

Staff Report
July 30, 2013 - Board Agenda Item #13-0889

The Level of Service (LOS) along Green Valley Road has been the subject of public inquiries, discussions during open forum at the Board of Supervisors, and discussions at the El Dorado County Transportation Commission. The Corridor referenced in this staff report includes the segment of Green Valley Road from County line to Ponderosa Road. Members of the public have expressed concern about the LOS on Green Valley Road. Community Development Agency (CDA) staff will present the following information to address this concern:

1. Background
2. 2013 CIP Corridor Projects
3. Preliminary Travel Demand Model Projection
4. Other Green Valley Road Activities
5. Next steps

BACKGROUND

Green Valley Road currently extends from Folsom, jogs through the County and ends at Placerville Drive. Green Valley Road is currently a two-lane, rural highway from the City of Folsom to Sophia Parkway that transitions to a four-lane roadway from Sophia Parkway to Francisco Drive, and back to a two-lane, rural highway at the intersection with Francisco.

Current Roadway Conditions

-Analysis-

The CDA has documentation on the Corridor dating back to 1852. Between 1999 and 2002, several projects along Green Valley Road were completed, totaling approximately \$12.1M. These projects consisted of roadway widening and realignments, turn pockets and intersection improvements, pedestrian and bicycle facilities, and signal installations.

The 2004 El Dorado County General Plan Policy TC-Xd states in part that “Level of Service will be as defined in the latest edition of the Highway Capacity Manual (Transportation Research Board, National Research Council) and calculated using the methodologies contained in that manual.” The National Research Council’s Transportation Research Board (TRB)’s *Highway Capacity Manual, 2010* (HCM 2010) is the fifth edition of this state-of-the-practice reference manual. The first chapter of HCM 2010 defines the objectives and intended use of this reference manual. The HCM 2010 presents the best available techniques at the time of publishing for determining capacity and LOS.

The second chapter of the HCM 2010 is entitled “Applications” which provides information regarding how to use the Manual. There are three primary levels of analysis, listed from most to least detailed:

- 1) Operational Analysis - typically focuses on current or near-term conditions, and is the most data-and detail-intensive type of analysis. This is level of analysis is required for proposed development projects.
- 2) Design Analysis - typically used to identify the required physical characteristics of a transportation facility that will allow it to operate at a desired LOS.

- 3) Planning and Preliminary Engineering Analysis - typically focuses on future conditions, with broad issues such as initial problem identification, long-range analyses, and performance monitoring.

During the analysis for the 2004 General Plan Circulation Element, consultants Fehr & Peers and Dowling Associates, Inc. (Dowling) completed reviews to determine required roadway improvements based on the land use designations in the El Dorado County 2004 General Plan. The following discussion provides background on how the roadway network improvements were determined, including the Corridor.

Fehr & Peers was retained to analyze the traffic impacts of the General Plan alternatives identified in the 2004 General Plan Environmental Impact Report (EIR). The planning and preliminary engineering analysis was performed at a level of detail appropriate for a General Plan EIR. As a result of this analysis, the Final General Plan EIR contained information regarding the anticipated impacts of adoption of the General Plan on various roadway segments. The results of the Fehr & Peers planning analysis can be found on the County's website at: [http://www.edcgov.us/Government/Planning/Draft_Environmental_Impact_Report_\(DEIR\).aspx](http://www.edcgov.us/Government/Planning/Draft_Environmental_Impact_Report_(DEIR).aspx)

As part of the development of the proposed Traffic Impact Mitigation (TIM) Fee program, the County retained Dowling to provide the more detailed traffic and roadway design analysis necessary for the development of the TIM Fee program. That analysis is contained in *US 50 Strategic Corridor Operations Study – Ponderosa Road to Mather Field* (Dowling, 2006) and the *El Dorado County Traffic Impact Mitigation Fee Update 2005* (Dowling, 2006). These documents can be located on the County's website at: http://www.edcgov.us/Government/Planning/General_Plan_Supporting_Documents.aspx.

The Dowling reports, using the Fehr and Peers report as a reference, are referred to as the TIM Fee Program analysis. One required element of a TIM Fee program is the determination of the cost of the proposed road system, so that the appropriate fees can be developed. This required a much more detailed design analysis than was done for the General Plan EIR. The TIM Fee Program analysis prepared by Dowling had the same focus as the General Plan EIR analysis prepared by Fehr & Peers – to design a road system capable of achieving the traffic LOS standards of the General Plan. However, the TIM Fee Program analysis required a more refined definition of the precise road specifications that would be needed than was possible with the General Plan EIR analysis. Detailed work such as consideration of specific traffic movements and directionality along specified segments of roadways, roadway physical features (in contrast to the General Plan EIR analysis, which was based only on road segment traffic volumes), consideration of the effects of specific interchange and intersection improvements, and more precise construction detail were evaluated. Therefore, certain roadway segment improvements recommended by Dowling as the basis for the TIM Fee program differ from those assumed by Fehr & Peers in the General Plan EIR.

