Appendix A

Notice of Preparation

COUNTY OF MONTEREY

RESOURCE MANAGEMENT AGENCY
PUBLIC WORKS DEPARTMENT
168 W. ALISAL ST. 2nd FLOOR, SALINAS, CA 93901

http://www.co.monterey.ca.us/pbi/

NOTICE OF PREPARATION (NOP)
of a Subsequent Environmental Impact Report (SEIR) for the Carmel Valley Master Plan
Proposed by the Monterey County Resource Management Agency
Department of Public Works
County Planning File Number: PLN050133

The County of Monterey will be the **Lead Agency** and will prepare a Subsequent Environmental Impact Report (SEIR) for the **Carmel Valley Master Plan (County Planning File Number: PLN050133)** proposed by Monterey County Resource Management Agency Public Works Department. The following is a summary of the project's primary components:

Policy 39.3.2.1 of the Carmel Valley Master Plan (CVMP) requires monitoring and reporting of traffic conditions in Carmel Valley to determine whether traffic thresholds are being reached. In 1988, the Monterey County Board of Supervisors found that traffic volumes on Carmel Valley Road were approaching the threshold levels of Policy 39.3.2.1. Due to the fact that traffic threshold conditions were being approached in certain areas, the Board directed staff to proceed with the preparation of an EIR to address traffic impacts and mitigations on Carmel Valley Road. This EIR was certified and adopted by the Board in December, 1991.

Since then, many of the growth forecasts and mitigation projects have not materialized. For example, the Hatton Canyon Freeway Project and most of the recommended improvement projects identified in Policy 39.3.1.1 of the CVMP have not been constructed and are not expected to be constructed in the near future. The proposed EIR will evaluate the traffic impacts of the CVMP and refine the traffic analysis contained in the December, 1991 CVMP EIR. The EIR shall also integrate the environmental effects of the CVMP circulation and land use elements, so the transportation impacts of growth can be presented in both descriptive and economic terms.

Background and History

Planning for Carmel Valley has been the focus of intense and enduring public interest for several decades. The chief planning goals in the Valley have been the retention of the rural character including scenic resources and open space. One of the more obvious manifestations of conflict between environmental preservation and growth is traffic, which is thought by many to threaten the rural quality of the Valley. To address this problem, growth limitation and traffic "trigger mechanisms" were established as mitigation measures in the 1984 CVMP EIR. These mitigations were adopted as policies of the current Carmel Valley Master Plan.

In 1986 the growth limit for Carmel Valley was set at 1,310 residential lots, which included 572 existing and vacant lots of record, and 425 visitor-accommodating units (hotel or motel rooms). There is no limit on commercial development such as office or retail space.

The CVMP also recommends periodic monitoring of traffic conditions in the Valley to determine whether the traffic threshold identified in the trigger policy is being reached, and if so, in what locations. The on-going counts and analyses conducted by the County Department of Public Works have determined that the following thresholds were exceeded: Segment 6, Schulte Road to Robinson Canyon Road, was exceeded in 1991, Segment 3, Laureles Grade to Ford Road, and Segment 7, Rancho San Carlos to Schulte Road in 2001. Because a traffic trigger mechanism has the potential to suspend growth and development in the Valley, accurate and reliable measures of traffic conditions must be reported to decision-makers with the authority to approve development in the Valley.

An outcome of the December, 1991 CVMP EIR was the creation of a traffic fee program for construction of road projects in the Valley. The fee program was adopted by the Board of Supervisors in 1995. Traffic fees are assessed on residential and commercial developments and vary depending on the land use and whether the lot legally existed, prior to December, 1991. Fees are based on road improvement costs in the Valley to meet the needs of expected land use and traffic growth forecasts. The December, 1991 EIR assumed full build-out of the 1310 residential lots and 394,000 square feet of new commercial space by 2006. The EIR also assumed that the following road improvements would be constructed by 2006:

- Hatton Canyon Freeway
- Rio Road Extension
- Rio Road/Highway One Grade Separation
- Widening to four lanes of Segments 6 and 7
- Left-turn pockets on Segment 3 and 5
- Laureles Grade/Carmel Valley Road Grade Separation

Although the growth forecasts and improvement implementation assumptions were based on available growth trends and traffic modeling, these assumptions have been proven overly ambitious. In addition, most improvement projects have not been constructed. Since 1991, the following improvements have occurred in the Valley:

- Traffic signal at Carmel Valley Road/Rancho San Carlos Road
- Traffic signal at Carmel Valley Road/Via Mallorca
- Construction of a two-way left-turn and shoulder widening on Segment 6 and 7
- Construction of dual right-turn lanes from eastbound Carmel Valley Road to northbound Highway One
- Construction of a climbing lane on Highway One from Carmel Valley Road to Ocean Avenue

A primary goal of the proposed EIR will be to evaluate baseline conditions and update land use and traffic forecasts.

Objective of the Carmel Valley Master Plan Subsequent EIR

The objectives of this EIR are to present an independent analysis and comprehensive review of the existing and projected traffic conditions in the Carmel Valley area, as well as to provide recommendations for traffic improvements that result in the desired level of service while maintaining rural quality. The EIR should address them by:

- Updating and refining the existing CVMP traffic analysis to reflect recent land use proposals and public comments;
- Providing a basis to approve any future development which reflects traffic thresholds and environmental values;
- Explaining the methods of traffic analysis commonly used today, and their applicability to the Carmel Valley;
- Explaining the relationship between current traffic counts, projected increases, and growth in background traffic levels;
- Balancing growth with transportation improvements that are physically and economically feasible; and
- Providing a circulation improvement program, which includes cost allocation principles.

The County of Monterey requests you written comments regarding the scope and content of the environmental information to be addressed in the EIR for the Rancho Canada Village Subdivision project. In accordance with CEQA and County procedures, your agency is requested to provide a written response to this NOP within the 30-day NOP review period between **August 30, 2006** and **September 29, 2006.** The County will incorporate relevant issues and information into the Draft EIR as identified in the NOP and NOP responses throughout the EIR process.

Please identify a contact person for your agency and send your written response to:

County of Monterey
Resource Management Agency
Public Works Department
168 W. Alisal, 2nd Floor
Salinas, CA 93901
Attn: Enrique Saavedera, P.E.

Other contact information: **(831) 755-8970** (direct line with voicemail) or **(831) 755-4800** (department phone number), saavedream@**co.monterey.ca.us** (email) or **(831) 755-4958** (department facsimile)

8-28-2006

Enrique Saavedra, P.E.
Senior Civil Engineer

Date: August 28, 2006

Appendix B
USFWS Species List

U.S. Fish & Wildlife Service - Ventura Fish & Wildlife Office

Species Lists

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Federal Endangered and Threatened Species that may be affected by projects in Monterey County

(38 Species)

Key

Type	Common Name	Scientific Name	Status	Date Listed	CH	CH Date	Occurs In
Amphibian	ARROYO TOAD	Bufo microscaphus californicus	Endangered	16-Dec-94	Yes	13-Apr-05	LA, MNT, SBA, VEN
Amphibian	CALIFORNIA RED-LEGGED FROG	Rana aurora draytonii	Threatened	23-May-96	Yes	13-Apr-06	LA, MNT, SBA, SBD, SBE, SCZ, SLO, VEN
Amphibian	CALIFORNIA TIGER SALAMANDER	Ambystoma californiense	Threatened	04-Aug-04	Yes	23-Aug-05	MNT, SBE, SCZ, SLO
Amphibian	SANTA CRUZ LONG-TOED SALAMANDER	Ambystoma macrodactylum croceum	Endangered	11-Mar-67	No		MNT, SCZ
Bird	BALD EAGLE	Haliaeetus leucocephalus	Threatened	11-Mar-67	No		INY, LA, MNO, MNT, SBE, SBR, SCZ, SLO, SBA, VEN
Bird	BROWN PELICAN	Pelicanus occidentalis	Endangered	02-Jun-70	No		MNT, SCZ, SLO, SBA, VEN
Bird	CALIFORNIA CLAPPER RAIL	Rallus longirostris obsoletus	Endangered	13-Oct-70	No		MNT, SCZ, SLO
Bird	CALIFORNIA CONDOR	Gymnogyps californianus	Endangered	11-Mar-67	Yes	22-Sep-77	KRN, LA, MNT, SLO, SBA
Bird	CALIFORNIA LEAST TERN	Sterna antillarum browni	Endangered	02-Jun-70	No		LA, MNT, SBA, SLO, VEN
Bird	LEAST BELL'S VIREO	Vireo bellii pusillus	Endangered	02-May-86	Yes	02-Feb-94	INY, KRN, LA, SBA, SBD, SBE, SCZ, SLO, VEN
Bird	MARBLED MURRELET	Brachyramphus marmoratus marmoratus	Threatened	10-Oct-92	No		MNT, SBA
Bird	WESTERN SNOWY PLOVER	Charadrius alexandrinus nivosus	Threatened	05-Mar-93	Proposed		LA, MNT, SBA, SLO
Bird	YELLOW-BILLED CUCKOO	Coccyzus americanus	Candidate	25-Jul-01	No		INY, KRN, LA, MNO, MNT, SBA, SBD, SBE, SCZ, SLO, VEN
Fish	SOUTHERN CALIFORNIA STEELHEAD	Oncorhynchus mykiss	Endangered	17-Jun-98	Proposed		LA, MNT, SBA, SLO, VEN
Fish	TIDEWATER GOBY	Eucyclogobius newberryi	Endangered	07-Mar-94	No		LA, MNT, VEN, SBA, SCZ, SLO
Invertebrate	CONSERVANCY FAIRY SHRIMP	Branchinecta conservatio	Endangered	19-Sep-94	Proposed	06-Aug-03	MNT, SBE
Invertebrate	LONGHORN FAIRY SHRIMP	Branchinecta longiantenna	Endangered	19-Sep-94	Yes	10-Feb-06	MNT, SBA, SBE, SLO, VEN
Invertebrate	SMITH'S BLUE BUTTERFLY	Euphilotes enoptes smithi	Endangered	01-Jun-76	No		MNT, SLO
Invertebrate	VERNAL POOL FAIRY SHRIMP	Branchinecta lynchi	Threatened	19-Sep-94	Yes	10-Feb-06	MNT, SBA, SBE, SLO
Mammal	SAN JOAQUIN KIT FOX	Vulpes macrotis	Endangered	11-Mar-67	No		MNT, SBA, SBE,

		mutica					SLO
Mammal	SOUTHERN SEA OTTER	Enhydra lutris nereis	Threatened	14-Jan-77	No		MNT, SBA, SCZ, SLO, VEN
Plant	BEACH LAYIA	Layia carnosa	Endangered	22-Jun-92	No		MNT, SBA
Plant	COASTAL DUNES MILK-VETCH	Astragalus tener var. titi	Endangered	12-Aug-98	No		MNT
Plant	CONTRA COSTA GOLDFIELDS	Lasthenia conjugens	Endangered	22-Jun-92	Yes	06-Aug-03	MNT, SBA
Plant	GOWEN CYPRESS	Cupressus goveniana ssp. goveniana	Threatened	12-Aug-98	No		MNT
Plant	HICKMAN'S POTENTILLA	Potentilla hickmanii	Endangered	12-Sep-98	No		MNT
Plant	MENZIES' WALLFLOWER	Erysimum menziesii ssp. menziesii	Endangered	22-Jun-92	No		MNT
Plant	MONTEREY CLOVER	Trifolium trichocalyx	Endangered	12-Aug-98	No		MNT
Plant	MONTEREY GILIA	Gilia tenuiflora ssp. arenaria	Endangered	22-Jun-92	No		MNT
Plant	MONTEREY SPINEFLOWER	Chorizanthe pungens var. pungens	Threatened	04-Feb-94	Yes	29-May-02	MNT, SCZ
Plant	PURPLE AMOLE	Chlorogalum purpureum var. purpureum	Threatened	20-Mar-00	Yes	24-Oct-02	MNT, SLO
Plant	ROBUST SPINEFLOWER	Chorizanthe robusta var. robusta	Endangered	04-Feb-94	Yes	28-May-02	MNT, SCZ
Plant	SAN JOAQUIN WOOLY-THREADS	Lembertia congdonii	Endangered	19-Jul-90	No		MNT, SBA, SBE, SLO
Plant	SANTA CRUZ TARPLANT	Holocarpha macradenia	Threatened	20-Mar-00	Yes	16-Oct-02	MNT, SCZ
Plant	TIDESTROM'S LUPINE	Lupinus tidestromii	Endangered	22-Jun-92	No		MNT, SCZ
Plant	YADON'S PIPERIA	Piperia yadonii	Endangered	12-Aug-98	No		MNT
Plant	YADON'S WALLFLOWER	Erysimum menziesii ssp. yadonii	Endangered	22-Jun-92	No		MNT
Reptile	BLUNT-NOSED LEOPARD LIZARD	Gambelia silus	Endangered	11-Mar-67	No		LA, SBA, SBD, SBE, SLO, VEN

****UNOFFICIAL****

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Appendix C

CVMP Policy Consistency Analysis

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
Open Space Conservation		
1.1.3 (CV) Both small and large open space areas should be created with preference given to those projects which add open space that is contiguous to existing open space.	Not Applicable	The proposed program is not related to and would not create open space.
1.1.4 (CV) Open space for clustered developments shall be dedicated in perpetuity.	Not Applicable	The proposed program is not related to and would not create open space.
Geology, Minerals, and Soils		
2.3.2.1 (CV) Any mineral extraction operation antecedent to the Surface Mining and Reclamation Act shall submit to the County and shall carry out plans for erosion control and reclamation of the site, as specified in the Act.	Not Applicable	The proposed program does not entail mineral extraction.
2.3.3 (CV) Mines or quarries shall: a. be screened from public view by use of natural terrain, vegetation, or artificial screening compatible with the environment; b. have safe and unobtrusive access; c. minimize noise impact on surrounding areas; and d. conform to all other Plan requirements except the restriction on development on slopes over 30% within the limits of quarry operations.	Not Applicable	The proposed program would affect mines or quarries.
3.1.1.1 (CV) A soils report in accordance with the Monterey County Grading and Erosion Control ordinances shall be required for all changes in land use which require a discretionary approval in high or extreme erosion hazard areas as designated by the Soil Conservation Service manual "Soil Surveys of Monterey County." This report shall include a discussion of existing or possible future deposition of upslope materials or downslope slippage for each site.	Consistent	As specified in Section 3.1, *Geology, Soils, and Seismicity*, **Mitigation Measure GEO-6.1**, the County will prepare and implement an erosion and sediment control plan and a stormwater pollution control plan at the project level to comply with this policy.
3.1.1.2 (CV) As part of the building permit process, the erosion control plan shall include these elements: ▪ Provision for keeping all sediment on-site. ▪ Provision for slow release of runoff water so that runoff rates	Consistent	As specified in Section 3.2, *Hydrology and Water Quality* **Mitigation Measure H-3.1,** the County will prepare a stormwater pollution prevention plan at the project level to comply with this policy.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
after development do not exceed rates prevailing before development. ▪ Revegetation measures that provide both temporary and permanent cover. ▪ Map showing drainage for the site, including that coming onto and flowing off the property. ▪ Storm drainage facilities shall be designed to accommodate runoff from 10-year or 100-year storms as recommended by the Monterey County Flood Control and Water Conservation District.		Additionally, the County will also implement **Mitigation Measure GEO-6.1** to comply with this policy.
3.1.1.3 (CV) All exposed areas within development projects subject to erosion and not involved in construction operations shall be protected by mulching or other means during the rainy season (October 15 - April 15).	Consistent	See discussion above for Policies: 3.1.1.1 and 3.1.1.2.
3.1.4 (CV) Grading shall be minimized through the use of step and pole foundations, where appropriate.	Consistent	See discussion above for Policies: 3.1.1.1 and 3.1.1.2.
3.1.5 (CV) The amount of land cleared at any one time shall be limited to the area that can be developed during one construction season. This prevents unnecessary exposure of large areas of soil during the rainy season.	Consistent	Individual projects under the proposed program would occur under separate timeframes that would be determined at the time of project approval.
3.1.6 (CV) Site control shall be established throughout the Master Plan area, including lots of record and utilities extensions, in order to minimize erosion and/or modification of landforms.	Consistent	See discussion above for Policies: 3.1.1.1 and 3.1.1.2.
3.1.7 (CV) The combination of generally steep slopes and often thin and erosive soils will present a definite potential for erosion and siltation which may have adverse effects both on and off-site. Development shall therefore be carefully located and designed with this hazard in mind.	Consistent	See discussion above for Policies: 3.1.1.1 and 3.1.1.2. In general, the proposed program is expected to be consistent with this policy; however subsequent project-specific environmental review would be required to determine a specific project's consistency with this policy.
3.1.8 (CV) The native vegetative cover must be maintained on areas prone to rapid runoff as defined in the Soil Survey of Monterey County. These include the following soils: a. Santa Lucia shaly clay loam, 30-50% slope (SfF)	Not Applicable	As specified in Section 3.1, *Geology, Soils, and Seismicity*, **Mitigation Measure GEO-5.1,** the County will implement recommended design criteria of the geotechnical investigation wherever steep slopes would be graded or manufactured to comply with this policy. See also discussion above for Policies:

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
b. Santa Lucia-Reliz Association, 30-75% slope (Sg) c. Cieneba fine gravelly sandy loam, 30-70% slope (CcG) d. San Andreas fine sandy loam, 30-75% slope (ScG) e. Sheridan coarse sandy loam, 30-75% slope (SoG) f. Junipero-Sur complex, 50-85% slope (Jc)		3.1.1.1 and 3.1.1.2.
3.1.9 (CV) A condition of approval requiring on-going maintenance of erosion control measures identified in the erosion control plan shall be attached to all permits allowing development in areas prone to slope failure, including, but not limited to, the following: ▪ all development in areas classified as highly susceptible to slope failure; ▪ all development on sites with slopes of greater than 20%; and ▪ where roadways are cut across slopes greater than 30%, or across slopes with thin and highly erosive soils.	Consistent	See discussion above for Policies: 3.1.1.1, 3.1.1.2, and 3.1.1.8.
3.1.10 (CV) In addition to required on-site improvements for development projects, the County shall impose a fee to help finance the improvement and maintenance of drainage facilities as identified in the Master Drainage Plan for Carmel Valley.	Not Applicable	The County would be responsible for appropriate drainage controls.
3.1.11 (CV) Development of on-site storm water retention and infiltration basins is encouraged in groundwater recharge areas subject to approval by the Monterey Peninsula Water Management District, the County Health Department, the County Flood Control and Water Conservation District and the County Surveyor.	Consistent	As described in Section 3.2, *Hydrology and Water Quality*, **Mitigation Measures H-1.1, H-3.1, H-4.1, and H-5.1,** the County would development appropriate on-site stormwater management facilities to comply with this policy.
3.1.12 (CV) A comprehensive drainage maintenance program should be established by the formation of either sub-basins or valley-wide watershed zones through the cooperation of the County Department of Public Works, the Monterey County Flood Control and Water Conservation District and the Monterey Peninsula Water Management District.	Not Applicable	This policy is beyond the scope of the proposed program.
3.1.14 (CV) Containment structures or other measures shall be required to control the runoff of pollutants for major commercial	Consistent	The project is not a major commercial development nor a site where chemical storage or accidental chemical spillage is

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
areas or other sites where chemical storage or accidental chemical spillage is possible.		possible. Additionally, as described in Section 3.1, *Geology, Soils, and Seismicity*, **Mitigation Measures GEO-10.1 and 10.2,** the County will perform pre-construction hazardous waste investigations to identify presence of known or unidentified hazardous waste sources to comply with this policy.
3.1.15 (CV) An erosion control plan shall be required for all discretionary development permits and all submittals for areas identified as having a high or extreme erosion hazard prior to accepting such applications as complete.	Consistent	See discussion above for Policies: 3.1.1.1, 3.1.1.2, and 3.1.1.8.
3.2.3.1 (CV) Due to the highly erosive qualities of local soils and the fragileness of the native vegetation, livestock (i.e., horses, cattle, goats, etc.) shall not be permitted in proposed developments unless a livestock management plan is first approved.	Not applicable	The proposed program does not involve livestock uses.
4.2.2 (CV) Gardens, orchards, row crops, grazing animals, farm equipment and buildings are part of the heritage and the character of Carmel Valley. This rural agricultural nature should be encouraged, except on slopes of 30% or greater or where it would require the conversion or extensive removal of existing native vegetation.	Not Applicable	The program does not involve agricultural activities.
4.2.3 (CV) Croplands and orchards shall be retained for agricultural use. When a parcel cannot be developed because of this policy, a low-density, clustered development may be approved. However, the development should occupy those portions of the land not in cultivation or on a portion of the land adjoining existing vertical forms either on-site or off-site and either natural or man- made, so that the development will not diminish the visual quality of such parcels. In no case shall an overall density exceed one unit per 2 1/2 acres, providing that the development of new residential units are sited on one third of the property or less. Required agriculturally related structures and housing for workers of that parcel may be approved but these too should be placed so as not to diminish the visual quality of the open space.	Not Applicable	The program does not involve agricultural activities or construction of any associated agricultural facilities.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
4.2.4 (CV) Development adjacent to agricultural lands shall be planned to minimize adverse effects on the productivity of the agricultural soils.	Consistent	As described in Section 3.6, *Agricultural Resources*, **Mitigation Measure AG-1.1**, the County will assess potential conflicts with adjacent agricultural uses to comply with this policy.
4.2.5 (CV) All developments should consider establishing community gardens and orchards, and, where appropriate, should site them to enhance the visual character of the Valley, while avoiding 30% or greater slopes or removal of native vegetation to do so.	Not Applicable	The program does not involve establishment of community gardens or orchards.
Water Resources		
6.1.3 (CV) All beneficial uses of the total water resources of the Carmel River and its tributaries shall be considered and provided for in future planning decisions.	Not Applicable	The program would not generate demand for, or require use of water resources. See discussion of water demand in Section 3.10 *Public Services and Utilities.*
6.1.4 (CV) Pumping from the Carmel River aquifer shall be managed in a manner consistent with the Carmel River Management Program. Any drawdown of the aquifer, which threatens natural vegetation in the judgment of Monterey Peninsula Water Management District or its successors must be accompanied by a program of irrigation within the affected area.	Not Applicable	The program would not generate demand for, or require use of water resources. See discussion of water demand in Section 3.10 *Public Services and Utilities.*
6.1.5 (CV) The Carmel Valley Master Plan contains policies which encourage development of water reclamation, conservation, and new source production. This development could create additional water for the area. While the additional water and its development are, in part, controlled by the Monterey Peninsula Water Management District and the Board of Supervisors water allocation priorities, it is also imperative that this future development be allowed only with strict adherence to the Carmel Valley Master Plan goals for maintaining ecological and economic environment and rural character.	Not Applicable	The program does not involve development of water reclamation, conservation, or new source production.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
Vegetation and Wildlife Habitats		
7.1.1.1 (CV) Areas of biological significance shall be identified and preserved as open space. These include, but are not limited to, the redwood community of Robinson Canyon and the riparian community and redwood community of Garzas Creek. When a parcel cannot be developed because of this policy, a low-density, clustered development may be approved. However, the development shall occupy those portions of the land not biologically significant or on a portion of the land adjoining existing vertical forms, either on-site or off-site and either natural or man-made, so that the development will not diminish the visual quality of such parcels or upset the natural functioning of the ecosystem in which the parcel is located. If this policy precludes development of a parcel because of biological significance, a low level of development (but no subdivision) may be allowed provided impacts on the resource are minimized. Additional such areas include: ▪ All wetlands, including marshes, seeps and springs (restricted occurrence, sensitivity, outstanding wildlife value). ▪ Native bunchgrass stands and natural meadows (restricted occurrence and sensitivity). ▪ Cliffs, rock outcrops and unusual geologic substrates (restricted occurrence). ▪ Ridgelines and wildlife migration routes (wildlife value).	Consistent	As described in Section 3.3, *Biological Resources*, **Mitigation Measures, BIO-1.1, 1.2, 2.1-2.6, 3.1, 3.2, 5.1, 6.1, 6.2, 7.1-7.3, 9.1, 10.1, 10.2**, **and 11.1**, the County will ensure that any adverse effects to biological resources resulting from the proposed roadway improvements would be studied, documented, mitigated, and compensated for in accordance with federal and state regulations and to comply with this policy.
7.1.1.2 (CV) Areas of critical habitat for rare and endangered species as identified by either federal or state law and areas of biological significance should be identified and preserved as open space.	Consistent	See discussion above under Policy 7.1.1.1.
7.1.3 (CV) Development shall be sited to protect riparian vegetation, minimize erosion, and preserve the visual aspects of the river. Therefore, development shall not occur within the riparian corridor. In places where the riparian vegetation no	Consistent	See discussion above under Policies 3.1.1.1, 3.1.1.2, and 7.1.1.1.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
longer exists, it should be planted to a width of 150 feet from the river bank, or the face of adjacent bluffs, whichever is less. Density may be transferred from this area to other areas within a parcel.		
7.1.4 (CV) River bed and bank management by private property owners shall preserve the natural state of the Carmel River by maintaining willow cover along the banks for erosion control, not building levees, not further altering the course of the river, and not allowing individuals to dredge the river except by permit from the Monterey Peninsula Water Management District or Monterey County.	Not Applicable	The program would be implemented by the County and would not involve significant changes to the Carmel River. Also, see discussion above under Policy 7.1.1.1.
7.1.5 (CV) A monitoring program shall be implemented to document changes in the vegetation of the Carmel River riparian corridor and to determine the most relevant factors involved. This shall be funded by the users of the riparian corridor, particularly those involved in water extraction, streambed alterations and developments which encroach upon the corridor. The monitoring program shall produce an annual report to the Board of Supervisors through a Joint Power Agreement with the agency or agencies conducting the monitoring. Upon two consecutive years of declining vigor in any reach of the river as defined by the Monterey Water Management District, the Board of Supervisors shall immediately hold public hearings to consider limitation of further development and/or a Carmel Valley Master Plan amendment to reverse the causes of declining riparian vegetation vigor determined by evidence in the record to be derived from implementation of the Carmel Valley Master Plan or development designated therein.	Consistent	The program would not involve significant changes to the Carmel River or its vegetation. Also see discussion above under Policy 7.1.1.1.
7.1.6 (CV) Motorized vehicles shall be prohibited on the banks or in the bed of the Carmel River, except by permit from the Water Management District or Monterey County.	Not Applicable	The program would not introduce motorized vehicles on the banks or bed of the Carmel River. Also, see discussion above under Policy 7.1.1.1.
7.2.1.1 (CV) In order to preserve soil stability and wildlife habitat, the chaparral community shall be maintained in its natural state to the maximum extent feasible consistent with fire	Consistent	See discussion above under Policy 7.1.1.1.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
safety standards.		
7.2.1.2 (CV) In new development, the potential for impact on rare and endangered species shall be assessed by County staff and appropriate mitigation of identified impacts shall be required in accord with policies 11.1.1.1 and 11.1.1.2. Existing vegetation shall be protected and only plants similar in habit, form and water requirements to native vegetation common to the valley shall be used as the predominant additional or replacement landscaping material. The existing native vegetation should be maintained as much as possible throughout the valley.	Consistent	See discussion above under Policy 7.1.1.1.
7.2.1.3 (CV) Plant materials shall be used to integrate the man-made and natural environments, to screen or soften the visual impact of new developments, and to provide diversity in developed areas.	Consistent	See discussion above under Policy 7.1.1.1. Also, as discussed in Section 3.4, *Aesthetics*, **Mitigation Measures AES-2.1, and 3.1**, the County will implement measures to enhance or protect visual resources and viewsheds to comply with this policy.
7.2.2.1 (CV) Botanically appropriate species shall be used for required landscaping and erosion control.	Consistent	See discussion above under Policies: 7.1.1.1 and 7.2.1.3.
7.2.2.2 (CV) The pamphlet entitled The Look of the Monterey Peninsula Landscape should be consulted for guidance in selection of plant species for landscaping of development projects. This publication is available at the County Planning Department and the Water Management District office.	Consistent	See discussion above under Policy 7.2.1.3.
7.2.2.3 (CV) Weedy species such as pampas grass and genista shall not be planted in the Valley. Such species shall not be used in required landscaping and wherever they currently occur, they shall be removed when the required landscaping is implemented.	Consistent	See discussion above under Policies: 7.1.1.1 and 7.2.1.3.
7.2.2.4 (CV) Landscaping in chaparral communities should be done with fire-resistant plants.	Consistent	See discussion above under Policies: 7.1.1.1 and 7.2.1.3.
7.2.2.5 (CV) The County shall discourage the removal of healthy, native oak and madrone and redwood trees in the Carmel Valley Master Plan Area. A permit shall be required for the removal of any of these trees with a trunk diameter in excess of six inches, measured two feet above ground level. Where feasible, trees removed will be replaced by nursery-grown trees of the same	Consistent	See discussion above under Policies: 7.1.1.1 and 7.2.1.3.

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species and not less than one gallon in size. A minimum fine, equivalent to the retail value of the wood removed, shall be imposed for each violation. In the case of emergency caused by the hazardous or dangerous condition of a tree and requiring immediate action for the safety of life or property, a tree may be removed without the above permit, provided the County is notified of the action within ten working days. Exemptions to the above permit requirement shall include tree removal by public utilities, as specified in the California Public Utility Commission's General Order 95, and by governmental agencies.		
7.2.2.6 (CV) Valley oaks should be used in landscape planting plans on flood plain terraces.	Consistent	See discussion above under Policies: 7.1.1.1 and 7.2.1.3.
9.1.2.2 (CV) Open space areas should include a diversity of habitats with special protection given areas where one habitat grades into another (these ecotones are ecologically important zones) and areas used by wildlife for access routes to water or feeding grounds.	Consistent	See discussion above under Policies: 7.1.1.1 and 7.2.1.3.
9.1.2.3 (CV) The County shall provide seed money and establish a mitigation fund which assesses individual fees (based on total acreage developed and other factors such as location, type of development, and types of habitats affected) to help fund areawide ecological planning and management. This planning will address areawide impacts resulting from cumulative development such as impacts on wildlife migration and access routes, foraging habitat, and nesting sites.	Not Applicable	This is beyond the scope of the proposed program. Nonetheless, the County would be responsible for appropriate drainage controls.

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Environmentally Sensitive Areas		
11.1.1.1 (CV) Whenever a development proposal is received and is in or adjacent to a rare or endangered plant community, as identified in policy 11.1.1.2, the County shall require the applicant to provide a botanical report prepared by a botanist from the County list of approved consultants. The report shall include a description of the habitat to be affected by the project including area, species, rare and endangered status, if applicable, and suggestions for mitigation of project impacts. In any cases where a rare or endangered species as defined by either State or Federal legislation is found on-site, no development shall proceed until an Incidental Taking Permit or exclusion is obtained in accordance with Federal Endangered Species Act and the State Department of Fish and Game is notified of the existence of the rare and endangered species (whether on Federal list, State list or both) pursuant to Fish and Game Code Chapter 10 Section 1913c.	Consistent	The County is required to comply with state and federal endangered species acts and other relevant regulations. The EIR assesses impacts on rare species and recommends mitigation for all significant impacts. See also discussion above under Policy 7.1.1.1.
11.1.1.2 (CV) The County Planning Department shall maintain records of the known locations of all rare and endangered plant species. Reports shall be on file and locations shall be noted on the resources base maps. These maps shall be updated continuously as project applicant reports are received, and from time to time as other agencies such as Fish and Game or the California Native Plant Society may make additional location reports available.	Not Applicable	This policy is beyond the scope of the proposed program and applies only to the County Planning Department.
Archaeological Resources		
12.1.6.1 (CV) Archaeological resources, historic resources, and ethnographic and ethnohistoric resources shall be identified, and if adverse impacts would result from a project their significance shall be evaluated, prior to project approval. Based on this evaluation, important representative or unique resources shall be protected and preserved.	Consistent	The County is required to comply with state and federal historic preservation acts and other relevant regulations. The EIR assesses impacts on known and previously unidentified archaeological, historic, ethnographic, and ethnohistoric resources and recommends mitigation for all significant impacts, as described in Section 3.11, *Cultural Resources*, **Mitigation Measures CR-1.1 – 1.6, 2.1– 2.5, and 3.1**.
12.1.7.1 (CV) On discovery of archaeological sites or historic sites, or upon identification of ethnographic or ethnohistoric sites,	Consistent	The EIR recommends mitigation in the event unanticipated archeological resources are discovered during construction of the

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procedures will be followed which employ project modification, relocation or on-site mitigation measures appropriate to the location, significance of the find and potential impacts of development.		projects under the proposed program (**Mitigation Measures CR-2.1 – 2.5**).
12.1.8.1 (CV) Archaeological surveys are required within the three sensitivity zones as follows: <u>High and Potentially High Sensitivity Zones</u>: All permit applications which include earth disturbing or earth altering activities (including but not limited to grading permits, utility and other excavations, foundation trenching and land leveling, etc.) shall be preceded by a cultural resources reconnaissance. <u>Low Sensitivity Zones</u>: All major projects or projects otherwise requiring preparation of an EIR shall be preceded by a cultural resources reconnaissance. Construction of or addition to single-family dwellings and other minor projects shall not be required to conduct a cultural resources reconnaissance.	Consistent	See discussion above under Policy 12.1.6.1.
12.1.9.1 (CV) The archaeologic sensitivity map shall be updated by a professional archaeologist every two years.	Not Applicable	This policy does not apply to the program. However, as discussed above under Policy 12.1.6.1, **Mitigation Measures CR-1.1 – 1.6, 2.1 – 2.5, and 3.1** prescribed in the EIR, address all potential impacts of the program on sensitive cultural resources, including identification of archaeologically sensitive areas within a project-specific area of disturbance.
12.1.10.1 (CV) Known historic, historical archaeological sites and ethnographic or ethnohistoric sites shall be coded into the County Planning Department data base through the use of Assessor's Parcel Numbers. Categorical and ministerial exemptions, grading, mechanical clearing, and all other activities under County permitting authority which might be destructive to these known sites shall be reviewed for appropriate conditions by the County Planning Department. Development rights for known sites of archaeologic, historic or ethnographic nature shall be acquired by the County of Monterey as follows:	Consistent	See discussion above under Policies 12.1.6.1 and 12.1.9.1.

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1. Known archaeologic and ethnographic sites shall be protected by an easement which deeds the development and disturbance rights to the County of Monterey. Such sites may also be rezoned to the status of "HR" District. Stewardship shall include preservation. Scientific research disturbance shall only be allowed upon approval of a Use Permit not to exceed a 10% sampling disturbance upon showing of an appropriate research design acceptable to a college with a recognized program for California archaeology, which will be conducted by archaeologists on the County list of qualified archaeologists. 2. Historic sites shall be required to be rezoned to the HR District as a condition of permit approval for any development impacting such sites. Any Use Permit required by the HR zone shall require preservation of the integrity of historic sites and/or structures. Appropriate mitigation measures shall be implemented as conditions of the permit.		
12.1.11.1 (CV) The Monterey County Historical Inventory files for the planning area shall be completed and/or updated annually, and will be made available for the use of historical researchers. These files shall be amended to include ethnographic and/or ethnohistoric resources. Complete copies of all files pertaining to the Carmel Valley Master Plan area shall be made available to (1) the Bancroft Library at the University of California, Berkeley, and (2) the archives vault of the Monterey County Historical Society in Salinas.	Not Applicable	See discussion above under Policy 12.1.9.1.
12.1.12.1 (CV) Innovative preservation techniques, such as purchase or dedication of facade easements in exchange for property tax reductions, shall be considered to protect and preserve historic resources.	Not Applicable	This policy does not apply to the proposed roadway improvements program. Site-specific surveys would be conducted as part of subsequent project-level environmental analyses, at which time preservation techniques would be identified for project-specific cultural resources impacts. Also, see discussion under Policy 12.1.9.1 above.
12.1.13.1 (CV) The County shall consider adoption of the California State Historic Buildings Code and the Model Historic Preservation Ordinance.	Not Applicable	See discussion above under Policy 12.1.9.1.

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Seismic and Other Geological Hazards		
15.1.16 (CV) Areas identified as being subject to landsliding, faulting, or other geologic hazards shall receive competent review by professionals acceptable to the County Planning Department at the time any changes in use are proposed. The findings of such review shall be used in determining possible development constraints and in defining appropriate mitigation measures.	Consistent	As specified in Section 3.1, *Geology, Soils, and Seismicity*, **Mitigation Measures GEO-2.1 and 3.1**, the County will conduct site-specific geotechnical investigations to identify and mitigate for potential geological hazards related to seismic events prior to implementation of any proposed roadway improvement to comply with this policy.
15.1.17 (CV) Areas classified as highly susceptible to slope failure (including categories 5 and 6 of the soil stability classification) should be designated as open space in proposed development plans unless detailed geologic investigations made by professionals acceptable to the Planning Department determine that development may be designed and constructed in a manner to reduce the risk of slope failure or associated hazards and such risk reduction is to a level acceptable to the Board of Supervisors.	Consistent	As specified in Section 3.1, *Geology, Soils, and Seismicity*, **Mitigation Measures GEO-4.1 and 5.1**, the County will conduct site-specific geotechnical investigations to identify and mitigate for potential geologic hazards associated with slope stability prior to implementation of any proposed roadway improvement to comply with this policy.
15.1.18 (CV) The County shall conduct a thorough study of the Planning area to identify high, moderate, or low liquefaction hazards in the Carmel Valley. All new development in areas identified as having high and moderate liquefaction potential (including development on existing lots or record and commercial development) shall be required to submit a detailed investigation by a licensed geologist, geologic engineer and/or a soil engineer which identifies and mitigates potential hazards prior to considering an application complete. The County Planning Department shall maintain records of the known locations of all fault traces, landslide and liquefaction problem areas as they and other geologic hazards are discovered by the reporting requirements. Reports shall be on file and locations shall be noted on the resources base maps. These maps shall be updated continuously as project reports are received and from time to time as other agencies such as the U.S. Geological Survey or California State Division of Mines and Geology may make additional location reports available.	Consistent	See discussion above under Policies 15.1.16 and 15.1.7.

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16.2.2.1 (CV) In order to protect the public health, welfare, and safety, no land located in the river channel shall be developed except for subsequently approved bridges or emergency access roads.	Consistent	The proposed roadway improvements would not be expected to be within the river channel.
16.2.3.1 (CV) In order to protect the public health, welfare, and safety, development of land within 200 feet of the nominal Carmel River bank or 30 feet from any tributary bank as shown on the latest United States Geological Survey Topographic Maps shall require a special permit as set forth in the Carmel Valley Floodplain Ordinance. Where development of such an area may not be feasible due to public health, welfare and safety consideration. Density may be transferred from this area to other areas within a parcel.	Consistent	The proposed program is subject to all local ordinances and permits required to develop any roadway improvements within the specified areas.
16.2.6.1 (CV) Private or public flood control measures should include restoration of the river banks to a natural vegetated appearance. Any bank restoration project shall use natural materials and be revegetated with native riparian vegetation or exotics, with similar characteristics selected from a list of plants approved for this purpose by the Monterey Peninsula Water Management District and Monterey County Planning Commission.	Consistent	The proposed program is subject to all local ordinances and permits required to develop any roadway improvements within any flood zones.
16.2.10 (CV) No changes in zoning from FP-2 (stream overflow and backwater areas) to FP-3 (areas protected by dikes or levees) will be permitted except in areas with existing dikes. Also, no new FP-3 District shall be created.	Not Applicable	The program would not be expected to require changes in zoning. However, due to the programmatic-nature of the project, subsequent project-specific environmental analyses would need to be conducted to determine if a project would require changes in zoning controls.
16.2.11 (CV) The County of Monterey supports a proposed Flood Mitigation Project for the Lower Carmel River. New development in the flood prone area shall be restricted until the flood hazard is controlled.	Consistent	The proposed program is subject to all local ordinances and permits required to develop any roadway improvements within any flood zones.
16.2.12 (CV) Development may be transferred from the floodway fringe to other locations on the same property that are not otherwise constrained by Plan policies, e.g., 30% or greater slope.	Consistent	The proposed program is subject to all local ordinances and permits required to develop any roadway improvements within any flood zones.

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16.2.13 (CV) New development projects are required to pay fees for construction of downstream drainage improvements to improve overall storm drainage. Fees shall be in proportion to the degree of impact.	Consistent	The County, as the project proponent, would fund any necessary drainage improvements.
17.3.1.1 (CV) For the purposes of fire equipment access to structural fires, the road widths shall be adequate for two lanes of traffic for those driveways or roads serving more than two habitable structures. Where this would result in excessive grading or tree removal, all-weather roads with one lane of traffic and turnouts at regular intervals may be provided with approval of the fire district.	Consistent	As specified in Section 3.10, *Public Services and Utilities*, **Mitigation Measure PSU-2.1**, the County would implement a construction traffic plan in order to ensure uninterrupted roadway access to emergency vehicles during duration of construction activities. Furthermore, all new roadways would be subject to the County's and the State's roadway design standards.
17.4.1.1 (CV) The potential for wildland fires in the valley must be recognized in development proposals and adequate mitigation measures incorporated in the designs.	Consistent	The program is not in a wildland fire hazard area. The fire district would review proposed roadway developments prior to issuance of any permits.
17.4.1.2 (CV) All proposed developments, including existing lots of record shall be evaluated by the appropriate fire district prior to the issuance of building permits. The recommendations of the fire district shall be given great weight and should, except for good cause shown, ordinarily be followed.	Consistent	See discussion above under Policy 17.4.1.1.
17.4.13 (CV) All existing or new residential structures, at time of sale or resale, shall provide smoke detectors and shall have one-half inch mesh screen on all chimneys to be verified by the County. Sprinkler systems, fire alarm systems, and one- half inch mesh chimney screens are recommended in residential developments.	Not Applicable	The program does not include construction of residential structures.
17.4.14 (CV) Except where exempted by the local fire chief or as provided for in the General Plan, automatic sprinkler systems shall be installed in all newly constructed non-residential and non-agricultural buildings over 5,000 square feet in total floor area.	Not Applicable	The program does not include construction of non-residential structures.
17.4.15 (CV) In high and very high fire hazard areas, as defined by the California Department of Forestry [CDF] and shown on	Consistent	The program does not include construction of any roofed structures; however, the County would be expected to consult

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California Department of Forestry Fire Hazard Maps, roof construction (except partial repairs) of fire retardant materials, such as tile, asphalt or asbestos combination, or equivalent, shall be required as per Section 3203 (e) (excluding 11) of the Uniform Building Code, or as approved by the fire district. Exterior walls constructed of fire resistant materials are recommended but not required. Vegetation removal will not be allowed as a means of removing high or very high fire hazard designation from an entire parcel.		with the CDF during project-specific environmental review if a specific roadway project would be constructed within their jurisdiction.
17.4.16 (CV) Where feasible, proposed trail easements in high and extreme fire hazard areas shall be designed to provide effective firebreak zones and shall be designed for access to Laureles Grade, Tierra Grande and other roads for emergency vehicle access.	Not Applicable	See discussion above under Policy 17.3.1.1.
17.4.17 (CV) Within one year of adoption of the Plan, water companies serving the Carmel Valley, County Fire Districts, and the Monterey Peninsula Water Management District shall identify areas of inadequate fire flow and develop a program of actions necessary to bring them up to Fire District standards.	Not Applicable	The project does not include facilities that would generate water demand. The County would be expected to consult with the CDF during project-specific environmental review if a specific roadway project would be constructed within their jurisdiction.
Air and Water Quality		
20.2.7.1 (CV) At least one station to monitor air quality shall be maintained in Carmel Valley. Whenever records for August, September and October of a given year include 15 hours (or more) of 0.1 ppm (or more) of oxidants (ozone), the County shall immediately hold public hearings to consider limitation of further development in the Master Plan area.	Not Applicable	The policy applies to the County's overall management of air quality monitoring. The project would be subject to applicable state and federal air quality regulations.
21.3.6 (CV) The Carmel Valley aquifer may be susceptible to contamination from development in unsewered areas. Projects shall be carefully reviewed for proper siting and design of sewage disposal facilities so as to meet the standards of the Carmel Valley Wastewater Study. This Study is hereby incorporated into this Plan by reference.	Not Applicable	The program does not involve facilities that would generate sewage demand.
21.3.7 (CV) In many areas geologic and soils conditions may	Not Applicable	The program does not involve facilities that would generate

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preclude or restrict the possibility of satisfactorily locating on-site sewage disposal systems. The existence of such conditions must be determined and incorporated in all development proposals. This applies to all lots in Carmel Valley. To implement the intent of this policy, the recommendations contained in the Carmel Valley Wastewater Study shall become a part of this master plan until such time as contamination from on-site septic systems no longer poses a threat to the aquifer.		sewage demand.
21.3.8 (CV) A program of monitoring the quality of under ground water throughout the Valley, similar to that recently undertaken by the County Health Department and the Monterey Peninsula Water Management District, shall be continued and expanded where appropriate.	Not Applicable	The policy applies to the County's overall management of groundwater resources. The program is not expected to significantly alter groundwater recharge as specified in Section 3.2, *Hydrology and Water Quality*, **Mitigation Measure H-5.1**.
21.3.9 (CV) Septic tank locations should be permanently marked in a manner as directed by the Health Department.	Not Applicable	The program would not use septic systems.
22.2.1.1 (CV) Where development is proposed in a conditionally acceptable noise environment, construction shall be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Multi-family housing proposed where the Ldn exceeds 60 dB shall provide a report per the requirements of Title 24 of the California Administrative Code delineating how interior noise levels would be reduced to an Ldn (or CNEL) of 45 dB or less.	Consistent	Construction noise would be mitigated to less than significant as specified in Section 3.9, *Noise*, with **Mitigation Measures N-2.1, N-2.2, N-2.3, N-2.4, N-2.5, and N-2.6**.
22.2.4.1 (CV) Noise generating construction activities should be restricted to the hours of 8:00 a.m. to 5:00 p.m. Monday through Friday, where such noise would impact existing development. All construction equipment utilizing internal combustion engines shall be required to have mufflers, which are in good condition. An exception to the above stated hours and days of operation is to be allowed for heavy equipment and other noise generating equipment operating to protect life and property in emergency conditions such as fire, flood or seismic emergencies.	Consistent	**Mitigation Measures N-2.1, N-2.2,** and **N-2.3** in Section 3.9, *Noise*, specifies compliance with these policies.
General Land Use		

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26.1.9.1 (CV) In order to preserve the County's scenic and rural character, ridgeline development shall not be allowed unless a Use Permit is first obtained. Such permit shall only be granted upon findings being made that the development as conditioned by permit will not create a substantially adverse visual impact when viewed from common public viewing area. New subdivisions shall avoid lot configurations which create building sites that will constitute ridgeline development. Siting of new development visible from private viewing areas, may be taken into consideration during the subdivision process.	Not Applicable	The program would not include development of roadway improvements along ridgelines.
26.1.21 (CV) It is intended that the Carmel Valley remain rural residential in character.	Consistent	The CVMP states that rural character (viewshed, open-space character, watershed protection) is encouraged through policies that favor innovative site planning techniques that cluster development and enhance essential natural resources. The program involves minor roadway improvements to alleviate traffic congestion primarily within existing rights-of-way and would not alter the rural character of the program area.
26.1.22 (CV) Developed areas should be evaluated in light of resource constraints especially the water supply constraint addressed by policy 54.1.7 (CV) and the character of each area. No further development in such areas shall be considered until a need is demonstrated through public hearings.	Not Applicable	The program does not include facilities that would generate demand for water supply.
26.1.23 (CV) Open space uses are to be located between the development areas in order to clearly define them and maintain a distinction between the more rural and more suburban areas of the valley.	Not Applicable	The program does not involve open space areas.
26.1.24 (CV) Every attempt should be made to minimize hillside scarring by avoiding cuts and fills where possible and where cuts and fills are unavoidable, by creating slopes that shall be revegetated. Permanent non-revegetated scarring of hillsides is strongly discouraged and should occur only if no other reasonable alternative is available.	Consistent	The program involves minor roadway improvements to alleviate traffic congestion primarily within existing rights-of-way. The program is not expected to require hillside cuts and fills. This policy consistency would be evaluated during environmental review of individual roadway projects under the program.

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26.1.25 (CV) The visible alteration of natural landforms caused by cutting, filling, grading, or vegetation removal shall be minimized through sensitive siting and design of all improvements and maximum possible restoration including botanically appropriate landscaping.	Consistent	The program may require alteration of the existing landforms to construct minor roadway improvements. As specified in Section 3.4, *Aesthetics*, **Mitigation Measure AES-3.1**, the County would implement roadway and landscape design measures to minimize or avoid potential visual impacts to changes in natural landforms to comply with this policy.
26.1.26 (CV) Development either shall be visually compatible with the character of the valley and immediate surrounding areas or shall enhance the quality of areas that have been degraded by existing development.	Consistent	As specified in Section 3.4, *Aesthetics*, **Mitigation Measure AES-2.1 and 4.1**, the County would implement appropriate measures to minimize visual intrusion with immediately surrounding uses.
26.1.27 (CV) No off-site outdoor advertising is allowed in the Plan area.	Not Applicable	The program does not include outdoor advertising facilities.
26.1.28 (CV) Structures located in open grassland areas where they would be highly visible from Carmel Valley Road and Laureles Grade Road shall be minimized in number and clustered near existing natural or man-made vertical features.	Not Applicable	The program does not include any such structures.
26.1.29 (CV) Design and site control shall be required for all new development throughout the Valley, including proposals for existing lots of record, utilities, heavy commercial and visitor accommodations but excluding minor additions to existing development where those changes are not conspicuous from outside of the property. The design review process shall encourage and further the letter and spirit of the Master Plan.	Consistent	The program is subject to all local roadway design standards.
26.1.30 (CV) Publicly used buildings and areas should be encouraged to be oriented to views of the river.	Consistent	The program does not include the creation of public buildings. Fleeting views of adjacent areas would be maintained along existing and new roadways.
26.1.31 (CV) Materials and colors used in construction shall be selected for compatibility with the structural system of the building and with the appearance of the building's natural and man-made surroundings.	Not Applicable	The program does not include construction of any buildings or structures.
26.1.32 (CV) Development should be located in a manner that minimizes disruption of views from existing homes. This applies	Consistent	See discussion above under Policy 26.1.26.

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to road cuts as well as structures.		
26.1.33 (CV) Of the range of land uses allowed (either with or without special approval) in any zoning district applied to Carmel Valley, only those uses specifically designated by this Plan shall be considered consistent as required by law.	Consistent	The program includes minor roadway improvements, primarily within existing road rights-of-way; re-zoning is not anticipated, but would be determined as necessary during subsequent project-specific environmental analysis.
26.1.34 (CV) The maximum density allowable according to the slope/density formula and the maximum density allowable according to other plan policies should be compared. Whichever of the two densities is the lesser shall be established as the maximum density allowable under this plan.	Not Applicable	The program does not include development of residential uses.
26.1.35 (CV) Existing higher intensity residential and recreational uses in the Valley are intended to be recognized by this Plan.	Not Applicable	The program does not include development of residential uses.
Carmel Valley Airport		
26.1.36 (CV) The Carmel Valley Airport is recognized as being a legal non-conforming land use. Such use is considered to be acceptable.	Not Applicable	The program would have no impact on the airport land use and does not involve the take or use of any airport property.
26.1.37 (CV) For mutual protection of the general public and the airport users, the airport should comply with all applicable State and Federal Safety standards.	Not Applicable	See discussion above under Policy 26.1.36.
26.1.38 (CV) The airport should be limited to daytime operations only and should not be lighted.	Not Applicable	See discussion above under Policy 26.1.36.
26.1.39 (CV) The Airport Zoning Ordinance No. 1856 should be amended to provide for utility runways as defined by the Federal Aviation Administration.	Not Applicable	See discussion above under Policy 26.1.36.
**26.1.40 (CV) The Airport Approaches Zoning Ordinance should be applied to the Carmel Valley Airport area as long as the Airport continues in operation.	Not Applicable	See discussion above under Policy 26.1.36.
26.1.41 (CV) The Airport Land Use Commissions Interim Referral Policy shall be followed by all County-level decision-making bodies.	Not Applicable	See discussion above under Policy 26.1.36.

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26.1.42 (CV) When the airport ceases operation, the site shall be reserved for (a) residential use at a maximum density of one unit per acre; (b) all public and quasi-public uses; (c) commercial recreational; and (d) visitor accommodations or destination resort facilities provided all services are available, all constraints are overcome and the sewage disposal method meets all standards and requirements of the County Environmental Health Officer.	Not Applicable	See discussion above under Policy 26.1.36.
Residential Land Use		
27.1.5 (CV) In the low-density residential areas, maximum densities are as shown on the Land Use Plan. However, attainment of maximum density in these areas is dependent upon conformity of the Proposed Project to plan goals and policies.	Not Applicable	The program does not include development of residential uses.
27.3.4 (CV) All land division approvals shall be based on and require full standard subdivision standards regardless of the number of lots created. Exception may be granted under policy 39.2.7 (CV).	Not Applicable	The program does not include development of residential uses.
27.3.5 (CV) The Carmel Valley development limit shall consist of the existing 572 buildable lots of record, plus 738 additional lots which shall be subject to the quota and allocation system and the policies of this Plan governing deduction from the quota for additional units, caretakers, senior citizen, and low and moderate income units. This constitutes the 20-year buildout allowed by this Plan. The existing lots of record shall include the remaining 150 lots in the amended Carmel Valley Ranch Specific Plan.	Not Applicable	The program does not include development of residential uses.
27.3.6 (CV) All development proposals shall make provision for low or moderate income housing in accordance with the Inclusionary Housing Ordinance, except that all development shall build such units on-site. Low- and moderate-income residential units shall be counted as part of the total new residential units and subtracted yearly from the quota and not the allocation.	Not Applicable	The program does not include development of residential uses.
27.3.7 (CV) As a provision for lower cost housing and a contribution toward lessening traffic in the valley, large-scale	Not Applicable	The program would not include the construction of visitor-serving development.

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visitor-serving development requiring employees should comply with the provisions of the Inclusionary Housing Ordinance.		
27.3.8A (CV) To preserve the character of the village, commercially designated lots in the Carmel Valley (Figure 2) shall not be used for exclusive residential purposes.	Not Applicable	The program does not include development of residential uses; roadway improvements would occur primarily within existing road rights-of-way.
27.3.8B (CV) The Val Verde Drive area is planned for residential use at a basic density of one unit per acre. With suitable clustering up to 2 units per acre may be allowed. However, a density of up to 4 units per acre may be allowed provided that 25% of the units are developed for individuals of low and moderate income and are contracted for with the County Housing Authority or for senior citizen units.	Not Applicable	The program does not include development of residential uses.
27.3.9 (CV) Projects for low or moderate income family housing shall be exempt from any annual allocation provisions, but shall be subtracted from the 20-year buildout quota on a basis of one such unit reducing the remaining buildout by one unit. Furthermore, because of their substantially lower impact on resources and infrastructure, such projects for senior citizens of low or moderate income (e.g. the proposal of the Monterey County Housing Authority) may have up to twice the number of units normally allowed on a site. Such increased density shall only be allowed where it is determined to be feasible and consistent with other plan policies. Such projects shall be subtracted from the 20-year buildout quota on a basis of two such units reducing the remaining buildout by one unit.	Not Applicable	The program does not include development of residential uses.
27.3.10 (CV) When an ownership is covered by two or more land use designations, the total allowable development should be permitted to be located on the most appropriate portion of the property.	Not Applicable	The program includes roadway improvements, primarily within existing road rights-of-way.
Commercial Land Use		
28.1.6 (CV) Any new development shall be located outside of areas of high geologic hazard. Construction of buildings in areas of high geologic hazard shall be predicated on recommendations	Not Applicable	The program does not include commercial structures.

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of a study by a qualified professional such as a Registered (engineering) Geologist acceptable to the County Planning Department.		
28.1.7 (CV) To protect the rural qualities of the valley, no areas may be zoned commercial outside the developed areas unless designated on the land use map of the Master Plan or as specified elsewhere in this Plan.	Not Applicable	The program does not include commercial structures.
28.1.8 (CV) The areas designated for commercial development in the valley should be placed in design control districts, have planted landscaping covering no less than 10% of the site, and provide adequate parking. (See also Policy 26.1.29 CV)	Not Applicable	The program t does not include commercial structures.
28.1.9 (CV) Structures should be controlled in height and bulk in order to retain an appropriate scale.	Not Applicable	The program does not include commercial structures.
28.1.10 (CV) Commercial buildings shall be limited to 35 feet in height.	Not Applicable	The program does not include commercial structures.
28.1.11 (CV) Commercial buildings shall have mechanical apparatus adequately screened, especially on the roofs.	Not Applicable	The program does not include commercial structures.
28.1.12 (CV) Landscaping of commercial projects should include large-growing street trees. Parking areas shall be screened with exclusive use of native plants or compatible plant materials. Land sculpturing should be used where appropriate.	Not Applicable	The program does not include commercial structures.
28.1.13 (CV) Signs should be low-keyed and shall not be allowed to block views, cause visual clutter, or detract from the natural beauty.	Not Applicable	The program does not include commercial structures.
28.1.14 (CV) Commercial signs shall not be constructed of plastic or be internally lighted. Neon signs shall not be permitted where visible from the street.	Not Applicable	The program does not include commercial structures.
28.1.15 (CV) Applications proposing professional offices in the Lower Carmel Valley area shall be as shown on Figure 2 (Details)	Not Applicable	The program does not include commercial structures uses.
28.1.16 (CV) The Valley Hills and Begonia Gardens nurseries	Not Applicable	The program does not include commercial structures or uses.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
and Martin's produce stand should be made conforming uses. These sites must continue in their present use or, if discontinued, another agriculturally related commercial use shall be allowed.		
28.1.17 (CV) Overall landscaping concepts should be developed and implemented for each commercial area in the valley.	Not Applicable	The program does not include commercial structures or uses.
28.1.18 (CV) The commercial properties adjoining the Valley Hills Shopping Center shall be retained in planned commercial zoning. However, the depth of the strip shall be the same as that of the existing developed area in the Valley Hills Shopping Center. It shall extend easterly up to and including the existing house location on the William's Property.	Not Applicable	The program does not include commercial structures or uses.
28.1.19 (CV) Provision should be made for service centers in Carmel Valley. They need not be in developed areas, but sites shall meet the following criteria: ▪ Low visibility ▪ Safe and unobtrusive access away from pedestrian traffic areas ▪ Low noise impact on surrounding uses ▪ Conform to all other Plan requirements Service centers shall be limited to those enterprises which provide services and facilities for persons engaged in the construction, maintenance and repair trades and not allow enterprises whose chief business is on-site retail sales. Examples of sites which may meet the criteria are: ▪ Carmelo School Site ▪ Sycamore Farms Site (at Laureles Grade and Carmel Valley Roads) ▪ Valle Vista Site (opposite Valle Vista) ▪ Holt Site (Robinson Canyon Road-Carmel Unified School District) ▪ Berwick Site (at Mid-Valley)	Not Applicable	The program does not include service-related structures or uses.

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28.1.20A (CV) Development should follow a rural architectural theme with design review. This would encourage a visual coherence which is now lacking.	Not Applicable	The program does not include development of buildings.
28.1.20B (CV) Up to three acres of each of the Williams and Wolters' properties at Valley Hills and south of the commercially zoned area may be utilized for planned general commercial uses. Such a development must be heavily screened from view from Carmel Valley Road. Access to this site must be through the planned commercial parcel. Only planned general commercial shall be allowed. This three-acre parcel shall be located so that water running off the Canada de la Segunda and the Carmel Valley Road does not diminish the total amount of acreage available for planned general commercial uses.	Not Applicable	The program does not include commercial structures or uses.
28.1.21 (CV) Retail commercial uses may be allowed in the lower valley area on the vacant parcels adjacent to the fire station.	Not Applicable	The program does not include commercial structures or uses.
Carmel Valley Village		
28.1.22 (CV) The County Planning Commission shall immediately appoint a planning advisory committee whose responsibility shall be, in coordination with County Staff, to refine the policies in this plan regarding the Carmel Valley Village commercial core and adjacent residential areas. The Committee shall address an appropriate architectural theme, design review policies, traffic circulation, parking, street lighting, signing and any other pertinent matters.	Consistent	The program would involve roadway improvements throughout the Carmel Valley Road corridor, and would be subject to all local plans and policies.
28.1.23 (CV) The village should consist of a concentrated commercial core having adjacent moderate-density residential uses as a transition to the more rural peripheral area. A direct integration of residential and commercial uses should be encouraged. 28.1.24 (CV) Development of the village should follow a rural architectural theme with design review. This would encourage a visual coherence which is now lacking.	Not Applicable	The program does not include residential, service-related, or commercial structures or uses.
Visitor Accommodations		

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28.1.25 (CV) Expansion of existing hotels, motels and lodges should be favored over the development of new projects. Visitor accommodation projects must be designed so that they respect the privacy and rural residential character of adjoining properties.	Not Applicable	The program does not include the construction of new or altered visitor accommodations.
28.1.26 (CV) All further development of visitor accommodations in the area west of Via Mallorca and north of Carmel River shall be limited to a moderately sized facility, not to exceed 175 units, at the Rancho Cañada Golf Club.	Not Applicable	The program does not include the construction of new or altered visitor accommodations.
28.1.27 (CV) There shall be a maximum of 250 additional visitor accommodation units approved east of Via Mallorca, including units at Carmel Valley Ranch. In no case shall the overall density be in excess of 10 units per acre, except where higher densities may be appropriate. Bed and breakfast facilities shall be counted as visitor accommodation units and be limited to a maximum of 5 units clustered on 5 acres in accord with County Code Section 15.20.060M unless sewered by public sewers, see also policy 34.1.1.1(CV) of this Plan.	Not Applicable	The program does not include the construction of new or altered visitor accommodations.
Public/Quasi-Public		
31.1.3 (CV) Applications for service and special use facilities, (including in Carmel Valley, Hidden Valley Music Seminars), as defined by the General Plan are to be considered on their merits and shall not automatically be deemed inconsistent with the Plan. They must however conform to all applicable plan policies.	Not Applicable	The program does not include the development of service or special use facilities.
31.1.3.1 (CV) Facilities classified as either Public/Quasi-Public or Special Use (such as schools, churches, hospitals, convalescent homes, rehabilitation centers, hospice facilities, emergency facilities and public facilities such as community halls) may be considered in any land use category provided that they meet the following criteria: ▪ Low visibility ▪ Safe and unobtrusive access away from pedestrian traffic areas. ▪ Low noise impact on surrounding uses.	Not Applicable	The program does not include the development of service or special use facilities.

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▪ Development should follow a rural architectural theme with design review. ▪ Conform to all other Plan requirements.		
31.1.4 (CV) Facilities (such as sewage treatment facilities, solid waste disposal facilities, water storage tanks, pumping stations, power and communications substations) shall be subject to design control and shall be screened from public view by use of natural terrain and vegetation or buffer areas and artificial screening.	Not Applicable	The program does not include the development of sewage, solid waste, water storage, pumping station, or power and communications facilities.
31.1.5 (CV) Alternative uses for schools which have been closed should be allowed where compatible with the surrounding community and consistent with the other policies of this Plan.	Not Applicable	The program does not include the development of a closed school.
Open Space		
34.1.1.1 (CV) Clustering of development should be permitted only where it will result in the preservation of visible open space and is in compliance with other applicable policies. Cluster development should be consistent with wastewater application rates of the Carmel Valley Wastewater Study. In general, this will result in clusters of five units or less on a minimum of five acres of land. The burden of proof shall be placed on the project sponsors to demonstrate that clustered development meets the objectives of the Plan.	Not Applicable	The program does not include development of residential uses.
34.1.1.2 (CV) Clustering of development is discouraged except where it would result in preservation of visible open space in critically sensitive areas or protect another natural resource. Clustering adjacent to vertical forms, spaces, will be considered in light of the visual sensitivity of the building site. The burden of proof is placed on project sponsors to demonstrate that proposed cluster development is compatible with policies of this Plan.	Not Applicable	The program does not include development of residential uses.
34.1.1.3 (CV) Public and private agencies such as the Big Sur Land Trust, the Monterey Regional Park District and others may acquire development rights and/or accept easements and dedications for significant areas of biological, agricultural or other open space land.	Not Applicable	The program does not include roadway improvements in areas expected to be acquired by such public or private agencies.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
34.1.7.1 (CV) An assessment district, consisting of all land within the Carmel Valley Master Plan boundaries, may be formed to purchase the development rights of agricultural land and/or open space areas. The land should remain in private ownership and be zoned and taxed as agricultural land and/or open space.	Not Applicable	The program does not involve an assessment district or the purchase of agricultural or open space lands.
34.1.8 (CV) Unless specifically authorized by this plan, no development density is to be transferred within a project from any portion of the site which would not be subject to development because of plan policies.	Not Applicable	The program does not include residential uses.
34.1.9 (CV) Subdivision for conservation purposes which is in the public interest, is exempt from any quota and allocation system where such subdivision does not create additional residential building sites. It is preferable that parcels thus created shall be owned by an appropriate public entity or a non- profit public benefit corporation.	Not Applicable	The program would not create subdivisions for conservation purposes.
Watershed Areas		
35.1.3 (CV) Development shall be so designed that additional runoff, additional erosion or additional sedimentation will not occur off of the development site. Storm drainage facilities shall be designed to accommodate runoff from the 10-year or 100-year storms as recommended by the Monterey County Flood Control and Water Conservation District.	Consistent	See discussion above under Policies 3.1.1.1 and 3.1.1.2.
Transportation		
37.4.1 (CV) The County shall encourage overall land use patterns which reduce the need to travel.	Consistent	The program proposes roadway improvements to alleviate traffic congestions within the Carmel Valley corridor.
37.4.2 (CV) The County shall encourage the provision, where feasible, of bicycle and automobile storage facilities to be used in conjunction with public transportation.	Not Applicable	The program does not include changes to or creation of public transportation facilities.
38.1.4.1 (CV) Public transit should be explored as an alternative to the use of private automobiles and to help preserve air quality.	Consistent	Under the program, roadways would be upgraded to provide bicycle use lanes throughout the Carmel Valley Road corridor.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
(Whenever feasible all new development shall include a road system adequate not only for its internally generated automobile traffic but also for bus -- both transit and school -- pedestrian and bicycle traffic which should logically pass through or be generated by the development.)		
39.1.5 (CV) Consideration should be given to locating a County road and utility maintenance facility in the Carmel Valley area. Such facility would provide for storage of equipment as well as materials.	Not Applicable	The program would not create a new County road and utility maintenance facility.
39.1.6 (CV) Every effort should be made to obtain the funding and proceed with construction of the Hatton Canyon Freeway at the earliest possible date. This should be a two-lane (each direction) non- access scenic route with every effort made to minimize the necessary cuts. After five years of allocation the Board shall review local level of service and the status of the Hatton Canyon Freeway. If the Freeway has not been built, the Board shall limit further development until the freeway is under construction.	Not Applicable	The Hatton Canyon Freeway project has been abandoned. Pursuant to Policy 39.3.2, the County controls development approvals as needed to meet established levels of service standards.
39.1.7 (CV) It is recommended that fees for off-site major thoroughfares be imposed as a condition of granting of building permits. The recommended zone of influence is the Carmel Valley Master Plan Study Area with funds to be expended for the Valley Road or other major road improvements.	Consistent	The program does not include any residential or commercial development that would be subject to this policy. However, the program updates traffic impact fees to fund needed traffic improvements.
39.2.2.1 (CV) The needs of bicyclists, pedestrians, utilities and drainage shall be considered and, where appropriate, provided for on all public right-of- ways where such improvements will be safe for the intended use.	Consistent	The program includes widening of shoulders, addition of turnouts, and upgrades to and construction of bicycle lanes to provide better access to users of these public rights-of-way.
39.2.2.2 (CV) Bike routes must be considered in conjunction with all new road construction and improvements to existing roads.	Consistent	See discussion above under Policy 39.2.2.1.
39.2.2.3 (CV) All new road work or major work on existing roads within the commercial core areas of development areas shall provide room for use of bicycles and separate pedestrians	Consistent	See discussion above under Policy 39.2.2.1.

