

MEMORANDUM

Date: July 14, 2014

To: Rob Paul & Rick Marshall, County of Napa

From: Steve Crosley

Subject: *Napa Pipe Intersection Improvement Plan*

SF06-0290.12

Fehr & Peers submitted a memo in June 2013 (*Napa Pipe Transportation Analysis Sensitivity Test*) that summarized impacts, mitigation, and fair share contribution at all 34 study intersections included in the EIR analysis for the Napa Pipe project (Costco Alternative or project).

The information contained in this memo describes mitigation improvements that are (1) the sole responsibility of land owner (herein referred to as Napa Redevelopment Partners or NRP) and (2) financial obligations for mitigation improvements where NRP is partially responsible based on a fair share contribution analysis (including per square foot cost allocation by land use type). The intent of this memo is to provide the County of Napa, City of Napa, and NRP with physical and financial obligation information that can be incorporated into the project's development agreement (DA or Agreement).

NAPA PIPE MITIGATION SUMMARY

The impacted locations and feasible mitigation measures are summarized in **Table 1**.

TABLE 1: NAPA PIPE MITIGATION SUMMARY		
#	Intersection	Mitigation Description
1	Lincoln Avenue / Soscol Avenue	Construct an additional left-turn lane on both the northbound and southbound approaches.
12	Imola Avenue (SR 121) / Soscol Avenue	Construct an additional left-turn lane on the eastbound approach and an exclusive right-turn lane on the westbound approach.
13	SR 221 / Streblov Drive	Construct an additional northbound left-turn lane on SR 221 (Napa-Vallejo Highway) and a receiving lane on Streblov Drive. The operations of this intersection should be monitored prior to implementing this improvement to confirm the need. Construction of the improvement shall be at the discretion of the City of Napa.

TABLE 1: NAPA PIPE MITIGATION SUMMARY

#	Intersection	Mitigation Description
16	Kaiser Road / Enterprise Way	Restripe the southbound approach to provide dedicated left- and right-turn lanes and include a peak hour left-turn restriction on the southbound approach, forcing motorists to turn right from Enterprise Way onto westbound Kaiser Road and travel 180-degrees around the proposed roundabout at Kaiser Road/Napa Valley Corporate Drive in lieu of the left-turn egress from Enterprise Way.
17	SR 221 / Kaiser Road	Extend the turn-pocket to 500 feet from its current length of approximately 280 feet or create a dual left-turn the length of the current turn-lane to adequately store the expected queues. In addition, construct the following improvements: <ul style="list-style-type: none"> • Northbound: a third through lane and a second left-turn lane • Southbound: a third through lane and free right-turn lane • Eastbound: a second and third left-turn lane and a free right-turn lane
20	Napa Valley Corp. Way / SR 221	Construct third through lanes in both the northbound and southbound approaches and construct a second left-turn lane on the northbound approach.
22	Napa Valley Corporate Drive/Anselmo Court	Install a single-lane roundabout with a bypass lane installed on the southbound and eastbound approaches of the intersection.
23	SR 12 – SR 121 / SR 29	Construct third through lanes in both the northbound and southbound approaches and construct the following improvements: <ul style="list-style-type: none"> • Eastbound: a second right-turn lane
25	Devlin Road Soscot Ferry Road	Install a traffic signal and a median treatment on Soscot Ferry Road that essentially controls all movements except for the westbound through movement on Soscot Ferry Road.
26	SR 12 – SR 29 / SR 221	Construct flyover ramp for the traffic traveling from southbound SR 221 (Napa-Vallejo Highway) to southbound SR 12/SR 29. This improvement has been contemplated previously by the County and Caltrans, and would be needed with or without development of the project.
27	Airport Boulevard / SR 29 – SR 12	Construct grade-separated interchange as proposed in the Napa County General Plan. This improvement has been contemplated previously by the County and Caltrans, and would be needed with or without development of the project.
28	SR 29 / South Kelly Road	Construct third through lanes in both the northbound and southbound approaches and construct a second northbound left-turn lane.
29	SR 29 / Napa Junction Road	The Napa County General Plan calls for widening of SR 29 from the SR 221 (Napa-Vallejo Highway) interchange to the southern County Line. In order to mitigate the project's significant impact, the additional through lane on SR 29 in the northbound and southbound directions should be constructed at this intersection, as is currently proposed. This improvement has been contemplated previously by the County and Caltrans, and would be needed with or without development of the project.

