

Exhibit A

Transportation Planning - Traffic Engineering - Environmental Assessment
Sustainable Communities Planning - Public Outreach

**MEMORANDUM**

TO: Rob Terry, Fresno Council of Governments
FROM: Erik Ruehr, VRPA Technologies, Inc.
DATE: UPDATED 8/15/16
RE: SR 99/Dinuba Avenue Traffic Analysis Feasibility
Study Proposed Methodology

VRPA Technologies (VRPA) is currently assisting the Fresno Council of Governments (Fresno COG) on the Circuit Planner project. One of the studies we have been asked to undertake as part of this project is a traffic feasibility analysis of a proposed interchange at SR 99 and Dinuba Avenue on behalf of the City of Selma.

In order to construct a new interchange on an existing freeway, the following steps generally need to be conducted:

- ◆ Feasibility Analysis
- ◆ Design Concept
- ◆ Project Study Report
- ◆ Project Report/Environmental Document
- ◆ Final Design (PS&E)
- ◆ Construction

In the case of the SR 99/Dinuba Avenue interchange, Caltrans has agreed to prepare a preliminary design concept, utilizing the findings of the feasibility analysis. This memorandum addresses the feasibility analysis portion of the project and focuses on traffic issues.

The cost of technical traffic analyses for an interchange project, particularly for the Project Report/Environmental Document, can be quite high. In discussions between VRPA and Fresno COG, it was decided that the first technical traffic analysis conducted for the project should be a high-level analysis that focuses on the levels of traffic that would be expected to use the proposed interchange and the level of traffic congestion relief that would be provided to the adjacent roadway system, primarily the SR 99/Manning Avenue and SR 99/SR 43/Highland Avenue/Floral Avenue interchange areas.

The remainder of this memo provides a proposed methodology for conducting the traffic feasibility analysis. It is divided into sections that address individual issues to be addressed as part of the feasibility study.

PROJECT DESCRIPTION

The proposed project is the construction of a new interchange at SR 99 and Dinuba Avenue, just north of the City of Selma. An interim phase in the construction of the project could be an overcrossing at Dinuba Avenue with no ramps. Therefore, the following conditions would be analyzed:

- ◆ No Build
- ◆ Dinuba Avenue Grade Separation (Overcrossing) at SR 99
- ◆ Full Interchange at SR 99/Dinuba Avenue

Caltrans has agreed to prepare a preliminary design concept, utilizing the findings of the feasibility analysis, for the new interchange. Until that step is completed, the assumed interchange design will be as shown in Exhibit 1.

STUDY AREA

The proposed study area will focus on the roadway segments most likely to experience traffic increases or decreases as a result of the construction of the proposed SR 99/Dinuba Avenue interchange. This will include the following:

- ◆ Manning Avenue, Temperance Avenue to SR 99
- ◆ Manning Avenue, SR 99 to Golden State Boulevard
- ◆ Dinuba Avenue, De Wolf Avenue to SR 99
- ◆ Dinuba Avenue, SR 99 to Golden State Boulevard
- ◆ Highland Avenue, Golden State Boulevard to SR 99
- ◆ SR 43/Highland Avenue, SR 99 to Rose Avenue
- ◆ Floral Avenue, Leonard Avenue to SR 99
- ◆ Floral Avenue, SR 99 to Golden State Boulevard
- ◆ Golden State Boulevard, Manning Avenue to Dinuba Avenue
- ◆ Golden State Boulevard, Dinuba Avenue to Highland Avenue
- ◆ Golden State Boulevard/Whitson Street, Highland Avenue to Floral Avenue

Additionally, the study will include a peak hour analysis of the following locations (See Exhibit 2 for locations):

- ◆ A. SR 99/Floral Avenue southbound off-ramp;
- ◆ B. SR 43 (Highland Avenue)/SR 99 on and off ramps;
- ◆ C. SR 99/Floral Avenue northbound off-ramp;
- ◆ D. The intersection of Floral/Highland Avenue;
- ◆ E. Highland Ave to SR 99 northbound on-ramp (peak hour volumes only); and
- ◆ F. Floral Avenue to SR 99 northbound on-ramp (peak hour volumes only)
- ◆ G. Dinuba Avenue and Highland Avenue intersection (peak hour volumes only)

EXISTING CONDITIONS

For the roadway segments indicated above, new 24-hour roadway segment traffic counts will be conducted. Existing roadway segment capacity analysis will be conducted using the Modified HCM/Florida Tables procedures or similar procedures based on the Circulation Elements of the General Plan for Fresno County and

the City of Selma. The purpose of the existing conditions analysis will not be a precise traffic operations analysis suitable for a Project Report/Environmental Document, but rather a general assessment of traffic operations in the study area.