The Dowling assessment determined that the section from County Line to Francisco Drive would require a 4-lane multilane highway by 2015. No further widening would be required for this section through 2025. The section between Salmon Falls Road and Deer Valley Road would need to be widened to 4-lane undivided arterial between 2015 and 2025. The section between

Deer Valley Road (East) and Lotus Road would need to be upgraded to minor 2-lane road with 24-foot wide pavement by 2015. No further widening would be required for this section through 2025. The above capacity improvements were based upon a preliminary planning level analysis.

-LOS-

Based on actual AM and PM Peak hour traffic count data generated by the CDA Transportation Division, the LOS on the majority of Green Valley Road ranges from C to E. Approximately 800' of a 2-lane roadway from the County line to the 4-lane widening west of Sophia Parkway currently operates at LOS F (using 2004 General Plan criteria). This segment is discussed in the "Other Green Valley Road Activities" section of this document. Attachment B depicts the LOS on Green Valley Road. It should be noted that according to Policy TC-Xd, the allowable LOS in Community Regions is LOS E, and the allowable LOS in Rural Regions is LOS D. Green Valley Road winds through both Community Regions and Rural Regions, as described in Table 1.

Table 1 - Green Valley Road Segments

Rural Regions:	Community Regions:
Rocky Springs to Ox Trail Way	County line to Rocky Springs Road
Lexi Way to Deer Valley Road	Ox Tail Way to Lexi Way
Walnut Drive to Ponderosa Road	Deer Valley Road to Walnut Drive

The HCM 2010 has updated the LOS definitions for different road types. Green Valley Road has two-lane and four-lane segments. The methodologies for calculating the LOS are slightly different depending on the use and the amount of lanes on the road segment. (See Attachment C for road segment LOS definitions used in the HCM 2010.)

Two-lane facilities are evaluated based on their roadway classification, and three classes are defined in the HCM 2010:

- Class I two-lane highways are where motorists expect to travel at relatively high speeds, and are often major intercity routes, primary connectors of major traffic generators, daily commuter routes, or major links in state or national highway networks.
- Class II two-lane highways function as access routes to Class I facilities, serving as scenic or recreational routes or passing through rugged terrain.
- Class III two-lane highways serve moderately developed areas. They may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas. Local traffic often mixes with through traffic, and the density of unsignalized roadside access points is noticeably higher than in purely rural areas. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.

Because of the wide range of situations in which two-lane highways are found, three measures of effectiveness are incorporated into the methodology to determine automobile LOS: 1) Average Travel Speed (ATS) – which reflects mobility, 2) Percent Time Spent Following (PTSF) – represents the freedom to maneuver and the comfort and convenience of travel as it is the average percentage of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass, and 3) Percent of Free-Flow Speed (PFFS) represents the ability of vehicles

to travel at or near the posted speed limit. See Attachment D for detailed information regarding two-lane facilities.

LOS for multi-lane roadway facilities addresses capacity, and is based on the uninterrupted-flow methodology. LOS for multi-lane facilities is defined on the basis of density, which is a measure of the proximity of vehicles to each other in the traffic stream. LOS A through D criteria is the same as that for basic freeway segments. Refer to Attachment E for detailed information regarding multi-lane facilities.

-Accident Data-

The CDA Transportation Division has examined accident data for Green Valley Road in four segments from County Line to Ponderosa Road (E), and for three separate intersections within the Corridor. (Attachment F.) The data presented demonstrates that Green Valley Road is currently operating within allowable limits. The analysis shows that accidents are dispersed throughout the corridor, and that the accident rate would not be high enough at any given location to meet the warrant for a road improvement at this time.

The accident rate for Intersections/Spot Locations is calculated based on Accidents per Million Entering Vehicles (MEV). A benchmark of 1.00 Accidents/MEV is the accepted state-wide accident rate for single sites, such as an intersection or an individual curve. Sites with an accident rate of 1.00 Accidents/MEV or greater are considered for additional action. The accident rate for roadway corridors is calculated based on Accidents per Million Vehicle Miles (MVM). MVM rates higher than the average of 1.7 are higher than average for roadway sections.

