Urb=Y, Rur=Y
W + E                  148   28  282
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: AMADOR PLAZA
```

=====================================================================

| MOVEMENT | | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 282 | 282 | 1650 | 0.1709 | |
| | THRU (T) | 28 | 28 | 1650 | 0.0170 | |
| | LEFT (L) | 148 | 148 | 1650 | 0.0897 | |
| | T + R | | 310 | 1650 | 0.1879 | 0.1879 |
| SB | RIGHT (R) | 66 | 66 | 1650 | 0.0400 | |
| | THRU (T) | 91 | 91 | 1650 | 0.0552 | |
| | LEFT (L) | 116 | 116 | 3000 | 0.0387 | 0.0387 |
| | T + R | | 157 | 1650 | 0.0952 | |
| EB | RIGHT (R) | 280 | 280 | 1650 | 0.1697 | |
| | THRU (T) | 709 | 709 | 4950 | 0.1432 | |
| | LEFT (L) | 61 | 61 | 1650 | 0.0370 | |
| | T + R | | 989 | 4950 | 0.1998 | 0.1998 |
| WB | RIGHT (R) | 133 | 69 * | 1650 | 0.0418 | |
| | THRU (T) | 758 | 758 | 3300 | 0.2297 | |
| | LEFT (L) | 265 | 265 | 3000 | 0.0883 | 0.0883 |

=====================================================================

TOTAL VOLUME-TO-CAPACITY RATIO: 0.51

INTERSECTION LEVEL OF SERVICE: A

=====================================================================

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Existing + Pending + Approved + Proj. AM Peak        05/23/01
======================================================================
INTERSECTION    3 AMADOR PLAZA/ST PATRICKS/S680      DUBLIN
Count Date                    Time                 Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     3-PHASE SIGNAL
-----------             19  129  503
                         |    |    |
               ^      .  |    |    |          ^
               |       <---   v   --->        | Split? N
LEFT    13 ---  1.0   1.1  1.1  2.1   1.0 ---  201  RIGHT
                                                         STREET NAME:
THRU    16 ---> 1.1   (NO. OF LANES)   1.1<---  300  THRU  ST PATRICKS/S680

RIGHT    5 ---  1.1   1.0  1.1  1.1   1.1 ---   14  LEFT
               |       <---   ^   --->        |
               v         |    |    |          v
  N                      |    |    |                 SIG WARRANTS:
W + E                    9   67    0                   Urb=B, Rur=Y
  S                     LEFT THRU RIGHT Split? Y

             STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 0 | 0 | 1720 | 0.0000 | |
| THRU (T) | 67 | 67 | 1720 | 0.0390 | 0.0390 |
| LEFT (L) | 9 | 9 | 1720 | 0.0052 | |
| T + R | | 67 | 1720 | 0.0390 | |
| SB RIGHT (R) | 19 | 19 | 1720 | 0.0110 | |
| THRU (T) | 129 | 129 | 1720 | 0.0750 | |
| LEFT (L) | 503 | 503 | 3127 | 0.1609 | |
| T + R | | 148 | 1720 | 0.0860 | |
| T + L | | 632 | 3127 | 0.2021 | |
| T + R + L | | 651 | 3127 | 0.2082 | 0.2082 |
| EB RIGHT (R) | 5 | 5 | 1720 | 0.0029 | |
| THRU (T) | 16 | 16 | 1720 | 0.0093 | |
| LEFT (L) | 13 | 13 | 1720 | 0.0076 | 0.0076 |
| T + R | | 21 | 1720 | 0.0122 | |
| WB RIGHT (R) | 201 | 0 * | 1720 | 0.0000 | |
| THRU (T) | 300 | 300 | 1720 | 0.1744 | |
| LEFT (L) | 14 | 14 | 1720 | 0.0081 | |
| T + L | | 314 | 1720 | 0.1826 | 0.1826 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.44

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...APPROVED.AMV+...PRO.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

=====================================================================

Condition: Existing + Pending + Approved + Proj. AM Peak 05/22/01

=====================================================================

INTERSECTION 4 SAN RAMON RD/DUBLIN BLVD DUBLIN

Count Date Time Peak Hour AM

---------------------------------------------------------------------

```
CCTA METHOD          RIGHT THRU LEFT                          8-PHASE SIGNAL
-----------           319 1437  173
                        |    |    |
          ^             |    |    |         ^
          |          <---    v   --->       | Split? N
LEFT   216 ---  2.0   1.0  3.0  2.0   1.0 ---  51  RIGHT
                                                          STREET NAME:
THRU   234 ---> 2.0  (NO. OF LANES)   1.0<---  240  THRU  DUBLIN BLVD

RIGHT  818 ---  2.0   2.0  3.0  2.5   3.0 ---  514  LEFT
          |          <---    ^   --->       |
          v             |    |    |         v
                                                          SIG WARRANTS:
   N                    |    |    |
W + E                  789  505  778                         Urb=Y, Rur=Y
   S                   LEFT THRU RIGHT Split? N
```

STREET NAME: SAN RAMON RD

=====================================================================

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 778 | 420 * | 3000 | 0.1400 | |
| THRU (T) | 505 | 505 | 4950 | 0.1020 | |
| LEFT (L) | 789 | 789 | 3000 | 0.2630 | 0.2630 |
| SB RIGHT (R) | 319 | 200 * | 1650 | 0.1212 | |
| THRU (T) | 1437 | 1437 | 4950 | 0.2903 | 0.2903 |
| LEFT (L) | 173 | 173 | 3000 | 0.0577 | |
| EB RIGHT (R) | 818 | 384 * | 3000 | 0.1280 | 0.1280 |
| THRU (T) | 234 | 234 | 3300 | 0.0709 | |
| LEFT (L) | 216 | 216 | 3000 | 0.0720 | |
| WB RIGHT (R) | 51 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 240 | 240 | 1650 | 0.1455 | |
| LEFT (L) | 514 | 514 | 4304 | 0.1194 | 0.1194 |

=====================================================================

TOTAL VOLUME-TO-CAPACITY RATIO: 0.80

INTERSECTION LEVEL OF SERVICE: C

=====================================================================

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 49 | 635 | 576 | 395 | 404 | 211 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 53 | 690 | 626 | 429 | 439 | 229 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 53 | 690 | 1055 | 439 | 229 |
| Volume Left (vph) | 53 | 0 | 0 | 439 | 0 |
| Volume Right (vph) | 0 | 0 | 429 | 0 | 229 |
| Hadj (s) | 0.2 | 0.0 | -0.2 | 0.2 | -0.6 |
| Departure Headway (s) | 7.7 | 7.5 | 6.7 | 7.7 | 6.9 |
| Degree Utilization, x | 0.11 | 1.43 | 1.98 | 0.94 | 0.44 |
| Capacity (veh/h) | 461 | 495 | 542 | 461 | 517 |
| Control Delay (s) | 10.5 | 226.1 | 462.0 | 54.4 | 14.0 |
| Approach Delay (s) | 210.6 | | 462.0 | 40.5 | |
| Approach LOS | F | | F | E | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 272.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=======================================================================
Condition: Baseline + Project (W/ Signalization) AM Peak        05/23/01
=======================================================================
INTERSECTION     5 Silvergate Drive/Dublin Boulevard Dublin
Count Date                     Time                Peak Hour
-----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------            211    0  404
                         |    |    |
          ^              |    |    |          ^
          |            <---   v   --->        | Split? N
LEFT    49 ---  1.0   1.0  0.0  1.0   1.0 ---  395  RIGHT
                                                         STREET NAME:
THRU   635 ---> 1.0  (NO. OF LANES)   1.0<---  576  THRU  Dublin Boulevard

RIGHT    0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
          |            <---   ^   --->        |
          v              |    |    |          v
                                                         SIG WARRANTS:
  N                      |    |    |
W + E                    0    0    0                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

             STREET NAME: Silvergate Drive
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 211 | 162 * | 1650 | 0.0982 | |
| LEFT (L) | 404 | 404 | 1650 | 0.2448 | 0.2448 |
| EB THRU (T) | 635 | 635 | 1650 | 0.3848 | 0.3848 |
| LEFT (L) | 49 | 49 | 1650 | 0.0297 | |
| WB RIGHT (R) | 395 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 576 | 576 | 1650 | 0.3491 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 4 | 111 | 11 | 886 | 693 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 4 | 121 | 12 | 963 | 753 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 975 | | | | 141 | 12 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 11 | 100 |
| cM capacity (veh/h) | 707 | | | | 846 | 1069 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 4 | 121 | 12 | 963 | 753 |
| Volume Left | 4 | 0 | 0 | 0 | 753 |
| Volume Right | 0 | 0 | 0 | 963 | 0 |
| cSH | 707 | 1700 | 1700 | 1700 | 846 |
| Volume to Capacity | 0.01 | 0.07 | 0.01 | 0.57 | 0.89 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 299 |
| Control Delay (s) | 10.1 | 0.0 | 0.0 | 0.0 | 32.6 |
| Lane LOS | B | | | | D |
| Approach Delay (s) | 0.4 | | 0.0 | | 32.6 |
| Approach LOS | | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 13.3 | | |
| Intersection Capacity Utilization | 69.6% | ICU Level of Service | B |

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Baseline + Project (W/ Signalization) AM Peak        05/23/01
======================================================================
INTERSECTION     6 Inspiration Dr./Dublin Boulevard  Dublin
Count Date                    Time                   Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------              0     0  693
                         |     |   |
          ^              |     |   |          ^
          |           <---     v   --->       | Split? N
LEFT     4 ---  1.0   1.1  0.0  1.1   1.0 ---  886  RIGHT
                                                          STREET NAME:
THRU   111 ---> 1.0   (NO. OF LANES)  1.0<---   11  THRU  Dublin Boulevard

RIGHT    0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
          |           <---     ^   --->       |
          v              |     |   |          v
  N                      |     |   |                       SIG WARRANTS:
W + E                    0     0   0                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

               STREET NAME: Inspiration Dr.
======================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 0 | 0 | 1650 | 0.0000 | |
| LEFT (L) | 693 | 693 | 1650 | 0.4200 | 0.4200 |
| T + R + L | | 693 | 1650 | 0.4200 | |
| EB THRU (T) | 111 | 111 | 1650 | 0.0673 | |
| LEFT (L) | 4 | 4 | 1650 | 0.0024 | 0.0024 |
| WB RIGHT (R) | 886 | 193 * | 1650 | 0.1170 | 0.1170 |
| THRU (T) | 11 | 11 | 1650 | 0.0067 | |

```
======================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.54
     INTERSECTION LEVEL OF SERVICE:                                 A
======================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Existing + Pending + Approved + Proj. AM Peak       05/22/01
======================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE              DUBLIN
Count Date                  Time                Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     4-PHASE SIGNAL
-----------            172 1404    0
                         |    |    |
               ^         |    |    |         ^
               |       <---   v   --->       | Split? N
LEFT   162 ---  1.0    1.0  2.0  0.0    0.0 ---    0  RIGHT
                                                         STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    0.0<---    0  THRU  SILVERGATE

RIGHT  396 ---  1.0    1.0  2.0  0.0    0.0 ---    0  LEFT
               |       <---   ^   --->       |
               v         |    |    |         v
  N                      |    |    |                 SIG WARRANTS:
W + E                  159  592    0                   Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: SAN RAMON
======================================================================
               ORIGINAL   ADJUSTED               V/C     CRITICAL
   MOVEMENT     VOLUME     VOLUME*   CAPACITY    RATIO      V/C
----------------------------------------------------------------------
NB  THRU (T)      592        592       3300     0.1794
    LEFT (L)      159        159       1650     0.0964    0.0964
----------------------------------------------------------------------
SB  RIGHT (R)     172         10 *     1650     0.0061
    THRU (T)     1404       1404       3300     0.4255    0.4255
----------------------------------------------------------------------
EB  RIGHT (R)     396        237 *     1650     0.1436    0.1436
    LEFT (L)      162        162       1650     0.0982
----------------------------------------------------------------------
======================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                        0.67
     INTERSECTION LEVEL OF SERVICE:                            B
======================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Existing + Pending + Approved + Proj. AM Peak        05/22/01
======================================================================
INTERSECTION     8 SAN RAMON/AMADOR VALLEY          DUBLIN
Count Date                       Time              Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD            RIGHT THRU LEFT                    6-PHASE SIGNAL
----------                76 1272  369
                           |    |    |
           ^               |    |    |          ^
           |          <---    v    --->         | Split? Y
LEFT    63 ---  1.0   1.0  3.0  2.0   1.9 ---  251  RIGHT
                                                         STREET NAME:
THRU    52 ---> 1.0  (NO. OF LANES)   1.1<---   52  THRU AMADOR VALLEY

RIGHT   59 ---  1.0   1.0  2.0  1.0   2.1 ---  472  LEFT
- - - - -  |          <---   ^    --->          |
           v               |    |    |          v
                                                         SIG WARRANTS:
  N                        |    |    |
W + E                     84  439  281                     Urb=Y, Rur=Y
  S                      LEFT THRU RIGHT Split? Y