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walkways. The County shall provide bicycle routes on the shoulders between development areas throughout the Carmel Valley.		
39.2.2.4 (CV) All new bridge construction or remodeling shall include provision for pedestrians and bicyclists.	Consistent	The program, as proposed, does not involve construction or remodeling of major bridges. However, depending on location it possible that minor bridge work may be necessary. This will be evaluated at the individual project design phase.
39.2.2.5 (CV) Circulation in the village should emphasize pedestrian access. Walkways and paths are to be provided rather than conventional sidewalks. Pedestrian walkways should be used to provide access among new or remodeled commercial and other higher density uses.	Consistent	See discussion above under Policy 39.2.2.1.
39.2.5.1 (CV) Multiple driveway accesses to Carmel Valley Road should be discouraged. Approval of future development of land having frontage on Carmel Valley Road must be conditioned upon minimizing access to Carmel Valley Road, or denying it if access is otherwise available.	Not Applicable	The program does not include construction of driveway accesses to Carmel Valley Road.
39.2.5.2 (CV) Off-street parking should be developed at suitable locations within development areas.	Not Applicable	The program does not include provision for parking facilities.
39.2.6.1 (CV) Wherever possible a network of shortcut trails and bike paths should interconnect neighborhoods, developments and roads. These should be closed to motor vehicles and their intent is to facilitate movement within the Valley without the use of automobiles.	Not Applicable	The program does not include provision for these facilities outside of public rights-of-way.
39.2.7 (CV) In hillside areas, relaxation of road standards should be permitted for low density developments where it can be demonstrated that reduced standards result in fewer or less severe cut and fill slopes, and where bicycle, vehicular, and pedestrian safety is not adversely affected. In such cases, it must also be demonstrated that the relaxed standards positively contribute to furtherance of plan policies related to hazards avoidance, protection of biological resources, or protection of viewshed.	Not Applicable	The program is not in a hillside area.

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39.2.8 (CV) No roads should cross slopes steeper than 30% unless factors of erosion and visible scarring can be mitigated.	Consistent	All proposed roadway improvements would be subject to local design regulations and review. Also see discussion above under Policy 3.1.1.1.
39.3.1.1 (CV) In order of priority, the following are policies regarding improvements to specific portions of Carmel Valley Road: ▪ Via Petra to Robinson Canyon Road (Segments 6-8) It is recommended that this 4.4 mile section of Carmel Valley Road be widened to four lanes when it reaches design capacity. This should be preceded by a reevaluation of the Official Plan Line alignment in order to reduce road cuts in several locations. ▪ Robinson Canyon Road to Laureles Grade (Segment 5) This section of Carmel Valley Road is adequate for the foreseeable future. Every effort should be made to preserve its rural character by maintaining it as a two-lane road with paved shoulders, and left turn channelizations at intersections where warranted. ▪ Laureles Grade to Ford Road (Segment 3) Shoulder improvements and widening should be undertaken here and extended to Pilot Road, and may include left turn channelization at intersections as warranted. ▪ East of Esquiline Road (Segments 1 and 2) Shoulder improvements should be undertaken at the sharper curves. Curves should be examined for spot realignment needs.	Consistent	The program describes priorities for future traffic improvement based on projected levels of service. The program includes passing lanes along Segments 5, 6 and 7 that is more consistent with rural character than a 4-lane facility. Shoulder widening is included along Segment 3.
39.3.1.2 (CV) It is recommended that the County reduce the dangers of driving Carmel Valley Road by repainting the lines as consistent with the California Vehicle Code.	Not Applicable	The program does not include provision for repainting the lines on Carmel Valley Road, but does include certain other improvements to enhance safety
39.3.1.3 (CV) Left turn channelizations and/or ingress-egress tapers at significant access points on Carmel Valley Road should be high priority improvements to alleviate existing hazards.	Consistent	The program proposes left turn channelizations on Carmel Valley Road west of Ford Road. Refer to Chapter 2, *Program Description*.
39.3.1.4 (CV) The following road connections may be	Not Applicable	The program does not include the establishment of road

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
established, as controlled emergency accesses: a. De los Helechos to Paso Hondo as a dry weather ford; b. Paso del Rio (off W. Garzas) to Carmel Valley Road; c. Tierra Grande to Saddle Road in Hidden Hills; d. Country Club Drive to El Caminito; e. Robles del Rio area east of Esquiline Road; f. Outlook Drive to High Meadows (once Hatton Canyon Freeway is completed.		connections for controlled emergency accesses.
39.3.1.5 (CV) To accommodate existing and future traffic volumes at level of service C, the following road improvements are recommended pursuant to Monterey County General Plan policies 37.2.1 and 39.1.4: a. Widen Highway One to four lanes between Carmel Valley Road and Rio Road in conjunction with the Hatton Canyon Freeway project; b. Laureles Grade - undertake shoulder improvements, widening and spot realignment; c. Carmel Valley Road, Robinson Canyon Road to Ford Road - add left turn channelization at all intersections. Shoulder improvements should be undertaken.	a. Not Applicable b. Consistent c. Consistent	a. This is not part of the proposed program; however, in 2001 TAMC completed certain capacity-increasing improvements to Highway One and is planning future operational improvements between Carmel Valley Road and Rio Road. Refer to Chapter 2, *Program Description* and Appendix F. b. The program includes paved turnouts, new signage, shoulder improvements, and spot realignments on Laureles Grade. Refer to Chapter 2, *Program Description*. c. The program includes left turn channelizations on Carmel Valley Road west of Ford Road. Refer to Chapter 2, *Program Description*.
39.3.1.6 (CV) It is recommended that signals be provided at the following intersections and at other locations when accepted engineering warrants are met as a result of development under the Carmel Valley Master Plan: ▪ Carmel Valley Road/Rio Road	Consistent	TAMC is planning operational improvements along Highway 1 including at the Highway one /Rio Road intersection. Refer to Chapter 2, *Program Description* and Appendix F.

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39.3.1.7 (CV) The County shall consider constructing minor interchanges as an alternative to signalizing the Carmel Valley Road intersection. This would result in an unimpeded flow of traffic on Carmel Valley Road and would facilitate left turning movements from and onto Carmel Valley Road intersections.	Consistent	The program includes a grade separation at Laureles Grade and Carmel Valley Road. Refer to Chapter 2, *Program Description*.
39.3.1.8 (CV) In the event the State does not build the Hatton Canyon Freeway or widen Highway One, the County shall consider an interchange at Highway One and Carmel Valley Road.	Not Applicable	The program does not include provision for an interchange at Highway One and Carmel Valley Road. The traffic study did not identify the need for such an interchange.
39.3.1.9 (CV) A northbound climbing lane should be considered for construction on Laureles Grade to accommodate future traffic volumes. Alternatively, several curves should be flattened and widths should be increased.	Consistent	The program includes construction of a climbing lane on Laureles Grade. Refer to Chapter 2, *Program Description*.
39.3.2.1 (CV) To implement traffic standards to provide adequate streets and highways in Carmel Valley, the County shall conduct and implement the following: a. Twice yearly monitoring by Public Works (in June and October) of average daily traffic at 12 locations identified in the Keith Higgins report in Carmel Valley on Carmel Valley Road, Carmel Rancho Boulevard and Rio Road. b. A yearly evaluation report (December) prepared jointly by the Public Works and Planning Departments to indicate segments approaching a traffic volume which would lower existing level service and which would compare average daily traffic (ADT) counts with service volumes for levels of service. c. Public hearings to be held in January immediately following a December report in (b) above in which only 100 or less ADT remain before a lower level of service would be reached for any of the 12 segments described on figure B-1	Consistent	The program evaluates the traffic levels of service at intersections and roadway segments and provides a set of improvements to meet established standards except along Segment 3 in the Carmel Valley Village and a fee program to fund such improvements. Due to no identification of a feasible improvement that would maintain the character of the Village and avoid routing through traffic through residential site streets, the program recommends a change in the LOS standard for this segment to LOS D. The County will continue to monitor traffic conditions after adoption of the program.

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of EIR 85-002 on the Carmel Valley Master Plan. d. With respect to those 12 identified road segments that are at level of service (LOS) C or below, approval of development will be deferred if the approval would significantly impact roads in the Carmel Valley Master Plan area which are at level of service (LOS) C or below unless and until an EIR is prepared which includes mitigation measures necessary to raise the LOS to an acceptable level and appropriate findings as permitted by law are made which may include a statement of overriding considerations. For purposes of this policy, “acceptable level” shall mean, at a minimum, baseline LOS as contained in the Carmel Valley Master Plan EIR. To defer approval if there is significant impact means that, at a minimum, the County will not approve development without such an EIR where the traffic created by the development would impact the level of service along any segment of Carmel Valley Road (as defined in the Keith Higgins Traffic Report which is part of the Environmental Impact Report (EIR) for the Carmel Valley Master Plan “CVMP”) to the point where the level of service would fall to the next lowerlevel. As for those road segments which are at LOS C, D and E, this would, at a minimum, occur when the LOS F, this would occur when it would cause a significant impact and worsening of traffic conditions as compared with the present condition. Specific findings will be made with each project and may depend on the type and location of any proposed development. Cumulative traffic impacts from development in areas outside the CVMP area must be considered and will cause the same result as development within the plan area.		
39.3.3 (CV) It is recommended that fire hydrant and/or water supply locations be identified by placement of blue reflective pavement markers in roadways, and that these markers be prohibited for any other purpose.	Consistent	All projects under the program would be designed to meet all applicable local and state requirements for roadways, including the placement of hydrant markers.

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40.1.1.1 (CV) County Scenic Route status shall be sought for Carmel Valley Road.	Not Applicable	The program does not affect the designation of Carmel Valley Road as a scenic route. The program would not alter the rural character of the roadway.
40.2.1.1 (CV) An appropriate setback at a minimum of 100 feet shall be established along Carmel Valley Road without causing existing structures to become non-conforming and without rendering existing lots of record unbuildable.	Not Applicable	The program does not involve construction of commercial, residential, or service-related buildings. The proposed roadway improvements would be within existing rights-of-way along Carmel Valley Road. If additional right-of-way is needed the County would be subject to with all state and local policies and/or laws pertaining to right-of-way acquisition.
40.2.1.2 (CV) Public vista areas shall be provided and improved.	Not Applicable	The program does not involve changes to public vistas. Subsequent project-specific environmental analyses would evaluate whether impacts to public vistas would occur as a result of a specific roadway project.
40.2.1.3 (CV) Development (including buildings, fences, signs and landscaping) shall not be allowed to significantly block views of the viewshed, the river or the distant hills as seen from key public viewing areas such as Garland Ranch Regional Park, and such obstructions should be discouraged along both Carmel Valley Road and Laureles Grade Road. This applies to commercial and private parcels and to both developments and existing lots of record. The removal of existing solid fences and rows of Monterey Pine trees which block views of the river and the mountains is encouraged.	Consistent	As specified in Section 3.4, *Aesthetics*, the County would implement measures to avoid or minimize any impacts to existing views and viewsheds within the Carmel Valley Road corridor (see **Mitigation Measures AES 2.1, 3.1, and 4.1**).
40.2.1.4 (CV) Any major improvements to Carmel Valley Road shall require, where feasible, the undergrounding of utility lines.	Consistent	The program would be subject to all local policies.
41.1.2.1 (CV) New major developments with access adjacent to Carmel Valley Road shall be required to provide space for the transit buses to stop, the parking of cars and facilities for the safe storage of bicycles.	Not Applicable	The program does not include any new commercial, residential, or service-related development.

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Public Services and Facilities		
51.2.7 (CV) Recreation in-lieu fees obtained from minor and standard subdivisions should be used to acquire or develop land for active recreation uses.	Not Applicable	The program does not include any new commercial, residential, recreational, or service-related development.
51.2.8 (CV) A county service area or other appropriate governmental mechanism should be formed to provide for maintenance of recreation areas.	Not Applicable	The program does not include any new commercial, residential, or service-related development.
51.2.9 (CV) Existing school facilities should be used as a nucleus for expansion of recreational uses. Land next to the Carmelo and Middle Schools should be considered for recreational uses.	Not Applicable	The program does not include any new commercial, residential, or service-related development.
51.2.10 (CV) Areas for barbecue picnicking and group play should be developed for the valley residents.	Not Applicable	The program does not include any new commercial, residential, or service-related development.
51.2.11 (CV) Active neighborhood recreation areas should be located at or within close access to the three development areas. All valley residents should have nearby access to hiking and riding trails and small neighborhood open areas or parks. Even though the Master Plan area contains two large regional parks, there should be constant consideration of the acquisition of additional areas. Land on the south side of the valley near the village is highly suitable for a mixture of active and passive uses, and should be seriously considered in conjunction with growth around the village area.	Not Applicable	The program does not include any new commercial, residential, or service-related development.
51.2.12 (CV) Provision should be made for more recreational outlets for the youth of Carmel Valley.	Not Applicable	The program does not include any new commercial, residential, or service-related development.
1.2.13 (CV) Equestrian-oriented recreational activities shall be encouraged when consistent with the rural character of the valley.	Not Applicable	Equestrian activities are not involved as part of the program.
51.2.14 (CV) Existing X or Camp and O or Open Space districts shall be retained.	Not Applicable	The program does not include any new commercial, residential or service-related development.
51.2.15 (CV) There shall be no lighting for outdoor sports where it would be visible from off-site.	Not Applicable	The program does not include lighting for outdoor sports.

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52.1.1.1 (CV) The California Department of Parks and Recreation inventory of historical resources lists nine buildings and sites of historical significance located in Carmel Valley. As an interim protection of these sites as well as others which may qualify, a committee will review this list on a site by site basis for the purpose of evaluating the current condition of each and recommend deletions, additions or other measures as needed. The committee will be drawn from members of local historical, architectural, and/or educational societies as determined by the Planning Commission.	Not Applicable	See discussion above under Policy 12.1.6.1.
52.1.9 (CV) When adopted by the County, the California State Historical Buildings Code and the Model Historical Preservation Ordinance shall be adopted and applied to sites of Historical Significance in Carmel Valley.	Consistent	See discussion above under Policy 12.1.6.1.
53.1.6 (CV) As a means of fostering conservation of local water resources, the County should implement the following: 1. Require water conservation audits and retro fitting with water conservation devices at the time of resale for all residential and commercial structures. 2. Adopt standards for landscaping such as requiring the use of drought tolerant landscaping for existing developments at the time of resale and for all new development. 3. Standards for irrigation systems could be established such as the use of drip irrigation to minimize water use in gardens. 4. Encourage leak detection (both on-site and off-site). An effective leak detection program will minimize water loss due to leaks. 5. Water Conservation/Water Waste Ordinance will encourage the overall awareness of water conservation and provide disincentives for using large amounts of water. 6. Public awareness and in-school education programs would	Consistent	The program would abide by all applicable conservation standards and regulations for the conservation of water. The program plans are subject to review and approval by the Monterey County Planning and Building Inspection Department.

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educate people on proper water usage and its cost. 7. Requiring pump efficiency tests. In addition to saving electricity, water could be saved by analyzing actual water usage. With an efficient pump, accurate meter reading, and water consumption criteria, the well owner could analyze his water usage efficiently. 8. Encourage night or optimum timing for watering/irrigation in the Carmel Valley. A significant amount of water could be saved by the individual homeowner as well as grower in the Valley. 9. Promote a kit distribution program for all existing residential and commercial water users in the Valley.		
54.1.5 (CV) Development shall be limited to that which can be safely accommodated by on-site sewage disposal, or in the case of the Lower Valley, by the Carmel Sanitary District. Consideration may be given to package plants operated under supervision of a county service district.	Not Applicable	The program does not include facilities that generate demand for sewage disposal, transport, or treatment.
54.1.6 (CV) When projects for low/moderate income owners or renters are proposed at densities exceeding those recommended by the wastewater application rates of the Wastewater Study, but not exceeding 40 grams/acre/day of total nitrogen, a detailed wastewater study acceptable to the Director of Environmental Health shall be required to determine whether the recommendations of the Wastewater Study should be relaxed or upheld, and the policies of the Basin Plan, Monterey County Code (Septic System Ordinance), and other applicable health requirements will be met.	Not Applicable	The program does not include facilities that generate demand for sewage disposal, transport, or treatment.
54.1.7 (CV) The County of Monterey supports the new San Clemente Dam project or some other water project as a means of assuring an adequate supply of water for future growth in the Carmel Valley. Without additional supplies, development will be limited to vacant lots of record and already approved projects. All development which requires a water supply shall be subject to	Not Applicable	The program does not include facilities that generate demand for water supply, storage, or transport.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
County adopted water allocation and/or ordinances applicable to lands in the Carmel Valley Master Plan area. This is the Low Growth Alternative addressed in the Final SEIR 85-002. However, the MPWMD would provide only enough allocation for planned growth in Carmel Valley.		
54.1.8 (CV) The County shall encourage and support reclamation projects as a source of additional water supply. Such projects must show conclusively that they do not contribute to groundwater degradation. If additional water is generated by this method, it may be used to replace domestic water supply in landscape irrigation and other approved uses to free domestic water for planned growth provided that the water reclaimed creates no adverse environmental impacts.	Not Applicable	The program does not include facilities that generate demand for water supply, storage, or transport.
54.1.9 (CV) Proposals for Community Sewering for the Mid-Valley Area, including an advanced wastewater “package” treatment plant and spray irrigation shall be acceptable to the Director of Environmental Health prior to approving projects at densities greater than one unit per acre. If community sewering is not found to be feasible, detailed groundwater studies acceptable to the Director of Environmental Health shall be conducted to confirm or refute the wastewater application criteria for specific sites. In no case shall the nitrogen loading rate exceed 40 grams/acre/day or the policies of the Basin Plan and Monterey County Code (Septic Ordinance). The cost of such studies as needed shall be borne by the developer when new projects are proposed.	Not Applicable	The program does not include facilities that generate demand for sewage disposal, transport, or treatment.
54.1.10 (CV) The County shall increase monitoring efforts in the Carmel Valley Village and Mid-Valley Areas to: ▪ identify existing groundwater quality or other impacts from septic systems; ▪ verify the data assumptions and predictions contained in the Carmel Valley Wastewater Study for these areas; and	Not Applicable	The program does not include facilities that generate demand for sewage disposal, transport, or treatment.

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
▪ determine the need for community sewerage facilities or other improvement in waste disposal practices.		
54.1.11 (CV) Detailed cumulative groundwater quality impact studies shall be conducted for any Proposed Projects which will exceed, on a localized or areawide basis, the maximum recommended wastewater application rates contained in the Carmel Valley Wastewater Study. In no case shall the total nitrogen loading rate exceed 40 grams/acre/day or the provisions of the Basin Plan and Monterey County Code (Septic Ordinance). Special consideration should be given to commercial development, such as visitor accommodations and restaurant facilities, where more intensive wastewater loadings are likely. Based on these studies, the adopted wastewater application criteria shall be refined to guide sewage disposal plans. The investigation shall be conducted by a licensed geologist, geologic engineer, water quality expert and/or a licensed soils engineer. The project should be reviewed by a professional engineer or hydrologist acceptable to the Director of Environmental Health and the cost of the review shall be borne by the developer when new projects are proposed. The scope of work shall be established by the Director of Environmental Health in conjunction with the Monterey Peninsula Water Management District.	Not Applicable	The program does not include facilities that generate demand for sewage disposal, transport, or treatment.
56.2.3 (CV) Whenever street lighting is used in the valley, it shall be designed to promote traffic safety and be unobtrusive and harmonious with the local character. Such lighting must be constructed and located to illuminate only the intended area and prevent off-site glare.	Consistent	Lighting associated with the program would be designed to conform to all applicable standards (see **Mitigation Measure AES-4.1**).
56.2.4 CV) Except where inconsistent with sound environmental planning, new aboveground transmission facilities shall 1) follow the least visible route (e.g., canyons, tree rows, and ravines), 2) cross ridgelines at the most visually unobtrusive locations, 3) follow, not compete with, either natural features of the terrain or man-made features in developed areas, and 4) be well designed,	Not Applicable	The program does not include aboveground transmission facilities..

Carmel Valley Master Plan Policy	Consistency Determination	Discussion
simple and unobtrusive in appearance, have a minimum of bulk, use the minimum number of elements permitted by good engineering practice, and make use of colors and materials compatible with local surroundings.		

Appendix D

Carbon Monoxide Modeling

Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term "Gaussian dispersion" refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian ("normal") statistical distribution. Horizontal and vertical mixing generally occur at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

The CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes), and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such cross-wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a "mixing cell" approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates which are a function of various meteorological and ground surface conditions.

Modeling Procedures

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared for this project by DKS Associates (2007). CO emissions were modeled for existing year (2005), 2030 No project, 2030 Project Alternative, 2030 Alternative A, and 2030 Alternative B conditions. Free flow traffic speeds were adjusted to a speed of 1.0 miles per hour (mph) for vehicles entering intersection segments, and 10 mph for vehicles exiting intersection segments to represent a worst-case scenario. CO modeling was conducted at the Highway One & Carmel Valley Road, Carmel Rancho Boulevard & Carmel Valley Road, Highway One & Rio Road, Crossroads Driveway & Rio Road, Laureles Grade & Carmel Valley Road intersections, as they represent intersections with the worst LOS and delay and highest traffic volumes of any intersections analyzed in the project area.

Vehicle Emission Rates. Vehicle emission rates were determined using the California Air Resources Board's EMFAC2007 (version 2.3) emission rate program. EMFAC2007 modeling procedures followed the guidelines recommended by Caltrans (California Department of Transportation 2003). The program assumed Monterey County regional traffic data operating during the winter months. A mean January temperature of 43 degrees Fahrenheit and humidity of 30% were assumed.

Receptor Locations. CO concentrations were estimated at 4 receptor locations located at each of the intersections analyzed, for a total of 28 receptors. The receptors were placed 35.4 feet from the center of each intersection diagonal, 25 feet from the roadway centerline, and 3 feet from the boundary of the mixing zone to represent a worst-case scenario. Receptor heights were set at 5.9 feet.

Meteorological Conditions. Meteorological inputs to the CALINE4 model were determined using methodology recommended in Air Quality Technical Analysis

Notes (California Department of Transportation 1988). The meteorological conditions used in the modeling represent a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. The meteorological inputs include: 0.5 meters per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 10 degrees, ambient temperature of 2.8 degrees centigrade, and a mixing height of 1,000 meters.

Background Concentrations and Eight-Hour Values. To account for sources of CO not included in the modeling, a background concentration of 2.5 ppm was added to the modeled cumulative 1-hour values, while a background concentration of 1.2 ppm was added to the modeled cumulative 8-hour values. Background concentration data for 1- and 8-hour values were obtained from the EPA's Air Data webpage (U.S. Environmental Protection Agency 2006) for the Salinas air monitoring station, based on guidance provided by the MBUAPCD (2004). Maximum 1- and 8-hour values for the years 2004-2006 were averaged to obtain a background concentration. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.6. Background concentrations for future year (2030) conditions were assumed to be the same as those for the current year. Actual 1- and 8-hour background concentrations in future years would likely be lower than those used in the CO modeling analysis because the trend in CO emissions and concentrations is decreasing because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

References

Benson, P. E. 1989. CALINE4—a dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA.

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DKS Associates. 2007. Carmel Valley Master Plan: Draft Report. July 27. Oakland, CA. Prepared for The County of Monterey, Oakland, CA.

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U.S. Environmental Protection Agency. 2006. Air Data. Last Revised: March 2, 2007. Available: <http://www.epa.gov/air/data/reports.html>. Accessed: March 8, 2007.

Appendix E
Criteria Pollutants Modeling

Emissions of Criteria Pollutants

The primary operational emissions associated with the proposed program are CO, PM10, and ozone precursors (ROG and NO_X) emitted as vehicle exhaust. The effects of project specific emissions of criteria pollutants (CO, PM10, and ozone precursors) were evaluated through the conformity process and modeling conducted using the ARB's EMFAC2007 (version 2.3) emission rate program and traffic data provided by the project traffic engineers.

The EMFAC2007 (version 2.3) Model

Emissions of criteria pollutants (CO, PM10, and ozone precursors) were evaluated using the ARB's EMFAC2007 (version 2.3) emission rate program and vehicle activity data. The EMission FACtors (EMFAC) model calculates emission rates from all motor vehicles, such as passenger cars to heavy-duty trucks, operating on highways, freeways and local roads in California. It can estimate emission rates of 1965 and newer vehicles, and provides emission rates for gasoline, diesel or electricity powered vehicles. The EMFAC2007 emissions inventory estimates are made for over one hundred different technology groups and are reported for ten broad vehicle classes segregated by usage and weight.

Emission inventories associated with the proposed project are estimated by applying emission rate data from EMFAC2007 model to vehicle activity data. EMFAC2007 can analyze up to 45 model years for each vehicle class within each calendar year; for 24 hourly periods; for each month of the year; and for each district, basin, county, and subcounty in California. EMFAC2007 estimates emission factors and emission inventories for the following primary pollutants:

- **Hydrocarbons.** Hydrocarbons can be expressed as TOG (total organic gases), ROG (reactive organic gases), THC (total hydrocarbon), or CH_4 (methane). The THC class includes compounds with hydrogen and carbon atoms only; carbonyls and halogens are not included in the class. The TOG class includes all organic gases emitted into the atmosphere. The ROG class is same as EPA's VOC (volatile organic compounds) definition and does not contain compounds exempt from regulation.
- **Carbon monoxide (CO).**
- **Nitrogen oxides (NOx).**
- **Carbon dioxide (CO2).**
- **Particulate matter (PM).** PM estimates are provided for total suspended particulate, particulate matter 10 microns or less in diameter (PM10), and particulate matter 2.5 microns or less in diameter (PM2.5).
- **Fuel consumption.** Although, this is not a pollutant, fuel consumption is calculated based on the emissions of CO, CO2, and THC using the carbon balance equation.

- **Oxides of sulfur (SOx).** Emissions of oxides of sulfur are a function of the sulfur content of fuel. The model calculates these emissions by multiplying the fuel consumption by the weight fraction of sulfur in a gallon of fuel.
- **Lead (Pb).** Lead emissions are also a function of the lead content in fuel. Hence, the model calculates lead by multiplying the fuel consumption by the number of grams of lead per gallon.

Modeling Procedures

Roadway and Traffic Conditions

Modeled traffic volumes and operating conditions were obtained from traffic data prepared by the project traffic engineers, DKS Associates (Story pers. comm.). Emissions of ozone precursors (ROG and NO_X), CO, and PM10 for were modeled for existing year (2005), 2030 No project, 2030 Project Alternative, 2030 Alternative A, and 2030 Alternative B conditions. Traffic data used in the model included peak hour vehicle miles traveled (VMT) and average speed. The data used for emissions modeling is summarized in Table 1.

Table 1. Traffic Inputs for EMFAC2007 Modeling

Scenario	Average speed	Daily VMT
Existing	28	213,937
2030 No Project	28	334,567
2030 Project Alternative	28	334,636
2030 Alternative A	28	340,370
2030 Alternative B	28	334,636

Source: DKS Associates 2007.

Vehicle Emission Rates. Vehicle emission rates were determined using the ARB's EMFAC2007 (version 2.3) emission rate program. Traffic speeds were calculated from traffic data provided by the project traffic engineers, DKS Associates (Story pers. comm.). The program assumed Monterey County regional traffic data operating during the winter months for CO and summer for ozone precursors and PM10, as CO concentrations are typically higher during the colder winter months, and ozone concentrations are typically higher during the warmer summer months. A mean January temperature of 43 degrees Fahrenheit, mean September temperature of 72 degrees Fahrenheit, and humidity of 30% were assumed.

Reference

Story, Joseph A. Principal. DKS Associates, Oakland, CA. February, 2007 – email to Rich Walter, Jones & Stokes.

Appendix F
CVMP Traffic Study

CARMEL VALLEY MASTER PLAN

TRAFFIC STUDY

Submitted to:

Jones & Stokes

Prepared for:

The County of Monterey

By

DKS Associates
1000 Broadway, Suite 450
Oakland, California 94607

July 2007

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1.0 Introduction & Project Description

The purpose of this traffic study for the Carmel Valley Master Plan (CVMP) is to evaluate current traffic conditions, identify existing and potential future land use changes, and identify potential traffic improvements to maintain established CVMP traffic level of service (LOS) standards.

Project Background

Carmel Valley Master Plan. The CVMP was developed in the early 1980s to address the specific planning issues in Carmel Valley. The CVMP included growth controls and traffic monitoring measures, thresholds, and procedures. An Environmental Impact Report (EIR) was prepared concerning the impacts of the CVMP, was certified in 1986, and the CVMP was adopted. Policy 39.3.2.1 was adopted as follows:

> *39.3.2.1 (CV) To implement traffic standards to provide adequate streets and highways in Carmel Valley, the County shall conduct and implement the following:*
>
> *a. Twice yearly monitoring by Public Works (in June and October) of average daily traffic at 12 locations identified in the Keith Higgins report in Carmel Valley on Carmel Valley Road, Carmel Rancho Boulevard and Rio Road.*
>
> *b. A yearly evaluation report (December) prepared jointly by the Public Works and Planning Departments to indicate segments approaching a traffic volume which would lower existing level service and which would compare average daily traffic (ADT) counts with service volumes for levels of service.*
>
> *c. Public hearings to be held in January immediately following a December report in (b) above in which only 100 or less ADT remain before a lower level of service would be reached for any of the 12 segments described on figure B-1 of EIR 85-002 on the Carmel Valley Master Plan.*
>
> *d. With respect to those 12 identified road segments that are at level of service (LOS) C or below, approval of development will be deferred if the approval would significantly impact roads in he Carmel Valley Master Plan area which area at level of service (LOS) C or below unless and until an EIR is prepared which includes mitigation measures necessary to raise the LOS to an acceptable level and appropriate findings as permitted by law are made which may include a statement of overriding considerations. For purposes of this policy, "acceptable level" shall mean, at a minimum, baseline LOS as contained in the Carmel Valley Master Plan EIR. To defer*

> *approval if there is significant impact means that, at a minimum, the County will not approve development without such an EIR where the traffic created by the development would impact the level of service along any segment of Carmel Valley Road (as defined in the Keith Higgins Traffic Report which is part of the Environmental Impact Report (EIR) for the Carmel Valley Master Plan "CVMP") to the point where the level of service would fall to the next lower level. As for those road segments which are at LOS C, D and E, this would, at a minimum, occur when the LOS F, this would occur when it would cause a significant impact and worsening of traffic conditions as compared with the present condition. Specific findings will be made with each project and may depend on the type and location of any proposed development. Cumulative traffic impacts from development in areas outside the CVMP area must be considered and will cause the same result as development within the plan area.*

1991 Carmel Valley Road Improvement Plan Subsequent EIR. In 1991, the County of Monterey determined that traffic increases in the CVMP area had exceeded their expectations and that traffic thresholds were approaching the volumes established by Policy 39.3.2.1. The County prepared the Carmel Valley Road Improvement Plan Subsequent Environmental Impact Report (SEIR). The SEIR was a subsequent EIR to the 1986 EIR for the CVMP and updated traffic, noise, air quality conditions and updated the suite of traffic improvements then determined necessary to maintain established CVMP traffic LOS standards. The Monterey County Planning and Public Works Department certified the SEIR and adopted the project in November 1991.

2002 Subdivision Moratorium. In December 2001, annual monitoring determined that traffic thresholds along two portions of Carmel Valley Road (between Ford Road and Laureles Grade and between Schulte Road and Rancho San Carlos Road) had been reached. In response to traffic reaching these thresholds and due to the 1999 elimination of the prior plan to build the Hatton Canyon Freeway (previously assumed in the CVMP), pursuant to CVMP policies, the County Board of Supervisors (in Resolution 02-024, adopted January 22, 2002), made it policy to deny approval of new residential and commercial subdivisions in the CVMP area until:

- Left-turn pockets are constructed along Carmel Valley Road between Robinson Canyon Road and Rancho San Carlos Road
- Capacity-increasing improvements to State Route (SR) 1 between Carmel Valley Road and Morse Drive are constructed; and
- Updated General Plan/Master Plan policies relating to Level of Service on Carmel Valley Road are adopted.

Residential subdivisions with applications submitted before October 19, 1999 were allowed to proceed provided they addressed their traffic and other impacts. The policy is intended to remain in place until the criteria above are met.

Recent Traffic Improvements Relative to Moratorium Requirements. According to the Monterey County Public Works Department, some of the required left-turn pockets have been constructed along Carmel Valley Road between Robinson Canyon Road and Rancho San Carlos Road (Segment 3) (those currently scheduled to be completed by 2007 are Boronda and Country Club as listed under the Monterey County CIP 2006-2012). All other work along Segment 3 is scheduled to be completed by 2008. The Transportation Agency of Monterey County (TAMC) completed a northbound climbing lane on SR1 between Carmel Valley Road and Ocean Avenue in 2001 that has improved operations substantially along this portion of SR1. The County in conjunction with TAMC and Caltrans is also completing the SR1 northbound climbing lane north of Rio Road. The project is fully funded with STIP funding and is expected to be completed by 2010.

General Plan Update.

On January 3, 2007 Monterey County adopted an update to the General Plan for Monterey County, which includes an updated CVMP Area Plan, to include traffic improvements developed to address this level of service deficiency. In June 2007, the General Plan Update (commonly referred to as "GPU4") was the subject of three different ballot measures concerning the General Plan: Measure A asked the voters if they approved of an alternative Community General Plan; Measure B asked the voters if they wanted to repeal the approval of GPU4; (Measure C) asked the voters if they approved of GPU4. All three measures were defeated. On July 10, 2007, the Board of Supervisors determined that the existing 1982 General Plan (and the existing CVMP) were in effect as the legal General Plan pending a future General Plan Update.

Project Description

The project study area, the CVMP plan area, has not changed from that described in the 1991 SEIR. The overall project area encompasses much of Carmel Valley, located in Monterey County. It is south of the City of Monterey, southwest of the City of Salinas and east of the City of Carmel-by-the-Sea. Regional access to the project area is provided by Highway 1 to the west and Highway 68 via Laureles Grade to the north. Figure 1 illustrates the project study area and study intersections.

The changes being evaluated in this study involve:

- updated land uses projections;
- changes related to traffic volumes and service levels in Carmel Valley;
- existing and future traffic conditions for five scenarios and potential traffic improvements.

1.1 Changes since 1986

This study included an update of land use conditions that have changed since the 1986 EIR on the CVMP. From 1987 through 2005, building permits were issued for 522 single-family dwelling units and adjunct units. Including the recent approval of the September Ranch subdivision, Approximately 322 residential units were approved within the CVMP area within new subdivisions, with an additional residential 288 units approved outside the CVMP area in the Rancho San Carlos/Santa Lucia Preserve development (this area contributes directly to traffic on Carmel Valley Road), although not all of the units approved in new subdivisions have been built yet or have had building permits issued. In addition, 140 visitor-serving units were approved in the CVMP area between 1987 and 2005. Commercial growth has also occurred in some parts of the CVMP. In addition to growth within the CVMP area, Monterey County has experienced substantial growth over the last two decades.

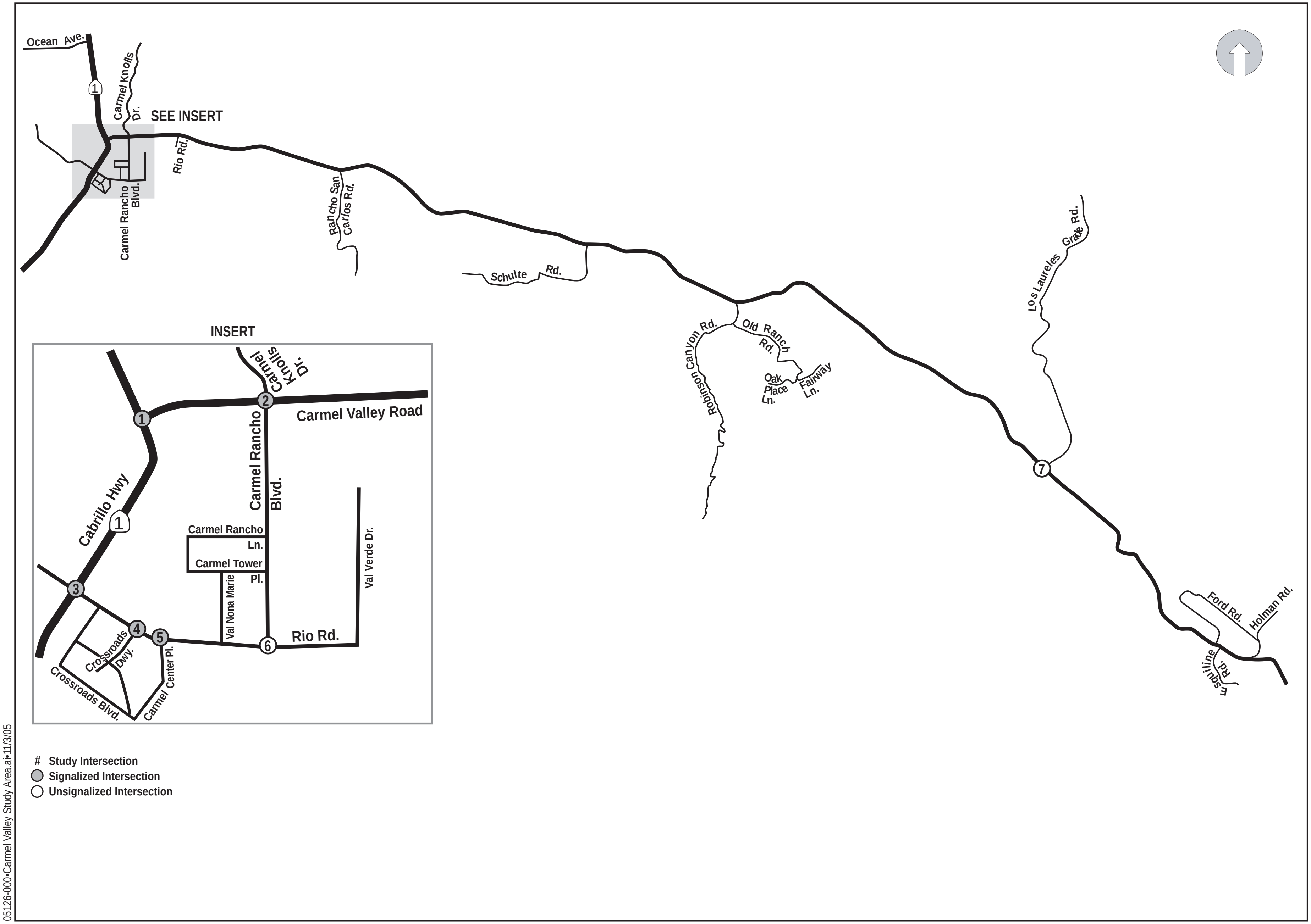

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Exhibit 1
Study Area

The traffic model used for this study was updated to take account of these land use changes and to better forecast potential future growth within the CVMP area.

The following roadway improvements have been partially or fully completed since the 1991 EIR; the improvements are derived from the CIP list that is part of the Master Plan Fee.

- Enforcement and Signage Program (Completed).
- Sight Improvements, parking restrictions and signage in Carmel Valley Village (Completed).
- Class II Bike Lanes (Partially Completed) - Class II bike striping was installed from Valley Greens to Dorris. A class III bike route was installed on Valley Greens to a point about ½ mile west of Rancho San Carlos.
- Left-Turn Channelization – West of Ford (partial - currently working on the left-turn pockets at Boronda and Country Club Drive).
- Upgrade to Class II bike lanes for Carmel Valley Road (Completed)
- Widen Refuge Area at Via Mallorca (Completed)
- Passing Lanes in front of September Ranch (Conditional - adopted as a condition of approval for the September Ranch Subdivision).
- Various improvements along Carmel Valley Road and the Carmel Valley Village include shoulder widening left-turn channelization as well as various safety enhancements.

1.2 Traffic Study Scenarios

For the purpose of this study and consistent with the previous SEIR, five scenarios were considered:

No Project Scenario: This scenario assumes no new traffic improvements and no additional residential or commercial subdivisions, as it is assumed that the existing subdivision moratorium will continue. It is assumed that additional single-family dwellings, visitor-serving units, and commercial developments can be approved within the CVMP land use framework without the need for subdivision up to the growth limits in the CVMP Area Plan. It is also assumed that previously approved projects will be completed.

Scenario A: This scenario assumes buildout of the CVMP under the adopted CVMP Area Plan with anticipated additional residential subdivisions to be evenly distributed across potential development locations, and no new traffic improvements beyond those completed or in development as listed in Section 1.1. Pending development proposals are not assumed to be built, but the land on which they are proposed is instead assumed to be developed in accordance with existing land use designations and zoning.

Scenario B: This scenario assumes buildout of the CVMP under the adopted CVMP Area Plan with existing development proposals incorporated into the analysis, and with anticipated additional residential subdivisions to be evenly distributed across potential development locations, and no additional traffic improvements beyond those completed or in development as listed in Section 1.1.

Scenario C: This scenario assumes buildout of the CVMP under the adopted CVMP Area Plan with existing development proposals incorporated into the analysis, and with anticipated additional residential subdivisions to be evenly distributed across potential development locations (same as Scenario B). This scenario includes the following traffic improvements, which are all included in the current County Capital Improvement Program (CIP) Carmel Valley Road Improvement List:

- left-turn channelization on Carmel Valley Road west of Ford (those currently scheduled to be completed by 2007 are Boronda and Country Club as listed under the Monterey County CIP 2006-2012);
- shoulder widening on Carmel Valley Road between Laureles Grade and Ford;
- passing lanes on Carmel Valley Road in front of the proposed September Ranch development;
- passing lanes opposite Garland Park;
- a climbing lane on Laureles Grade;
- a grade separation at Laureles Grade and Carmel Valley Road;
- paved turnouts, new signage, shoulder improvements and spot realignments on Laureles Grade; and
- upgrade all new road improvements within Carmel Valley Road Corridor to Class 2 Bike Lanes.

Scenario D: This scenario is the same as Scenario C, except that it also includes two passing lanes along Segments 6, and 7. This scenario was included to analyze potential improvements in level of service along these two segments. These passing lanes are not part of the current CIP.

- Schulte Road to Robinson Canyon Road (Segment 6)- Provide a ¼ mile passing lane anywhere along the segment where feasible.

- Rancho San Carlos Rd to Schulte Road (Segment 7) - Provide a ¼ mile passing lane anywhere along the segment where feasible.

2.0 Study Methodology

To evaluate existing and future traffic conditions, the Level of Service (LOS) was evaluated at study intersections and roadway segments. The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of intersection performance.

Study Intersections

The following intersections were selected for analysis, as they are the most likely to be potentially affected by the project.

- Highway 1 & Carmel Valley Road
- Carmel Rancho Boulevard & Carmel Valley Road
- Highway 1 & Rio Road
- Crossroads Driveway & Rio Road
- Carmel Center Place & Rio Road
- Carmel Rancho Boulevard & Rio Road
- Laureles Grade & Carmel Valley Road

Roadway Segments

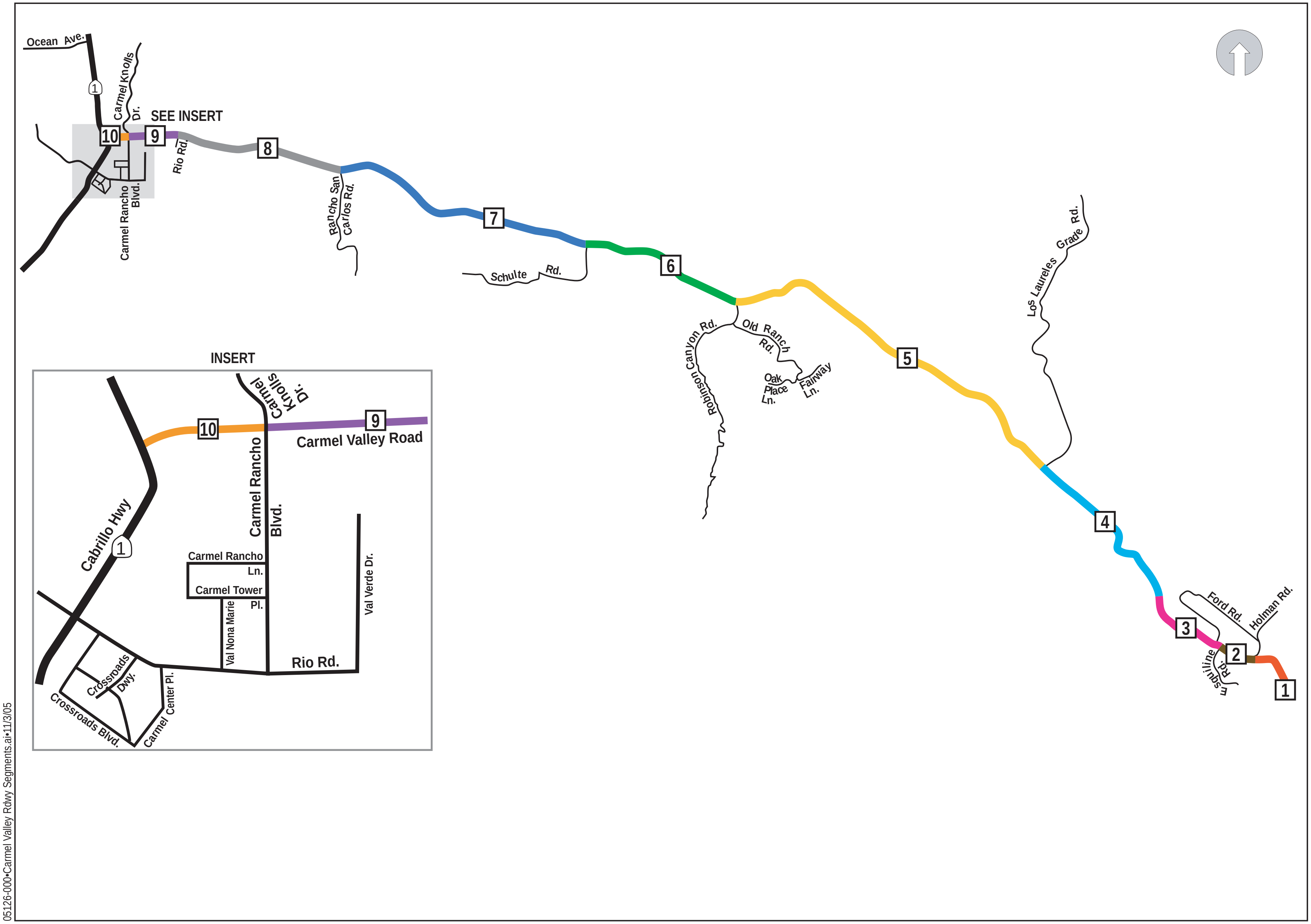
For the purpose of this analysis, Carmel Valley Road has been divided into ten roadway segments, the same roadway segments analyzed in the previous SEIR.

- Segment 1: East of Holman Road
- Segment 2: Holman Road to Esquiline Road
- Segment 3: Esquiline Road to Ford Road
- Segment 4: Ford Road to Laureles Grade
- Segment 5: Laureles Grade to Robinson Canyon Road
- Segment 6: Robinson Canyon Road to Schulte Road
- Segment 7: Schulte Road to Rancho San Carlos Road
- Segment 8: Rancho San Carlos Road to Rio Road

- Segment 9: Rio Road to Carmel Rancho Boulevard
- Segment 10: Highway 1 to Carmel Rancho Boulevard

Note: Segment 2 and 3 were previously called Segment 2A and 2B and Segment 4 was previously called Segment 3 in the previous SEIR. However, this report provides a sequential numbering of the ten roadway segments.

Figure 2 illustrates the study roadway segments.



05126-000•Carmel Valley Rdwy Segments.ai•11/3/05

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Exhibit 2
Existing Roadway Segments

2.1 Intersection Analysis Methodology

Monterey County's designated intersection level of service analysis methodology is the 2000 Highway Capacity Manual (HCM) operations method for unsignalized and signalized intersections.

2.1.1 Level of Service General Definition

Level of service (LOS) is a common measure of traffic service that uses letters A through F (least to most traffic congestion, respectively) to indicate the amount of congestion and delay. The LOS concept was developed to correlate numerical traffic volumes to subjective descriptions of traffic performance at intersections, which are the controlling bottlenecks of traffic flow. In general practice, LOS A indicates free flow conditions, while LOS B and C signify stable conditions with acceptable delays. LOS D is typically considered acceptable for peak hours in urban areas. LOS E is approaching capacity and LOS F represents conditions at or above capacity.

2.1.2 Signalized Intersections

The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway performance. Level of Service can range from "A" representing free-flow conditions, to "F" representing extremely long delays. LOS B and C signify stable conditions with acceptable delays. LOS D is typically considered acceptable for a peak hour in urban areas, with average delays in the range of 35 to 55 seconds. LOS E is approaching capacity and LOS F represents conditions at or above capacity, with average delays over 80 seconds.

The correlation between average control delay and level of service is contained in Table 1.

Table 1 Signalized Intersection LOS Definition

Level Of Service	Description	Avg. Control Delay (sec/veh)
A	Free flow; minimal to no delay	≤ 10.0
B	Stable flow, but speeds are beginning to be restricted by traffic condition; slight delays	10.1– 20.0
C	Stable flow, but most drivers cannot select their own speeds and feel somewhat restricted; acceptable delays.	20.1-35.0
D	Approaching unstable flow, and drivers have difficulty maneuvering; tolerable delays.	35.1 – 55.0
E	Unstable flow with stop and go; delays	55.1 – 80.0
F	Total breakdown; congested conditions with excessive delays.	≥ 80.0

Source: Highway Capacity Manual, Transportation Research Board, 2000

2.1.3 Unsignalized Intersections

At unsignalized intersections, each approach to the intersection is evaluated separately and assigned a LOS. The LOS is based on the average delay at the worst approach for two-way stop controlled intersections, in seconds per vehicle.

Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position.

Table 2 provides definitions of LOS for two-way stop controlled intersections.

Table 2 Unsignalized Intersection LOS Definition

Level of Service	Average Control Delay (seconds per vehicle) [1]	Description
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short traffic delay
C	> 15 and ≤ 25	Average traffic delay
D	> 25 and ≤ 35	Long traffic delay
E	> 35 and ≤ 50	Very long traffic delay
F	> 50	Extreme delays potentially affecting other traffic movements in the intersection.

Source: Highway Capacity Manual, Transportation Research Board, 2000, Exhibit 17-2.
1 Worst Approach Delay (seconds per vehicle)

2.2 Roadway Segment Methodology

A roadway segment analysis was performed for ten roadway segments along Carmel Valley Road using the average daily traffic (ADT) volumes and the two-lane or multi-lane HCM Methodology.

2.2.1 Level of Service Definition

For the purpose of this analysis, Carmel Valley Road is categorized as a Class II Facility. As defined in the Highway Capacity Manual, a Class II facility consists of a "two-lane highway on which motorists do not necessarily expect to travel at high speeds. Two-lane highways that function as access routes to Class I facilities, serve as scenic or recreational routes that are not primary arterials, or pass through rugged terrain generally are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning and ending portions of longer trips, or trips for which sightseeing plays a significant role." The multi-lane roadway segment of Carmel Valley Road between SR1 and Rancho San Carlos was also categorized as a Class II facility.

For two-lane highways, level of service is evaluated based on the "percent time-spent following". For multi-lane highways, level of service is evaluated based on vehicle density. Table 3 provides definitions of LOS for two-lane and multi-lane highways, respectively.

Table 3 Two-Lane and Multi-Lane Highway – LOS Criteria

Level of Service	Two-Lane[1]	Multi-Lane[2]
	Percent Time-Spent Following (PTSF)	Density (pc/mi/ln)
A	<= 40	<= 11
B	> 40 to 55	> 11 to 18
C	> 55 to 70	> 18 to 26
D	> 70 to 85	> 26 to 35
E	> 85	> 35 to 41
F	See note 3	> 41

[1] Highway Capacity Manual, Transportation Research Board, 2000, Exhibit 20-4, Class II Facility.
[2] Highway Capacity Manual, Transportation Research Board, 2000, Exhibit 21-2 – Facility with FFS of 55 mph.
[3] LOS F applies whenever the flow rate exceeds the roadway segment capacity.

As described in Section 4, CVMP policy establishes the roadway segment standard as LOS C, except for those segments that were LOS D or lower as of the time of the traffic study for the 1986 EIR on CVMP. For Carmel Valley Road between Ford Road to Rancho San Carlos Road, the LOS standard is the baseline LOS extant in 1986 which was LOS D. For Carmel Valley Road between Carmel Rancho Blvd. and SR1, the LOS extant in 1986 was LOS E.

2.3 Traffic Forecasting

This section describes the methodology for forecasting traffic volumes for each land use scenario for the project condition. An overview of the forecasting tool steps and modifications are described in detail.

In order to analyze the project conditions for this study, DKS Associates used the AMBAG Regional Travel Demand Model, hereafter referred to as AMBAG model, built using TransCAD software. The model was created by the Association of

Monterey Bay Area Governments and is the primary tool for forecasting in the AMBAG region. This model was significantly updated and migrated to TransCAD in 2005. The new AMBAG model was redesigned based on new traffic analysis zone structures, an updated roadway and transit network, updated land use forecasts, and updated socioeconomic data via surveys. The model has the capability to forecast 2000, 2010, 2020, 2025 and 2030 land use scenarios. For the purposes of this study, only the base 2000 and 2030 model was used to generate traffic volume changes. A detailed description of the model structure and changes made for this analysis is provided in Appendix A.

3.0 Setting

Regional access to the project areas is provided by Highway 1, Carmel Valley Road and Laureles Grade.

Highway 1 (State Route 1)

This facility is a state highway that runs along the Pacific coast. It extends from Las Cruces just south of Lompoc in the south to San Francisco in the north. In the vicinity of the project, this facility runs in the north-south direction as it passes through Carmel before becoming a freeway in Monterey. It includes two lanes of travel (one in each direction) south of Carmel Valley Road. North of Carmel Valley Road, Highway 1 provides three travel lanes (two in the northbound direction and one lane in the southbound direction) until Ocean Avenue. Highway 1 provides access to the project study area via Carmel Valley Road and Rio Road.

State Highway 68

This facility extends from Salinas in the northeast, to its interchange with Highway 1 in the southwest where it becomes Cabrillo Highway. State Highway 68 splits west of Aguajito Road in Monterey where it becomes Holman Highway and continues northwest towards Pacific Grove where it becomes Sunset Drive near Asilomar State Beach and ultimately becomes Ocean View Boulevard in Pacific Grove. In the vicinity of the project, State Highway 68 runs in the east-west direction and includes two lanes of travel (one in each direction) between Highway 1 and the Toro Regional Park area. North of the Toro Park Regional area, state highway 68 includes four-lanes of travel (two in each direction). State Highway 68 provides access to the project study area via Laureles Grade.

Carmel Valley Road

This facility is a major east-west two to four-lane major arterial; it extends from Highway 1 in the west, through the Carmel Valley to Arroyo Seco Road in the east. Arroyo Seco Road splits at its intersection with Elm Avenue in Greenfield and continues north. Arroyo Seco Road connects to U.S. 101, north of the City of Greenfield. Elm Avenue connects directly to U.S. 101 in the City of Greenfield. In the vicinity of the project, Carmel Valley Road runs in the west-east direction and provides two to four-lanes of travel. Carmel Valley Road has posted speed limits between 15 to 55 mph.

Laureles Grade

This facility extends from Carmel Valley Road, in the south, to Highway 68, in the north. In the vicinity of the project, Laureles Grade runs in the north-south direction, and includes two-lanes (one in each direction).

Local Access

Local access to the project study area is provided by Rio Road and Carmel Rancho Boulevard. Descriptions of local access roads are provided below.

Rio Road

This facility is a two to four-lane local street with an east-west direction that extends from Val Verde Drive in the east to its terminus at Junipero Avenue in the west where it becomes 13th Avenue in the City of Carmel by the Sea. It has a posted speed limit of 25 mph.

Carmel Rancho Boulevard

This facility is a four-lane local street with a north-south direction and has a posted speed limit of 35 mph. It extends from Rio Road in the south to its terminus at Carmel Valley Road where it becomes Carmel Knolls Drive.

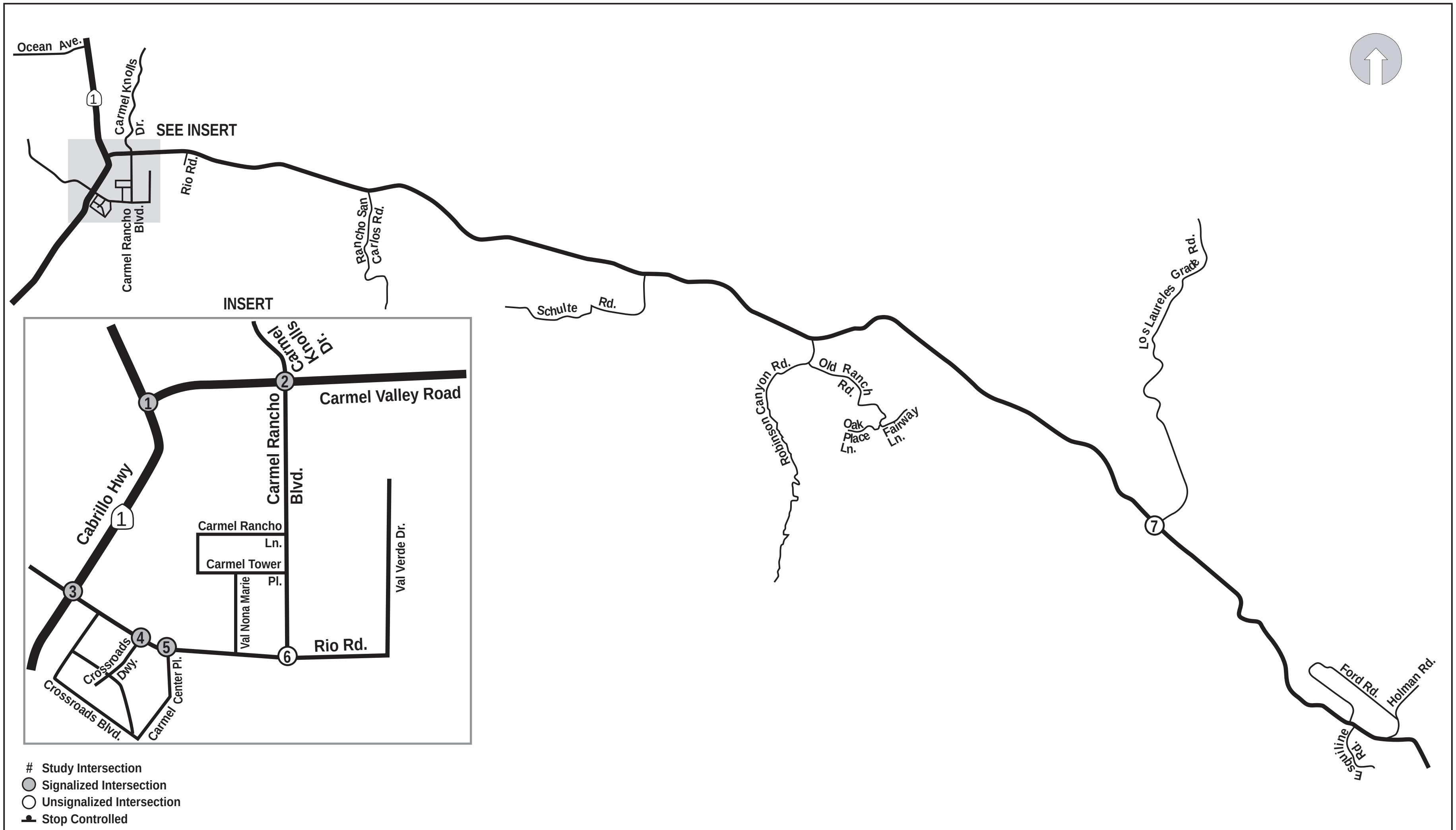
3.1 Intersection Analysis

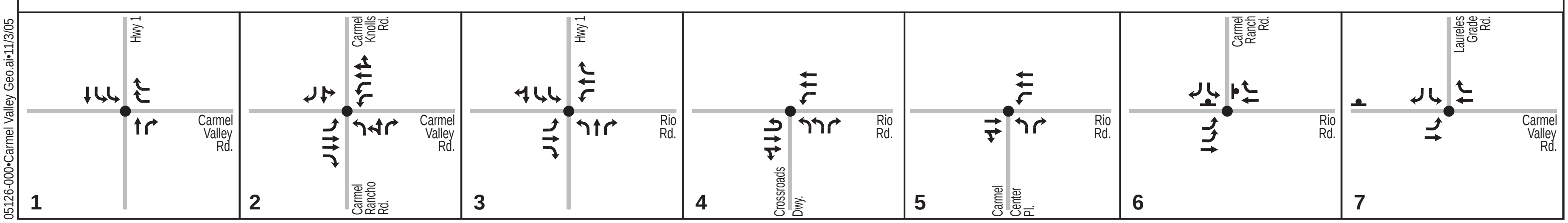
The County of Monterey Department of Public Works staff provided A.M. peak hour and P.M. peak hour intersection level of service calculations for four of the seven existing study intersections. To supplement data provided by County of Monterey staff, DKS recently conducted new weekday intersection turning movement counts at the following intersections:

- Crossroads Driveway & Rio Road
- Carmel Center Place & Rio Road
- Laureles Grade & Carmel Valley Road

Vehicle turning movement counts were conducted in November 2005. Counts were conducted during the weekday A.M. period of 7:00-9:00 A.M. and the P.M. peak hour period of 4:00-6:00 P.M.

Figure 3 illustrates the existing lane geometry and traffic control of each of the study intersections. Figure 4 illustrates the existing A.M. and P.M. peak hour volumes. The intersection and their corresponding existing LOS are presented in Table 4.

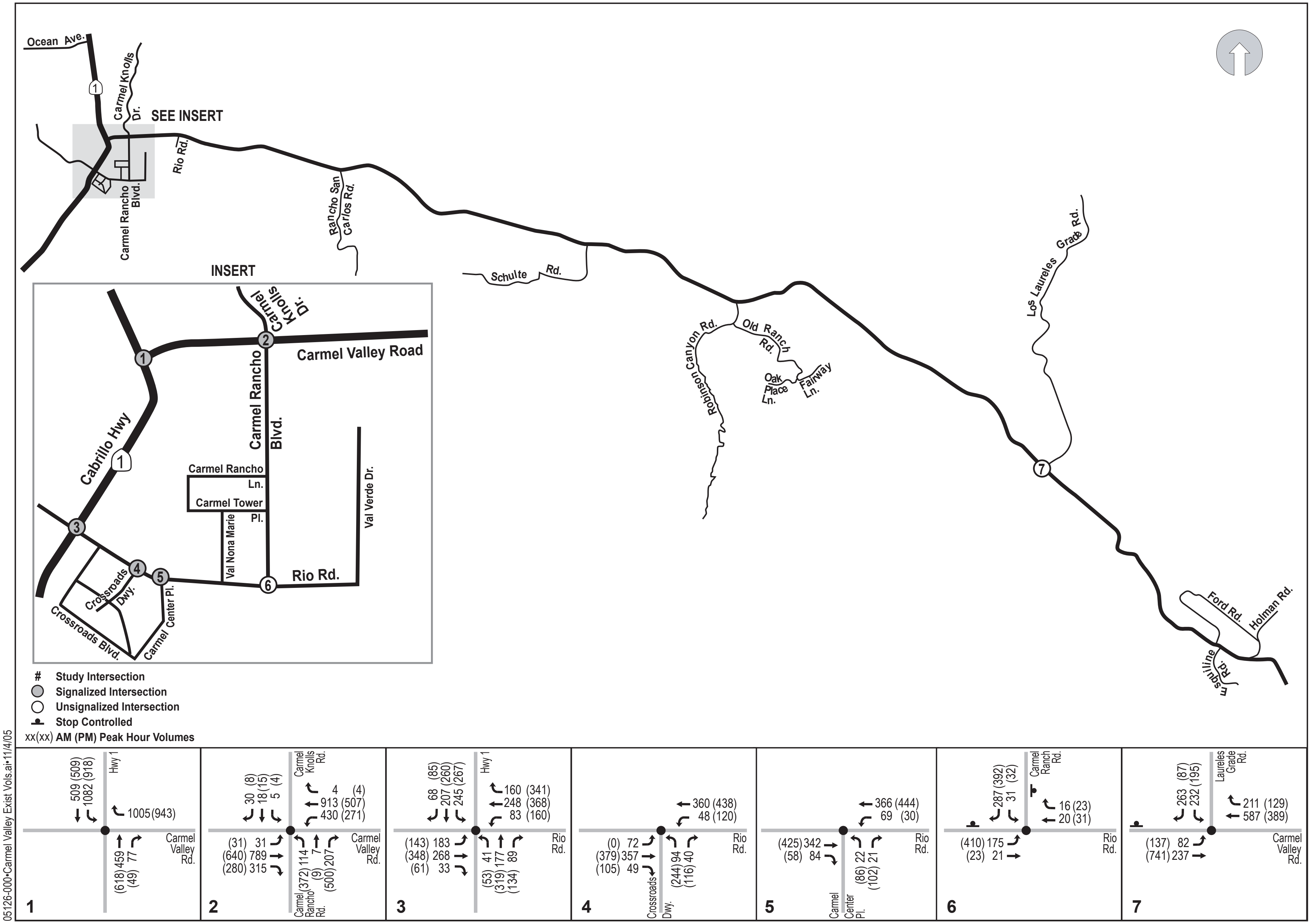




DKS Associates
TRANSPORTATION SOLUTIONS

Exhibit 3
Existing Intersection Geometry and Traffic Control

05126-000•Carmel Valley Exist Vols.ai•11/4/05



DKS Associates
TRANSPORTATION SOLUTIONS

Exhibit 4
Existing Intersection Volumes
Weekday AM and PM Peak Hour

Table 4 Intersection Level of Service – Existing Condition

#	Intersection Name	A.M. Peak		P.M. Peak	
		Avg. Delay[1]	LOS[2]	Avg. Delay[1]	LOS[2]
1	Highway One & Carmel Valley Road	16.5	B	20.6	C
2	Carmel Rancho Boulevard & Carmel Valley Road	17.5	B	22.0	C
3	Highway One & Rio Road	28.7	C	30.2	C
4	Crossroads Driveway & Rio Road	9.9	A	11.2	B
5	Carmel Center Place & Rio Road	6.2	A	8.7	A
6	Carmel Rancho Boulevard & Rio Road[3]	3.5	A	7.9	B
7	Laureles Grade & Carmel Valley Road[3]	46.3	E	>50	F

[1] Average Delay in seconds per vehicle
[2] LOS: Level of Service
[3] Unsignalized Intersections, Delay is Worst Approach Delay In seconds per vehicle. Delay >50 sec/veh exceeds the delay threshold per HCM 2000 for Unsignalized Intersection.

According to the intersection level of service standards, all study intersections operate at acceptable level of service under the existing conditions with the exception of the intersection of Laureles Grade & Carmel Valley Road. The southbound movement at this intersection currently operates at LOS F during the P.M. peak hour.

Appendix B includes the detailed level of service analysis sheets for the A.M. and P.M. peak hour.

Signal Warrant Analysis

A peak-hour volume warrant (per the MUTCD California Supplement) was performed for the studied unsignalized intersections. Based on the analysis results, the intersection of Laureles Grade & Carmel Valley Road satisfied the warrant under the existing conditions for both the A.M. and P.M. peak hours. The intersection of Carmel Rancho Boulevard & Rio Road does not satisfy the peak-hour warrant criteria.

Appendix C includes the detailed peak-hour volume warrants for each of the unsignalized intersections during the A.M. and P.M. peak hours, respectively.

3.2 Roadway Segment Analysis

The Monterey County Department of Public Works provided 2005 ADT volumes for each of the ten roadway segments, as well as 24-hour threshold volumes. A detailed description of each roadway segment is provided below.

Segment 1 – East of Holman Road

This roadway segment along Carmel Valley Road consists of two (2) travel lanes, one in each direction. East of Holman Road, the posted speed limit is 55 mph and no shoulders are provided.

Segment 2 – Holman Road to Esquiline Road

This roadway segment along Carmel Valley Road consists of two (2) travel lanes, one in each direction. The posted speed limit is 35 mph and no shoulders are provided. Shoulders are provided in certain areas.

Segment 3 – Esquiline Road to Ford Road

This roadway segment along Carmel Valley Road consists of two (2) travel lanes, one in each direction. The posted speed limit is 25 mph and no shoulders are provided. Transit stops for MST Line 24 are provided near the Ford Road intersection. Shoulders are provided in certain areas.

Segment 4 –Ford Road to Laureles Grade

This roadway segment along Carmel Valley Road consists of two (2) travel lanes, one in each direction. The posted speed limit is 35 mph and no shoulders are provided. Transit stops for MST Line 24 are provided. Shoulders are provided in certain areas.

Segment 5 – Laureles Grade to Robinson Canyon Road

This roadway segment along Carmel Valley Road consists of two (2) travel lanes, one in each direction. In the westbound direction, the posted speed limit is 50 mph west of Laureles Grade to Miramonte Road. West of Miramonte Road the posted speed limit is 55 mph until Haldorn Road. Just west of Haldron Road the posted speed limit is 45 mph. In the eastbound direction, the posted speed limit is 55 mph. Transit stops for MST Line 24 are provided.