TABLE 1: NAPA PIPE MITIGATION SUMMARY		
#	Intersection	Mitigation Description
30	SR 29 / Donaldson Way	The Napa County General Plan calls for widening of SR 29 from the SR 221 (Napa-Vallejo Highway) interchange to the southern County Line. In order to mitigate the project's significant impact, the additional through lane on SR 29 in the northbound and southbound directions should be constructed at this intersection, as is currently proposed. This improvement has been contemplated previously by the County and Caltrans, and would be needed with or without development of the project.

COST ESTIMATES

The cost estimates for each mitigation measure were based on the following assumptions:

- Costs assume minimal earthwork (except for interchange projects)
- Costs include a 25% contingency factor
- Costs include a 25% factor for planning and design services
- Costs **do not** include right-of-way acquisition (with the exception of intersections #1 & #12 in accordance with a request by the City of Napa)

It is important to note that these are rough cost estimates, based on an aerial photo evaluation of distances and constraints, and applying average unit costs for materials and labor. No surveying or mapping was conducted as a part of this effort; a relatively high contingency factor has been applied to account for the lack of precision in the estimates.

OPENING DAY MITIGATION – PROJECT RESPONSIBILITY

Under Existing Plus Project conditions, the project would result in significant impacts at nine intersections. Mitigation measures (described in the June 2013 memo) would be required at following four intersections (shown in **Table 2**), while the remaining five impacted intersections would require mitigation even without development of the project and large scale improvements are planned for those locations. Napa Redevelopment Partners would be responsible for:

- 100% of the cost of three (3) improvements;
- Be partially responsible for one (1) improvement; and
- Pay a fair share contribution for future improvements at the remaining five (5) impacted intersections (which is described in the following section: Fair Share Contribution - Future Improvements).

TABLE 2: OPENING DAY IMPACTS, RESPONSIBILITY & COSTS				
#	Impacted Intersection	Napa Pipe Responsibility	Total Cost	Napa Pipe Cost
12	Imola Ave (SR 121) /Soscol Ave ¹	19.1%	\$1,128,000	\$215,000
13	SR 221 (Napa-Vallejo Highway)/Streblow Dr	100%	\$1,500,000	\$1,500,000
22	Napa Valley Corporate Dr/Anselmo Ct ²	100%	\$500,000	\$500,000 ³
25	Soscol Ferry Rd/Devlin Rd	100%	\$270,000	\$270,000 ³
Totals			\$3,398,000	\$2,485,000

¹Pursuant to phone call with City of Napa on May 9, 2014 cost includes estimated 3,500 square sf of right-of-way @ \$8 sf.
²Cost shown for roundabout (preferred mitigation). Estimated cost of signalization is \$584,000.
³NRP responsible for construction of Intersections 22 & 25 at its cost; amounts shown are estimates.
 Fehr & Peers, 2014.

Project Solely (100%) Responsible

- **Intersection 13 - SR 221 (Napa-Vallejo Highway)/Streblow Dr.** – NRP is responsible for 100% of mitigation cost based on project degrading LOS from acceptable to unacceptable conditions. Mitigation is to construct additional northbound left-turn lane on SR 221 and a receiving lane on Streblow Dr. This improvement is subject to prior monitoring to determine need and constriction is at discretion of City of Napa. Payment to City of Napa prior to issuance of building permits will constitute meeting of obligation for mitigation under the development agreement.
- **Intersection 22 - Napa Valley Corporate Dr./Anselmo Ct.** – NRP is responsible for implementation of this mitigation measure at its sole cost based on the project degrading LOS from acceptable to unacceptable conditions. Mitigation is to install a single-lane roundabout (preferred mitigation) with a bypass lane installed on the southbound and eastbound approaches of the intersection. NRP will construct this improvement prior to issuance of building permits and must be completed and certified by the engineer prior to occupancy.
- **Intersection 25 - Soscol Ferry Rd./Devlin Rd.** – NRP is responsible for implementation of this mitigation measure at its sole cost the project degrading LOS from acceptable to unacceptable conditions. Mitigation is to install traffic signal and median treatment on Soscol Ferry Rd. NRP will construct this improvement prior to issuance of building permits and must be completed and certified by the engineer prior to occupancy.

Project Partially Responsible

The intersection of Imola Ave. (SR 121)/Soscol Ave. is already operating at LOS F conditions; therefore the project is only responsible for the fair share contribution to mitigation based on its contribution to LOS F conditions. This mitigation is needed at opening and the City of Napa has agreed to be responsible for its implementation.