                 STREET NAME: SAN RAMON
```

| MOVEMENT | | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 281 | 21 * | 1650 | 0.0127 | |
| | THRU (T) | 439 | 439 | 3300 | 0.1330 | 0.1330 |
| | LEFT (L) | 84 | 84 | 1650 | 0.0509 | |
| SB | RIGHT (R) | 76 | 13 * | 1650 | 0.0079 | |
| | THRU (T) | 1272 | 1272 | 4950 | 0.2570 | 0.2570 |
| | LEFT (L) | 369 | 369 | 3000 | 0.1230 | |
| EB | RIGHT (R) | 59 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 52 | 52 | 1650 | 0.0315 | |
| | LEFT (L) | 63 | 63 | 1650 | 0.0382 | 0.0382 |
| WB | RIGHT (R) | 251 | 251 | 1650 | 0.1521 | |
| | THRU (T) | 52 | 52 | 1650 | 0.0315 | |
| | LEFT (L) | 472 | 472 | 3000 | 0.1573 | |
| | T + L | | 524 | 3000 | 0.1747 | 0.1747 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.AMV+...APPROVED.AMV+...PRO.AMV,CAP=

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 39 | 8 | 74 | 56 | 27 | 111 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 42 | 9 | 80 | 61 | 29 | 121 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 51 | 141 | 150 |
| Volume Left (vph) | 42 | 0 | 29 |
| Volume Right (vph) | 9 | 61 | 0 |
| Hadj (s) | 0.1 | -0.2 | 0.1 |
| Departure Headway (s) | 4.4 | 3.9 | 4.2 |
| Degree Utilization, x | 0.06 | 0.15 | 0.18 |
| Capacity (veh/h) | 598 | 891 | 846 |
| Control Delay (s) | 7.7 | 7.6 | 8.1 |
| Approach Delay (s) | 7.7 | 7.6 | 8.1 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.8 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 22.4% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 40 | 84 | 50 | 421 | 515 | 38 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 43 | 91 | 54 | 458 | 560 | 41 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1126 | 560 | 601 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 80 | 83 | 94 | | | |
| cM capacity (veh/h) | 214 | 528 | 976 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 43 | 91 | 54 | 458 | 560 | 41 |
| Volume Left | 43 | 0 | 54 | 0 | 0 | 0 |
| Volume Right | 0 | 91 | 0 | 0 | 0 | 41 |
| cSH | 214 | 528 | 976 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.20 | 0.17 | 0.06 | 0.27 | 0.33 | 0.02 |
| Queue Length (ft) | 18 | 16 | 4 | 0 | 0 | 0 |
| Control Delay (s) | 26.1 | 13.2 | 8.9 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | B | A | | | |
| Approach Delay (s) | 17.4 | | 0.9 | | 0.0 | |
| Approach LOS | C | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 41.8% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 76 | 250 | 112 | 145 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 83 | 272 | 122 | 158 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 828 | 163 | 168 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 91 | 81 | | | |
| cM capacity (veh/h) | 275 | 882 | 1409 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 83 | 272 | 122 | 168 |
| Volume Left | 0 | 272 | 0 | 0 |
| Volume Right | 83 | 0 | 0 | 11 |
| cSH | 882 | 1409 | 1700 | 1700 |
| Volume to Capacity | 0.09 | 0.19 | 0.07 | 0.10 |
| Queue Length (ft) | 8 | 18 | 0 | 0 |
| Control Delay (s) | 9.5 | 8.2 | 0.0 | 0.0 |
| Lane LOS | A | A | | |
| Approach Delay (s) | 9.5 | 5.6 | | 0.0 |
| Approach LOS | A | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.7 | | |
| Intersection Capacity Utilization | 39.1% | ICU Level of Service | A |

12: DW #2 & Inspiration Dr.

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 370 | 304 | 339 | 195 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 402 | 330 | 368 | 212 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1247 | 217 | 223 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 51 | 75 | | | |
| cM capacity (veh/h) | 145 | 822 | 1346 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 0 | 402 | 330 | 368 | 223 |
| Volume Left | 0 | 0 | 330 | 0 | 0 |
| Volume Right | 0 | 402 | 0 | 0 | 11 |
| cSH | 1700 | 822 | 1346 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.49 | 0.25 | 0.22 | 0.13 |
| Queue Length (ft) | 0 | 68 | 24 | 0 | 0 |
| Control Delay (s) | 0.0 | 13.5 | 8.5 | 0.0 | 0.0 |
| Lane LOS | A | B | A | | |
| Approach Delay (s) | 13.5 | | 4.0 | | 0.0 |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.2 | | |
| Intersection Capacity Utilization | 43.4% | ICU Level of Service | A |



FEHRPELVL7-FX51

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 11 | 30 | 126 | 612 | 485 | 25 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 12 | 33 | 137 | 665 | 527 | 27 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1480 | 541 | 554 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 90 | 94 | 87 | | | |
| cM capacity (veh/h) | 120 | 541 | 1016 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 12 | 33 | 137 | 665 | 554 |
| Volume Left | 12 | 0 | 137 | 0 | 0 |
| Volume Right | 0 | 33 | 0 | 0 | 27 |
| cSH | 120 | 541 | 1016 | 1700 | 1700 |
| Volume to Capacity | 0.10 | 0.06 | 0.13 | 0.39 | 0.33 |
| Queue Length (ft) | 8 | 5 | 12 | 0 | 0 |
| Control Delay (s) | 38.4 | 12.1 | 9.1 | 0.0 | 0.0 |
| Lane LOS | E | B | A | | |
| Approach Delay (s) | 19.1 | | 1.6 | | 0.0 |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 50.3% | ICU Level of Service | A |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Existing + Pending + Approved + Proj. PM Peak       05/22/01
======================================================================
INTERSECTION     1 VILLAGE PARKWAY/DUBLIN BLVD       DUBLIN
Count Date                  Time                 Peak Hour
----------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                    8-PHASE SIGNAL
-----------             410  121  492
                          |    |    |
             ^            |    |    |         ^
             |          <---   v   --->       | Split? N
LEFT   247 ---  2.0   1.0  1.0  2.0   1.0 ---  380  RIGHT
                                                      STREET NAME:
THRU  1165 ---> 2.0  (NO. OF LANES)   3.0<--- 1066  THRU  DUBLIN BLVD

RIGHT  482 ---  1.0   1.0  2.0  1.9   2.0 ---  261  LEFT
             |          <---   ^   --->       |
             v            |    |    |         v
 N                        |    |    |                 SIG WARRANTS:
W + E                    99   83   32                  Urb=Y, Rur=Y
 S                      LEFT THRU RIGHT Split? N

             STREET NAME: VILLAGE PARKWAY
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 32 | 32 | 1650 | 0.0194 | |
| THRU (T) | 83 | 83 | 3300 | 0.0252 | |
| LEFT (L) | 99 | 99 | 1650 | 0.0600 | 0.0600 |
| SB RIGHT (R) | 410 | 274 * | 1650 | 0.1661 | 0.1661 |
| THRU (T) | 121 | 121 | 1650 | 0.0733 | |
| LEFT (L) | 492 | 492 | 3000 | 0.1640 | |
| EB RIGHT (R) | 482 | 383 * | 1650 | 0.2321 | |
| THRU (T) | 1165 | 1165 | 3300 | 0.3530 | 0.3530 |
| LEFT (L) | 247 | 247 | 3000 | 0.0823 | |
| WB RIGHT (R) | 380 | 109 * | 1650 | 0.0661 | |
| THRU (T) | 1066 | 1066 | 4950 | 0.2154 | |
| LEFT (L) | 261 | 261 | 3000 | 0.0870 | 0.0870 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Existing + Pending + Approved + Proj. PM Peak       05/22/01
=====================================================================
INTERSECTION    2 AMADOR PLAZA/DUBLIN BLVD          DUBLIN
Count Date                 Time                   Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      8-PHASE SIGNAL
-----------           141   71  206
                        |    |    |
              ^         |    |    |        ^
              |       <---   v   --->      | Split? N
LEFT   192 --- 1.0   1.1  1.1  2.0   1.0 --- 206  RIGHT
                                                   STREET NAME:
THRU  1386 ---> 3.1  (NO. OF LANES)  2.0<--- 877  THRU  DUBLIN BLVD

RIGHT  192 --- 1.1   1.0  1.1  1.1   2.0 --- 579  LEFT
              |       <---   ^   --->      |
              v         |    |    |        v
  N                     |    |    |                SIG WARRANTS:
W + E                  228   89  381                 Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

               STREET NAME: AMADOR PLAZA
```

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 381 | 381 | 1650 | 0.2309 | |
| | THRU (T) | 89 | 89 | 1650 | 0.0539 | |
| | LEFT (L) | 228 | 228 | 1650 | 0.1382 | |
| | T + R | | 470 | 1650 | 0.2848 | 0.2848 |
| SB | RIGHT (R) | 141 | 141 | 1650 | 0.0855 | |
| | THRU (T) | 71 | 71 | 1650 | 0.0430 | |
| | LEFT (L) | 206 | 206 | 3000 | 0.0687 | 0.0687 |
| | T + R | | 212 | 1650 | 0.1285 | |
| EB | RIGHT (R) | 192 | 192 | 1650 | 0.1164 | |
| | THRU (T) | 1386 | 1386 | 4950 | 0.2800 | |
| | LEFT (L) | 192 | 192 | 1650 | 0.1164 | |
| | T + R | | 1578 | 4950 | 0.3188 | 0.3188 |
| WB | RIGHT (R) | 206 | 93 * | 1650 | 0.0564 | |
| | THRU (T) | 877 | 877 | 3300 | 0.2658 | |
| | LEFT (L) | 579 | 579 | 3000 | 0.1930 | 0.1930 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.87

INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Existing + Pending + Approved + Proj. PM Peak       05/23/01
=====================================================================
INTERSECTION     3 AMADOR PLAZA/ST PATRICKS/S680     DUBLIN
Count Date                  Time                  Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     3-PHASE SIGNAL
-----------            37  272  554
                        |    |    |
           ^            |    |    |          ^
           |         <---    v    --->       | Split? N
LEFT    41 ---  1.0   1.1  1.1  2.1   1.0 ---  220  RIGHT
                                                        STREET NAME:
THRU   140 ---> 1.1  (NO. OF LANES)   1.1<---  131  THRU  ST PATRICKS/S680

RIGHT    6 ---  1.1   1.0  1.1  1.1   1.1 ---   24  LEFT
           |         <---    ^    --->       |
           v            |    |    |          v
  N                     |    |    |                    SIG WARRANTS:
W + E                  16  288    0                      Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

               STREET NAME: AMADOR PLAZA
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 0 | 0 | 1720 | 0.0000 | |
| THRU (T) | 288 | 288 | 1720 | 0.1674 | 0.1674 |
| LEFT (L) | 16 | 16 | 1720 | 0.0093 | |
| T + R | | 288 | 1720 | 0.1674 | |
| SB RIGHT (R) | 37 | 37 | 1720 | 0.0215 | |
| THRU (T) | 272 | 272 | 1720 | 0.1581 | |
| LEFT (L) | 554 | 554 | 3127 | 0.1772 | |
| T + R | | 309 | 1720 | 0.1797 | |
| T + L | | 826 | 3127 | 0.2642 | |
| T + R + L | | 863 | 3127 | 0.2760 | 0.2760 |
| EB RIGHT (R) | 6 | 6 | 1720 | 0.0035 | |
| THRU (T) | 140 | 140 | 1720 | 0.0814 | |
| LEFT (L) | 41 | 41 | 1720 | 0.0238 | 0.0238 |
| T + R | | 146 | 1720 | 0.0849 | |
| WB RIGHT (R) | 220 | 0 * | 1720 | 0.0000 | |
| THRU (T) | 131 | 131 | 1720 | 0.0762 | |
| LEFT (L) | 24 | 24 | 1720 | 0.0140 | |
| T + L | | 155 | 1720 | 0.0901 | 0.0901 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.56

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...APPROVED.PMV+...PRO.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

====================================================================

Condition: Existing + Pending + Approved + Proj. PM Peak 05/22/01

====================================================================

INTERSECTION 4 SAN RAMON RD/DUBLIN BLVD DUBLIN

Count Date Time Peak Hour

--------------------------------------------------------------------

```
CCTA METHOD          RIGHT THRU LEFT                  8-PHASE SIGNAL
-----------           108  761  236
                        |    |    |
                ^       |    |    |        ^
                |     <---   v   --->      | Split? N
LEFT   160 --- 2.0   1.0  3.0  2.0   1.0 --- 200  RIGHT
                                                        STREET NAME:
THRU   380 ---> 2.0  (NO. OF LANES)  1.0<--- 268  THRU  DUBLIN BLVD

RIGHT  593 --- 2.0   2.0  3.0  2.5   3.0 --- 1090  LEFT
                |     <---   ^   --->      |
                v       |    |    |        v
  N                     |    |    |                     SIG WARRANTS:
W + E                 672 1105 1068                      Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

            STREET NAME: SAN RAMON RD
```

====================================================================

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 1068 | 308 * | 3000 | 0.1027 | |
| | THRU (T) | 1105 | 1105 | 4950 | 0.2232 | |
| | LEFT (L) | 672 | 672 | 3000 | 0.2240 | 0.2240 |
| SB | RIGHT (R) | 108 | 20 * | 1650 | 0.0121 | |
| | THRU (T) | 761 | 761 | 4950 | 0.1537 | 0.1537 |
| | LEFT (L) | 236 | 236 | 3000 | 0.0787 | |
| EB | RIGHT (R) | 593 | 223 * | 3000 | 0.0743 | |
| | THRU (T) | 380 | 380 | 3300 | 0.1152 | 0.1152 |
| | LEFT (L) | 160 | 160 | 3000 | 0.0533 | |
| WB | RIGHT (R) | 200 | 70 * | 1650 | 0.0424 | |
| | THRU (T) | 268 | 268 | 1650 | 0.1624 | |
| | LEFT (L) | 1090 | 1090 | 4304 | 0.2533 | 0.2533 |

====================================================================

TOTAL VOLUME-TO-CAPACITY RATIO: 0.75

INTERSECTION LEVEL OF SERVICE: C

====================================================================

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 19 | 288 | 253 | 342 | 341 | 15 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 21 | 313 | 275 | 372 | 371 | 16 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 21 | 313 | 647 | 371 | 16 |
| Volume Left (vph) | 21 | 0 | 0 | 371 | 0 |
| Volume Right (vph) | 0 | 0 | 372 | 0 | 16 |
| Hadj (s) | 0.2 | 0.0 | -0.3 | 0.2 | -0.6 |
| Departure Headway (s) | 7.1 | 6.9 | 6.2 | 7.2 | 6.4 |
| Degree Utilization, x | 0.04 | 0.60 | 1.12 | 0.75 | 0.03 |
| Capacity (veh/h) | 492 | 505 | 583 | 487 | 544 |
| Control Delay (s) | 9.2 | 18.3 | 96.7 | 27.4 | 8.4 |
| Approach Delay (s) | 17.8 | | 96.7 | 26.6 | |
| Approach LOS | C | | F | D | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 57.6 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | B |

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Baseline + Project (W/ Signalization) PM Peak        05/23/01
=====================================================================
INTERSECTION     5 Silvergate Drive/Dublin Boulevard Dublin
Count Date                      Time                  Peak Hour
---------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------             15    0  341
                         |    |    |
                ^        |    |    |       ^
                |      <---   v   --->     | Split? N
LEFT     19 ---  1.0   1.0  0.0  1.0   1.0 ---  342  RIGHT
                                                          STREET NAME:
THRU    288 ---> 1.0   (NO. OF LANES)   1.0<---  253  THRU  Dublin Boulevard

RIGHT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
                |      <---   ^   --->     |
                v        |    |    |       v
  N                      |    |    |                  SIG WARRANTS:
W + E                    0    0    0                   Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: Silvergate Drive
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 15 | 0 * | 1650 | 0.0000 | |
| LEFT (L) | 341 | 341 | 1650 | 0.2067 | 0.2067 |
| EB THRU (T) | 288 | 288 | 1650 | 0.1745 | 0.1745 |
| LEFT (L) | 19 | 19 | 1650 | 0.0115 | |
| WB RIGHT (R) | 342 | 1 * | 1650 | 0.0006 | |
| THRU (T) | 253 | 253 | 1650 | 0.1533 | |

| | |
|---|---|
| TOTAL VOLUME-TO-CAPACITY RATIO: | 0.38 |
| INTERSECTION LEVEL OF SERVICE: | A |

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 3 | 59 | 162 | 205 | 253 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 3 | 64 | 176 | 223 | 275 | 2 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 399 | | | | 247 | 176 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 63 | 100 |
| cM capacity (veh/h) | 1160 | | | | 740 | 867 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 3 | 64 | 176 | 223 | 277 |
| Volume Left | 3 | 0 | 0 | 0 | 275 |
| Volume Right | 0 | 0 | 0 | 223 | 2 |
| cSH | 1160 | 1700 | 1700 | 1700 | 740 |
| Volume to Capacity | 0.00 | 0.04 | 0.10 | 0.13 | 0.37 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 44 |
| Control Delay (s) | 8.1 | 0.0 | 0.0 | 0.0 | 12.7 |
| Lane LOS | A | | | | B |
| Approach Delay (s) | 0.4 | | 0.0 | | 12.7 |
| Approach LOS | | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.8 | | |
| Intersection Capacity Utilization | 31.3% | ICU Level of Service | A |