TRAFFIC FORECASTS

In order to fully understand the potential benefits of the project and the potential phased implementation with a grade separation only, six model runs of the Fresno COG model will be prepared:

- ◆ Base Year Model with No Modifications
- ◆ Base Year Model with SR 99/Dinuba Avenue Grade Separation
- ◆ Base Year Model with SR 99/Dinuba Avenue Interchange
- ◆ Horizon Year Model with No Modifications
- ◆ Horizon Year Model with SR 99/Dinuba Avenue Grade Separation
- ◆ Horizon Year Model with SR 99/Dinuba Avenue Interchange

In the case of the Base Year model runs, no changes will be made in the socioeconomic data that make up the model. The only changes will be the roadway network changes proposed by the project.

The Fresno COG 2035 model will be utilized, with a growth rate out to 2040 incorporated, to provide for a traditional 20-year horizon. In the case of the Horizon Year model runs, both the roadway network and the socioeconomic data in the model will be reviewed and revised in order to refine the model to reflect local conditions and to ensure that the latest land use plans and development projects have been incorporated. Once the model runs have been prepared, the key information to be gathered from the model will be average daily traffic forecasts for each of the roadway segments listed in the study area above.

TRAFFIC ANALYSIS

Based on the model runs described above and information from the existing conditions task, traffic analysis will be conducted for the following scenarios:

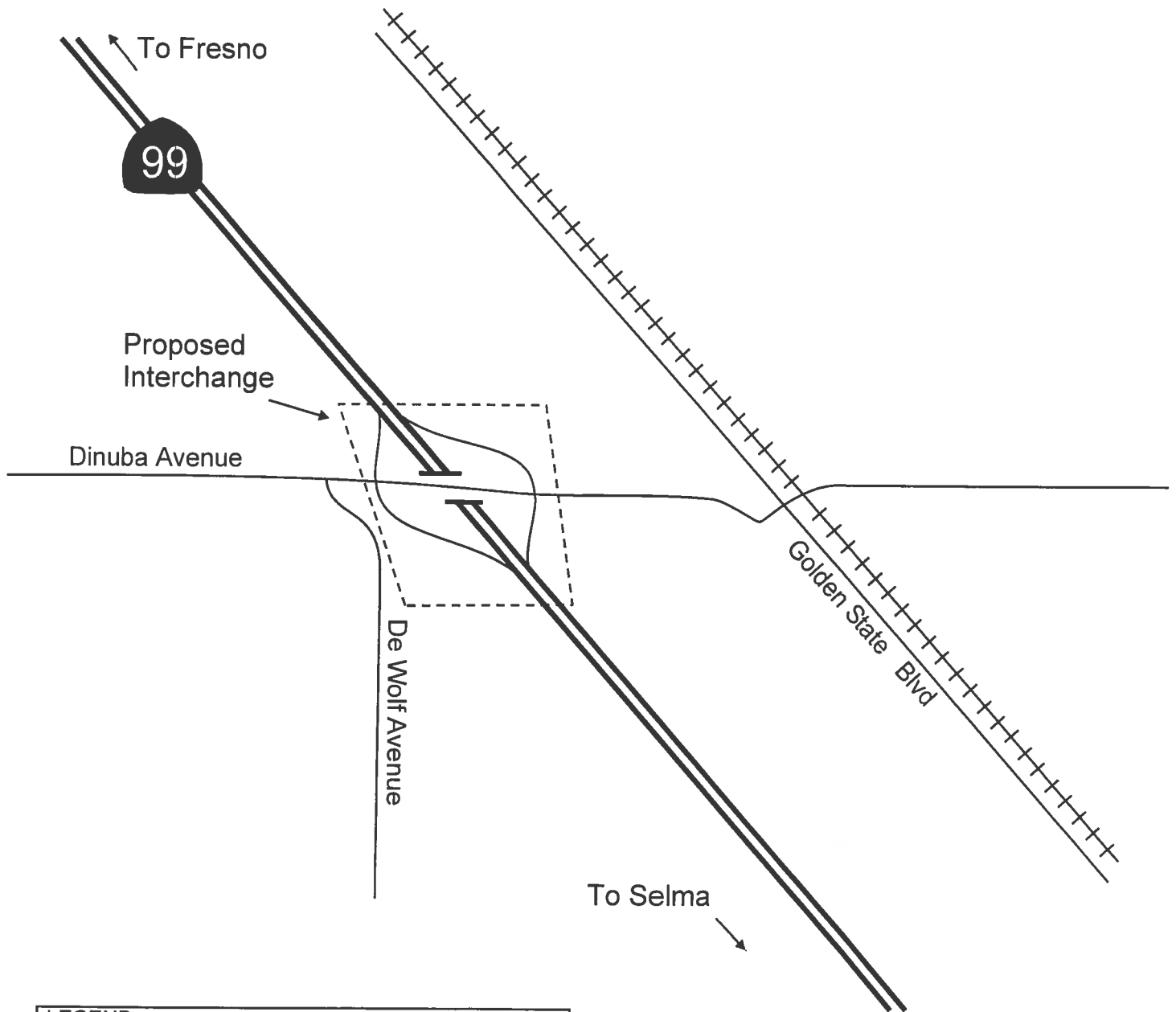
- ◆ Existing Conditions
- ◆ Existing Conditions with SR 99/Dinuba Avenue Grade Separation
- ◆ Existing Conditions with SR 99/Dinuba Avenue Interchange
- ◆ Horizon Year No Build
- ◆ Horizon Year Model with SR 99/Dinuba Avenue Grade Separation
- ◆ Horizon Year Model with SR 99/Dinuba Avenue Interchange