Segment 6 – Robinson Canyon Road to Schulte Road

This roadway segment along Carmel Valley Road consists of two (2) travel lanes, one in each direction. In the westbound direction, the posted speed limit is 50 mph between Robinson Canyon Road and Loma Del Rey and 45 mph west of Loma Del Rey until Schulte Road. A flashing 25 mph posted speed limit is located near the Carmel Adult School and Saint Philip Church. In the eastbound direction, the posted speed limit is 50 mph between Schulte Road and Mercurio Doud Road. East of Mercurio Doud Road the posted speed limit is 45 mph.

Transit stops for MST Line 24 are provided.

Segment 7 - Schulte Road to Rancho San Carlos Road

This roadway segment along Carmel Valley Road consists of two lanes of travel (one lane in each direction) with a two-way left turn lane provided along the center of the roadway between Valley Green Drive and the farm driveway. Left-turn pockets are provided for vehicular turns at the intersections of Cañada Way and Valley Green Drive, as well as, at the farm entrance, near St. Philips Lutheran Church and Schulte Road. The two-way left turn lane continues east of the fire station to Schulte Road. Carmel Valley Road has a posted speed limit of 45 mph in the eastbound direction and a 50 mph in the westbound direction. Bike lanes and transit stops are provided along this segment of Carmel Valley Road.

Pedestrian facilities within this segment include sidewalks and crosswalks. Crosswalks are located west of the St. Philips Lutheran Church and accommodate pedestrian movements within the immediate vicinity. Pedestrian access to transit facilities is hampered by the lack of continuous sidewalks and walkways to transit stops.

Segment 8 – Rancho San Carlos Road to Rio Road

This roadway segment along Carmel Valley Road consists of four lanes of travel between Rio Road and Via Petra – Del Mesa Drive (two lanes in each direction). East of Via Petra – Del Mesa Drive, Carmel Valley Road becomes a two-lane (one lane in each direction) roadway with a two-way left turn lane provided along the center of the roadway. The two-lane roadway runs until it intersects with Rancho San Carlos. The posted speed limit is 55 mph. Signalized intersections include Via Mallorca and Rancho San Carlos. Left-turn pockets are provided for vehicular turns at the intersections of Rio Road, Martin Canyon Road, Via Mallorca, Via Petra and Rancho San Carlos.

Pedestrian facilities within this segment include sidewalks, crosswalks and pedestrian signals. Crosswalks and pedestrian signals at both of the signalized intersections accommodate pedestrian movements within the immediate vicinity. Ramps are provided at the signalized intersections for disabled person access. Pedestrian access to transit facilities is impeded by the lack of sidewalks and walkways to transit stops.

Segment 9 – Rio Road to Carmel Rancho Boulevard

This roadway segment along Carmel Valley Road consists of four travel lanes, two in each direction. The posted speed limit is 45 mph with a 25 mph posted speed limit enforced near Carmel Middle School. Signalized intersections include Carmel Rancho Boulevard and Carmel Valley Middle School. Left-turn pockets are provided for vehicular turns at the intersections of Carmel Rancho Boulevard, Rio Vista Drive, Carmel Middle School and Rio Road.

Pedestrian facilities within this segment include sidewalks, crosswalks and pedestrian signals. Crosswalks and pedestrian signals at both of the signalized intersections accommodate pedestrian movements within the immediate vicinity. Ramps are provided at the signalized intersections for disabled person access. Pedestrian access to transit facilities is hampered by the lack of continuous sidewalks and walkways to transit stops.

Segment 10 – Highway 1 to Carmel Rancho Boulevard

This roadway segment along Carmel Valley Road consists of four travel lanes, two in each direction. The posted speed limit is 45 mph. Signalized intersections include Carmel Rancho Boulevard and Highway 1. Left-turn pockets are provided for vehicular turns at the intersections of Carmel Rancho Boulevard and Highway 1.

Pedestrian facilities within this segment include sidewalks, crosswalks and pedestrian signals. Crosswalks and pedestrian signals are provided at Carmel Valley Road and Carmel Rancho Boulevard–Carmel Knolls Drive. Crosswalks accommodate pedestrian movements within the immediate vicinity. Ramps are provided at the signalized intersections for disabled person access. There are no sidewalks or walkways to aid pedestrian access to transit stops.

Table 5 provides a comparison analysis for each of the roadway segments.

Based on the 2005 Average Daily Traffic (ADT) volumes, nine of the ten roadway segments in the study area currently operate below the acceptable threshold. The exception is the roadway segment between Schulte Road and Rancho San Carlos Road.

Table 5 Roadway Segment – Existing ADT Monitoring

#	Roadway Segment	Lanes	24-Hr Threshold Volume	ADT 2005	Threshold Exceed
1.	East of Holman Road	2	8,487	3,774	No
2.	Holman Road to Esquiline Road	2	6,835	4,260	No
3.	Esquiline Road to Ford Road	2	n/a	8,651	No
4.	Ford Road to Laureles Grade	2	11,600	11,589	No
5.	Laureles Grade to Robinson Canyon Road	2	12,752	11,739	No
6.	Robinson Canyon Road to Schulte Road	2	15,499	14,736	No
7.	Schulte Road to Rancho San Carlos Road	2	16,340	16,694	Yes
8.	Rancho San Carlos to Rio Road	4	48,487	21,010	No
9.	Rio Road to Carmel Rancho Boulevard	4	51,401	25,484	No
10.	Carmel Rancho Boulevard to Highway One	4	n/a	23,847	No

Source: Monterey County Department of Public Works, data e-mailed September 2006.

Table 6 and Table 7 provide a comparison analysis for each of the two-lane and multi-lane roadway segments, respectively. Appendix C includes detailed calculation sheets for each of the roadway segments, including sample calculations.

Table 6 Two-Lane Roadway Segment – Existing Condition LOS Analysis

Segment	To/From	A.M. Peak			P.M. Peak		
		Two-Way Volume	PTSF[1]	LOS	Two-Way Volume	PTSF[1]	LOS
1	East Of Holman	373	32.46	A	430	37.98	A
2	Holman Road to Esquiline Road	390	32.39	A	473	39.50	A
3	Esquiline Road to Ford Road	774	55.81	C	790	54.57	B
4	Ford Road to Laureles Grade	1,114	68.00	C	1,112	66.60	C
5	Laureles Grade to Robinson Canyon Road	1,074	70.00	D	1,158	68.77	C
6	Robinson Canyon Road to Schulte Road	1,445	76.42	D	1,430	74.92	D
7	Schulte Road to Rancho San Carlos Road	1,629	82.98	D	1,556	76.75	D

Source: DKS Associates, August 2006
[1]PTSF: Percent Time-Spent Following

3.2.1 Two-Lane Roadway Segment Operation

Under the existing condition, all roadway segments operate at acceptable levels of service C, except for the segments of Laureles Grade to Robinson Canyon, Robinson Canyon Road to Schulte Road and Schulte Road to Rancho San Carlos Road. These segments currently operate at LOS D, which meets the LOS D standard for these segments.

3.2.2 Multi-Lane Roadway Segment Operation

Under the existing condition, all multi-lane roadway segments operate at acceptable levels of service. Table 7 lists the existing level of service for all multi-lane segments.

Table 7 Multi-Lane Roadway Segment – Existing Condition LOS Analysis

Segment	To/From	Direction	A.M. Peak				P.M. Peak			
			Volume (vph)	Flow Rate (pcphpl)	Density[1]	LOS	Volume (vph)	Flow Rate (pcphpl)	Density[1]	LOS
8	Rancho San Carlos to Rio Road	EB	769	470	7.53	A	1,034	550	10.00	A
		WB	937	586	10.65	A	874	475	8.64	A
9	Rio Road to Carmel Rancho Boulevard	EB	1,028	579	10.53	A	1,272	650	11.82	B
		WB	1,273	757	13.76	B	1,098	646	11.75	B
10	Carmel Rancho Boulevard to Highway One	EB	1,106	621	11.29	B	1,030	575	10.45	A
		WB	904	601	10.93	A	1,089	662	12.01	B

Source: DKS Associates, 2006.
[1]Density in passenger cars per mile per lane.

4.0 Level of Service Standards and Future Traffic Impacts

The LOS standards used for this study are described below.

4.0.1 Segments

Within the CVMP Area, the LOS standard for roadway segments was previously established by Policy 39.3.2.1. This policy establishes the roadway segment standard as LOS C, except for those segments that were LOS D or lower as of the time of the traffic study for the 1986 EIR on CVMP. According to the 1986 study (CVMP Traffic Analysis, Keith B. Higgins), the baseline LOS along Carmel Valley Road is as follows (LOS standards are noted applying the CVMP policy noted above in parentheses):

- Holman Road to Ford Road (Segments 1, 2, and 3) – Operated at LOS C or better in 1986 (standard of LOS C)
- Ford Road to Rancho San Carlos Road (Segments 4, 5, 6, and 7) – Operated at LOS D in 1986 (standard of LOS D).
- Rancho San Carlos Road to Carmel Rancho Blvd. (Segments 8, and 9) – Operated at LOS C or better in 1986 (standard of LOS C).
- Carmel Rancho Blvd. to SR1 (Segment 10) – This portion of Carmel Valley Road operated at LOS E in 1986 (standard of LOS E).

4.0.2 Intersections

According to Monterey County Public Works *Guide for the Preparation of Traffic Impact Studies* (Monterey County 2003), an acceptable level of service is LOS C for signalized intersections and LOS E for unsignalized intersections.

5.0 Traffic Scenario Analysis

For the purpose of this study and consistent with the previous SEIR, four scenarios to the project were considered. These scenarios are:

- No Project Scenario
- Scenario A
- Scenario B
- Scenario C

5.1 No Project Scenario - Intersection Operation

The No Project Scenario contains no new traffic improvements and no additional residential or commercial subdivisions. Previously approved development and new development that does not require subdivision is assumed to be built up to the limits of the CVMP Area Plan. The No Project Scenario would increase vehicular traffic on the study area roadways due to growth in the CVMP and in the County outside the CVMP.

According to the LOS standards described above, all study intersections would operate at an acceptable LOS except for the intersection of Highway One and Rio Road and the intersection of Laureles Grade and Carmel Valley Road.

At Highway One/Rio Road, the intersection would continue to operate at LOS C in the A.M. peak hour, but without improvement, would decline from an existing LOS C to LOS D in the P.M peak hour. The Transportation Agency for Monterey County (TAMC) is planning an improvement to the Highway One/Rio Road intersection that is expected to take place before projected CVMP buildout. The planned improvement includes an additional lane on Highway One northbound from this intersection and additional turning lanes. Traffic evaluation of this proposed improvement has not been completed yet, but it is likely that the improvement will result in acceptable levels of service. This improvement is included as part of the Highway 1 Carmel Area Operational Improvements in the TAMC Regional Fee Program (Source: Draft TAMC Regional Traffic Impact Fee Project Information, 9/29/2003 and Monterey County Public Works Department).

Similar to the existing condition, the Laureles Grade/Carmel Valley Road intersection would continue to operate at LOS F during the P.M. peak hour. The addition of allowed development projects traffic would cause this intersection to deteriorate from LOS E to LOS F during the A.M. peak hour. The intersections and their corresponding existing levels of service are presented in Table 8. The Laureles Grade / Carmel Valley Road intersection satisfies a peak-hour signal warrant for the A.M. and P.M. peak hours, respectively.

Table 8 No Project Scenario – 2030 Intersection LOS Summary

No Project Scenario 2030 Intersection Level of Service Summary							
#	Intersection Name	A.M. Peak			P.M. Peak		
		Avg. Delay[1]	LOS[2]	LOS[2] (2005)	Avg. Delay[1]	LOS[2]	LOS[2] (2005)
1	Highway One & Carmel Valley Road	23.0	C	B	26.6	C	C
2	Carmel Rancho Boulevard & Carmel Valley Road	19.6	B	B	31.6	C	C
3	Highway One & Rio Road	29.8	C	C	38.5	D	C
4	Crossroads Driveway & Rio Road	9.2	A	A	10.5	B	B
5	Carmel Center Place & Rio Road	5.6	A	A	7.8	A	A
6	Carmel Rancho Boulevard & Rio Road[2]	10.1	B	A	14.3	B	B
7	Laureles Grade & Carmel Valley Road[3]	>50	F	E	>50	F	F

Source: DKS Associates, August 2006
1 Average Delay in seconds per vehicle
2 LOS: Level of Service
3 Unsignalized Intersections, Delay is Worst Approach Delay In seconds per vehicle. Delay >50 sec/veh exceeds the delay threshold per HCM 2000 for Unsignalized Intersection.

5.2 Scenario A - Intersection Operation

This scenario assumes a buildout of the CVMP under the proposed CVMP with anticipated additional subdivisions to be evenly distributed across potential development locations, and no additional traffic improvements. Scenario A would increase vehicular traffic on the study area roadways due to growth within and outside the CVMP.

According to the LOS standards described above, all study intersections would operate at an acceptable LOS except for the intersections at Highway One / Rio

Road and Laureles Grade / Carmel Valley Road, similar to the No Project Scenario.

Impacts at Highway One / Rio Road would be virtually identical to the No Project Scenario. As noted above, TAMC is planning improvement to this intersection separately from this planning effort.

Similar to the existing condition, the Laureles Grade / Carmel Valley Road intersection would continue to operate at LOS F during the P.M. peak hour. The addition of project-generated traffic would cause this intersection to deteriorate from LOS E to LOS F during the A.M. peak hour. Under this scenario, the increases in delay at Laureles Grade and Carmel Valley Road intersection would not be as great as under the No Project Scenario. The intersections and their corresponding existing levels of service are presented in Table 9**.** This intersection satisfies a peak-hour signal warrant for the A.M. and P.M. peak hours, respectively.

Table 9 Scenario A – 2030 Intersection LOS Summary

Scenario A 2030 Intersection Level of Service Summary							
#	Intersection Name	A.M. Peak			P.M. Peak		
		Avg. Delay[1]	LOS[2]	LOS[2] (2005)	Avg. Delay[1]	LOS[2]	LOS[2] (2005)
1	Highway One & Carmel Valley Road	23.7	C	B	26.4	C	C
2	Carmel Rancho Boulevard & Carmel Vallev Road	19.6	B	B	32.6	C	C
3	Highway One & Rio Road	29.8	C	C	38.6	D	C
4	Crossroads Driveway & Rio Road	9.2	A	A	10.5	B	B
5	Carmel Center Place & Rio Road	5.6	A	A	7.8	A	A
6	Carmel Rancho Boulevard & Rio Road[3]	10.1	B	A	14.3	B	B
7	Laureles Grade & Carmel Valley Road[3]	>50	F	E	>50	F	F

Source: DKS Associates, August 2006
[1] Average Delay in seconds per vehicle
[2] LOS: Level of Service
[3] Unsignalized Intersections, Delay is Worst Approach Delay In seconds per vehicle. Delay >50 sec/veh exceeds the delay threshold per HCM 2000 for Unsignalized Intersection.

5.3 Scenario B - Intersection Operation

This scenario assumes a buildout of the CVMP under the proposed CVMP with existing development proposals incorporated into the analysis, and with anticipated additional subdivisions to be evenly distributed across potential development locations, and no additional traffic improvements. Scenario B would increase vehicular traffic on the study area roadways due to growth within and outside the CVMP.

According to the LOS standards described above, all study intersections would operate at acceptable LOS except for the intersections at Highway One / Rio road and Laureles Grade / Carmel Valley Road.

Impacts at Highway One / Rio Road would be virtually identical to the No Project Scenario. As noted above, TAMC is planning improvement to this intersection separately from this planning effort.

Similar to the existing condition, the Laureles Grade/ Carmel Valley Road intersection would continue to operate at LOS F during the P.M. peak hour. The addition of project-generated traffic would cause this intersection to deteriorate from LOS E to LOS F during the A.M. peak hour. Under this scenario, the increases in delay at Laureles Grade and Carmel Valley Road intersection would not be as great as under the No Project Scenario or Scenario A.

The intersections and their corresponding existing levels of service are presented in Table 10.

Table 10 Scenario B – 2030 Intersection LOS Summary

2030 Intersection Level of Service Summary Scenario B							
#	Intersection Name	A.M. Peak			P.M. Peak		
		Avg. Delay[1]	LOS[2]	LOS[2] (2005)	Avg. Delay[1]	LOS[2]	LOS[2] (2005)
1	Highway One & Carmel Valley Road	23.8	C	B	26.4	C	C
2	Carmel Rancho Boulevard & Carmel Valley Road	19.6	B	B	33.5	C	C
3	Highway One & Rio Road	29.8	C	C	38.0	D	C
4	Crossroads Driveway & Rio Road	9.2	A	A	10.5	B	B
5	Carmel Center Place & Rio Road	5.6	A	A	7.9	A	A
6	Carmel Rancho Boulevard & Rio Road[3]	10.1	B	A	14.4	B	B
7	Laureles Grade & Carmel Valley Road[3]	>50	F	E	>50	F	F

Source: DKS Associates, August 2006
[1] Average Delay in seconds per vehicle
[2] LOS: Level of Service
[3] Unsignalized Intersections, Delay is Worst Approach Delay In seconds per vehicle. Delay >50 sec/veh exceeds the delay threshold per HCM 2000 for Unsignalized Intersection.

5.4 Scenario C - Intersection Operation

This scenario assumes a buildout of the CVMP under the proposed CVMP with existing development proposals incorporated into the analysis, and with anticipated additional subdivisions to be evenly distributed across potential development locations and includes traffic improvements to maintain level of service standards along Carmel Valley Road. This scenario includes a grade separation improvement that is included in the Monterey County CIP. For the purposes of this analysis it was assumed that the southbound left turn movement would be grade separated. The Scenario C would increase vehicular traffic on the study area roadways due to growth within and outside the CVMP.

According to the LOS standards described above, all study intersections except Highway One / Rio Road would operate at an acceptable LOS. Impacts at Highway One / Rio Road would be virtually identical to the No Project Scenario. As noted above, TAMC is planning improvement to this intersection separately from this planning effort.

The intersections and their corresponding existing levels of service are presented in Table 11.

Table 11 Scenario C – 2030 LOS Summary

2030 Intersection Level of Service Summary Scenario C							
#	Intersection Name	A.M. Peak			P.M. Peak		
		Avg. Delay[1]	LOS[2]	LOS[1] (2005)	Avg. Delay[1]	LOS[2]	LOS[1] (2005)
1	Highway One & Carmel Valley Road	23.8	C	B	26.4	C	C
2	Carmel Rancho Boulevard & Carmel Valley Road	19.6	B	B	33.5	C	C
3	Highway One & Rio Road	29.8	C	C	38.0	D	C
4	Crossroads Driveway & Rio	9.2	A	A	10.5	B	B
5	Carmel Center Place & Rio Road	5.6	A	A	7.9	A	A
6	Carmel Rancho Boulevard & Rio	10.1	B	A	14.4	B	B
7	Laureles Grade & Carmel Valley[3]	15.6	C	E	10.1	C	F

Source: DKS Associates, August 2006
1 Average Delay in seconds per vehicle
2 LOS: Level of Service
3 Unsignalized Intersections, Delay is Worst Approach Delay In seconds per vehicle. Delay >50 sec/veh exceeds the delay threshold per HCM 2000 for Unsignalized Intersection.

5.5 Roadway Segment Level of Service

All studied scenarios include an increase in vehicular traffic along the study area roadways due to growth within and outside the CVMP. According to the roadway segment LOS standards described above, all study roadway segments would operate at an acceptable LOS for all scenarios except for the following roadway segments under the No Project Scenario, Scenario A, Scenario B and Scenario C conditions:

- From Esquiline Road to Ford Road (Segment 3) – This segment operates at LOS D in both the A.M. and P.M. peak hour for all scenarios.
- From Robinson Canyon Road to Laureles Grade (Segment 5) – This segment operates at LOS E in the A.M peak period for the No Project Scenario, Scenario A and Scenario B and in the P.M peak period for the No Project Scenario and Scenario B. It operates at LOS D in the P.M. peak period in Scenario A. It operates at LOS D in both the A.M. and P.M peak period for Scenario C.
- From Schulte Road to Robinson Canyon Road (Segment 6) – This segment operates at LOS E in both the A.M. and P.M. peak period for all scenarios. The respective percent-time spent following values are presented for roadway segments 1-10 in Tables 12 through 17 below.
- From Rancho San Carlos Road to Schulte Road (Segment 7) – This segment operates at LOS E in both the A.M. and P.M. peak period for all scenarios. The respective percent-time spent following values are presented for roadway segments 1-10 in Tables 12 through 17 below.

Scenario C incorporates CIP improvements planned along deficient roadway segments. The results of the A.M. and P.M. results are listed in Tables 18 and 19 below.

Scenario D incorporates CIP improvements in Scenario C plus the two additional passing lanes listed in Table 21.

Table 12 No Project Scenario- 2030 Two-Lane Segment LOS Summary

2030 No Project Scenario: Peak-Hour LOS Summary
Two-Lane Segments of Carmel Valley Road

Segment	Carmel Valley Road		AM Peak Hour					PM Peak Hour				
	From	To	2-way Volume	PTSF[1]	LOS	2005[2] Vol	2005[2] LOS	2-way Volume	PTSF[1]	LOS	2005[2] Vol	2005[2] LOS
1	Holman Rd	East	683	65.68	C	373	A	683	68.09	C	430	A
2	Esquiline Rd	Holman Rd	703	65.31	C	390	A	725	68.63	C	473	A
3	Ford Rd	Esquiline Rd	1143	78.27	D	774	C	1031	72.50	D	790	B
4	Laureles Grade	Ford Rd	1590	84.64	D	1114	C	1490	81.40	D	1112	C
5	Robinson Cyn Rd	Laureles Grade	1559	90.88	E	1074	D	1581	87.89	E	1158	C
6	Schulte Rd	Robinson Cyn Rd	2012	90.82	E	1445	D	1893	88.28	E	1430	D
7	Rancho San Carlos Rd	Schulte Rd	2207	95.06	E	1629	D	2029	89.29	E	1556	D

Source: DKS Associates, 2006
[1] PTSF: Percent Time Spent Following.
[2] 2005 Volume and LOS provided for reference purpose only.

Table 13 No Project Scenario: 2030 Multi-Lane Segment LOS Summary

Segment	Carmel Valley Road From	Carmel Valley Road To	Direction	AM Peak Hour Volume (vph)	AM Peak Hour Density[1] (pc/mi/ln)	AM Peak Hour LOS (2030)	AM Peak Hour LOS (2005)	PM Peak Hour Volume (vph)	PM Peak Hour Density[1] (pc/mi/ln)	PM Peak Hour LOS (2030)	PM Peak Hour LOS (2005)
8	Rio Rd	Rancho San Carlos Rd	EB	1014	9.93	A	A	1411	13.65	B	A
			WB	1463	16.65	B	A	1208	11.95	B	A
9	Carmel Rancho Blvd	Rio Rd	EB	1293	16.18	B	A	1646	19.14	C	B
			WB	1817	24.02	C	B	1363	17.82	B	B
10	Hwy 1	Carmel Rancho Blvd	EB	1383	17.27	B	B	1311	16.25	B	A
			WB	1207	17.83	B	A	1125	15.2	B	B

Source: DKS Associates, 2006
[1]Density in passenger cars per mile per lane.

Table 14 Scenario A: 2030 Two-Lane Segment LOS Summary

2030 Scenario A - Peak-Hour LOS Summary
Two-Lane Segments of Carmel Valley Road

Segment	Carmel Valley Road		AM Peak Hour					PM Peak Hour				
	From	To	2-way Volume	PTSF[1]	LOS	2005[2] Vol	2005[2] LOS	2-way Volume	PTSF[1]	LOS	2005[2] Vol	2005[2] LOS
1	Holman Rd	East	680	64.90	C	373	A	680	67.30	C	430	A
2	Esquiline Rd	Holman Rd	700	64.54	C	390	A	723	67.89	C	473	A
3	Ford Rd	Esquiline Rd	1144	78.19	D	774	C	1031	72.39	D	790	B
4	Laureles Grade	Ford Rd	1598	84.80	D	1114	C	1498	81.48	D	1112	C
5	Robinson Cyn Rd	Laureles Grade	1596	87.49	E	1074	D	1613	84.44	D	1158	C
6	Schulte Rd	Robinson Cyn Rd	2048	91.30	E	1445	D	1924	88.75	E	1430	D
7	Rancho San Carlos Rd	Schulte Rd	2241	95.45	E	1629	D	2059	89.79	E	1556	D

Source: DKS Associates, 2006
[1] PTSF – Percent Time Spent Following
[2] 2005 Volume and LOS provided for reference purpose only.

Table 15 Scenario A: 2030 Multi-Lane Segment LOS Summary

Segment	Carmel Valley Road From	Carmel Valley Road To	Direction	AM Peak Hour Volume (vph)	AM Peak Hour Density[1] (pc/mi/ln)	AM Peak Hour LOS (2030)	AM Peak Hour LOS (2005)	PM Peak Hour Volume (vph)	PM Peak Hour Density[1] (pc/mi/ln)	PM Peak Hour LOS (2030)	PM Peak Hour LOS (2005)
8	Rio Rd	Rancho San Carlos Rd	EB	1022	10.01	A	A	1439	13.92	B	A
			WB	1501	17.09	B	A	1220	12.06	B	A
9	Carmel Rancho Blvd	Rio Rd	EB	1300	13.3	B	B	1672	19.44	C	B
			WB	1853	24.5	C	B	1375	17.97	B	B
10	Hwy 1	Carmel Rancho Blvd	EB	1386	17.30	B	B	1334	16.54	B	B
			WB	1240	18.32	C	B	1150	15.53	B	B

Source: DKS Associates, 2006
[1]Density in passenger cars per mile per lane.

Table 16 Scenario B: 2030 Two-Lane Segment LOS Summary

2030 Scenario B Peak-Hour LOS Summary Two-Lane Segments of Carmel Valley Road												
			AM Peak Hour					PM Peak Hour				
Segment	Carmel Valley Road		2-way Volume	PTSF[1]	LOS	2005[2]		2-way Volume	PTSF[1]	LOS	2005[2]	
	From	To				Vol	LOS				Vol	LOS
1	Holman Rd	East	680	65.52	C	373	A	679	67.88	C	430	A
2	Esquiline Rd	Holman Rd	701	65.01	C	390	A	721	68.43	C	473	A
3	Ford Rd	Esquiline Rd	1137	78.08	D	774	C	1023	72.21	D	790	B
4	Laureles Grade	Ford Rd	1578	84.39	D	1114	C	1478	81.12	D	1112	C
5	Robinson Cyn Rd	Laureles Grade	1563	90.86	E	1074	D	1578	87.73	E	1158	C
6	Schulte Rd	Robinson Cyn Rd	2007	90.76	E	1445	D	1893	92.28	E	1430	D
7	Rancho San Carlos Rd	Schulte Rd	2200	94.99	E	1629	D	2027	89.27	E	1556	D

Source: DKS Associates, 2006
[1] PTSF – Percent Time Spent Following
[2] 2005 Volume and LOS provided for reference purpose only.

Table 17 Scenario B: 2030 Multi-Lane Segment LOS Summary

Segment	Carmel Valley Road From	Carmel Valley Road To	Direction	AM Peak Hour Volume (vph)	AM Peak Hour Density[1] (pm/mi/ln)	AM Peak Hour LOS (2030)	AM Peak Hour LOS (2005)	PM Peak Hour Volume (vph)	PM Peak Hour Density[1] (pc/mi/ln)	PM Peak Hour LOS (2030)	PM Peak Hour LOS (2005)
8	Rio Rd	Rancho San Carlos Rd	EB	1023	10.01	A	A	1410	13.64	B	A
			WB	1459	16.61	B	A	1215	12.00	B	A
9	Carmel Rancho Blvd	Rio Rd	EB	1307	16.35	B	A	1681	19.54	C	B
			WB	1861	24.60	C	B	1381	18.04	C	B
10	Hwy 1	Carmel Rancho Blvd	EB	1388	17.33	B	B	1333	16.53	B	A
			WB	1241	18.33	C	A	1149	15.52	B	B

Source: DKS Associates, 2006
[1]Density in passenger cars per mile per lane.

Table 18 Scenario C: 2030 Two-Lane Segment LOS Summary

2030 Scenario C Peak-Hour Levels of Service on Two-Lane Segments of Carmel Valley Road Scenario C Scenario													
			AM Peak Hour					PM Peak Hour					
Segment	Carmel Valley Road		2-way Volume	PTSF[1]	LOS	2005[2]		2-way Volume	PTSF[1]	LOS	2005[2]	
	From	To				Vol	LOS				Vol	LOS
1	Holman Rd	East	680	65.52	C	373	A	679	67.88	C	430	A
2	Esquiline Rd	Holman Rd	701	65.01	C	390	A	721	68.43	C	473	A
3	Ford Rd	Esquiline Rd	1137	78.08	D	774	C	1023	72.21	D	790	B
4	Laureles Grade	Ford Rd	1578	84.39	D	1114	C	1478	81.12	D	1112	C
5	Robinson Cyn Rd	Laureles Grade	1563	72.92	D	1074	D	1578	70.41	D	1158	C
6	Schulte Rd	Robinson Cyn Rd	2007	90.76	E	1445	D	1893	92.28	E	1430	D
7	Rancho San Carlos Rd	Schulte Rd	2200	94.99	E	1629	D	2027	89.27	E	1556	D

Source: DKS Associates, 2006
[1] PTSF – Percent Time Spent Following
[2] 2005 Volume and LOS provided for reference purpose only.

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Table 19 Scenario C: 2030 Multi-Lane Segment LOS Summary

Segment	Carmel Valley Road From	Carmel Valley Road To	Direction	AM Peak Hour Volume (vph)	AM Peak Hour Density[1] (pc/mi/ln)	AM Peak Hour LOS (2030)	AM Peak Hour LOS (2005)	PM Peak Hour Volume (vph)	PM Peak Hour Density[1] (pc/mi/ln)	PM Peak Hour LOS (2030)	PM Peak Hour LOS (2005)
8	Rio Rd	Rancho San Carlos Rd	EB	1023	10.01	A	A	1410	13.64	B	A
			WB	1459	16.61	B	A	1215	12.00	B	A
9	Carmel Rancho Blvd	Rio Rd	EB	1307	16.35	B	A	1681	19.54	C	B
			WB	1861	24.60	C	B	1381	18.04	C	B
10	Hwy 1	Carmel Rancho Blvd	EB	1388	17.33	B	B	1333	16.53	B	A
			WB	1241	18.33	C	A	1149	15.52	B	B

Source: DKS Associates, 2006
[1]Density in passenger cars per mile per lane.

5.6 Laureles Grade/Carmel Valley Rd – Improvement Options

The intersection of Laureles Grade and Carmel Valley Road would operate at a deficient LOS under the No Project, Scenario A and Scenario B scenarios in both A.M. and P.M. peak periods. The CIP includes a grade separation improvement. Two other optional improvement measures (improved geometry and traffic signalization) have been developed to improve the LOS and are described below.

Grade Separation (CIP Improvement)

The Scenario C includes a grade separation improvement that is included in the Monterey County CIP. For the purposes of this analysis, it was assumed that an above grade bridge with side-by-side intersections would allow traffic requiring access to Laureles Grade to operate independent of through traffic along Carmel Valley Road. With this improvement in place, the intersection would operate at LOS C or better in both the A.M. and P.M. peak periods.

Modified Intersection Geometry and Traffic Control

The intersection would be modified to an all-way stop, provide an additional through lane in the east and westbound directions, and provide right turns (receiving lanes) for vehicles traveling in the southbound and westbound direction. Implementing these modifications would improve the LOS from F (without the CIP improvement) to LOS D in the A.M. and P.M. peak periods.

Signalized Intersection

The intersection meets a traffic signal warrant during both the A.M. and P.M. peak periods. Converting the intersection to a signalized intersection would improve the LOS from F (without the CIP improvement) to LOS C in the A.M. peak period and LOS B in the P.M. peak period.

In addition to the listed improvements, all existing substandard facilities (i.e., shoulders, signage, sight distance, etc.) would be upgraded to current standards.

Table 20 provides a LOS comparison summary for all intersection options.

Table 20 Intersection Options, Laureles Grade/Carmel Valley Road

2030 Intersection LOS Summary Comparison of Intersection Control Options for Laureles Grade & Carmel Valley Rd							
Alt.	Int. #	Intersection Control		A.M. Peak		P.M. Peak	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]
Scenario C	7	Grade Separation[3]: (Two-way Stop)	Northern Portion	12.6	C	3.9	A
			Southern Portion	15.6	C	10.1	C
		Expanded Intersection: (All-way Stop)		34.3	D	28.7	D
		Signalized Intersection		25.1	C	14.9	B

Source: DKS Associates, December, 2006
[1] Delay in seconds per vehicle. For two-way stop controlled intersection delay is based on worst approach. For signalized intersection, delay is based on average delay.
[2] LOS: Level of Service Unsignalized Intersections.
[3] Grade separation assumed southbound movement to be stop-controlled.

5.7 Roadway Segment Improvements

The roadway segments from Esquiline Road to Ford Road (Segment 3), Robinson Canyon Road to Laureles Grade (Segment 5), from Schulte Road to Robinson Canyon Road (Segment 6), and from Schulte Road to Rancho San Carlos Road (Segment 7) were found to be impacted under the No Project Scenario, Scenario A, and Scenario B conditions. Relevant improvements outlined in the CIP list alone included in Scenario C would improve the LOS for Segment 3, but not for Segments 6 and 7 to an acceptable level. Improvement measures listed in Table 21 on the next page are beyond those in the CIP and are necessary to improve the LOS operation to an acceptable level.

Table 21 2030 Roadway Segment Improvements in Scenario D

Roadway Segment Improvements in Scenario D			
Segment	From	To	Improvement
6	Schulte Rd	Robinson Cyn Rd	Provide a ¼ mile passing lane anywhere along the segment where possible
7	Rancho San Carlos Rd	Schulte Rd	Provide a ¼ mile passing lane anywhere along the segment where possible

Source: DKS Associates, 2007.

Tables 22 and 23 lists the 2030 Roadway Segment LOS Improvement with the provision of the passing lanes. These tables also indicate what the LOS would be for deficient segments if the two passing lanes listed in Table 21 are not included.

Table 22 2030 Roadway Segment Improvements - A.M. Peak Hour

Scenario C vs. Scenario D A.M. Peak Hour – Level of Service Summary						
Segment	From	To	Scenario C		Scenario D w/passing lane	
			PTSF[1]	LOS	PTSF[1]	LOS
6	Schulte Rd	Robinson Cyn Rd	90.76	E	77.96	D
7	Rancho San Carlos Rd	Schulte Rd	94.99	E	76.67	D

Source: DKS Associates, 2007.
[1] PTSF: Percent-Time Spent Following.
[2] LOS: Level of Service

Table 23 2030 Roadway Segment Improvements - P.M. Peak Hour

Scenario C vs. Scenario D PM. Peak Hour – Level of Service Summary						
Segment	From	To	Scenario C		Scenario D w/passing lane	
			PTSF[1]	LOS	PTSF[1]	LOS
6	Schulte Rd	Robinson Cyn Rd	92.28	E	79.27	D
7	Rancho San Carlos Rd	Schulte Rd	89.27	E	72.05	D

Source: DKS Associates, 2007.
[1] PTSF: Percent-Time Spent Following.
[2] LOS: Level of Service

In addition, Segment 3, which travels through the Carmel Valley Village, would operate below LOS C. Several improvement measures were investigated including an extended left-turn pocket lane along Carmel Valley Road in the Carmel Village area. Exclusive left-turn pockets and medians would have an effect on the average travel speed of the segment but would not affect the LOS because the LOS is based upon roadway volumes. Passing lanes would improve the LOS from LOS D to LOS B in both the AM and PM peak hours; however, current policy restricts the introduction of passing lanes in the Carmel Village area. Similarly, a four-lane road would also improve LOS, but is not considered consistent with the CVMP.

As describe above, this segment does not meet the LOS standard even in the scenario with the least amount of buildout in CVMP (No Project Scenario). At this time, no feasible option has been identified that is consistent with the CVMP that would allow segment operations to meet LOS C.

Per CVMP policy, additional subdivisions and development approvals are not allowed unless it can be shown that traffic from new development will not result in traffic operations that do not meet the LOS standards. Thus, if the County decides to continue approving subdivisions and development approvals that contribute traffic through Carmel Valley Village, the County may need to consider changing the CVMP LOS standard for roadway Segment 3 from LOS C to LOS D.

5.8 CIP Evaluation

DKS incorporated projects from the CIP list into the Scenario C and D analysis where appropriate. Some of these projects have already been completed or are still in development. Table 24 provides a summary of the CIP status. The project number as listed in Table 24 on the next page is used for referencing.

Table 24 Status of Capital Improvement Projects (CIP)

Current Status of CIP			
No.	Improvement Name	Completed? (Yes/No)	Presently Required? (Yes/No)
1	Enforcement and Signage	Yes	n/a
2	Sight Improvements, parking restrictions and signage in CV Village	Yes	n/a
3	Class II Bike Lanes	Partially	Yes
4	Left-Turn Channelization - west of Ford	Partially	Yes
5	Sight Distance Improvements at Dorris Drive	No	Yes
6	Shoulder Widening Between Laureles and Ford [on CVR]	No	Yes
7	Paved Turnouts on Laureles Grade & Signs [north of CVR]	Partially	Yes
8	Upgrade to Class II Bike Lanes	Yes	n/a
9	Rio Road Extension & Signal; Relocate School Access	No	No
10	Widen Refuge Area at Via Mallorca	Yes	n/a
11	Shoulder Improvements & Spot Realignments on Laureles Grade	No	Yes
12	Grade Separation at Laureles Grade / CVR	No	Yes[1]
13	Passing Lanes in front of September Ranch	No[2]	Yes
14	Passing Lanes opposite Garland Park	No	Yes
15	Climbing Lane – Laureles Grade	No	Yes

Source: DKS Associates, February 2007.
1 Other options are provided in section 5.6 of the report
2 Passing lanes are part of the September Ranch development

For those projects that are not initiated in the CIP list, discussion is provided below as to why the improvement project would or would not be required in the future.

No. 5 Sight distance improvements at Dorris Drive would still be required in order to improve visibility for vehicles wishing to turn onto Carmel Valley Road.

No. 6 Shoulder widening along Carmel Valley Road between Laureles Grade and Ford Road would still be required to ensure continual traffic movement when roadside activities occur, such as vehicular emergencies, turning vehicles or pedestrian/bicycle activity.

No. 9 There are no deficiencies in the current and future conditions along the Carmel Valley Road segments between State Route 1 and the proposed Rio Road connection point at Carmel Valley Road. Based on analysis, the Rio Road extension and signal project would not be required under the future conditions.

No. 11 Shoulder improvements and spot realignments on Laureles Grade would still be required per DKS field observations in order to improve traffic flow along this steep road.

No. 12 Grade separation or another improvement at Laureles Grade and Carmel Valley Road would still be required to improve the LOS to an acceptable level. This report contains alternate options to the grade separation as included in the 1991 EIR. These options are described in section 5.6 of the report.

No. 13 Passing lanes in front of September Ranch (within Segment 5) would still be required since the roadway segment would still be deficient in the future. Passing lanes are a condition of this development.

No. 14 Passing lanes opposite of Garland Park would still be required since the roadway segment would still be deficient in the future.

No. 15 A climbing lane on Laureles Grade would still be required.

6.0 Conclusion

This report summarizes a study of traffic conditions, potential future growth, and potential traffic improvements for the Carmel Valley Master Plan area. A total of seven intersections and ten roadway segments were analyzed. In addition to the existing conditions, five future scenarios were analyzed (No Project Scenario, Scenario A, Scenario B, Scenario C, and Scenario D) were analyzed. To undertake the analysis, DKS updated network and land use assumptions in the AMBAG travel forecast model, and also created a focused intersection impact model.

The intersection of Laureles Grade and Carmel Valley Road currently operates at an unacceptable level of service. A grade separation improvement is outlined in the Monterey County CIP, which would improve the LOS from LOS F to LOS C for both the A.M. and P.M. peak periods. Two other options, including intersection geometry and traffic control modification, as well as a traffic signal, as described in Section 5.6 of this report.

Three roadway segments (Segments 3, 6 and 7) are projected to operate at deficient service levels in the future.

- The recommended improvements included in Scenario D include passing lanes along Segments 6 (Robinson Canyon to Schulte Rd) and 7 (Schulte Rd to Rancho San Carlos Rd) to reduce the percent time vehicles have to follow slower vehicles, which in turn will improve the LOS to acceptable levels.

- No feasible improvement has been identified to improve the LOS for Segment 3, unless a change in CVMP Policy occurs that would allow passing lanes, or a strategy is developed to reduce through traffic along this segment.

The CIP in the 1991 EIR includes projects that have not been initiated. Upon further analysis conducted for this report, it has been concluded that the Rio Road extension is not required. The Rio Road extension would cause traffic diversions from segments 8, 9, and 10 along Carmel Valley Road, which currently operates at acceptable levels. Diversion of traffic is not required to improve LOS to acceptable levels today or in the future along Carmel Valley Road, therefore the Rio Road extension project is not required.

Table 25 provides a summary of the impacts and recommended improvements.

Table 25 Recommended Improvements

Recommended Improvements for Study Intersection and Roadway Improvements						
Intersection	#	Name		Impacts	Improvement	Improvement Result
	7	Laureles Grade & Carmel Valley Road		No Project Scenario, Scenario A, Scenario B, conditions result in LOS F for both A.M. and P.M. peak periods.	Grade Separation (Scenario C and D)	LOS C for both AM and PM Peak periods.
Segments	#	From	To	Impacts	Improvement	Improvement Result
	6	Schulte Rd	Robinson Cyn Rd	No Project, Scenario A, B, and C conditions result in LOS E for both A.M. and P.M. peak periods.	Provide a ¼ mile passing lane anywhere along the segment where possible (Scenario D)	LOS D during the A.M. and P.M. peak periods.
	7	Rancho San Carlos Rd	Schulte Rd	No Project, Scenario A, B, and C conditions result in LOS E for both A.M. and P.M. peak periods.	Provide a ¼ mile passing lane anywhere along the segment where possible (Scenario D)	LOS D during the A.M. and P.M. peak periods.

A

Appendix

Scenario Development

- AMBAG Model Overview
- AMBAG Model Network Refinements
- Land Use Scenario Assumptions

Scenario Development

1 AMBAG Model Overview

The AMBAG model uses land use and socioeconomic data at zonal level to determine trip generation. The 2000 land use database and future land use projections were prepared by AMBAG using a detailed employer sample from Info USA and then adjusted to control totals from Woods and Poole Economics. The AMBAG model contains the following variables for each TAZ:

- Total number of housing units
- Total population
- Farm employment
- Industrial employment
- Retail employment
- Service employment
- Construction employment
- Government/Military employment
- Total employment
- Number of households by 4 income categories
- Number of households by 4 age of head categories
- Number of households by 4 vehicle availability categories
- Number of Hotel rooms
- Number of Visitor trips
- K-12 and University enrollment

Trip Generation. Trips are stratified by seven (7) basic trip purposes in the AMBAG model:

- Home-Based Work trips are commute trips between residences and places of employment, including both trips from home to work and from work to home.
- Home-Maintenance trips are trips between residences and places of commercial employment.
- Home-Discretionary trips account for all other trips which begin or end at home, and include social trips and recreational trips.
- Work-Based trips account for trips which do not have and end at home, such as driving to a restaurant during a lunch break from work, driving a delivery truck away from the main office.
- Other trips account for all other types of trips not covered by the other purposes.
- Home-Based School trips account for trips between residences and elementary, high schools, or universities.

- Visitor trips from private residences or hotel rooms to visitor attractions and to adjacent retail areas.

Trip Distribution. The trip distribution process estimates how many trips travel from one zone to another. The model uses a method known as the gravity model to estimate trips between zones based on the trip productions and attractions in each zone and on factors that relate the likelihood of travel between zones to the separation between the zones.

Mode Choice. The mode choice step estimates how many of the trips between each pair of zones will use each travel mode.

The AMBAG model uses a "nested logit" choice model for each trip purpose. A nested logit choice model recognizes the potential for something other than equal competition among modes. The choices are grouped so that choices in the same level have similar sensitivities to travel characteristics (Figure 2). A complete description of the mode choice model development and calibration is included in "Travel Demand Model Development Methodology Report for the Watsonville Junction to Santa Cruz Corridor" prepared for the Santa Cruz County Regional Transportation Commission (Parsons-Brinckerhoff, April, 1997).

Trip Assignment. The AMBAG model takes zone-to-zone trips from the trip distribution and mode choice steps and assigns them to the network. The two types of trips assigned are traffic and transit trips. Trips were assigned for A.M. peak hour, P.M. peak hour and Daily.

2 AMBAG Model Network Refinements

DKS Associates reviewed the new base AMBAG model and identified refinements to the TAZ structure as well as changes to roadway networks speeds in the original AMBAG that would improve forecasting capabilities in this study. In the updated TransCAD model received by DKS Associates in April 2006, requested changes had been incorporated into the 2000 and 2030 version of the AMBAG model. The specific refinements are noted below.

Additional Traffic Analysis Zones (TAZs)

The base AMBAG model had 27 Traffic Analysis Zones (TAZs) within the Carmel Valley Area directly around Carmel Valley Road off Highway 1 in Monterey County. DKS Associates had identified a split of several TAZ's to improve model loading in Carmel Valley.

TAZ 1400. This zone, bounded by Highway 1, Carmel Rancho Blvd, Rio Road and Carmel Valley Road was too large and the traffic sheds were putting too much loading on Carmel Valley Road and not enough on Rio Road. This TAZ was split into two pieces, and adding new centroid connectors were added.

TAZ 1403. This TAZ, north of Carmel Valley Road from west of Carmel Knolls to Roach Canyon, included several developments that load onto the network at different points. This TAZ was split into four pieces to allow a split between the Carmel Knolls Drive traffic, the Rio Vista Drive traffic, and the Carpenter Street traffic (which should empty onto Highway 1 north of Carmel). New centroid connectors were added that reflect the loading patterns of the new TAZs.

TAZ 1399. This TAZ, which covers a long area south of Carmel Valley Road between Carmel Rancho Boulevard and Rancho San Carlos, had some traffic that should load via Rio Road and Carmel Valley Road. Also, the proposed Rancho Cañada development is part of this TAZ. Four (4) new TAZs were created for traffic west of Val Verde Drive and south of Rio Road; traffic north of Rio Road and generally west of Val Verde Drive; the Rancho Cañada Golf Club property; and for points east of Rancho Cañada Golf Club to Rancho San Carlos. New centroid connectors were added to reflect the loading patterns of the new TAZs.

TAZ 1270. This TAZ, which loads west of Laureles Grade, should load further down along Carmel Valley Road at Boronda Road / Rancho Road. The centroid connector south of Laureles Grade was moved.

TAZ 1405. This TAZ, which covers a large area north of Caermel Valley Road between Laureles Grade and just west of Terra Grande, included several developments that load onto the network at different points. Two (2) new TAZs were created so that Laureles Grade development can load further down Carmel Valley Road as well as Laureles Grade, with new centroid connectors that would reflect the loading patterns of the new TAZs.

TAZ 1266. This TAZ, which loads at Rancho Road, was not loading via Rancho Road, Country Club Drive and Pilot Road. Three (3) new TAZs for traffic east and west Carmel Valley Village and new centroid connectors were created to reflect the loading patterns of the new TAZs.

TAZ 1261. The location of the centroid connector was not property loading where the majority of local traffic enters the network from this TAZ. The centroid connector was relocated so that it loads directly to Carmel Valley Road at Pilot Road.

TAZ 1271. The location of the centroid connector was not property loading where the majority of local traffic enters the network from this TAZ. The centroid connector was relocated so that it loads directly on Los Ositos Road.

TAZ 1272. The location of the centroid connector was not property loading where the majority of local traffic enters the network from this TAZ. The centroid connector north towards the end of Esquiline Road was relocated.

TAZ 1275. The Sleepy Hollow Drive area containing many of the dwelling units in this TAZ was located at the far northwest corner of the TAZ, away from the centroid connector location. This TAZ was split into two (2) pieces east of Sleepy Hollow Drive.

Network Model Adjustments

DKS Associates also identified the need to modify the network loading along specific portions of Carmel Valley Road, based on an analysis of model results for 2000 and 2030. In particular, the model showed that traffic was leaving Carmel Valley major roads and instead using side streets in three specific areas. For these areas, the speeds were reduced to 10 mph for local roadways to increase the link travel time. This resulted in an appropriate reassignment of traffic in the travel demand model to respond accordingly, so that vehicles stayed on major streets in these areas. The three areas described below were the areas where the travel times along major Carmel Valley roadways were too long, resulting in local traffic shifts.

Rio Road and Carmel Rancho Boulevard. The base AMBAG model assigned traffic to use Via Nona Maria and Clock Tower Place and thus avoided the intersection and approach segments to Rio Road and Carmel Rancho Boulevard. DKS adjusted the speeds along Rio Road and Via Nona Maria to 10 mph so that traffic would be appropriately assigned to these roadways.

Laureles Grade and Carmel Valley Road. The base AMBAG model assigned traffic to use Miramonte Road as a shortcut between Laureles Grade and Carmel Valley road to/from the west. DKS adjusted the speeds along Miramonte to 10 mph so that traffic would be appropriately assigned to these roadways.

Ford Road and Carmel Valley Road. The base AMBAG model assigned traffic to use Ford Road and Via Contenta as an alternate route to Carmel Valley Road in the segments near Carmel Valley Village. DKS adjusted the speeds along Ford Road and Via Contenta to 10 mph so that most through traffic in this area would remain on Carmel Valley Road.

3 Traffic Study Scenario Assumptions

This section describes the methodology used to forecast potential transportation impacts associated with the four (4) land use/transportation scenarios for the Carmel Valley Master Plan area. The study scenarios are described as follows:

No Project Scenario: This scenario assumes no new traffic improvements and no additional residential or commercial subdivisions, as it is assumed that the existing subdivision moratorium will continue. It is assumed that additional single-family dwellings, visitor-serving units, and commercial developments can be approved within the CVMP land use framework without the need for subdivision up to the growth limits in the CVMP Area Plan. It is also assumed that previously approved projects will be completed.

Scenario A: This scenario assumes buildout of the CVMP under the adopted CVMP Area Plan with anticipated additional residential subdivisions to be evenly distributed across potential development locations, and no new traffic improvements. Pending development proposals are not assumed to be built, but the land on which they are proposed is instead assumed to be developed in accordance with existing land use designations and zoning.

Scenario B: This scenario assumes buildout of the CVMP under the adopted CVMP Area Plan with existing development proposals incorporated into the analysis, and with anticipated additional residential subdivisions to be evenly distributed across potential development locations, and no additional traffic improvements.

Scenario C: This scenario assumes buildout of the CVMP under the adopted CVMP Area Plan with existing development proposals incorporated into the analysis, and with anticipated additional residential subdivisions to be evenly distributed across potential development locations (same as Scenario B). This scenario includes the following traffic improvements, which are all included in the current County Capital Improvement Program (CIP) Carmel Valley Road Improvement List:

- left-turn channelization on Carmel Valley Road west of Ford;
- shoulder widening on Carmel Valley Road between Laureles Grade and Ford;
- passing lanes on Carmel Valley Road in front of the proposed September Ranch development;
- passing lanes opposite Garland Park;
- climbing lane on Laureles Grade;
- grade separation at Laureles Grade and Carmel Valley Road;

- paved turnouts, new signage, shoulder improvements and spot realignments on Laureles Grade; and
- upgrade all new road improvements within Carmel Valley Road Corridor to Class 2 Bike Lanes.

Scenario D: This scenario used the same assumptions as in Scenario C, except that it also includes two passing lanes along Segments 6 and 7. The passing lanes were analyzed using methodologies described in Highway Capacity Manual 2000, as the AMBAG model cannot assess the effects of passing lanes on roadway segment Level of Service. These passing lanes are not part of the current CIP.

- Schulte Road to Robinson Canyon Road- Provide a ¼ mile passing lane anywhere along the segment where feasible.

- Rancho San Carlos Rd to Schulte Road - Provide a ¼ mile passing lane anywhere along the segment where feasible.

3.1 General Assumptions

DKS analyzed future year 2030 traffic conditions based upon the recently-released TransCAD model by the Association of Monterey Bay Area Governments (AMBAG). The AMBAG Travel Demand Model is intended to be a comprehensive traffic forecasting tool useful for a wide range of applications including major transportation planning studies, project study reports, regional transportation plans, county general plans, regional air quality conformity analysis, and other planning studies. For the purposes of this study, the AMBAG model was used because it allows for better land use regional allocation, a parcel-based land use allocation methodology, refined link speeds for all public roadways, and updated land use and travel data from reliable sources.

The project scenarios analyzed here are based upon several sources of information:

- **Regional Assumptions.** Regional assumptions on county projections for land use, employment and related items, as well as the 2030 approved Regional Transportation Plan.
- **Data Sources**. DKS analyzed the likely future land use scenarios for Carmel Valley based on proposed pipeline projects and an additional allocation of vacant land uses as provided by Jones and Stokes on December 2, 2006.
- **Base and Forecast years.** The AMBAG model base year was 2000. Thus, in updating the forecast to 2030 for the CVMP area, the forecast took into account development approved through 2006, including development approved prior to 2000 that was not built by 2000 and was thus not included in the AMBAG model base year, as well as forecasted growth from 2007 to 2030.

- **Previously Approved Units.** All land use scenarios include 655 residential units and 108 visitor-serving units associated with prior approvals (up to 2006) that were not built prior to 2000 (AMBAG model base year).
- **Future Residential Units.** CVMP policies allowed up to 1,310 total units to be built after 1986. Per County data of building permits issued between 1986 and 2005, building permits were issued for a total of 334.5 single family dwelling units and 120.5 adjunct units on lots in existence prior to 1/1/87 for a total of 455 units. From 1986 to 2006, the County approved an estimated 322 units in subdivisions in the CVMP. Thus, from 1986 to 2006, the County has approved 777 units, which leaves an assumed remaining residential unit quota of up to 533 units. All future residential units were presumed to be on residentially-designated vacant lots, unless specifically assumed otherwise.
- **Future Visitor-Serving Units.** Per County data, it is assumed that the CVMP will allow 285 visitor-serving units after 1/1/2006. All future visitor-serving units will be on commercially-designated vacant lots, unless specifically assumed otherwise.
- **Future Commercial Growth**. The AMBAG model assumptions for commercial growth in the CVMP area were used. The AMBAG model forecasts 3,457 additional employees in the CVMP area by 2030. The AMBAG model did not include any increase in employees related to visitor-serving units, which are covered by the assumptions noted above related to the 285 visitor-serving units.
- **Vacant Residential Parcels.** Vacant Residential Parcels were based on the Assessors Parcel Data Categories 1A, 1B, 2A, 3A, 3B, 3C, 3D and residentially zoned parcels in Category 5A. Based on these categories there are 390 vacant residential parcels. When you remove parcels designated for incompatible uses (like commercial), parcels with known locations of approved but not yet built subdivisions (like September Ranch), and parcels with substantive development (> $100,000/acre in improvements), there are 302 remaining vacant parcels. These were used in the forecast for Scenarios A, B and the Scenario C below.
- **Developable Visitor-Serving Parcels.** Visitor-Serving developable parcels were based on the visitor-serving zoned parcels greater than 1 acre in size, with less than $100,000/acre improvements and total improvement value of less than $5 million. Parcels identified as Category 8A (private roads, etc.), 8B (SBE roll), and 99 (no other code/not buildable) were excluded.

3.2 No Project Scenario

The No Project Scenario forecasts are based on a detailed land use projection method. This scenario was developed assuming Monterey County Board Resolution 02-024 becomes permanent policy for the duration of CVMP buildout to 2030. Note that in addition to 02-024, pursuant to CVMP Policy 39.3.2.1, the County's policy is to deny residential and commercial subdivision in the area of the CMVP that results in significant impact to CVMP roads unless an EIR is prepared which includes mitigation measures to improve operations to acceptable levels.

However, for this scenario, it is presumed that traffic measures are developed now (with a fee program) or as projects come forward than can address the effects of development as they occur. Essentially, this scenario is a "lesser buildout" scenario (less than 50 percent of potential residential building within Scenarios A or B).

Monterey County Board Resolution 02-024 states that the policy is to deny any residential or commercial subdivision until:

- Left turn pockets on segments 6 and 7 of Carmel Valley Road are constructed.
- Capacity-increasing improvement to SR1 between Carmel Valley Road and Morse Drive are constructed.
- Updated General Plan/Master Plan policies related to level of service on Carmel Valley Road are adopted.

Land use changes for the No Project Scenario forecast were based upon these assumptions and analysis:

- Subdivision moratorium becomes permanent policy.
- Further residential or commercial subdivisions would be prohibited, but residential, visitor-serving, or commercial development not requiring subdivision could occur. In addition, previously approved development is assumed to be built, as noted above.
- A total of 655 residential units associated with prior approvals is included in the forecast.
- Based on County data, there are 258.5 remaining vacant lots of record. It is assumed that one unit per lot would be built in this scenario. No data on the location of these lots was located. The location of the 390 residential vacant parcels from the assessor's parcel data were used to project location of residential new units. However, parcels with known approved but not yet built subdivisions, with > $100,000 in improvements, or that are designated for uses that do not allow residential units were removed from the parcel set. This resulted in 297 vacant parcels. Thus, the 258.5 units were proportionally spread by TAZ based on the location of the 297 residential vacant parcels identified from the assessor's parcel data.
- Employment and commercial activity assumptions in the AMBAG model were assumed. Commercial development is assumed to not be impeded by lack of ability to subdivide land.
- Visitor-serving development was assumed to total 285 units by 2030. Previously approved visitor-serving units (total of 108) are also included.

- Outside of CVMP, assumptions in the AMBAG model for land uses and funded roadway projects were assumed.

The allocated amount of additional housing for each TAZ under No Project Scenario is shown in **Table 1**. The total number of housing units equals 914 (655 units from prior approvals and 259 from new approvals).

Table 1 No Project Scenario Housing Unit Projections

Additional Housing Units Allocated between 2000 and 2030 by TAZ

TAZ	Additional Units	TAZ	Additional Units
1256	9	1403	3
1257	0	1404	176
1258	0	1405	42
1260	0	1406	7
1261	3	1407	244
1263	12	1408	13
1265	3	1409	7
1266	11	1410	17
1267	4	1815	4
1268	165	1819	3
1271	15	1820	11
1272	16	1822	37
1273	0	1828	17
1274	4	1846	3
1278	34	1848	0
1399	3	1849	21
1402	29		

Source: Jones & Stokes, December, 2006

From 2000 to 2030, the No Project Scenario assumes 393 visitor-serving units (108 previously approved and 285 additional) that are allowable in various locations within the Carmel Valley study area. These are allocated to specific TAZs according to a study of potential locations where visitor-service units can be constructed. These are shown in **Table 2**.

Table 2 No Project Scenario Visitor-Serving Unit Projections

Additional Hotel Units Allocated between 2000 and 2030 by TAZ

TAZ	Additional Units
1263	12
1265	5
1268	93
1271	32
1402	40
1410	36
1815	175

Source: Jones & Stokes, December, 2006

Scenario A

The development of Scenario A is based upon buildout allowed by the current CVMP. The basis of this scenario is as follows:

- There would no assumption that currently proposed projects (such as Rancho Canada Village) that do not have approval are not built.
- Previously approved residential units are assumed to be built. As noted above, there are 655 previously approved residential units not built as of the 2000 base year that are included in the forecast.
- The 533 remaining residential units in the CVMP quota were split over the 302 vacant residential parcels proportionally. The buildout potential of the 302 vacant residential parcels was estimated by calculating the allowed density per site zoning as 1,592 units. Then the portion of buildout represented by the remaining units (per plan) was calculated. Since this exceeds the allowable limit of 533 units, the amount of buildout was scaled by a factor of 33% (= 533 / 1,592). Then the scalar (33%) was applied to the potential buildout for each TAZ. Thus, if TAZ1 has a buildout potential of 100 units, the forecast would assign 33 units to TAZ1.
- Employment and commercial activity assumptions in the AMBAG model were assumed.
- Visitor-serving development was assumed to total 285 units by 2030. Previously approved visitor-serving units (total of 108) are also included.
- Assumptions for additional visitor-serving units, commercial development or land use and transportation projects outside of the Carmel Valley Master Plan study area were assumed as constant from the No Project Scenario, as no changes to policy would result in making any changes were these assumptions.

The allocated amount of additional housing for each TAZ under Scenario A is shown in **Table 3**. The total number of residential units equals 1188 housing units. **Table 4** lists the location by TAZ of additional visitor serving units.

Table 3 Scenario A Housing Unit Projections
Additional Housing Units Allocated between 2000 and 2030 by TAZ

TAZ	Additional Units	TAZ	Additional Units
1256	9	1403	2
1257	0	1404	234
1258	0	1405	127
1260	0	1406	29
1261	2	1407	277
1263	7	1408	9
1265	2	1409	5
1266	8	1410	13
1267	3	1815	5
1268	177	1819	1
1271	25	1820	6
1272	18	1822	58
1273	1	1828	52
1274	2	1846	2
1278	43	1848	0
1399	1	1849	42
1402	27		

Source: Jones & Stokes, December, 2006

Table 4 Scenario A Visitor-Serving Unit Projections
Additional Hotel Units Allocated between 2000 and 2030 by TAZ

TAZ	Additional Units
1263	12
1265	5
1268	93
1271	32
1402	40
1410	36
1815	175

Source: Jones & Stokes, December, 2006

Scenarios B, C, and D

Land use forecasts to support the development of Scenarios B, C, and D are based upon buildout allowed by the existing CVMP. The basis of these project scenarios are as follows:

- Previously approved residential units are assumed to be built. As noted above, there are 655 previously approved residential units not built as of the 2000 base year that are included in the forecast.
- The projects currently in project review are assumed to be approved as proposed, based on development proposal information provided from County staff. A buildout of the pipeline projects would result in 281 new residential units.
- The 252 remaining potential residential units (remaining in the 533 unit quota after the 281 pipeline units) were split over the remaining vacant residential parcels proportionally. The buildout potential of the remaining vacant residential parcels was estimated by calculating the allowed density per site zoning by parcel which resulted in an estimate of 1,592 potential units. Since this exceeds the allowable limit of 252 units, the amount of buildout was scaled by a factor of 16% (= 252 / 1,592). Then the scalar (16%) was applied to the potential buildout for each TAZ. Thus if TAZ1 has a buildout potential of 100 units, the forecast would assign 16 units to TAZ1.
- Scenario B, Scenario C, and Scenario D also contain 393 visitor-serving units (108 previously approved and 285 future) that are assumed to be be built throughout the Carmel Valley study area. This is the same total number as under the No Project and Scenario A condition, although the locations of the new unites are different to reflect the use of the Rancho Canada site for residential units instead of visitor-serving units in these scenarios.
- Employment and commercial activity assumptions in the AMBAG model were assumed.
- Assumptions for commercial units, or land use and transportation projects outside of the Carmel Valley Master Plan study area were assumed as constant from the No Project Scenario, as no changes to policy would result in making any changes were these assumptions.

As Scenario C and D are the same as Scenario B with a transportation improvement program in place, the land use assumptions for housing units and visitor server units are the same. Scenario D is the same as Scenario C, but with three passing langes, and thus the land use assumptions are also the same.

Table 5 details the additional 1,188 housing units assumed by 2030 in this scenario. **Table 6** details the additional 393 visitor-serving units assumed in this scenario.