FEHRPELVL7-FX51

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

=====================================================================

Condition: Baseline + Project (W/ Signalization) PM Peak 05/23/01

=====================================================================

INTERSECTION 6 Inspiration Dr./Dublin Boulevard Dublin

Count Date Time Peak Hour

---------------------------------------------------------------------

```
CCTA METHOD           RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------              2    0  253
                         |    |    |
             ^           |    |    |         ^
             |         <---   v   --->       | Split? N
LEFT     3 ---  1.0    1.1  0.0  1.1   1.0 ---  205  RIGHT
                                                      STREET NAME:
THRU    59 ---> 1.0   (NO. OF LANES)   1.0<---  162  THRU  Dublin Boulevard

RIGHT    0 ---  0.0    0.0  0.0  0.0   0.0 ---    0  LEFT
             |         <---   ^   --->       |
             v           |    |    |         v
  N                      |    |    |                  SIG WARRANTS:
W + E                    0    0    0                   Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: Inspiration Dr.
```

=====================================================================

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 2 | 2 | 1650 | 0.0012 | |
| LEFT (L) | 253 | 253 | 1650 | 0.1533 | |
| T + R + L | | 255 | 1650 | 0.1545 | 0.1545 |
| EB THRU (T) | 59 | 59 | 1650 | 0.0358 | |
| LEFT (L) | 3 | 3 | 1650 | 0.0018 | 0.0018 |
| WB RIGHT (R) | 205 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 162 | 162 | 1650 | 0.0982 | 0.0982 |

=====================================================================

TOTAL VOLUME-TO-CAPACITY RATIO: 0.25

INTERSECTION LEVEL OF SERVICE: A

=====================================================================

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Existing + Pending + Approved + Proj. PM Peak        05/22/01
=====================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE               DUBLIN
Count Date                     Time               Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------            209 1322    0
                         |    |    |
            ^            |    |    |          ^
            |          <---   v   --->        | Split? N
LEFT    95 ---  1.0   1.0  2.0  0.0   0.0 ---     0  RIGHT
                                                      STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   0.0<---     0  THRU  SILVERGATE

RIGHT  162 ---  1.0   1.0  2.0  0.0   0.0 ---     0  LEFT
            |          <---   ^   --->        |
            v            |    |    |          v
                                                      SIG WARRANTS:
  N                      |    |    |
W + E                  363 1102    0                    Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB THRU (T) | 1102 | 1102 | 3300 | 0.3339 | |
| LEFT (L) | 363 | 363 | 1650 | 0.2200 | 0.2200 |
| SB RIGHT (R) | 209 | 114 * | 1650 | 0.0691 | |
| THRU (T) | 1322 | 1322 | 3300 | 0.4006 | 0.4006 |
| EB RIGHT (R) | 162 | 0 * | 1650 | 0.0000 | |
| LEFT (L) | 95 | 95 | 1650 | 0.0576 | 0.0576 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.68

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Existing + Pending + Approved + Proj. PM Peak       05/22/01
======================================================================
INTERSECTION     8 SAN RAMON/AMADOR VALLEY           DUBLIN
Count Date                   Time                Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                       6-PHASE SIGNAL
-----------             57  807  541
                        |    |    |
              ^         |    |    |         ^
              |      <---    v    --->      | Split? Y
LEFT    66 ---  1.0   1.0  3.0  2.0   1.9 ---  594  RIGHT
                                                     STREET NAME:
THRU    59 ---> 1.0   (NO. OF LANES)   1.1<---   83  THRU  AMADOR VALLEY

RIGHT   51 ---  1.0   1.0  2.0  1.0   2.1 ---  408  LEFT
              |      <---    ^    --->      |
              v         |    |    |         v
  N                     |    |    |                  SIG WARRANTS:
W + E                 199  873  533                    Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

              STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 533 | 309 * | 1650 | 0.1873 | |
| THRU (T) | 873 | 873 | 3300 | 0.2645 | 0.2645 |
| LEFT (L) | 199 | 199 | 1650 | 0.1206 | |
| SB RIGHT (R) | 57 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 807 | 807 | 4950 | 0.1630 | |
| LEFT (L) | 541 | 541 | 3000 | 0.1803 | 0.1803 |
| EB RIGHT (R) | 51 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 59 | 59 | 1650 | 0.0358 | |
| LEFT (L) | 66 | 66 | 1650 | 0.0400 | 0.0400 |
| WB RIGHT (R) | 594 | 594 | 1650 | 0.3600 | |
| THRU (T) | 83 | 83 | 1650 | 0.0503 | |
| LEFT (L) | 408 | 408 | 3000 | 0.1360 | |
| T + L | | 491 | 3000 | 0.1637 | 0.1637 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.65

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINST.INT,VOL=...EX.PMV+...APPROVED.PMV+...PRO.PMV,CAP=

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 12 | 8 | 59 | 40 | 5 | 94 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 13 | 9 | 64 | 43 | 5 | 102 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 22 | 108 | 108 |
| Volume Left (vph) | 13 | 0 | 5 |
| Volume Right (vph) | 9 | 43 | 0 |
| Hadj (s) | -0.1 | -0.2 | 0.0 |
| Departure Headway (s) | 4.1 | 3.8 | 4.1 |
| Degree Utilization, x | 0.02 | 0.11 | 0.12 |
| Capacity (veh/h) | 627 | 919 | 874 |
| Control Delay (s) | 7.2 | 7.3 | 7.6 |
| Approach Delay (s) | 7.2 | 7.3 | 7.6 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.5 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 16.0% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 5 | 50 | 65 | 334 | 312 | 33 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 5 | 54 | 71 | 363 | 339 | 36 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 843 | 339 | 375 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 92 | 94 | | | |
| cM capacity (veh/h) | 314 | 703 | 1183 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 5 | 54 | 71 | 363 | 339 | 36 |
| Volume Left | 5 | 0 | 71 | 0 | 0 | 0 |
| Volume Right | 0 | 54 | 0 | 0 | 0 | 36 |
| cSH | 314 | 703 | 1183 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.08 | 0.06 | 0.21 | 0.20 | 0.02 |
| Queue Length (ft) | 1 | 6 | 5 | 0 | 0 | 0 |
| Control Delay (s) | 16.7 | 10.5 | 8.2 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | B | A | | | |
| Approach Delay (s) | 11.1 | | 1.3 | | 0.0 | |
| Approach LOS | B | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 35.1% | ICU Level of Service | A |

# Cumulative Plus Project Conditions

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Cumulative Plus Project AM Peak                    05/22/01
======================================================================
INTERSECTION     1 VILLAGE PARKWAY/DUBLIN BLVD       DUBLIN
Count Date                  Time                  Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      8-PHASE SIGNAL
-----------            301   70  636
                         |    |    |
            ^            |    |    |         ^
            |        <---    v    --->       | Split? N
LEFT   203 ---  2.0   1.0  1.0  2.0   1.0 ---  247  RIGHT
                                                      STREET NAME:
THRU   571 ---> 2.0  (NO. OF LANES)   3.0<---  746  THRU  DUBLIN BLVD

RIGHT  381 ---  1.0   1.0  2.0  1.9   2.0 ---  111  LEFT
            |        <---    ^    --->       |
            v            |    |    |         v
  N                      |    |    |                 SIG WARRANTS:
W + E                   14    9    6                   Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? N

              STREET NAME: VILLAGE PARKWAY
======================================================================
              ORIGINAL   ADJUSTED               V/C     CRITICAL
  MOVEMENT     VOLUME     VOLUME*   CAPACITY   RATIO       V/C
----------------------------------------------------------------------
NB  RIGHT (R)     6          6        1650     0.0036
    THRU (T)      9          9        3300     0.0027     0.0027
    LEFT (L)     14         14        1650     0.0085
----------------------------------------------------------------------
SB  RIGHT (R)   301        189 *      1650     0.1145
    THRU (T)     70         70        1650     0.0424
    LEFT (L)    636        636        3000     0.2120     0.2120
----------------------------------------------------------------------
EB  RIGHT (R)   381        367 *      1650     0.2224     0.2224
    THRU (T)    571        571        3300     0.1730
    LEFT (L)    203        203        3000     0.0677
----------------------------------------------------------------------
WB  RIGHT (R)   247          0 *      1650     0.0000
    THRU (T)    746        746        4950     0.1507
    LEFT (L)    111        111        3000     0.0370     0.0370
======================================================================
    TOTAL VOLUME-TO-CAPACITY RATIO:                        0.47
    INTERSECTION LEVEL OF SERVICE:                           A
======================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINLT.INT,VOL=...EX.AMV+...APPROVED.AMV+...CUM.AMV+...PRO.AM
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Cumulative Plus Project AM Peak                     05/22/01
======================================================================
INTERSECTION     2 AMADOR PLAZA/DUBLIN BLVD          DUBLIN
Count Date                     Time                Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     8-PHASE SIGNAL
-----------            100  116  167
                         |    |    |
            ^            |    |    |          ^
            |          <---   v   --->        | Split? N
LEFT    99 ---  1.0    1.0  1.0  2.0    1.1 ---  160  RIGHT
                                                           STREET NAME:
THRU   821 ---> 3.0   (NO. OF LANES)    3.1<---  822  THRU  DUBLIN BLVD

RIGHT  280 ---  1.0    1.0  1.0  1.0    2.0 ---  265  LEFT
            |          <---   ^   --->        |
            v            |    |    |          v
 N                       |    |    |                    SIG WARRANTS:
W + E                  148  122  324                     Urb=Y, Rur=Y
 S                     LEFT THRU RIGHT Split? N

              STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 324 | 178 * | 1650 | 0.1079 | 0.1079 |
| THRU (T) | 122 | 122 | 1650 | 0.0739 | |
| LEFT (L) | 148 | 148 | 1650 | 0.0897 | |
| SB RIGHT (R) | 100 | 1 * | 1650 | 0.0006 | |
| THRU (T) | 116 | 116 | 1650 | 0.0703 | |
| LEFT (L) | 167 | 167 | 3000 | 0.0557 | 0.0557 |
| EB RIGHT (R) | 280 | 132 * | 1650 | 0.0800 | |
| THRU (T) | 821 | 821 | 4950 | 0.1659 | |
| LEFT (L) | 99 | 99 | 1650 | 0.0600 | 0.0600 |
| WB RIGHT (R) | 160 | 160 | 1650 | 0.0970 | |
| THRU (T) | 822 | 822 | 4950 | 0.1661 | |
| LEFT (L) | 265 | 265 | 3000 | 0.0883 | |
| T + R | | 982 | 4950 | 0.1984 | 0.1984 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.42

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.AMV+...APPROVED.AMV+...CUM.AMV+...PRO.AM

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Cumulative Plus Project AM Peak                   05/23/01
======================================================================
INTERSECTION     3 AMADOR PLAZA/ST PATRICKS/S680     DUBLIN
Count Date                  Time                Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------             79   90  524
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    63 ---  1.0   1.1  1.1  2.1   1.0 ---  290  RIGHT
                                                            STREET NAME:
THRU    99 ---> 1.1   (NO. OF LANES)   1.1<---  547  THRU   ST PATRICKS/S680

RIGHT    5 ---  1.1   1.0  1.1  1.1   1.1 ---   14  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    9   67    0                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

               STREET NAME: AMADOR PLAZA
======================================================================
```

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 0 | 0 | 1720 | 0.0000 | |
| | THRU (T) | 67 | 67 | 1720 | 0.0390 | 0.0390 |
| | LEFT (L) | 9 | 9 | 1720 | 0.0052 | |
| | T + R | | 67 | 1720 | 0.0390 | |
| SB | RIGHT (R) | 79 | 79 | 1720 | 0.0459 | |
| | THRU (T) | 90 | 90 | 1720 | 0.0523 | |
| | LEFT (L) | 524 | 524 | 3127 | 0.1676 | |
| | T + R | | 169 | 1720 | 0.0983 | |
| | T + L | | 614 | 3127 | 0.1964 | |
| | T + R + L | | 693 | 3127 | 0.2216 | 0.2216 |
| EB | RIGHT (R) | 5 | 5 | 1720 | 0.0029 | |
| | THRU (T) | 99 | 99 | 1720 | 0.0576 | |
| | LEFT (L) | 63 | 63 | 1720 | 0.0366 | 0.0366 |
| | T + R | | 104 | 1720 | 0.0605 | |
| WB | RIGHT (R) | 290 | 2 * | 1720 | 0.0012 | |
| | THRU (T) | 547 | 547 | 1720 | 0.3180 | |
| | LEFT (L) | 14 | 14 | 1720 | 0.0081 | |
| | T + L | | 561 | 1720 | 0.3262 | 0.3262 |