Table 2 illustrates the accident site analysis summary for the five-year period beginning January 1, 2008 and ending December 31, 2012.

Table 2 – Green Valley Road Corridor Accident Summary

Green Valley Road Segment:	Calculation Method	Ratio	Acceptable MVM*?	Accident Total	Injury Total	Fatalities
County Line to Loch Way	MVM	1.04	Yes	114	84	2
Loch Way to Bass Lake Road	MVM	0.69	Yes	51	44	0
Bass Lake Road to La Crescenta Drive	MVM	1.41	Yes	29	22	0
La Crescenta Drive to Ponderosa Road E	MVM	1.53	Yes	41	16	3
Green Valley Road Intersection:	Calculation Method	Ratio	Acceptable MEV**?	Accident Total	Injury Total	Fatalities
@ Silva Valley Pkwy	MEV	0.46	Yes	12	5	0
@ El Dorado Hills Blvd./Salmon Falls Road	MEV	0.21	Yes	8	3	0
@ Francisco Drive	MEV	0.29	Yes	14	18	0

*Acceptable MVM = 1.7 or lower

** Acceptable MEV = 1.0 or lower

-Speed Surveys-

Members of the public have expressed concern regarding the observed speed on Green Valley Road. The majority of Green Valley Road has “prima facie” limits that, although not posted, are “on the face of it” reasonable and prudent under normal conditions. The “prima facie” limit for a two-lane, rural highway is 55 MPH. Speed limits are posted based on engineering and traffic surveys, with speed surveys included. Attachment G has been provided as a reference to statewide methodology for setting speed limits, based on California Vehicle Code section 22358.

The posted speed limit on Green Valley Road is 50 MPH from the County line easterly to 100 ft. east of Allegheny Road, and from 200 ft. west of Bass Lake Road to 0.71 mi. west of Deer Valley Road East. The posted speed limit is 40 MPH from White Oak Drive (0.71 mi. west of Deer Valley Road) to North Shingle Road. The remainder of Green Valley Road has the “prima facie” limit of 55 MPH. However, there are currently “Max 55 MPH” regulatory signs marking the section from Bass Lake Road to 100 ft. east of Allegheny Road

On June 26, 2013, the CDA Transportation Division performed two speed surveys on Green Valley Road, both within the “prima facie” limits, or the areas of assumed speeding concern (See attachment H). The first, west of Deer Valley Road West, had a critical speed of 60 MPH. The second, east of Loch Way, had a critical speed of 59 MPH. The critical speed is the speed at or below which 85 percent of traffic is moving, and is the single characteristic that most nearly conforms to a safe and reasonable speed limit.

CIP CORRIDOR PROJECTS

The TIM Fee Program and the Capital Improvement Program (CIP) were updated based on the Dowling assessment. One of the first projects completed was CIP Project #72355, which widened Green Valley Road to four lanes from Sophia Parkway to Francisco. This section describes the projects completed since the 2004 General Plan, and specifies projects in the current year, 5-Year, 10-Year and 20 Year CIP scheduled for Green Valley Road based on the Dowling analysis.

Completed Projects

Since the implementation of the 2004 General Plan, several projects to improve Green Valley Road’s traffic flow have been completed, at a total cost of \$13.8M. These projects are summarized in Table 3.

Table 3: Green Valley Road Corridor Completed Projects

CIP #	Project Name	Cost	Description
72354	Green Valley Road Widening – Commercial Area Element B	\$1M	Widening of commercial area. Completed in December 2004.
73312	Green Valley Road – Silva Valley Parkway Signalization	\$2.7M	Pavement widening, construction of left turn lanes and addition of sidewalks. Completed in February 2007.
72355	Green Valley Road Widening – County Line to Francisco Road	\$9.1M	Widened portions of this segment to four lanes. This project was completed in September 2007.
77109	Green Valley Road at Tennessee Creek Bridge Replacement (road improvement portion)	\$1M	This project included widening and realignment of Green Valley Road. This project was completed in April 2013. The cost of the road improvements was approximately \$1M.
	Total Cost	\$13.8M	

In addition to those projects completed along the Corridor, the CDA currently has programmed projects within the Current Year, 5-Year, 10-Year, and 20-Year sections of the adopted 2013 Capital Improvement Program. The project costs within the Corridor from the County line to Ponderosa Road total **\$22.1M**, and are summarized in the next section. For more detailed information, refer to the 2013 CIP book.

Current Year Work Plan to 5-Year CIP Projects

Table 4 describes Corridor roadway projects that are programmed in the current year work plan as described in the 2013 CIP book. The estimated project costs for the current year CIP work plan totals **\$2.8M**. These projects may also be found in the 5-Year CIP, depending on the phase of completion of the project.