Table 5 Scenarios B, C, and D Housing Unit Projections

Additional Housing Units Allocated between 2000 and 2030 by TAZ

TAZ	Additional Units	TAZ	Additional Units
1256	5	1403	1
1257	0	1404	197
1258	0	1405	75
1260	0	1406	16
1261	1	1407	247
1263	4	1408	5
1265	1	1409	3
1266	4	1410	7
1267	2	1815	284
1268	165	1819	0
1271	13	1820	3
1272	9	1822	33
1273	0	1828	28
1274	1	1846	1
1278	32	1848	0
1399	0	1849	23
1402	27		

Source: Jones & Stokes, December, 2006

Table 6 Scenarios B, C, and D
Visitor-Serving Unit Projections

Additional Hotel Units Allocated between 2000 and 2030 by TAZ

TAZ	Additional Units
1263	32
1265	13
1268	170
1271	44
1402	40
1410	94
1815	0

Source: Jones & Stokes, December, 2006

B

Appendix

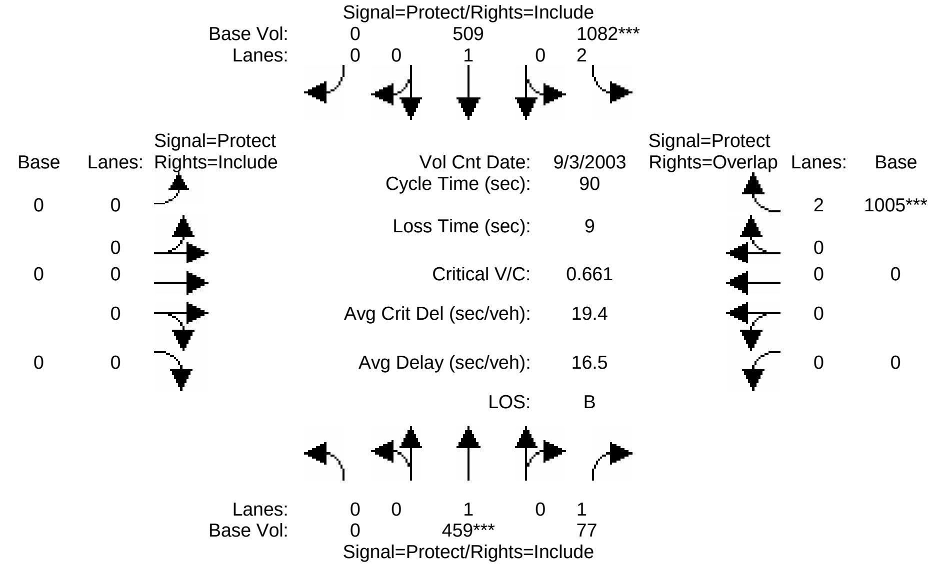
Intersection Level of Service Sheets

- Existing
- No Project Scenario
- Scenario A
- Scenario B
- Scenario C
- Scenario C – Intersection Geometry + Traffic Control Modification
- Scenario C – Signalized Intersection

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Peak

Intersection #1: Highway 1 & Carmel Valley Road



Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 3 Sep 2003 << 7:30-8:30 AM (Rancho Canada TIA)												
Base Vol:	0	459	77	1082	509	0	0	0	0	0	0	1005
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	459	77	1082	509	0	0	0	0	0	0	1005
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	459	77	1082	509	0	0	0	0	0	0	1005
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	459	77	1082	509	0	0	0	0	0	0	1005
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	459	77	1082	509	0	0	0	0	0	0	1005
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.24	0.05	0.31	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.35
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.37	0.37	0.47	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.53
Volume/Cap:	0.00	0.66	0.13	0.66	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.66
Delay/Veh:	0.0	26.3	19.1	19.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	16.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	26.3	19.1	19.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	16.2
DesignQueue:	0	16	2	31	5	0	0	0	0	0	0	25

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Peak

Intersection #1: Highway 1 & Carmel Valley Road

Signal=Protect/Rights=Include
Base Vol: 0 509 918***
Lanes: 0 0 1 0 2

Signal=Protect Rights=Include (Base 0, 0, 0; Lanes: 0, 0, 0, 0, 0)

Vol Cnt Date: 9/3/2003
Cycle Time (sec): 90
Loss Time (sec): 9
Critical V/C: 0.730
Avg Crit Del (sec/veh): 24.5
Avg Delay (sec/veh): 20.6
LOS: C

Signal=Protect Rights=Overlap (Lanes: 2, 0, 0, 0, 0; Base 943***, 0, 0)

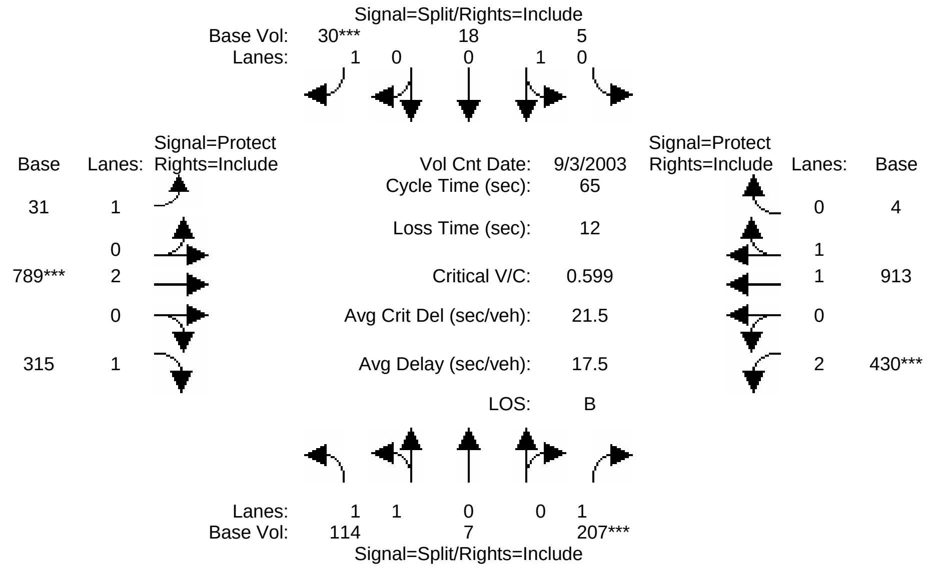
Lanes: 0 0 1 0 1
Base Vol: 0 618*** 49
Signal=Protect/Rights=Include

Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 3 Sep 2003 << 4:45-5:45 PM (Rancho Canada)												
Base Vol:	0	618	49	918	509	0	0	0	0	0	0	943
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	618	49	918	509	0	0	0	0	0	0	943
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	618	49	918	509	0	0	0	0	0	0	943
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	618	49	918	509	0	0	0	0	0	0	943
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	618	49	918	509	0	0	0	0	0	0	943
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.33	0.03	0.26	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.33
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.45	0.45	0.36	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Volume/Cap:	0.00	0.73	0.07	0.73	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.73
Delay/Veh:	0.0	23.8	14.3	27.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	22.2
User DelAdj:	0.94	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	23.8	13.4	27.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	22.2
DesignQueue:	0	19	1	31	5	0	0	0	0	0	0	28

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

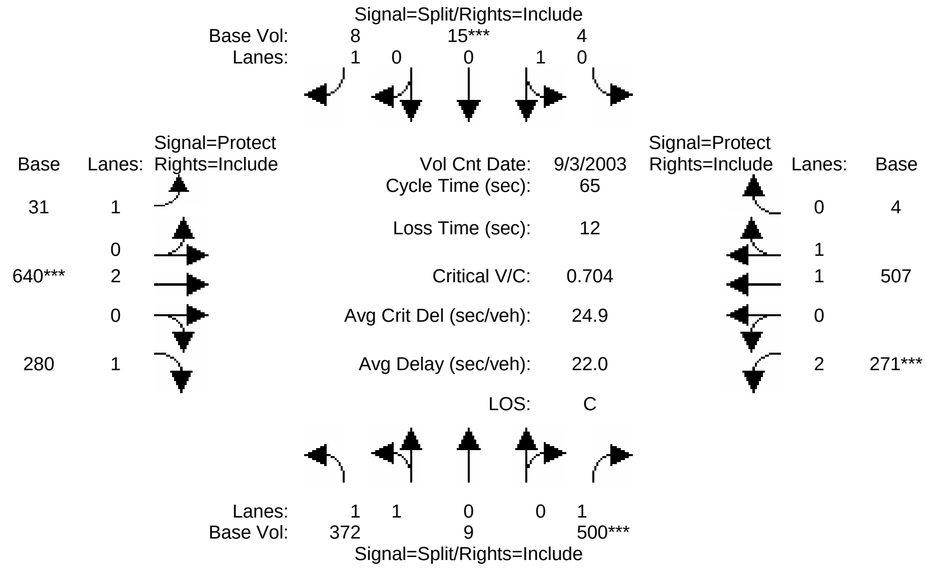


Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 3 Sep 2003 << 7:30-8:30 AM (Rancho Canada TIA)												
Base Vol:	114	7	207	5	18	30	31	789	315	430	913	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	114	7	207	5	18	30	31	789	315	430	913	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	114	7	207	5	18	30	31	789	315	430	913	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	7	207	5	18	30	31	789	315	430	913	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	114	7	207	5	18	30	31	789	315	430	913	4
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.99	0.99	0.85	0.95	0.95	0.85	0.92	0.95	0.95
Lanes:	1.88	0.12	1.00	0.22	0.78	1.00	1.00	2.00	1.00	2.00	1.99	0.01
Final Sat.:	3419	210	1615	409	1471	1615	1805	3610	1615	3502	3591	16
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.13	0.01	0.01	0.02	0.02	0.22	0.20	0.12	0.25	0.25
Crit Moves:			****			****		****		****		
Green/Cycle:	0.21	0.21	0.21	0.03	0.03	0.03	0.04	0.37	0.37	0.21	0.53	0.53
Volume/Cap:	0.16	0.16	0.60	0.39	0.39	0.60	0.48	0.60	0.53	0.60	0.48	0.48
Delay/Veh:	20.9	20.9	25.9	35.2	35.2	49.5	36.1	17.5	17.2	24.8	9.6	9.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.9	20.9	25.9	35.2	35.2	49.5	36.1	17.5	17.2	24.8	9.6	9.6
DesignQueue:	3	0	6	0	1	1	1	19	8	13	16	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard



Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 3 Sep 2003 << 4:30-5:30 PM (Rancho Canada)												
Base Vol:	372	9	500	4	15	8	31	640	280	271	507	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	372	9	500	4	15	8	31	640	280	271	507	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	372	9	500	4	15	8	31	640	280	271	507	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	372	9	500	4	15	8	31	640	280	271	507	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	372	9	500	4	15	8	31	640	280	271	507	4
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	0.95	0.85	0.92	0.95	0.95
Lanes:	1.95	0.05	1.00	0.21	0.79	1.00	1.00	2.00	1.00	2.00	1.98	0.02
Final Sat.:	3536	86	1615	396	1485	1615	1805	3610	1615	3502	3578	28
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.31	0.01	0.01	0.00	0.02	0.18	0.17	0.08	0.14	0.14
Crit Moves:			****		****			****		****		
Green/Cycle:	0.44	0.44	0.44	0.01	0.01	0.01	0.04	0.25	0.25	0.11	0.32	0.32
Volume/Cap:	0.24	0.24	0.70	0.70	0.70	0.35	0.44	0.70	0.69	0.70	0.44	0.44
Delay/Veh:	11.5	11.5	18.0	91.8	91.8	40.5	34.9	24.7	27.0	33.7	17.6	17.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.5	11.5	18.0	91.8	91.8	40.5	34.9	24.7	27.0	33.7	17.6	17.6
DesignQueue:	8	0	11	0	1	0	1	18	8	9	13	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Peak

Intersection #3: Highway 1 & Rio Road

Signal=Protect/Rights=Include
Base Vol: 68 207*** 245
Lanes: 0 1 0 0 2

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
183***	1		Vol Cnt Date:	9/4/2003		1	160
			Cycle Time (sec):	90			
	0		Loss Time (sec):	12		0	
268	1		Critical V/C:	0.467		1	248***
	0		Avg Crit Del (sec/veh):	28.6		0	
33	1		Avg Delay (sec/veh):	28.7		1	83
			LOS:	C			

Lanes: 1 0 1 0 1
Base Vol: 41*** 177 89
Signal=Protect/Rights=Include

Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 4 Sep 2003 << 7:45-8:45 AM (Rancho Canada TIA)												
Base Vol:	41	177	89	245	207	68	183	268	33	83	248	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	41	177	89	245	207	68	183	268	33	83	248	160
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	41	177	89	245	207	68	183	268	33	83	248	160
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	41	177	89	245	207	68	183	268	33	83	248	160
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	41	177	89	245	207	68	183	268	33	83	248	160
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.75	0.25	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1377	452	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.09	0.06	0.07	0.15	0.15	0.10	0.14	0.02	0.05	0.13	0.10
Crit Moves:	****				****		****				****	
Green/Cycle:	0.05	0.21	0.21	0.16	0.32	0.32	0.22	0.37	0.37	0.12	0.28	0.28
Volume/Cap:	0.47	0.44	0.26	0.44	0.47	0.47	0.47	0.38	0.05	0.38	0.47	0.35
Delay/Veh:	45.6	31.6	30.0	34.8	25.0	25.0	31.6	20.8	18.0	37.4	27.5	26.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.6	31.6	30.0	34.8	25.0	25.0	31.6	20.8	18.0	37.4	27.5	26.4
DesignQueue:	2	7	4	10	7	2	7	9	1	4	9	6

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Peak

Intersection #3: Highway 1 & Rio Road

Signal=Protect/Rights=Include
Base Vol: 85 260 267***
Lanes: 0 1 0 0 2

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
143***	1		Vol Cnt Date:	9/4/2003		1	341***
			Cycle Time (sec):	90			
	0		Loss Time (sec):	12		0	
348	1		Critical V/C:	0.617		1	368
	0		Avg Crit Del (sec/veh):	33.4		0	
61	1		Avg Delay (sec/veh):	30.2		1	160
			LOS:	C			

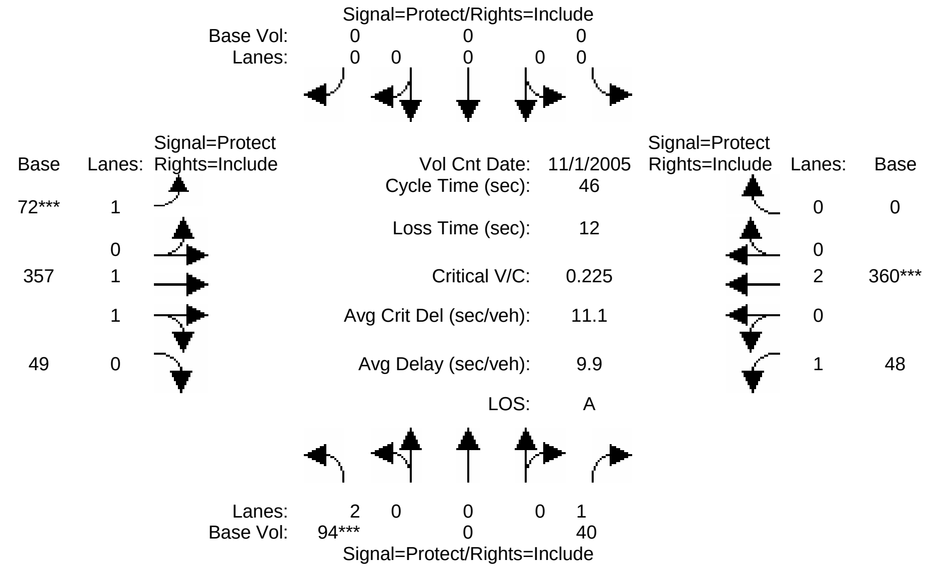
Lanes: 1 0 1 0 1
Base Vol: 53 319*** 134
Signal=Protect/Rights=Include

Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 4 Sep 2003 << 4:00-5:00 PM (Rancho Canada)												
Base Vol:	53	319	134	267	260	85	143	348	61	160	368	341
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	53	319	134	267	260	85	143	348	61	160	368	341
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	53	319	134	267	260	85	143	348	61	160	368	341
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	319	134	267	260	85	143	348	61	160	368	341
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	53	319	134	267	260	85	143	348	61	160	368	341
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.75	0.25	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1379	451	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.17	0.08	0.08	0.19	0.19	0.08	0.18	0.04	0.09	0.19	0.21
Crit Moves:		****		****			****					****
Green/Cycle:	0.05	0.27	0.27	0.12	0.34	0.34	0.13	0.32	0.32	0.15	0.34	0.34
Volume/Cap:	0.55	0.62	0.30	0.62	0.55	0.55	0.62	0.58	0.12	0.58	0.57	0.62
Delay/Veh:	48.2	30.9	26.4	40.1	25.0	25.0	42.1	27.1	21.9	38.4	25.3	26.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	48.2	30.9	26.4	40.1	25.0	25.0	42.1	27.1	21.9	38.4	25.3	26.8
DesignQueue:	3	12	5	12	9	3	6	12	2	7	13	12

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Peak

Intersection #4: Rio Road & Crossroad Driveway



Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 1 Nov 2005 << 7:30-8:30 AM (DKS - WILTEC)												
Base Vol:	94	0	40	0	0	0	72	357	49	48	360	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	94	0	40	0	0	0	72	357	49	48	360	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	94	0	40	0	0	0	72	357	49	48	360	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	94	0	40	0	0	0	72	357	49	48	360	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	94	0	40	0	0	0	72	357	49	48	360	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.93	0.93	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.76	0.24	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	3117	428	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.02	0.00	0.00	0.00	0.04	0.11	0.11	0.03	0.10	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.12	0.00	0.12	0.00	0.00	0.00	0.18	0.50	0.50	0.12	0.44	0.00
Volume/Cap:	0.23	0.00	0.21	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.23	0.00
Delay/Veh:	18.6	0.0	18.8	0.0	0.0	0.0	16.6	6.5	6.5	19.0	8.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.6	0.0	18.8	0.0	0.0	0.0	16.6	6.5	6.5	19.0	8.0	0.0
DesignQueue:	2	0	1	0	0	0	2	5	1	1	5	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Peak

Intersection #4: Rio Road & Crossroad Driveway

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
0	1		Vol Cnt Date:	11/1/2005		0	0
			Cycle Time (sec):	46			
	0		Loss Time (sec):	12		0	
379***	1		Critical V/C:	0.372		2	438
	1		Avg Crit Del (sec/veh):	13.3		0	
105	0		Avg Delay (sec/veh):	11.2		1	120***
			LOS:	B			

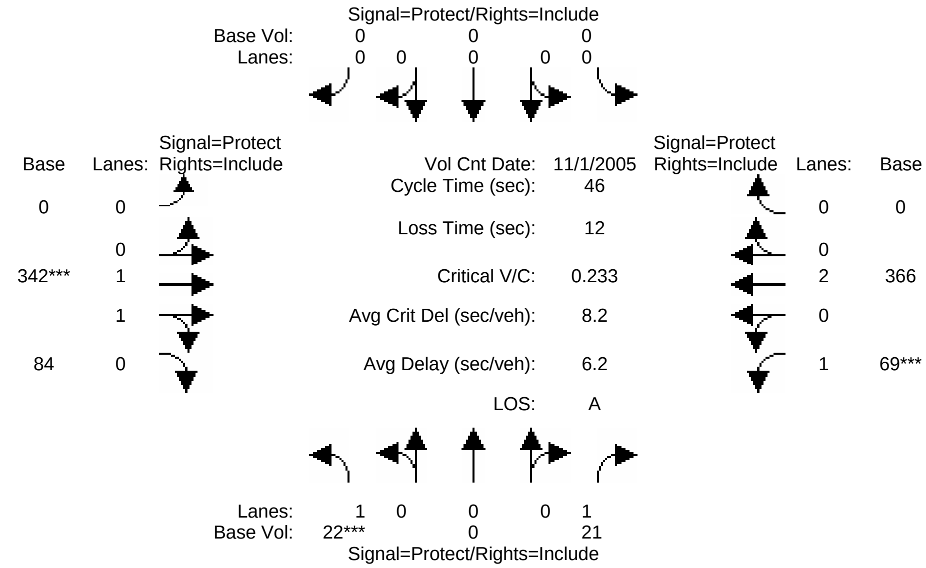
Lanes: 2 0 0 0 1
Base Vol: 244*** 0 116
Signal=Protect/Rights=Include

Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 1 Nov 2005 << 5:00-6:00 PM (DKS - WILTEC)												
Base Vol:	244	0	116	0	0	0	0	379	105	120	438	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	244	0	116	0	0	0	0	379	105	120	438	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	244	0	116	0	0	0	0	379	105	120	438	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	244	0	116	0	0	0	0	379	105	120	438	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	244	0	116	0	0	0	0	379	105	120	438	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	1.00	0.92	0.92	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.57	0.43	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1900	2734	757	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.14	0.14	0.07	0.12	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.19	0.00	0.19	0.00	0.00	0.00	0.00	0.37	0.37	0.18	0.55	0.00
Volume/Cap:	0.37	0.00	0.38	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.22	0.00
Delay/Veh:	16.7	0.0	17.2	0.0	0.0	0.0	0.0	10.7	10.7	17.3	5.3	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.7	0.0	17.2	0.0	0.0	0.0	0.0	10.7	10.7	17.3	5.3	0.0
DesignQueue:	5	0	2	0	0	0	0	6	2	3	5	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Peak

Intersection #5: Rio Road & Carmel Center Place

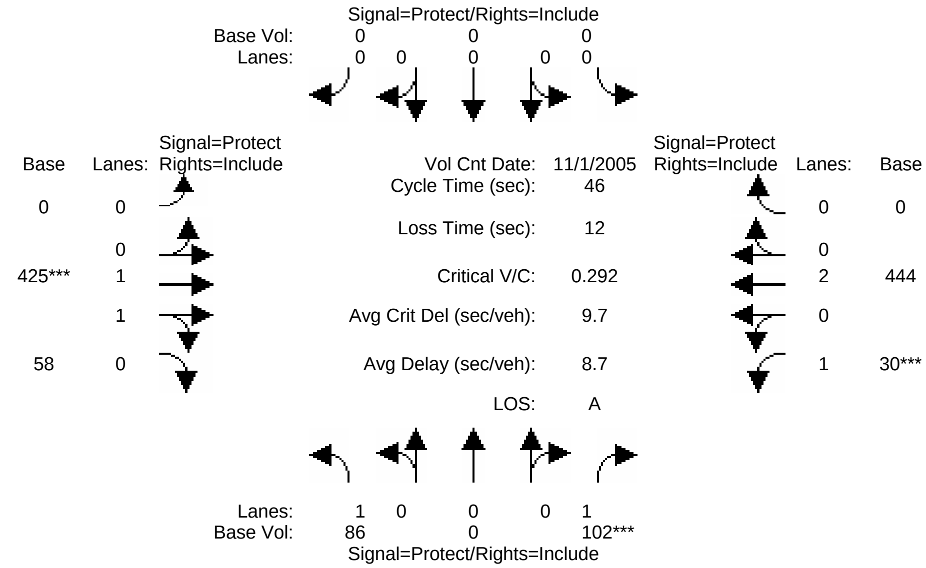


Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 1 Nov 2005 << 7:45-8:45 AM (DKS - WILTEC)												
Base Vol:	22	0	21	0	0	0	0	342	84	69	366	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	0	21	0	0	0	0	342	84	69	366	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	0	21	0	0	0	0	342	84	69	366	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	0	21	0	0	0	0	342	84	69	366	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	0	21	0	0	0	0	342	84	69	366	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.92	0.92	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.61	0.39	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	2811	690	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.12	0.12	0.04	0.10	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.52	0.52	0.16	0.69	0.00
Volume/Cap:	0.23	0.00	0.25	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.15	0.00
Delay/Veh:	22.2	0.0	22.5	0.0	0.0	0.0	0.0	6.0	6.0	17.1	2.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.2	0.0	22.5	0.0	0.0	0.0	0.0	6.0	6.0	17.1	2.5	0.0
DesignQueue:	1	0	1	0	0	0	0	4	1	1	3	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Peak

Intersection #5: Rio Road & Carmel Center Place

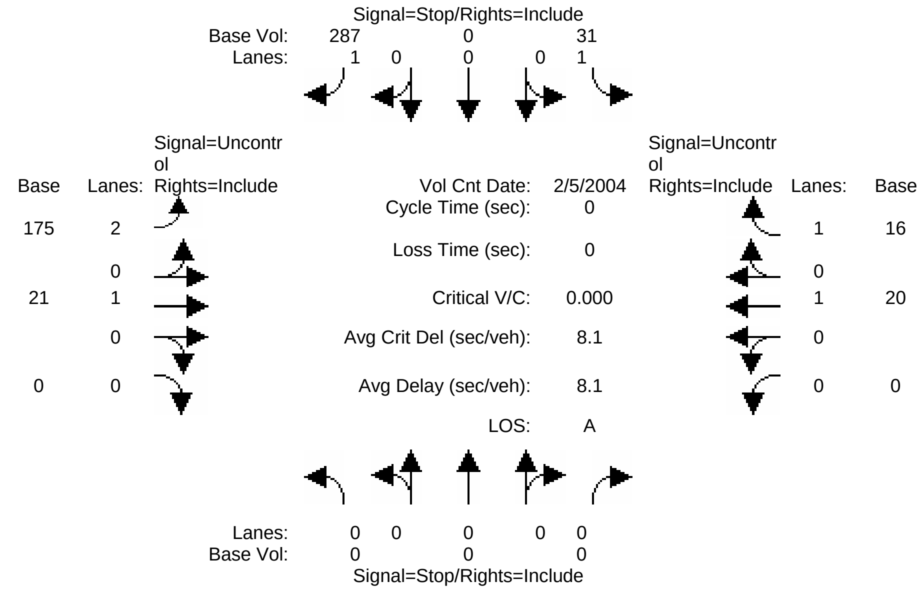


Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 1 Nov 2005 << 4:30-5:30 PM (DKS - WILTEC)												
Base Vol:	86	0	102	0	0	0	0	425	58	30	444	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	86	0	102	0	0	0	0	425	58	30	444	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	86	0	102	0	0	0	0	425	58	30	444	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	86	0	102	0	0	0	0	425	58	30	444	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	86	0	102	0	0	0	0	425	58	30	444	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.76	0.24	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3119	426	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.14	0.14	0.02	0.12	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.22	0.00	0.22	0.00	0.00	0.00	0.00	0.47	0.47	0.06	0.52	0.00
Volume/Cap:	0.22	0.00	0.29	0.00	0.00	0.00	0.00	0.29	0.29	0.29	0.24	0.00
Delay/Veh:	15.1	0.0	15.6	0.0	0.0	0.0	0.0	7.7	7.7	22.4	6.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.1	0.0	15.6	0.0	0.0	0.0	0.0	7.7	7.7	22.4	6.0	0.0
DesignQueue:	2	0	2	0	0	0	0	6	1	1	6	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing AM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road




```
Street Name:     Carmel Rancho Boulevard                  Rio Road
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 Feb 2004 << (Rancho Canada TIA)
Base Vol:       0    0     0    31    0   287   175   21     0     0   20    16
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    31    0   287   175   21     0     0   20    16
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    31    0   287   175   21     0     0   20    16
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    31    0   287   175   21     0     0   20    16
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   391 xxxx    20    36 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   617 xxxx  1064  1588 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   565 xxxx  1064  1588 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.05 xxxx  0.27  0.11 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.2 xxxx   1.1   0.4 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  11.7 xxxx   9.6   7.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     B    *     A     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx              9.8             xxxxxx           xxxxxx
ApproachLOS:        *                 A                 *                *
```

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing PM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

```
                 Signal=Stop/Rights=Include
        Base Vol:   392       0       32
           Lanes:     1   0   0   0   1

 Signal=Uncontrol                          Signal=Uncontrol
Base  Lanes: Rights=Include   Vol Cnt Date:   2/5/2004  Rights=Include  Lanes:  Base
                            Cycle Time (sec):   0
410     2                                                            1      23
                             Loss Time (sec):   0
        0                                                            0
23      1                      Critical V/C:   0.000                 1      31
        0                Avg Crit Del (sec/veh):   8.9               0
0       0                   Avg Delay (sec/veh):   8.9               0       0
                                       LOS:   B

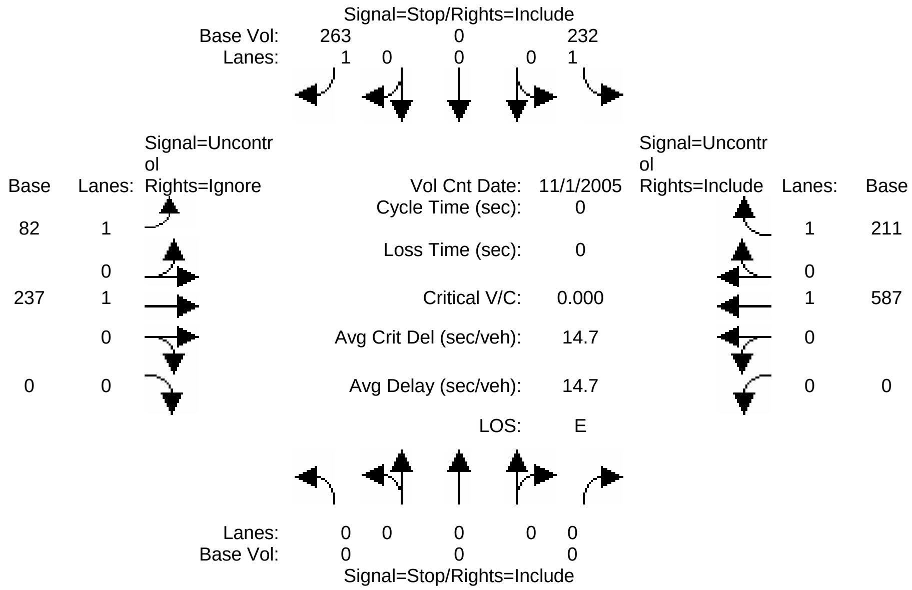
           Lanes:     0   0   0   0   0
        Base Vol:     0       0       0
                 Signal=Stop/Rights=Include
```

```
Street Name:     Carmel Rancho Boulevard                   Rio Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 Feb 2004 << (Rancho Canada TIA)
Base Vol:        0    0     0    32    0   392   410   23     0     0   31    23
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0    32    0   392   410   23     0     0   31    23
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0    32    0   392   410   23     0     0   31    23
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0    0     0    32    0   392   410   23     0     0   31    23
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   874 xxxx    31    54 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   323 xxxx  1049  1564 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   257 xxxx  1049  1564 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.12 xxxx  0.37  0.26 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.4 xxxx   1.8   1.1 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  21.0 xxxx  10.5   8.1 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     C    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            11.3             xxxxxx           xxxxxx
ApproachLOS:        *                B                 *                *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing AM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road




```
Street Name:       Laureles Grade Road              Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 1 Nov 2005 << 7:15-8:15 AM (DKS - WILTEC)
Base Vol:       0    0     0   232    0   263    82  237     0     0  587   211
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   232    0   263    82  237     0     0  587   211
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   232    0   263    82  237     0     0  587   211
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   232    0   263    82  237     0     0  587   211
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   988 xxxx   587   798 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   276 xxxx   513   833 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   256 xxxx   513   833 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.91 xxxx  0.51  0.10 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   8.0 xxxx   2.9   0.3 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  77.0 xxxx  19.2   9.8 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     C     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             46.3            xxxxxx           xxxxxx
ApproachLOS:        *                 E                *                *
-----------|----------------|----------------|----------------|----------------|
HevVeh:            0%               0%               0%               0%
Grade:             0%               0%               0%               0%
Peds/Hour:         0                0                0                0
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:       12 feet          12 feet          12 feet          12 feet
```

Time Period: 0.25 hour

Peak Hour Delay Signal Warrant Report

****

Intersection #7 Laureles Grade Road & Carmel Valley Road

****

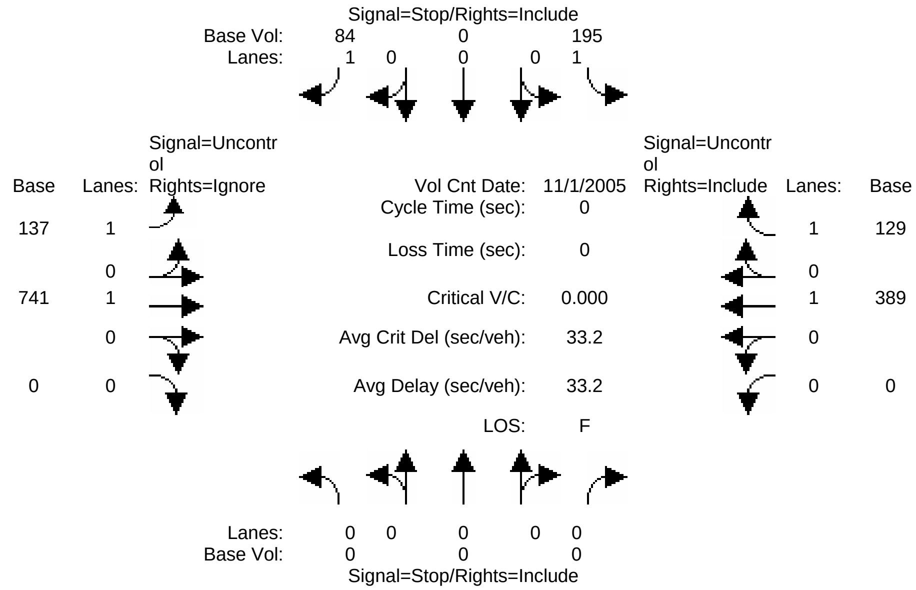
Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	1 0 0 0 1	1 0 1 0 0	0 0 1 0 1
Final Vol.:	0 0 0	232 0 263	82 237 0	0 587 211
ApproachDel:	xxxxxx	46.3	xxxxxx	xxxxxx

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing PM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road




```
Street Name:       Laureles Grade Road             Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 1 Nov 2005 << 4:45-5:45 PM (DKS - WILTEC)
Base Vol:        0    0     0   195    0    84   137  741     0     0  389   129
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0   195    0    84   137  741     0     0  389   129
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:      0    0     0   195    0    84   137  741     0     0  389   129
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0    0     0   195    0    84   137  741     0     0  389   129
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1404 xxxx   389   518 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   155 xxxx   664  1058 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   140 xxxx   664  1058 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  1.39 xxxx  0.13  0.13 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx  12.7 xxxx   0.4   0.4 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx 273.9 xxxx  11.2   8.9 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            194.8            xxxxxx           xxxxxx
ApproachLOS:        *                F                *                *
-----------|----------------|----------------|----------------|----------------|
HevVeh:             0%               0%               0%               0%
Grade:              0%               0%               0%               0%
Peds/Hour:          0                0                0                0
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:        12 feet          12 feet          12 feet          12 feet
Time Period: 0.25 hour
```

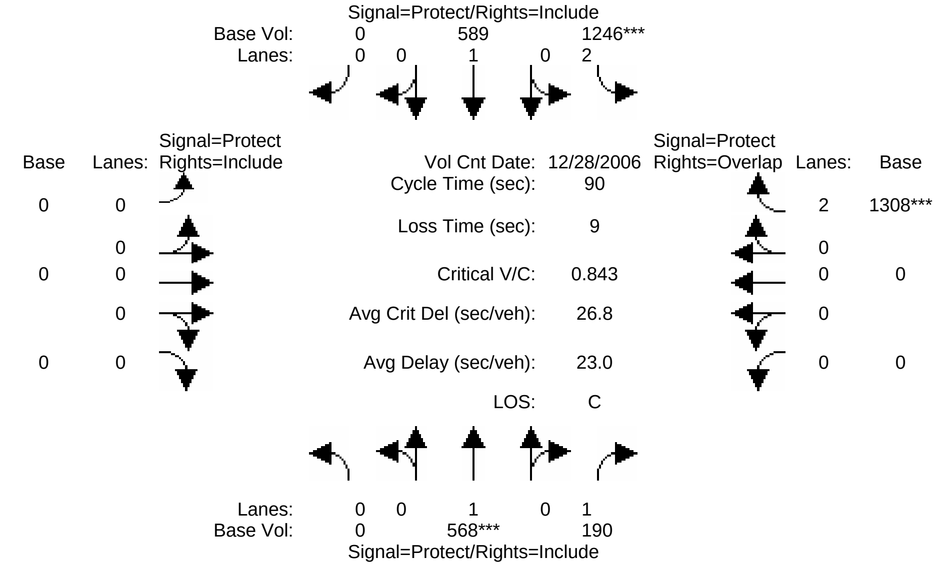
Peak Hour Delay Signal Warrant Report

```
********************************************************************************
Intersection #7 Laureles Grade Road & Carmel Valley Road
********************************************************************************
Base Volume Alternative: Peak Hour Warrant Met
------------|---------------||---------------||---------------||---------------|
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Lanes:       0  0  0  0  0    1  0  0  0  1    1  0  1  0  0    0  0  1  0  1
Final Vol.:    0    0     0   195    0    84   137  741     0     0  389   129
ApproachDel:    xxxxxx            194.8            xxxxxx           xxxxxx
```

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #1: Highway 1 & Carmel Valley Road



Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am												
Base Vol:	0	568	190	1246	589	0	0	0	0	0	0	1308
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	568	190	1246	589	0	0	0	0	0	0	1308
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	568	190	1246	589	0	0	0	0	0	0	1308
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	568	190	1246	589	0	0	0	0	0	0	1308
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	568	190	1246	589	0	0	0	0	0	0	1308
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.30	0.12	0.36	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.46
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.35	0.35	0.42	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.55
Volume/Cap:	0.00	0.84	0.33	0.84	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.84
Delay/Veh:	0.0	36.3	21.6	28.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	21.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	36.3	21.6	28.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	21.6
DesignQueue:	0	20	6	39	7	0	0	0	0	0	0	33

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #1: Highway 1 & Carmel Valley Road

Southbound: Signal=Protect/Rights=Include
Base Vol: 0 560 1079***
Lanes: 0 0 1 0 2

Westbound (left side): Signal=Protect Rights=Include
Base | Lanes
0 | 0
  | 0
0 | 0
  | 0
0 | 0

Vol Cnt Date: 12/28/2006
Cycle Time (sec): 90
Loss Time (sec): 9
Critical V/C: 0.875
Avg Crit Del (sec/veh): 32.4
Avg Delay (sec/veh): 26.6
LOS: C

Eastbound (right side): Signal=Protect Rights=Overlap
Lanes | Base
2 | 979***
0 |
0 | 0
0 |
0 | 0

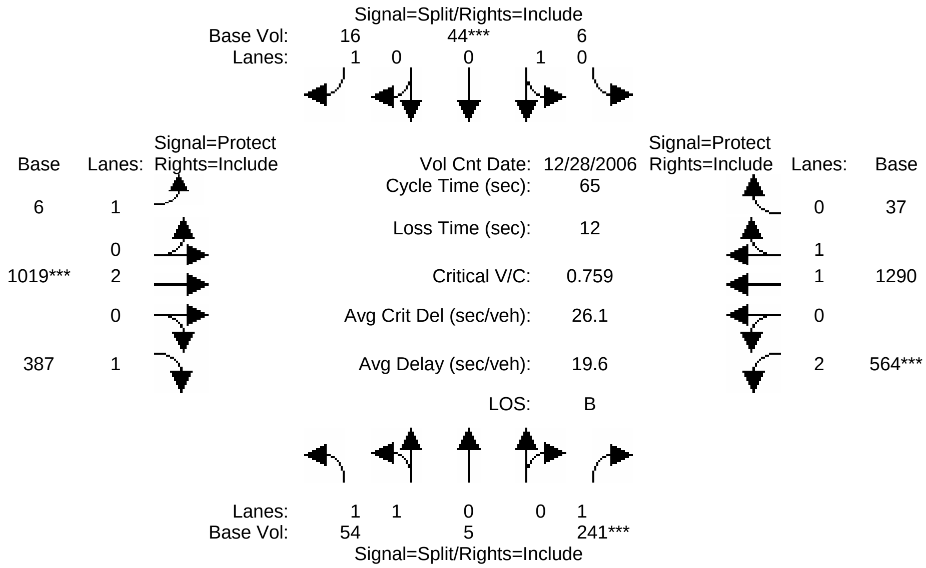
Lanes: 0 0 1 0 1
Base Vol: 0 842*** 169
Signal=Protect/Rights=Include

Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm												
Base Vol:	0	842	169	1079	560	0	0	0	0	0	0	979
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	842	169	1079	560	0	0	0	0	0	0	979
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	842	169	1079	560	0	0	0	0	0	0	979
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	842	169	1079	560	0	0	0	0	0	0	979
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	842	169	1079	560	0	0	0	0	0	0	979
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.44	0.10	0.31	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.34
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.51	0.51	0.35	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.39
Volume/Cap:	0.00	0.88	0.21	0.88	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.88
Delay/Veh:	0.0	28.7	12.4	34.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	33.1
User DelAdj:	0.94	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	28.7	11.6	34.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	33.1
DesignQueue:	0	24	4	38	4	0	0	0	0	0	0	32

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

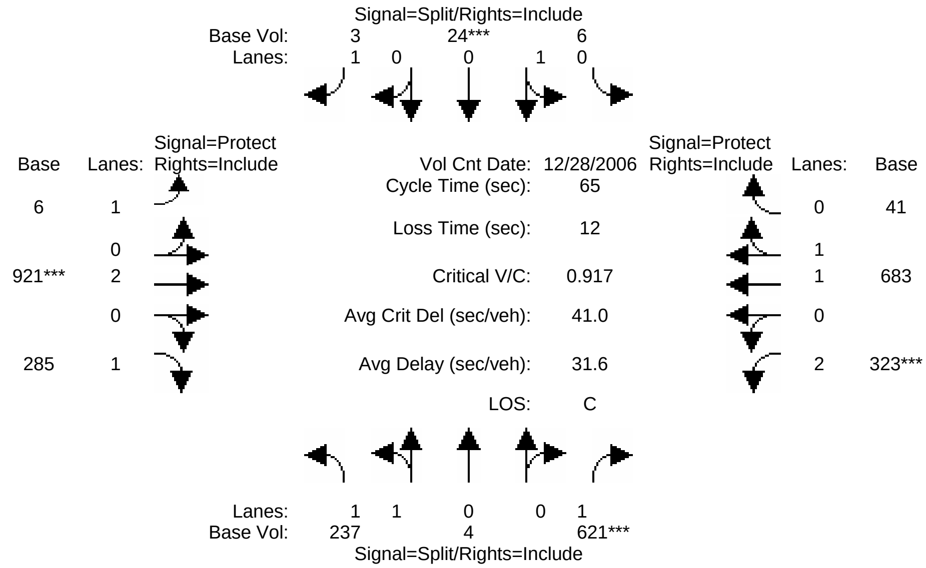


Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am												
Base Vol:	54	5	241	6	44	16	6	1019	387	564	1290	37
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	5	241	6	44	16	6	1019	387	564	1290	37
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	5	241	6	44	16	6	1019	387	564	1290	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	5	241	6	44	16	6	1019	387	564	1290	37
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	54	5	241	6	44	16	6	1019	387	564	1290	37
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.99	0.99	0.85	0.95	0.95	0.85	0.92	0.95	0.95
Lanes:	1.83	0.17	1.00	0.12	0.88	1.00	1.00	2.00	1.00	2.00	1.94	0.06
Final Sat.:	3325	308	1615	227	1662	1615	1805	3610	1615	3502	3495	100
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.15	0.03	0.03	0.01	0.00	0.28	0.24	0.16	0.37	0.37
Crit Moves:			****		****			****		****		
Green/Cycle:	0.20	0.20	0.20	0.03	0.03	0.03	0.01	0.37	0.37	0.21	0.58	0.58
Volume/Cap:	0.08	0.08	0.76	0.76	0.76	0.28	0.64	0.76	0.64	0.76	0.64	0.64
Delay/Veh:	21.4	21.4	34.8	70.5	70.5	33.3	126.3	20.4	19.3	28.6	9.8	9.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.4	21.4	34.8	70.5	70.5	33.3	126.3	20.4	19.3	28.6	9.8	9.8
DesignQueue:	2	0	7	0	2	1	0	25	9	17	22	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

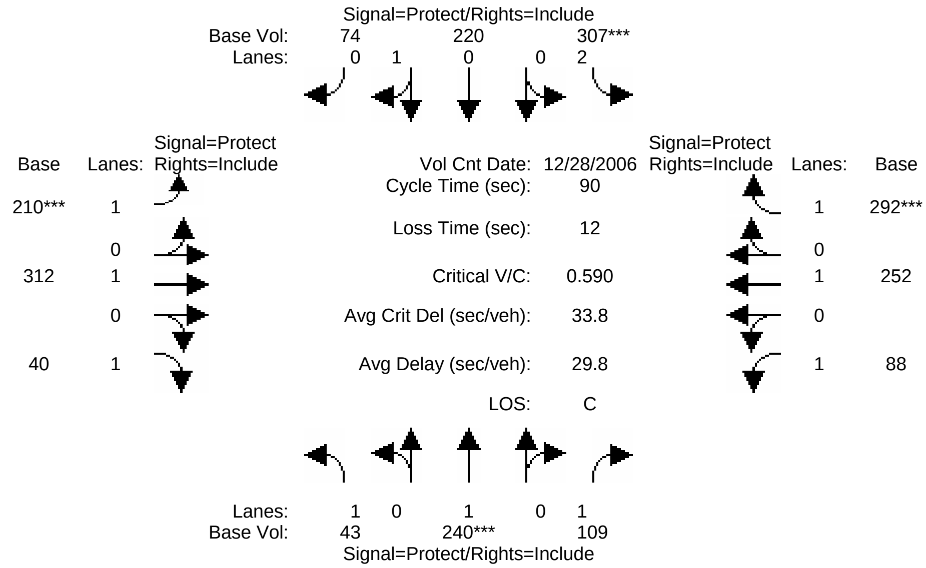


Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm												
Base Vol:	237	4	621	6	24	3	6	921	285	323	683	41
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	237	4	621	6	24	3	6	921	285	323	683	41
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	237	4	621	6	24	3	6	921	285	323	683	41
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	237	4	621	6	24	3	6	921	285	323	683	41
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	237	4	621	6	24	3	6	921	285	323	683	41
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	0.95	0.85	0.92	0.94	0.94
Lanes:	1.97	0.03	1.00	0.20	0.80	1.00	1.00	2.00	1.00	2.00	1.89	0.11
Final Sat.:	3561	60	1615	376	1505	1615	1805	3610	1615	3502	3375	203
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.38	0.02	0.02	0.00	0.00	0.26	0.18	0.09	0.20	0.20
Crit Moves:			****		****			****		****		
Green/Cycle:	0.42	0.42	0.42	0.02	0.02	0.02	0.01	0.28	0.28	0.10	0.37	0.37
Volume/Cap:	0.16	0.16	0.92	0.92	0.92	0.11	0.54	0.92	0.63	0.92	0.54	0.54
Delay/Veh:	11.8	11.8	35.2	154.8	155	33.1	78.0	35.5	23.5	57.0	16.5	16.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	11.8	35.2	154.8	155	33.1	78.0	35.5	23.5	57.0	16.5	16.5
DesignQueue:	5	0	14	0	1	0	0	26	8	11	16	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #3: Highway 1 & Rio Road

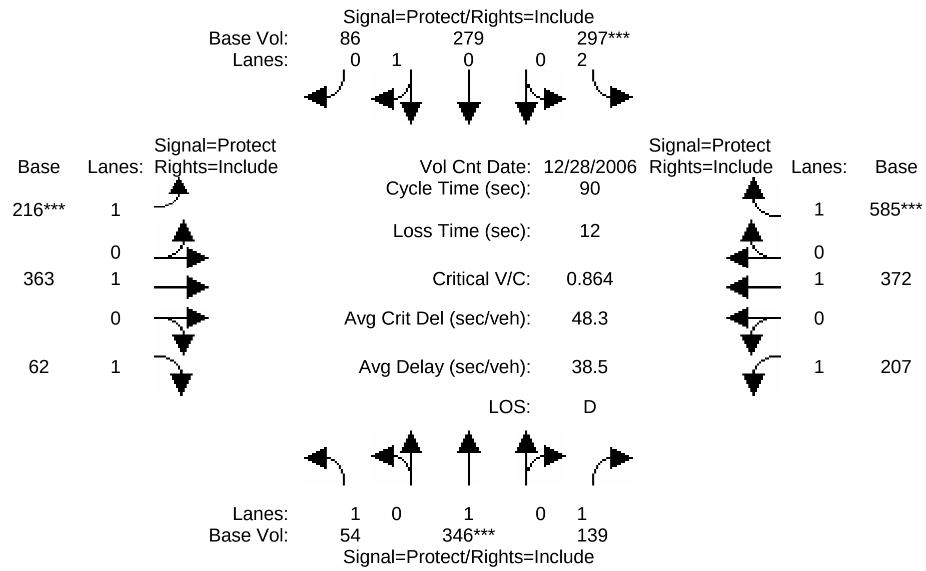


Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am												
Base Vol:	43	240	109	307	220	74	210	312	40	88	252	292
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	43	240	109	307	220	74	210	312	40	88	252	292
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	43	240	109	307	220	74	210	312	40	88	252	292
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	240	109	307	220	74	210	312	40	88	252	292
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	43	240	109	307	220	74	210	312	40	88	252	292
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.75	0.25	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1368	460	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.13	0.07	0.09	0.16	0.16	0.12	0.16	0.02	0.05	0.13	0.18
Crit Moves:		****		****			****					****
Green/Cycle:	0.05	0.21	0.21	0.15	0.32	0.32	0.20	0.39	0.39	0.12	0.31	0.31
Volume/Cap:	0.51	0.59	0.32	0.59	0.51	0.51	0.59	0.42	0.06	0.42	0.43	0.59
Delay/Veh:	46.9	34.1	30.3	37.5	25.8	25.8	35.4	20.5	17.3	38.4	25.5	28.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.9	34.1	30.3	37.5	25.8	25.8	35.4	20.5	17.3	38.4	25.5	28.3
DesignQueue:	2	10	4	13	8	3	9	10	1	4	9	11

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #3: Highway 1 & Rio Road

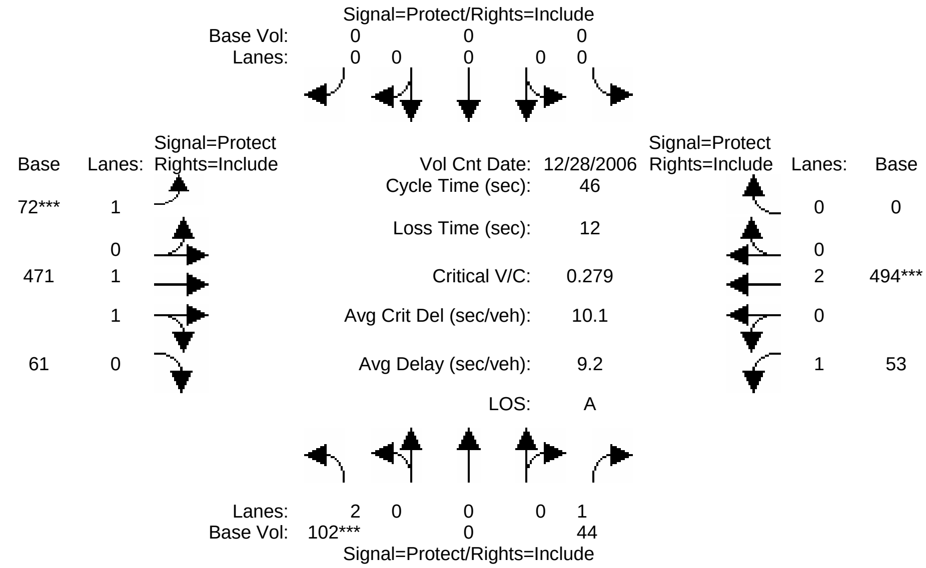


Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm												
Base Vol:	54	346	139	297	279	86	216	363	62	207	372	585
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	346	139	297	279	86	216	363	62	207	372	585
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	346	139	297	279	86	216	363	62	207	372	585
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	346	139	297	279	86	216	363	62	207	372	585
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	54	346	139	297	279	86	216	363	62	207	372	585
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.97	0.97	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.76	0.24	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1401	432	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.18	0.09	0.08	0.20	0.20	0.12	0.19	0.04	0.11	0.20	0.36
Crit Moves:		****		****			****					****
Green/Cycle:	0.04	0.21	0.21	0.10	0.27	0.27	0.14	0.35	0.35	0.21	0.42	0.42
Volume/Cap:	0.74	0.86	0.41	0.86	0.74	0.74	0.86	0.55	0.11	0.55	0.47	0.86
Delay/Veh:	75.7	51.7	31.5	59.7	36.0	36.0	63.3	24.6	19.9	33.5	19.3	35.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	75.7	51.7	31.5	59.7	36.0	36.0	63.3	24.6	19.9	33.5	19.3	35.0
DesignQueue:	3	14	6	14	11	3	10	12	2	8	11	18

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #4: Rio Road & Crossroad Driveway

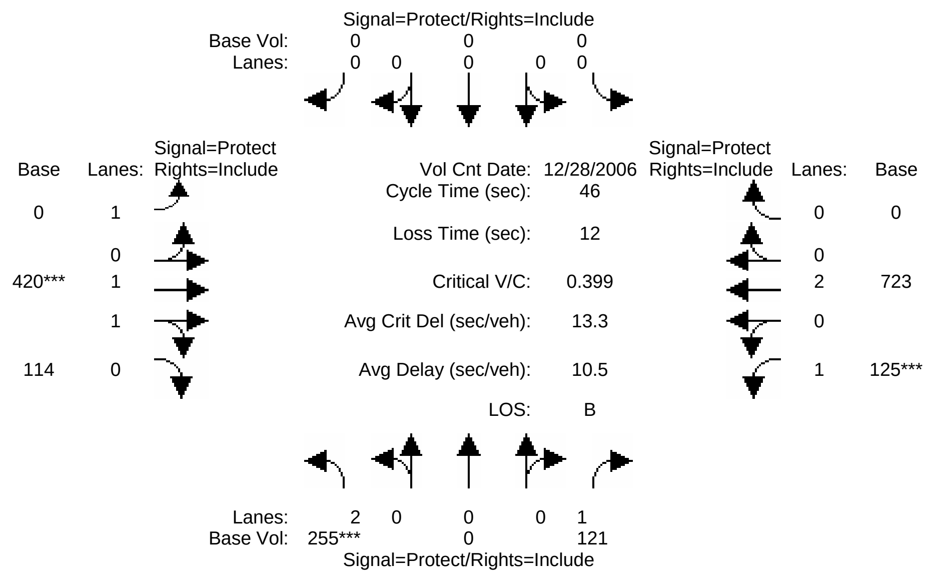


Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am												
Base Vol:	102	0	44	0	0	0	72	471	61	53	494	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	102	0	44	0	0	0	72	471	61	53	494	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	102	0	44	0	0	0	72	471	61	53	494	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	0	44	0	0	0	72	471	61	53	494	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	102	0	44	0	0	0	72	471	61	53	494	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.93	0.93	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.77	0.23	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	3142	407	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.03	0.00	0.00	0.00	0.04	0.15	0.15	0.03	0.14	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.10	0.00	0.10	0.00	0.00	0.00	0.14	0.53	0.53	0.10	0.49	0.00
Volume/Cap:	0.28	0.00	0.26	0.00	0.00	0.00	0.28	0.28	0.28	0.28	0.28	0.00
Delay/Veh:	19.4	0.0	19.8	0.0	0.0	0.0	18.2	6.0	6.0	19.9	7.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	0.0	19.8	0.0	0.0	0.0	18.2	6.0	6.0	19.9	7.0	0.0
DesignQueue:	2	0	1	0	0	0	2	6	1	1	7	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #4: Rio Road & Crossroad Driveway



Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm												
Base Vol:	255	0	121	0	0	0	0	420	114	125	723	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	255	0	121	0	0	0	0	420	114	125	723	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	255	0	121	0	0	0	0	420	114	125	723	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	255	0	121	0	0	0	0	420	114	125	723	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	255	0	121	0	0	0	0	420	114	125	723	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	1.00	0.92	0.92	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.57	0.43	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1900	2748	746	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.15	0.15	0.07	0.20	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.38	0.38	0.17	0.56	0.00
Volume/Cap:	0.40	0.00	0.41	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.36	0.00
Delay/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.8	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.8	0.0
DesignQueue:	5	0	3	0	0	0	0	7	2	3	9	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #5: Rio Road & Carmel Center Place

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
			Vol Cnt Date:	12/28/2006			
			Cycle Time (sec):	46			
0	0					0	0
			Loss Time (sec):	12			
	0					0	
460***	1		Critical V/C:	0.277		2	505
	1		Avg Crit Del (sec/veh):	7.4		0	
84	0		Avg Delay (sec/veh):	5.6		1	69***
			LOS:	A			

Lanes: 1 0 0 0 1
Base Vol: 22*** 0 21
Signal=Protect/Rights=Include

Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am												
Base Vol:	22	0	21	0	0	0	0	460	84	69	505	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	0	21	0	0	0	0	460	84	69	505	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	0	21	0	0	0	0	460	84	69	505	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	0	21	0	0	0	0	460	84	69	505	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	0	21	0	0	0	0	460	84	69	505	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.69	0.31	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	2982	545	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.15	0.15	0.04	0.14	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.56	0.56	0.14	0.70	0.00
Volume/Cap:	0.28	0.00	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.20	0.00
Delay/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
DesignQueue:	1	0	1	0	0	0	0	5	1	2	4	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #5: Rio Road & Carmel Center Place

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
0***	0		Vol Cnt Date:	12/28/2006		0	0
			Cycle Time (sec):	46			
	0		Loss Time (sec):	12		0	
471	1		Critical V/C:	0.361		2	734***
	1		Avg Crit Del (sec/veh):	7.0		0	
58	0		Avg Delay (sec/veh):	7.8		1	30
			LOS:	A			

Lanes: 1 0 0 0 1
Base Vol: 86 0 102***
Signal=Protect/Rights=Include

Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm												
Base Vol:	86	0	102	0	0	0	0	471	58	30	734	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	86	0	102	0	0	0	0	471	58	30	734	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	86	0	102	0	0	0	0	471	58	30	734	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	86	0	102	0	0	0	0	471	58	30	734	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	86	0	102	0	0	0	0	471	58	30	734	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.78	0.22	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3163	389	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.15	0.15	0.02	0.20	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.51	0.51	0.06	0.56	0.00
Volume/Cap:	0.27	0.00	0.36	0.00	0.00	0.00	0.00	0.29	0.29	0.29	0.36	0.00
Delay/Veh:	16.9	0.0	17.5	0.0	0.0	0.0	0.0	6.7	6.7	22.4	5.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.9	0.0	17.5	0.0	0.0	0.0	0.0	6.7	6.7	22.4	5.6	0.0
DesignQueue:	2	0	2	0	0	0	0	6	1	1	9	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

Signal=Stop/Rights=Include
Base Vol: 287 0 31
Lanes: 1 0 0 0 1

Signal=Uncontrol Rights=Include (west side)

Base	Lanes:
77	2
	0
223	1
	0
0	0

Vol Cnt Date: 12/28/2006
Cycle Time (sec): 0
Loss Time (sec): 0
Critical V/C: 0.000
Avg Crit Del (sec/veh): 5.1
Avg Delay (sec/veh): 5.1
LOS: B

Signal=Uncontrol Rights=Include (east side)

Lanes:	Base
1	65
0	
1	56
0	
0	0

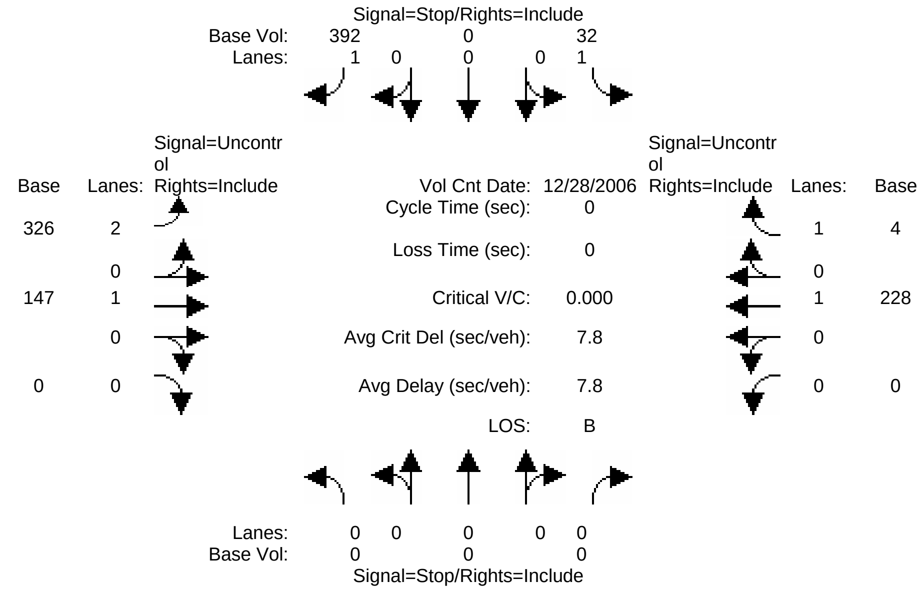
Lanes: 0 0 0 0 0
Base Vol: 0 0 0
Signal=Stop/Rights=Include

```
Street Name:     Carmel Rancho Boulevard                   Rio Road
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am
Base Vol:       0    0     0    31    0   287    77  223     0     0   56    65
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    31    0   287    77  223     0     0   56    65
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    31    0   287    77  223     0     0   56    65
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    31    0   287    77  223     0     0   56    65
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   433 xxxx    56   121 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   584 xxxx  1016  1479 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   560 xxxx  1016  1479 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.06 xxxx  0.28  0.05 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.2 xxxx   1.2   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  11.8 xxxx   9.9   7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     B    *     A     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            10.1            xxxxxx            xxxxxx
ApproachLOS:        *                B                *                 *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

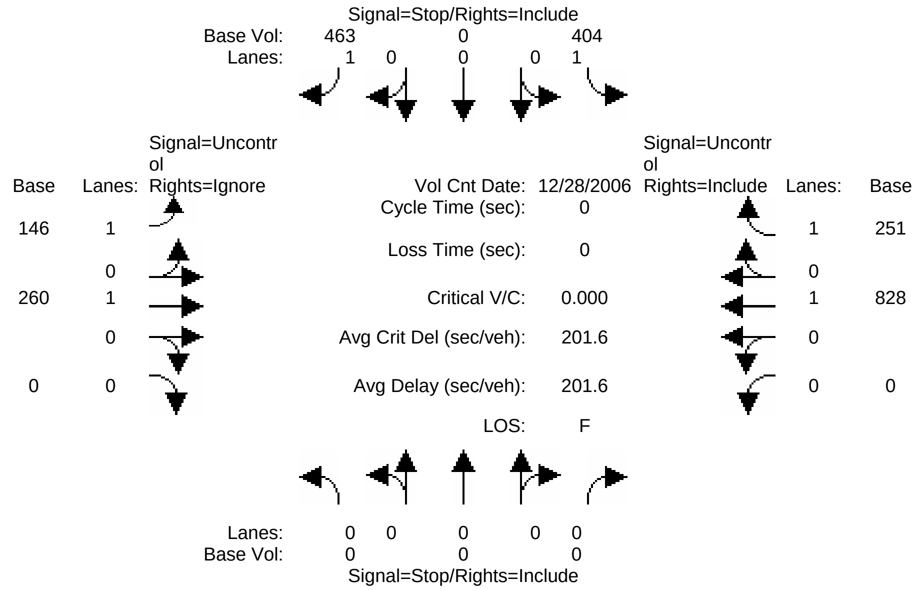


Street Name:	Carmel Rancho Boulevard						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm												
Base Vol:	0	0	0	32	0	392	326	147	0	0	228	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	32	0	392	326	147	0	0	228	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	32	0	392	326	147	0	0	228	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	32	0	392	326	147	0	0	228	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1027	xxxx	228	232	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	262	xxxx	816	1348	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	213	xxxx	816	1348	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.15	xxxx	0.48	0.24	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.5	xxxx	2.6	1.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	24.9	xxxx	13.4	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		xxxxxx			14.3			xxxxxx			xxxxxx	
ApproachLOS:		*			B			*			*	

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
No Project Scenario AM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road

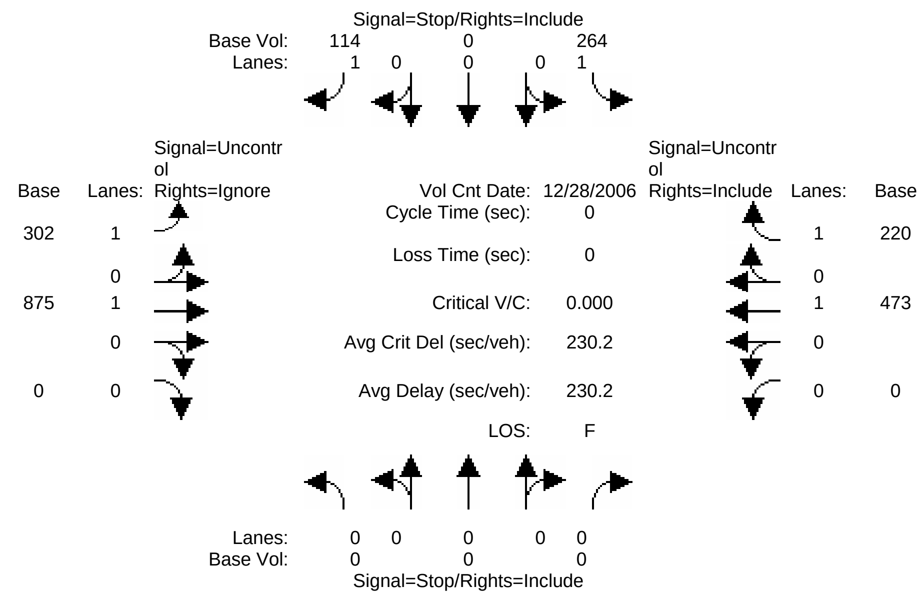



```
Street Name:       Laureles Grade Road              Carmel Valley Road
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - am
Base Vol:       0    0     0   404    0   463   146  260     0     0  828   251
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   404    0   463   146  260     0     0  828   251
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   404    0   463   146  260     0     0  828   251
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   404    0   463   146  260     0     0  828   251
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1380 xxxx   828  1079 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   161 xxxx   374   654 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   133 xxxx   374   654 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  3.04 xxxx  1.24  0.22 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx  37.9 xxxx  19.9   0.9 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx 987.1 xxxx 158.8  12.1 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     F     B    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             544.8             xxxxxx            xxxxxx
ApproachLOS:        *                 F                 *                 *
```

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
No Project Scenario PM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road




```
Street Name:       Laureles Grade Road             Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 NoProj - pm
Base Vol:       0    0     0   264    0   114   302  875     0     0  473   220
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   264    0   114   302  875     0     0  473   220
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   264    0   114   302  875     0     0  473   220
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   264    0   114   302  875     0     0  473   220
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1952 xxxx   473   693 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    71 xxxx   595   912 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    53 xxxx   595   912 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  4.97 xxxx  0.19  0.33 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx  29.7 xxxx   0.7   1.5 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  1942 xxxx  12.5  10.9 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     B     B    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            1360.2            xxxxxx            xxxxxx
ApproachLOS:         *                F                 *                 *
```

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A AM Peak

Intersection #1: Highway 1 & Carmel Valley Road

Signal=Protect/Rights=Include
Base Vol: 0 592 1245***
Lanes: 0 0 1 0 2

Base	Lanes	Signal=Protect Rights=Include			Signal=Protect Rights=Overlap	Lanes	Base
0	0		Vol Cnt Date:	12/28/2006		2	1341***
	0		Cycle Time (sec):	90		0	
0	0		Loss Time (sec):	9		0	0
	0		Critical V/C:	0.854		0	
0	0		Avg Crit Del (sec/veh):	27.5		0	0
			Avg Delay (sec/veh):	23.7			
			LOS:	C			

Lanes: 0 0 1 0 1
Base Vol: 0 564*** 194
Signal=Protect/Rights=Include

Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am												
Base Vol:	0	564	194	1245	592	0	0	0	0	0	0	1341
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	564	194	1245	592	0	0	0	0	0	0	1341
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	564	194	1245	592	0	0	0	0	0	0	1341
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	564	194	1245	592	0	0	0	0	0	0	1341
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	564	194	1245	592	0	0	0	0	0	0	1341
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.30	0.12	0.36	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.47
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.35	0.35	0.42	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.55
Volume/Cap:	0.00	0.85	0.35	0.85	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.85
Delay/Veh:	0.0	37.8	22.1	28.9	3.8	0.0	0.0	0.0	0.0	0.0	0.0	21.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	37.8	22.1	28.9	3.8	0.0	0.0	0.0	0.0	0.0	0.0	21.9
DesignQueue:	0	20	7	40	8	0	0	0	0	0	0	33

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A PM Peak

Intersection #1: Highway 1 & Carmel Valley Road

Signal=Protect/Rights=Include
Base Vol: 0 561 1079***
Lanes: 0 0 1 0 2

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Overlap	Lanes:	Base
			Vol Cnt Date:	12/28/2006			
0	0		Cycle Time (sec):	90		2	1004***
	0		Loss Time (sec):	9		0	
0	0		Critical V/C:	0.872		0	0
	0		Avg Crit Del (sec/veh):	32.1		0	
0	0		Avg Delay (sec/veh):	26.4		0	0
			LOS:	C			

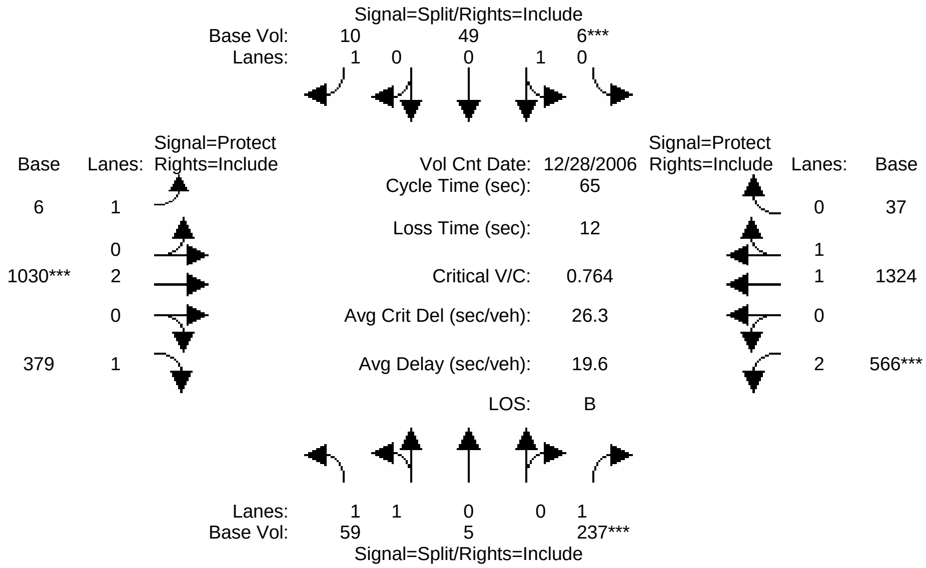
Lanes: 0 0 1 0 1
Base Vol: 0 820*** 192
Signal=Protect/Rights=Include

Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm												
Base Vol:	0	820	192	1079	561	0	0	0	0	0	0	1004
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	820	192	1079	561	0	0	0	0	0	0	1004
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	820	192	1079	561	0	0	0	0	0	0	1004
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	820	192	1079	561	0	0	0	0	0	0	1004
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	820	192	1079	561	0	0	0	0	0	0	1004
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.43	0.12	0.31	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.35
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.49	0.49	0.35	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.41
Volume/Cap:	0.00	0.87	0.24	0.87	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.87
Delay/Veh:	0.0	29.2	13.2	34.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	32.1
User DelAdj:	0.94	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	29.2	12.4	34.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	32.1
DesignQueue:	0	23	5	38	5	0	0	0	0	0	0	32

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A AM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

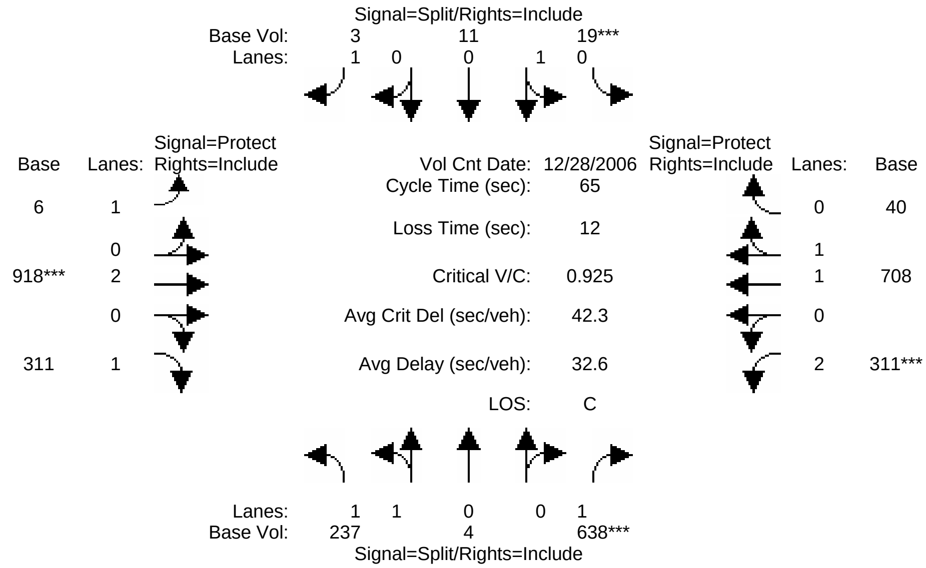


Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am												
Base Vol:	59	5	237	6	49	10	6	1030	379	566	1324	37
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	5	237	6	49	10	6	1030	379	566	1324	37
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	59	5	237	6	49	10	6	1030	379	566	1324	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	5	237	6	49	10	6	1030	379	566	1324	37
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	59	5	237	6	49	10	6	1030	379	566	1324	37
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	1.00	1.00	0.85	0.95	0.95	0.85	0.92	0.95	0.95
Lanes:	1.84	0.16	1.00	0.11	0.89	1.00	1.00	2.00	1.00	2.00	1.95	0.05
Final Sat.:	3349	284	1615	206	1684	1615	1805	3610	1615	3502	3498	98
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.15	0.03	0.03	0.01	0.00	0.29	0.23	0.16	0.38	0.38
Crit Moves:			****	****				****		****		
Green/Cycle:	0.19	0.19	0.19	0.04	0.04	0.04	0.01	0.37	0.37	0.21	0.58	0.58
Volume/Cap:	0.09	0.09	0.76	0.76	0.76	0.16	0.65	0.76	0.63	0.76	0.65	0.65
Delay/Veh:	21.6	21.6	35.6	68.6	68.6	31.5	135.2	20.5	18.8	28.8	10.0	10.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.6	21.6	35.6	68.6	68.6	31.5	135.2	20.5	18.8	28.8	10.0	10.0
DesignQueue:	2	0	7	0	2	0	0	25	9	17	22	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A PM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