```
======================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.62
     INTERSECTION LEVEL OF SERVICE:                             B
======================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=...DUBLINLT.INT,VOL=...APPROVED.AMV+...CUM.AMV+...PRO.AMV,CAP=
```

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Cumulative Plus Project AM Peak                   05/22/01
=====================================================================
INTERSECTION     4 SAN RAMON RD/DUBLIN BLVD          DUBLIN
Count Date                  Time                  Peak Hour AM
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                   8-PHASE SIGNAL
----------            319 1374  292
                        |   |   |
            ^           |   |   |          ^
            |        <---   v   --->       | Split? N
LEFT   216 ---  2.0   1.0  3.0  2.0    1.0 ---   86  RIGHT
                                                       STREET NAME:
THRU   223 ---> 2.0   (NO. OF LANES)   1.0<---  281  THRU  DUBLIN BLVD

RIGHT  873 ---  2.0   2.0  3.0  2.5    3.0 ---  706  LEFT
            |        <---   ^   --->       |
            v           |   |   |          v
                                                       SIG WARRANTS:
  N                     |   |   |
W + E                  787  475 1137                    Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: SAN RAMON RD
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 1137 | 645 * | 3000 | 0.2150 | |
| THRU (T) | 475 | 475 | 4950 | 0.0960 | |
| LEFT (L) | 787 | 787 | 3000 | 0.2623 | 0.2623 |
| SB RIGHT (R) | 319 | 200 * | 1650 | 0.1212 | |
| THRU (T) | 1374 | 1374 | 4950 | 0.2776 | 0.2776 |
| LEFT (L) | 292 | 292 | 3000 | 0.0973 | |
| EB RIGHT (R) | 873 | 440 * | 3000 | 0.1467 | 0.1467 |
| THRU (T) | 223 | 223 | 3300 | 0.0676 | |
| LEFT (L) | 216 | 216 | 3000 | 0.0720 | |
| WB RIGHT (R) | 86 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 281 | 281 | 1650 | 0.1703 | |
| LEFT (L) | 706 | 706 | 4304 | 0.1640 | 0.1640 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.85

INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.AMV+...APPROVED.AMV+...CUM.AMV+...PRO.AM

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 49 | 646 | 584 | 426 | 448 | 211 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 53 | 702 | 635 | 463 | 487 | 229 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 53 | 702 | 1098 | 487 | 229 |
| Volume Left (vph) | 53 | 0 | 0 | 487 | 0 |
| Volume Right (vph) | 0 | 0 | 463 | 0 | 229 |
| Hadj (s) | 0.2 | 0.0 | -0.2 | 0.2 | -0.6 |
| Departure Headway (s) | 7.8 | 7.6 | 6.7 | 7.7 | 6.9 |
| Degree Utilization, x | 0.11 | 1.47 | 2.05 | 1.04 | 0.44 |
| Capacity (veh/h) | 457 | 480 | 544 | 473 | 517 |
| Control Delay (s) | 10.6 | 244.3 | 496.0 | 79.5 | 14.0 |
| Approach Delay (s) | 227.9 | | 496.0 | 58.5 | |
| Approach LOS | F | | F | F | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 295.2 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 95.3% | ICU Level of Service | E |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Cumulative + Proj. (W/ Signalization) AM Peak        05/23/01
=====================================================================
INTERSECTION     5 Silvergate Drive/Dublin Boulevard Dublin
Count Date                  Time                  Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------           211    0  448
                        |    |    |
           ^            |    |    |        ^
           |          <---   v   --->      | Split? N
LEFT    49 ---  1.0   1.0  0.0  1.0   1.0 ---  426  RIGHT
                                                     STREET NAME:
THRU   646 ---> 1.0   (NO. OF LANES)  1.0<---  584  THRU  Dublin Boulevard

RIGHT    0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
           |          <---   ^   --->      |
           v            |    |    |        v
                                                     SIG WARRANTS:
  N                     |    |    |
W + E                   0    0    0                    Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

             STREET NAME: Silvergate Drive
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 211 | 162 * | 1650 | 0.0982 | |
| LEFT (L) | 448 | 448 | 1650 | 0.2715 | 0.2715 |
| EB THRU (T) | 646 | 646 | 1650 | 0.3915 | 0.3915 |
| LEFT (L) | 49 | 49 | 1650 | 0.0297 | |
| WB RIGHT (R) | 426 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 584 | 584 | 1650 | 0.3539 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.66

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...APPROVED.AMV+...CUM.AMV+...EX.AMV+...PRO.AM

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 4 | 113 | 11 | 894 | 702 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 4 | 123 | 12 | 972 | 763 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 984 | | | | 143 | 12 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 10 | 100 |
| cM capacity (veh/h) | 702 | | | | 844 | 1069 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 4 | 123 | 12 | 972 | 763 |
| Volume Left | 4 | 0 | 0 | 0 | 763 |
| Volume Right | 0 | 0 | 0 | 972 | 0 |
| cSH | 702 | 1700 | 1700 | 1700 | 844 |
| Volume to Capacity | 0.01 | 0.07 | 0.01 | 0.57 | 0.90 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 315 |
| Control Delay (s) | 10.2 | 0.0 | 0.0 | 0.0 | 34.6 |
| Lane LOS | B | | | | D |
| Approach Delay (s) | 0.3 | | 0.0 | | 34.6 |
| Approach LOS | | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 14.1 | | |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
======================================================================
Condition: Cumulative + Proj. (W/ Signalization) AM Peak       05/23/01
======================================================================
INTERSECTION     6 Inspiration Dr./Dublin Boulevard  Dublin
Count Date                    Time                Peak Hour
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    4-PHASE SIGNAL
----------              0    0  702
                        |    |    |
            ^           |    |    |          ^
            |         <---   v   --->        | Split? N
LEFT     4 --- 1.0   1.1  0.0  1.1   1.0 --- 894  RIGHT
                                                      STREET NAME:
THRU   113 ---> 1.0  (NO. OF LANES)  1.0<---  11  THRU  Dublin Boulevard

RIGHT    0 --- 0.0   0.0  0.0  0.0   0.0 ---   0  LEFT
            |         <---   ^   --->        |
            v           |    |    |          v
  N                     |    |    |                   SIG WARRANTS:
W + E                   0    0    0                    Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

             STREET NAME: Inspiration Dr.
======================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 0 | 0 | 1650 | 0.0000 | |
| LEFT (L) | 702 | 702 | 1650 | 0.4255 | 0.4255 |
| T + R + L | | 702 | 1650 | 0.4255 | |
| EB THRU (T) | 113 | 113 | 1650 | 0.0685 | |
| LEFT (L) | 4 | 4 | 1650 | 0.0024 | 0.0024 |
| WB RIGHT (R) | 894 | 192 * | 1650 | 0.1164 | 0.1164 |
| THRU (T) | 11 | 11 | 1650 | 0.0067 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.54

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...APPROVED.AMV+...CUM.AMV+...EX.AMV+...PRO.AM

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
======================================================================
Condition: Cumulative Plus Project AM Peak                    05/22/01
======================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE            DUBLIN
Count Date                 Time               Peak Hour AM
----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------           172 1568    0
                        |   |   |
               ^        |   |   |           ^
               |      <---  v  --->         | Split? N
LEFT   162 ---  1.0   1.0  2.0  0.0   0.0 ---   0  RIGHT
                                                      STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   0.0<---   0  THRU  SILVERGATE

RIGHT  396 ---  1.0   1.0  2.0  0.0   0.0 ---   0  LEFT
               |      <---  ^  --->         |
               v        |   |   |           v
 N                      |   |   |                     SIG WARRANTS:
W + E                 159  631    0                     Urb=Y, Rur=Y
 S                    LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
======================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB THRU (T) | 631 | 631 | 3300 | 0.1912 | |
| LEFT (L) | 159 | 159 | 1650 | 0.0964 | 0.0964 |
| SB RIGHT (R) | 172 | 10 * | 1650 | 0.0061 | |
| THRU (T) | 1568 | 1568 | 3300 | 0.4752 | 0.4752 |
| EB RIGHT (R) | 396 | 237 * | 1650 | 0.1436 | 0.1436 |
| LEFT (L) | 162 | 162 | 1650 | 0.0982 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.72

INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.AMV+...APPROVED.AMV+...CUM.AMV+...PRO.AM

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Cumulative Plus Project AM Peak                  05/22/01
=====================================================================
INTERSECTION    8 SAN RAMON/AMADOR VALLEY        DUBLIN
Count Date                 Time               Peak Hour AM
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                  6-PHASE SIGNAL
-----------            116 1346  419
                         |    |    |
              ^          |    |    |           ^
              |        <---   v   --->         | Split? Y
LEFT    63 ---  1.0   1.0  3.0  2.0   1.9 ---  265  RIGHT
                                                       STREET NAME:
THRU    55 ---> 1.0  (NO. OF LANES)   1.1<---   56  THRU  AMADOR VALLEY

RIGHT   64 ---  1.0   1.0  2.0  1.0   2.1 ---  429  LEFT
              |        <---   ^   --->         |
              v          |    |    |           v
  N                      |    |    |                 SIG WARRANTS:
W + E                   88  464  258                   Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

               STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 258 | 22 * | 1650 | 0.0133 | |
| THRU (T) | 464 | 464 | 3300 | 0.1406 | 0.1406 |
| LEFT (L) | 88 | 88 | 1650 | 0.0533 | |
| SB RIGHT (R) | 116 | 53 * | 1650 | 0.0321 | |
| THRU (T) | 1346 | 1346 | 4950 | 0.2719 | 0.2719 |
| LEFT (L) | 419 | 419 | 3000 | 0.1397 | |
| EB RIGHT (R) | 64 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 55 | 55 | 1650 | 0.0333 | |
| LEFT (L) | 63 | 63 | 1650 | 0.0382 | 0.0382 |
| WB RIGHT (R) | 265 | 265 | 1650 | 0.1606 | |
| THRU (T) | 56 | 56 | 1650 | 0.0339 | |
| LEFT (L) | 429 | 429 | 3000 | 0.1430 | |
| T + L | | 485 | 3000 | 0.1617 | 0.1617 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.61

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.AMV+...APPROVED.AMV+...CUM.AMV+...PRO.AM

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 41 | 8 | 79 | 60 | 27 | 118 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 45 | 9 | 86 | 65 | 29 | 128 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 53 | 151 | 158 |
| Volume Left (vph) | 45 | 0 | 29 |
| Volume Right (vph) | 9 | 65 | 0 |
| Hadj (s) | 0.1 | -0.2 | 0.1 |
| Departure Headway (s) | 4.4 | 3.9 | 4.2 |
| Degree Utilization, x | 0.07 | 0.17 | 0.18 |
| Capacity (veh/h) | 595 | 888 | 843 |
| Control Delay (s) | 7.7 | 7.7 | 8.2 |
| Approach Delay (s) | 7.7 | 7.7 | 8.2 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.9 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 23.2% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 40 | 88 | 53 | 449 | 555 | 38 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 43 | 96 | 58 | 488 | 603 | 41 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1207 | 603 | 645 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 77 | 81 | 94 | | | |
| cM capacity (veh/h) | 190 | 499 | 941 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 43 | 96 | 58 | 488 | 603 | 41 |
| Volume Left | 43 | 0 | 58 | 0 | 0 | 0 |
| Volume Right | 0 | 96 | 0 | 0 | 0 | 41 |
| cSH | 190 | 499 | 941 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.23 | 0.19 | 0.06 | 0.29 | 0.35 | 0.02 |
| Queue Length (ft) | 21 | 18 | 5 | 0 | 0 | 0 |
| Control Delay (s) | 29.4 | 13.9 | 9.1 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | B | A | | | |
| Approach Delay (s) | 18.8 | | 1.0 | | 0.0 | |
| Approach LOS | C | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 44.3% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 76 | 250 | 112 | 145 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 83 | 272 | 122 | 158 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 828 | 163 | 168 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 91 | 81 | | | |
| cM capacity (veh/h) | 275 | 882 | 1409 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 83 | 272 | 122 | 168 |
| Volume Left | 0 | 272 | 0 | 0 |
| Volume Right | 83 | 0 | 0 | 11 |
| cSH | 882 | 1409 | 1700 | 1700 |
| Volume to Capacity | 0.09 | 0.19 | 0.07 | 0.10 |
| Queue Length (ft) | 8 | 18 | 0 | 0 |
| Control Delay (s) | 9.5 | 8.2 | 0.0 | 0.0 |
| Lane LOS | A | A | | |
| Approach Delay (s) | 9.5 | 5.6 | | 0.0 |
| Approach LOS | A | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.7 | | |
| Intersection Capacity Utilization | 39.1% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 370 | 304 | 347 | 204 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 0 | 402 | 330 | 377 | 222 | 11 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1265 | 227 | 233 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 50 | 75 | | | |
| cM capacity (veh/h) | 141 | 812 | 1335 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 0 | 402 | 330 | 377 | 233 |
| Volume Left | 0 | 0 | 330 | 0 | 0 |
| Volume Right | 0 | 402 | 0 | 0 | 11 |
| cSH | 1700 | 812 | 1335 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.50 | 0.25 | 0.22 | 0.14 |
| Queue Length (ft) | 0 | 70 | 24 | 0 | 0 |
| Control Delay (s) | 0.0 | 13.7 | 8.6 | 0.0 | 0.0 |
| Lane LOS | A | B | A | | |
| Approach Delay (s) | 13.7 | | 4.0 | | 0.0 |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.2 | | |
| Intersection Capacity Utilization | 43.9% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 11 | 30 | 126 | 620 | 494 | 25 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 12 | 33 | 137 | 674 | 537 | 27 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1498 | 551 | 564 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 90 | 94 | 86 | | | |
| cM capacity (veh/h) | 116 | 534 | 1007 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 12 | 33 | 137 | 674 | 564 |
| Volume Left | 12 | 0 | 137 | 0 | 0 |
| Volume Right | 0 | 33 | 0 | 0 | 27 |
| cSH | 116 | 534 | 1007 | 1700 | 1700 |
| Volume to Capacity | 0.10 | 0.06 | 0.14 | 0.40 | 0.33 |
| Queue Length (ft) | 8 | 5 | 12 | 0 | 0 |
| Control Delay (s) | 39.4 | 12.2 | 9.1 | 0.0 | 0.0 |
| Lane LOS | E | B | A | | |
| Approach Delay (s) | 19.5 | | 1.5 | | 0.0 |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 50.8% | ICU Level of Service | A |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Cumulative Plus Project PM Peak 05/22/01

INTERSECTION 1 VILLAGE PARKWAY/DUBLIN BLVD DUBLIN

Count Date Time Peak Hour

```
CCTA METHOD             RIGHT THRU LEFT                        8-PHASE SIGNAL
-----------               420  121  485
                           |    |    |
            ^              |         |          ^
            |            <---   v   --->        | Split? N
LEFT   276 ---  2.0    1.0  1.0  2.0    1.0 ---  421  RIGHT
                                                             STREET NAME:
THRU  1320 ---> 2.0   (NO. OF LANES)    3.0<--- 1211  THRU  DUBLIN BLVD

RIGHT  853 ---  1.0    1.0  2.0  1.9    2.0 ---  261  LEFT
            |          <---   ^   --->      |
            v            |    |    |        v
  N                      |    |    |                     SIG WARRANTS:
W + E                    99   33   32                      Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

             STREET NAME: VILLAGE PARKWAY
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 32 | 32 | 1650 | 0.0194 | |
| THRU (T) | 83 | 83 | 3300 | 0.0252 | |
| LEFT (L) | 99 | 99 | 1650 | 0.0600 | 0.0600 |
| SB RIGHT (R) | 420 | 268 * | 1650 | 0.1624 | 0.1624 |
| THRU (T) | 121 | 121 | 1650 | 0.0733 | |
| LEFT (L) | 485 | 485 | 3000 | 0.1617 | |
| EB RIGHT (R) | 853 | 754 * | 1650 | 0.4570 | 0.4570 |
| THRU (T) | 1320 | 1320 | 3300 | 0.4000 | |
| LEFT (L) | 276 | 276 | 3000 | 0.0920 | |
| WB RIGHT (R) | 421 | 154 * | 1650 | 0.0933 | |
| THRU (T) | 1211 | 1211 | 4950 | 0.2446 | |
| LEFT (L) | 261 | 261 | 3000 | 0.0870 | 0.0870 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77

INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.PMV+...APPROVED.PMV+...CUM.PMV+...PRO.PM

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Cumulative Plus Project PM Peak                   05/22/01
=====================================================================
INTERSECTION     2 AMADOR PLAZA/DUBLIN BLVD         DUBLIN
Count Date                  Time               Peak Hour
---------------------------------------------------------------------
CCTA METHOD           RIGHT THRU LEFT                  8-PHASE SIGNAL
-----------             180  138  385
                         |    |    |
            ^            |    |    |         ^
            |       <---    v    --->        | Split? N
LEFT   209 ---  1.0   1.0  1.0  2.0   1.1 ---  258  RIGHT
                                                     STREET NAME:
THRU  1632 ---> 3.0  (NO. OF LANES)   3.1<---  977  THRU  DUBLIN BLVD

RIGHT  193 ---  1.0   1.0  1.0  1.0   2.0 ---  584  LEFT
            |       <---    ^    --->        |
            v            |    |    |         v
  N                      |    |    |                 SIG WARRANTS:
W + E                   228  120  511                  Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? N

              STREET NAME: AMADOR PLAZA
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 511 | 190 * | 1650 | 0.1152 | 0.1152 |
| THRU (T) | 120 | 120 | 1650 | 0.0727 | |
| LEFT (L) | 228 | 228 | 1650 | 0.1382 | |
| SB RIGHT (R) | 180 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 138 | 138 | 1650 | 0.0836 | |
| LEFT (L) | 385 | 385 | 3000 | 0.1283 | 0.1283 |
| EB RIGHT (R) | 193 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 1632 | 1632 | 4950 | 0.3297 | 0.3297 |
| LEFT (L) | 209 | 209 | 1650 | 0.1267 | |
| WB RIGHT (R) | 258 | 258 | 1650 | 0.1564 | |
| THRU (T) | 977 | 977 | 4950 | 0.1974 | |
| LEFT (L) | 584 | 584 | 3000 | 0.1947 | 0.1947 |
| T + R | | 1235 | 4950 | 0.2495 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.77

INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.PMV+...APPROVED.PMV+...CUM.PMV+...PRO.PM