Table 4: Green Valley Road Corridor Current Year to 5-Year CIP Projects

CIP #	Project Name	Est. Cost	Description
73151	Green Valley Road Signal Interconnect	\$270K	Installation of a traffic signal interconnect that will coordinate three traffic signals.
72309	Class II Bikeway – Green Valley Road from Loch Way to Pleasant Valley Grove Middle School	\$320K	Construction of a Class II Bikeway along both sides of Green Valley Road from Loch Way to the entrance to Pleasant Grove Middle School.
76114	Green Valley Road/Deer Valley Road West Intersection Improvements	\$1.3M	Construction of turn lanes on Green Valley Road at the intersection with Deer Valley Road West.
76107	Silver Springs Parkway to Green Valley Road (north segment)/Green Valley Road Intersection Signalization	\$0.9M	The portion of this project that includes improvements to the Green Valley Road intersection is estimated to be \$0.9.
	Total Estimated Cost	\$2.8M	

10-Year CIP Project

The CDA also has several projects in the Corridor scheduled for future construction. The Corridor project scheduled within the 10-Year CIP is estimated to cost **\$12.6M**, and is listed in Table 5. This project is also included in the 20-Year CIP, as the Right of Way acquisition and Construction phases would take place in Fiscal Year 23/24 through 32/33.

Table 5: Green Valley Road Corridor 10-Year CIP Project

CIP #	Project Name	Est. Cost	Description
GP159	Green Valley Road Widening from Salmon Falls Road to Deer Valley Road	\$12.6M	Widening from 2-lane undivided roadway to 4-lane undivided arterial from Salmon Falls Road to Deer Valley Road.
	Total Estimated Cost	\$12.6M	

20-Year CIP Projects

The CDA has two Corridor projects scheduled for future construction that begin within the 20-Year CIP, totaling **\$6.7M**. The roadway projects in Table 6 are included in the adopted 2013 20-Year CIP.

Table 6: Green Valley Road Corridor 20-Year CIP Projects

CIP #	Project Name	Est. Cost	Description
GP179	Green Valley Road Widening- Deer Valley Road East to Lotus Road	\$4.8M	Widening Green Valley Road from Deer Valley Road East to Lotus Road to two 12-foot lanes, adding six left turn pockets.
GP178	Green Valley Road Widening – Francisco to Salmon Falls Road	\$1.9M	Widening existing Green Valley Road from two to four lanes, undivided; includes curb, gutter, and sidewalk.
	Total Estimated Cost	\$6.7M	

PRELIMINARY TRAVEL DEMAND MODEL PROJECTION

It is important to remember that the Travel Demand Model (TDM) is an analysis tool, and does not provide any entitlements. In the creation of the 2010 traffic baseline, Kimley Horn & Associates (KHA) used several existing sources including, but not limited to: actual traffic counts, 2010 Census information, Sacramento Area Council of Governments (SACOG) information, El Dorado County GIS data, and existing road improvements. The model data currently uses a draft 2035 land use forecast based on historical trends. Staff will be running several scenarios which will be presented to the Board of Supervisors prior to finalizing the 2035 land use forecast.

Analysis of the preliminary TDM run shows that all of the road segments in the Corridor are within acceptable General Plan defined LOS limits through 2035, and that no further widening is

required on Green Valley Road. (See attachment I for preliminary results.) However, staff recognizes that the 800' 2-lane segment from the County line to Sophia Parkway needs to be addressed. Refer to the "Other Green Valley Road Activities" section for details regarding this segment. The TDM assumes land uses as identified in the 2004 General Plan. It does not analyze proposed General Plan amendment projects.

County Priority vs. Development

Staff will consider the adopted 2004 General Plan land uses and current zoning ordinances when analyzing the roadway infrastructure requirements through 2025. Members of the public have expressed concern that developer projects will only worsen existing conditions of the roadway beyond those improvements identified in the CIP. However, General Plan policies require development projects to mitigate their roadway impacts.

Policy TC-Xf of the 2004 General Plan states that if a road improvement that is impacted by a proposed single family residential subdivision of five or more parcels is in the County's 10-Year CIP, the developer's TIM Fee may be adequate as a fair share payment. If the developer's TIM Fee is not adequate, and the developer is required to construct the roadway, its construction costs may be eligible for reimbursement. For all other discretionary projects (i.e. commercial or multi-family developments), the above rules apply if a road improvement is in the County's 20-Year CIP. Further review must be done for General Plan amendment projects.