- **Intersection 12 - Imola Ave. (SR 121) /Soscol Ave.** – NRP is responsible for 19.1% of mitigation cost based on project contribution (percent of total peak hour trips) to existing LOS F conditions. The remainder of funding (80.9%) would come from other sources. Mitigation is to construct an additional left-turn lane on the eastbound approach and an exclusive right-turn lane on the westbound approach. Payment to City of Napa prior to issuance of building permits will constitute meeting of obligation for mitigation under the development agreement.

FAIR SHARE CONTRIBUTION - FUTURE IMPROVEMENTS

This section documents the methodology and results of developing a transportation mitigation cost allocation program for the for the Napa Pipe project under future conditions. The basic technical information used in this cost allocation program is consistent with that presented in the Napa Pipe EIR.

Fair share contributions are often discussed under the Future plus Project scenario when thresholds of significance are based on comparing Future conditions back to Existing conditions. Simply stated, cumulative impacts are, by definition, caused by the cumulative effect of Project traffic and traffic from other reasonably foreseeable developments; the Project is not solely responsible for causing them. The project's fair share contribution to mitigating cumulative impacts is calculated based on the forecasted traffic growth between existing and future conditions. Fehr & Peers then determined what percentage of this growth was attributable to the project. The contribution varies between the AM and PM peak hours, so the greater of the two was used to identify an impacted intersection's fair share contribution assigned to the project. The fair share contribution percentage for each impacted intersection is presented in **Table 3**.

TABLE 3: FAIR SHARE CONTRIBUTION PERCENTAGES AND COSTS

#	Impacted Intersection	Napa Pipe Fair Share Percentage	Total Cost	Napa Pipe Fair Share Cost
1	Lincoln Ave/Soscol Ave ¹	3.9%	\$1,352,000	\$53,000
16	Kaiser Rd/Enterprise Way	66.4%	\$30,000	\$20,000
17	SR 221 (Napa-Vallejo Highway)/Kaiser Rd ²	34.0%	\$1,700,000	\$578,000
20	Napa Valley Corp. Way/SR 221 (Napa-Vallejo Hwy) ²	11.1%	\$1,700,000	\$189,000
23	SR 12-SR 121/SR 29 ²	5.5%	\$2,000,000	\$110,000
26	SR 12-SR 29/SR 221 (Napa-Vallejo Hwy)	10.7%	\$30,000,000	\$3,210,000
27	Airport Blvd/SR 29-SR 12	7.0%	\$40,000,000	\$2,800,000
28	SR 29/South Kelly Rd ²	10.2%	\$1,800,000	\$184,000
29	SR 29/Napa Junction Rd ²	9.8%	\$1,800,000	\$176,000
30	SR 29/Donaldson Way ²	14.6%	\$1,800,000	\$263,000
Totals			\$82,182,000	\$7,583,000

¹Pursuant to phone call with City of Napa on May 9, 2014 cost includes estimated 6,500 square sf of right-of-way @ \$8 sf.
²Mitigation includes 1,000 feet of lane addition north and south of the intersection.
 Fehr & Peers, 2014.

There were two study intersections that have no feasible means of achieving acceptable operations under the Future plus Project scenario:

- 31. SR 29 / American Canyon Road
- 34. SR 29 / SR 37 Westbound Off-Ramp

As discussed in more detail in the Napa Pipe EIR, these intersections may theoretically be able to be improved to operate acceptably by constructing large-scale intersection treatments, such as grade separation, continuous flow intersections, or approach realignment. However, these options are not likely to be desirable in the affected communities, and thus these mitigations were considered infeasible. Therefore, no mitigation costs have been included for these intersections in this cost allocation program. The cost estimates that follow are only for those locations where feasible mitigations were identified in the EIR.

FAIR SHARE CONTRIBUTION ALLOCATION BY LAND USE TYPE

The cost allocation program is based on each land use type associated with the Napa Pipe project. For each land use type, a cost per unit of development was calculated. **Table 4** provides the land use, size, and unit type for Napa Pipe.

TABLE 4: LAND USE PROGRAM – COSTCO ALTERNATIVE		
Land Use Type	Size	Unit
Condo	945	du
Senior Assisted Living	150	bed
Hotel	150	Room
Office	100	ksf
Industrial/R&D/Warehouse	75	ksf
Neighborhood Serving Retail & Restaurant	40	ksf
Elementary School	500	student
Costco	154	ksf

1. du = dwelling unit
 2. ksf = thousand square feet
 Source: Napa Redevelopment Partners, 2013.