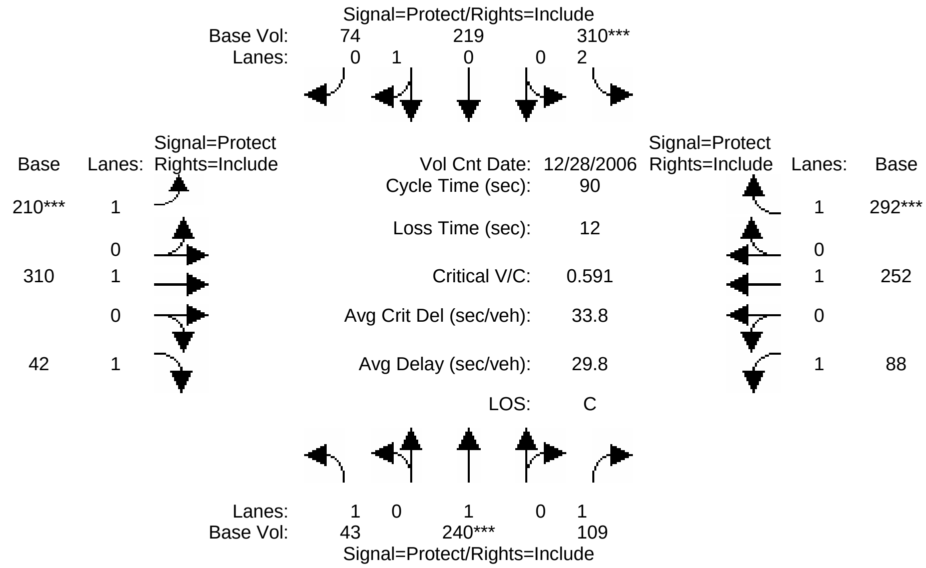


Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm												
Base Vol:	237	4	638	19	11	3	6	918	311	311	708	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	237	4	638	19	11	3	6	918	311	311	708	40
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	237	4	638	19	11	3	6	918	311	311	708	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	237	4	638	19	11	3	6	918	311	311	708	40
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	237	4	638	19	11	3	6	918	311	311	708	40
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.97	0.97	0.85	0.95	0.95	0.85	0.92	0.94	0.94
Lanes:	1.97	0.03	1.00	0.63	0.37	1.00	1.00	2.00	1.00	2.00	1.89	0.11
Final Sat.:	3561	60	1615	1166	675	1615	1805	3610	1615	3502	3390	192
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.40	0.02	0.02	0.00	0.00	0.25	0.19	0.09	0.21	0.21
Crit Moves:			****	****				****		****		
Green/Cycle:	0.43	0.43	0.43	0.02	0.02	0.02	0.01	0.27	0.27	0.10	0.37	0.37
Volume/Cap:	0.16	0.16	0.93	0.93	0.93	0.11	0.57	0.93	0.70	0.93	0.57	0.57
Delay/Veh:	11.5	11.5	36.0	158.7	159	33.1	91.2	36.9	26.1	59.7	17.2	17.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.5	11.5	36.0	158.7	159	33.1	91.2	36.9	26.1	59.7	17.2	17.2
DesignQueue:	5	0	14	1	0	0	0	26	9	10	17	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A AM Peak

Intersection #3: Highway 1 & Rio Road



Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am												
Base Vol:	43	240	109	310	219	74	210	310	42	88	252	292
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	43	240	109	310	219	74	210	310	42	88	252	292
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	43	240	109	310	219	74	210	310	42	88	252	292
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	240	109	310	219	74	210	310	42	88	252	292
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	43	240	109	310	219	74	210	310	42	88	252	292
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.75	0.25	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1366	462	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.13	0.07	0.09	0.16	0.16	0.12	0.16	0.03	0.05	0.13	0.18
Crit Moves:		****		****			****					****
Green/Cycle:	0.05	0.21	0.21	0.15	0.32	0.32	0.20	0.39	0.39	0.12	0.31	0.31
Volume/Cap:	0.51	0.59	0.32	0.59	0.51	0.51	0.59	0.42	0.07	0.42	0.43	0.59
Delay/Veh:	46.8	34.1	30.4	37.5	25.8	25.8	35.5	20.6	17.4	38.4	25.5	28.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.8	34.1	30.4	37.5	25.8	25.8	35.5	20.6	17.4	38.4	25.5	28.4
DesignQueue:	2	10	4	13	8	3	9	10	1	4	9	11

Carmel Valley Master Plan EIR
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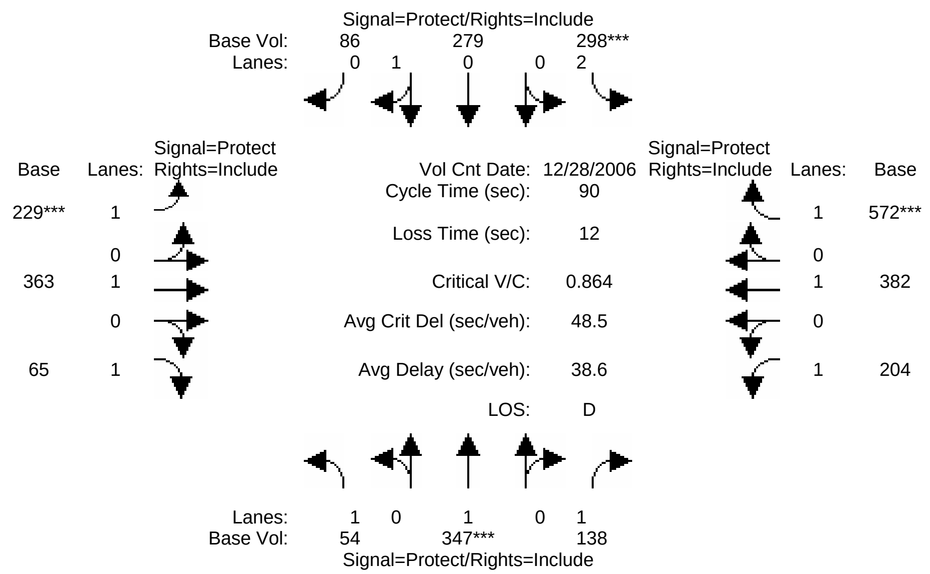
Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A PM Peak

Intersection #3: Highway 1 & Rio Road



Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm												
Base Vol:	54	347	138	298	279	86	229	363	65	204	382	572
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	347	138	298	279	86	229	363	65	204	382	572
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	347	138	298	279	86	229	363	65	204	382	572
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	347	138	298	279	86	229	363	65	204	382	572
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	54	347	138	298	279	86	229	363	65	204	382	572
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.97	0.97	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.76	0.24	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1401	432	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.18	0.09	0.09	0.20	0.20	0.13	0.19	0.04	0.11	0.20	0.35
Crit Moves:		****		****			****					****
Green/Cycle:	0.04	0.21	0.21	0.10	0.27	0.27	0.15	0.35	0.35	0.21	0.41	0.41
Volume/Cap:	0.74	0.86	0.40	0.86	0.74	0.74	0.86	0.55	0.12	0.55	0.49	0.86
Delay/Veh:	75.2	51.6	31.4	59.6	35.8	35.8	61.7	24.5	19.9	33.6	20.1	35.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	75.2	51.6	31.4	59.6	35.8	35.8	61.7	24.5	19.9	33.6	20.1	35.7
DesignQueue:	3	14	6	14	11	3	10	12	2	8	12	18

Carmel Valley Master Plan EIR
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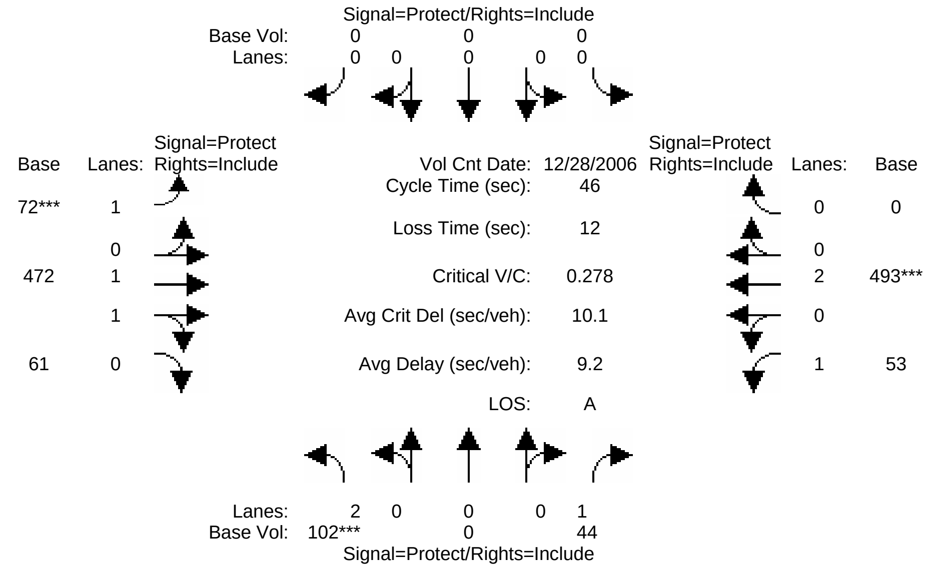
Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A AM Peak

Intersection #4: Rio Road & Crossroad Driveway



Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am												
Base Vol:	102	0	44	0	0	0	72	472	61	53	493	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	102	0	44	0	0	0	72	472	61	53	493	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	102	0	44	0	0	0	72	472	61	53	493	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	0	44	0	0	0	72	472	61	53	493	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	102	0	44	0	0	0	72	472	61	53	493	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.93	0.93	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.77	0.23	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	3143	406	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.03	0.00	0.00	0.00	0.04	0.15	0.15	0.03	0.14	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.10	0.00	0.10	0.00	0.00	0.00	0.14	0.53	0.53	0.10	0.49	0.00
Volume/Cap:	0.28	0.00	0.26	0.00	0.00	0.00	0.28	0.28	0.28	0.28	0.28	0.00
Delay/Veh:	19.4	0.0	19.8	0.0	0.0	0.0	18.2	6.0	6.0	19.9	7.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	0.0	19.8	0.0	0.0	0.0	18.2	6.0	6.0	19.9	7.0	0.0
DesignQueue:	2	0	1	0	0	0	2	6	1	1	7	0

Carmel Valley Master Plan EIR
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A PM Peak

Intersection #4: Rio Road & Crossroad Driveway

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Signal=Protect Rights=Include (Base / Lanes): 0 1; 0; 421*** 1; 1; 113 0

Vol Cnt Date: 12/28/2006
Cycle Time (sec): 46
Loss Time (sec): 12
Critical V/C: 0.399
Avg Crit Del (sec/veh): 13.3
Avg Delay (sec/veh): 10.5
LOS: B

Signal=Protect Rights=Include (Lanes / Base): 0 0; 0; 2 706; 0; 1 125***

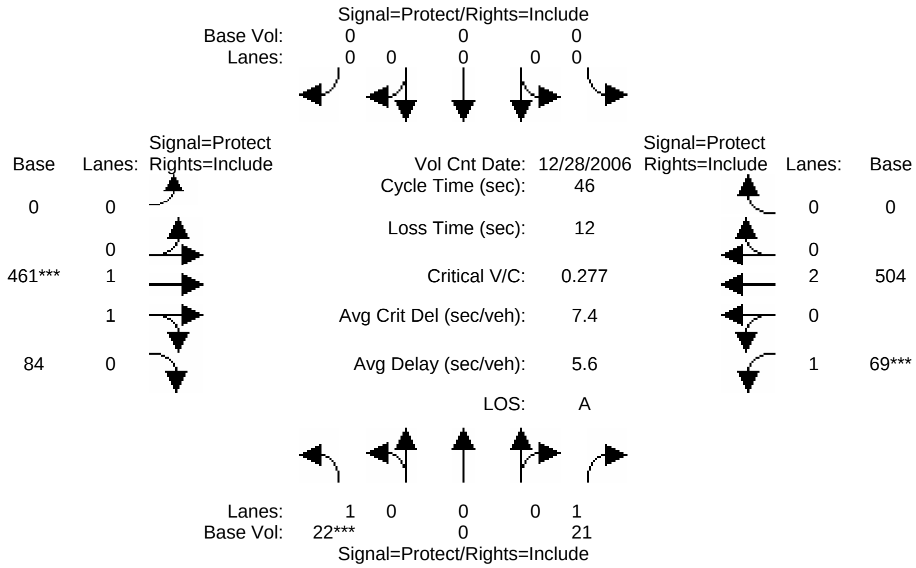
Lanes: 2 0 0 0 1
Base Vol: 255*** 0 121
Signal=Protect/Rights=Include

Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm												
Base Vol:	255	0	121	0	0	0	0	421	113	125	706	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	255	0	121	0	0	0	0	421	113	125	706	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	255	0	121	0	0	0	0	421	113	125	706	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	255	0	121	0	0	0	0	421	113	125	706	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	255	0	121	0	0	0	0	421	113	125	706	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	1.00	0.92	0.92	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.58	0.42	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1900	2755	739	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.15	0.15	0.07	0.20	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.38	0.38	0.17	0.56	0.00
Volume/Cap:	0.40	0.00	0.41	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.35	0.00
Delay/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.7	0.0
DesignQueue:	5	0	3	0	0	0	0	7	2	3	8	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A AM Peak

Intersection #5: Rio Road & Carmel Center Place



Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am												
Base Vol:	22	0	21	0	0	0	0	461	84	69	504	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	0	21	0	0	0	0	461	84	69	504	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	0	21	0	0	0	0	461	84	69	504	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	0	21	0	0	0	0	461	84	69	504	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	0	21	0	0	0	0	461	84	69	504	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.69	0.31	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	2983	544	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.15	0.15	0.04	0.14	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.56	0.56	0.14	0.70	0.00
Volume/Cap:	0.28	0.00	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.20	0.00
Delay/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
DesignQueue:	1	0	1	0	0	0	0	5	1	2	4	0

Carmel Valley Master Plan EIR
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario A PM Peak

Intersection #5: Rio Road & Carmel Center Place

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
0***	0		Vol Cnt Date:	12/28/2006		0	0
			Cycle Time (sec):	46			
	0		Loss Time (sec):	12		0	
472	1		Critical V/C:	0.354		2	717***
	1		Avg Crit Del (sec/veh):	7.1		0	
58	0		Avg Delay (sec/veh):	7.8		1	30
			LOS:	A			

Lanes: 1 0 0 0 1
Base Vol: 86 0 102***
Signal=Protect/Rights=Include

Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm												
Base Vol:	86	0	102	0	0	0	0	472	58	30	717	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	86	0	102	0	0	0	0	472	58	30	717	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	86	0	102	0	0	0	0	472	58	30	717	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	86	0	102	0	0	0	0	472	58	30	717	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	86	0	102	0	0	0	0	472	58	30	717	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.78	0.22	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3164	389	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.15	0.15	0.02	0.20	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.50	0.50	0.06	0.56	0.00
Volume/Cap:	0.27	0.00	0.35	0.00	0.00	0.00	0.00	0.30	0.30	0.30	0.35	0.00
Delay/Veh:	16.8	0.0	17.3	0.0	0.0	0.0	0.0	6.7	6.7	22.5	5.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.8	0.0	17.3	0.0	0.0	0.0	0.0	6.7	6.7	22.5	5.6	0.0
DesignQueue:	2	0	2	0	0	0	0	6	1	1	8	0

Carmel Valley Master Plan EIR
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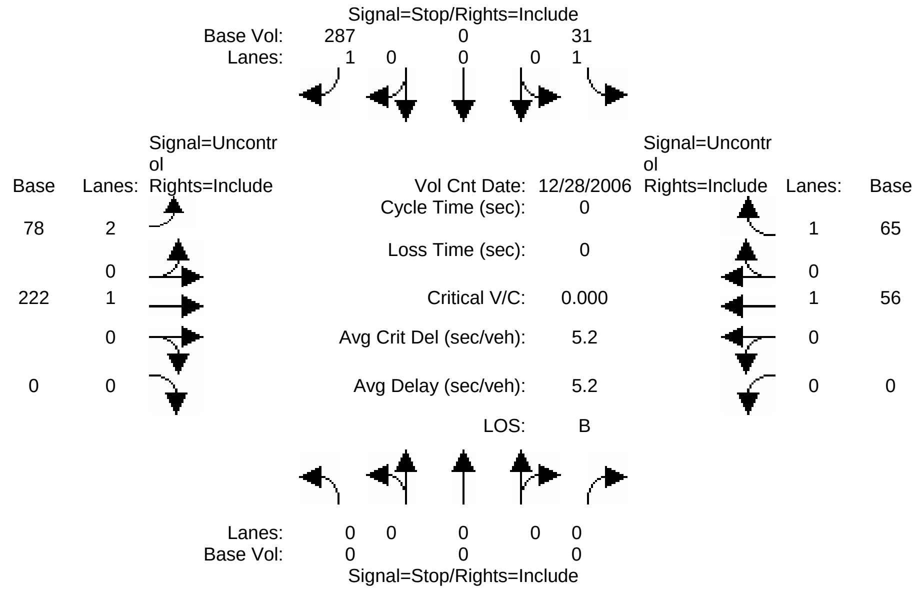
Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario A AM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road




```
Street Name:     Carmel Rancho Boulevard                   Rio Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am
Base Vol:        0    0     0    31    0   287    78  222     0     0   56    65
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0    31    0   287    78  222     0     0   56    65
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0    31    0   287    78  222     0     0   56    65
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0    0     0    31    0   287    78  222     0     0   56    65
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   434 xxxx    56   121 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   583 xxxx  1016  1479 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   559 xxxx  1016  1479 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.06 xxxx  0.28  0.05 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.2 xxxx   1.2   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  11.8 xxxx   9.9   7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     B    *     A     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             10.1            xxxxxx           xxxxxx
ApproachLOS:        *                 B                *                *
```


Carmel Valley Master Plan EIR
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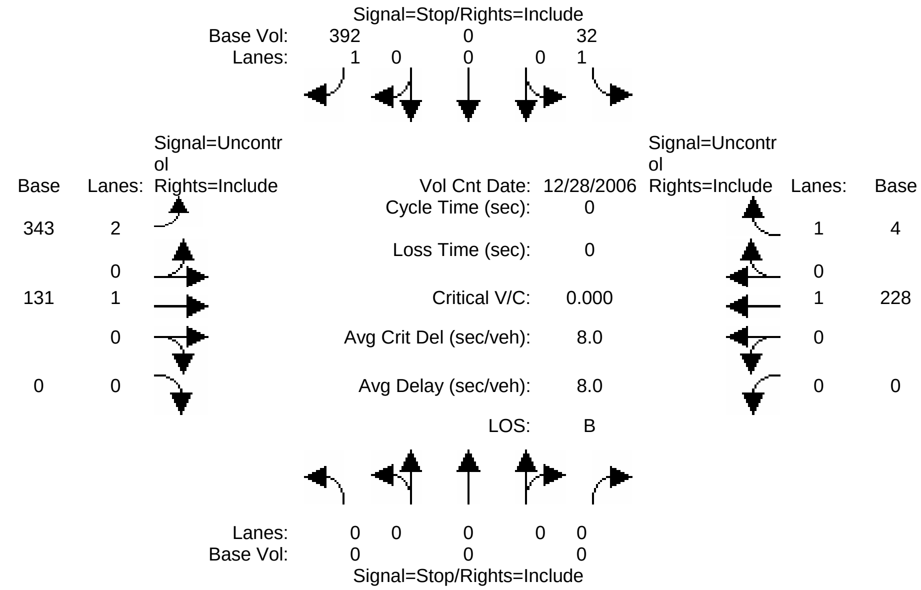
Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario A PM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

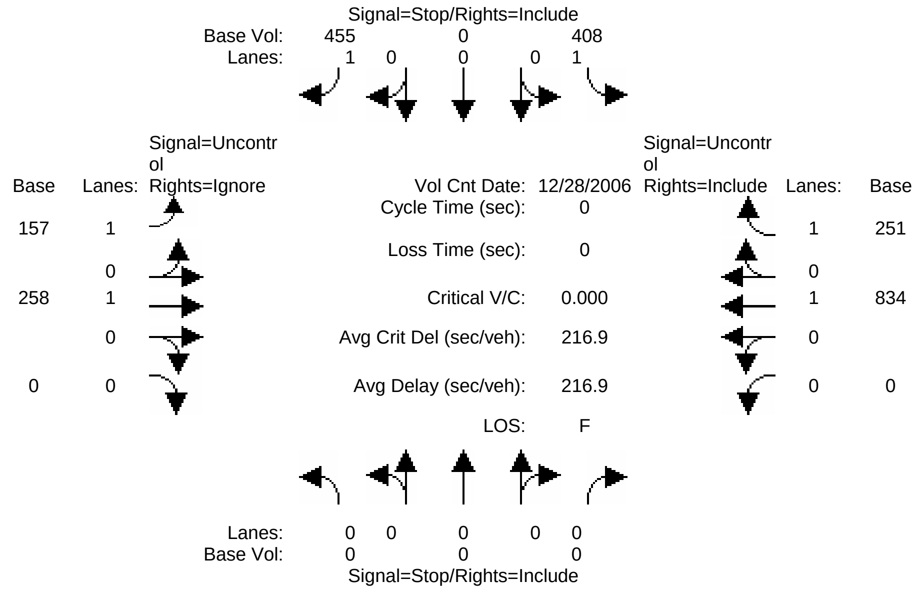



```
Street Name:     Carmel Rancho Boulevard                   Rio Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm
Base Vol:       0    0     0    32    0   392   343  131     0     0  228     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    32    0   392   343  131     0     0  228     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    32    0   392   343  131     0     0  228     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    32    0   392   343  131     0     0  228     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1045 xxxx   228   232 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   256 xxxx   816  1348 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   205 xxxx   816  1348 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.16 xxxx  0.48  0.25 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.5 xxxx   2.6   1.0 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  25.7 xxxx  13.4   8.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     D    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            14.3            xxxxxx            xxxxxx
ApproachLOS:        *                B                *                 *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario A AM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road

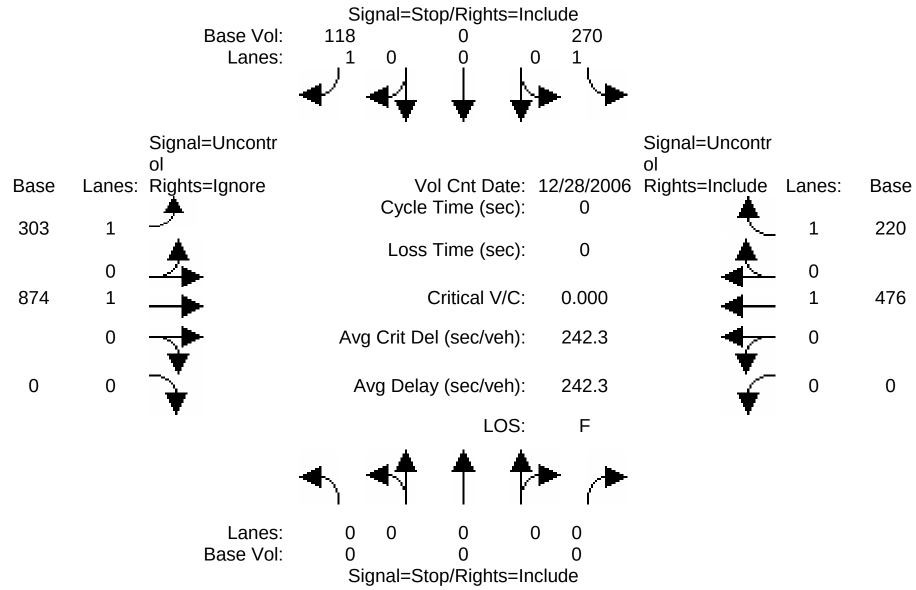



```
Street Name:       Laureles Grade Road            Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - am
Base Vol:       0    0     0   408    0   455   157  258     0     0  834   251
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   408    0   455   157  258     0     0  834   251
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   408    0   455   157  258     0     0  834   251
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   408    0   455   157  258     0     0  834   251
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1406 xxxx   834  1085 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   155 xxxx   371   651 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   126 xxxx   371   651 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  3.23 xxxx  1.23  0.24 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx  39.1 xxxx  19.3   0.9 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  1079 xxxx 154.7  12.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     F     B    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             591.7            xxxxxx           xxxxxx
ApproachLOS:        *                 F                *                *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario A PM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road

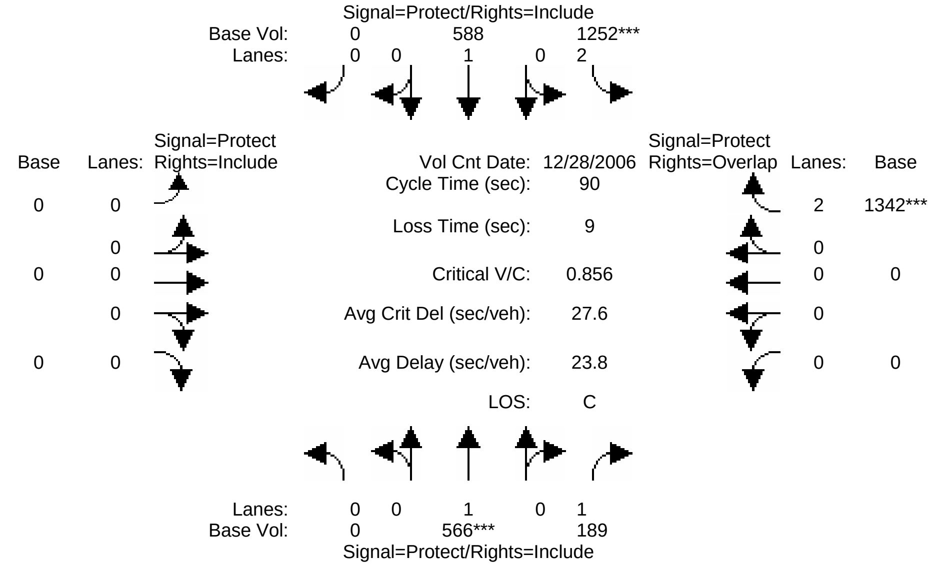



```
Street Name:        Laureles Grade Road               Carmel Valley Road
Approach:       North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioA - pm
Base Vol:       0    0     0   270    0   118   303  874     0     0  476   220
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   270    0   118   303  874     0     0  476   220
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   270    0   118   303  874     0     0  476   220
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   270    0   118   303  874     0     0  476   220
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1956 xxxx   476   696 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    71 xxxx   593   909 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    53 xxxx   593   909 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  5.13 xxxx  0.20  0.33 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx  30.5 xxxx   0.7   1.5 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  2012 xxxx  12.6  10.9 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     B     B    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            1403.7             xxxxxx            xxxxxx
ApproachLOS:        *                 F                  *                 *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B AM Peak

Intersection #1: Highway 1 & Carmel Valley Road

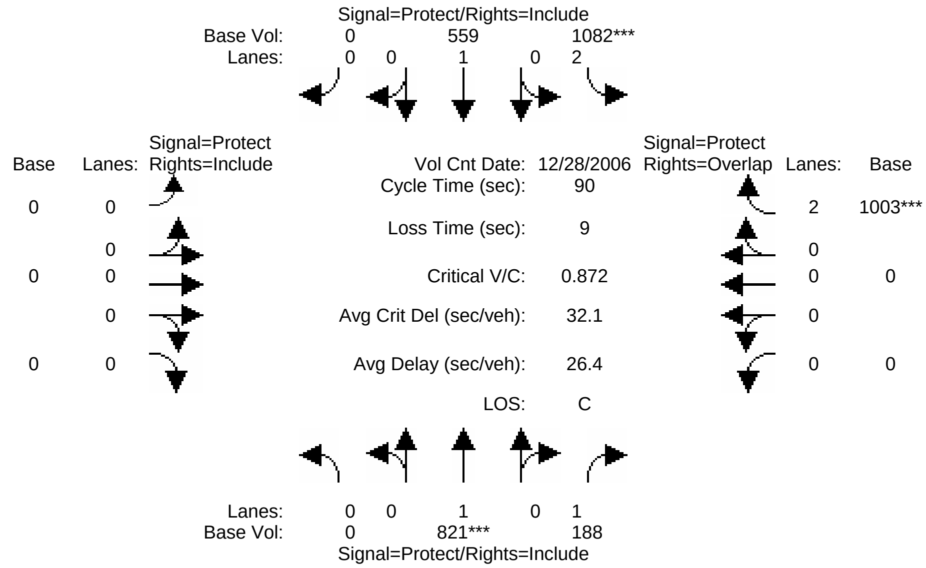


Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am												
Base Vol:	0	566	189	1252	588	0	0	0	0	0	0	1342
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	566	189	1252	588	0	0	0	0	0	0	1342
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	566	189	1252	588	0	0	0	0	0	0	1342
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	566	189	1252	588	0	0	0	0	0	0	1342
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	566	189	1252	588	0	0	0	0	0	0	1342
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.30	0.12	0.36	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.47
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.35	0.35	0.42	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.55
Volume/Cap:	0.00	0.86	0.34	0.86	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.86
Delay/Veh:	0.0	37.9	22.0	28.9	3.8	0.0	0.0	0.0	0.0	0.0	0.0	22.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	37.9	22.0	28.9	3.8	0.0	0.0	0.0	0.0	0.0	0.0	22.0
DesignQueue:	0	20	6	40	7	0	0	0	0	0	0	33

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B PM Peak

Intersection #1: Highway 1 & Carmel Valley Road

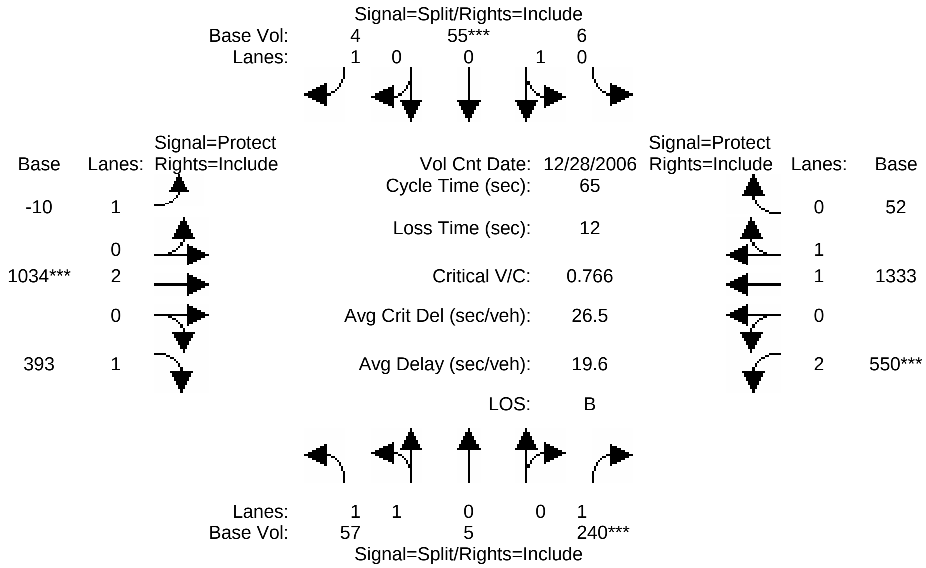


Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm												
Base Vol:	0	821	188	1082	559	0	0	0	0	0	0	1003
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	821	188	1082	559	0	0	0	0	0	0	1003
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	821	188	1082	559	0	0	0	0	0	0	1003
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	821	188	1082	559	0	0	0	0	0	0	1003
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	821	188	1082	559	0	0	0	0	0	0	1003
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.43	0.12	0.31	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.35
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.50	0.50	0.35	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Volume/Cap:	0.00	0.87	0.23	0.87	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.87
Delay/Veh:	0.0	29.2	13.1	34.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	32.2
User DelAdj:	0.94	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	29.2	12.3	34.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	32.2
DesignQueue:	0	23	5	38	5	0	0	0	0	0	0	32

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B AM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

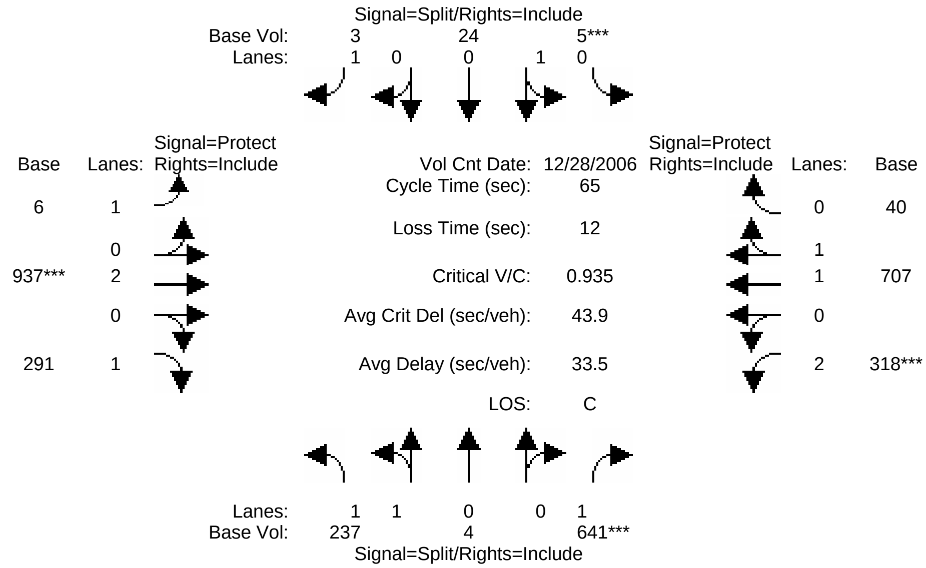


Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am												
Base Vol:	57	5	240	6	55	4	-10	1034	393	550	1333	52
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	5	240	6	55	4	0	1034	393	550	1333	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	57	5	240	6	55	4	0	1034	393	550	1333	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	57	5	240	6	55	4	0	1034	393	550	1333	52
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	57	5	240	6	55	4	0	1034	393	550	1333	52
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	1.00	1.00	0.85	1.00	0.95	0.85	0.92	0.94	0.94
Lanes:	1.84	0.16	1.00	0.10	0.90	1.00	1.00	2.00	1.00	2.00	1.92	0.08
Final Sat.:	3340	293	1615	186	1705	1615	1900	3610	1615	3502	3454	135
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.15	0.03	0.03	0.00	0.00	0.29	0.24	0.16	0.39	0.39
Crit Moves:			****		****			****		****		
Green/Cycle:	0.19	0.19	0.19	0.04	0.04	0.04	0.00	0.37	0.37	0.21	0.58	0.58
Volume/Cap:	0.09	0.09	0.77	0.77	0.77	0.06	0.00	0.77	0.65	0.77	0.67	0.67
Delay/Veh:	21.5	21.5	35.6	65.8	65.8	30.3	0.0	20.5	19.3	29.3	10.2	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.5	21.5	35.6	65.8	65.8	30.3	0.0	20.5	19.3	29.3	10.2	10.2
DesignQueue:	2	0	7	0	2	0	0	25	9	16	22	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B PM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard



Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm												
Base Vol:	237	4	641	5	24	3	6	937	291	318	707	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	237	4	641	5	24	3	6	937	291	318	707	40
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	237	4	641	5	24	3	6	937	291	318	707	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	237	4	641	5	24	3	6	937	291	318	707	40
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	237	4	641	5	24	3	6	937	291	318	707	40
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	0.95	0.85	0.92	0.94	0.94
Lanes:	1.97	0.03	1.00	0.17	0.83	1.00	1.00	2.00	1.00	2.00	1.89	0.11
Final Sat.:	3561	60	1615	325	1558	1615	1805	3610	1615	3502	3389	192
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.40	0.02	0.02	0.00	0.00	0.26	0.18	0.09	0.21	0.21
Crit Moves:			****	****				****		****		
Green/Cycle:	0.42	0.42	0.42	0.02	0.02	0.02	0.01	0.28	0.28	0.10	0.37	0.37
Volume/Cap:	0.16	0.16	0.94	0.94	0.94	0.11	0.57	0.94	0.65	0.94	0.57	0.57
Delay/Veh:	11.6	11.6	38.0	166.1	166	33.4	88.1	38.2	24.0	61.6	16.9	16.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.6	11.6	38.0	166.1	166	33.4	88.1	38.2	24.0	61.6	16.9	16.9
DesignQueue:	5	0	15	0	1	0	0	26	8	11	17	1

Carmel Valley Master Plan EIR
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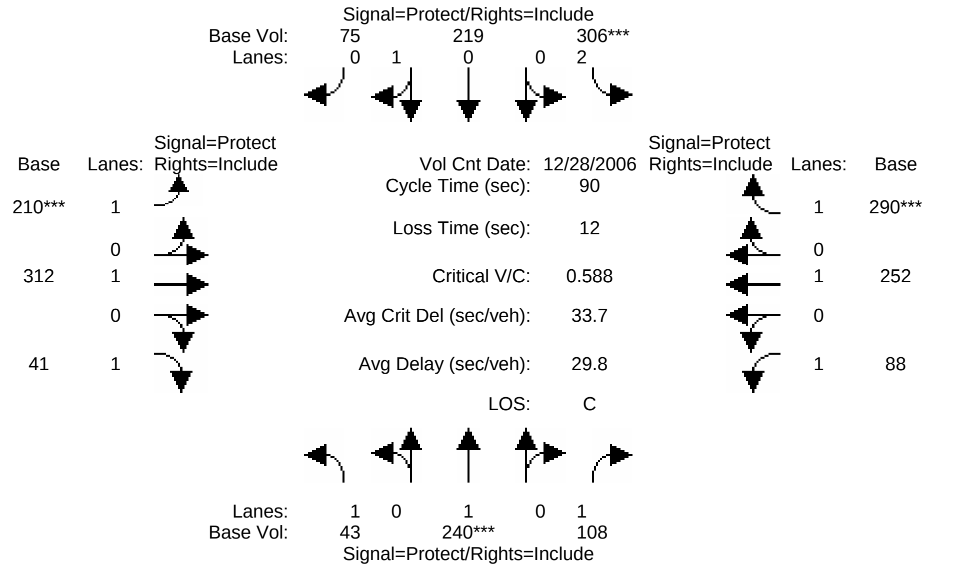
Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B AM Peak

Intersection #3: Highway 1 & Rio Road



Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am												
Base Vol:	43	240	108	306	219	75	210	312	41	88	252	290
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	43	240	108	306	219	75	210	312	41	88	252	290
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	43	240	108	306	219	75	210	312	41	88	252	290
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	240	108	306	219	75	210	312	41	88	252	290
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	43	240	108	306	219	75	210	312	41	88	252	290
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.74	0.26	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1362	466	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.13	0.07	0.09	0.16	0.16	0.12	0.16	0.03	0.05	0.13	0.18
Crit Moves:		****		****			****					****
Green/Cycle:	0.05	0.21	0.21	0.15	0.32	0.32	0.20	0.39	0.39	0.12	0.31	0.31
Volume/Cap:	0.51	0.59	0.31	0.59	0.51	0.51	0.59	0.42	0.07	0.42	0.43	0.59
Delay/Veh:	46.9	34.0	30.2	37.5	25.8	25.8	35.3	20.6	17.3	38.4	25.6	28.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.9	34.0	30.2	37.5	25.8	25.8	35.3	20.6	17.3	38.4	25.6	28.3
DesignQueue:	2	10	4	13	8	3	9	10	1	4	9	10

Carmel Valley Master Plan EIR
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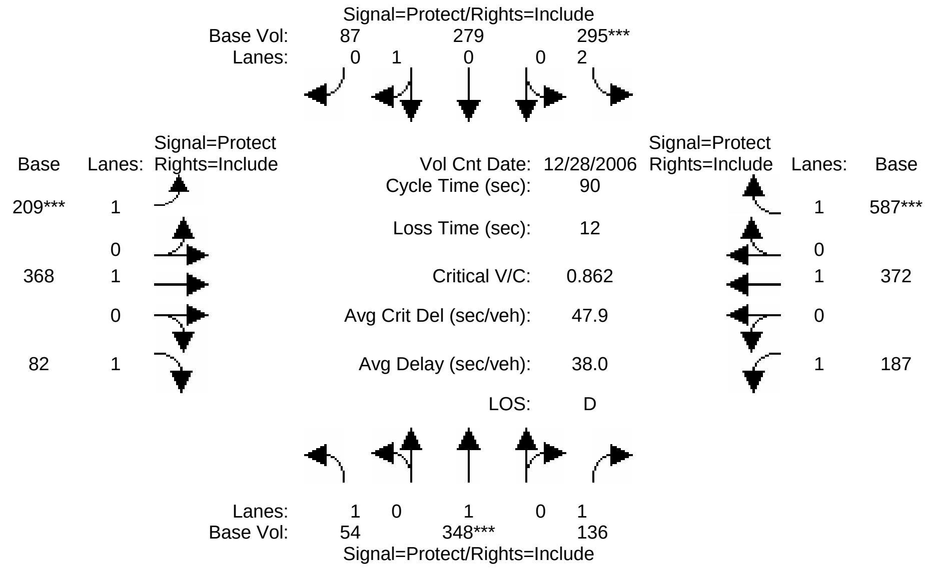
Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B PM Peak

Intersection #3: Highway 1 & Rio Road



Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm												
Base Vol:	54	348	136	295	279	87	209	368	82	187	372	587
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	348	136	295	279	87	209	368	82	187	372	587
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	348	136	295	279	87	209	368	82	187	372	587
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	348	136	295	279	87	209	368	82	187	372	587
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	54	348	136	295	279	87	209	368	82	187	372	587
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.76	0.24	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1396	435	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.18	0.08	0.08	0.20	0.20	0.12	0.19	0.05	0.10	0.20	0.36
Crit Moves:		****		****			****					****
Green/Cycle:	0.04	0.21	0.21	0.10	0.27	0.27	0.13	0.36	0.36	0.19	0.42	0.42
Volume/Cap:	0.74	0.86	0.40	0.86	0.74	0.74	0.86	0.53	0.14	0.53	0.46	0.86
Delay/Veh:	75.5	51.1	31.2	59.4	35.9	35.9	63.6	23.5	19.4	34.2	19.1	34.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	75.5	51.1	31.2	59.4	35.9	35.9	63.6	23.5	19.4	34.2	19.1	34.5
DesignQueue:	3	14	5	14	11	3	9	12	3	8	11	18

Carmel Valley Master Plan EIR
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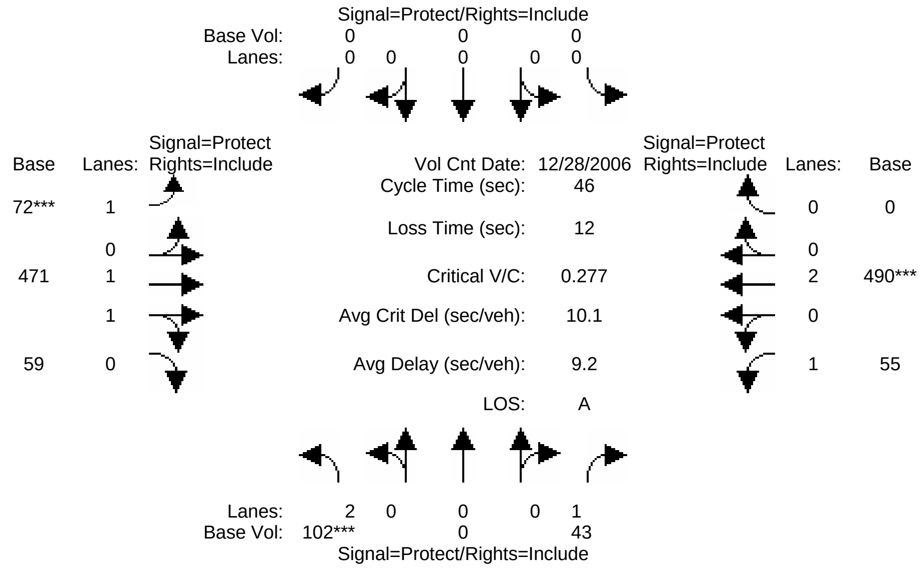
Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario B AM Peak

Intersection #4: Rio Road & Crossroad Driveway



Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am												
Base Vol:	102	0	43	0	0	0	72	471	59	55	490	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	102	0	43	0	0	0	72	471	59	55	490	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	102	0	43	0	0	0	72	471	59	55	490	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	0	43	0	0	0	72	471	59	55	490	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	102	0	43	0	0	0	72	471	59	55	490	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.93	0.93	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.78	0.22	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	3154	395	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.03	0.00	0.00	0.00	0.04	0.15	0.15	0.03	0.14	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.11	0.00	0.11	0.00	0.00	0.00	0.14	0.53	0.53	0.11	0.49	0.00
Volume/Cap:	0.28	0.00	0.25	0.00	0.00	0.00	0.28	0.28	0.28	0.28	0.28	0.00
Delay/Veh:	19.4	0.0	19.7	0.0	0.0	0.0	18.1	6.1	6.1	19.7	7.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	0.0	19.7	0.0	0.0	0.0	18.1	6.1	6.1	19.7	7.0	0.0
DesignQueue:	2	0	1	0	0	0	2	6	1	1	7	0

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2000 HCM Operations (Base Volume Alternative)
Scenario B PM Peak

Intersection #4: Rio Road & Crossroad Driveway

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
0	1		Vol Cnt Date:	12/28/2006		0	0
			Cycle Time (sec):	46			
	0		Loss Time (sec):	12		0	
420***	1		Critical V/C:	0.398		2	705
	1		Avg Crit Del (sec/veh):	13.3		0	
114	0		Avg Delay (sec/veh):	10.5		1	124***
			LOS:	B			

Lanes: 2 0 0 0 1
Base Vol: 255*** 0 121
Signal=Protect/Rights=Include

Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm												
Base Vol:	255	0	121	0	0	0	0	420	114	124	705	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	255	0	121	0	0	0	0	420	114	124	705	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	255	0	121	0	0	0	0	420	114	124	705	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	255	0	121	0	0	0	0	420	114	124	705	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	255	0	121	0	0	0	0	420	114	124	705	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	1.00	0.92	0.92	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.57	0.43	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1900	2748	746	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.15	0.15	0.07	0.20	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.38	0.38	0.17	0.56	0.00
Volume/Cap:	0.40	0.00	0.41	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.35	0.00
Delay/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.7	0.0
DesignQueue:	5	0	3	0	0	0	0	7	2	3	8	0

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2000 HCM Operations (Base Volume Alternative)
Scenario B AM Peak

Intersection #5: Rio Road & Carmel Center Place

Southbound approach: Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Eastbound approach (left side): Signal=Protect, Rights=Include

Base	Lanes:
0	0
	0
459***	1
	1
84	0

Vol Cnt Date:	12/28/2006
Cycle Time (sec):	46
Loss Time (sec):	12
Critical V/C:	0.277
Avg Crit Del (sec/veh):	7.4
Avg Delay (sec/veh):	5.6
LOS:	A

Westbound approach (right side): Signal=Protect, Rights=Include

Lanes:	Base
0	0
0	
2	503
0	
1	69***

Northbound approach:
Lanes: 1 0 0 0 1
Base Vol: 22*** 0 21
Signal=Protect/Rights=Include

Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am												
Base Vol:	22	0	21	0	0	0	0	459	84	69	503	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	0	21	0	0	0	0	459	84	69	503	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	0	21	0	0	0	0	459	84	69	503	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	0	21	0	0	0	0	459	84	69	503	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	0	21	0	0	0	0	459	84	69	503	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.69	0.31	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	2981	546	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.15	0.15	0.04	0.14	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.56	0.56	0.14	0.70	0.00
Volume/Cap:	0.28	0.00	0.29	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.20	0.00
Delay/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
DesignQueue:	1	0	1	0	0	0	0	5	1	2	4	0

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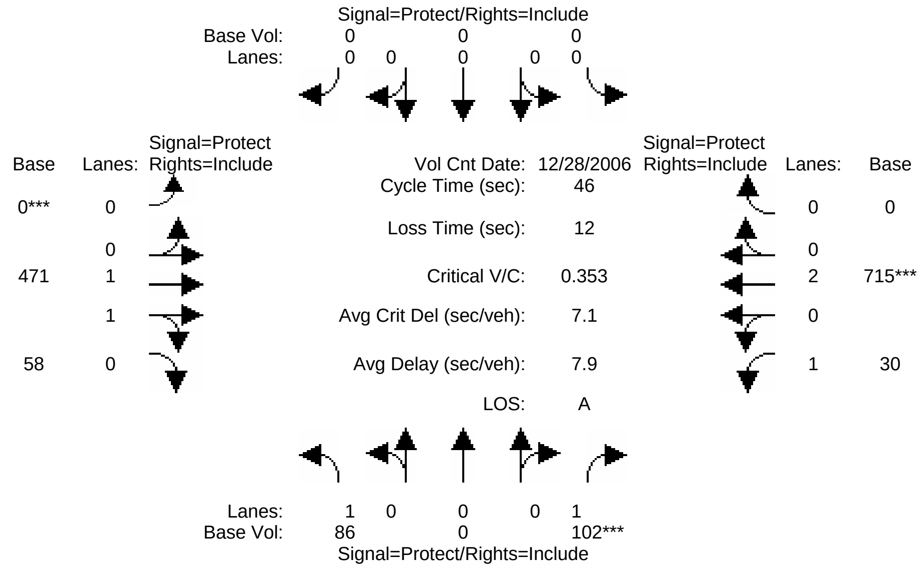
Scenario B PM Peak

Intersection #5: Rio Road & Carmel Center Place

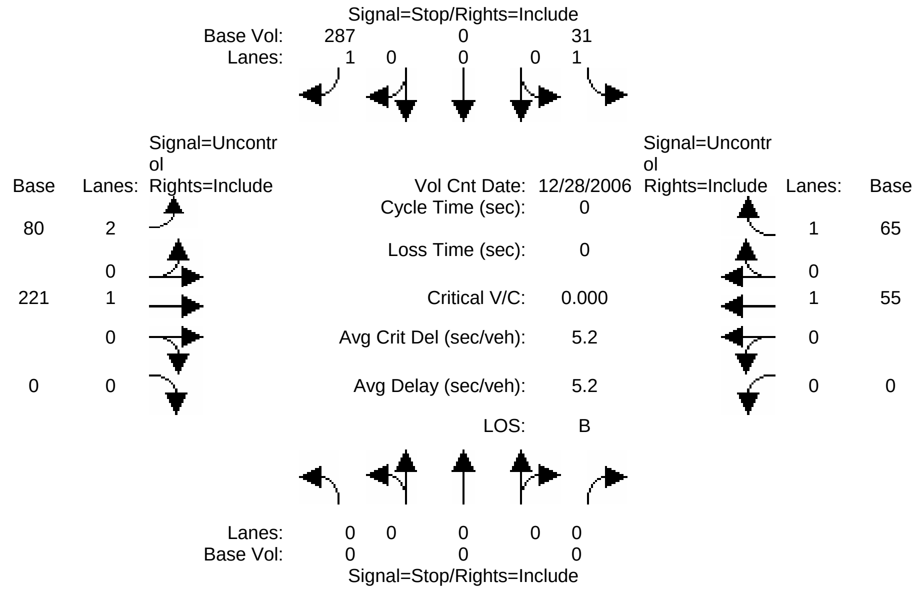


Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm												
Base Vol:	86	0	102	0	0	0	0	471	58	30	715	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	86	0	102	0	0	0	0	471	58	30	715	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	86	0	102	0	0	0	0	471	58	30	715	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	86	0	102	0	0	0	0	471	58	30	715	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	86	0	102	0	0	0	0	471	58	30	715	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.78	0.22	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3163	389	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.15	0.15	0.02	0.20	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.50	0.50	0.06	0.56	0.00
Volume/Cap:	0.27	0.00	0.35	0.00	0.00	0.00	0.00	0.30	0.30	0.30	0.35	0.00
Delay/Veh:	16.7	0.0	17.3	0.0	0.0	0.0	0.0	6.7	6.7	22.5	5.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.7	0.0	17.3	0.0	0.0	0.0	0.0	6.7	6.7	22.5	5.6	0.0
DesignQueue:	2	0	2	0	0	0	0	6	1	1	8	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario B AM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

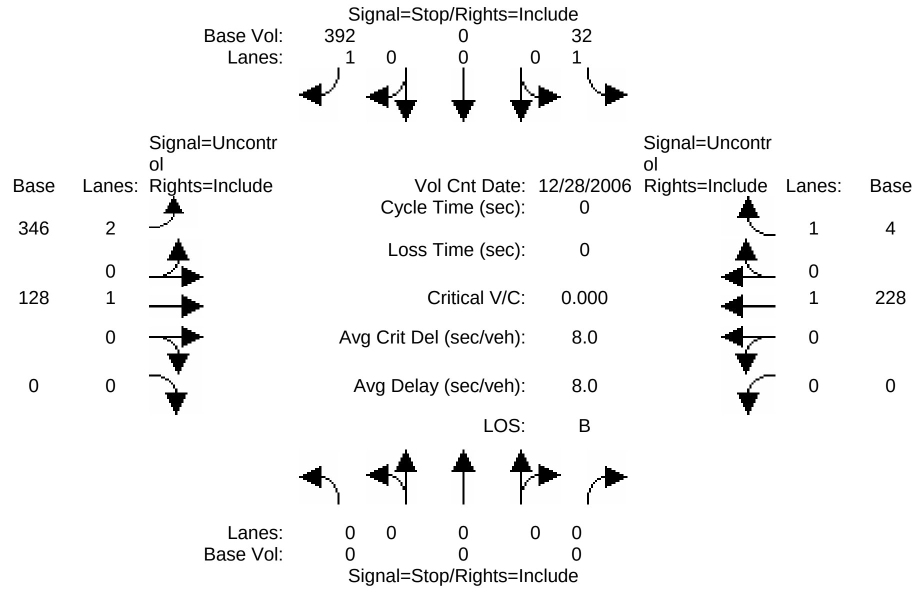



```
Street Name:     Carmel Rancho Boulevard                     Rio Road
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am
Base Vol:      0    0     0    31    0   287    80  221     0     0   55    65
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0    0     0    31    0   287    80  221     0     0   55    65
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0    0     0    31    0   287    80  221     0     0   55    65
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    0    0     0    31    0   287    80  221     0     0   55    65
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   436 xxxx    55   120 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   581 xxxx  1018  1480 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   557 xxxx  1018  1480 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.06 xxxx  0.28  0.05 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.2 xxxx   1.2   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  11.8 xxxx   9.9   7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    *     *     B    *     A     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx             10.1             xxxxxx           xxxxxx
ApproachLOS:       *                 B                 *                *
```

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario B PM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

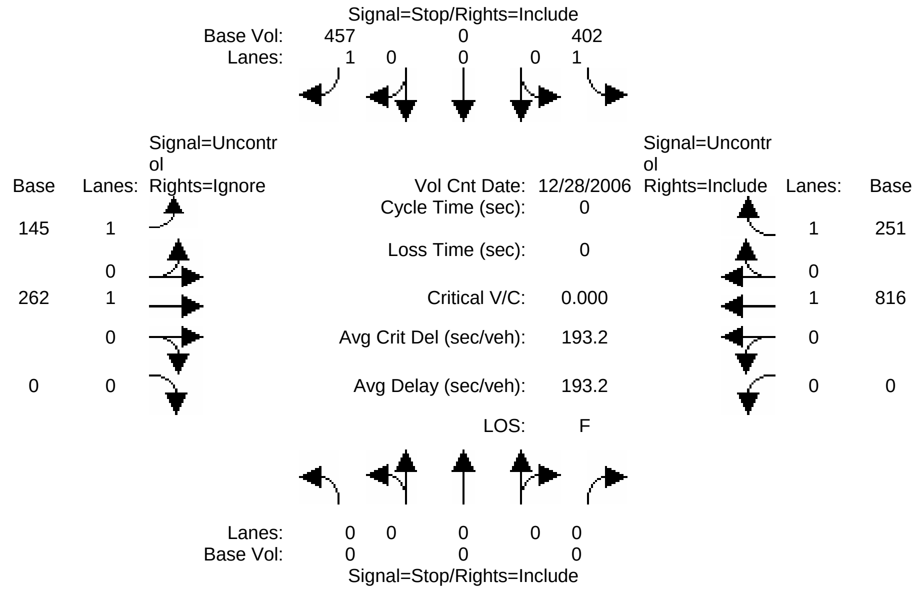



```
Street Name:     Carmel Rancho Boulevard                    Rio Road
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm
Base Vol:       0    0     0    32    0   392   346  128     0     0  228     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    32    0   392   346  128     0     0  228     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    32    0   392   346  128     0     0  228     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    32    0   392   346  128     0     0  228     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1048 xxxx   228   232 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   255 xxxx   816  1348 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   204 xxxx   816  1348 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.16 xxxx  0.48  0.26 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.5 xxxx   2.6   1.0 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  25.9 xxxx  13.4   8.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     D    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx              14.4             xxxxxx            xxxxxx
ApproachLOS:        *                  B                 *                 *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario B AM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road



Street Name:	Laureles Grade Road						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - am												
Base Vol:	0	0	0	402	0	457	145	262	0	0	816	251
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	402	0	457	145	262	0	0	816	251
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	0	0	0	402	0	457	145	262	0	0	816	251
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	402	0	457	145	262	0	0	816	251
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1368	xxxx	816	1067	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	163	xxxx	380	661	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	136	xxxx	380	661	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	2.96	xxxx	1.20	0.22	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	37.3	xxxx	18.8	0.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	952.0	xxxx	144.9	12.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	F	B	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			522.6			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario B PM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road

Signal=Stop/Rights=Include
Base Vol: 115 0 263
Lanes: 1 0 0 0 1

Signal=Uncontrol Rights=Ignore (West approach)
Base / Lanes: 300 / 1; 0; 866 / 1; 0; 0 / 0

Vol Cnt Date: 12/28/2006
Cycle Time (sec): 0
Loss Time (sec): 0
Critical V/C: 0.000
Avg Crit Del (sec/veh): 222.9
Avg Delay (sec/veh): 222.9
LOS: F

Signal=Uncontrol Rights=Include (East approach)
Lanes / Base: 1 / 220; 0; 1 / 471; 0; 0 / 0

