

Final Report

East Contra Costa Regional Fee Program Update

Prepared for:
East Contra Costa Regional Fee &
Financing Authority

October 2020

1001-1655.02

FEHR  PEERS

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1. Introduction

Background

The East Contra Costa Regional Fee and Financing Authority (ECCRFFA or the Authority) is a regional planning agency charged with funding regional transportation improvement projects in eastern Contra Costa County with revenue from the Authority's regional transportation demand impact mitigation (RTDIM) fees. The Authority's jurisdiction includes the eastern portion of the County, including unincorporated areas and the Cities of Antioch, Brentwood, Oakley, and Pittsburg. The Authority's boundaries are shown in **Figure 1**.

The Authority first implemented a transportation development impact fee program in 1994. The fee was calculated to reflect new development's proportional share of the cost of various regional transportation improvements, such as the State Route (SR) 4 Bypass and the widening of SR 4 through Pittsburg and Antioch. The Authority conducted an update of the fee program in 2001 to help fund an expanded list of regional transportation improvements. In the summer of 2005, the Authority completed a comprehensive update of its RTDIM fee program. In June 2005, the ECCRFFA Board approved the *East Contra Costa Regional Fee Program Update Final Report* (the "2005 Report") prepared by Fehr & Peers, and each of the five member jurisdictions adopted an updated set of fees pursuant to that report.

Since that time, the fees have been adjusted annually to reflect changes in construction costs. Beginning in 2008-2009, a fee rebate program was established in response to the economic downturn. The fee rebate has been reduced over time, but the Authority has continued to implement a 15% fee rebate since January 1, 2017. Periodic program assessments have been completed and documented over the past several years to evaluate the progress of the program in funding and delivering projects on the project list.

Purpose

Recently, there has been interest in expanding the ECCRFFA fee program to include a project that would involve the extension of Sand Creek Road westward, from its current terminus near SR 4, to a new intersection with Deer Valley Road in Antioch (the "SCR extension"). At its December 13, 2018 meeting, the ECCRFFA Board of Directors directed that a focused nexus study be conducted to evaluate the addition of the SCR extension to the fee program. The purpose of this report is to evaluate the addition of the SCR extension to the ECCRFFA project list, and to determine new development's proportional share of the cost of that project should it be added to the fee program.

Study Area

As shown on **Figure 1**, ECCRFFA's jurisdiction area includes certain unincorporated areas of eastern Contra Costa County, as well as the Cities of Antioch, Brentwood, Oakley, and Pittsburg.



Study Process

This study was developed under the direction of ECCRFFA staff and with input from staff from each of the member agencies. Because this is a focused nexus study, it follows the same technical methods and procedures as were used in the 2005 Report. The intent is to maintain the existing structure of the ECCRFFA program; therefore, the 2005 Report remains the best source of detailed information about the nexus analysis for the existing program. The focus of this current analysis is to determine new development's proportional share of the cost of the SCR extension should it be added to the fee program, as well as to incorporate updated cost information regarding all of the projects on the current ECCRFFA project list (i.e., the projects evaluated in the 2005 Report).

