



MEMORANDUM

Date: February 8, 2013
To: Eliot Hurwitz, NCTPA
From: Steve Crosley & Dennis Lee, Fehr & Peers
Subject: Travel Demand Model Assumptions for the SR 29 Corridor Gateway Study

SF12-0651

This memorandum discusses the travel demand model that will be used for the SR 29 Gateway Corridor Improvement Study, as well as updates to the model inputs to produce more accurate results. A four-step travel demand model begins with both existing and forecasted land use data and roadway networks. The accuracy of these inputs is important, as is matching the model's geographic scope with the study area. This memorandum proposes the updates to the land use and circulation network in the Napa-Solano Travel Demand Model (N-STDM) for review by the Staff Working Group.

NAPA-SOLANO TRAVEL DEMAND MODEL

SR 29 draws vehicular traffic from all across the region; therefore a multi-county model which tracks trips from the region and accounts for land use changes both in and outside of Napa County is best suited for this study. As outlined in the project scope, the Napa-Solano Travel Demand Model (N-STDM) is an appropriate tool to perform traffic forecasting for the SR 29 corridor.

Model Assumptions

To ensure the most recent land use and network inputs in the study area are represented in the N-STDM, Fehr & Peers reviewed relevant data sources: the *American Canyon General Plan Circulation Element Update (2012)*, *MTC's Transportation 2035 Plan for the San Francisco Bay Area (2009)*, the *Napa County General Plan (2009)*, and *ABAG's Projections 2009*. The following sections



detail how Fehr & Peers proposes to incorporate the assumptions from those studies for use in the SR 29 Corridor Gateway Study.

Land Use Development

There have been a series of updates to the land use inputs for the N-STDM since its initial development by DKS Associates and Dowling Associates and its validation of the base year model to 2000. In 2008, DKS refreshed the base year land use data with input by City staff from various jurisdictions in Napa and Solano Counties, including the City of Napa, Napa County, and the City of Vallejo. In 2010, the model was updated by Fehr & Peers for the Solano Transportation Authority, where the base year was validated to 2010 conditions and special trip generators were established in Solano County. The land use data from remaining jurisdictions and unincorporated areas in Napa and Solano Counties were based on the MTC regional travel model. Land use data from other Bay Area counties were based on ABAG's *Projections 2005*. The N-STDM covers the nine Bay Area counties, the Sacramento Region, San Joaquin County, and Lake County.

American Canyon

With the recent 2012 update to the *American Canyon General Plan Circulation Element*, Fehr & Peers proposes to update the N-STDM land use data with the more recently developed and localized land use data in the American Canyon travel demand model. This update will be done on a TAZ-by-TAZ basis. The base year land use summaries for the City of American Canyon from both models are presented in **Table 1**.

TABLE 1: Summary of Base Year Land Use Inputs for American Canyon					
Land Use Source	Households	Retail Emp.	Service Emp.	Other Emp.	Total Employment
N-STDM	4,036	687	590	2,126	5,555
American Canyon Travel Demand Model	5,163	400	446	3,138	3,984
Source: Napa Solano Travel Demand Model, as summarized by Fehr & Peers, January 2013; <i>City of American Canyon Circulation Element Update</i> , Appendix C: Background Report & Travel Demand Model Documentation, 2012					

The 2030 land use forecasts for the N-STDM were developed using growth ratios from ABAG household and employment forecasts contained in *Projections 2005*, and adjustments were made



interactively with local city staff. Land use forecasts were developed for the American Canyon Travel Demand Model for the horizon year 2035 and were informed by the City's General Plan, 2035 ABAG projections from 2009, and current development projects.

Similar to the base year land use, Fehr & Peers proposes updating the forecasted land use with the localized forecasts developed for the American Canyon Travel Demand Model. The future year land use summaries for the City of American Canyon from both models are presented in **Table 2**.