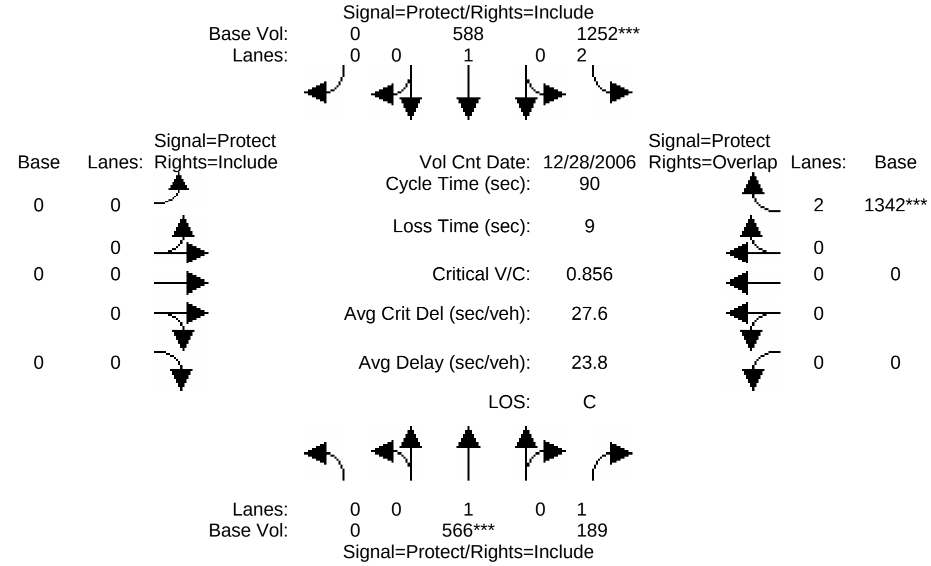
Lanes: 0 0 0 0 0
Base Vol: 0 0 0
Signal=Stop/Rights=Include

```
Street Name:       Laureles Grade Road              Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioB - pm
Base Vol:       0    0     0   263    0   115   300  866     0     0  471   220
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   263    0   115   300  866     0     0  471   220
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   263    0   115   300  866     0     0  471   220
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0   263    0   115   300  866     0     0  471   220
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1937 xxxx   471   691 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    73 xxxx   597   913 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    54 xxxx   597   913 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  4.83 xxxx  0.19  0.33 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx  29.4 xxxx   0.7   1.4 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  1877 xxxx  12.5  10.9 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     F    *     B     B    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx           1309.5           xxxxxx           xxxxxx
ApproachLOS:        *                F                *                *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C AM Peak

Intersection #1: Highway 1 & Carmel Valley Road

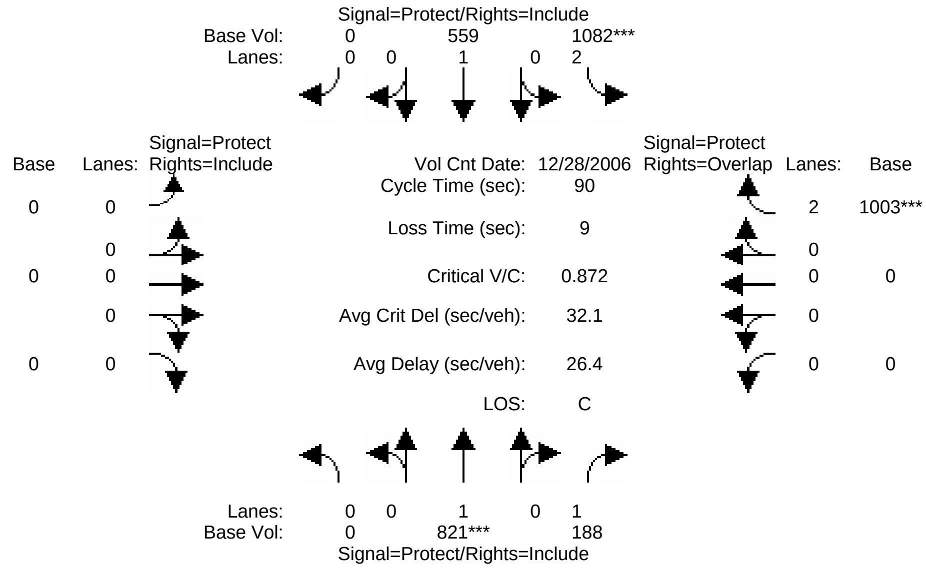


Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am												
Base Vol:	0	566	189	1252	588	0	0	0	0	0	0	1342
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	566	189	1252	588	0	0	0	0	0	0	1342
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	566	189	1252	588	0	0	0	0	0	0	1342
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	566	189	1252	588	0	0	0	0	0	0	1342
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	566	189	1252	588	0	0	0	0	0	0	1342
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.30	0.12	0.36	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.47
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.35	0.35	0.42	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.55
Volume/Cap:	0.00	0.86	0.34	0.86	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.86
Delay/Veh:	0.0	37.9	22.0	28.9	3.8	0.0	0.0	0.0	0.0	0.0	0.0	22.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	37.9	22.0	28.9	3.8	0.0	0.0	0.0	0.0	0.0	0.0	22.0
DesignQueue:	0	20	6	40	7	0	0	0	0	0	0	33

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C PM Peak

Intersection #1: Highway 1 & Carmel Valley Road

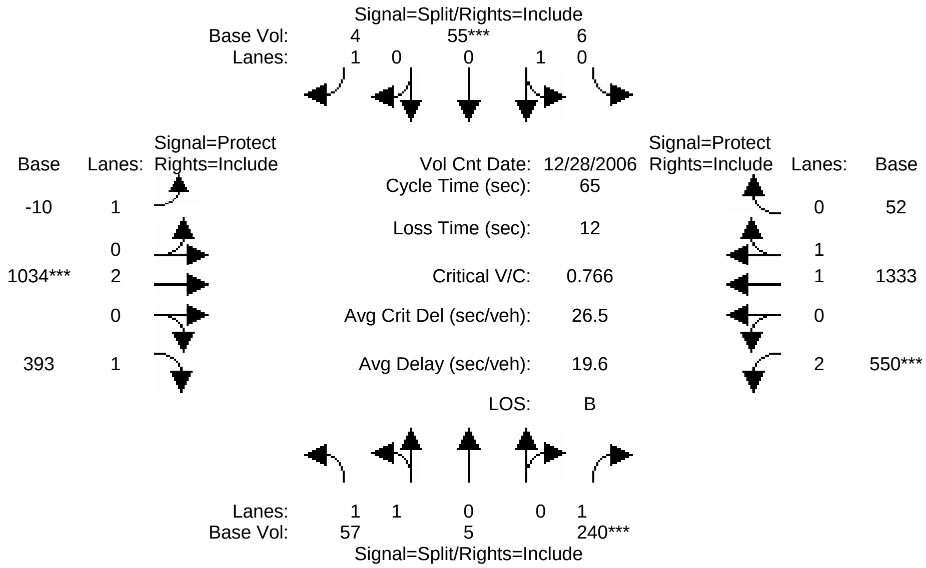


Street Name:	Highway 1						Carmel Valley Raod					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - pm												
Base Vol:	0	821	188	1082	559	0	0	0	0	0	0	1003
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	821	188	1082	559	0	0	0	0	0	0	1003
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	821	188	1082	559	0	0	0	0	0	0	1003
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	821	188	1082	559	0	0	0	0	0	0	1003
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	821	188	1082	559	0	0	0	0	0	0	1003
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75
Lanes:	0.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	1615	3502	1900	0	0	0	0	0	0	2842
Capacity Analysis Module:												
Vol/Sat:	0.00	0.43	0.12	0.31	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.35
Crit Moves:		****		****								****
Green/Cycle:	0.00	0.50	0.50	0.35	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Volume/Cap:	0.00	0.87	0.23	0.87	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.87
Delay/Veh:	0.0	29.2	13.1	34.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	32.2
User DelAdj:	0.94	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	29.2	12.3	34.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	32.2
DesignQueue:	0	23	5	38	5	0	0	0	0	0	0	32

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C AM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard



Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am												
Base Vol:	57	5	240	6	55	4	-10	1034	393	550	1333	52
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	57	5	240	6	55	4	0	1034	393	550	1333	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	57	5	240	6	55	4	0	1034	393	550	1333	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	57	5	240	6	55	4	0	1034	393	550	1333	52
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	57	5	240	6	55	4	0	1034	393	550	1333	52
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	1.00	1.00	0.85	1.00	0.95	0.85	0.92	0.94	0.94
Lanes:	1.84	0.16	1.00	0.10	0.90	1.00	1.00	2.00	1.00	2.00	1.92	0.08
Final Sat.:	3340	293	1615	186	1705	1615	1900	3610	1615	3502	3454	135
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.15	0.03	0.03	0.00	0.00	0.29	0.24	0.16	0.39	0.39
Crit Moves:			****		****			****		****		
Green/Cycle:	0.19	0.19	0.19	0.04	0.04	0.04	0.00	0.37	0.37	0.21	0.58	0.58
Volume/Cap:	0.09	0.09	0.77	0.77	0.77	0.06	0.00	0.77	0.65	0.77	0.67	0.67
Delay/Veh:	21.5	21.5	35.6	65.8	65.8	30.3	0.0	20.5	19.3	29.3	10.2	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.5	21.5	35.6	65.8	65.8	30.3	0.0	20.5	19.3	29.3	10.2	10.2
DesignQueue:	2	0	7	0	2	0	0	25	9	16	22	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C PM Peak

Intersection #2: Carmel Valley Road & Carmel Rancho Boulevard

Signal=Split/Rights=Include
Base Vol: 3 24 5***
Lanes: 1 0 0 1 0

Signal=Protect Rights=Include (westbound approach)
Base / Lanes: 6 / 1; 0; 937*** / 2; 0; 291 / 1

Vol Cnt Date: 12/28/2006
Cycle Time (sec): 65
Loss Time (sec): 12
Critical V/C: 0.935
Avg Crit Del (sec/veh): 43.9
Avg Delay (sec/veh): 33.5
LOS: C

Signal=Protect Rights=Include (eastbound approach)
Lanes / Base: 0 / 40; 1; 1 / 707; 0; 2 / 318***

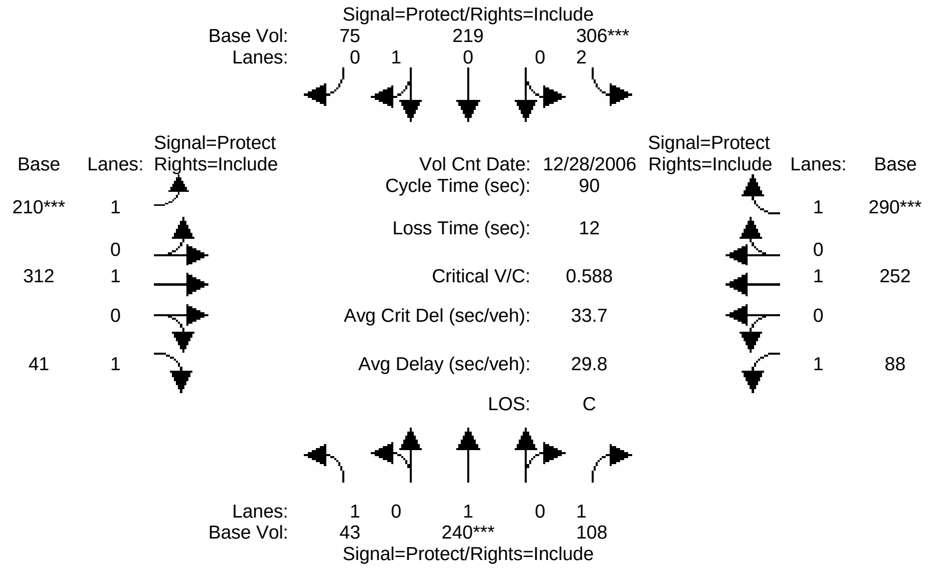
Lanes: 1 1 0 0 1
Base Vol: 237 4 641***
Signal=Split/Rights=Include

Street Name:	Carmel Rancho Boulevard						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC- pm												
Base Vol:	237	4	641	5	24	3	6	937	291	318	707	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	237	4	641	5	24	3	6	937	291	318	707	40
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	237	4	641	5	24	3	6	937	291	318	707	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	237	4	641	5	24	3	6	937	291	318	707	40
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	237	4	641	5	24	3	6	937	291	318	707	40
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	0.95	0.85	0.92	0.94	0.94
Lanes:	1.97	0.03	1.00	0.17	0.83	1.00	1.00	2.00	1.00	2.00	1.89	0.11
Final Sat.:	3561	60	1615	325	1558	1615	1805	3610	1615	3502	3389	192
Capacity Analysis Module:												
Vol/Sat:	0.07	0.07	0.40	0.02	0.02	0.00	0.00	0.26	0.18	0.09	0.21	0.21
Crit Moves:			****	****				****		****		
Green/Cycle:	0.42	0.42	0.42	0.02	0.02	0.02	0.01	0.28	0.28	0.10	0.37	0.37
Volume/Cap:	0.16	0.16	0.94	0.94	0.94	0.11	0.57	0.94	0.65	0.94	0.57	0.57
Delay/Veh:	11.6	11.6	38.0	166.1	166	33.4	88.1	38.2	24.0	61.6	16.9	16.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.6	11.6	38.0	166.1	166	33.4	88.1	38.2	24.0	61.6	16.9	16.9
DesignQueue:	5	0	15	0	1	0	0	26	8	11	17	1

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C AM Peak

Intersection #3: Highway 1 & Rio Road

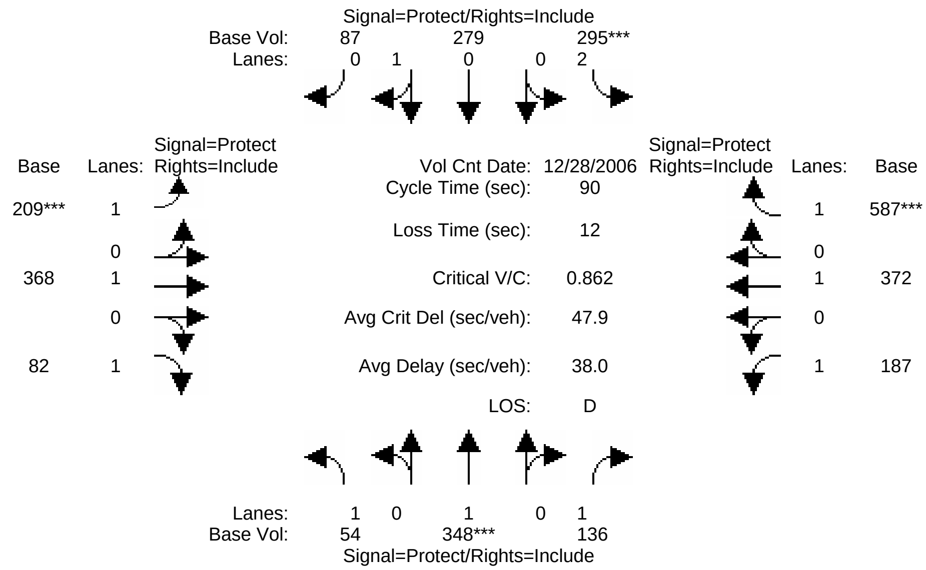


Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am												
Base Vol:	43	240	108	306	219	75	210	312	41	88	252	290
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	43	240	108	306	219	75	210	312	41	88	252	290
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	43	240	108	306	219	75	210	312	41	88	252	290
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	240	108	306	219	75	210	312	41	88	252	290
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	43	240	108	306	219	75	210	312	41	88	252	290
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.74	0.26	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1362	466	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.13	0.07	0.09	0.16	0.16	0.12	0.16	0.03	0.05	0.13	0.18
Crit Moves:		****		****			****					****
Green/Cycle:	0.05	0.21	0.21	0.15	0.32	0.32	0.20	0.39	0.39	0.12	0.31	0.31
Volume/Cap:	0.51	0.59	0.31	0.59	0.51	0.51	0.59	0.42	0.07	0.42	0.43	0.59
Delay/Veh:	46.9	34.0	30.2	37.5	25.8	25.8	35.3	20.6	17.3	38.4	25.6	28.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	46.9	34.0	30.2	37.5	25.8	25.8	35.3	20.6	17.3	38.4	25.6	28.3
DesignQueue:	2	10	4	13	8	3	9	10	1	4	9	10

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C PM Peak

Intersection #3: Highway 1 & Rio Road



Street Name:	Highway 1						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - pm												
Base Vol:	54	348	136	295	279	87	209	368	82	187	372	587
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	54	348	136	295	279	87	209	368	82	187	372	587
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	54	348	136	295	279	87	209	368	82	187	372	587
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	54	348	136	295	279	87	209	368	82	187	372	587
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	54	348	136	295	279	87	209	368	82	187	372	587
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.92	0.96	0.96	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	1.00	1.00	2.00	0.76	0.24	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	1615	3502	1396	435	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.03	0.18	0.08	0.08	0.20	0.20	0.12	0.19	0.05	0.10	0.20	0.36
Crit Moves:		****		****			****					****
Green/Cycle:	0.04	0.21	0.21	0.10	0.27	0.27	0.13	0.36	0.36	0.19	0.42	0.42
Volume/Cap:	0.74	0.86	0.40	0.86	0.74	0.74	0.86	0.53	0.14	0.53	0.46	0.86
Delay/Veh:	75.5	51.1	31.2	59.4	35.9	35.9	63.6	23.5	19.4	34.2	19.1	34.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	75.5	51.1	31.2	59.4	35.9	35.9	63.6	23.5	19.4	34.2	19.1	34.5
DesignQueue:	3	14	5	14	11	3	9	12	3	8	11	18

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C AM Peak

Intersection #4: Rio Road & Crossroad Driveway

Signal=Protect/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Base	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base
72***	1		Vol Cnt Date:	12/28/2006		0	0
	0		Cycle Time (sec):	46		0	
471	1		Loss Time (sec):	12		2	490***
	1		Critical V/C:	0.277		0	
59	0		Avg Crit Del (sec/veh):	10.1		1	55
			Avg Delay (sec/veh):	9.2			
			LOS:	A			

Lanes: 2 0 0 0 1
Base Vol: 102*** 0 43
Signal=Protect/Rights=Include

Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am												
Base Vol:	102	0	43	0	0	0	72	471	59	55	490	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	102	0	43	0	0	0	72	471	59	55	490	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	102	0	43	0	0	0	72	471	59	55	490	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	0	43	0	0	0	72	471	59	55	490	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	102	0	43	0	0	0	72	471	59	55	490	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	0.95	0.93	0.93	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.78	0.22	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1805	3154	395	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.00	0.03	0.00	0.00	0.00	0.04	0.15	0.15	0.03	0.14	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.11	0.00	0.11	0.00	0.00	0.00	0.14	0.53	0.53	0.11	0.49	0.00
Volume/Cap:	0.28	0.00	0.25	0.00	0.00	0.00	0.28	0.28	0.28	0.28	0.28	0.00
Delay/Veh:	19.4	0.0	19.7	0.0	0.0	0.0	18.1	6.1	6.1	19.7	7.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.4	0.0	19.7	0.0	0.0	0.0	18.1	6.1	6.1	19.7	7.0	0.0
DesignQueue:	2	0	1	0	0	0	2	6	1	1	7	0

Carmel Valley Master Plan EIR
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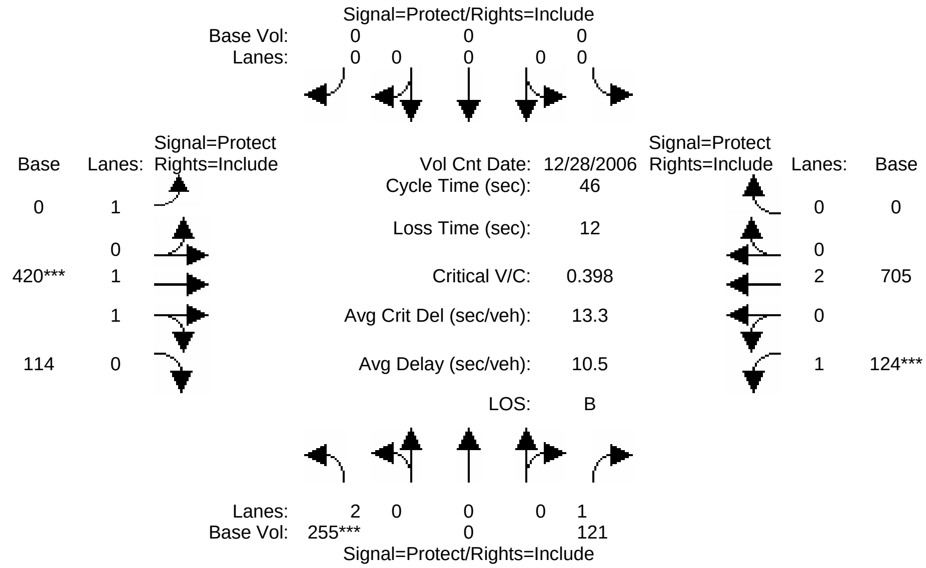
Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C PM Peak

Intersection #4: Rio Road & Crossroad Driveway

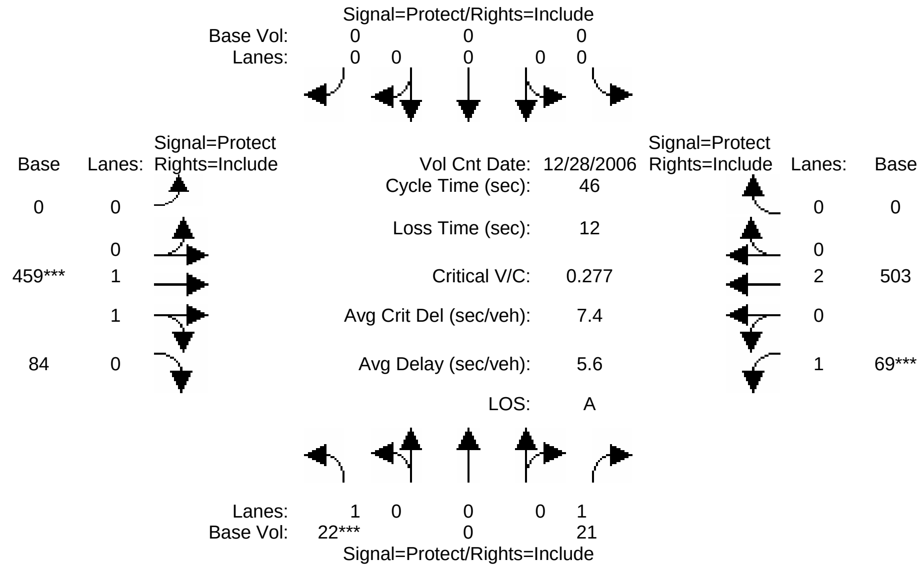


Street Name:	Crossroads Driveway						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - pm												
Base Vol:	255	0	121	0	0	0	0	420	114	124	705	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	255	0	121	0	0	0	0	420	114	124	705	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	255	0	121	0	0	0	0	420	114	124	705	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	255	0	121	0	0	0	0	420	114	124	705	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	255	0	121	0	0	0	0	420	114	124	705	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.85	1.00	1.00	1.00	1.00	0.92	0.92	0.95	0.95	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	1.00	1.57	0.43	1.00	2.00	0.00
Final Sat.:	3502	0	1615	0	0	0	1900	2748	746	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.15	0.15	0.07	0.20	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.38	0.38	0.17	0.56	0.00
Volume/Cap:	0.40	0.00	0.41	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.35	0.00
Delay/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.0	0.0	17.5	0.0	0.0	0.0	0.0	10.5	10.5	17.7	5.7	0.0
DesignQueue:	5	0	3	0	0	0	0	7	2	3	8	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C AM Peak

Intersection #5: Rio Road & Carmel Center Place

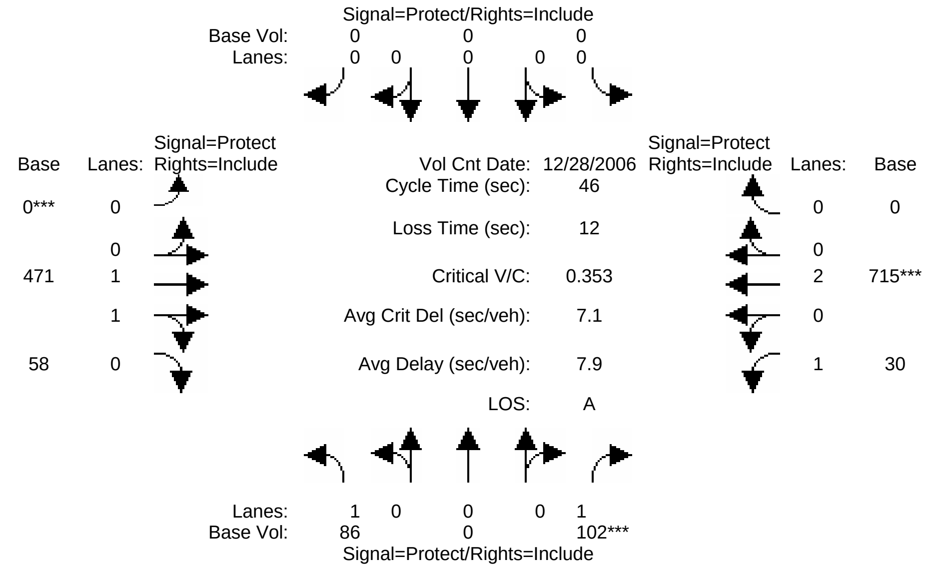


Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am												
Base Vol:	22	0	21	0	0	0	0	459	84	69	503	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	0	21	0	0	0	0	459	84	69	503	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	22	0	21	0	0	0	0	459	84	69	503	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	0	21	0	0	0	0	459	84	69	503	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	0	21	0	0	0	0	459	84	69	503	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.69	0.31	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	2981	546	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.15	0.15	0.04	0.14	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.56	0.56	0.14	0.70	0.00
Volume/Cap:	0.28	0.00	0.29	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.20	0.00
Delay/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.2	0.0	23.6	0.0	0.0	0.0	0.0	5.4	5.4	18.4	2.5	0.0
DesignQueue:	1	0	1	0	0	0	0	5	1	2	4	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C PM Peak

Intersection #5: Rio Road & Carmel Center Place

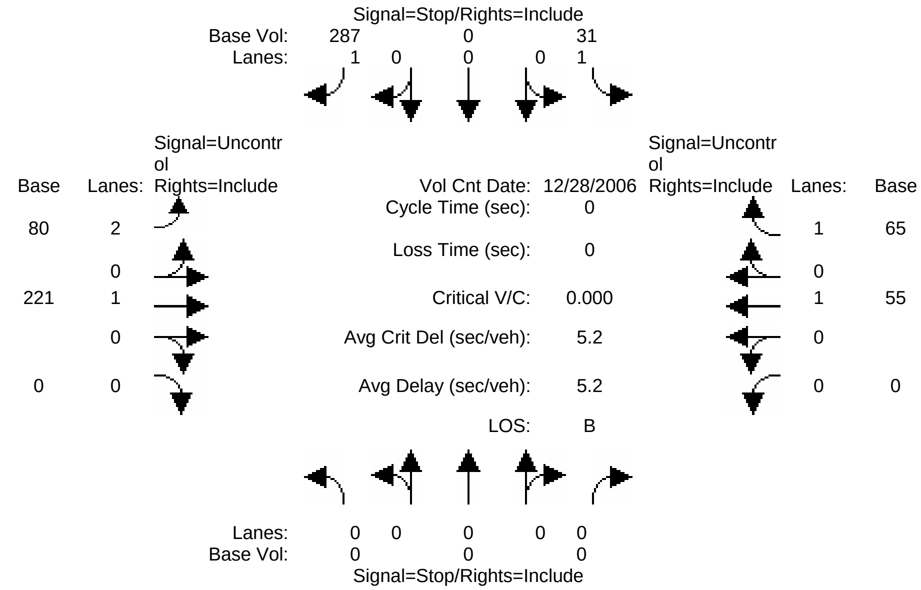


Street Name:	Carmel Center Place						Rio Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - pm												
Base Vol:	86	0	102	0	0	0	0	471	58	30	715	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	86	0	102	0	0	0	0	471	58	30	715	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	86	0	102	0	0	0	0	471	58	30	715	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	86	0	102	0	0	0	0	471	58	30	715	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	86	0	102	0	0	0	0	471	58	30	715	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.93	0.93	0.95	0.95	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.78	0.22	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	3163	389	1805	3610	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.15	0.15	0.02	0.20	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.50	0.50	0.06	0.56	0.00
Volume/Cap:	0.27	0.00	0.35	0.00	0.00	0.00	0.00	0.30	0.30	0.30	0.35	0.00
Delay/Veh:	16.7	0.0	17.3	0.0	0.0	0.0	0.0	6.7	6.7	22.5	5.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.7	0.0	17.3	0.0	0.0	0.0	0.0	6.7	6.7	22.5	5.6	0.0
DesignQueue:	2	0	2	0	0	0	0	6	1	1	8	0

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario C AM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road




```
Street Name:     Carmel Rancho Boulevard                    Rio Road
Approach:       North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am
Base Vol:        0    0     0    31    0   287    80  221     0     0   55    65
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0    31    0   287    80  221     0     0   55    65
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0    31    0   287    80  221     0     0   55    65
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:      0    0     0    31    0   287    80  221     0     0   55    65
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   436 xxxx    55   120 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   581 xxxx  1018  1480 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   557 xxxx  1018  1480 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.06 xxxx  0.28  0.05 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.2 xxxx   1.2   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  11.8 xxxx   9.9   7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     B    *     A     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             10.1             xxxxxx            xxxxxx
ApproachLOS:        *                 B                 *                 *
```


Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Scenario C PM Peak

Intersection #6: Carmel Rancho Boulevard & Rio Road

Signal=Stop/Rights=Include
Base Vol: 392 0 32
Lanes: 1 0 0 0 1

Signal=Uncontrol Rights=Include (West) | Signal=Uncontrol Rights=Include (East)

Base	Lanes:			Lanes:	Base
346	2	Vol Cnt Date: 12/28/2006		1	4
	0	Cycle Time (sec): 0		0	
128	1	Loss Time (sec): 0		1	228
	0	Critical V/C: 0.000		0	
0	0	Avg Crit Del (sec/veh): 8.0		0	0
		Avg Delay (sec/veh): 8.0			
		LOS: B			

Lanes: 0 0 0 0 0
Base Vol: 0 0 0
Signal=Stop/Rights=Include

```
Street Name:     Carmel Rancho Boulevard                  Rio Road
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - pm
Base Vol:       0    0     0    32    0   392   346  128     0     0  228     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    32    0   392   346  128     0     0  228     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    32    0   392   346  128     0     0  228     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0    0     0    32    0   392   346  128     0     0  228     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1048 xxxx   228   232 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   255 xxxx   816  1348 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   204 xxxx   816  1348 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.16 xxxx  0.48  0.26 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Queue:      xxxxx xxxx xxxxx   0.5 xxxx   2.6   1.0 xxxx xxxxx xxxxx xxxx xxxxx
Stopped Del:xxxxx xxxx xxxxx  25.9 xxxx  13.4   8.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     D    *     B     A    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx             14.4            xxxxxx            xxxxxx
ApproachLOS:        *                 B                 *                 *
```

```
--------------------------------------------------------------------------------
                         Carmel Valley Master Plan EIR
                                DKS Associates
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7a Laureles Grade Road & Carmel Valley Road (north portion)
********************************************************************************
Cycle (sec):          1                Critical Vol./Cap.(X):        0.737
Loss Time (sec):      0 (Y+R=4.0 sec)  Average Delay (sec/veh):       12.6
Optimal Cycle:        0                Level Of Service:                 C
********************************************************************************
Street Name:       Laureles Grade Road               Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Yield Sign       Yield Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Ignore           Include
Lanes:        0  0  1  0  0   0  0  0  1  0   0  0  0  0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 SCENARIO C GRADE SEP - am
Base Vol:       0  145    0     0  402   457    0    0     0     0    0   251
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  145    0     0  402   457    0    0     0     0    0   251
Added Vol:      0    0    0     0    0     0    0    0     0     0    0     0
PasserByVol:    0    0    0     0    0     0    0    0     0     0    0     0
Initial Fut:    0  145    0     0  402   457    0    0     0     0    0   251
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0  145    0     0  402   457    0    0     0     0    0   251
Reduct Vol:     0    0    0     0    0     0    0    0     0     0    0     0
FinalVolume:    0  145    0     0  402   457    0    0     0     0    0   251
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:       0    0    0     0    0     0    0    0     0     0    0     0
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.00  0.00  0.00 0.47  0.53  0.00 0.00  0.00  0.00 0.00  1.00
Final Sat.:     0 1101    0     0  545   620    0    0     0     0    0   537
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.13  0.00  0.00 0.74  0.74  0.00 0.00  0.00  0.00 0.00  0.47
Crit Moves:       ****                   ****       ****                   ****
Green/Cycle: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Volume/Cap:  0.00 0.13  0.00  0.00 0.74  0.74  0.00 0.00  0.00  0.00 0.00  0.47
Delay/Veh:    0.0  1.6   0.0   0.0 16.5  16.5   0.0  0.0   0.0   0.0  0.0   5.9
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  1.6   0.0   0.0 16.5  16.5   0.0  0.0   0.0   0.0  0.0   5.9
DesignQueue:    0    0    0     0    0     0    0    0     0     0    0     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
                         Carmel Valley Master Plan EIR
                                DKS Associates
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7a Laureles Grade Road & Carmel Valley Road (north portion)
********************************************************************************
Cycle (sec):            1               Critical Vol./Cap.(X):        0.444
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        3.9
Optimal Cycle:          0               Level Of Service:                 A
********************************************************************************
Street Name:       Laureles Grade Road                Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Yield Sign       Yield Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Ignore           Include
Lanes:        0  0  1  0  0   0  0  0  1  0   0  0  0  0  0   0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 SCENARIO C GRADE SEP - pm
Base Vol:       0  300     0     0  263   115     0    0     0     0    0   220
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  300     0     0  263   115     0    0     0     0    0   220
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  300     0     0  263   115     0    0     0     0    0   220
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0  300     0     0  263   115     0    0     0     0    0   220
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0  300     0     0  263   115     0    0     0     0    0   220
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:       0    0     0     0    0     0     0    0     0     0    0     0
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.00  0.00  0.00 0.70  0.30  0.00 0.00  0.00  0.00 0.00  1.00
Final Sat.:     0 1090     0     0  734   321     0    0     0     0    0   496
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.28  0.00  0.00 0.36  0.36  0.00 0.00  0.00  0.00 0.00  0.44
Crit Moves:       ****             ****             ****                  ****
Green/Cycle: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Volume/Cap:  0.00 0.28  0.00  0.00 0.36  0.36  0.00 0.00  0.00  0.00 0.00  0.44
Delay/Veh:    0.0  2.8   0.0   0.0  3.9   3.9   0.0  0.0   0.0   0.0  0.0   5.4
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  2.8   0.0   0.0  3.9   3.9   0.0  0.0   0.0   0.0  0.0   5.4
DesignQueue:    0    0     0     0    0     0     0    0     0     0    0     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
                        Carmel Valley Master Plan EIR
                               DKS Associates
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (SCENARIO C GRADE SEPARTION)
********************************************************************************
Intersection #7b Laureles Grade Road & Carmel Valley Road  (south portion)
********************************************************************************
Cycle (sec):            1              Critical Vol./Cap.(X):         0.879
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):      15.6
Optimal Cycle:          0              Level Of Service:                 C
********************************************************************************
Street Name:       Laureles Grade Road                Carmel Valley Road
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Yield Sign       Yield Sign        Stop Sign        Stop Sign
Rights:           Include          Include           Ignore           Include
Lanes:        0  0  0  0  0    1  0  0  0  0    1  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 SCENARIO C - am
Base Vol:      0    0     0   402    0     0   145    0     0     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0    0     0   402    0     0   145    0     0     0    0     0
Added Vol:     0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   0    0     0   402    0     0   145    0     0     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:    0    0     0   402    0     0   145    0     0     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   0    0     0   402    0     0   145    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:      0    0     0     0    0     0     0    0     0     0    0     0
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  0.00  1.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:    0    0     0   635    0     0   165    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.63 0.00  0.00  0.88 0.00  0.00  0.00 0.00  0.00
Crit Moves:             ****  ****             ****                         ****
Green/Cycle: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Volume/Cap:  0.00 0.00  0.00  0.63 0.00  0.00  0.88 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  0.0   0.0  11.1  0.0   0.0  28.2  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  11.1  0.0   0.0  28.2  0.0   0.0   0.0  0.0   0.0
DesignQueue:   0    0     0     0    0     0     0    0     0     0    0     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
                         Carmel Valley Master Plan EIR
                                DKS Associates
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #7b Laureles Grade Road & Carmel Valley Road  (south portion)
********************************************************************************
Cycle (sec):           1                Critical Vol./Cap.(X):         0.926
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):        10.1
Optimal Cycle:         0                Level Of Service:                  C
********************************************************************************
Street Name:       Laureles Grade Road                Carmel Valley Road
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Yield Sign       Yield Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Ignore           Include
Lanes:        0  0  0  0  0   0  1  0  0  1   1  0  0  0  0   0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 SCENARIO C GRADE SEP - pm
Base Vol:       0    0     0   263    0     0   300    0     0     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   263    0     0   300    0     0     0    0     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   263    0     0   300    0     0     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0   263    0     0   300    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0   263    0     0   300    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:       0    0     0     0    0     0     0    0     0     0    0     0
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0    0     0   284    0   284   433    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.93 0.00  0.00  0.69 0.00  0.00  0.00 0.00  0.00
Crit Moves:             ****  ****             ****                         ****
Green/Cycle: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Volume/Cap:  0.00 0.00  0.00  0.93 0.00  0.00  0.69 0.00  0.00  0.00 0.00  0.00
Delay/Veh:    0.0  0.0   0.0  33.8  0.0   0.0  13.9  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  33.8  0.0   0.0  13.9  0.0   0.0   0.0  0.0   0.0
DesignQueue:    0    0     0     0    0     0     0    0     0     0    0     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

```
--------------------------------------------------------------------------------
                         Carmel Valley Master Plan EIR
                                DKS Associates
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Laureles Grade Road & Carmel Valley Road
********************************************************************************
Cycle (sec):           0              Critical Vol./Cap.(X):         0.892
Loss Time (sec):       0 (Y+R=0.0 sec) Average Delay (sec/veh):       34.3
Optimal Cycle:         0              Level Of Service:                  D
********************************************************************************
Street Name:       Laureles Grade Road               Carmel Valley Road
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Ignore           Ignore           Ignore
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 SCENARIO C ALLWAY STOP - am
Base Vol:       0    0     0   402    0   457   145  262     0     0  816   251
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   402    0   457   145  262     0     0  816   251
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   402    0   457   145  262     0     0  816   251
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
PHF Volume:     0    0     0   402    0     0   145  262     0     0  816     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   402    0     0   145  262     0     0  816     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
FinalVolume:    0    0     0   402    0     0   145  262     0     0  816     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 2.00  0.00  0.00 2.00  1.00
Final Sat.:     0    0     0   451    0   514   408  864     0     0  968   517
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  0.89 xxxx  0.00  0.36 0.30  xxxx  xxxx 0.84  0.00
Crit Moves:                   ****              ****                  ****
Delay/Veh:    0.0  0.0   0.0  46.7  0.0   0.0  15.7 14.1   0.0   0.0 38.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  46.7  0.0   0.0  15.7 14.1   0.0   0.0 38.0   0.0
LOS by Move:    *    *     *     E    *     *     C    B     *     *    E     *
ApproachDel:     xxxxxx            46.7             14.7             38.0
Delay Adj:        xxxxx            1.00             1.00             1.00
ApprAdjDel:      xxxxxx            46.7             14.7             38.0
LOS by Appr:        *                E                B                E
AllWayAvgQ:   0.0  0.0   0.0   4.5  0.0   0.0   0.5  0.4   0.0   0.0  3.7   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

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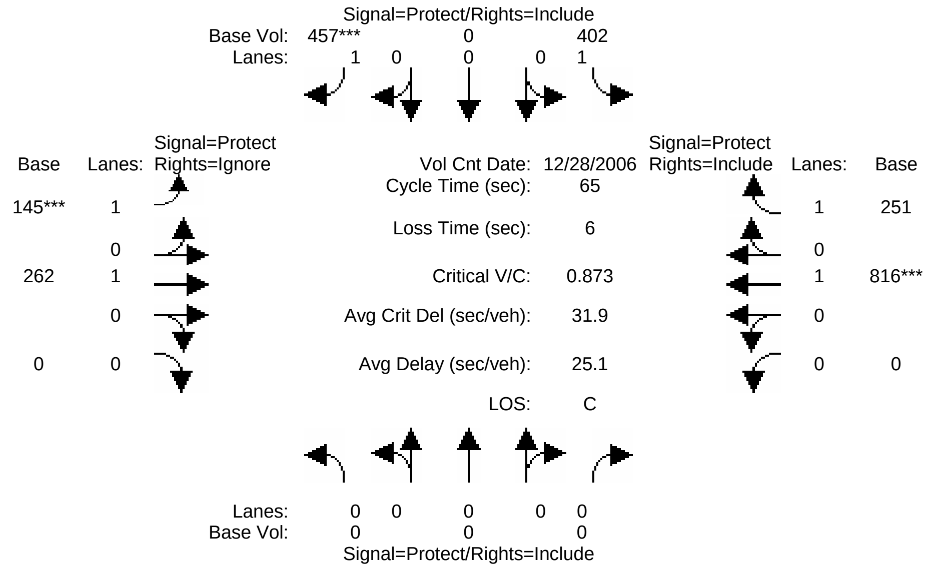
--------------------------------------------------------------------------------
                         Carmel Valley Master Plan EIR
                                DKS Associates
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Future Volume Alternative)
********************************************************************************
Intersection #7 Laureles Grade Road & Carmel Valley Road
********************************************************************************
Cycle (sec):            0               Critical Vol./Cap.(X):         0.851
Loss Time (sec):        0 (Y+R=0.0 sec) Average Delay (sec/veh):        28.7
Optimal Cycle:          0               Level Of Service:                 D
********************************************************************************
Street Name:       Laureles Grade Road               Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Ignore           Ignore           Ignore
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 SCENARIO C ALLWAY STOP - pm
Base Vol:       0    0     0   263    0   115   300  866     0     0  471   220
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   263    0   115   300  866     0     0  471   220
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   263    0   115   300  866     0     0  471   220
User Adj:    1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
PHF Volume:     0    0     0   263    0     0   300  866     0     0  471     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   263    0     0   300  866     0     0  471     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  0.00  1.00 1.00  0.00
FinalVolume:    0    0     0   263    0     0   300  866     0     0  471     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 2.00  0.00  0.00 2.00  1.00
Final Sat.:     0    0     0   414    0   465   472 1018     0     0  868   465
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  0.63 xxxx  0.00  0.64 0.85  xxxx  xxxx 0.54  0.00
Crit Moves:                   ****                  ****                 ****
Delay/Veh:    0.0  0.0   0.0  23.7  0.0   0.0  22.1 37.5   0.0   0.0 19.6   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  23.7  0.0   0.0  22.1 37.5   0.0   0.0 19.6   0.0
LOS by Move:   *    *     *     C    *     *     C    E     *     *    C     *
ApproachDel:    xxxxxx            23.7              33.5              19.6
Delay Adj:       xxxxx            1.00              1.00              1.00
ApprAdjDel:     xxxxxx            23.7              33.5              19.6
LOS by Appr:       *                C                 D                 C
AllWayAvgQ:   0.0  0.0   0.0   1.4  0.0   0.0   1.6  3.9   0.0   0.0  1.1   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
```

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C AM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road



Street Name:	Laureles Grade Road						Carmel Valley Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - am												
Base Vol:	0	0	0	402	0	457	145	262	0	0	816	251
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	402	0	457	145	262	0	0	816	251
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	0	0	0	402	0	457	145	262	0	0	816	251
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	402	0	457	145	262	0	0	816	251
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	0	0	0	402	0	457	145	262	0	0	816	251
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.95	1.00	1.00	1.00	1.00	0.85
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Final Sat.:	0	0	0	1805	0	1615	1805	1900	0	0	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.22	0.00	0.28	0.08	0.14	0.00	0.00	0.43	0.16
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.32	0.00	0.32	0.09	0.58	0.00	0.00	0.49	0.49
Volume/Cap:	0.00	0.00	0.00	0.69	0.00	0.87	0.87	0.24	0.00	0.00	0.87	0.32
Delay/Veh:	0.0	0.0	0.0	22.5	0.0	35.7	65.5	6.6	0.0	0.0	23.9	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	22.5	0.0	35.7	65.5	6.6	0.0	0.0	23.9	10.2
DesignQueue:	0	0	0	10	0	12	5	4	0	0	17	5

Carmel Valley Master Plan EIR
DKS Associates

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Scenario C PM Peak

Intersection #7: Laureles Grade Road & Carmel Valley Road

Signal=Protect/Rights=Include
Base Vol: 115 0 263***
Lanes: 1 0 0 0 1

Base	Lanes:	Signal=Protect Rights=Ignore			Signal=Protect Rights=Include	Lanes:	Base
			Vol Cnt Date:	12/28/2006			
			Cycle Time (sec):	65			
300	1					1	220
			Loss Time (sec):	6			
	0					0	
866***	1		Critical V/C:	0.663		1	471
	0		Avg Crit Del (sec/veh):	11.8		0	
0	0		Avg Delay (sec/veh):	14.9		0	0***
			LOS:	B			

Lanes: 0 0 0 0 0
Base Vol: 0 0 0
Signal=Protect/Rights=Include

```
Street Name:       Laureles Grade Road            Carmel Valley Road
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 28 Dec 2006 << 2030 ScenarioC - pm
Base Vol:       0    0     0  263    0   115  300  866     0    0  471   220
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0  263    0   115  300  866     0    0  471   220
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
PHF Volume:     0    0     0  263    0   115  300  866     0    0  471   220
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0    0     0  263    0   115  300  866     0    0  471   220
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.00  1.00 1.00  1.00
Final Vol.:     0    0     0  263    0   115  300  866     0    0  471   220
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 1.00  1.00  0.95 1.00  0.85  0.95 1.00  1.00  1.00 1.00  0.85
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 1.00  0.00  0.00 1.00  1.00
Final Sat.:     0    0     0  1805    0  1615  1805 1900     0     0 1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.15 0.00  0.07  0.17 0.46  0.00  0.00 0.25  0.14
Crit Moves:                   ****                   ****        ****
Green/Cycle: 0.00 0.00  0.00  0.22 0.00  0.22  0.28 0.69  0.00  0.00 0.41  0.41
Volume/Cap:  0.00 0.00  0.00  0.66 0.00  0.32  0.60 0.66  0.00  0.00 0.60  0.33
Delay/Veh:    0.0  0.0   0.0  27.3  0.0  21.8  22.5  7.1   0.0   0.0 16.3  13.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  27.3  0.0  21.8  22.5  7.1   0.0   0.0 16.3  13.3
DesignQueue:    0    0     0     8    0     3     8   11     0     0   11     5
```


Roadway Segment Level of Service Sheets

Two Way (Segments 1-7)
Multi Lane (Segments 8-10)

- No Project Scenario
- Scenario A
- Scenario B
- Scenario C
- Scenario D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Holman/East of No. 1

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 683
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 86%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.7 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 [1]
P_R = 0 [1]
$f_{d/np}$ = 14.60 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 51.08

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 65.68

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 683
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 80%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.7 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 [1]
P_R = 0 [1]
$f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 53.69

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 68.09

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Esquiline Rd/Holmand Rd — No. 2

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given:

- V = 703
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 69%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions:

- E_T = 1.7 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.60 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.979
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	50.71
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	65.31

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given:

- V = 725
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 83%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions:

- E_T = 1.7 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.979
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	54.23
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	68.63

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Ford Rd/Esquiline Rd — No. 3

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1143
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
  = 84%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.2 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 !
- P_R = 0 !
- $f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 70.17

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 78.27

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1031
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
  = 88%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.2 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 !
- P_R = 0 !
- $f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 64.40

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 72.50

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Laureles Grade/Ford Rd — No. 4

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given:
V = 1590
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 66%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions:
E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 80.34

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 84.64

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given:
V = 1490
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 69%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions:
E_T = 1.2 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 77.10

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 81.40

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Robinson Cyn Rd/Laureles Grade — No. 5

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1559
PHF = (*peak hour volume / 4) / (MAX(15-min interval within peak hour)* = 79%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 82.58

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 90.88

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1581
PHF = (*peak hour volume / 4) / (MAX(15-min interval within peak hour)* = 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 79.59

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 87.89

LOS = E

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Schulte Rd/Robinson Cyn Rd — No. 6

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 2012
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 86.62

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 90.82

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1893
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 91%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 83.98

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 88.28

LOS = E

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

No Project Scenario

Roadway Segment: Rancho San Carlos Rd/Schulte Rd — No. 7

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 2207
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
  = 81%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	1.000
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	90.86
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	95.06

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 2029
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
  = 94%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

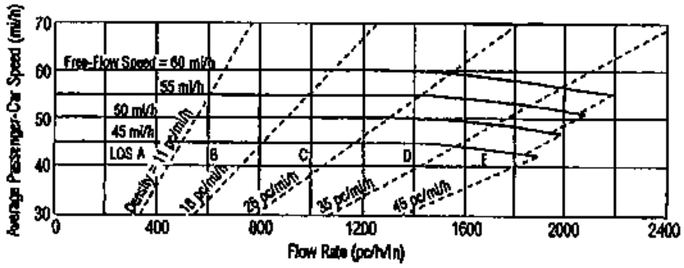
Assumptions

- E_T = 1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	1.000
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	84.99
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	89.29

LOS = E

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS 8 — Rio Rd / Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1014 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 94.24
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 546 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 9.93 pc/mi/ln
LOS: A

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

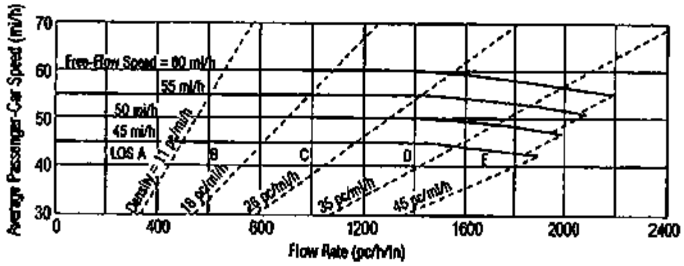
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	CVR WB
From/To RS8	Rio / Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1463 veh/h	Peak-hour factor, PHF	81.06
Annual avg. daily traffic, AADT	____ veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K	____	% RVs, P_R	0%
Peak-hour direction proportion, D	____	General terrain	
DDHV = AADT * K * D	____ veh/h	☐ Level ☐ Rolling ☐ Mountainous	
Driver type		Grade: Length ____ mi	Up/Down ____ %
☐ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	____ ft
Total lateral clearance, TLC	____ ft
Access points, A	____ A/mi
Median type, M ☐ Undivided ☐ Divided	
FFS (measured)	____ mi/h
Base free-flow speed, BFFS	____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}	____ mi/h
f_{LC}	____ mi/h
f_A	____ mi/h
f_M	____ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	____ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	914 pc/h/ln
S	55 mi/h
$D = v_p / S$	16.65 pc/mi/ln
LOS	(B)

Design (v_p) or Planning (v_p)

LOS	____
v_p	____ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	____ veh/h
S	____ mi/h
$D = v_p / S$	____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	____

Design (N) or Planning (N) 2nd Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	____
S	____ mi/h
$D = v_p / S$	____ pc/mi/ln

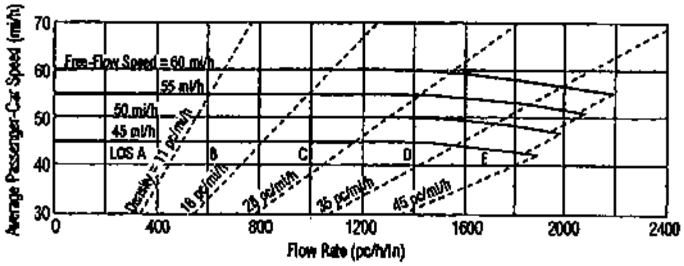
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: Rio / Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☑ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1411 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 95.39
% Trucks and buses, P_T: 3%
% RVs, P_R: 0 %
General terrain: ☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.00
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ~~750~~ 751 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 13.65 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

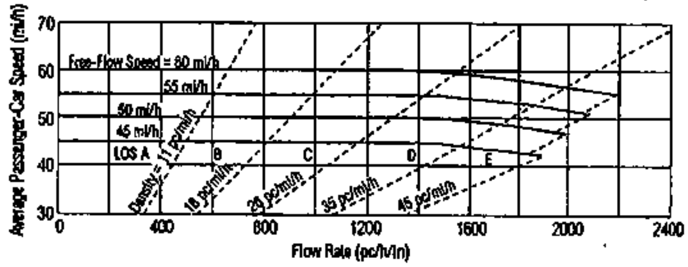
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RSP / Rio/Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☑ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1208 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☑ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 93.38
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 657 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 11.95 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)
LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration
N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration
N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

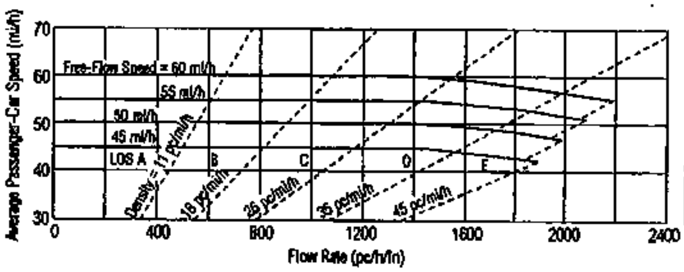
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS9 Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1293 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 90.18
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 728 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 16.18 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

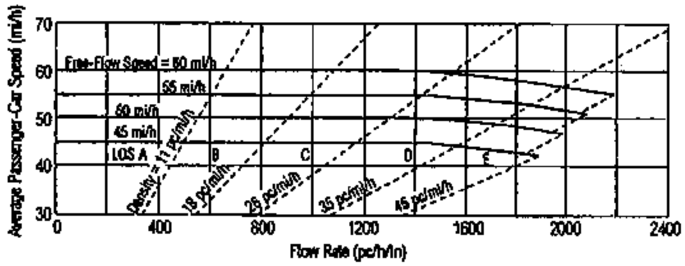
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS 9 / Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1817 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 85.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: [illegible] ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p); Design/Planning (N)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 1081 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 24.02 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

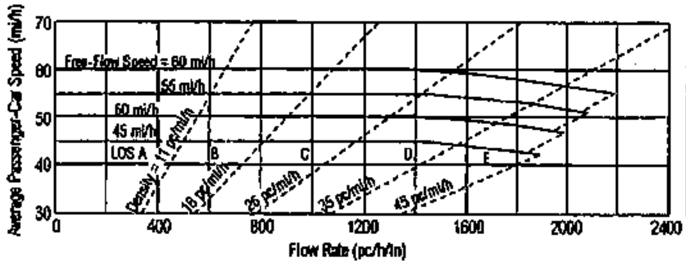
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS 9 Carmel Rancho/ Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1646 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 97.03
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain
☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: ______ ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: 861 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 19.14 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

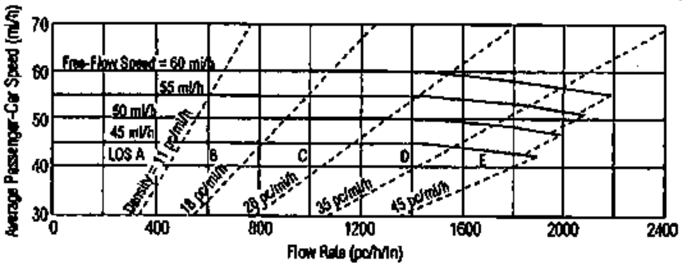
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLF
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: 259 — Carmel Rancho/Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1363 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 86.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain
☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 802 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 17.82 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

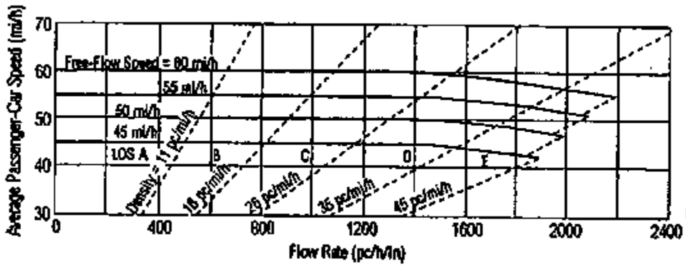
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To ES/D: Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

[X] Operational (LOS) [ ] Design (N) [ ] Design (v_p) [ ] Planning (LOS) [ ] Planning (N) [ ] Planning (v_p)

Flow Inputs

Volume, V: 1383 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: [X] Commuter/Weekday [ ] Recreational/Weekend

Peak-hour factor, PHF: 90.36
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: [X] Level [ ] Rolling [ ] Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: [ ] Undivided [ ] Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 777 pc/h/ln
S: 45 mi/h
$D = v_p / S$: 17.27 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)
LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p / S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration
N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration
N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p / S$: ______ pc/mi/ln

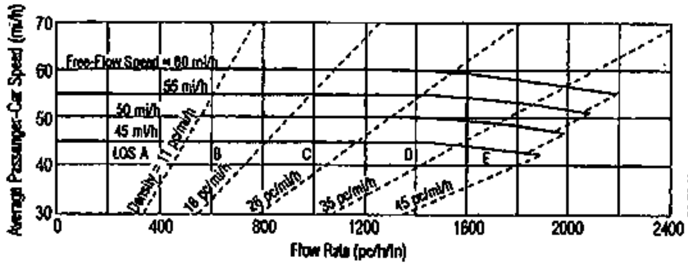
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

- Analyst: CLE
- Agency or Company: DKS Associates
- Date Performed: 1.2.2007
- Analysis Time Period: AM Peak

Site Information

- Highway/Direction of Travel: CVR WB
- From/To Rb1D: Hwy 1 / Carmel Rancho
- Jurisdiction: Monterey
- Analysis Year: 200

☑ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

- Volume, V: 1207 veh/h
- Annual avg. daily traffic, AADT: ____ veh/day
- Peak-hour proportion of AADT, K: ____
- Peak-hour direction proportion, D: ____
- DDHV = AADT * K * D: ____ veh/h
- Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend
- Peak-hour factor, PHF: 76.35
- % Trucks and buses, P_T: 3%
- % RVs, P_R: 0%
- General terrain: ☑ Level ☐ Rolling ☐ Mountainous
- Grade: Length ____ mi Up/Down ____ %
- Number of lanes: 2

Calculate Flow Adjustments

- f_p: 1.00
- E_T: 1.5
- E_R: 1.2
- $f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

- Lane width, LW: 12 ft
- Total lateral clearance, TLC: ____ ft
- Access points, A: ____ A/mi
- Median type, M: ☐ Undivided ☐ Divided
- FFS (measured): ____ mi/h
- Base free-flow speed, BFFS: ____ mi/h

Calculate Speed Adjustments and FFS

- f_{LW}: ____ mi/h
- f_{LC}: ____ mi/h
- f_A: ____ mi/h
- f_M: ____ mi/h
- $FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ____ mi/h

Operational (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 802 pc/h/ln
- S: 45 mi/h
- $D = v_p/S$: 17.83 pc/mi/ln
- LOS: B

Design (v_p) or Planning (v_p)

- LOS: ____
- v_p: ____ pc/h/ln
- $V = v_p * PHF * N * f_{HV} * f_p$: ____ veh/h
- S: ____ mi/h
- $D = v_p/S$: ____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

- N: ____ assumed
- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ____ pc/h/ln
- LOS: ____

Design (N) or Planning (N) 2nd Iteration

- N: ____ assumed
- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ____ pc/h/ln
- LOS: ____
- S: ____ mi/h
- $D = v_p/S$: ____ pc/mi/ln

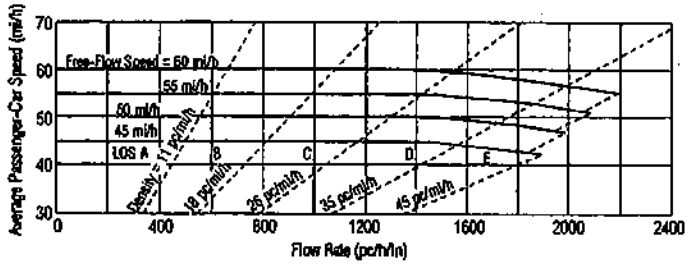
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS10 Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1311 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 0.94
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
FFS = BFFS – f_{LW} – f_{LC} – f_A – f_M: ______ mi/h

Operational (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: 731 pc/h/ln
S: 45 mi/h
D = v_p/S: 16.25 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
V = v_p * PHF * N * f_{HV} * f_p: ______ veh/h
S: ______ mi/h
D = v_p/S: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
D = v_p/S: ______ pc/mi/ln

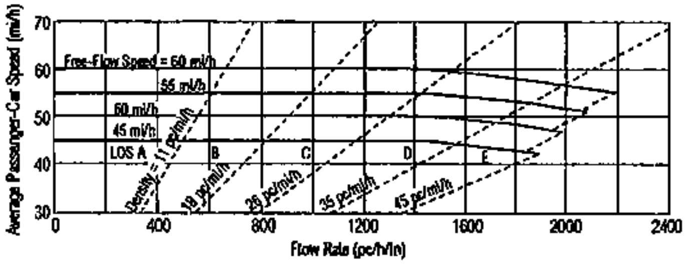
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

No Project Scenario

General Information

Analyst	CLE	Highway/Direction of Travel	CVR WB
Agency or Company	PKS Associates	From/To	Hwy 1 / Carmel Rancho
Date Performed	1.2.2007	Jurisdiction	Monterey
Analysis Time Period	PM Peak	Analysis Year	200

Site Information

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1125 veh/h	Peak-hour factor, PHF	83.51
Annual avg. daily traffic, AADT	veh/day	% Trucks and buses, P_T	3 %
Peak-hour proportion of AADT, K		% RVs, P_R	0 %
Peak-hour direction proportion, D		General terrain	☒ Level ☐ Rolling ☐ Mountainous
DDHV = AADT * K * D	veh/h	Grade: Length ___ mi	Up/Down ___ %
Driver type ☐ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	ft
Access points, A	A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	mi/h
Base free-flow speed, BFFS	mi/h

Calculate Speed Adjustments and FFS

f_{LW}	mi/h
f_{LC}	mi/h
f_A	mi/h
f_M	mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	~~683~~ 684 pc/h/ln
S	45 mi/h
$D = v_p / S$	15.20 pc/mi/ln
LOS	(B)

Design (v_p) or Planning (v_p)

LOS	
v_p	pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	veh/h
S	mi/h
$D = v_p / S$	pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	
S	mi/h
$D = v_p / S$	pc/mi/ln

Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Holman/East of — No. 1

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 680
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 86%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.60 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 50.30

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 64.90

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 680
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 80%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 52.90

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 67.30

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Esquline Rd/Holmand Rd **No. 2**

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 700
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 89%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 14.60 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 49.94

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 64.54

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 723
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 83%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 53.49

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 67.89

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Ford Rd/Esquiline Rd — No. 3

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1144
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 84%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 70.09

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 78.19

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1031
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 64.29

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 72.39

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Laureles Grade/Ford Rd — No. 4

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879vp})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1598
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 86%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879vp})$ = 80.50

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 84.80

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879vp})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1498
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 89%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879vp})$ = 77.18

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 81.48

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Robinson Cyn Rd/Laureles Grade **No. 5**

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1596
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 79%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 83.29

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 87.49

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1613
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 80.24

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 84.44

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Schulte Rd/Robinson Cyn Rd — No. 6

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 2048
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 88%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 87.10

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 91.30

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1924
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 91%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 84.45

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 88.75

LOS = E

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario A

Roadway Segment: Rancho San Carlos Rd/Schulte Rd — **No. 7**

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 2241
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 81%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 91.25

Percent-Time-Spent-Following $BPTSF + f_{d/np}$ = 95.45

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 2059
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 94%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

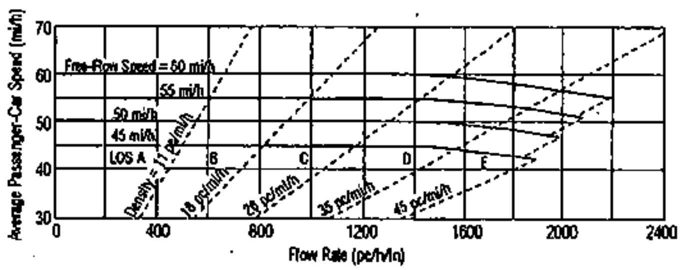
Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 85.49

Percent-Time-Spent-Following $BPTSF + f_{d/np}$ = 89.79

LOS = E

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	CVR EB
From/To	RS B / Rio Rd / Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200_

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1022 veh/h	Peak-hour factor, PHF	94.24
Annual avg. daily traffic, AADT	____ veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K	____	% RVs, P_R	0%
Peak-hour direction proportion, D	____	General terrain	
DDHV = AADT * K * D	____ veh/h	☐ Level ☐ Rolling ☐ Mountainous	
Driver type		Grade: Length ____ mi	Up/Down ____ %
☒ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	____ ft
Access points, A	____ A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	____ mi/h
Base free-flow speed, BFFS	____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}	____ mi/h
f_{LC}	____ mi/h
f_A	____ mi/h
f_M	____ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	____ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	550.49 pc/h/ln
S	55 mi/h
$D = v_p/S$	10.01 pc/mi/ln
LOS	(A)

Design (v_p) or Planning (v_p)

LOS	____
v_p	____ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	____ veh/h
S	____ mi/h
$D = v_p/S$	____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	____

Design (N) or Planning (N) 2nd Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	____
S	____ mi/h
$D = v_p/S$	____ pc/mi/ln

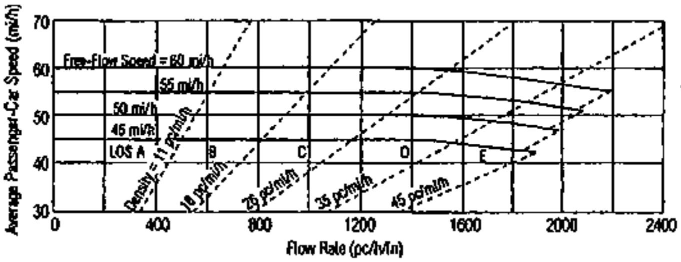
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS8 / Rio / Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1501 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 81.06
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 93940 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 17.09 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)
LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design (N), Planning (N)

Design (N) or Planning (N) 1st Iteration
N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration
N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

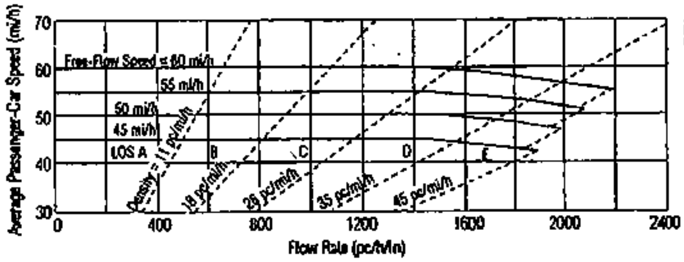
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: Rio Rancho / San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1439 veh/h
Annual avg. daily traffic, AADT: ____ veh/day
Peak-hour proportion of AADT, K: ____
Peak-hour direction proportion, D: ____
DDHV = AADT * K * D: ____ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 95.39
% Trucks and buses, P_T: 3%
% RVs, P_R: 0 %
General terrain: ☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ____ mi Up/Down ____ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.00
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ____ ft
Access points, A: ____ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ____ mi/h
Base free-flow speed, BFFS: ____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ____ mi/h
f_{LC}: ____ mi/h
f_A: ____ mi/h
f_M: ____ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ____ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 766 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 13.92 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ____
v_p: ____ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ____ veh/h
S: ____ mi/h
$D = v_p/S$: ____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ____ pc/h/ln
LOS: ____

Design (N) or Planning (N) 2nd Iteration

N: ____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ____ pc/h/ln
LOS: ____
S: ____ mi/h
$D = v_p/S$: ____ pc/mi/ln

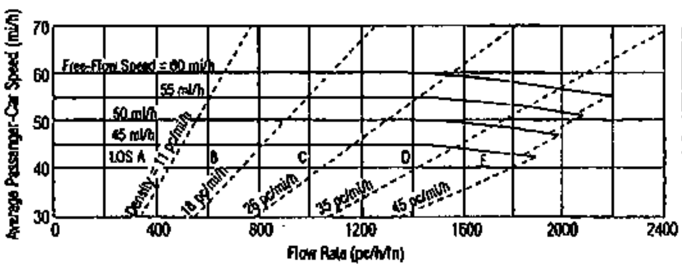
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst	CLE	Highway/Direction of Travel	CVR WB
Agency or Company	DES Associates	From/To	RSP / Rio / Rancho San Carlos
Date Performed	1.2.2007	Jurisdiction	Monterey
Analysis Time Period	PM Peak	Analysis Year	200

Site Information

☑ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1220 veh/h	Peak-hour factor, PHF	93.38
Annual avg. daily traffic, AADT	veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K		% RVs, P_R	0 %
Peak-hour direction proportion, D		General terrain	
DDHV = AADT * K * D	veh/h	☐ Level ☐ Rolling ☐ Mountainous	
Driver type		Grade: Length ____ mi	Up/Down ____ %
☑ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	ft
Access points, A	A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	mi/h
Base free-flow speed, BFFS	mi/h

Calculate Speed Adjustments and FFS

f_{LW}	mi/h
f_{LC}	mi/h
f_A	mi/h
f_M	mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	mi/h

Operational/Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	663 pc/h/ln
S	55 mi/h
$D = v_p/S$	12.06 pc/mi/ln
LOS	(B)

Design (v_p) or Planning (v_p)

LOS	
v_p	pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	veh/h
S	mi/h
$D = v_p/S$	pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	
S	mi/h
$D = v_p/S$	pc/mi/ln

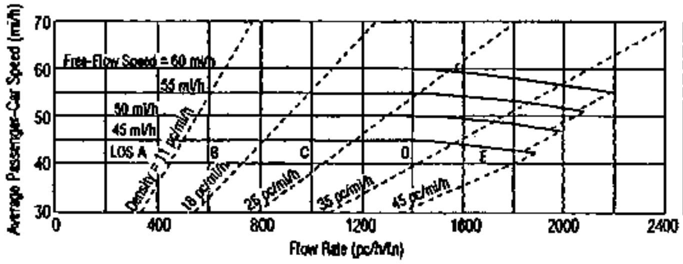
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: R59 Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1300 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 90.18
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 732 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 13.30 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

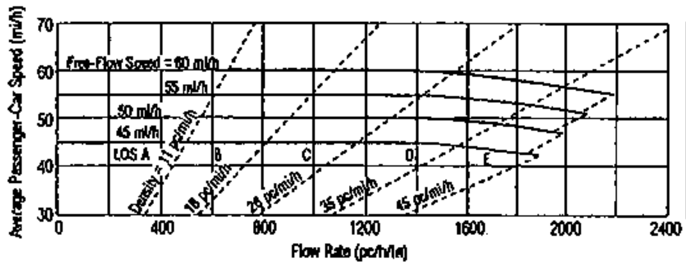
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS 9 Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1853 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 85.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 1102 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 24.50 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

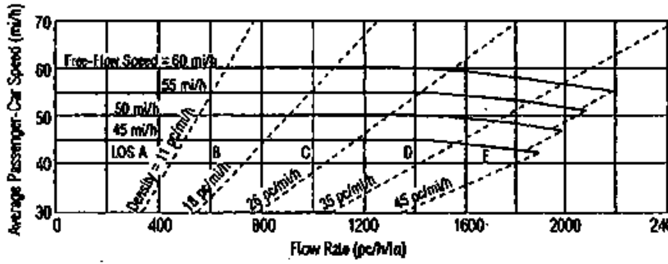
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS9 Carmel Rancho/ Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1672 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 77.03
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 875 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 19.44 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

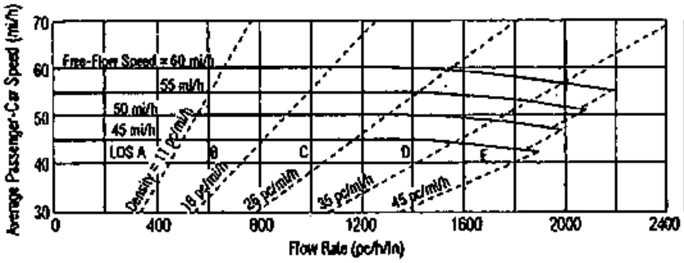
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLF
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: 2S9 Carmel Rancho/Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1375 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 86.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain
☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 3

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 809 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 17.97 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

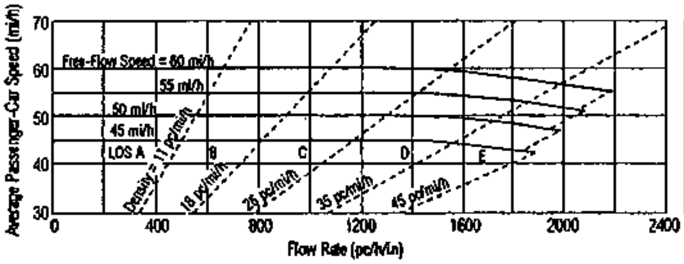
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: OVR EB
From/To: ES / D — Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1386 veh/h	Peak-hour factor, PHF	0.86
Annual avg. daily traffic, AADT	____ veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K	____	% RVs, P_R	0%
Peak-hour direction proportion, D	____	General terrain	☒ Level ☐ Rolling ☐ Mountainous
DDHV = AADT * K * D	____ veh/h	Grade: Length ____ mi	Up/Down ____ %
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	____ ft
Access points, A	____ A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	____ mi/h
Base free-flow speed, BFFS	____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}	____ mi/h
f_{LC}	____ mi/h
f_A	____ mi/h
f_M	____ mi/h
FFS = BFFS − f_{LW} − f_{LC} − f_A − f_M	____ mi/h

Operational, Planning (LOS), Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	779 pc/h/ln
S	45 mi/h
D = v_p/S	17.30 pc/mi/ln
LOS	B

Design (v_p) or Planning (v_p)

LOS	____
v_p	____ pc/h/ln
V = v_p * PHF * N * f_{HV} * f_p	____ veh/h
S	____ mi/h
D = v_p/S	____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	____

Design (N) or Planning (N) 2nd Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	____
S	____ mi/h
D = v_p/S	____ pc/mi/ln

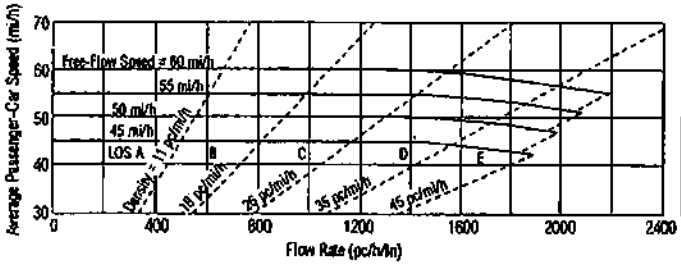
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1240 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 76.35
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: 824 pc/h/ln
S: 75 mi/h
$D = v_p/S$: 18.32 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

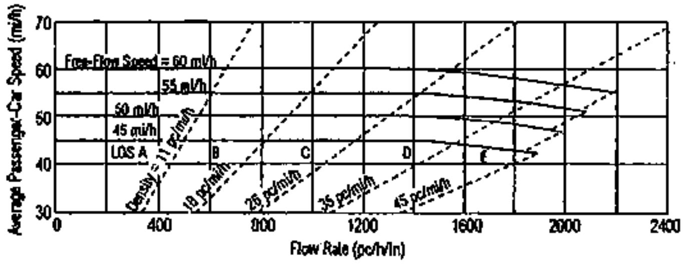
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS10 Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: ~~1449~~ 1334 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 0.99
% Trucks and buses, P_T: 3%
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 744 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 16.54 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

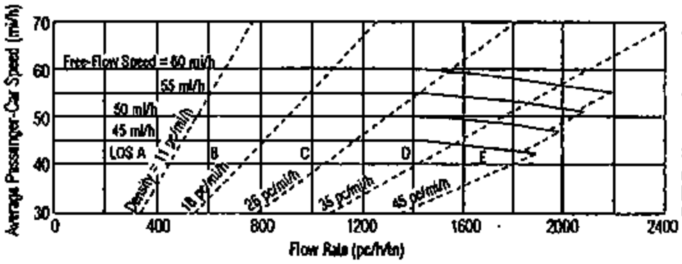
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario A

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1150 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 83.51
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain
☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 699 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 15.53 pc/mi/ln
LOS: D

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment: Holman/East of No. 1

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given
V = 660
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 86%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions
E_T = 1.7 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 14.60 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 50.92

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 65.52

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given
V = 679
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 80%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions
E_T = 1.7 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 53.48

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 67.88

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment: Esquiline Rd/Holmand Rd — No. 2

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 701
- PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
- = 89%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.7 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.979
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	50.61
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	65.01

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ — Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 721
- PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
- = 83%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.7 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.979
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	54.03
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	68.43

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment: Ford Rd/Esquine Rd — No. 3

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1137
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 84%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.2 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 69.98

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 78.08

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1023
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 88%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.2 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 64.11

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 72.21

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment Laureles Grade/Ford Rd **No. 4**

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1578
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 86%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 80.09

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 84.39

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1478
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 89%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.2 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 76.82

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 81.12

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment: Robinson Cyn Rd/Laureles Grade — **No. 5**

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1563
PHF = (*peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 79%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.997
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879 v_p})$	=	82.66
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	90.88

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1578
PHF = (*peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.997
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879 v_p})$	=	79.53
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	87.73

LOS = E

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment: Schulte Rd/Robinson Cyn Rd — No. 6

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given
V = 2007
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions
E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 86.56

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 90.76

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given
V = 1893
PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
= 91%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions
E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 83.98

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 92.28

LOS = E

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario B

Roadway Segment: Rancho San Carlos Rd/Schulte Rd — No. 7

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 2200
- PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
  = 81%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 1.000

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 90.79

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 94.99

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 2027
- PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
  = 94%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