The traffic analysis will be conducted using the roadway segment-based capacity analysis described in the existing conditions task. The outcome of the analysis/study will result in the recommendation of the classification of Dinuba Avenue as a collector or an arterial; as well as the feasibility of an overcrossing or interchange to meet the future traffic needs of the City. In addition, an evaluation of the potential funding sources available for the project, including developer fees, etc. The resulting findings will be recommended for placement within the City's appropriate planning and development documents.

COORDINATION WITH GOLDEN STATE BOULEVARD PROJECT

Fresno COG is currently working on a project to improve and widen Golden State Boulevard. Coordination will be required with Fresno COG staff and consultants working on this project. The main issue to be addressed is the location and configuration of the Golden State Boulevard/Dinuba Avenue intersection. The design concept for the SR 99/Dinuba Avenue interchange project may result in a relocation of Dinuba Avenue and/or a revised lane configuration for the intersection at Golden State Boulevard. It may be advisable for the Golden State Boulevard project to incorporate future Dinuba Avenue improvements into the design process.

If you have any questions or comments regarding this memo, please feel free to contact Georgiena Vivian or me. Georgiena can be reached by email at gvivian@vrpatechnologies.com or by phone at 559/259-9257. I can be reached by email at eruehr@vrpatechnologies.com or by phone at 858/566-1766.



LEGEND	
—	Existing or Proposed Surface Street or Ramp
==	Existing Freeway
+++	Existing Railroad



Proposed Budget

SR 99/Dinuba Interchange Traffic Analysis - VRPA Technologies 9-20-16

TASK		VRPA Technologies, Inc.									
		Principal		Dir of Traffic Eng	Sr Transp Planner	Transp Engr	Research Analyst		Total Hours	Expenses	Total Budget
		\$225.00	\$157.31	\$90.00	\$90.00	\$90.00	\$90.00				
1	Existing Conditions	2.00	6.00	0.00	24.00	0.00	32.00	\$2,800	\$6,354		
2	Traffic Forecasts	8.00	8.00	0.00	24.00	0.00	40.00	\$0	\$5,218		
3	Traffic Analysis	4.00	18.00	0.00	48.00	0.00	70.00	\$0	\$8,052		
4	Documentation (1)	22.00	8.00	8.00	58.00	8.00	104.00	\$0	\$12,868		
5	Meetings (2)	12.00	12.00	0.00	12.00	0.00	36.00	\$400	\$6,068		
TOTAL:		48.00	52.00	8.00	166.00	8.00	282.00	\$3,200	\$38,560		