TABLE 2: Summary of Future Year Land Use Inputs for American Canyon					
Land Use Source	Households	Retail Emp.	Service Emp.	Other Emp.	Total Employment
N-STDM	4,848	1,162	762	5301	7,225
American Canyon Travel Demand Model	9,109	1,399	1,558	5,711	8,668
Source: Napa Solano Travel Demand Model, as summarized by Fehr & Peers, January 2013; <i>City of American Canyon Circulation Element Update</i> , Appendix C: Background Report & Travel Demand Model Documentation, 2012					

Napa and Vallejo

The land use inputs of the Cities of Napa and Vallejo will be updated to match the forecasts of ABAG's Projections 2009. This data source does not provide land use figures on a TAZ-by-TAZ basis; therefore, the N-STDM land use inputs will be scaled to match the control totals for households and jobs for each jurisdiction. Household and employment totals for Napa and Vallejo are summarized in **Table 3** and **Table 4**, respectively.

TABLE 3: Summary of Existing and Future Land Use Inputs for City of Napa			
Scenario Year	Land Use Source	Households	Employment
Existing	N-STDM	31,758	29,881
	ABAG Projections 2009	30,730	35,510
Future	N-STDM	35,444	33,176
	ABAG Projections 2009	32,730	41,890
Source: Napa Solano Travel Demand Model, as summarized by Fehr & Peers, January 2013; ABAG Projections 2009			



TABLE 4: Summary of Existing and Future Land Use Inputs for City of Vallejo			
Scenario Year	Land Use Source	Households	Employment
Existing	N-STDM	44,576	35,037
	ABAG <i>Projections 2009</i>	43,480	33,590
Future	N-STDM	55,324	54,350
	ABAG <i>Projections 2009</i>	48,080	44,930

Source: Napa Solano Travel Demand Model, as summarized by Fehr & Peers, January 2013; ABAG *Projections 2009*

Other Jurisdictions

The land use data for all other jurisdictions in the N-STDM is assumed to remain the same as the latest model update. The above updates to the jurisdictions with the most direct influence on SR 29 will provide for an accurate measurement of future conditions on SR 29.

Network Improvements

To ensure planned road improvements are reflected properly in the N-STDM network, Fehr & Peers reviewed relevant jurisdictional plans, including MTC's *Transportation 2035 Plan for the San Francisco Bay Area* (2009), the *Napa County General Plan Circulation Element* (2009), *City of Napa General Plan* (2011); the *American Canyon General Plan Circulation Element Update* (2012), the *City of Vallejo's Sonoma Boulevard Corridor Design Plan* (2012), and Caltrans's *Corridor Plan State Route 29*, (2011). The following planned network improvements on and around the SR 29 study area will be reflected in the N-STDM future network:

- Construct SR 12 / Airport Boulevard Interchange at SR 29 (Napa County GP, MTC)
- Complete Devlin Road between Soscol Ferry Road and Green Island Road (Napa County GP)
- Widen SR 12 from 2 lanes to 4 lanes from I-80 in Solano County to SR 29 in Napa County (Napa County GP)
- Construct SR 29 / SR 12 / SR 221 Flyover Ramp (MTC)
- Widen 1st Street overcrossing from 2 to 4 lanes in the City of Napa (MTC)
- Extend Gasser Drive north to connect with Silverado Trail/Soscol Avenue (City of Napa GP)
- Extend Solano Avenue from Lincoln Street to 1st Street (City of Napa GP)
- Widen SR 29 from 4 to 6-lane arterial within American Canyon (AC GP)
- Extend Newell Drive from American Canyon Road to Green Island Road (AC GP)



- Widen Green Island Road from 2 to 4-lane arterial (AC GP)
- Construct Commerce Boulevard from its southern terminus to Eucalyptus Drive (AC GP)
- Complete Devlin Road between Green Island Road and South Kelly Road (AC GP)
- Construct Eucalyptus Drive between Theresa Avenue and SR 29 (AC GP)
- Extend South Napa Junction Road from SR 29 to Newell Drive (AC GP)
- Connect Napa Junction Road segments west of SR 29 (AC GP)

Weekend Travel Demand Scenario

The N-STDM forecasts AM and PM peak period travel demand but does not have capabilities to forecast weekend travel. To develop a weekend scenario, Fehr & Peers will collect Caltrans PeMS hourly volume data on SR 29 for both weekdays and weekends. A factor will be developed between peak hour volumes for the weekday PM time period and the peak hour volume for the weekend. This factor will be applied to the PM peak results from the model to approximate existing and future weekend travel conditions.

This concludes the summary of the travel demand model assumptions for the SR 29 Gateway Corridor Study. If you have any questions, please contact Steve Crosley.