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

==========================================================================

Condition: Cumulative Plus Project PM Peak 05/23/01

==========================================================================

INTERSECTION 3 AMADOR PLAZA/ST PATRICKS/S680 DUBLIN

Count Date Time Peak Hour

```
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    3-PHASE SIGNAL
----------              48  272  616
                         |   |    |
            ^            |   |    |          ^
            |          <---  v   --->        | Split? N
LEFT   208 ---  1.0    1.1  1.1  2.1    1.0 ---  257  RIGHT
                                                          STREET NAME:
THRU   252 ---> 1.1   (NO. OF LANES)    1.1<---  268  THRU  ST PATRICKS/S680

RIGHT    6 ---  1.1    1.0  1.1  1.1    1.1 ---   62  LEFT
            |          <---   ^  --->        |
            v            |   |    |          v
  N                      |   |    |                   SIG WARRANTS:
W + E                   16  246   0                     Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y
      -  -  -  -  -  -  -  -  -  -  -  -             -  -  -  -
               STREET NAME: AMADOR PLAZA
```

==========================================================================

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 0 | 0 | 1720 | 0.0000 | |
| THRU (T) | 246 | 246 | 1720 | 0.1430 | 0.1430 |
| LEFT (L) | 16 | 16 | 1720 | 0.0093 | |
| T + R | | 246 | 1720 | 0.1430 | |
| SB RIGHT (R) | 48 | 48 | 1720 | 0.0279 | |
| THRU (T) | 272 | 272 | 1720 | 0.1581 | |
| LEFT (L) | 616 | 616 | 3127 | 0.1970 | |
| T + R | | 320 | 1720 | 0.1860 | |
| T + L | | 888 | 3127 | 0.2840 | |
| T + R + L | | 936 | 3127 | 0.2993 | 0.2993 |
| EB RIGHT (R) | 6 | 6 | 1720 | 0.0035 | |
| THRU (T) | 252 | 252 | 1720 | 0.1465 | |
| LEFT (L) | 208 | 208 | 1720 | 0.1209 | 0.1209 |
| T + R | | 258 | 1720 | 0.1500 | |
| WB RIGHT (R) | 257 | 0 * | 1720 | 0.0000 | |
| THRU (T) | 268 | 268 | 1720 | 0.1558 | |
| LEFT (L) | 62 | 62 | 1720 | 0.0360 | |
| T + L | | 330 | 1720 | 0.1919 | 0.1919 |

==========================================================================

TOTAL VOLUME-TO-CAPACITY RATIO: 0.76

INTERSECTION LEVEL OF SERVICE: C

==========================================================================

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...APPROVED.PMV+...CUM.PMV+...PRO.PMV,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: Cumulative Plus Project PM Peak                   05/22/01
=====================================================================
INTERSECTION    4 SAN RAMON RD/DUBLIN BLVD          DUBLIN
Count Date                  Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                     8-PHASE SIGNAL
-----------           108  760  317
                       |    |    |
            ^          |    |    |          ^
            |        <---   v   --->        | Split? N
LEFT   160 ---  2.0   1.0  3.0  2.0   1.0 ---  342  RIGHT
                                                        STREET NAME:
THRU   473 ---> 2.0  (NO. OF LANES)   1.0<---  380  THRU  DUBLIN BLVD

RIGHT  592 ---  2.0   2.0  3.0  2.5   3.0 --- 1437  LEFT
            |        <---   ^   --->        |
            v          |    |    |          v
 N                     |    |    |                      SIG WARRANTS:
W + E                 664 1071 1548                       Urb=Y, Rur=Y
 S                   LEFT THRU RIGHT Split? N

              STREET NAME: SAN RAMON RD
=====================================================================
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB RIGHT (R) | 1548 | 546 * | 3000 | 0.1820 | |
| THRU (T) | 1071 | 1071 | 4950 | 0.2164 | |
| LEFT (L) | 664 | 664 | 3000 | 0.2213 | 0.2213 |
| SB RIGHT (R) | 108 | 20 * | 1650 | 0.0121 | |
| THRU (T) | 760 | 760 | 4950 | 0.1535 | 0.1535 |
| LEFT (L) | 317 | 317 | 3000 | 0.1057 | |
| EB RIGHT (R) | 592 | 227 * | 3000 | 0.0757 | |
| THRU (T) | 473 | 473 | 3300 | 0.1433 | 0.1433 |
| LEFT (L) | 160 | 160 | 3000 | 0.0533 | |
| WB RIGHT (R) | 342 | 168 * | 1650 | 0.1018 | |
| THRU (T) | 380 | 380 | 1650 | 0.2303 | |
| LEFT (L) | 1437 | 1437 | 4304 | 0.3339 | 0.3339 |

| | |
|---|---|
| TOTAL VOLUME-TO-CAPACITY RATIO: | 0.85 |
| INTERSECTION LEVEL OF SERVICE: | D |

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.PMV+...APPROVED.PMV+...CUM.PMV+...PRO.PM

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Stop | Stop | | Stop | |
| Volume (veh/h) | 19 | 306 | 274 | 425 | 415 | 15 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 21 | 333 | 298 | 462 | 451 | 16 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 21 | 333 | 760 | 451 | 16 |
| Volume Left (vph) | 21 | 0 | 0 | 451 | 0 |
| Volume Right (vph) | 0 | 0 | 462 | 0 | 16 |
| Hadj (s) | 0.2 | 0.0 | -0.3 | 0.2 | -0.6 |
| Departure Headway (s) | 7.5 | 7.3 | 6.3 | 7.3 | 6.5 |
| Degree Utilization, x | 0.04 | 0.67 | 1.32 | 0.92 | 0.03 |
| Capacity (veh/h) | 466 | 479 | 580 | 481 | 540 |
| Control Delay (s) | 9.6 | 22.8 | 177.0 | 48.9 | 8.5 |
| Approach Delay (s) | 22.0 | | 177.0 | 47.4 | |
| Approach LOS | C | | F | E | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 104.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 75.7% | ICU Level of Service | C |

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=======================================================================
Condition: Cumulative + Proj. (W/ Signalization) PM Peak       05/23/01
=======================================================================
INTERSECTION     5 Silvergate Drive/Dublin Boulevard Dublin
Count Date                 Time                Peak Hour
-----------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------             15    0  415
                         |    |    |
             ^           |    |    |         ^
             |         <---   v   --->       | Split? N
LEFT    19 ---  1.0   1.0  0.0  1.0   1.0 ---  425  RIGHT
                                                        STREET NAME:
THRU   306 ---> 1.0   (NO. OF LANES)   1.0<---  274  THRU  Dublin Boulevard

RIGHT    0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  LEFT
             |         <---   ^   --->       |
             v           |    |    |         v
  N                      |    |    |                    SIG WARRANTS:
W + E                    0    0    0                      Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: Silvergate Drive
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 15 | 0 * | 1650 | 0.0000 | |
| LEFT (L) | 415 | 415 | 1650 | 0.2515 | 0.2515 |
| EB THRU (T) | 306 | 306 | 1650 | 0.1855 | 0.1855 |
| LEFT (L) | 19 | 19 | 1650 | 0.0115 | |
| WB RIGHT (R) | 425 | 10 * | 1650 | 0.0061 | |
| THRU (T) | 274 | 274 | 1650 | 0.1661 | |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.44

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...APPROVED.PMV+...CUM.PMV+...EX.PMV+...PRO.PM

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 3 | 63 | 172 | 216 | 267 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 3 | 68 | 187 | 235 | 290 | 2 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 422 | | | | 262 | 187 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 60 | 100 |
| cM capacity (veh/h) | 1137 | | | | 725 | 855 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 3 | 68 | 187 | 235 | 292 |
| Volume Left | 3 | 0 | 0 | 0 | 290 |
| Volume Right | 0 | 0 | 0 | 235 | 2 |
| cSH | 1137 | 1700 | 1700 | 1700 | 726 |
| Volume to Capacity | 0.00 | 0.04 | 0.11 | 0.14 | 0.40 |
| Queue Length (ft) | 0 | 0 | 0 | 0 | 49 |
| Control Delay (s) | 8.2 | 0.0 | 0.0 | 0.0 | 13.3 |
| Lane LOS | A | | | | B |
| Approach Delay (s) | 0.4 | | 0.0 | | 13.3 |
| Approach LOS | | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.0 | | |
| Intersection Capacity Utilization | 32.7% | ICU Level of Service | A |

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=======================================================================
Condition: Cumulative + Proj. (W/ Signalization) PM Peak       05/23/01
=======================================================================
INTERSECTION    6 Inspiration Dr./Dublin Boulevard  Dublin
Count Date                   Time                Peak Hour
-----------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------              2    0  267
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     3 --- 1.0    1.1  0.0  1.1    1.0 ---  216  RIGHT
                                                          STREET NAME:
THRU    63 ---> 1.0   (NO. OF LANES)   1.0<---  172  THRU  Dublin Boulevard

RIGHT    0 --- 0.0    0.0  0.0  0.0    0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                   SIG WARRANTS:
W + E                    0    0    0                    Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? N

              STREET NAME: Inspiration Dr.
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| SB RIGHT (R) | 2 | 2 | 1650 | 0.0012 | |
| LEFT (L) | 267 | 267 | 1650 | 0.1618 | |
| T + R + L | | 269 | 1650 | 0.1630 | 0.1630 |
| EB THRU (T) | 63 | 63 | 1650 | 0.0382 | |
| LEFT (L) | 3 | 3 | 1650 | 0.0018 | 0.0018 |
| WB RIGHT (R) | 216 | 0 * | 1650 | 0.0000 | |
| THRU (T) | 172 | 172 | 1650 | 0.1042 | 0.1042 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.27

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...APPROVED.PMV+...CUM.PMV+...EX.PMV+...PRO.PM

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Cumulative Plus Project PM Peak                   05/22/01
=====================================================================
INTERSECTION     7 SAN RAMON/SILVERGATE            DUBLIN
Count Date                   Time               Peak Hour
---------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------          209 1417    0
                       |   |   |
           ^           |   |   |          ^
           |        <---   v   --->       | Split? N
LEFT    95 --- 1.0   1.0  2.0  0.0   0.0 ---    0  RIGHT
                                                       STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)  0.0<---    0  THRU  SILVERGATE

RIGHT  162 --- 1.0   1.0  2.0  0.0   0.0 ---    0  LEFT
           |        <---   ^   --->       |
           v           |   |   |          v
 N                     |   |   |                    SIG WARRANTS:
W + E                363 1259    0                   Urb=Y, Rur=Y
 S                  LEFT THRU RIGHT Split? N

               STREET NAME: SAN RAMON
```

| MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|
| NB THRU (T) | 1259 | 1259 | 3300 | 0.3815 | |
| LEFT (L) | 363 | 363 | 1650 | 0.2200 | 0.2200 |
| SB RIGHT (R) | 209 | 114 * | 1650 | 0.0691 | |
| THRU (T) | 1417 | 1417 | 3300 | 0.4294 | 0.4294 |
| EB RIGHT (R) | 162 | 0 * | 1650 | 0.0000 | |
| LEFT (L) | 95 | 95 | 1650 | 0.0576 | 0.0576 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.71

INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.PMV+...APPROVED.PMV+...CUM.PMV+...PRO.PM

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

```
=====================================================================
Condition: Cumulative Plus Project PM Peak                   05/22/01
=====================================================================
INTERSECTION     8 SAN RAMON/AMADOR VALLEY         DUBLIN
Count Date                   Time              Peak Hour
---------------------------------------------------------------------
CCTA METHOD         RIGHT THRU LEFT                   6-PHASE SIGNAL
-----------            57  865  578
                        |    |    |
            ^           |    |    |          ^
            |        <---    v    --->       | Split? Y
LEFT    66 ---  1.0   1.0  3.0  2.0   1.9 ---  660  RIGHT
                                                     STREET NAME:
THRU    73 ---> 1.0   (NO. OF LANES)   1.1<---   96  THRU  AMADOR VALLEY

RIGHT   69 ---  1.0   1.0  2.0  1.0   2.1 ---  413  LEFT
            |        <---    ^    --->       |
            v           |    |    |          v
 N                      |    |    |                  SIG WARRANTS:
W + E                  218  964  531                   Urb=Y, Rur=Y
 S                     LEFT THRU RIGHT Split? Y