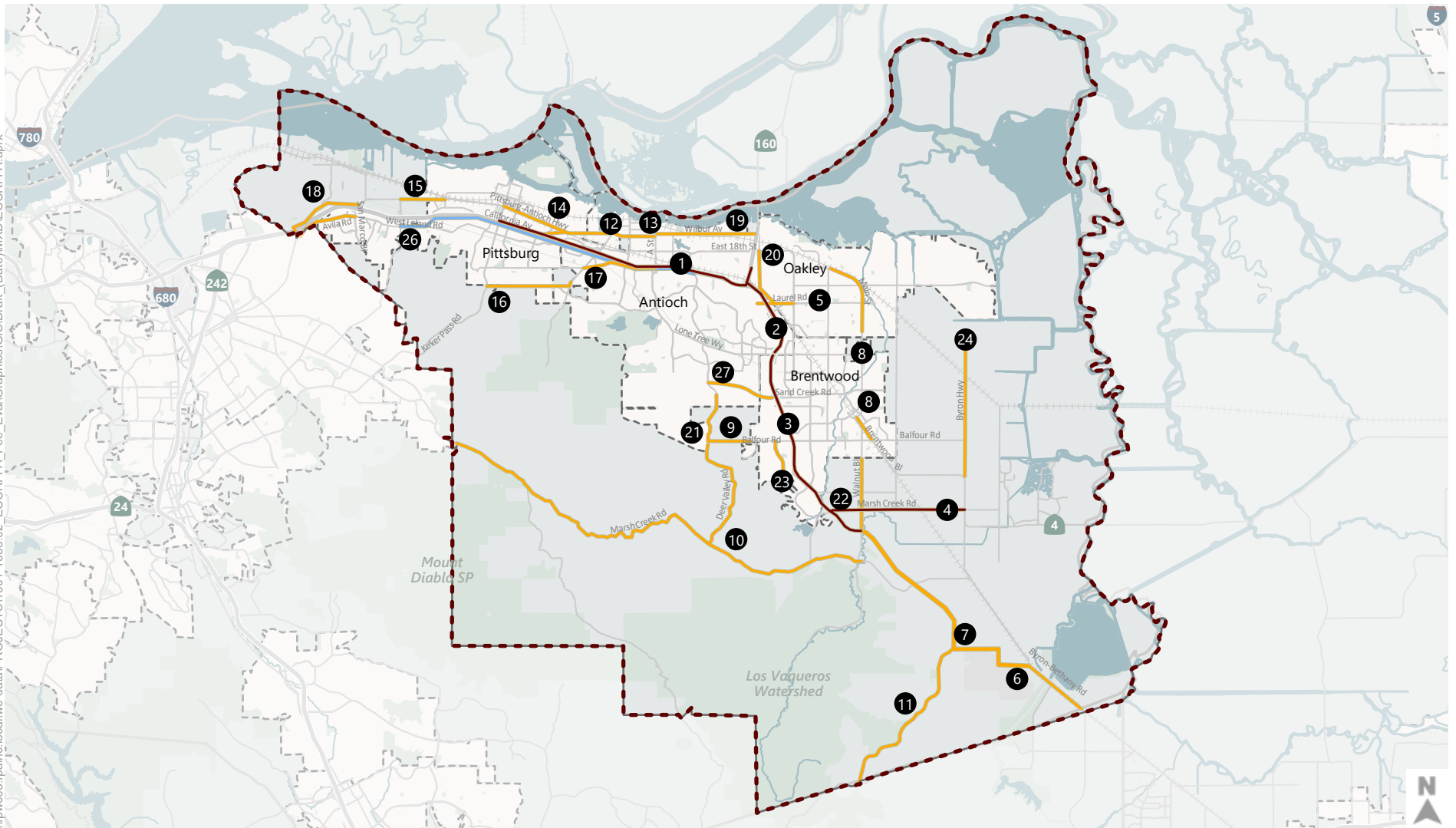
Organization of the Report

After this introductory section, the report contains three additional sections:

- *Section 2* – Program Information and Project List describes the background of the fee program, the current fee amounts, and the list of projects included in the program.
- *Section 3* – Growth Projections documents the amount of growth anticipated in East County over the next twenty years that would be subject to the fee.
- *Section 4* – Nexus Analysis and Fee Calculations describes the results of the nexus analysis for the Sand Creek Road extension project and calculates the fee amounts using the updated information presented in the report.



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Note: The East County Express Bus project 26 is not mapped as its location is not defined.

Project Type

- Freeway Improvements
- Arterial Improvements
- Regional Transit Improvements
- East Contra Costa County Fee Boundary



Figure 1

ECCRFFA Area and Projects

2. Program Information and Project List

The existing ECCRFFA program authorizes ECCRFFA's member agencies to charge RTDIM fees on new development within ECCRFFA's jurisdiction. The current schedule of ECCRFFA RTDIM fees is shown in **Table 1**.