The cost per unit of development for each land use type is based on Napa Pipe’s fair share contribution (highest peak hour contribution – AM or PM – was used) to significantly impacted intersections under the Future plus Project scenario. Peak period trip generation of each Costco Alternative land use was compared to overall program trip generation to determine the proportional contribution from each land use. Because one of the primary goals of the Napa Pipe project is to provide housing for people who work in Napa County in a neighborhood setting that promotes walking and bicycling, it is critical that the project site include some neighborhood-serving retail and community-serving uses, so that residents can take advantage of these on-site benefits. One method of supporting the achievement of this goal is to rebalance the cost allocations to reduce the cost burden on the neighborhood-serving retail uses as well as to exclude in entirety the elementary school from fair share cost contributions.

Table 5 summarizes the percent of total trip generation of the Costco Alternative attributable to each land use. A blended approach, based on the sum of AM and PM peak period trip generation numbers, was used to allocate amongst the land use types. Allocation of fair share cost by land use type/unit is based on trip generation developed by Fehr & Peers and is consistent with the methodology used in the EIR and subsequent analyses.

Trip Generation Rates

The trip generation rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation* (8th Edition) were used to calculate trip generation for the proposed project, with the exception of the senior housing/assisted living and Costco land uses. The trip rates used to estimate the traffic associated with the senior housing/assisted living units were based on survey

data collected by Fehr & Peers. The trip generation estimates for Costco were based on empirical rates developed by Kittelson Associates (*Napa Costco Trip Generation Estimate*, June 15, 2012).

Internalization/Pass-By

Given the variety of land uses proposed as part of the project, it is likely that there will be some on-site interaction between uses. Trips that do not use the external roadway network, such as trips from the residential to the retail uses on the project site, are designated as internal trips, and they have the potential to reduce the overall trip generation for the individual land uses. Internal capture rates for residential, office, and retail uses are provided in the *ITE Trip Generation Handbook* (2nd Edition). These rates have been used to calculate the internal trips generated by the project using the handbook's recommended procedures. The rates for Costco include pass-by trip reductions to account for trips by members that are traveling on the surrounding street network for some other primary purpose (such as a trip from work to home) and make a stop at the site en route during their normal travel from origin to ultimate destination.

TABLE 5: PERCENTAGE ALLOCATION OF TRIPS BY LAND USE TYPE								
Land Use	AM Peak Vehicle Trips			PM Peak Vehicle Trips			AM + PM Peak Trips	% Allocation
	Subtotal	Internalized	Total	Subtotal	Internalized	Total		
Condo	417	0	417	493	-23	470	887	33%
Senior Assisted Living	32	0	32	68	-3	65	97	4%
Hotel	85	0	85	89	0	89	174	6%
Office	189	0	189	192	-5	187	376	14%
Industrial/ R&D/ Warehouse	105	0	105	104	-3	101	206	8%
Neighborhood Serving Retail & Restaurant	117	0	117	221	-27	194	310	11%
Costco	260	-90	170	1,075	-640	435	605	22%
Elementary School	128	-83	45	43	-28	15	60	2%
<i>Total</i>	<i>1,333</i>	<i>-173</i>	<i>1,160</i>	<i>2,285</i>	<i>-730</i>	<i>1,555</i>	<i>2,715</i>	<i>100%</i>

Fehr & Peers, 2013.

Impact Cost Calculations

These allocation percentages were then used to calculate the total cost by land use type per impacted intersection. Finally, the land use detail in **Table 4** was used to translate from total cost to cost by unit per impacted intersection. **Table 6** presents the preferred option for rebalancing,

in which the total cost attributed to neighborhood-serving retail and restaurant uses was reduced to \$300,000, the cost attributed to the elementary school was reduced to \$0, and the remaining balance was split between the hotel, office, industrial, and Costco uses.

TABLE 6: FAIR SHARE COST SUMMARY WITH REBALANCING									
	Napa Pipe Fair Share Cost	Condo	Senior Assisted Living	Hotel	Office	Industrial	Neighbor- hood- Serving Retail	Costco	Elementary School
Size		945 du	150 du	150 rm	100 ksf	75 ksf	40 ksf	154 ksf	500 student
% Allocation		33%	4%	8%	17%	9%	4%	27%	0%
Total	\$7,583,000	\$2,502,390	\$303,320	\$606,640	\$1,213,280	\$682,470	\$300,000	\$1,971,580	\$0
Cost per Unit		\$2,648 / du	\$2,022 / du	\$4,044 / room	\$12,133/ ksf	\$9,099/ ksf	\$7,500/ ksf	N/A - Lump Sum	\$0

Fehr & Peers, 2014.