               STREET NAME: SAN RAMON
```

| | MOVEMENT | ORIGINAL VOLUME | ADJUSTED VOLUME* | CAPACITY | V/C RATIO | CRITICAL V/C |
|---|---|---|---|---|---|---|
| NB | RIGHT (R) | 531 | 304 * | 1650 | 0.1842 | |
| | THRU (T) | 964 | 964 | 3300 | 0.2921 | 0.2921 |
| | LEFT (L) | 218 | 218 | 1650 | 0.1321 | |
| SB | RIGHT (R) | 57 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 865 | 865 | 4950 | 0.1747 | |
| | LEFT (L) | 578 | 578 | 3000 | 0.1927 | 0.1927 |
| EB | RIGHT (R) | 69 | 0 * | 1650 | 0.0000 | |
| | THRU (T) | 73 | 73 | 1650 | 0.0442 | 0.0442 |
| | LEFT (L) | 66 | 66 | 1650 | 0.0400 | |
| WB | RIGHT (R) | 660 | 660 | 1650 | 0.4000 | |
| | THRU (T) | 96 | 96 | 1650 | 0.0582 | |
| | LEFT (L) | 413 | 413 | 3000 | 0.1377 | |
| | T + L | | 509 | 3000 | 0.1697 | 0.1697 |

TOTAL VOLUME-TO-CAPACITY RATIO: 0.70

INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=...DUBLINLT.INT,VOL=...EX.PMV+...APPROVED.PMV+...CUM.PMV+...PRO.PM

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Stop | | | Stop |
| Volume (veh/h) | 13 | 8 | 66 | 44 | 5 | 107 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 14 | 9 | 72 | 48 | 5 | 116 |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total (vph) | 23 | 120 | 122 |
| Volume Left (vph) | 14 | 0 | 5 |
| Volume Right (vph) | 9 | 48 | 0 |
| Hadj (s) | -0.1 | -0.2 | 0.0 |
| Departure Headway (s) | 4.1 | 3.9 | 4.1 |
| Degree Utilization, x | 0.03 | 0.13 | 0.14 |
| Capacity (veh/h) | 622 | 914 | 871 |
| Control Delay (s) | 7.2 | 7.4 | 7.7 |
| Approach Delay (s) | 7.2 | 7.4 | 7.7 |
| Approach LOS | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.6 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 16.7% | ICU Level of Service | A |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 5 | 57 | 73 | 409 | 379 | 33 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 5 | 62 | 79 | 445 | 412 | 36 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 1015 | 412 | 448 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 90 | 93 | | | |
| cM capacity (veh/h) | 245 | 640 | 1112 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 5 | 62 | 79 | 445 | 412 | 36 |
| Volume Left | 5 | 0 | 79 | 0 | 0 | 0 |
| Volume Right | 0 | 62 | 0 | 0 | 0 | 36 |
| cSH | 245 | 640 | 1112 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.10 | 0.07 | 0.26 | 0.24 | 0.02 |
| Queue Length (ft) | 2 | 8 | 6 | 0 | 0 | 0 |
| Control Delay (s) | 20.0 | 11.2 | 8.5 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | B | A | | | |
| Approach Delay (s) | 11.9 | | 1.3 | | 0.0 | |
| Approach LOS | B | | | | | |

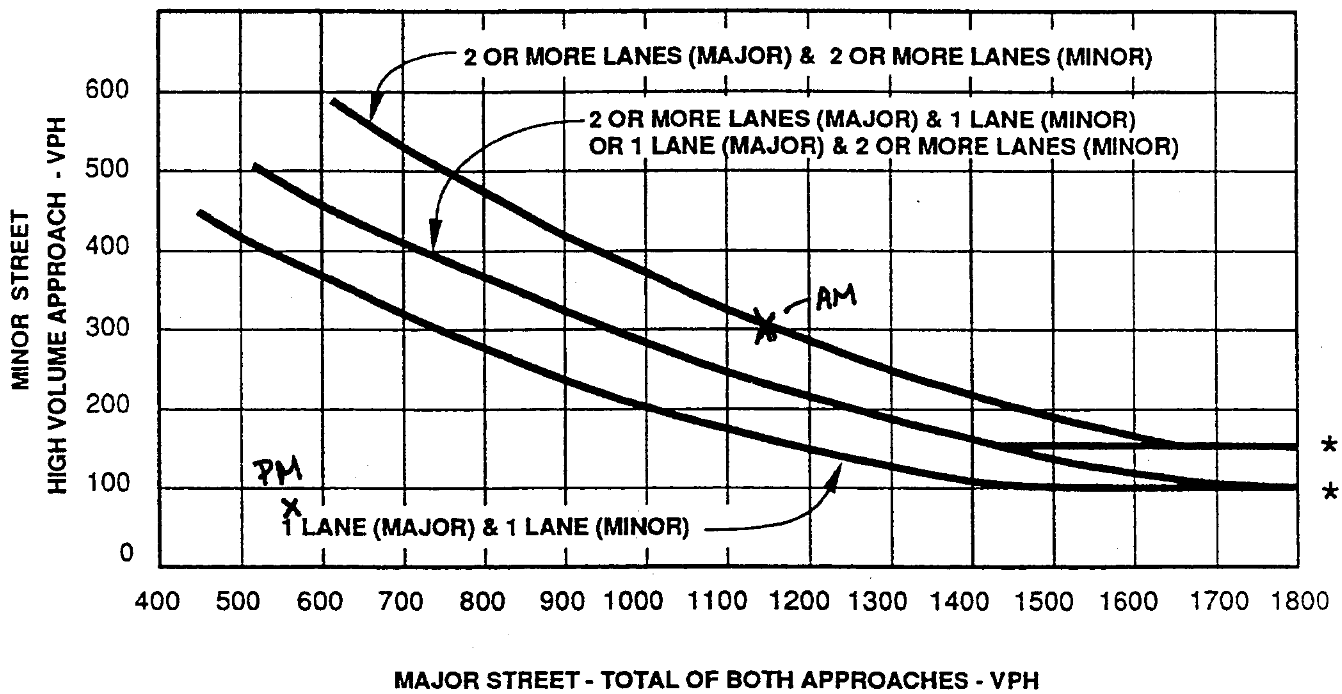
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 39.4% | ICU Level of Service | A |

# APPENDIX C

## CalTrans Traffic Signal Warrant Sheets

# Figure 9-8
# PEAK HOUR VOLUME WARRANT
# (Urban Areas)

DUBLIN / SILVERGATE
(EXISTING)

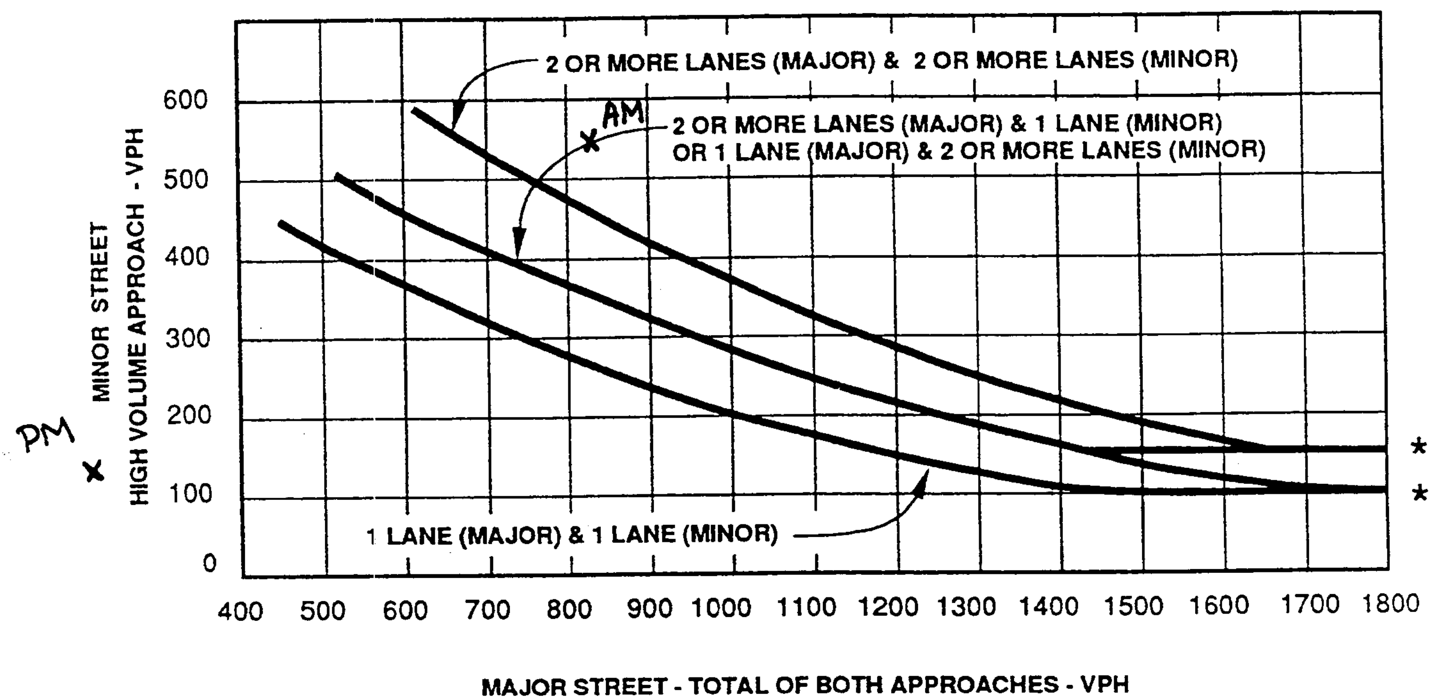



*** NOTE:**

**150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.**

## Figure 9-8
## PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / INSPIRATION
(EXISTING)

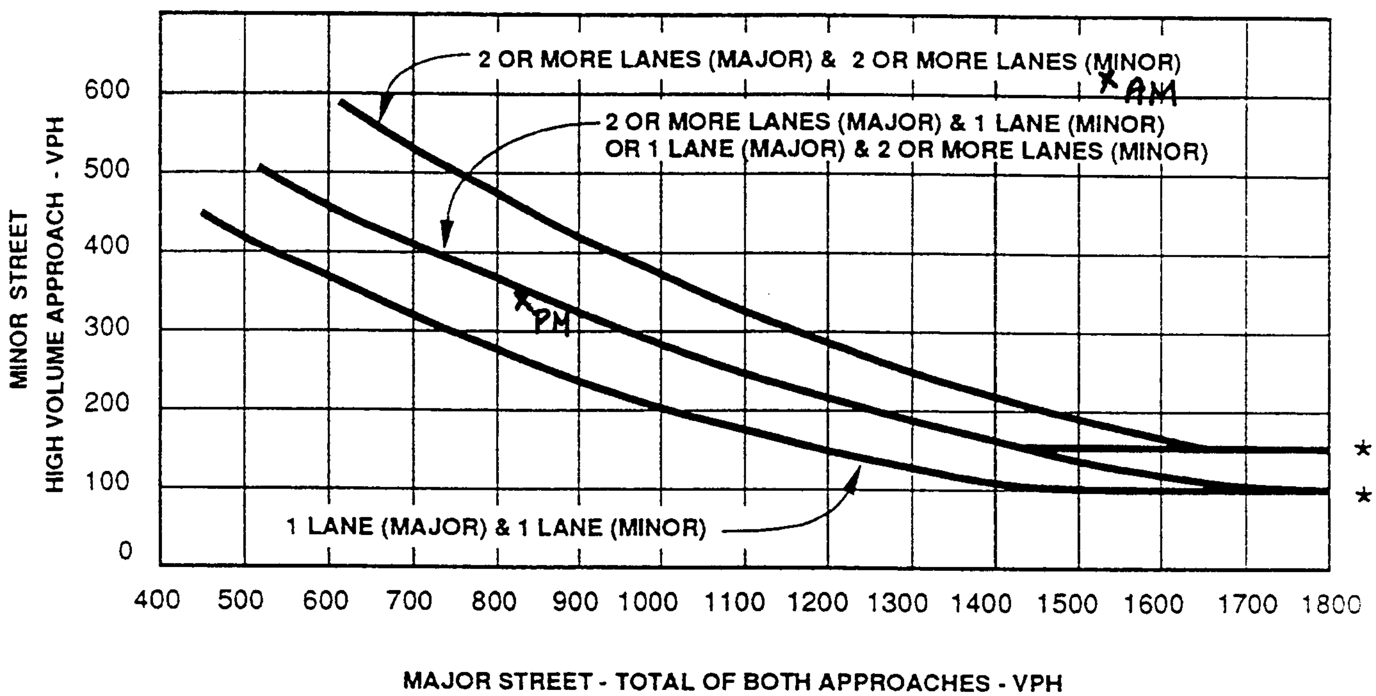



* NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 9-8
## PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / SILVERGATE

BASELINE (NO PROJECT)

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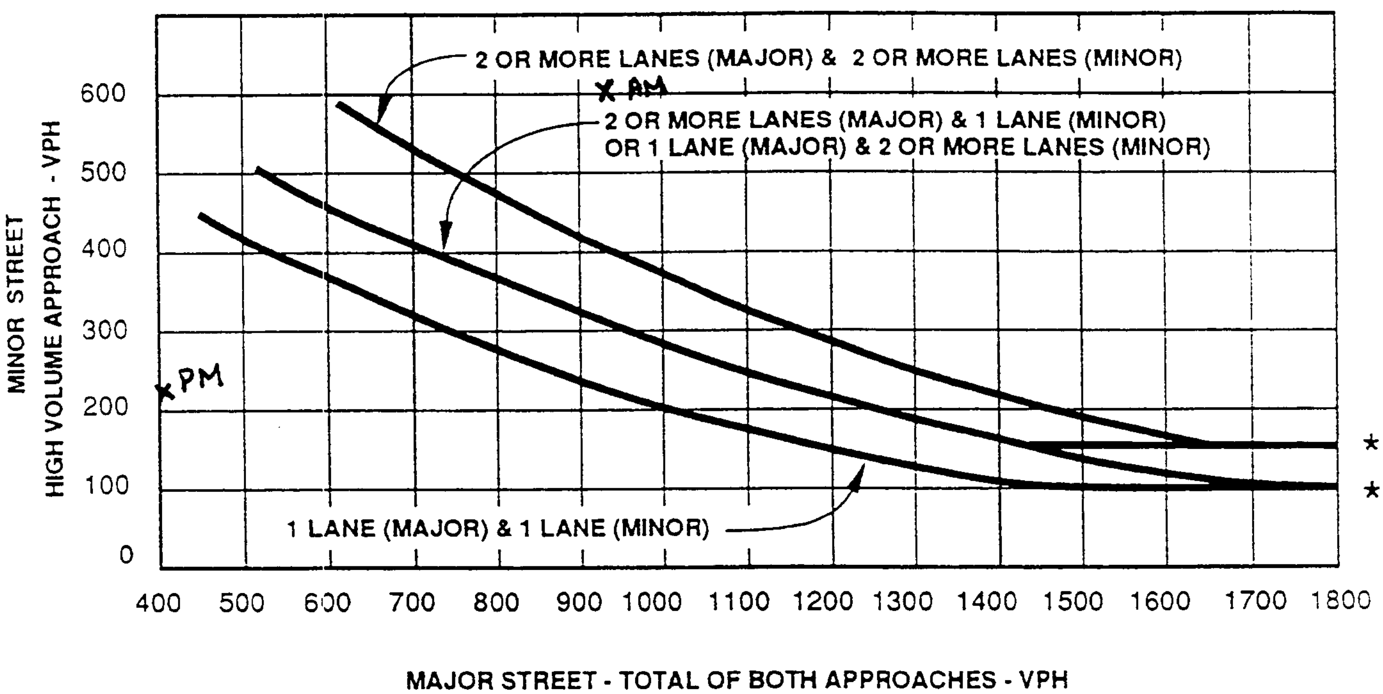
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 9-8
# PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / INSPIRATION

BASELINE (NO PROJECT)

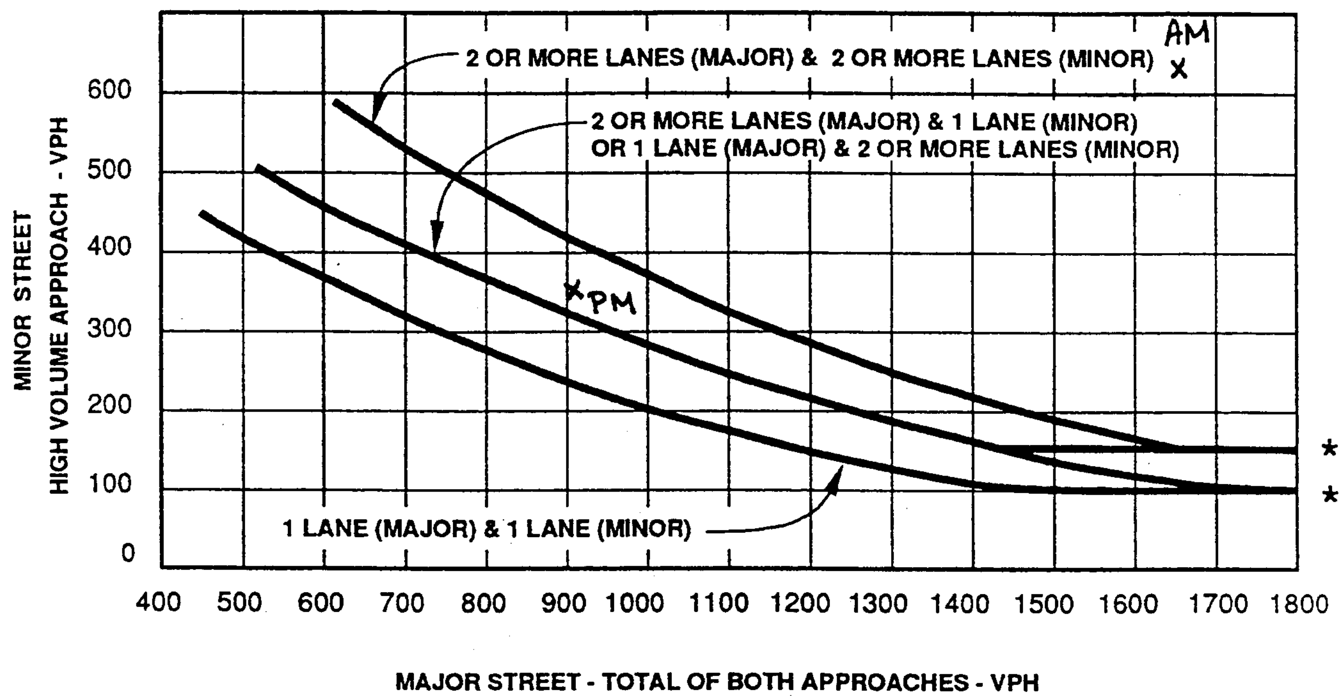



* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 9-8
## PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / SILVERGATE
BASELINE PLUS PROJECT

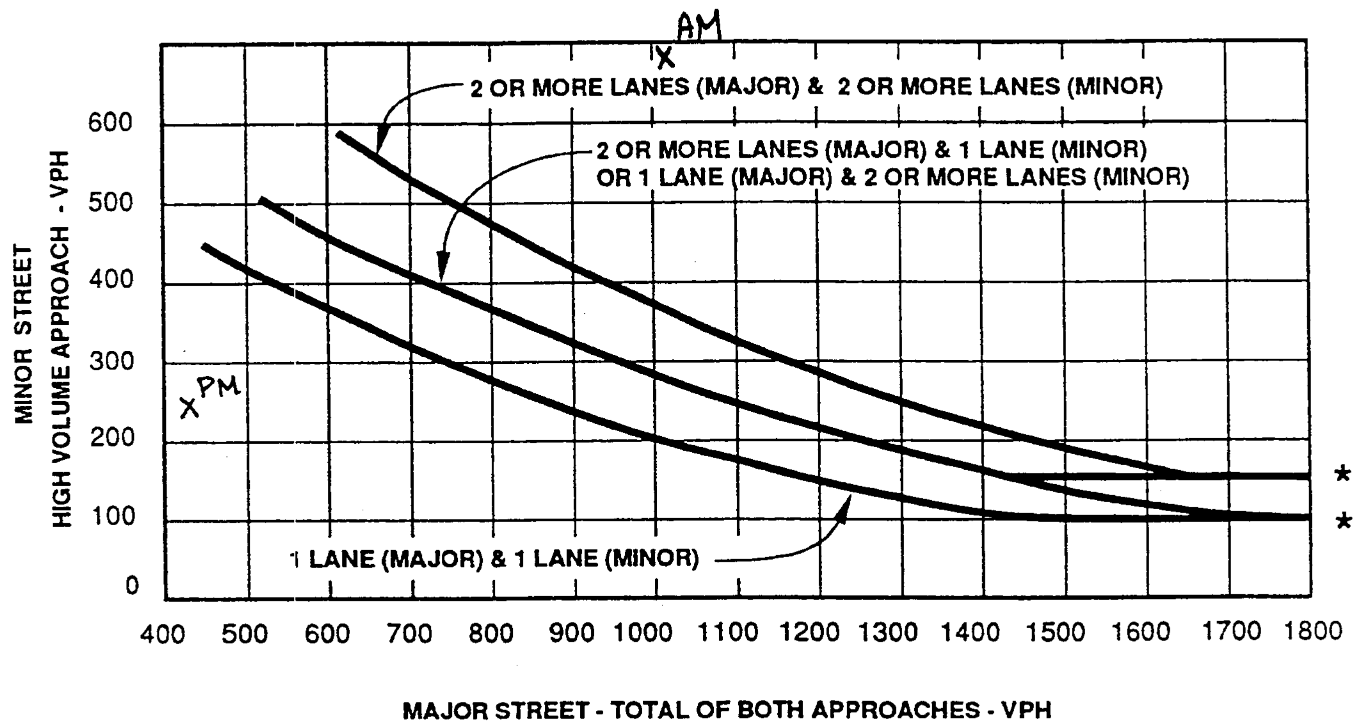



* **NOTE:**

**150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.**

# Figure 9-8
## PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / INSPIRATION
BASELINE PLUS PROJECT




* NOTE:
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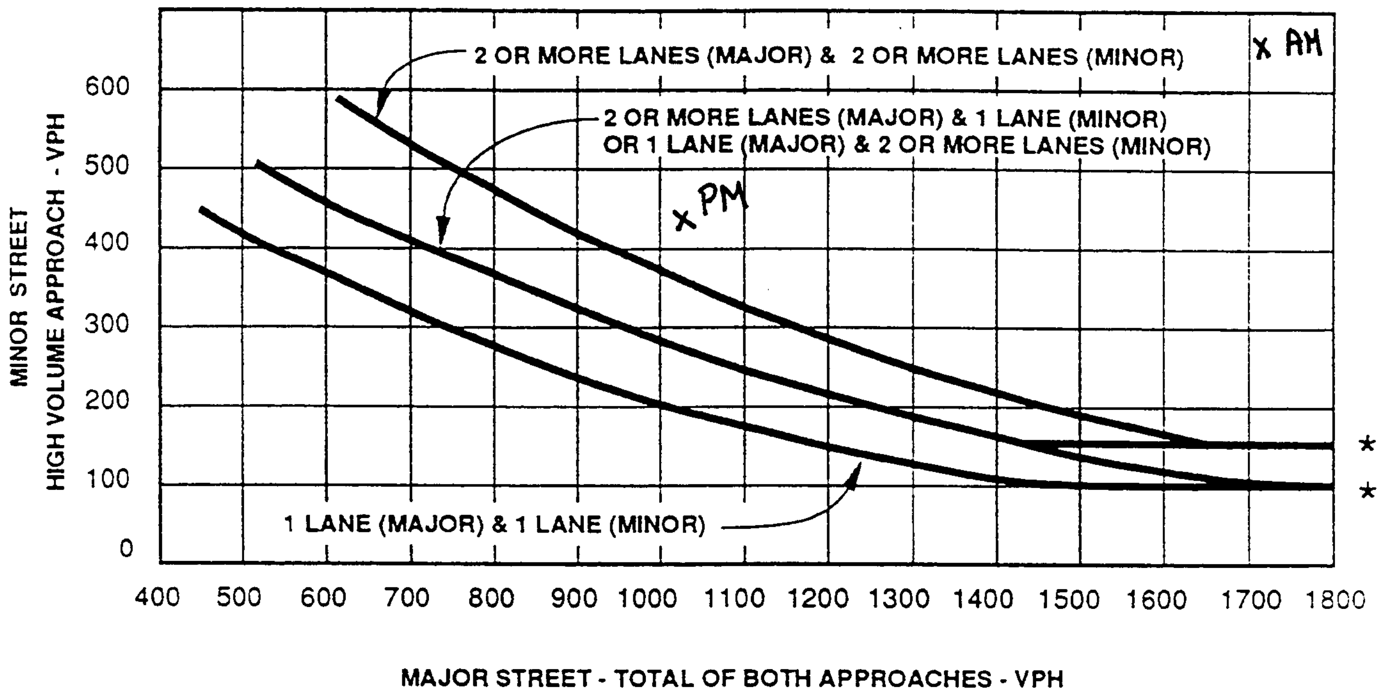
## Figure 9-8
## PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / SILVERGATE
CUMULATIVE PLUS PROJECT

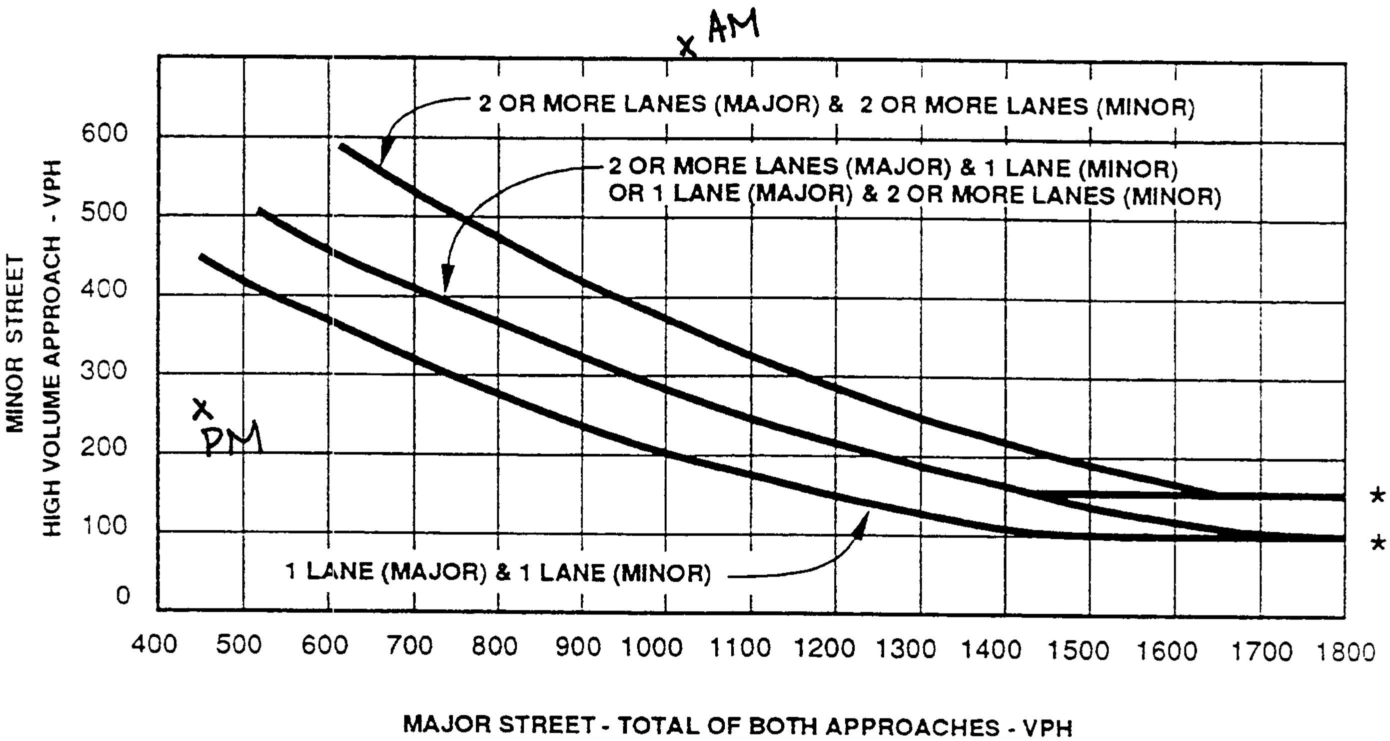



* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 9-8
## PEAK HOUR VOLUME WARRANT
## (Urban Areas)

DUBLIN / INSPIRATION
CUMULATIVE PLUS PROJECT




* NOTE:

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# Appendix 8.4

# Acoustic Analysis

Charles M Salter Associates Inc

# ENVIRONMENTAL NOISE STUDY
# FOR
# VALLEY CHRISTIAN CENTER
# CITY OF DUBLIN, CALIFORNIA

**CSA Project No: 02-0062**

*Prepared for:*

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And

Eric A. Yee
Senior Consultant

4 October 2002

130 Sutter Street San Francisco California 94104 Tel: 415 397 0442 Fax: 415 397 0454

# 1.0 Introduction

The purpose of this study is to evaluate potential noise impacts associated with the expansion of Valley Christian Center. This study quantifies the existing noise environment at the project site and at the residential neighbors, predicts future levels and compares them with applicable City standards. If these standards are exceeded, then mitigation measures are recommended.

# 2.0 Acoustical Criteria

Applicable criteria for this project are contained in Section 9 of the City's Noise Element (City of Dublin's General Plan, dated 1998) and in the City of Dublin's Municipal Code. We will also discuss the likelihood of the project to significantly increase noise levels as per the California Environmental Quality Act (CEQA).

## 2.1 Noise Element – City of Dublin

**2.1.1.** The Noise Element provides a basis for decisions on the location of land uses in relation to noise exposure. The City's guidelines for acceptable noise exposure are contained in Table 1 – Land Use Compatibility for Community Noise Environments. The guidelines are expressed in terms of Community Noise Equivalent Level (CNEL). Those readers not familiar with the fundamental concepts of environmental noise are referred to Appendix A. All sound levels presented in this report are A-weighted (dBA).

| Table 1 – Land Use Compatibility for Community Noise Environments | | | | |
|---|---|---|---|---|
| **Land Use Category** | **Community Noise Exposure Level - CNEL (dBA)** | | | |
| | Normally Acceptable | Conditionally Acceptable | Normally Unacceptable | Clearly Unacceptable |
| Residential | 60 or less | 60 – 70 | 70 – 75 | Over 75 |
| Motels, Hotels | 60 or less | 60 – 70 | 70 – 80 | Over 80 |
| Schools Churches, Nursing Homes | 60 or less | 60 – 70 | 70 – 80 | Over 80 |