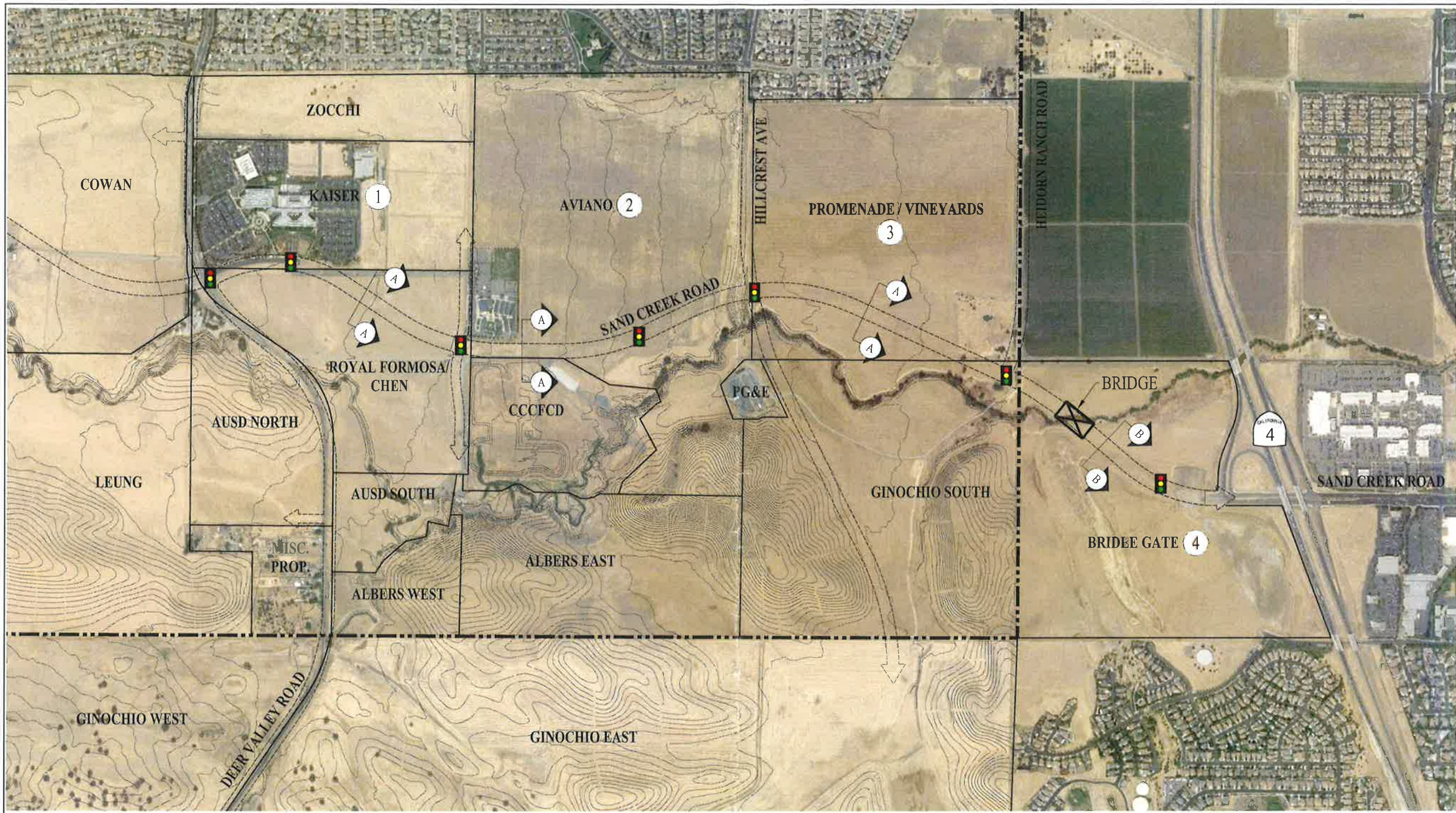
The existing ECCRFFA program generates RTDIM fee revenue that can be used to fund new development's proportional share of any of the 26 transportation improvement projects listed in the 2005 Report. Those projects include freeway and regional transit improvements as well as projects along major arterial roadways that connect different parts of the East County region. The proposed SCR extension has been temporarily added as project #27 for the purposes of this study. See Figure 1 for a map of the project locations, and **Table 2** contains a description of each project along with its current status and estimated cost.

For those projects that have been completed, the cost shown on Table 2 reflects the actual cost. For projects yet to be completed, the cost estimate from the 2005 Report has been indexed to current dollars by applying an annual construction cost index, consistent with the process used to index the ECCRFFA fee amounts each year. In a few cases, the project sponsors were able to provide a more recent cost estimate, which was then incorporated into Table 2. This was the case for project #16 (the James Donlon Boulevard extension) and proposed project #27 (the SCR extension).