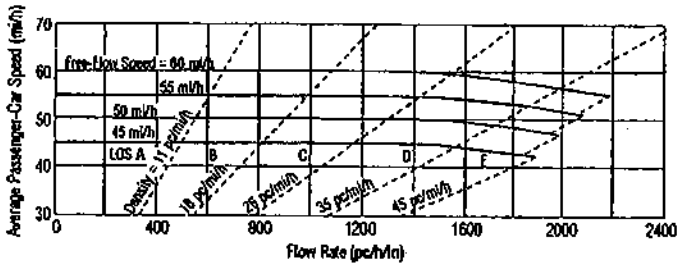
Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 1.000

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 84.97

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 89.27

LOS = E

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	CVR EB
From/To	RS B — Rio Rd / Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	102.3	veh/h
Annual avg. daily traffic, AADT		veh/day
Peak-hour proportion of AADT, K		
Peak-hour direction proportion, D		
DDHV = AADT * K * D		veh/h

Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF	94.24
% Trucks and buses, P_T	3%
% RVs, P_R	0%

General terrain: ☐ Level ☐ Rolling ☐ Mountainous

Grade: Length ____ mi Up/Down ____ %

Number of lanes: 2

Calculate Flow Adjustments

f_p	1.00
E_T	1.5
E_R	1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12	ft
Total lateral clearance, TLC		ft
Access points, A		A/mi
Median type, M	☐ Undivided ☐ Divided	
FFS (measured)		mi/h
Base free-flow speed, BFFS		mi/h

Calculate Speed Adjustments and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_A		mi/h
f_M		mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$		mi/h

Operational/Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	551	pc/h/ln
S	~~10.01~~ 55	mi/h
$D = v_p / S$	10.01	pc/mi/ln
LOS	(A)	

Design (v_p) or Planning (v_p)

LOS		
v_p		pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$		veh/h
S		mi/h
$D = v_p/S$		pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N		assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$		pc/h/ln
LOS		

Design (N) or Planning (N) 2nd Iteration

N		assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$		pc/h/ln
LOS		
S		mi/h
$D = v_p/S$		pc/mi/ln

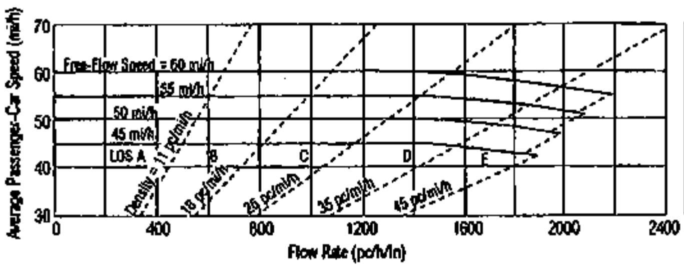
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS8 Rio / Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1459 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 81.06
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 914 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 16.61 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

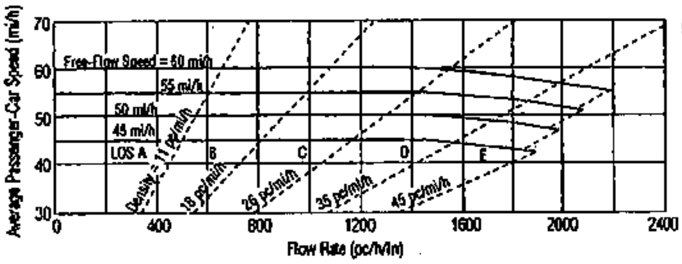
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	CVR EB
From/To	Rio / Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1410 veh/h	Peak-hour factor, PHF	95.39
Annual avg. daily traffic, AADT	veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K		% RVs, P_R	0 %
Peak-hour direction proportion, D		General terrain	☐ Level ☐ Rolling ☐ Mountainous
DDHV = AADT * K * D	veh/h	Grade: Length ___ mi	Up/Down ___ %
Driver type	☐ Commuter/Weekday ☐ Recreational/Weekend	Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.00
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	ft
Access points, A	A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	mi/h
Base free-flow speed, BFFS	mi/h

Calculate Speed Adjustments and FFS

f_{LW}	mi/h
f_{LC}	mi/h
f_A	mi/h
f_M	mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	750 pc/h/ln
S	55 mi/h
$D = v_p/S$	13.64 pc/mi/ln
LOS	(B)

Design (v_p) or Planning (v_p)

LOS	
v_p	pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	veh/h
S	mi/h
$D = v_p/S$	pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	
S	mi/h
$D = v_p/S$	pc/mi/ln

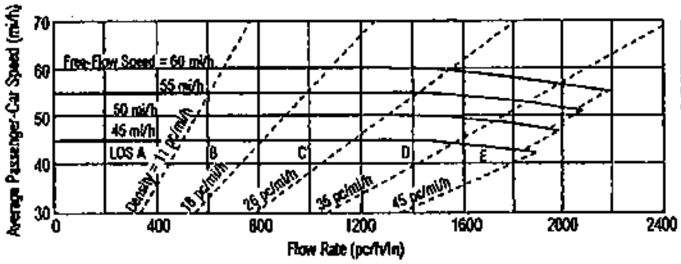
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	CVR WB
From/To	RSF / Rio/Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1215 veh/h	Peak-hour factor, PHF	93.38
Annual avg. daily traffic, AADT	veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K		% RVs, P_R	0%
Peak-hour direction proportion, D		General terrain	☐ Level ☐ Rolling ☐ Mountainous
DDHV = AADT * K * D	veh/h	Grade: Length ___ mi	Up/Down ___ %
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	ft
Access points, A	/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	mi/h
Base free-flow speed, BFFS	mi/h

Calculate Speed Adjustments and FFS

f_{LW}	mi/h
f_{LC}	mi/h
f_A	mi/h
f_M	mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	660 pc/h/ln
S	55 mi/h
$D = v_p/S$	12.00 pc/mi/ln
LOS	B

Design (v_p) or Planning (v_p)

LOS	
v_p	pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	veh/h
S	mi/h
$D = v_p/S$	pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	
S	mi/h
$D = v_p/S$	pc/mi/ln

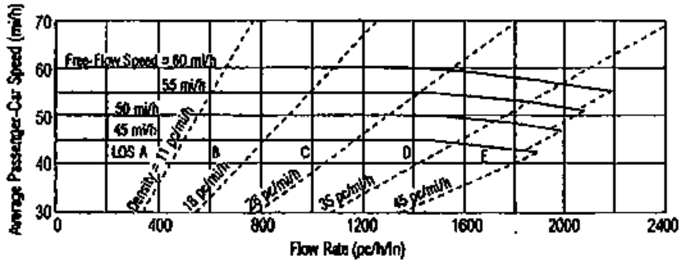
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

- Analyst: CLE
- Agency or Company: DKS Assoc.
- Date Performed: 1.2.2007
- Analysis Time Period: AM Peak

Site Information

- Highway/Direction of Travel: CVR EB
- From/To: R59 Carmel Rancho / Rio
- Jurisdiction: Monterey
- Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

- Volume, V: 1307 veh/h
- Annual avg. daily traffic, AADT: ______ veh/day
- Peak-hour proportion of AADT, K: ______
- Peak-hour direction proportion, D: ______
- DDHV = AADT * K * D: ______ veh/h
- Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend
- Peak-hour factor, PHF: 90.18
- % Trucks and buses, P_T: 3 %
- % RVs, P_R: 0 %
- General terrain: ☒ Level ☐ Rolling ☐ Mountainous
- Grade: Length ______ mi Up/Down ______ %
- Number of lanes: 2

Calculate Flow Adjustments

- f_p: 1.00
- E_T: 1.5
- E_R: 1.2
- $f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

- Lane width, LW: 12 ft
- Total lateral clearance, TLC: ______ ft
- Access points, A: ______ A/mi
- Median type, M: ☐ Undivided ☐ Divided
- FFS (measured): ______ mi/h
- Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

- f_{LW}: ______ mi/h
- f_{LC}: ______ mi/h
- f_A: ______ mi/h
- f_M: ______ mi/h
- $FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational (LOS); Planning (LOS); Design; Planning (v_p)

Operational (LOS) or Planning (LOS)

- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 736 pc/h/ln
- S: 45 mi/h
- $D = v_p/S$: 16.35 pc/mi/ln
- LOS: B

Design (v_p) or Planning (v_p)

- LOS: ______
- v_p: ______ pc/h/ln
- $V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
- S: ______ mi/h
- $D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

- N: ______ assumed
- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
- LOS: ______

Design (N) or Planning (N) 2nd Iteration

- N: ______ assumed
- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
- LOS: ______
- S: ______ mi/h
- $D = v_p/S$: ______ pc/mi/ln

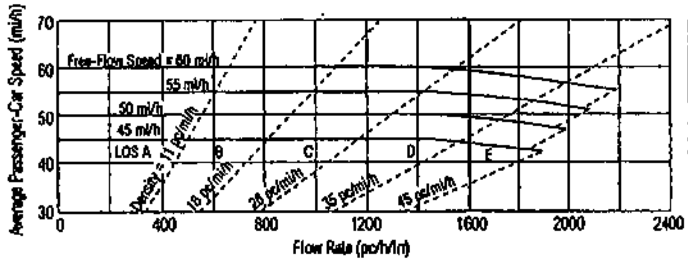
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS 9 / Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1861 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 85.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: ______ ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 1107 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 24.40 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

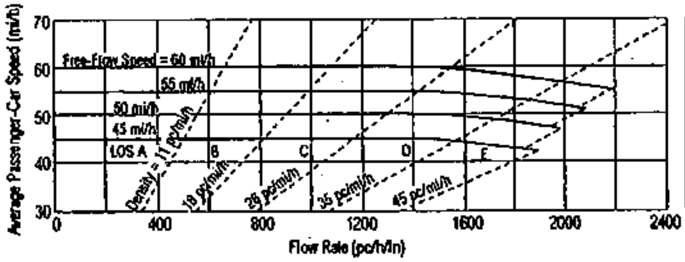
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS9 Carmel Rancho/ Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1681 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 77.03
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 4

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 879 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 19.54 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

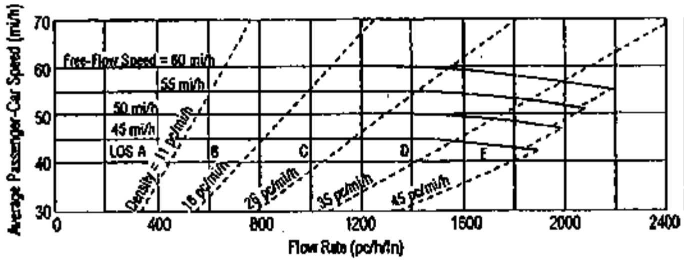
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst: CLE
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: 289 Carmel Rancho/Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1381 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 86.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
FFS = BFFS − f_{LW} − f_{LC} − f_A − f_M: ______ mi/h

Operational/Planning (LOS), Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 812 pc/h/ln
S: 45 mi/h
D = v_p/S: 18.04 pc/mi/ln
LOS: (C)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
V = v_p * PHF * N * f_{HV} * f_p: ______ veh/h
S: ______ mi/h
D = v_p/S: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
D = v_p/S: ______ pc/mi/ln

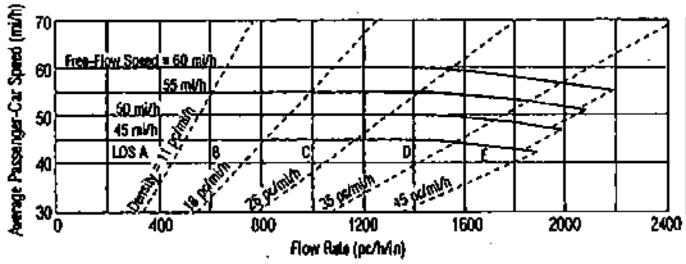
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

- Analyst: CLE
- Agency or Company: DKS Associates
- Date Performed: 1.2.2007
- Analysis Time Period: AM Peak

Site Information

- Highway/Direction of Travel: CVR EB
- From/To: ES/D Hwy 1 / Carmel Rancho
- Jurisdiction: Monterey
- Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

- Volume, V: 1368 veh/h
- Annual avg. daily traffic, AADT: ______ veh/day
- Peak-hour proportion of AADT, K: ______
- Peak-hour direction proportion, D: ______
- DDHV = AADT * K * D: ______ veh/h
- Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend
- Peak-hour factor, PHF: 0.86
- % Trucks and buses, P_T: 3%
- % RVs, P_R: 0%
- General terrain: ☒ Level ☐ Rolling ☐ Mountainous
- Grade: Length ______ mi Up/Down ______ %
- Number of lanes: 2

Calculate Flow Adjustments

- f_p: 1.00
- E_T: 1.5
- E_R: 1.2
- $f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

- Lane width, LW: 12 ft
- Total lateral clearance, TLC: ______ ft
- Access points, A: ______ A/mi
- Median type, M: ☐ Undivided ☐ Divided
- FFS (measured): ______ mi/h
- Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

- f_{LW}: ______ mi/h
- f_{LC}: ______ mi/h
- f_A: ______ mi/h
- f_M: ______ mi/h
- $FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 780 pc/h/ln
- S: 45 mi/h
- $D = v_p / S$: 17.33 pc/mi/ln
- LOS: B

Design (v_p) or Planning (v_p)

- LOS: ______
- v_p: ______ pc/h/ln
- $V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
- S: ______ mi/h
- $D = v_p / S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

- N: ______ assumed
- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
- LOS: ______

Design (N) or Planning (N) 2nd Iteration

- N: ______ assumed
- $v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
- LOS: ______
- S: ______ mi/h
- $D = v_p / S$: ______ pc/mi/ln

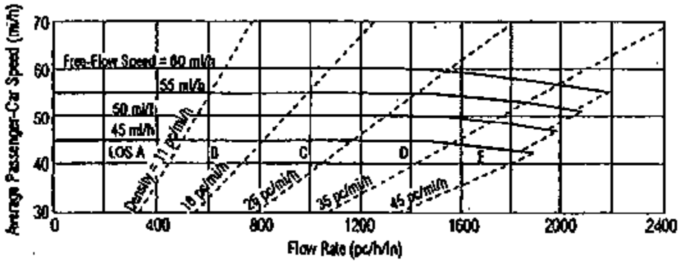
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: Rb|D Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☑ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1241 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 76.35
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain: ☑ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 825 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 18.33 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

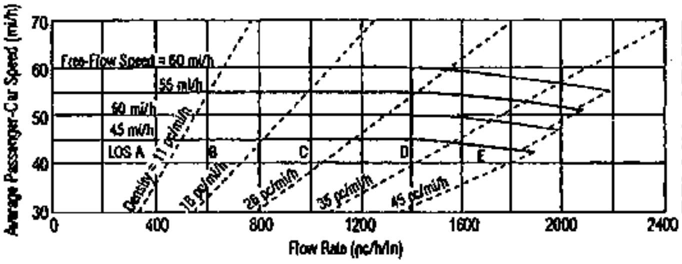
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	CVR EB
From/To	RS10 / Hwy 1 / Carmel Rancho
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1333 veh/h	Peak-hour factor, PHF	0.99
Annual avg. daily traffic, AADT	veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K		% RVs, P_R	0%
Peak-hour direction proportion, D		General terrain	☒ Level ☐ Rolling ☐ Mountainous
DDHV = AADT * K * D	veh/h	Grade: Length ___ mi	Up/Down ___ %
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1+P_T(E_T-1)+P_R(E_R-1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	ft
Access points, A	A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	mi/h
Base free-flow speed, BFFS	mi/h

Calculate Speed Adjustments and FFS

f_{LW}	mi/h
f_{LC}	mi/h
f_A	mi/h
f_M	mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	mi/h

Operational/Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	744 pc/h/ln
S	45 mi/h
$D = v_p/S$	16.53 pc/mi/ln
LOS	B

Design (v_p) or Planning (v_p)

LOS	
v_p	pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	veh/h
S	mi/h
$D = v_p/S$	pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	
S	mi/h
$D = v_p/S$	pc/mi/ln

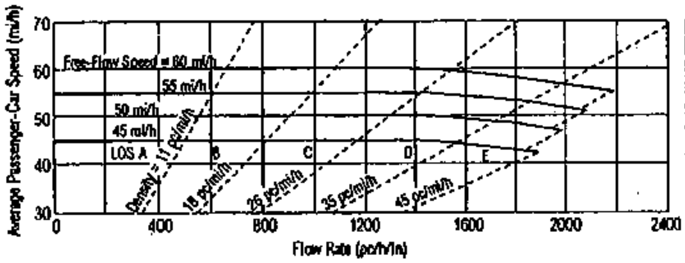
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario B

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1149 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 83.57
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 698 pc/h/ln
S: 45 mi/h
$D = v_p / S$: 15.52 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p / S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p / S$: ______ pc/mi/ln

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario C

Roadway Segment: Holman/East of — No. 1

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p	= passenger-car equivalent flow rate for peak 15-min period (pc/h)
V	= demand volume for the full peak hour in the direction analyzed (veh/h)
PHF	= peak-hour factor,
f_G	= grade adjustment factor, and
f_{HV}	= heavy-vehicle adjustment factor

Given

V = 680

PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)

= 86%

f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T	= Pax-car equivalents for trucks,
E_R	= Pax-car equivalents for RVs,
P_T	= % Trucks and buses,
P_R	= % Recreational Vehicles,
$f_{d/np}$	= Adjustment Percent for No-Passing Zone

Assumptions

E_T	=	1.7	(Exhibit 20-10)
E_R	=	1	(Exhibit 20-10)
P_T	=	3	1
P_R	=	0	1
$f_{d/np}$	=	14.60	(Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 50.92

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 65.52

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p	= passenger-car equivalent flow rate for peak 15-min period (pc/h)
V	= demand volume for the full peak hour in the direction analyzed (veh/h)
PHF	= peak-hour factor,
f_G	= grade adjustment factor, and
f_{HV}	= heavy-vehicle adjustment factor

Given

V = 679

PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)

= 80%

f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T	= Pax-car equivalents for trucks,
E_R	= Pax-car equivalents for RVs,
P_T	= % Trucks and buses,
P_R	= % Recreational Vehicles,
$f_{d/np}$	= Adjustment Percent for No-Passing Zone

Assumptions

E_T	=	1.7	(Exhibit 20-10)
E_R	=	1	(Exhibit 20-10)
P_T	=	3	1
P_R	=	0	1
$f_{d/np}$	=	14.40	(Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 53.48

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 67.88

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario C

Roadway Segment: Esquine Rd/Holmand Rd — No. 2

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ — Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 701
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 89%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.7 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}: $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following: $100(1 - e^{-0.000879 v_p})$ = 50.61

Percent-Time-Spent-Following: BPTSF + $f_{d/np}$ = 65.01

LOS = C

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ — Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ — Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 721
- PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
- = 83%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ — Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.7 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 14.40 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}: $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.979

Base Percent-Time-Spent-Following: $100(1 - e^{-0.000879 v_p})$ = 54.03

Percent-Time-Spent-Following: BPTSF + $f_{d/np}$ = 68.43

LOS = C

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario C

Roadway Segment: Ford Rd/Esquiline Rd — No. 3

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1137
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 84%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.2 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 69.96

Percent-Time-Spent-Following $BPTSF + f_{d/np}$ = 78.06

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1023
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.2 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.10 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.994

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 64.11

Percent-Time-Spent-Following $BPTSF + f_{d/np}$ = 72.21

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario C

Roadway Segment: Laureles Grade/Ford Rd — No. 4

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1578
- PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
- = 86%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.1 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 1
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.997
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	80.09
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	84.39

LOS = D

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF * f_G * f_{HV}}$ Eq. 2

- v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
- V = demand volume for the full peak hour in the direction analyzed (veh/h)
- PHF = peak-hour factor,
- f_G = grade adjustment factor, and
- f_{HV} = heavy-vehicle adjustment factor

Given

- V = 1478
- PHF = *(peak hour volume / 4) / (MAX(15-min interval within peak hour)*
- = 89%
- f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

- E_T = Pax-car equivalents for trucks,
- E_R = Pax-car equivalents for RVs,
- P_T = % Trucks and buses,
- P_R = % Recreational Vehicles,
- $f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

- E_T = 1.2 (Exhibit 20-10)
- E_R = 1 (Exhibit 20-10)
- P_T = 3 I
- P_R = 0 1
- $f_{d/np}$ = 4.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV}	$\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$	=	0.994
Base Percent-Time-Spent-Following	$100(1 - e^{-0.000879v_p})$	=	76.82
Percent-Time-Spent-Following	BPTSF + $f_{d/np}$	=	81.12

LOS = D

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road
Passing Lane LOS Sheet Calculations
Scenario C

		Segment 5	
		AM	PM
Total length of analysis segment		3.32	3.32
Lu	length upstream	1	1
Lpl	length of passing lane changeable all other	*0.25*	*0.25*
ATSd	from original LOS Sheet	28.3	28.4
PTSFd	from original LOS Sheet	90.86	87.73
LOSd	from original LOS Sheet	E	E
Average Travel Speed calculatoins			
Lde	effective length downstream of passing lane	1.7	1.7
Ld	length of two lane segment downstream of pl	0.37	0.37
fpl		1.11	1.11
L'de		2.07	2.07
if Ld is negative a different formula is used, please check the HCM for details			
ATSpl		29.3	29.5
PTSF calculations			
Lde		3.6	3.6
Ld	length of two lane segment downstream of pl	-1.53	-1.53
fpl		0.62	0.62
if Ld is negative a different formula is used, please check the HCM for details			
PTSFpl		72.92	70.41
		D	D

Source: HCM 2000, Passing Lane LOS Calculations. DKS Associates, 2007

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario C

Roadway Segment: Schulte Rd/Robinson Cyn Rd No. 6

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 2007
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 88%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 86.56

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 90.76

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \frac{V}{PHF * f_G * f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 1893
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 91%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1.1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 8.30 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\frac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 0.997

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879v_p})$ = 83.98

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 92.28

LOS = E

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road

Scenario C

Roadway Segment: Rancho San Carlos Rd/Schulte Rd — No. 7

AM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 2200
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 61%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.20 (Exhibit 20-12)

Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 1.000

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 90.79

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 94.99

LOS = E

PM Peak Hour

Base Percent-Time-Spent-Following - BPTSF = $100(1 - e^{-0.000879 v_p})$ Eq. 1

Two-way flow rate, v_p (pc/h) $= \dfrac{V}{PHF \cdot f_G \cdot f_{HV}}$ Eq. 2

v_p = passenger-car equivalent flow rate for peak 15-min period (pc/h)
V = demand volume for the full peak hour in the direction analyzed (veh/h)
PHF = peak-hour factor,
f_G = grade adjustment factor, and
f_{HV} = heavy-vehicle adjustment factor

Given

V = 2027
PHF = (peak hour volume / 4) / (MAX(15-min interval within peak hour)
= 94%
f_G = 1 (Exhibit 20-8)

$f_{HV} = \dfrac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$ Eq. 3

E_T = Pax-car equivalents for trucks,
E_R = Pax-car equivalents for RVs,
P_T = % Trucks and buses,
P_R = % Recreational Vehicles,
$f_{d/np}$ = Adjustment Percent for No-Passing Zone

Assumptions

E_T = 1 (Exhibit 20-10)
E_R = 1 (Exhibit 20-10)
P_T = 3 1
P_R = 0 1
$f_{d/np}$ = 4.30 (Exhibit 20-12)

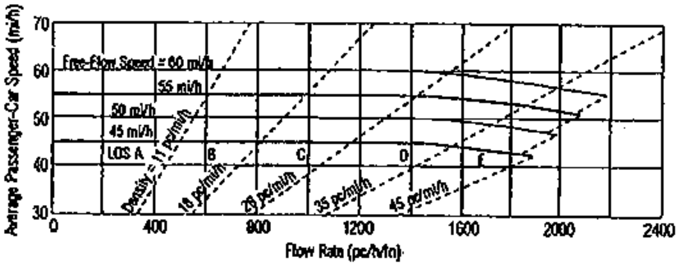
Heavy-vehicle adjustment factor, f_{HV} $\dfrac{1}{1 + 0.03(1.1 - 1) + 0(1 - 1)}$ = 1.000

Base Percent-Time-Spent-Following $100(1 - e^{-0.000879 v_p})$ = 84.97

Percent-Time-Spent-Following BPTSF + $f_{d/np}$ = 89.27

LOS = E

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS 8 / Rio Rd / Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1023 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 94.24
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain
☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS)/Design/Planning (v_p)

Operational (LOS) or Planning (LOS)
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: 551 pc/h/ln
S: ~~70.0~~ 55 mi/h
$D = v_p / S$: 10.01 pc/mi/ln
LOS: (A)

Design (v_p) or Planning (v_p)
LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p / S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration
N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration
N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p / S$: ______ pc/mi/ln

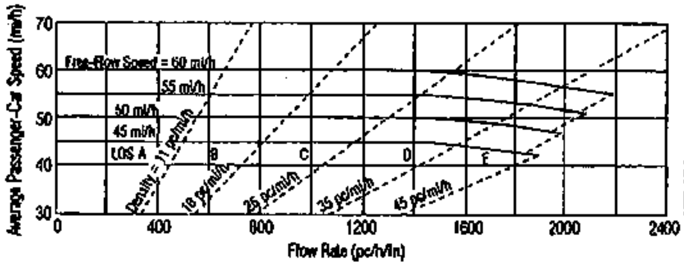
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS8 Rio / Rancho San Carlos
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1459 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: δ1.06
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain
☐ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 914 pc/h/ln
S: 55 mi/h
$D = v_p/S$: 16.61 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

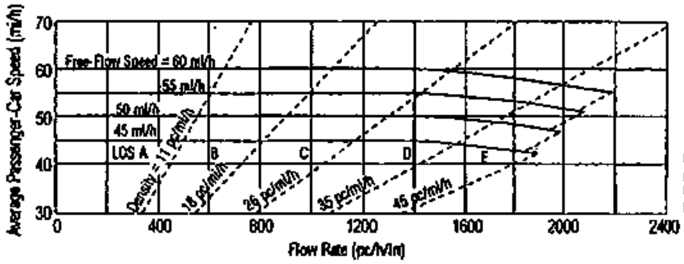
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	CVR EB
From/To	Rio / Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1410 veh/h	Peak-hour factor, PHF	95.39
Annual avg. daily traffic, AADT	____ veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K		% RVs, P_R	0%
Peak-hour direction proportion, D		General terrain	
DDHV = AADT * K * D	____ veh/h	☐ Level ☐ Rolling ☐ Mountainous	
Driver type		Grade: Length ____ mi	Up/Down ____ %
☐ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.00
E_T	1.5	$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	____ ft
Access points, A	____ A/mi
Median type, M ☐ Undivided ☐ Divided	
FFS (measured)	____ mi/h
Base free-flow speed, BFFS	____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}	____ mi/h
f_{LC}	____ mi/h
f_A	____ mi/h
f_M	____ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	____ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	750 pc/h/ln
S	55 mi/h
$D = v_p/S$	13.64 pc/mi/ln
LOS	B

Design (v_p) or Planning (v_p)

LOS	
v_p	____ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	____ veh/h
S	____ mi/h
$D = v_p/S$	____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$	____ pc/h/ln
LOS	
S	____ mi/h
$D = v_p/S$	____ pc/mi/ln

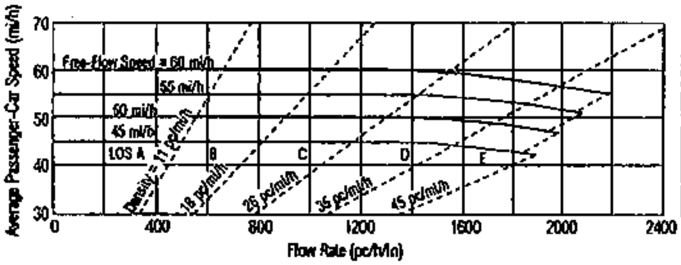
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	CVR WB
From/To	RSP — Rio / Rancho San Carlos
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1215 veh/h	Peak-hour factor, PHF	93.38
Annual avg. daily traffic, AADT	veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K		% RVs, P_R	0%
Peak-hour direction proportion, D		General terrain	☐ Level ☐ Rolling ☐ Mountainous
DDHV = AADT * K * D	veh/h	Grade: Length ___ mi	Up/Down ___ %
Driver type	☒ Commuter/Weekday ☐ Recreational/Weekend	Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1+P_T(E_T-1)+P_R(E_R-1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	ft
Access points, A	A/mi
Median type, M	☐ Undivided ☐ Divided
FFS (measured)	mi/h
Base free-flow speed, BFFS	mi/h

Calculate Speed Adjustments and FFS

f_{LW}	mi/h
f_{LC}	mi/h
f_A	mi/h
f_M	mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$	660 pc/h/ln
S	55 mi/h
$D = v_p/S$	12.00 pc/mi/ln
LOS	(B)

Design (v_p) or Planning (v_p)

LOS	
v_p	pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$	veh/h
S	mi/h
$D = v_p/S$	pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	

Design (N) or Planning (N) 2nd Iteration

N	assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$	pc/h/ln
LOS	
S	mi/h
$D = v_p/S$	pc/mi/ln

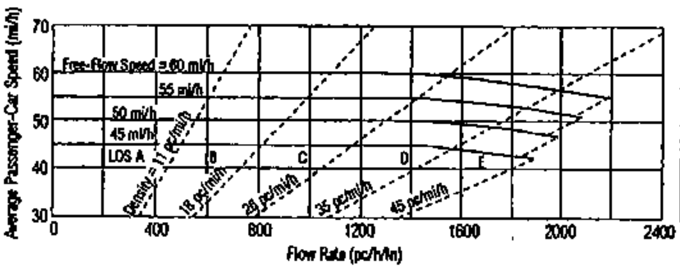
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: R59 Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1307 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 90.18
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 736 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 16.35 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

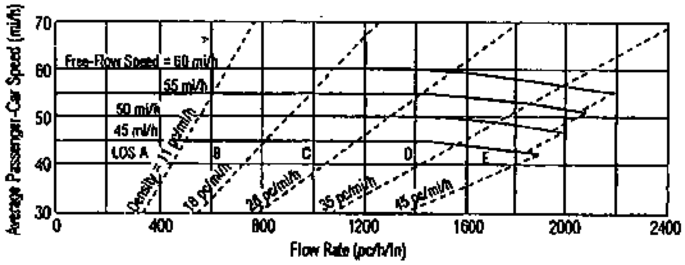
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: RS 9 Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1861 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 85.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: ______ ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS), Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 1107 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 24.40 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

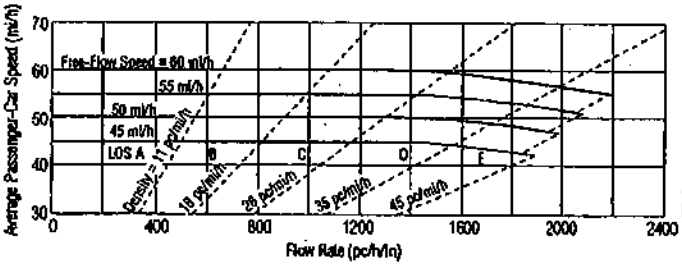
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: GVR EB
From/To: RS 9 Carmel Rancho / Rio
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1681 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 77.03
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 879 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 19.54 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

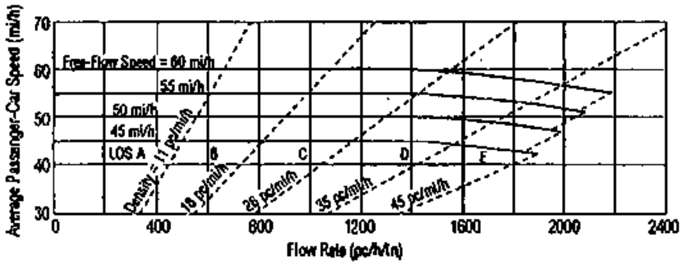
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLF
Agency or Company: DKS Assoc.
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: R59 Carmel Rancho/R10
Jurisdiction: Monterey
Analysis Year: 200

☐ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1381 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 86.32
% Trucks and buses, P_T: 3%
% RVs, P_R: 0%
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 812 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 18.04 pc/mi/ln
LOS: (C)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

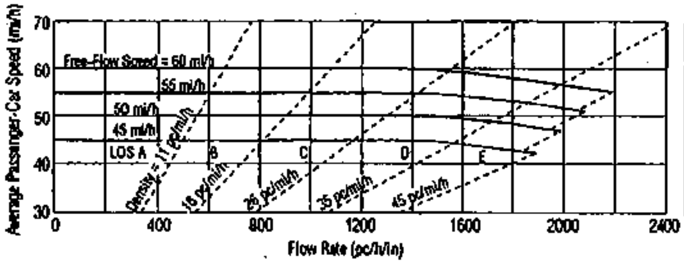
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst	CLE
Agency or Company	DKS Associates
Date Performed	1.2.2007
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	OVR EB
From/To	ES/D Hwy 1 / Carmel Rancho
Jurisdiction	Monterey
Analysis Year	200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V	1388 veh/h	Peak-hour factor, PHF	0.86
Annual avg. daily traffic, AADT	____ veh/day	% Trucks and buses, P_T	3%
Peak-hour proportion of AADT, K	____	% RVs, P_R	0%
Peak-hour direction proportion, D	____	General terrain	
DDHV = AADT * K * D	____ veh/h	☒ Level ☐ Rolling ☐ Mountainous	
Driver type		Grade: Length ____ mi	Up/Down ____ %
☒ Commuter/Weekday ☐ Recreational/Weekend		Number of lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = \frac{1}{1+P_T(E_T-1)+P_R(E_R-1)}$	0.985

Speed Inputs

Lane width, LW	12 ft
Total lateral clearance, TLC	____ ft
Access points, A	____ A/mi
Median type, M ☐ Undivided ☐ Divided	
FFS (measured)	____ mi/h
Base free-flow speed, BFFS	____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}	____ mi/h
f_{LC}	____ mi/h
f_A	____ mi/h
f_M	____ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$	____ mi/h

Operational/Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF \cdot N \cdot f_{HV} \cdot f_p}$	780 pc/h/ln
S	45 mi/h
$D = v_p/S$	17.33 pc/mi/ln
LOS	B

Design (v_p) or Planning (v_p)

LOS	____
v_p	____ pc/h/ln
$V = v_p \cdot PHF \cdot N \cdot f_{HV} \cdot f_p$	____ veh/h
S	____ mi/h
$D = v_p/S$	____ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF \cdot N \cdot f_{HV} \cdot f_p}$	____ pc/h/ln
LOS	____

Design (N) or Planning (N) 2nd Iteration

N	____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF \cdot N \cdot f_{HV} \cdot f_p}$	____ pc/h/ln
LOS	____
S	____ mi/h
$D = v_p/S$	____ pc/mi/ln

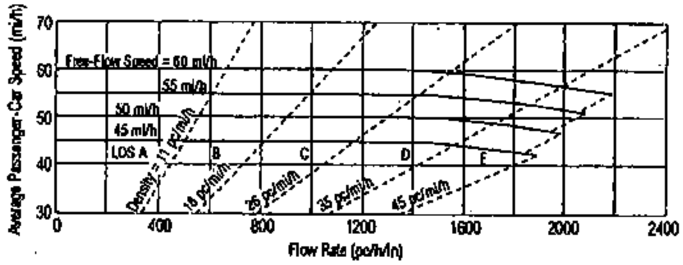
Glossary

- N - Number of lanes
- V - Hourly volume
- v_p - Flow rate
- LOS - Level of service
- DDHV - Directional design-hour volume
- S - Speed
- D - Density
- FFS - Free-flow speed
- BFFS - Base free-flow speed

Factor Location

- E_T - Exhibit 21-8, 21-9, 21-11
- E_R - Exhibit 21-8, 21-10
- f_p - Page 21-11
- LOS, S, FFS, v_p - Exhibit 21-2, 21-3
- f_{LW} - Exhibit 21-4
- f_{LC} - Exhibit 21-5
- f_M - Exhibit 21-6
- f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: AM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: Rb1D — Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1241 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type: ☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 76.35
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: 825 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 18.33 pc/mi/ln
LOS: C

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or DDHV}}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

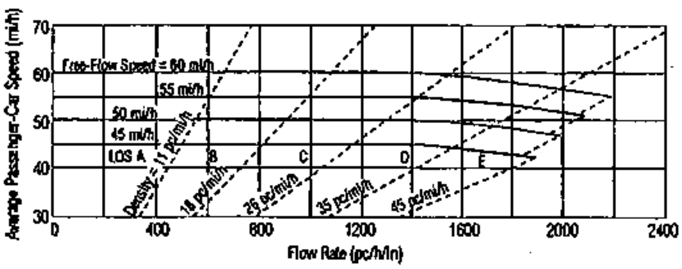
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLE
Agency or Company: DKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR EB
From/To: RS10 Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1333 veh/h
Annual avg. daily traffic, AADT: ____ veh/day
Peak-hour proportion of AADT, K: ____
Peak-hour direction proportion, D: ____
DDHV = AADT * K * D: ____ veh/h
Driver type: ☒ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 0.99
% Trucks and buses, P_T: 3%
% RVs, P_R: 0 %
General terrain: ☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ____ mi Up/Down ____ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ____ ft
Access points, A: ____ A/mi
Median type, M: ☐ Undivided ☐ Divided
FFS (measured): ____ mi/h
Base free-flow speed, BFFS: ____ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ____ mi/h
f_{LC}: ____ mi/h
f_A: ____ mi/h
f_M: ____ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ____ mi/h

Operational/Planning (LOS); Design/Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 744 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 16.53 pc/mi/ln
LOS: B

Design (v_p) or Planning (v_p)

LOS: ____
v_p: ____ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ____ veh/h
S: ____ mi/h
$D = v_p/S$: ____ pc/mi/ln

Design/Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ____ pc/h/ln
LOS: ____

Design (N) or Planning (N) 2nd Iteration

N: ____ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ____ pc/h/ln
LOS: ____
S: ____ mi/h
$D = v_p/S$: ____ pc/mi/ln

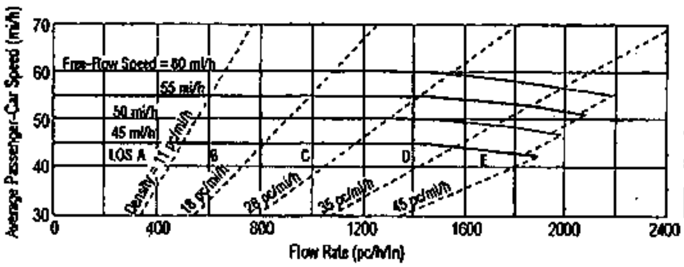
Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

MULTILANE HIGHWAYS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

Scenario C

General Information

Analyst: CLF
Agency or Company: PKS Associates
Date Performed: 1.2.2007
Analysis Time Period: PM Peak

Site Information

Highway/Direction of Travel: CVR WB
From/To: Hwy 1 / Carmel Rancho
Jurisdiction: Monterey
Analysis Year: 200

☒ Operational (LOS) ☐ Design (N) ☐ Design (v_p) ☐ Planning (LOS) ☐ Planning (N) ☐ Planning (v_p)

Flow Inputs

Volume, V: 1149 veh/h
Annual avg. daily traffic, AADT: ______ veh/day
Peak-hour proportion of AADT, K: ______
Peak-hour direction proportion, D: ______
DDHV = AADT * K * D: ______ veh/h
Driver type
☐ Commuter/Weekday ☐ Recreational/Weekend

Peak-hour factor, PHF: 83.51
% Trucks and buses, P_T: 3 %
% RVs, P_R: 0 %
General terrain
☒ Level ☐ Rolling ☐ Mountainous
Grade: Length ______ mi Up/Down ______ %
Number of lanes: 2

Calculate Flow Adjustments

f_p: 1.00
E_T: 1.5
E_R: 1.2
$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)}$: 0.985

Speed Inputs

Lane width, LW: 12 ft
Total lateral clearance, TLC: ______ ft
Access points, A: ______ A/mi
Median type, M ☐ Undivided ☐ Divided
FFS (measured): ______ mi/h
Base free-flow speed, BFFS: ______ mi/h

Calculate Speed Adjustments and FFS

f_{LW}: ______ mi/h
f_{LC}: ______ mi/h
f_A: ______ mi/h
f_M: ______ mi/h
$FFS = BFFS - f_{LW} - f_{LC} - f_A - f_M$: ______ mi/h

Operational, Planning (LOS); Design, Planning (v_p)

Operational (LOS) or Planning (LOS)

$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: 698 pc/h/ln
S: 45 mi/h
$D = v_p/S$: 15.52 pc/mi/ln
LOS: (B)

Design (v_p) or Planning (v_p)

LOS: ______
v_p: ______ pc/h/ln
$V = v_p * PHF * N * f_{HV} * f_p$: ______ veh/h
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Design, Planning (N)

Design (N) or Planning (N) 1st Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______

Design (N) or Planning (N) 2nd Iteration

N: ______ assumed
$v_p = \frac{V \text{ or } DDHV}{PHF * N * f_{HV} * f_p}$: ______ pc/h/ln
LOS: ______
S: ______ mi/h
$D = v_p/S$: ______ pc/mi/ln

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
DDHV - Directional design-hour volume
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_T - Exhibit 21-8, 21-9, 21-11
E_R - Exhibit 21-8, 21-10
f_p - Page 21-11
LOS, S, FFS, v_p - Exhibit 21-2, 21-3
f_{LW} - Exhibit 21-4
f_{LC} - Exhibit 21-5
f_M - Exhibit 21-6
f_A - Exhibit 21-7

Future Level of Service Calculations for Two Lane Segments of Carmel Valley Road
Passing Lane LOS Sheet Calculations
Scenario D

		Segment 3		Segment 6		Segment 7	
		AM	**PM**	**AM**	**PM**	**AM**	**PM**
Total length of analysis segment		0.75	0.75	1.62	1.62	2.41	2.41
Lu	length upstream	0	0	1	1	1	1
Lpl	length of passing lane changeable all other	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*
ATSd	from original LOS Sheet	11.7	12.9	30.0	32.9	28.1	33.3
PTSFd	from original LOS Sheet	78.08	72.21	90.76	92.28	94.99	89.27
LOSd	from original LOS Sheet	D	D	E	E	E	E
Average Travel Speed calculatoins							
Lde	effective length downstream of passing lane	1.7	1.7	1.7	1.7	1.7	1.7
Ld	length of two lane segment downstream of pl	-1.2	-1.2	-1.33	-1.33	-0.54	-0.54
fpl		1.11	1.11	1.11	1.11	1.11	1.11
L'de		0.5	0.5	0.37	0.37	1.16	1.16
if Ld is negative a different formula is used, please check the HCM for details							
ATSpl		12.8	14.2	31.1	34.1	29.4	34.8
PTSF calculations							
Lde		3.6	3.6	3.6	3.6	3.6	3.6
Ld	length of two lane segment downstream of pl	-3.1	-3.1	-3.23	-3.23	-2.44	-2.44
fpl		0.62	0.62	0.62	0.62	0.62	0.62
if Ld is negative a different formula is used, please check the HCM for details							
PTSFpl		49.78	46.04	77.96	79.27	76.67	72.05
		B	B	D	D	D	D

Source: HCM 2000, Passing Lane LOS Calculations. DKS Associates, 2007

D

Appendix

Land Use Forecasting Methodology (Jones & Stokes)

Jones & Stokes

MEMORANDUM

Carmel Valley Master Plan
Carmel Valley Traffic Improvement Plan
Land Use Forecasting Methodology
(July 2007)

This memorandum and attachments describe the methodology and data uses for develop land use forecasts for three difference scenarios for use in the CVMP Traffic Study.

1. BASELINE CONDITIONS, 2005

- **Baseline Traffic Levels for 2005**. Baseline traffic levels were determined based on traffic counts collected in November 2005 as documented in the existing conditions report.

2. BUILDOUT ASSUMPTIONS, 2030

The AMBAG model base year is 2000 based on existing development at that time. This is the methodology used to forecast buildout in 2030.

- **Approved Subdivisions 1987 to 1998**. Subdivisions approved before 1998 were examined to identify if approved units had not been built as of 2000. Where units had not yet been built or were assumed to not have been built prior to 2000 (total units = 428, of which 140 were inside the CVMP), they were added to the 2030 forecast. Although much of the Rancho San Carlos/Santa Lucia Preserve is outside the CVMP, the unbuilt units (=321 units) are included in the forecast because new units directly place traffic into the CVMP; however the Preserve units outside of the CVMP (=288 units) do not count against the CVMP residential cap.

- **Approved Subdivisions, 1998 to 2006**. All units in approved subdivisions (total = 152 units) from 1998 to 2005 and the September Ranch approval in 2006 are included in the 2030 forecast.

- **Approved SFDs and Adjunct Units, 1987 to 1998.** All SFDs and adjunct units with building permits issued up to 1998 were assumed to be built by 2000 and thus are presumed to be included in the AMBAG 2000 baseline.

- **Approved SFDs and Adjunct Units, 1999 to 2005.** A total of 75.5 SFDs and adjunct units received building permits on existing lots from 1999 to 2005; these units were presumed not built by 2000 and were included in the 2030 forecast. Building permits were also issued for a total of 34 SFDs and adjunct on lots subdivided after 1987; these units were assumed to be included in the approved subdivision totals noted above. No geographic data was provided by the County concerning the approved SFDs. Thus, they were spread proportionally across the Traffic Analysis Zones (TAZs) based on the vacant parcel potential buildout splits.

- **Approved visitor-serving units, 1987 to 2006**. Approved visitor-serving projects were examined to identify if approved units had not been built as of 2000. Where units had not yet been built or were approved after 1998 (total units = 108), they were added to the 2030 forecast.

- **Future Residential Units**. CVMP policy allow up to 1,310 total units to be built after 1986. Per County data of building permits issued between 1986 and 2005 (Chart 1, attached), building permits were issued for a total of 334.5 single family dwelling units and 120.5 adjunct units on lots in existence prior to 1/1/87 for a total of 455 units. From 1986 to 2006, the County approved an estimated 322 units in subdivisions in the CVMP. Thus, from 1986 to 2006, the County has approved 777 units, which leaves a remaining residential unit quota of 533 units. All future residential units were presumed to be on residentially-designated vacant lots, unless specifically assumed otherwise.

- **Future Visitor-Serving Units.** Per County data (Chart 3, attached), it is assumed that the CVMP will allow 285 visitor-serving units after 1/1/2006. All future visitor-serving units will be on commercially-designated vacant lots, unless specifically assumed otherwise. The pending Carmel Valley Ranch application to convert 144 existing hotel units into 144 individually-owned hotel units was not assumed to result in additional traffic.

- **Future Commercial.** The AMBAG model assumptions for commercial growth in the CVMP area were used. The AMBAG model forecasts 3,457 additional employees in the CVMP area by 2030. The AMBAG model did not include any increase in employees related to visitor-serving units, which are covered by the assumptions noted above related to the 285 visitor-serving units.

- **Buildout Horizon.** The buildout year is assumed to be 2030 (to match the AMBAG model).

- **Growth Outside the CVMP**. The growth included in the AMBAG model for year 2030 is used for areas outside the CVMP.

4. VACANT PARCEL ASSUMPTIONS

- **Vacant Residential Parcels**. Vacant Residential Parcels were based on the Assessors Parcel Data Categories 1A, 1B, 2A, 3A, 3B, 3C, 3D and residentially zoned parcels in Category 5A. Based on these categories there are 390 vacant residential parcels. When you remove parcels designated for incompatible uses (like commercial), parcels with known locations of approved but not yet built subdivisions (like September Ranch), and parcels with substantive development (> $100,000/acre in improvements), there are 302 remaining vacant parcels. These were used in the forecast for Options 1 and 2 below.

- **Developable Visitor-Serving Parcels**. Visitor-Serving developable parcels were based on the visitor-serving zoned parcels greater than 1 acre in size, with less than $100,000/acre improvements and total improvement value of less than $5 million. Parcels identified as Category 8A (private roads, etc.), 8B (SBE roll), and 99 (no other code/not buildable) were excluded.

- **Vacant Commercial Parcels**. The AMBAG model assumptions for commercial growth in the CVMP area were used.

- **Vacant Transitional Categories**. Vacant transitional categories identified in the Assessor's Parcel Data were excluded.

- **Miscellaneous Parcels.** Parcels with no APNs were excluded.

- **Improvements**. If the parcel data indicates improvements in a "Vacant" category, this data is not assumed to change its assumption as vacant (conservative assumption for buildout) except as noted above for visitor-serving parcels.

7. FORECASTING ASSUMPTIONS, NO PROJECT SCENARIO

- **Current Projects (Pipeline)**. There would no assumption that pipeline projects are approved because they all require subdivision but previously approved projects are assumed to be built by 2030.

- **Residential (Remaining).** No subdivision is assumed. Based on County data (Table 1), it is assumed that there are 258.5 remaining vacant lots of record. It is assumed that one unit per lot would be built in this scenario. No data on the location of these lots has been provided. The location of the 390 residential vacant parcels from the assessor's parcel data were used to project location of residential new units. However, parcels with known approved but not yet built subdivisions, with > $100,000 in improvements, or that are designated for uses that do not allow residential units were removed from the parcel set. This resulted in 297 vacant parcels. Thus, the 258.5 units were proportionally spread by TAZ based on the location of the 297 residential vacant parcels identified from the assessor's parcel data.

- **Visitor-Serving Units.** All 285 allowed units are assumed built by the horizon year and not to be constrained by the subdivision moratorium

- **Commercial Units.** Any commercial assumptions in the AMBAG model were used and are not assumed to be constrained by the subdivision moratorium.

- **Outside of CVMP.** Assumptions in the AMBAG model were used.

6. FORECASTING ASSUMPTIONS, SCENARIO A

- **Current Projects (Pipeline)**. There would no assumption that pipeline projects are approved but previously approved projects are assumed to be built by 2030.

- **Proportional (Remaining).** The 533 remaining units were split over the 302 vacant residential parcels proportionally. The buildout potential of the 302 vacant residential parcels was estimated by calculating the allowed density per site zoning as 1,592 units. Then the portion of buildout represented by the remaining units (per plan) was calculated. Since this exceeds the allowable limit of 533 units, the amount of buildout was scaled by a factor of 33% (= 533 / 1,592). Then the scalar (33%) was applied to the potential buildout for each TAZ. Thus, if TAZ1 has a buildout potential of 100 units, the forecast would assign 33 units to TAZ1.

- **Visitor-Serving Units.** All 285 allowed units are assumed built by the horizon year.

- **Commercial Units.** Any commercial assumptions in the AMBAG model were used.

- **Outside of CVMP.** Assumptions in the AMBAG model were used.

7. FORECASTING ASSUMPTIONS, SCENARIO B (Also used for Scenarios C and D)

- **Current Residential Projects (Pipeline)**. The projects in project review indicated by the County (see attached table and graphic) are assumed to be approved as proposed. Based on data from the County, buildout of the pipeline projects would result in 281 new residential units. Projects are assumed to be built by 2030.

- **Other Future Residential Units (Remainder)**. The 252 remaining potential residential units (remaining in the 533 unit quota after the 281 pipeline units) were split over the remaining vacant residential parcels proportionally. The buildout potential of the remaining vacant residential parcels was estimated by calculating the allowed density per site zoning by parcel which resulted in an estimate of 1,592 potential units. Since this exceeds the allowable limit of 252 units, the amount of buildout was scaled by a factor of 16% (= 252 / 1,592). Then the scalar (16%) was applied to the potential buildout for each TAZ. Thus if TAZ1 has a buildout potential of 100 units, the forecast would assign 16 units to TAZ1.

- **Visitor-Serving Units.** All 285 allowed units are assumed built by the horizon year.

- **Commercial Units.** Any commercial assumptions in the AMBAG model were used.

- **Outside of CVMP.** Assumptions in the AMBAG model were used.

ATTACHMENTS

Forecast Tables 1 through 7
Chart I – Annual Summary of Carmel Valley Master Plan Residential Development Activity
Chart II – Annual Summary of Carmel Valley Master Plan Subdivision/Lot Development
Chart III – Annual Summary of Carmel Valley Master Plan Visitor Accommodation Units
Subdivisions Approved Since 01/01/86 through 01/05/06 List in CVMP area
Active Subdivisions as of June 19, 2006 by Planning Area
Active Projects in the Carmel Valley Master Plan Area

Carmel Valley Master Plan Traffic Study
Table 1
Summary of Residential and Visitor-Serving Unit Forecasts by Traffic Analysis Zone
(Jones & Stokes, December 2006)

	All Residential Units Forecast Built After 2000			Visitor-Serving Units Forecast Built after 2000		
Buildout Period	2000 - 2030	2000 - 2030	2000 - 2030	2000 - 2030	2000 - 2030	2000 - 2030
Scenario	Scenario B	Scenario A	No Project	Secnario B	Scenario A	No Project
Total	1188	1188	914	393	393	393
Pipeline	281	0	0	0	0	0
TAZ/ Avail Units	252	533	259	285	285	285
Approved	655	655	655	108	108	108
1256	5	9	9	0	0	0
1257	0	0	0	0	0	0
1258	0	0	0	0	0	0
1260	0	0	0	0	0	0
1261	1	2	3	0	0	0
1263	4	7	12	32	12	12
1265	1	2	3	13	5	5
1266	4	8	11	0	0	0
1267	2	3	4	0	0	0
1268	165	177	165	170	93	93
1271	13	25	15	44	32	32
1272	9	18	16	0	0	0
1273	0	1	0	0	0	0
1274	1	2	4	0	0	0
1278	32	43	34	0	0	0
1399	0	1	3	0	0	0
1402	27	27	29	40	40	40
1403	1	2	3	0	0	0
1404	197	234	176	0	0	0
1405	75	127	42	0	0	0
1406	16	29	7	0	0	0
1407	247	277	244	0	0	0
1408	5	9	13	0	0	0
1409	3	5	7	0	0	0
1410	7	13	17	94	36	36
1815	284	5	4	0	175	175
1819	0	1	3	0	0	0
1820	3	6	11	0	0	0
1822	33	58	37	0	0	0
1828	28	52	17	0	0	0
1846	1	2	3	0	0	0
1848	0	0	0	0	0	0
1849	23	42	21	0	0	0

Carmel Valley Master Plan Traffic Study
Table 2
Summary of Residential and Visitor-Serving Unit Forecasts by Traffic Analysis Zone
(Jones & Stokes, December 2006)

	All Residential Units Built After 2000			New Residential Units			Buildout of Approved	Approved Subdivisions Not yet built	Approved Units 1999 - 2005	Visitor-Serving Units	Visitor-Serving Units
Buildout Period	**2000 - 2030**	**2000 - 2030**	**2000 - 2030**	**2006 - 2030**	**2006 - 2030**	**2006 - 2030**	**2000-2030**	**2000-2030**	**2000-2030**	**2000 - 2030**	**2000 - 2030**
Scenario	**Scenario B Res**	**Scenario A Res**	**No Project Res**	**Scenario B Res**	**Scenario A Res**	**No Project Res**	**Res-All Scenarios**	**Res-All Scenarios**	**Res-All Scenarios**	**Scenario B - VS**	**No Project/ Scenario A - VS**
Total	**1188**	**1188**	**914**	533	533	259	655	580	75	393	393
Pipeline	**281**	**0**	**0**	281	0	0	0	0	0	0	0
TAZ/ Avail Units	**252**	**533**	**259**	252	533	259	0	0	0	285	285
Approved	**655**	**655**	**655**				655	580	75	108	108
Percent Buildout				**16%**	**33%**	**87%**					
1256	5	9	9	4	8	8	1		1	0	0
1257	0	0	0	0	0	0	0		0	0	0
1258	0	0	0	0	0	0	0		0	0	0
1260	0	0	0	0	0	0	0		0	0	0
1261	1	2	3	1	2	3	0		0	0	0
1263	4	7	12	3	6	11	1		1	32	12
1265	1	2	3	1	2	3	0		0	13	5
1266	4	8	11	3	7	10	1		1	0	0
1267	2	3	4	2	3	4	0		0	0	0
1268	165	177	165	10	22	10	155	151	4	170	93
1271	13	25	15	10	22	12	3		3	44	32
1272	9	18	16	7	16	14	2		2	0	0
1273	0	1	0	0	1	0	0		0	0	0
1274	1	2	4	1	2	4	0		0	0	0
1278	32	43	34	11	22	13	21	17	4	0	0
1399	0	1	3	0	1	3	0		0	0	0
1402	27	27	29	1	1	3	26	26	0	40	40
1403	1	2	3	1	2	3	0		0	0	0
1404	197	234	176	33	70	12	164	154	10	0	0
1405	75	127	42	47	99	14	28	14	14	0	0
1406	16	29	7	12	25	3	4		4	0	0
1407	247	277	244	26	56	23	221	213	8	0	0
1408	5	9	13	4	8	12	1		1	0	0
1409	3	5	7	1	3	5	2	2	0	0	0
1410	7	13	17	5	11	15	2		2	94	36
1815	284	5	4	283	4	3	1		1	0	175
1819	0	1	3	0	1	3	0		0	0	0
1820	3	6	11	2	5	10	1		1	0	0
1822	33	58	37	23	48	27	10	3	7	0	0
1828	28	52	17	22	46	11	6		6	0	0
1846	1	2	3	1	2	3	0		0	0	0
1848	0	0	0	0	0	0	0		0	0	0
1849	23	42	21	18	37	16	5		5	0	0

Carmel Valley Master Plan Traffic Study
Table 3
Summary of Pipeline Projects
(Jones & Stokes, December 2006)

Pipeline Subdivisions	Description	Number	Units	TAZ	Location	Status	In Forecast	CVMP Horizon	Notes
Rancho Canada Village (PLN040061)	Residential	281	Units	1815	Lower Carmel Valley	Application	Yes	2030	
Krasznekewicz	Residential	0	Units	1404	Mid-Valley	Proposed	Yes	2030	No new building sites
Wang	Residential		Units			Incomplete	No		
Carmel Valley Ranch	Visitor		Units			Proposed	No		No new units
Agha	Residential		Units			Incomplete	No		
Total	Residential	281	Units						
Residential Quota > 2006		533	Units						
Remaining residential Quota>2006		252	Units						

Carmel Valley Master Plan Traffic Study
Table 4
Summary of Residential and Subdivision Approvals
(Jones & Stokes, December 2006)

Legacy Approvals	Description	Status	In Forecast	Res	Visitor	CVMP Horizon	Notes
Residential SFDS/adjunct	Residential - existing lots	Approved, 1987- 1998	No	379.5		2000	
Residential SFDS/adjunct	Residential - existing lots	Approved, 1999 - 2005	Yes	75.5		2030	
Approved Subdivisions	Residential - new lots	Approved, 1987 - 2006	No	30		2000	
Approved Subdivisions	Residential - new lots	Approved, 1987 - 2006	Yes	292		2030	
Approved Visitor- Serving	Visitor-Serving	Approved, 1987 - 2006	No		32	2000	
Approved Visitor- Serving	Visitor-Serving	Approved, 1987 - 2006	Yes		108	2030	
	ALL	Approved, 1987 - 2006		777	140		
	In Forecast	Approved, 1987 - 2006		367.5	108		
New Residential	Quota as of 1987	1987 - 2006		1310			
New Residential	Remainder	2006 - 2030	Yes	533			
New Visitor-Serving	Quota as of 1987	1987 - 2006			425		
New Residential	Remainder	2006 - 2030	Yes		285		

Carmel Valley Master Plan Traffic Study
Table 5
Summary of Previously Approved and Pending Developments
(Jones & Stokes, December 2006)

Legacy Approvals	Location	Status	TAZ	In Forecast	Approved	Forecast	Not Approved	CVMP Horizon	Notes
Fiskdale Subdivision (Quintana) (SB00814)	Mid-Valley	Approved	1405	Yes	14	14		2030	Assume not built as of 2000
Berta Ranch Subdivision (SB00786)	Upper Valley	Approved	1278	Yes	8	8		2030	Assume not built as of 2000
Quail Meadows Expansion (SB000843)	Mid Valley	Approved 1991	1402	Yes	52	26		2030	Assume 50% built (Potrero EIR)
Tehama Subdivision (Canada Woods) (SB00886)	Mid-Valley	Approved 1993	1404	Yes	59	59		2030	Assume not built as of 2000 (Potrero EIR)
Mills College (MS95005)	Mid Valley	Approved 1995	NA	No	4	0		2000	Assume built as of 2000.
Rancho San Carlos (Santa Lucia Preserve)	Mid-Valley	Approved 1996	1407/1268	Yes	321	321		2030	Assume mostly not built as of 2000 (Potrero EIR) 288 units outside CVMP; 33 units inside CVMP
Carmel Valley Investors, LLC (PLN 990386)	Upper Valley	Approved 2000	1278	Yes	3	3		2030	
Monterey Residential Group (PLN980664)	Upper Valley	Approved 2000	1278	Yes	4	4		2030	
Page & Lamont (PLN980343)	Upper Valley	Approved 2000	1822	Yes	3	3		2030	
Robinson (PLN 980146)	Upper Valley	Approved 2000	1278	Yes	2	2		2030	
Kaminske (MS96006)	Mid Valley	Approved 2003	1409	Yes	2	2		2030	
Carmel Valley Ranch Subdivision (PLN020280)	Mid-Valley	Approved 2004	1268	Yes	12	12		2030	
Liggett Subdivision (PLN030040)	Mid Valley	Approved 2005	1268	Yes	2	2		2030	
Rancho San Carlos (Portrero Subdvision)	Mid Valley	Approved 2005	1407	Yes	29	29		2030	
September Ranch (PC95062/PLN050001)	Mid-Valley	Approved 2006	1404	Yes	95	95		2030	
Total				ALL	610	580			
				In CVMP	322	292			
				Not in CVMP	288	288			
Other Residential Subdivision Projects	**Location**	**Status**	**TAZ**	**In Forecast**		**Forecast**	**Not Approved**	**CVMP Horizon**	**Notes**
Dow Mitchell Apartments (PLN030259)	Lower Carmel Valley	Proposed/ Incomplete: Water Issues		No			89	NA	
Agha Subdivision (PLN990274)`	Mid-Valley	Proposed/ Incomplete: Water & Traffic Issues		No			20	NA	
Kenny-McFarland: Note: No Project Found	Mid-Valley	No Application on File		No			0	NA	
Wang Subdivision (PLN010299)	Mid-Valley	Proposed/Incomplete		No			4	NA	
Airport Subdivision; Note: No Project Found	Upper Valley	No Application on File		No			0	NA	
Condon Subdivision: No Project Found	Upper Valley	No Application on File		No			0	NA	
Gardiner Tennis Ranch Subdivision: No Project Fo	Upper Valley	No Application on File		No			0	NA	
Stemple: (PLN040341)	Upper Valley	Proposed: Lot Line Adjustment		No			TBD	NA	
Carmel Valley Ranch (SB00858)	Mid-Valley	Withdrawn 1989		No			89	NA	

Carmel Valley Master Plan Traffic Study
Table 6
Summary of Residential and Visitor-Serving Unit Forecasts by Traffic Analysis Zone
(Jones & Stokes, December 2006)

Legacy Approvals	Description	Number	Units	Location	Status	TAZ	In Forecast	Visitor	CVMP Horizon	Notes
Quail Meadows (PC 7012)	Visitor-Serving	40	units	Mid-Valley	Approved 1991	1402	Yes	40	2030	Assumed not built as of 2000 (Potrero EIR)
Carmel Valley Ranch (PC 94-146)	Visitor-Serving	44	units	Mid Valley	Approved 1995	1268	Yes	44	2030	Assumed not built as of 2000 (Potrero EIR)
Carmel Valley Ranch (PC 96-058)	Visitor-Serving	16.5	units	Mid Valley	Approved 1996	1268	No	16.5	2000	Building permits issued in 1996
Robles Del Rio Hotel Expansion (PLN970369)	Visitor-Serving	24	units	Upper Valley	Approved 1998	1271	Yes	24	2030	Assumed not built as of 2000
Carmel Valley Ranch	Visitor-Serving	13	units	Mid Valley	Approved 1997	1268	No	13	2000	Building permits issues in 1997
Carmel Valley Ranch	Visitor-Serving	2.5	units	Mid Valley	Approved 1998	1268	No	2.5	2000	Building permits issued in 1998
Carmel Valley Ranch *Wind Hotel) (PLN060056)	Visitor-Serving	0	N/A	Mid Valley	Approved 2006	1268	No		2030	No additional units
Total							Total	140		
							Forecast	108		

Other Projects	Description	Number	Units	Location	Status	TAZ	In Forecast	Visitor	CVMP Horizon	Notes
B & B/Events (unknown location)	Visitor-Serving	0	units	Upper Valley	No Application on File		No			

Carmel Valley Master Plan Traffic Study
Table 7
Summary of Commercial Developments
(Jones & Stokes, December 2006)

Commercial Projects	Number	Units	Location	Status	TAZ	In Forecast	CVMP Horizon	Notes
Gamboa/Sunrise Assisted Care (64 units)(PLN000357)	78	beds	Lower Carmel Valley	Approved		Yes	2030	Included in AMBAG Commercial past or future
Carmel Valley Partners (Safeway Crossroads Expansion) (PLN020032)	22,000	SF	Lower Carmel Valley (A.P.N. 187-481-001-000)	Approved 2004		Yes	2030	Included in AMBAG Commercial past or future
Mirabito Self Storage Compound	64,000	SF	Mid-Valley	Approved		Yes	2030	Included in AMBAG Commercial past or future
Holman Winery (PLN020308)	TBD	SF	Upper Valley	Proposed:Tabled		No	NA	No Action, if later approved, covered by AMBAG

CHART I - ANNUAL SUMMARY OF CARMEL VALLEY MASTER PLAN RESIDENTIAL DEVELOPMENT ACTIVITY

	SINGLE FAMILY DWELLING UNIT TALLY					*ADJUNCT UNIT TALLY*							*BUILDOUT SUMMATION*		
	(1) # of single family dwelling building permits issued on vacant lots of record existing on 12/16/86 *(2) Balance of 572 vacant lots existing after lots issued building permits have been subtracted* *(3) # of single family dwelling building permits on lots created since 1/1/87* *(4) Balance of lots created since 1/1/87 minus those issued single family dwelling permits* *(5) Balance of all lots (new and old) remaining vacant, available for development (sum of 2 and 4)*					*(6) Caretaker Units on 12/16/86 lots* *(7) Caretaker units on lots after 1/1/87* *(8) Senior Units (x 0.5) on 12/16/86 lots* *(9) Senior units (x 0.5) on lots after 1/1/87* *(10) Employee/Apt. units on 12/16/86 lots* *(11) Employee/Apt. units on lots after 1/187* *(12) Total of all adjunct units on all lots*							*(13) Yearly total of all dwelling units (1st units and adjunct units)* *(14) Running total (year + all prior of CVMP buildout)* *(15) Balance of units (1310 - all units built through year of report)*		
Year	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*
1986	**4**	**568**	**0**	**0**	**568**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**1306**
1987	**31**	**537**	**0**	**0**	**537**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**31**	**35**	**1275**
1988	**30**	**507**	**0**	**0**	**507**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**65**	**1245**
1989	**35**	**472**	**0**	**0**	**472**	**0**	**0**	**.5**	**0**	**0**	**0**	**.5**	**35.5**	**100.5**	**1290.5**
1990	**19**	**453**	**0**	**0**	**453**	**2**	**0**	**100**	**0**	**0**	**0**	**102**	**121**	**221.5**	**1088.5**
1991	**23**	**430**	**0**	**57**	**487**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**26**	**247.5**	**1062.5**
1992	**10**	**420**	**0**	**57**	**477**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	**258.5**	**1051.5**
1993	**6**	**414**	**4**	**53**	**467**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**268.5**	**1051.5**
1994	**14**	**400**	**5**	**48**	**448**	**0**	**0**	**0**	**0**	**0**	**8**	**8**	**27**	**295.5**	**1014.5**
1995	**17**	**383**	**3**	**48**	**431**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**21**	**316.5**	**993.5**

SINGLE FAMILY DWELLING UNIT TALLY

(1) # of single family dwelling building permits issued on vacant lots of record existing on 12/16/86

(2) Balance of 572 vacant lots existing after lots issued building permits have been subtracted

(3) # of single family dwelling building permits on lots created since 1/1/87

(4) Balance of lots created or deleted since 1/1/87 minus those issued single family dwelling permits (see Chart II, Column "F")

(5) Balance of all lots (new and old) remaining vacant, available for development (sum of 2 and 4)

ADJUNCT UNIT TALLY

(6) Caretaker Units on 12/16/86 lots

(7) Caretaker units on lots after 1/1/87

(8) Senior Units (x 0.5) on 12/16/86 lots

(9) Senior units (x 0.5) on lots after 1/1/87

(10) Employee/Apt. units on 12/16/86 lots

(11) Employee/Apt. units on lots after 1/187

(12) Total of all adjunct units on all lots

BUILDOUT SUMMATION

(13) Yearly total of all dwelling units (1st units and adjunct units)

(14) Running total (year + all prior of CVMP buildout)

(15) Balance of units (1310 - all units built through year of report)

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1996	37.5	320.5[1]	5	43	363.5	0	1	0	0	0	0	1	43.5	360.0	950
1997	37[2]	283.5	3	40	323.5	1	1	0	0	0	0	2	42	402.0	908
1998	5	278.5	3	37	315.5	2	0	0.5 (1)	0	0	0	2.5	10.5	412.5	897.5
1999	5	273.5	2	35	308.5	0	0	0.5 (1.5)	0	0	0	.5	7.5	420	890
2000	10	263.5	8	36	299.5	0	3	0	0	0	0	3	21	441	869
2001	7	256.5	3	33	289.5	3	0	0	0	0	0	3	13	454	856
2002	10	246.5	4	29	275.5	2	2	0.5 (2)	0	0	0	4.5	18.5	472.5	837.5
2003	16	230.5	1	29	259.5	1	1	0.5 (2.5)	0	0	0	2.5	19.5	492	818
2004	11	219.5	1	28	247.5	1	0	0	0	0	0	1	13	505	805
2005	7	212.5	8	46	258.5	1	1	0	0	0	0	2	17	522	788
TOTALS	334.5	212.5	50	46	258.5	18	9	102.5	0	0	8	137.5	522	522	788

(1) 25 lots were deducted due to a merger of 25 lots at Carmel Valley Ranch, 'Area F'.