| Neighborhood Parks | 60 or less | 60 – 65 | 65 – 70 | Over 70 |
| Offices, retail commercial | 70 or less | 70 – 75 | 75 – 80 | Over 80 |
| Industrial | 70 or less | 70 – 75 | Over 75 | |

<u>Normally Acceptable</u>
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special insulation requirements.

<u>Conditionally Acceptable</u>
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

<u>Normally Unacceptable</u>
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

<u>Clearly Unacceptable</u>
New construction or development clearly should not be undertaken.

Source: City of Dublin General Plan, 1998

**2.1.2** In addition, the Noise Element requires that all new housing projects exposed to a CNEL of 60 dBA or higher have an acoustical consultant assess mitigation procedures to reduce the indoor CNEL to 45 dBA.

## 2.2 Municipal Code – City of Dublin

The Dublin Municipal Code limits the maximum noise from mechanical equipment such that it does not exceed a maximum sound level of 70 dBA on neighboring residential land uses.

## 2.3 California Environmental Quality Act (CEQA)

The CEQA guidelines (October 1998) include a checklist of items related to noise and vibration. The checklist asks if the project will exceed any established standards or substantially increase existing ambient noise levels.

CEQA requires that a project be evaluated in terms of it's potential to significantly increase noise levels. In general, a change of 3 dB in noise is just noticeable and not expected to cause significant community response. A change of 4 to 5 dB is marginal but can be considered an impact if the future noise level will exceed "normally acceptable" noise levels. A change of more than 5 dB would be noticeable, have potential to cause adverse community response, and considered a significant impact.

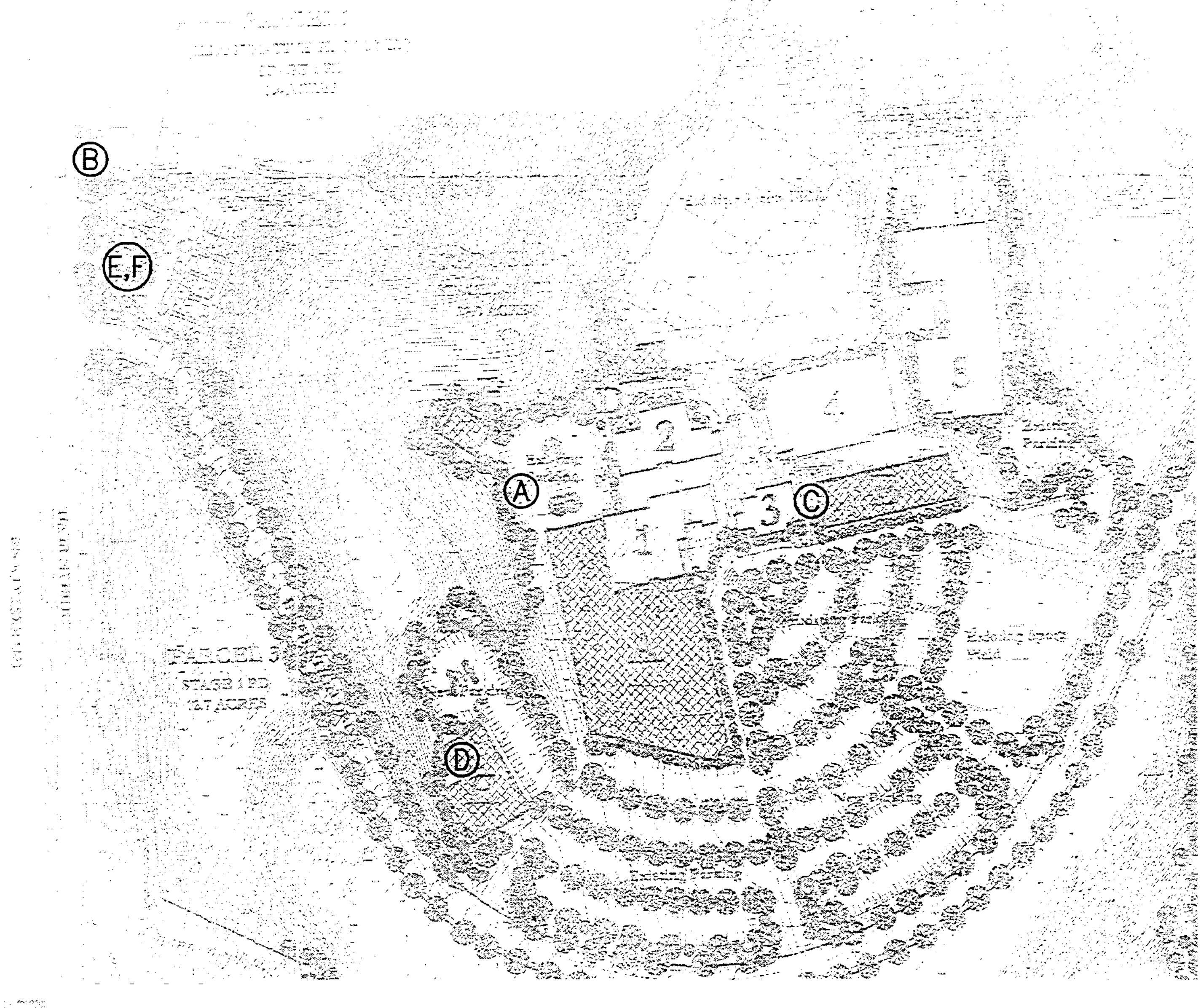
## 3.0 EXISTING NOISE ENVIRONMENT

The major noise sources affecting the project site and its surroundings are vehicular traffic on I-580 and Dublin Boulevard. Various noise measurements were conducted to quantify the existing noise level at the nearest residential property line and on the project site. Figure 1 shows the noise measurement locations. Table 2 summarizes the results of the measurements.

**Table 2 – Measurement of Existing Noise**

| Measurement Location | Duration | Location | Date / Start Time | A-weighted Sound Level, (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{10}$ | $L_{33}$ | $L_{50}$ | $L_{90}$ | $L_{eq}$ | CNEL |
| A | 24 hr. | Existing Parking on Site | 11 Mar 2002 1:00 p.m. | ** | ** | ** | ** | ** | 71 |
| B | 24 hr. | Along Dublin Blvd. | 11 Mar 2002 2:00 p.m. | ** | ** | ** | ** | ** | 74 |
| C | 15 min. | Proposed Building 'B' | 11 Mar 2002 1:45 – 2:00 p.m. | 51 | 48 | 47 | 45 | 49 | 60* |
| D | 15 min. | Proposed Building 'E' | 11 Mar 2002 2:15 – 2:30 p.m. | 65 | 64 | 63 | 62 | 63 | 66* |
| E | 15 min. | New Housing 5 feet high | 11 Mar 2002 2:45 – 3:00 p.m. | 67 | 65 | 65 | 63 | 65 | 70* |
| F | 15 min. | New Housing 15 feet high | 11 Mar 2002 2:45 – 3:00 p.m. | 71 | 70 | 69 | 67 | 70 | 74* |

*DNL estimated based on correlation with simultaneous measurement at 24-hour location.






# Noise Measurement Location Map
## Valley Christian Church Expansion

# FIGURE 1

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Measurement locations A, C and D represent the existing noise levels at the church and school. Locations B, E and F represent the existing ambient noise levels at the nearest residential receivers and proposed new housing development.

In summary, the project site is exposed to noise levels ranging from a CNEL of 60 dBA to 71 dBA. According to the City's guidelines, this noise exposure is "conditionally acceptable" to "normally unacceptable" for churches and schools. The future residences would be exposed to noise levels equal to or greater than a CNEL of 70 dBA. According to the County's guidelines, this noise exposure is "normally unacceptable".

## 4.0 IMPACT AND MITIGATION

### 4.1 Impact of Expanded Valley Christian Center Operations on Adjacent Land Uses

Valley Christian Center has proposed an expansion of their facilities including a new sanctuary, chapel, senior center and school administration facility. Most activities will occur indoors and would not be expected to cause significant noise outdoors. However, there is potential for mechanical equipment to be located on or near the buildings. The nearest residences are located 320 feet from the nearest building that could have roof top mechanical equipment. Due to the size of the building, it is unlikely that this equipment's noise will exceed the City's maximum criteria 70 dBA. Therefore this is a less than significant impact.

### 4.2 Impact of Expanded Valley Christian Center Traffic on Adjacent Land Uses

Existing and future traffic volumes were obtained from Fehr and Peers Transportation Consultants. Roads that were analyzed include Inspiration Drive and Dublin Boulevard. Future noise levels were calculated using the Federal Highway Administration Traffic Noise Prediction Method (FHWA RD-77-108).

Based on our calculations, project generated traffic would increase the DNL by 1 dBA along Inspiration Drive and 1 dBA along Dublin Boulevard. (See Table 3). These increases are considered a less than significant impact.

| Table 3 – Future Traffic Noise Levels At 50 Feet from Center Line | | | |
|---|---|---|---|
| Location | DNL in dB (Change Between Conditions) | | |
| | Existing | Existing + Project | Existing + Project + Future |
| Inspiration Drive | 64 | 65 (+1) | 65 (+1) |
| Dublin Boulevard | 64 | 65 (+1) | 65 (+1) |

### 4.3 Impact of Construction Noise on Adjacent Land Uses

Construction of the new houses will result in elevated short-term construction noise at existing adjacent land uses. Residences are located in close proximity (west) of the developing area. Construction typically happens over the course of several months. However for this project, the build-out would occur over a few years.

There are four main phases of construction: grading, foundation work, framing and interior finishes. The noisier of these is grading and foundation phases when heavy machinery would be in use. Typical noise levels from these activities range from 80 to 90 dBA at 50 feet. Framing involves use of pneumatic tools such as nailing guns and other hand tools such as hammers and saws. The final phase is interior work, which tends to be less intrusive since the noise occurs indoors.