The SCR extension project involves the extension of Sand Creek Road as a four-lane, east-west arterial from its current terminus at SR 4 in Brentwood westward to intersect with Deer Valley Road in Antioch. See **Figure 2** for an exhibit showing the conceptual alignment of the SCR extension. The SCR extension would provide access to several areas proposed for development, including the developments known as Bridle Gate in Brentwood, and Promenade and Aviano in Antioch. Near its western end, the SCR extension would connect to Deer Valley Road, near the existing Dozier-Libbey Medical High School and the Kaiser Permanente Medical Center.

The SCR extension will serve multiple purposes. Major functions of the road would include: 1) allowing access to the proposed new development areas described previously; and 2) filling a transportation gap in east-west connectivity between Antioch and Brentwood to serve the anticipated growth in regional travel without overburdening the existing parallel routes of Balfour Road and Lone Tree Way. The SCR extension would also allow more direct and efficient access to the Kaiser Medical Center and the Dozier-Libbey High School from Brentwood and points east. As described further in Section 4, the portion of the SCR extension project cost that is proposed to be included in the ECCRFFA program has been calculated to account for new development's proportional share of the cost of the project.



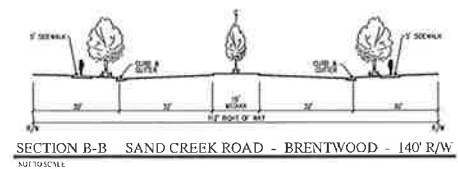
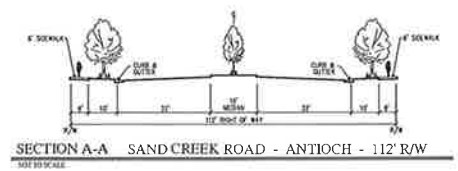


SAND CREEK ROAD REGIONAL ROADWAY COST SUMMARY				
SEGMENT NUMBER	DESCRIPTION	APPROXIMATE LENGTH (LF)	COST (\$)	COST (\$)/ LF
1	KAISER / ROYAL FORMOSA	2,650	7,559,000	\$2,850/LF±
2	AVIANO	2,830	8,948,300	\$3,160/LF±
3	PROMENADE/VINEYARDS	2,740	5,535,000	\$2,020/LF±
4	BRIDGE GATE	2,130	5,628,000	\$2,630/LF±
	SUBTOTAL	10,320	27,670,000	\$2,680/LF± (AVG.)
5	BRIDGE (\$3M X 1.45)	N/A	4,350,000	N/A
6	TRAFFIC SIGNALS (\$300K X 1.45 PER SIGNAL)	N/A	3,045,000	N/A
	TOTAL	10,320	35,065,000	\$3,400/LF± (AVG.)

NOTE: ALL COSTS INCLUDE A 20% CONTINGENCY AND 25% LOAD.

- LEGEND**
- CITY LIMIT LINE / SPHERE OF INFLUENCE
 - REGIONAL ROADWAY
 - TRAFFIC SIGNAL

DRAFT



PRELIMINARY
REGIONAL TRANSPORTATION
ROUTING EXHIBIT
SAND CREEK ROAD

CITY OF ANTIOCH/BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA

SCALE: 1" = 300'

DATE: MAY 29, 2018

Carlson, Barbee & Gibson, Inc.
CIVIL ENGINEERS AND ARCHITECTS

Table 1: Current ECCRFFA Fees (as of January 2020)

Land Use Category	Unit	Fee per Unit	ECCRFFA Fee Rebate	Fee Less ECCRFFA Fee Rebate
Single-Family	DU	\$22,920	15%	\$19,482
Multi-Family	DU	\$14,070	15%	\$11,960
Commercial	Sq. Ft.	\$1.90		\$1.90
Office	Sq. Ft.	\$1.66		\$1.66
Industrial	Sq. Ft.	\$1.66		\$1.66
Other	Peak Hour Trip	\$22,920		\$22,920

Notes: DU = Dwelling Unit. For projects that do not fit in one of the general land use categories above, the fee is assessed on the basis of the number of peak hour vehicle trips estimated to be generated by that project.

Source: Contra Costa County.