Any prospective developer must first approach the County with a proposed project, and submit a Traffic Impact Study (TIS) using the form provided on the County website (Attachment J). The County will then issue a Scope of Work, listing the roadways and intersections that require analysis. Developers are required to do their own operational analysis, using TDM baseline data and the forecast the County has developed. The Traffic Impact Study Protocols and Procedures document is included as Attachment K. The traffic study procedure format that must be followed is in compliance with General Plan policies, as well as other guidelines.

As a reminder, development projects are discretionary, and still require approval by a hearing body (e.g., Planning Commission and/or Board of Supervisors). The TDM is based on the existing General Plan, which does not include proposed projects. Therefore, the County cannot include proposed development projects as part of the analysis for improvements to the roadway network.

OTHER GREEN VALLEY ROAD ACTIVITIES

As discussed at the July 23rd Board of Supervisors hearing, the City of Folsom requested that the County provide a letter of support for the City of Folsom's pursuit of a SACOG grant for improvements on Green Valley Road. See Attachment L for the El Dorado County letter of support. The City of Folsom is currently preparing a grant application to fund the design and construction to widen Green Valley Road from two lanes to four lanes between East Natoma Street and Sophia Parkway. A small portion of the project is within El Dorado County (between the County Line and Sophia Parkway); however the City of Folsom is not seeking financial support from the County. If successful, the City of Folsom would receive the award notification at the end of the 2013 year with plans to begin construction in late 2014 to early 2015.

A transition on Green Valley Road from 2 lanes to 4 lanes currently occurs in El Dorado County. The proposed grant-funded project would improve the traffic flow between the residential areas in south Placer and Folsom to the employment and retail centers in and around El Dorado Hills and Latrobe. The project would also benefit El Dorado County residents who use Green Valley Road to commute to employment in Sacramento or Placer County.

NEXT STEPS

The CDA has begun the process to evaluate the roadway network with the completion of the draft TDM. The 2010 Baseline data for the TDM has been established. The 2035 land use forecast data will remain draft until the Land Use Policy Programmatic Update is complete and the Board of Supervisors is satisfied that the TDM has analyzed sufficient scenarios to finalize a 20-Year land use forecast. Upon completion of the 2035 land use forecast, the TDM will be used to determine the roadway infrastructure required in the County, including the Corridor. This may result in amending the CIP projects as described in the 10-Year and 20-Year CIP.

If performed today, a corridor analysis would analyze the improvements that are needed at the present time. However, since the TDM is necessary to evaluate improvements that may be needed in the future, a corridor analysis performed at this time would not include potential future improvements. Upon completion of the TDM, staff will begin the design analysis on roadway segments to update the TIM Fee program. This analysis would provide precise details on what improvements would be needed and when. Staff recommends completing a corridor analysis concurrent with, or after, the TIM Fee program analysis.

If a corridor analysis is required, the scope of work would be as follows (see Attachment M for a map of the study area):

1. Determining study locations and defining the scope of work.
2. Conducting field visits and gathering inventory of roadway characteristics.
3. Administering traffic counts where needed.
4. Acquiring and processing the three most recent years of accident data covering approximately 10 miles of Green Valley Road from the County line to Ponderosa Road.
5. Analyzing existing traffic counts at intersections and roadway segments (up to 10 intersections and 5 roadway segments) using the Highway Capacity Manual (HCM) 2010 methodologies.
6. Identifying traffic operational deficiencies and suggesting improvements.
7. Analyzing the effect of implementing the suggested improvements.
8. Evaluating accident data and identifying predominant accident types and causes, and recommending safety improvements.
9. Producing a memo with appropriate graphics and tables, summarizing results and findings of the traffic and accident analysis.

A preliminary estimate to complete the tasks outlined in 1-9 above is \$35,000. A funding source has not been identified. At their June 13th meeting, EDCTC staff presented an informational item on the Green Valley Road Corridor, at which they stated they would assist the County in

attempting to find grant money upon request of the County Board of Supervisors. However, EDCTC staff also stated they could not guarantee success in finding a grant.

If the Board decides to pursue a corridor analysis on Green Valley Road, an option for funding would be the General Fund. Proceeding with the corridor analysis may be premature until the 2035 forecast is finalized.

Staff is seeking direction on the following:

- 1) The Board could direct staff to complete the roadway network analysis and TIM Fee program update using the new TDM, and then determine if a corridor analysis is required.
- 2) If the Board determines that staff should begin on a corridor analysis immediately, staff will return to the Board upon identifying a funding source. Staff will coordinate with EDCTC to seek grant funding.