*Construction is permitted between the hours of 8:30 a.m. to 5:00 p.m. on weekends and holidays. The City of Dublin does not have specific guidelines for construction during the week.*[1] Due to the proximity of existing houses, construction could generate a significant short-term impact.

[1] Information obtained 3 April 2002 from Pierce MacDonald in the City of Dublin Planning Department.

*Mitigation*:

To reduce the likelihood of residential neighbors complaining about noise, consider implementing the following:

1. Notify neighbors of the schedule and type of equipment that would be used for each phase of construction.
2. Limit construction time to be 8:30 a.m. to 5:00 p.m. everyday.
3. Locate noisy stationary equipment (i.e. generators or compressors) away from the homes.
4. Require that all construction equipment be in good working order and that mufflers are inspected for proper functioning.
5. Designate a construction noise coordinator. This coordinator would be available to respond to complaints from neighbors and take appropriate measures to reduce noise.

### 4.4 Compatibility of Proposed Homes with Existing and Future Noise

An 11-foot high sound wall along I-580 shields existing residences and the proposed site from freeway noise. The noise level behind the wall at grade is a CNEL of 70 dBA. Upper floors would be exposed to a CNEL of 74 dBA since they would have less shielding provided by the barrier.

In the future, traffic noise on I-580 may increase. Although no traffic projections are available at this time, we have included a 25% increase in future traffic volume to account for possible increase. This corresponds to a 1 dB increase in the CNEL. The future noise levels would range from a CNEL of 71 dBA to 75 dBA. This is considered "normally unacceptable" and therefore is considered a potentially significant impact.

*Mitigation:*

According to the City's Noise Element, a project exposed to "normally unacceptable" levels require a detailed noise analysis to show how noise will be mitigated indoors. Our preliminary analysis indicates that sound rated windows will be required in most habitable rooms to meet the City's goal of 45 CNEL inside dwelling units. Outdoor use areas such as yards and balconies should be located behind those homes so they do not face the freeway.

## 4.5 Compatibility of Future Church Facilities with Existing and Future Noise

The existing CNEL near the main campus is 64 dBA to 71 dBA and is primarily due to traffic from Interstate 580. According to the City of Dublin's Noise Element, these noise levels are "conditionally acceptable" to "normally unacceptable" for churches and schools.

In the future, the site would be exposed to a CNEL of 65 dBA to 72 dBA. These noise levels are still "conditionally acceptable" to "normally unacceptable" and considered a potentially significant impact.

*Mitigation:*
The noise level in buildings on campus exposed to CNEL 65 dBA or less can meet a reasonable indoor noise goal of CNEL 45 dBA with standard construction grade windows. The proposed chapel, which is exposed to CNEL 72 dBA, may require sound rated windows to meet acceptable indoor noise goals. For outdoor areas, this noise level may disrupt use. Sound walls or berms would help reduce noise exposure at these outdoor use areas. As an alternate solution, the landscape could be designed to use the buildings as a shield for outdoor spaces. The design of the chapel should be reviewed by an acoustical consultant to assure that the indoor and outdoor noise at the chapel meets acceptable levels.

APPENDIX A

# FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

a) The intensity or level of the sound;
b) The frequency spectrum of the sound; and
c) The time-varying character of the sound.

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds, which we hear in the environment, do not consist of a single frequency, but of a broad band of frequencies, differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands, which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extreme high frequencies relative to the mid-range.

The weighting system described above is called "A"-weighting, and the level so measured is called the "A-weighted sound level" or "A-weighted noise level." The unit of A-weighted sound level is sometimes abbreviated "dBA." In practice, the sound level is conveniently measured using a sound level meter that includes an electrical filter corresponding to the

A-weighting characteristic. All U.S. and international standard sound level meters include such a filter. Typical sound levels found in the environment and in industry are shown in Figure A-1.

Although a single sound level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources, which results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle pass-bys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. "$L_{10}$" is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The $L_{10}$ is considered a good measure of the maximum sound levels caused by discrete noise events. "$L_{50}$" is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period; it represents the median sound level. The "$L_{90}$" is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or "$L_{eq}$" is now widely used. The term "$L_{eq}$" originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the $L_{eq}$ is the average A-weighted sound level in a stated time period. The $L_{eq}$ is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise.

To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the DNL (Day/Night Average Sound Level), which represents the 24-hour average sound level with a penalty for noise occurring at night.

The DNL computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels. For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the DNL.

The effects of noise on people can be listed in three general categories:

a) Subjective effects of annoyance, nuisance, dissatisfaction;
b) Interference with activities such as speech, sleep, and learning; and
c) Physiological effects such as startle, hearing loss.

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over time.

Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

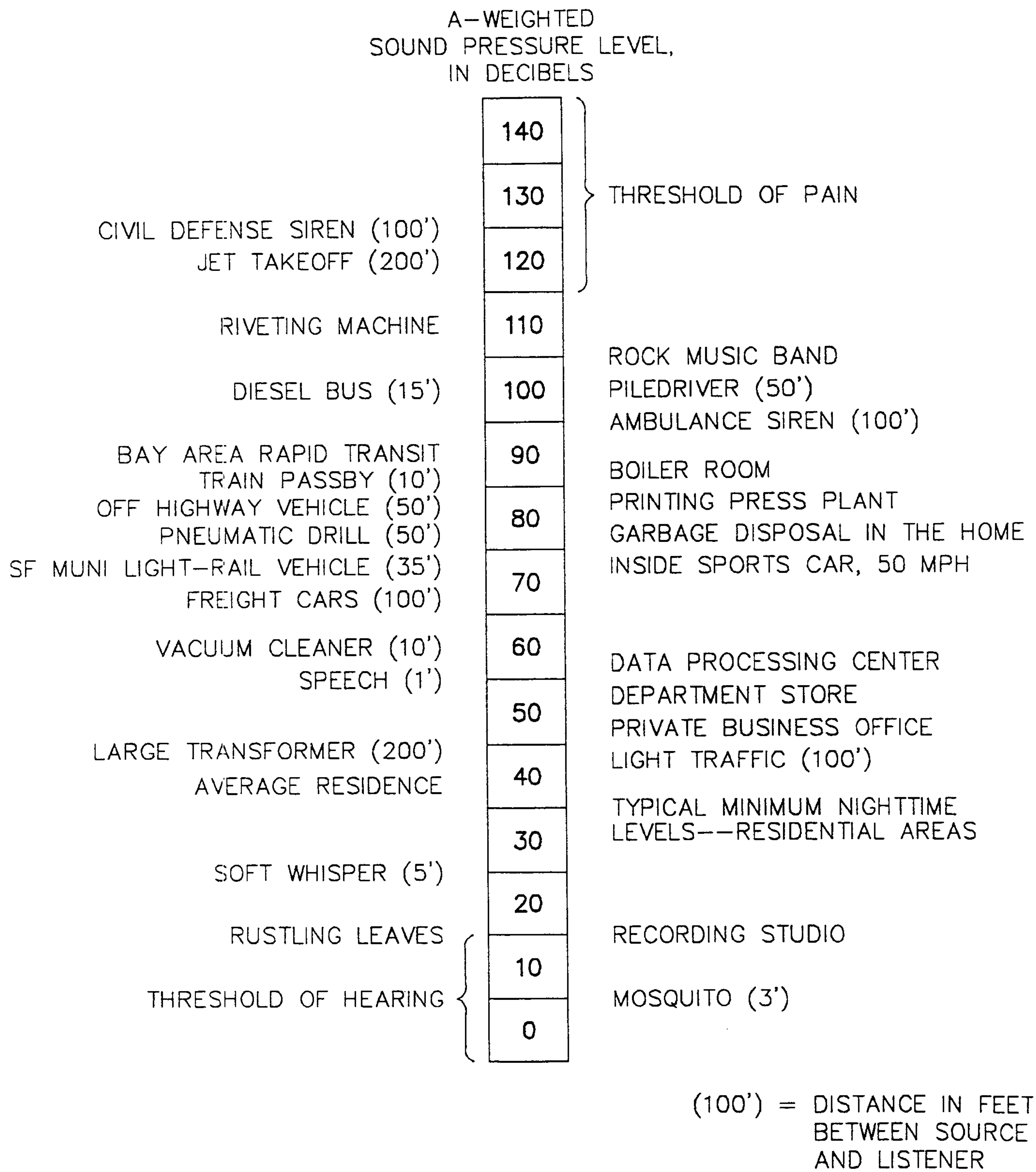
a) Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived.

b) Outside of the laboratory, a 3 dB change is considered a just-noticeable difference.

c) A change in level of at least 5 dB is required before any noticeable change in community response would be expected.

d) A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.

FNDA2DNL




TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

FIGURE A1

1107 C