(2) 1997 (through 6/30/97) – 8 in Carmel Valley Ranch count as visitor accommodations but are subtracted from available legal lots of record since the VO units are constructed 1 each on legal lots in Carmel Valley Ranch (See also Chart III)

Chart I Annual Summary of CVMP Residential Lots - Revised 01/25/06

CHART II - ANNUAL SUMMARY OF CARMEL VALLEY MASTER PLAN SUBDIVISION/LOT DEVELOPMENT

	LOT TALLY			*LOT ALLOCATION*				
	A = Remaining Vacant Lots of Record from 572 existing on 12/16/86 when CVMP was adopted. *B = Lots created (+) or merged (-) since 1/1/87.* *C = Vacant Lots (new and old) available for SFDs*			*D = Lots Allocated by the Board of Supervisors from review of Preliminary Project Review Maps* *E = Accumulated lots @ 37/year (add 37 each year subtract allocation)* *F = Final Map Recorded Lots (new lots)* *G = Balance of Lots remaining in the quota 738 - (All Adjunct Units and New Lots Created since 1/1/87/Subtract merged lots from F; Add merged lots back into G)* *H = Average lot creation over remainder of plan years*				
Year	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
1986	568	0	568	0	37		738	36.9/yr.
1987	537	0	537	0	74		738	38.8
1988	507	0	507	0	111		738	41.0
1989	472	0	472	58 (57 Quail Meadows, 1 Taylor MS)	148 - 58 = 90		737.5	43.4
1990	453	0	453	0	127		635.5	39.7
1991	430	+57	487	0	164	+57 (Quail Meadows Subdivision)	575.5	38.4
1992	420	0	477	86 (Carmel Greens)	201 - 86 = 115		574.5	41.0
1993	414	0	467	73 (44 Canada Woods, 29 Veeder Ranch)	152 - 73 = 79		574.5	44.2
1994	400	0	448	0	116		566.5	47.2
1995	383	+3	431	13 (3 Mills College MS, 10 Canada Woods)	153 - 13 = 140	+3 (Mills College Minor Subdivision)	562.5	51.1

	LOT TALLY			*LOT ALLOCATION*				
	A = Remaining Vacant Lots of Record from 572 existing on 12/16/86 when CVMP was adopted. *B = Lots created (+) or merged (-) since 1/1/87.* *C = Vacant Lots (new and old) available for SFDs (No. 5 from Chart I.)*			*D = Lots Allocated by the Board of Supervisors from review of Preliminary Project Review Maps* *E = Accumulated lots @ 37/year (add 37 each year subtract allocation)* *F = Final Map Recorded Lots (new lots)* *G = Balance of Lots remaining in the quota 738 - (All Adjunct Units and New Lots Created since 1/1/87/Subtract merged lots from F; Add merged lots back into G)* *H = Average lot creation over remainder of plan years*				
Year	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
1996	320.5	-24	363.5	0	177	- 25 Lots (CV Ranch Area F Merger)	651	65.1
1997	283.5	0	323.5	0	214	0	589	65.4
1998	278.5.5	0	315.5	117 September Ranch	251-117=134	0	586.5	73.3
1999	273.5	0	308.5		171	0	586	
2000	263.5	9	299.5			9 (1 Robinson,2 Page & Lamont, 4 Monterey Residential Group & 2 Carmel Valley Investors LLC)	574	
2001	256.5	0	289.5			0	571	
2002	246.5	0	275.5			0	566.5	
2003	230.5	1	259.5			1 (Kaminske)	563	
2004	219.5	0	247.5	Carmel Valley Ranch		-(Litigation [Carmel Valley Ranch])	562	
2005	212.5	26	258.5	24 (Potrero Subdivision - [Rancho San Carlos])		26	534	
TOTALS				*347 TOTAL ALLOCATED*	*134*	*35*		

Chart II Annual Summary CVMP Subd.doc - Revised 03/06

CHART III - ANNUAL SUMMARY OF CARMEL VALLEY MASTER PLAN VISITOR ACCOMMODATION UNITS

	WEST OF VIA MALLORCA (POLICY 28.1.26[CV])		*EAST OF VIA MALLORCA (POLICY 28.1.27)*		*DEVELOPMENT*	
Year	*Units Approved*	*Units Remaining*	*Units Approved*	*Units Remaining*	*File Number*	*Project Name*
1986	0	175	0	250		
1987	0	175	0	250		
1988	0	175	0	250		
1989	0	175	0	250		
1990	0	175	0	250		
1991	0	175	40	210	PC 7012	Quail Meadows
1992	0	175	0	210		
1993	0	175	0	210		
1994	0	175	0	210		
1995	0	175	44	166	PC 94-146	Carmel Valley Ranch
1996	0	175	16.5*	149.5*	PC 96-058	*Carmel Valley Ranch

	WEST OF VIA MALLORCA (POLICY 28.1.26[CV])		EAST OF VIA MALLORCA (POLICY 28.1.27)		DEVELOPMENT	
Year	*Units Approved*	*Units Remaining*	*Units Approved*	*Units Remaining*	*File Number*	*Project Name*
1997	0	175	24 (Gurries) 13 (CVR) 37	112.5	PLN 970369 PC96-058	Gurries Carmel Valley Ranch Area F
1998	0	175	5/2 = 2.5	110	PC96-058 (Bldg. Pmts)	Carmel Valley Ranch Area F
1999	0	175	0	110		
2000	0	175	0	110		
2001	0	175	0	110		
2002	0	175	0	110		
2003	0	175	0	110		
2004	0	175	0	110		
2005	0	175	0	110		

*Pursuant to Resolution 95068 (PC 96017) by the Monterey County Planning Commission July 31, 1996, one half of all dwelling units issued building permits in Oak Place (Area F) of Carmel Valley Ranch may be utilized as Visitor Accommodation Units. In 1996 building permits were issued for 33 units. One half are counted on Chart III as "Units approved east of Via Mallorca, one half are counted on Chart I as single family dwellings on lots in the original 572 lots of record after 1/1/87 (see Chart I, Column 1).

Chart III Annual Summary of Carmel Valley Master Plan Visitor Accommodation Units – Revised 03/22/06

Monterey County Planning & Building Inspection Department

Subdivisions Approved since 1/1/86 as of Thursday, January 5, 2006

(Carmel Valley Master Plan Area)

Total Project Count =**12**

Project Title	File No.	APN	Planner	Type	Lots	Application Date	Final Decision	Description
Carmel Valley Master Pln								
1989								
CARMEL VALLEY RANCH	SB00858	416-522-012-000	PANZER	Standard Subdivision	0	02/15/1989	10/03/1989	REVISED STANDARD SUBDIVISION TENTATIVE MAP TO ALLOW DIVISION OF A 75 ACRE PARCEL INTO 89 PARCELS AND THREE YEAR EXTENSION OF THE TENTATIVE MAP WITHDREW REVISED TENTATIVE MAP - RECOMMENDED TO BOARD TIME EXTENSION
					0.00			
1991								
QUAIL MEADOWS SUBDIVISION	SB00843	157-121-019-000	MOUNDAY	Standard Subdivision	0	02/24/1988	08/20/1991	PRELIMINARY PROJECT REVIEW MAP FOR A STANDARD SUBDIVISION TO ALLOW DIVISION OF A 616 ACRE PARCEL INTO 56 RESIDENTIAL LOTS, 9 INCLUSIONARY HOUSING UNITS ON PARCEL A, SEMINAR CENTER ON PARCEL C, 6 PARCELS TO BE DONATED TO BIG SUR LAND TRUST AND 3 OPEN SPAC
					0.00			
1993								
CANADA WOODS SUBDIVISION	SB00886	169-011-004-000-M	TOWNER	Standard Subdivision	0	01/29/1991	06/15/1993	PRELIMINARY PROJECT REVIEW MAP FOR A STANDARD SUBDIVISION TO ALLOW DIVISION OF A 550 ACRE PARCEL INTO 59 PARCELS RANGING IN SIZE FROM 1.0 ACRES TO 89.9 ACRES EACH, INCLUDING 45 PARCELS FOR RESIDENTIAL DEVELOPMENT, 2 PARCELS FOR AGRICULTURAL USE, 1 PARCEL
					0.00			
1995								
MILLS COLLEGE	MS95005	169-181-043-000	HOPKINS	Minor Subdivision	4	03/22/1995	05/24/1995	MINOR SUBDIVISION TO DIVIDE A 23.8 ACRE PARCEL INTO FOUR NEW PARCELS OF 5, 3.8, 2.5, 2.5 ACRES IN SIZE WITH A 10 ACRE REMAINDER PARCEL
					4.00			
2000								
ROBINSON	PLN980146	197-011-008-000	BEARDALL	Minor Subdivision	1	07/01/1999	05/25/2000	Minor subdivision of 7.23 acres to create 2 lots of 2.5 acres and 4.73 acres on property located at 69 East Carmel Valley Road, north side of Carmel Valley Road, east of Carmel Valley Village, Carmel Valley Planning Area. Assessor's Parcel Number 197-011-008.

Project Title	File No.	APN	Planner	Type	Lots	Application Date	Final Decision	Description
PAGE & LAMONT	PLN980343	187-021-025-000	BEARDALL	Minor Subdivision	2	10/22/1998	03/09/2000	Tentative Parcel Map to allow division of a 291.78-acre parcel into 2 parcels of 10.0 acres and 16.0 acres, and a remainder parcel of 265.78 acres; located on Parcel 3, Los Laureles Rancho, fronting on and westerly of Country Club Heights Lane, Carmel Valley. Assessor's Parcel Number 187-021-025.
MONTEREY RESIDENTIAL GROUP	PLN980664	197-231-005-000-M	LEON	Minor Subdivision	3	06/17/1999	11/16/2000	Continued from 10/26/00. Combined Development Permit to allow a Vesting Tentative Parcel Map to allow subdivision of a 1,000.46 acre lot into 4 lots and a 563.41 acre remainder, ranging in size from 102.10 acres to 142.75 acres; Use permit for development on slopes in excess of 30% for road improvements; removal of up to 30 protected trees. The property is located 2 miles east of Carmel Valley Village, north of Carmel Valley Rd, 1/4 mile east of Holman Rd (Assessor's Parcel Number 197-231-005-000), Carmel Valley Master Plan and Toro Area Plan.
CARMEL VALLEY INVESTORS LLC	PLN990386	197-231-004-000-M	LEON	Minor Subdivision	2	10/18/1999	11/16/2000	Continued from 10/26/00. Vesting Tentative Minor Subdivision to allow subdivision of a 1,035.93 acre parcel into 3 lots, ranging in size from 268.07 acres to 414.52 acres; Use Permit for devleopment on slopes in excess of 30% for road improvements; removal of up to 30 protected trees. The property is located 2 miles east of Carmel Valley Village, north of Camel Valley Rd, 1/4 mile east of Holman Rd (Assessor's Parcel Number 197-231-004-000), Carmel Valley Master Plan and Toro Area Plan.
					8.00			
2003								
KAMINSKE	MS96006	169-131-014-000	LEON	Minor Subdivision	1	05/09/1996	03/26/2003	TENTATIVE PARCEL MAP TO ALLOW DIVISION OF A 7.7 ACRE PARCEL INTO 2 PARCELS OF 2.0 ACRES AND 5.7 ACRES EACH. THE PROPERTY IS LOCATED AT 9560 CENTER STREET, AT CARMEL VALLEY ROAD, EAST OF BERWICK DRIVE AND NORTH OF ROBINSON CANYON ROAD (ASSESSOR'S PARCEL NUMBER 169-131-014), CARMEL VALLEY.
					1.00			
2004								

Project Title	File No.	APN	Planner	Type	Lots	Application Date	Final Decision	Description
CARMEL VALLEY RANCH LLP	PLN020280	416-522-020-000	OSORIO	Standard Subdivision	0	02/25/2003	07/13/2004	COMBINED DEVELOPMENT PERMIT INCLUDING: 1) STANDARD SUBDIVISION TENTATIVE MAP FOR THE SUBDIVISION OF AN EXISTING, APPROXIMATELY 218-ACRE PARCEL INTO 12 RESIDENTIAL LOTS APPROXIMATELY 6.8 TO 16.9 ACRES IN SIZE AND 4 OPEN SPACE PARCELS TOTALLING APPROXIMATELY 99 ACRES; 2) USE PERMIT FOR DEVELOPMENT ON SLOPES GREATER THAN 30% FOR CONSTRUCTION OF AN ACCESS ROAD; 3) USE PERMIT FOR REMOVAL OF 193 PROTECTED OAK TRESS; 4) ZONING RECLASSIFICATION TO REZONE 11 EXISTING LOTS IN THE OAKSHIRE SUBDIVISION FROM "MDR/5-D-S" (MEDIUM DENSITY RESIDENTIAL) TO "O-D-S" (OPEN SPACE); AND 5) ASSIGNMENT OF THE "LDR/B-6-D-S" ZONING CLASSIFICATION (LOW DENSITY RESIDENTIAL WITH BUILDING SITE, DESIGN AND SITE REVIEW OVERLAYS) TO THE RESIDENTIAL PORTION OF THE PROPOSED SUBDIVISION AND THE "O-D-S" ZONING CLASSIFICATION (OPEN SPACE WITH DESIGN AND SITE REVIEW OVERLAYS) TO THE OPEN SPACE PORTIONS OF THE SUBDIVISION. THE SITE OF THE PROPOSED SUBDIVISION IS LOCATED IN THE AREA DESIGNATED AS "LAND RESERVE" IN THE CARMEL VALLEY RANCH SPECIFIC PLAN. THE SUBDIVISION WOULD NOT RESULT IN THE CREATION OF ADDITIONAL LOTS AS 11 OF THE PROPOSED RESIDENTIAL LOTS WOULD SUBSTITUTE 11 EXISTING UNDEVELOPED LOTS IN THE OAKSHIRE SUBDIVISION OF THE SPECIFIC PLAN. THE PROJECT SITE (ASSESSOR'S PARCEL NUMBERS 416-522-020-000 & 416-522-017-000) IS LOCATED IN THE SOUTHWESTERN PORTION OF THE CARMEL VALLEY RANCH WITH PORTIONS FRONTING ON ROBINSON CANYON ROAD, CARMEL VALLEY MASTER PLAN.
					0.00			
2005								
POTRERO SUBDIVISION, RSC	PLN010001	239-102-001-000-M	NOVO	Standard Subdivision	25	04/19/2001	02/15/2005	COMBINED DEVELOMENT PERMIT CONSISTING OF A VESTING TENTATIVE MAP TO ALLOW THE DIVISION OF A 1,286 ACRE PARCEL INTO 29 LOTS RANGING IN SIZE FROM 14.47 TO 67.21 ACRES; GRADING (APPROXIMATELY 29,600 CUBIC YARDS); A USE PERMIT TO ALLOW THE REMOVAL OF UP TO 295 PROTECTED TREES AND A USE PERMIT TO ALLOW FOR DEVELOPMENT ON SLOPES 30 PERCENT OR GREATER. THE SITE IS LOCATED EAST OF RANCHO SAN CARLOS ROAD AND WEST OF ROBINSON CANYON ROAD, CARMEL VALLEY (ASSESSOR'S PARCEL NUMBERS 239-102-001-000, 239-102-002-000, 239-102-003-000 AND 239-101-032-000), IN THE POTRERO CREEK AREA OF THE SANTA LUCIA PRESERVE (RANCHO SAN CARLOS), CARMEL VALLEY AREA.

Project Title	File No.	APN	Planner	Type	Lots	Application Date	Final Decision	Description
LIGGETT HOWARD JOHN IV	PLN030040	416-021-038-000	OSORIO	Minor Subdivision	1	03/05/2003	12/08/2005	COMBINED DEVELOPMENT PERMIT CONSISTING OF: 1) LOT LINE ADJUSTMENT TO ADJUST THE BOUNDARY BETWEEN TWO EXISTING LOTS OF RECORD OF 6.0 AND 58.2 ACRES, RESULTING IN TWO LOTS OF APPROXIMATELY 14.0 AND 50.2 ACRES RESPECTIVELY; AND 2) MINOR SUBDIVISION TENTATIVE PARCEL MAP FOR THE DIVISION OF THE RESULTING 50.2-ACRE LOT INTO TWO LOTS OF APPROXIMATELY 19.7 AND 30.6 ACRES. THE SUBJECT PROPERTY IS LOCATED AT 29001 ROBINSON CANYON ROAD, (ASSESSOR'S PARCEL NUMBERS 416-021-038-000 AND 416-021-039-000), ROBINSON CANYON ROAD AREA, CARMEL VALLEY MASTER PLAN AREA.
					26.00			

Total Lots Created: **39**

Y:\Crystal Reports\Subdivisions\CV-Approved Subdivisions1.rpt

{Apd_Base.Sub_Type} in ["MS", "SUB"] and
{Apd_Txt0.Text_040} = "Carmel Valley Master Pln" and
{Apd_Base.Data_Status} in ["APPEALED", "APPROVED", "CLEARED", "COND"] and
{Apd_Base.Comp_Type} in ["PLAN_OTH", "PLANNING", "SP_HANDL"] and
{Apd_Base.Date_F}

Monterey County Planning & Building Inspection Department

Active Subdivisions as of Monday, June 19, 2006 by Planning Area

Total Project Count =**6**

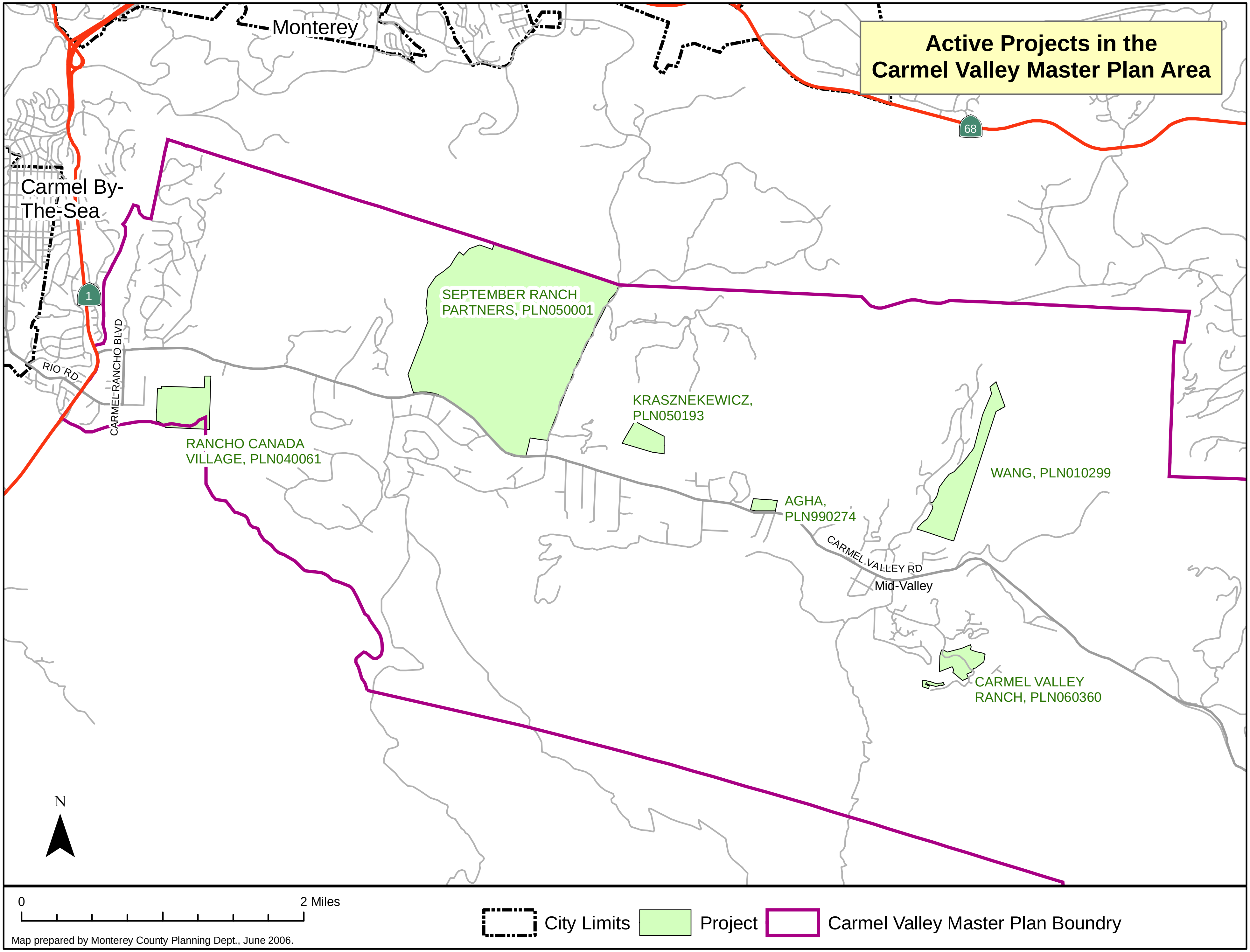
Project Title	File No.	APN	Planner	Type	Application Date	Status	Description

Carmel Valley Master Pln

Project Title	File No.	APN	Planner	Type	Application Date	Status	Description
SEPTEMBER RANCH PARTNERS	PLN050001	015-171-010-000	KNASTER	Standard Subdivision	06/16/1995	SET	CONTINUED FROM 4/13/06. CONSIDER THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT (RDEIR) FOR THE SEPTEMBER RANCH PROJECT AND MAKE A RECOMMENDATION TO THE MONTEREY COUNTY PLANNING COMMISSION REGARDING THE RDEIR AND THE ADEQUACY OF THE FINDINGS, EVIDENCE, CONDITIONS AND MITIGATIONS FOR THE SEPTEMBER RANCH PARTNERS COMBINED DEVELOPMENT PERMIT (PC95062/PLN050001) WHICH CONSISTS OF: 1) A REVISED PRELIMINARY PROJECT REVIEW MAP & VESTING TENTATIVE MAP FOR THE SUBDIVISION OF 891 ACRES INTO 94 MARKET-RATE RESIDENTIAL LOTS AND 15 INCLUSIONARY HOUSING LOTS FOR A TOTAL OF 109 RESIDENTIAL LOTS; A 20.2-ACRE LOT (LOT 101) FOR THE EXISTING EQUESTRIAN FACILITY & FARM HOUSE; 472 ACRES OF COMMON OPEN SPACE (PARCELS A,C & D); 319 ACRES OF PRIVATE OPEN SPACE (SCENIC EASEMENT) ON EACH RESIDENTIAL LOT OUTSIDE OF THE BUILDING ENVELOPE; A SEWAGE COLLECTION AND WASTEWATER TREATMENT SYSTEM ON A 7-ACRE PARCEL (PARCEL B) OR ANNEXATION TO THE CARMEL AREA WASTEWATER DISTRICT FOR PUBLIC SEWAGE DISPOSAL; SEPARATE WATER SYSTEMS WITH TWO WELLS, ONE BACKUP WELL, BOOSTER PUMPS AND PIPING FOR DISTRIBUTION OF POTABLE WATER; AND WATER TANKS FOR FIRE SUPPRESSION; 2) A USE PERMIT FOR THE PUBLIC/COMMERCIAL USE OF THE EQUESTRIAN CENTER & STABLES; 3) A USE PERMIT FOR REMOVAL OF A MAXIMUM OF 3,582 TREES, INCLUDING 2,692 MONTEREY PINES AND 890 COAST LIVE OAKS, FOR SUBDIVISION INFRASTRUCTURE IMPROVEMENTS AND MAXIMUM POTENTIAL REMOVAL WITHIN EACH BUILDING ENVELOPE; 4) A USE PERMIT FOR 100,000 CUBIC YARDS OF GRADING IN AN "S" (SITE PLAN REVIEW) OVERLAY ZONING DISTRICT FOR SUBDIVISION INFRASTRUCTURE IMPROVEMENTS; 5) A WAIVER OF THE POLICY PROHIBITING DEVELOPMENT ON SLOPES 30 PERCENT OR MORE FOR SUBDIVISION INFRASTRUCTURE IMPROVEMENTS; AND 6) AN ADMINISTRATIVE PERMIT FOR A TRACT SALES OFFICE, SECURITY GATEHOUSE & GATE. OR CONSIDER A PROJECT ALTERNATIVE IDENTIFIED IN THE REVISED DRAFT ENVIRONMENTAL IMPACT REPORT (RDEIR) FOR THE SEPTEMBER RANCH PROJECT KNOWN AS THE "REDUCED FOREST IMPACT WITH HIGH INCLUSIONARY HOUSING ALTERNATIVE" AND MAKE A RECOMMENDATION TO THE MONTEREY COUNTY PLANNING COMMISSION REGARDING THE RDEIR AND THE ADEQUACY OF THE FINDINGS, EVIDENCE, CONDITIONS AND MITIGATIONS FOR THE PROJECT ALTERNATIVE WHICH WOULD RESULT IN A TOTAL OF 94 RESIDENTIAL LOTS (OR UNITS) WITH A NET REDUCTION OF 15 LOTS. THIS ALTERNATIVE CONSISTS OF: 1) THE SUBDIVISION OF 891-ACRES INTO 72 MARKET-RATE RESIDENTIAL LOTS RESULTING IN A REDUCTION OF 22 MARKET-RATE RESIDENTIAL LOTS; 22 INCLUSIONARY OR AFFORDABLE HOUSING LOTS OR UNITS RESULTING IN A TOTAL INCREASE OF 7 INCLUSIONARY HOUSING UNITS (FIFTEEN AFFORDABLE HOUSING LOTS ARE IDENTIFIED ON THE REVISED PRELIMINARY PROJECT REVIEW MAP AND THE VESTING TENTATIVE MAP AS LOTS 105-119; THE REMAINING 7 LOTS OR

Project Title	File No.	APN	Planner	Type	Application Date	Status	Description
KRASZNEKEWICZ JOHN & SARAH	PLN050193	169-031-019-000-M	MONTANO	Minor Subdivision	06/09/2005	COMPLETE	MINOR SUBDIVISION TENTATIVE MAP FOR THE DIVISION OF AN EXISTING 50 ACRE PARCEL INTO TWO PARCELS OF 6.7 AND 43.3 ACRES, RESPECTIVELY. THE MINOR SUBDIVISION AS PROPOSED WILL LOCATE TWO EXISTING SINGLE FAMILY DWELLING IN TWO SEPARATE PARCELS. NO ADDITIONAL BUILDING SITES OR SITE IMPROVEMENTS ARE INCLUDED AS PART OF THIS PROPOSAL. THE PROPERTY IS LOCATED AT 8025 CARMEL VALLEY ROAD, CARMEL (ASSESSOR'S PARCEL NUMBER 169-031-019-000), NORTH OF CARMEL VALLEY ROAD, CARMEL VALLEY MASTER PLAN AREA.

Project Title	File No.	APN	Planner	Type	Application Date	Status	Description
RANCHO CANADA VILLAGE	PLN040061	015-162-017-000-M	ONCIANO	Standard Subdivision	04/20/2005	COMPLETE	THE PROPOSED DEVELOPMENT APPLICATION INCLUDES THE FOLLOWING: 1) AMENDMENT TO THE CARMEL VALLEY MASTER PLAN; 2) PREPARATION OF A SPECIFIC PLAN; AND 3) REZONING TO TITLE 21 TO INCORPORATE NEW REGULATIONS ALLOWING MIXED USE ZONING DISTRICTS AND NEW REGULATIONS IN THE SPECIFIC PLAN AREA. COMBINED DEVELOPMENT PERMIT CONSISTING OF A VESTING TENTATIVE STANDARD SUBDIVISION TO CREATE 281 MIXED USE RESIDENTIAL UNITS CONSISTING OF: SINGLE FAMILY DWELLINGS, TOWN-HOMES AND CONDOMINIUM/FLATS; USE PERMIT TO ALLOW DEVELOPMENT IN THE FLOODWAY; USE PERMIT FOR MOVEMENT OF 200,000 CUBIC YARDS OF SOIL; USE PERMIT FOR DEVELOPMENT OF PUBLIC FACILITIES AND INSTALLATION OF INFRASTRUCTURE. THE PROPERTIES ARE LOCATED ON CARMEL VALLEY ROAD (ASSESSOR'S PARCEL NUMBERS 015-162-017-000, 015-162-025-000, 015-162-026-000, 015-162-039-000 AND 015-162-040-000), CARMEL VALLEY AREA.
WANG PETER C & GRACE L	PLN010299	169-021-009-000	OSORIO	Minor Subdivision	08/07/2002	SET	MINOR SUBDIVISION VESTING TENTATIVE PARCEL MAP FOR THE SUBDIVISION OF AN EXISTING 106-ACRE PARCEL INTO 4 LOTS OF 36, 22, 20 AND 28 ACRES RESPECTIVELY. THE PROPERTY IS LOCATED NORTH OF CARMEL VALLEY ROAD, EASTERLY OF TIERRA GRANDE ROAD, EAST OF THE MID VALLEY SHOPPING CENTER (ASSESSOR'S PARCEL NUMBER 169-021-009-000), CARMEL VALLEY AREA, CARMEL VALLEY MASTER PLAN.
CARMEL VALLEY RANCH	PLN060360	416-522-010-000	OSORIO	Standard Subdivision	05/23/2006	APPLIED	STANDARD SUBDIVISION TENTATIVE MAP FOR THE CONVERSION OF 144 EXISTING HOTEL UNITS AT THE CARMEL VALLEY RANCH INTO 144 INDIVIDUALLY-OWNED HOTEL UNITS. THE HOTEL UNITS ARE LOCATED ON TWO SEPARATE PARCELS AT 1 OLD RANCH ROAD, CARMEL VALLEY (ASSESSOR'S PARCEL NUMBERS 416-522-010-000 & 416-592-023-000), WITHIN THE CARMEL VALLEY RANCH, SOUTH OF CARMEL VALLEY ROAD, CARMEL VALLEY MASTER PLAN AREA.
AGHA DURELL D TR	PLN990274	169-011-009-000-M	SCHUBERT	Standard Subdivision	08/26/2002	INCOMP	STANDARD SUBDIVISION TENTATIVE MAP FOR THE SUBDIVISION OF AN EXISTING LOT OF RECORD OF 50 ACRES INTO 20 LOTS RANGING IN SIZE FROM 1.1 ACRES TO 5.2 ACRES, INCLUDING GRADING FOR THE CONSTRUCTION OF 20-FOOT WIDE ACCESS ROAD; AND A USE PERMIT FOR DEVELOPMENT ON SLOPES GREATER THAN 30 PERCENT (ACCESS ROAD). THE PROPERTY IS LOCATED NORTH OF LOS ARBOLES ROAD, CARMEL (ASSESSOR'S PARCEL NUMBER 169-011-015-000), MID CARMEL VALLEY AREA.



Map prepared by Monterey County Planning Dept., June 2006.

Appendix G

Recommended 2009 Traffic Impact Fees

MEMORANDUM

TO: Rich Walter, Jones and Stokes

FROM: Mark E. Spencer, DKS Associates

DATE: July 27, 2007

SUBJECT: Carmel Valley Impact Fee Update P 05126-000

The purpose of this memorandum is to summarize DKS Associates' findings on the Traffic Impact Fee Update as part of the Carmel Valley Master Plan SEIR. The fees established in 1995 for the Carmel Valley Master Plan area under resolution 95-140 were based upon a per unit structure. Fees were collected from new development lots, and lots historically recorded in the books. The unit of measure is different depending on the type of development. New lots, discretionary lots, and lots of record are based upon dwelling units. Service and commercial developments are assessed per 1000 square feet, and visitor accommodations are assessed on a per room basis. The fee structure values adopted in 1995 shown in **Table 1**.

Table 1. 1995 EIR Impact Fee Structure (1992 Costs)

Traffic Mitigation Fee (per Resolution 95-410) Carmel Valley and Expanded Area		
Development on Existing Lots of Record (before 08/25/92)	CVMP Area	Expanded Area
Market Rate	$8,000	$4,000
Senior	$4,000	$2,000
Caretaker/2nd Units	$8,000	$4,000
Low / Moderate Income	$0	$0
Development on New Lots of Record (after 08/25/92)		
Market Rate	$16,000	$8,000
Senior	$8,000	$4,000
Caretaker/2nd Units	$16,000	$8,000
Low / Moderate Income	$0	$0
New Hotel / Motel Units (per room)	$17,400	$8,700
Existing Hotel / Motel Expansion (per room)	$8,500	$4,250
Commercial Uses (per 1000 sq. ft.)	$4,200	$2,100
Service Centers (per 1000 sq. ft.)	$2,100	$1,050

Source: Resolution No. 95-410, County of Monterey, California (995cvfee.res)

Fees were based on capital improvement project costs identified in the CVMP area and the amount of federal aid/ subsidy provided for regional development. Values range from $2,100 for a service center, to $17,400 for a new hotel / motel unit on new lots to be developed.

Per Resolution No. 95-410, Monterey County has updated the fee schedule on a yearly basis based upon numerous factors including the ENR (Engineering News Record) index.

Table 2. 2007 – 2008 Traffic Mitigation Fees (adopted in FY 2007-2008)

Fiscal Year 2007 – 2008 Traffic Mitigation Fees Carmel Valley and Expanded Area		
Development on Existing Lots of Record (before 8/25/92)	CVMP Area	Expanded Area
Market Rate Unit	$11,038	$5,519
Senior Unit	$5,519	$2,760
Caretaker Unit	$11,038	$5,519
2nd Unit / Apartment	$11,038	$5,519
Low / Moderate Income Unit	$0	$0
Development on New Lots of Record (after 8/25/92)		
Market Rate Unit	$22,076	$11,038
Senior Unit	$11,038	$5,519
Caretaker Unit	$22,076	$11,038
2nd Unit / Apartment	$22,076	$11,038
Low / Moderate Income Unit	$0	$0
Commercial		
New Hotel / Motel Unit (per room)	$24,008	$12,004
Existing Hotel / Motel Expansion (per room)	$11,729	$5,865
Commercial Uses (per 1,000 sf)	$5,795	$2,898
Service Centers (per 1,000 sf)	$2,898	$1,449

Source: Monterey County, Department of Planning.
http://www.co.monterey.ca.us/pbi/docs/ordinances/carmelvalleyfees03-04.pdf

The fee structure represented above is an expansion of the impact fee program adopted in 1995. DKS Associates created an updated impact fee structure beginning with the original capital improvement project list created in 1995. New capital improvement projects were added to the expenditures that were assumed for an updated impact fee, bringing the total number of projects up from six (6) to sixteen (16). **Table 3** shows the updated projects and their approximate costs.

Table 3. 2007 Project List and Costs as of Today.

2007 Project List and Costs (2007 Dollars)		
Project Name	**Project Cost (millions)**	**Status**
Carmel Valley Road 4-Lane widening		Finished
Rio Rd Extension	$1.71	Deleted
Channelization	$1.6	Partially
Laureles Grade Shoulder Addition	$3.6	Not Started
Laureles Grade Climbing Lane	$7.1	Not Started
Minor Interchanges	$4.7	Not Started
Class II Bike Lanes	$0.1	Partially
Left-Turn Channelization - west of Ford Drive	$2.3	Partially
Sight Distance Improvements at Dorris Drive	$2.7	Not Started
Shoulder Widening Between Laureles Grade and Ford Road [on Carmel Valley Road]	$2.6	Not Started
Paved Turnouts and Signs on Laureles Grade [north of Carmel Valley Road]	$0.9	Partially
Grade Separation at Laureles Grade / Carmel Valley Road	$4.1	Not Started
Signalization or Widening of Laureles Grade / Carmel Valley Road intersection (prior to Grade Separation)	$0.250	Not Started
Passing Lanes in front of September Ranch	$6.6	Not Started
Passing Lanes opposite Garland Park	$3.5	Not Started
Passing Lanes for CVMP Roadway Segment 6 and 7	$1.1	Not Started

Source: DKS Associates, 2007.

Projects that are in italicized lettering are carried over from the 1995 fee. The Rio Road extension project has been deleted from the updated fee program, as it was determined by analysis that it would no longer be essential to accommodate growth in the CVMP area. The widening of Carmel Valley Road near State Route 1, from two to four lanes, has been completed. In addition, signalization or widening of Laureles Grade & Carmel Valley Road intersection prior to the grade separation project has been added. The original project costs from the 1995 EIR were inflated by an annual rate of 3.66 percent, which is consistent with various measures of inflation including the ENR for California. **Table 4** shows the project list and their anticipated year of completion, with approximate total costs upon year of completion.

Table 4. Project List Total Costs and Year of Completion.

Project Anticipated Year of Completion and Total Cost at Time of Completion		
Project Name	**Total Project Cost (millions)**	**Year of Completion**
Carmel Valley Road 4-Lane widening	-	-
Rio Rd Extension	-	-
Channelization	$0.332	2008
Laureles Grade Shoulder Addition	$6.925	2024
Laureles Grade Climbing Lane	$15.578	2027
Minor Interchanges	$5.332	2010
Class II Bike Lanes	$0.026	2008
Left-Turn Channelization - west of Ford Road	$0.476	2008
Sight Distance Improvements at Dorris Drive	$3.184	2011
Shoulder Widening Between Laureles Grade and Ford Road [on Carmel Valley Road]	$4.948	2023
Paved Turnouts and Signs on Laureles Grade [north of Carmel Valley Road]	$0.184	2008
Signalization or Widening of Laureles Grade / Carmel Valley Road intersection (prior to Grade Separation)	$0.281	2010
Grade Separation at Laureles Grade / Carmel Valley Road	$7.890	2024
Passing Lanes in front of September Ranch	$9.717	2017
Passing Lanes opposite Garland Park	$5.639	2019
Passing Lanes for CVMP Roadway Segment 6 and 7	$1.640	2018
Total	**$61.557**	**-**

Source: DKS Associates, 2007.

The total costs of the projects at each project's year completion would be approximately $61,557,000. The completion years were assumed to vary in order to spread the capital costs over time. The targeted completion years reflect what would occur should new homes be constructed at an even rate over the twenty year period. If all projects were to be built and completed by 2008, it would cost the county approximately $42,750,000. However, it is not realistic to assume that all sixteen projects would be built and completed within a year. Conversely, if all projects are postponed for twenty years, then built and completed in 2027, the total cost to the County would be approximately $90,100,000. In addition, approximately $295,000 would be spent on administrative costs within the County related to these projects, over 20 years.

Table 5 illustrates the recommended updated impact fee structure assuming that the County's impact fee fund breaks even at the end of the fiscal year in 2027. All projects listed in **Table 4** are assumed in this fee schedule.

DKS assumed that the amount of federal funding would not continue at the levels assumed in 1995.

The commercial category required the conversion of employee data from the AMBAG model to employees per 1000 per square feet units as in the 2003-2004 impact fee structure. ITE Trip Generation Handbook rates indicate that approximately four employees per 1000 square feet is the average. This value is an average of common land use codes found under the retail, office, and government categories.

Table 5. Recommended 2009 Impact Fee Structure

Fiscal Year 2008 – 2009 Traffic Mitigation Fees Carmel Valley and Expanded Area		
Development on Existing Lots of Record (before 8/25/92)	CVMP Area	Expanded Area
Market Rate Unit	$13,052	$6,526
Senior Unit	$6,526	$3,263
Caretaker Unit	$13,052	$6,526
2nd Unit / Apartment	$13,052	$6,526
Low / Moderate Income Unit	$0	$0
Development on New Lots of Record (after 8/25/92)		
Market Rate Unit	$26,104	$13,052
Senior Unit	$13,052	$6,526
Caretaker Unit	$26,104	$13,052
2nd Unit / Apartment	$26,104	$13,052
Low / Moderate Income Unit	$0	$0
Commercial		
New Hotel / Motel Unit (per room)	$26,104	$13,052
Existing Hotel / Motel Expansion (per room)	$12,752	$6,376
Commercial Uses (per 1,000 sf)	$6,526	$3,263
Service Centers (per 1,000 sf)	$3,263	$1,632

Source: DKS Associates, 2007.

Values range from $3,263 for Service Centers, to $26,104 for new market rate units developed in the Carmel Valley Master Plan Area. From the 1,188 lots forecasted, 259 were recorded before August 1992. These lots were priced at $13,052 which is half of a lot of record developed after 1992. Impact fee values in **Table 2**, leaving a total of 929 new lots to be developed after August 1992. Also, in order to avoid double counting under the commercial category, the number of visitor accommodations employees was removed from the commercial category calculations. The fee structure also had an assumption that revenue generated would have an interest of six percent. With this recommended updated fee structure, it is expected that the County would be able to fund all capital improvement projects within the Carmel Valley Master Plan area and have the funding fee program break even.

Laureles Grade Mitigation Sensitivity Analysis

The intersection of Laureles Grade & Carmel Valley Road has various mitigation possibilities. The one included in the 1995 CIP is the Grade Separation Project; alternatively, DKS also recommended a signal installation. **Table 6** shows the changes in the fees in comparison to the fee structure for 2007 – 2008.

Table 6. 2008 – 2009 Traffic Mitigation Fee Sensitivity for Laureles Grade & Carmel Valley Road Mitigation Measures.

Fiscal Year 2008 – 2009 Traffic Mitigation Fees								
	2007 - 2008		Grade Sep + Signal		Grade Sep Only		Signal Only	
	CVMP Area	Expanded Area	CVMP Area	Expanded Area	CVMP Area	Expanded Area	CVMP Area	Expanded Area
Development on Existing Lots of Record (before 8/25/92)								
Market Rate Unit	$11,038	$5,519	$13,052	$6,526	$12,942	$6,471	$11,682	$5,841
Senior Unit	$5,519	$2,760	$6,526	$3,263	$6,471	$3,235	$5,841	$2,921
Caretaker Unit	$11,038	$5,519	$13,052	$6,526	$12,942	$6,471	$11,682	$5,841
2nd Unit / Apartment	$11,038	$5,519	$13,052	$6,526	$12,942	$6,471	$11,682	$5,841
Low / Moderate Income Unit	$0	$0	$13,052	$6,526	$12,942	$6,471	$11,682	$5,841
Development on New Lots of Record (after 8/25/92)								
Market Rate Unit	$22,076	$11,038	$26,104	$13,052	$25,883	$12,942	$23,364	$11,682
Senior Unit	$11,038	$5,519	$13,052	$6,526	$12,942	$6,471	$11,682	$5,841
Caretaker Unit	$22,076	$11,038	$26,104	$13,052	$25,883	$12,942	$23,364	$11,682
2nd Unit / Apartment	$22,076	$11,038	$26,104	$13,052	$25,883	$12,942	$23,364	$11,682
Low / Moderate Income Unit	$0	$0	$0	$0	$0	$0	$0	$0
Commercial								
New Hotel / Motel Unit (per room)	$24,008	$12,004	$26,104	$13,052	$25,883	$12,942	$23,364	$11,682
Existing Hotel / Motel Expansion (per room)	$11,729	$5,865	$12,752	$6,376	$12,644	$6,322	$11,413	$5,707
Commercial Uses (per 1,000 sf)	$5,795	$2,898	$6,526	$3,263	$6,471	$3,235	$5,841	$2,921
Service Centers (per 1,000 sf)	$2,898	$1,449	$3,263	$1,632	$3,263	$1,632	$3,263	$1,632

2007 County Proposed Financing Program

Grade Seperation plus Signalization of Laureles Grade & Carmel Valley Road Scenario

DEVELOPMENT

	YEAR	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
	Present Yr	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
FAS		1	1	1					1	1	1	1	1	1					1	1	1
FAU		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NEW LOTS (per dwelling unit)		67	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Market Rate		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Senior Unit		10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Caretaker Unit		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
2nd Unit / Apartment		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
VISITOR ACCOMODATIONS (per room)						250					50					50					43
New Hotel/Motel Unit						168					34					34					29
Existing Hotel/Motel Expansion						82					16					16					14
COMMERICAL (per 1000 sq. ft.)		222	222	37	37	37					62					93					93
DISCRETIONARY (per dwelling unit)		10	10	10	10	10	5	5	5	5	5	2	3	2	3	2	3	2	3	2	3
LOTS OF RECORD (per dwelling unit)		13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
Market Rate		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
Senior Unit		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
Caretaker Unit		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
2nd Unit / Apartment		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3

Income ($mil of dlls) no inflation

	$ Millions	Fee	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FAS	0	**$0**																				
FAU	0	**$0**																				
NEW LOTS		**$0**	1.62	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
Market Rate	0.026	**$26,104**	0.50	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Senior Unit	0.013	**$13,052**	0.13	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Caretaker Unit	0.026	**$26,104**	0.50	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
2nd Unit / Apartment	0.026	**$26,104**	0.50	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
VISITOR ACCOMODATIONS		**$0**																				
New Hotel/Motel Unit	0.026	**$26,104**					4.39					0.89					0.89					0.76
Existing Hotel/Motel Expansion	0.013	**$12,752**					1.05					0.20					0.20					0.18
COMMERICAL	0.007	**$6,526**	1.45	1.45	0.24	0.24	0.24					0.40					0.60					0.60
DISCRETIONARY		**$0**																				
LOTS OF RECORD		**$0**	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.14
Market Rate	0.013	**$13,052**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Senior Unit	0.007	**$6,526**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Caretaker Unit	0.013	**$13,052**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
2nd Unit / Apartment	0.013	**$13,052**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Total Income / Revenue per year			**3.23**	**3.05**	**1.84**	**1.84**	**7.27**	**1.60**	**1.60**	**1.60**	**1.60**	**3.09**	**1.60**	**1.60**	**1.60**	**1.60**	**3.30**	**1.60**	**1.60**	**1.60**	**1.60**	**3.11**

Expenditures ($mil of dlls) Projects increase in inflation by 3.66%

Project Name	$ millions	2007 Status	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
CVR 4-Lane widening	14.5	Finished																				
Rio Rd Extension	1.71	Deleted																				
Channelization	1.6	Partially	1.66	1.72	1.78	1.85	1.92	1.99	2.06	2.13	2.21	2.29	2.38	2.46	2.55	2.65	2.74	2.84	2.95	3.06	3.17	3.28
LGR Shoulder addition	3.6	Not Started	3.68	3.82	3.96	4.10	4.25	4.41	4.57	4.74	4.91	5.09	5.28	5.47	5.67	5.88	6.10	6.32	6.55	6.79	7.04	7.30
LGR climbing lane	7.1	Not Started	7.37	7.64	7.92	8.21	8.51	8.82	9.14	9.48	9.83	10.19	10.56	10.94	11.34	11.76	12.19	12.64	13.10	13.58	14.08	14.59
Minor Interchanges	4.7	Not Started	4.91	5.09	5.28	5.47	5.67	5.88	6.10	6.32	6.55	6.79	7.04	7.30	7.56	7.84	8.13	8.42	8.73	9.05	9.38	9.73
Class II Bike Lanes	0.1	Partially	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.18	0.18	0.19	0.20	0.20	0.21	0.22	0.23	0.24	0.24	0.25	0.26
Left-Turn Channelization - west of Ford	2.3	Partially	2.37	2.46	2.55	2.64	2.74	2.84	2.94	3.05	3.16	3.28	3.40	3.52	3.65	3.79	3.93	4.07	4.22	4.37	4.53	4.70
Sight Distance Improvements at Dorris Drive	2.7	Not Started	2.82	2.92	3.03	3.14	3.26	3.38	3.50	3.63	3.76	3.90	4.04	4.19	4.34	4.50	4.67	4.84	5.01	5.20	5.39	5.59
Shoulder Widening Between Laureles and Ford [on CVR]	2.6	Not Started	2.74	2.84	2.94	3.05	3.16	3.28	3.40	3.52	3.65	3.78	3.92	4.07	4.22	4.37	4.53	4.70	4.87	5.05	5.23	5.42
Paved Turnouts on Laureles & Signs [north of CVR]	0.9	Partially	0.91	0.95	0.98	1.02	1.05	1.09	1.13	1.17	1.22	1.26	1.31	1.36	1.41	1.46	1.51	1.57	1.62	1.68	1.74	1.81
Grade Separation at Laureles / CVR	4.1	Not Started	4.20	4.35	4.51	4.68	4.85	5.03	5.21	5.40	5.60	5.80	6.02	6.24	6.46	6.70	6.95	7.20	7.46	7.74	8.02	8.31
Passing Lanes in front of September Ranch	6.6	Not Started	6.80	7.05	7.31	7.58	7.86	8.14	8.44	8.75	9.07	9.40	9.75	10.10	10.47	10.86	11.26	11.67	12.09	12.54	13.00	13.47
Passing Lanes opposite Garland Park	3.5	Not Started	3.65	3.78	3.92	4.07	4.22	4.37	4.53	4.70	4.87	5.05	5.23	5.42	5.62	5.83	6.04	6.26	6.49	6.73	6.97	7.23
Passing Lanes Segment 6 and 7	1.1	Not Started	1.10	1.14	1.19	1.23	1.27	1.32	1.37	1.42	1.47	1.53	1.58	1.64	1.70	1.76	1.83	1.89	1.96	2.03	2.11	2.19
Laureles Grade & Carmel Valley Road Signalization	0.3	Not Started	0.25	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.41	0.43	0.44	0.46	0.48	0.49	0.51
Total Project Cost			1.015	0.000	5.558	3.143	0.000	0.000	0.000	0.000	0.000	9.404	1.582	5.422	0.000	0.000	6.945	4.695	6.550	0.000	0.000	14.591
Admin costs / year			0.012	0.012	0.013	0.013	0.013	0.013	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.016	0.016	0.016	0.017	0.017	0.018	0.018
Total Cost per year			**1.027**	**0.012**	**5.571**	**3.156**	**0.013**	**0.013**	**0.014**	**0.014**	**0.014**	**9.418**	**1.597**	**5.437**	**0.015**	**0.016**	**6.961**	**4.711**	**6.567**	**0.017**	**0.018**	**14.609**

Expenditures ($mil of dlls) Projects increase in inflation by 4%

	2007																				
Revenues	1.228	4.461	3.050	1.841	1.841	7.272	1.599	1.599	1.599	1.599	3.094	1.599	1.599	1.599	1.599	3.295	1.599	1.599	1.599	1.599	3.113
Expenditures		1.027	0.012	5.571	3.156	0.013	0.013	0.014	0.014	0.014	9.418	1.597	5.437	0.015	0.016	6.961	4.711	6.567	0.017	0.018	14.609
Net Annual Balance		3.433	3.038	-3.730	-1.315	7.259	1.586	1.585	1.585	1.585	-6.324	0.002	-3.838	1.584	1.583	-3.666	-3.112	-4.968	1.582	1.581	-11.496
Interest Income @ 6%		0.134	0.180	0.287	0.153	0.341	0.626	0.759	0.900	1.049	0.969	0.838	0.773	0.752	0.892	0.883	0.733	0.534	0.465	0.588	0.325
Carry Forward Next Year		3.433	6.651	3.208	2.046	9.646	11.858	14.202	16.686	19.320	13.965	14.805	11.741	14.076	16.551	13.768	11.389	6.955	9.002	11.170	**0.000**

1 - The County has approximately $1.228 million dollars in the bank as of March 2007.
2 - The Fee values indicate optomized values according to a break even scenario. FAS, FAU funding were not considered a part of income sources
3 - Green Cells indicate the cost of the project if activated that year.
4 - Red Cells indicate Net Annual Balance without the Carry Forward Next Year Balance
5 - Carry Forward Next Year (Present Year) = Net Annual Balance + Carry Forward Next Year (Previous Year) + Interest Income (Present Year)

2007 County Proposed Financing Program

Grade Seperation Only of Laureles Grade & Carmel Valley Road Scenario

DEVELOPMENT

	YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Present Yr	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
FAS		1	1	1					1	1	1	1	1	1					1	1	1
FAU		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NEW LOTS (per dwelling unit)		67	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Market Rate		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Senior Unit		10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Caretaker Unit		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
2nd Unit / Apartment		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
VISITOR ACCOMODATIONS (per room)						250					50					50					43
New Hotel/Motel Unit						168					34					34					29
Existing Hotel/Motel Expansion						82					16					16					14
COMMERICAL (per 1000 sq. ft.)		222	222	37	37	37					62					93					93
DISCRETIONARY (per dwelling unit)		10	10	10	10	10	5	5	5	5	5	2	3	2	3	2	3	2	3	2	3
LOTS OF RECORD (per dwelling unit)		13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
Market Rate		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
Senior Unit		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
Caretaker Unit		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
2nd Unit / Apartment		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3

Income ($mil of dlls) no inflation

	$ Millions	Fee	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FAS	0	**$0**																				
FAU	0	**$0**																				
NEW LOTS		**$0**	1.60	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Market Rate	0.026	**$25,883**	0.49	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Senior Unit	0.013	**$12,942**	0.13	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Caretaker Unit	0.026	**$25,883**	0.49	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
2nd Unit / Apartment	0.026	**$25,883**	0.49	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
VISITOR ACCOMODATIONS		**$0**																				
New Hotel/Motel Unit	0.026	**$25,883**					4.35					0.88					0.88					0.75
Existing Hotel/Motel Expansion	0.013	**$12,644**					1.04					0.20					0.20					0.18
COMMERICAL	0.006	**$6,471**	1.44	1.44	0.24	0.24	0.24					0.40					0.60					0.60
DISCRETIONARY		**$0**																				
LOTS OF RECORD		**$0**	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.14
Market Rate	0.013	**$12,942**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Senior Unit	0.006	**$6,471**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Caretaker Unit	0.013	**$12,942**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
2nd Unit / Apartment	0.013	**$12,942**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Total Income / Revenue per year			**3.21**	**3.02**	**1.83**	**1.83**	**7.21**	**1.59**	**1.59**	**1.59**	**1.59**	**3.07**	**1.59**	**1.59**	**1.59**	**1.59**	**3.27**	**1.59**	**1.59**	**1.59**	**1.59**	**3.09**

Expenditures ($mil of dlls) Projects increase in inflation by 3.66%

Project Name	$ millions	2007 Status	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
CVR 4-Lane widening	14.5	Finished																				
Rio Rd Extension	1.71	Deleted																				
Channelization	1.6	Partially	1.66	1.72	1.78	1.85	1.92	1.99	2.06	2.13	2.21	2.29	2.38	2.46	2.55	2.65	2.74	2.84	2.95	3.06	3.17	3.28
LGR Shoulder addition	3.6	Not Started	3.68	3.82	3.96	4.10	4.25	4.41	4.57	4.74	4.91	5.09	5.28	5.47	5.67	5.88	6.10	6.32	6.55	6.79	7.04	7.30
LGR climbing lane	7.1	Not Started	7.37	7.64	7.92	8.21	8.51	8.82	9.14	9.48	9.83	10.19	10.56	10.94	11.34	11.76	12.19	12.64	13.10	13.58	14.08	14.59
Minor Interchanges	4.7	Not Started	4.91	5.09	5.28	5.47	5.67	5.88	6.10	6.32	6.55	6.79	7.04	7.30	7.56	7.84	8.13	8.42	8.73	9.05	9.38	9.73
Class II Bike Lanes	0.1	Partially	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.18	0.18	0.19	0.20	0.20	0.21	0.22	0.23	0.24	0.24	0.25	0.26
Left-Turn Channelization - west of Ford	2.3	Partially	2.37	2.46	2.55	2.64	2.74	2.84	2.94	3.05	3.16	3.28	3.40	3.52	3.65	3.79	3.93	4.07	4.22	4.37	4.53	4.70
Sight Distance Improvements at Dorris Drive	2.7	Not Started	2.82	2.92	3.03	3.14	3.26	3.38	3.50	3.63	3.76	3.90	4.04	4.19	4.34	4.50	4.67	4.84	5.01	5.20	5.39	5.59
Shoulder Widening Between Laureles and Ford [on CVR]	2.6	Not Started	2.74	2.84	2.94	3.05	3.16	3.28	3.40	3.52	3.65	3.78	3.92	4.07	4.22	4.37	4.53	4.70	4.87	5.05	5.23	5.42
Paved Turnouts on Laureles & Signs [north of CVR]	0.9	Partially	0.91	0.95	0.98	1.02	1.05	1.09	1.13	1.17	1.22	1.26	1.31	1.36	1.41	1.46	1.51	1.57	1.62	1.68	1.74	1.81
Grade Separation at Laureles / CVR	4.1	Not Started	4.20	4.35	4.51	4.68	4.85	5.03	5.21	5.40	5.60	5.80	6.02	6.24	6.46	6.70	6.95	7.20	7.46	7.74	8.02	8.31
Passing Lanes in front of September Ranch	6.6	Not Started	6.80	7.05	7.31	7.58	7.86	8.14	8.44	8.75	9.07	9.40	9.75	10.10	10.47	10.86	11.26	11.67	12.09	12.54	13.00	13.47
Passing Lanes opposite Garland Park	3.5	Not Started	3.65	3.78	3.92	4.07	4.22	4.37	4.53	4.70	4.87	5.05	5.23	5.42	5.62	5.83	6.04	6.26	6.49	6.73	6.97	7.23
Passing Lanes Segment 6 and 7	1.1	Not Started	1.10	1.14	1.19	1.23	1.27	1.32	1.37	1.42	1.47	1.53	1.58	1.64	1.70	1.76	1.83	1.89	1.96	2.03	2.11	2.19
Laureles Grade & Carmel Valley Road Signalization	0.3	Not Started	0.25	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.41	0.43	0.44	0.46	0.48	0.49	0.51
Total Project Cost			1.015	0.000	5.279	3.143	0.000	0.000	0.000	0.000	0.000	9.404	1.582	5.422	0.000	0.000	6.945	4.695	6.550	0.000	0.000	14.591
Admin costs / year			0.012	0.012	0.013	0.013	0.013	0.013	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.016	0.016	0.016	0.017	0.017	0.018	0.018
Total Cost per year			**1.027**	**0.012**	**5.292**	**3.156**	**0.013**	**0.013**	**0.014**	**0.014**	**0.014**	**9.418**	**1.597**	**5.437**	**0.015**	**0.016**	**6.961**	**4.711**	**6.567**	**0.017**	**0.018**	**14.609**

Expenditures ($mil of dlls) Projects increase in inflation by 4%

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Revenues	1.228	4.433	3.024	1.825	1.825	7.210	1.585	1.585	1.585	1.585	3.067	1.585	1.585	1.585	1.585	3.267	1.585	1.585	1.585	1.585	3.087
Expenditures		1.027	0.012	5.292	3.156	0.013	0.013	0.014	0.014	0.014	9.418	1.597	5.437	0.015	0.016	6.961	4.711	6.567	0.017	0.018	14.609
Net Annual Balance		3.406	3.012	-3.467	-1.330	7.197	1.572	1.571	1.571	1.571	-6.350	-0.011	-3.852	1.570	1.569	-3.694	-3.126	-4.981	1.568	1.567	-11.522
Interest Income @ 6%		0.133	0.178	0.292	0.165	0.351	0.635	0.768	0.908	1.057	0.977	0.845	0.780	0.758	0.898	0.888	0.736	0.537	0.467	0.589	0.326
Carry Forward Next Year		3.406	6.597	3.421	2.256	9.805	12.012	14.352	16.831	19.460	14.087	14.920	11.848	14.176	16.643	13.837	11.448	7.004	9.039	11.196	**0.000**

1 - The County has approximately $1.228 million dollars in the bank as of March 2007.
2 - The Fee values indicate optomized values according to a break even scenario. FAS, FAU funding were not considered a part of income sources
3 - Green Cells indicate the cost of the project if activated that year.
4 - Red Cells indicate Net Annual Balance without the Carry Forward Next Year Balance
5 - Carry Forward Next Year (Present Year) = Net Annual Balance + Carry Forward Next Year (Previous Year) + Interest Income (Present Year)

2007 County Proposed Financing Program

Signalization Only of Laureles Grade & Carmel Valley Road Scenario

DEVELOPMENT	YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Present Yr	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
FAS		1	1	1					1	1	1	1	1	1					1	1	1
FAU		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NEW LOTS (per dwelling unit)		67	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Market Rate		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Senior Unit		10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Caretaker Unit		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
2nd Unit / Apartment		19	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
VISITOR ACCOMODATIONS (per room)						250					50					50					43
New Hotel/Motel Unit						168					34					34					29
Existing Hotel/Motel Expansion						82					16					16					14
COMMERICAL (per 1000 sq. ft.)		222	222	37	37	37					62					93					93
DISCRETIONARY (per dwelling unit)		10	10	10	10	10	5	5	5	5	5	2	3	2	3	2	3	2	3	2	3
LOTS OF RECORD (per dwelling unit)		13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
Market Rate		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
Senior Unit		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
Caretaker Unit		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
2nd Unit / Apartment		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3

Income ($mil of dlls) no inflation	$ Millions	Fee	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FAS	0	**$0**																				
FAU	0	**$0**																				
NEW LOTS		**$0**	1.45	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Market Rate	0.023	**$23,364**	0.44	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Senior Unit	0.012	**$11,682**	0.12	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Caretaker Unit	0.023	**$23,364**	0.44	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
2nd Unit / Apartment	0.023	**$23,364**	0.44	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
VISITOR ACCOMODATIONS		**$0**																				
New Hotel/Motel Unit	0.023	**$23,364**					3.93					0.79					0.79					0.68
Existing Hotel/Motel Expansion	0.011	**$11,413**					0.94					0.18					0.18					0.16
COMMERICAL	0.006	**$5,841**	1.30	1.30	0.22	0.22	0.22					0.36					0.54					0.54
DISCRETIONARY		**$0**																				
LOTS OF RECORD		**$0**	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.12
Market Rate	0.012	**$11,682**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Senior Unit	0.006	**$5,841**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Caretaker Unit	0.012	**$11,682**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
2nd Unit / Apartment	0.012	**$11,682**	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Total Income / Revenue per year			**2.89**	**2.73**	**1.65**	**1.65**	**6.51**	**1.43**	**1.43**	**1.43**	**1.43**	**2.77**	**1.43**	**1.43**	**1.43**	**1.43**	**2.95**	**1.43**	**1.43**	**1.43**	**1.43**	**2.79**

Expenditures ($mil of dlls) Projects increase in inflation by 3.66%																						
Project Name	$ millions	2007 Status	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
CVR 4-Lane widening	14.5	Finished																				
Rio Rd Extension	1.71	Deleted																				
Channelization	1.6	Partially	1.66	1.72	1.78	1.85	1.92	1.99	2.06	2.13	2.21	2.29	2.38	2.46	2.55	2.65	2.74	2.84	2.95	3.06	3.17	3.28
LGR Shoulder addition	3.6	Not Started	3.68	3.82	3.96	4.10	4.25	4.41	4.57	4.74	4.91	5.09	5.28	5.47	5.67	5.88	6.10	6.32	6.55	6.79	7.04	7.30
LGR climbing lane	7.1	Not Started	7.37	7.64	7.92	8.21	8.51	8.82	9.14	9.48	9.83	10.19	10.56	10.94	11.34	11.76	12.19	12.64	13.10	13.58	14.08	14.59
Minor Interchanges	4.7	Not Started	4.91	5.09	5.28	5.47	5.67	5.88	6.10	6.32	6.55	6.79	7.04	7.30	7.56	7.84	8.13	8.42	8.73	9.05	9.38	9.73
Class II Bike Lanes	0.1	Partially	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.18	0.18	0.19	0.20	0.20	0.21	0.22	0.23	0.24	0.24	0.25	0.26
Left-Turn Channelization - west of Ford	2.3	Partially	2.37	2.46	2.55	2.64	2.74	2.84	2.94	3.05	3.16	3.28	3.40	3.52	3.65	3.79	3.93	4.07	4.22	4.37	4.53	4.70
Sight Distance Improvements at Dorris Drive	2.7	Not Started	2.82	2.92	3.03	3.14	3.26	3.38	3.50	3.63	3.76	3.90	4.04	4.19	4.34	4.50	4.67	4.84	5.01	5.20	5.39	5.59
Shoulder Widening Between Laureles and Ford [on CVR]	2.6	Not Started	2.74	2.84	2.94	3.05	3.16	3.28	3.40	3.52	3.65	3.78	3.92	4.07	4.22	4.37	4.53	4.70	4.87	5.05	5.23	5.42
Paved Turnouts on Laureles & Signs [north of CVR]	0.9	Partially	0.91	0.95	0.98	1.02	1.05	1.09	1.13	1.17	1.22	1.26	1.31	1.36	1.41	1.46	1.51	1.57	1.62	1.68	1.74	1.81
Grade Separation at Laureles / CVR	4.1	Not Started	4.20	4.35	4.51	4.68	4.85	5.03	5.21	5.40	5.60	5.80	6.02	6.24	6.46	6.70	6.95	7.20	7.46	7.74	8.02	8.31
Passing Lanes in front of September Ranch	6.6	Not Started	6.80	7.05	7.31	7.58	7.86	8.14	8.44	8.75	9.07	9.40	9.75	10.10	10.47	10.86	11.26	11.67	12.09	12.54	13.00	13.47
Passing Lanes opposite Garland Park	3.5	Not Started	3.65	3.78	3.92	4.07	4.22	4.37	4.53	4.70	4.87	5.05	5.23	5.42	5.62	5.83	6.04	6.26	6.49	6.73	6.97	7.23
Passing Lanes Segment 6 and 7	1.1	Not Started	1.10	1.14	1.19	1.23	1.27	1.32	1.37	1.42	1.47	1.53	1.58	1.64	1.70	1.76	1.83	1.89	1.96	2.03	2.11	2.19
Laureles Grade & Carmel Valley Road Signalization	0.3	Not Started	0.25	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.41	0.43	0.44	0.46	0.48	0.49	0.51
Total Project Cost			1.015	0.000	5.558	3.143	0.000	0.000	0.000	0.000	0.000	9.404	1.582	5.422	0.000	0.000	0.000	4.695	6.550	0.000	0.000	14.591
Admin costs / year			0.012	0.012	0.013	0.013	0.013	0.013	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.016	0.016	0.016	0.017	0.017	0.018	0.018
Total Cost per year			**1.027**	**0.012**	**5.571**	**3.156**	**0.013**	**0.013**	**0.014**	**0.014**	**0.014**	**9.418**	**1.597**	**5.437**	**0.015**	**0.016**	**0.016**	**4.711**	**6.567**	**0.017**	**0.018**	**14.609**

Expenditures ($mil of dlls) Projects increase in inflation by 4%	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Revenues	1.228	4.121	2.730	1.648	1.648	6.509	1.431	1.431	1.431	1.431	2.769	1.431	1.431	1.431	1.431	2.949	1.431	1.431	1.431	1.431	2.786
Expenditures		1.027	0.012	5.571	3.156	0.013	0.013	0.014	0.014	0.014	9.418	1.597	5.437	0.015	0.016	0.016	4.711	6.567	0.017	0.018	14.609
Net Annual Balance		3.094	2.718	-3.923	-1.508	6.496	1.418	1.417	1.417	1.417	-6.649	-0.166	-4.006	1.416	1.415	2.933	-3.280	-5.136	1.414	1.413	-11.823
Interest Income @ 6%		0.124	0.165	0.241	0.092	0.248	0.500	0.615	0.737	0.866	0.761	0.602	0.513	0.466	0.579	0.744	0.779	0.573	0.496	0.610	0.335
Carry Forward Next Year		3.094	5.977	2.294	0.878	7.622	9.539	11.571	13.725	16.008	10.121	10.557	7.064	8.947	10.941	14.619	12.117	7.555	9.465	11.488	**0.000**

1 - The County has approximately $1.228 million dollars in the bank as of March 2007.
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3 - Green Cells indicate the cost of the project if activated that year.
4 - Red Cells indicate Net Annual Balance without the Carry Forward Next Year Balance
5 - Carry Forward Next Year (Present Year) = Net Annual Balance + Carry Forward Next Year (Previous Year) + Interest Income (Present Year)