Table 2: ECCRFFA Project List

Number	Project	Description/ Project Limits	Sponsor	Total Cost (\$ Million)	Status
Freeway Improvements					
1	SR 4 Freeway widening	Railroad Avenue to Loveridge Road, widen to 8 lanes	CCTA	\$ 101.0	Completed
		Loveridge interchange	CCTA	\$ 157.8	Completed
		Loveridge to Bypass (8 lanes to Hillcrest, 6 lanes to Bypass)	CCTA	\$ 374.7	Completed
		Hillcrest interchange expansion	CCTA	\$ 10.0	Completed
2	SR 4 Bypass Segment 1	Phase 1, 6 lanes to Laurel, interchanges at Laurel Rd and Lone Tree	Bypass Authority	\$ 113.7	Completed
		Phase 2, SR 160 interchange	Bypass Authority	\$ 50.1	Completed
		Laurel interchange, phase 2	Bypass Authority	\$ 1.0	Completed
3	SR 4 Bypass Segment 2	Phase 1, 2 lanes	Bypass Authority	\$ 33.3	Completed
		Phase 2, 4 lanes, Sand Creek Road to Balfour Road	Bypass Authority	\$ 16.0	Completed
		Widen to 6 lanes, Laurel Road to Sand Creek Road	Bypass Authority	\$ 29.0	
		Sand Creek interchange and 4 lanes, Laurel to Sand Creek	Bypass Authority	\$ 43.8	Completed
4	SR 4 Bypass Segment 3	Balfour to Marsh Creek (2 lanes) plus Marsh Creek east-west connector	Bypass Authority	\$ 77.8	Completed



Table 2: ECCRFFA Project List

Number	Project	Description/ Project Limits	Sponsor	Total Cost (\$ Million)	Status
		Marsh Creek to Vasco, 2 lanes	Bypass Authority	\$ 12.6	Completed
		Segment 3, widen to 4 lanes	Bypass Authority	\$ 58.9	
		Balfour interchange	Bypass Authority	\$ 58.0	Completed
		Marsh Creek interchange	Bypass Authority	\$ 37.2	
		Vasco interchange	Bypass Authority	\$ 31.0	
Arterial Improvements					
5	Laurel Road extension	SR4 Bypass to Empire, 6 lanes	Bypass Authority	\$ 22.6	Completed
6	SR 239/84 Connector	Armstrong Road extension, 2 lanes (formerly Byron Airport Road)	County	\$ 9.5	
7	SR 239	Corridor study and preliminary design (no construction costs)	County	\$ 15.5	Study completed
8	SR 4 (Main St or Brentwood Blvd) widening	Vintage Pkwy in Oakley to Marsh Creek bridge in Brentwood and from Chestnut Street to Balfour Road in south Brentwood, 4 lanes	Oakley, Brentwood	\$ 48.0	Partially completed
9	Balfour Road widening	Deer Valley to Brentwood city limits, widen to 4 lanes	County	\$ 10.5	
10	Marsh Creek Road/Deer Valley Road Safety Enhancements	Marsh Creek: Walnut Boulevard to Clayton City Limits; Deer Valley: Balfour Road to Marsh Creek Road	County	\$ 22.0	
11	Route 84/Vasco Road	Widen to 4 lanes to County line	County	\$ 323.8	
12	Pittsburg-Antioch Highway	Widen to 4 lanes, Auto Center Drive to Loveridge	Antioch, Pittsburg	\$ 17.0	
13	Ninth and Tenth Streets	Couplet improvements, A St to L St	Antioch	\$ 7.0	
14	California Avenue	Widen to 4 lanes, Railroad to Loveridge	Pittsburg	\$ 25.9	
15	Willow Pass Road	Widen to 4 lanes, Range to Loftus and Bailey to city limits	Pittsburg, County	\$ 10.7	
16	James Donlon Blvd Extension (formerly Buchanan Bypass)	New 2- to 4-lane arterial, Somersville to Kirker Pass Road	Pittsburg	\$ 105.8	Design in progress
17	West Tregallas/Fitzuren	Widen to 4 lanes, Lone Tree to Buchanan	Antioch	\$ 38.7	
18	West Leland Road or Evora Road	Extend, San Marco to Avila Road	Pittsburg	\$ 18.0	
		Willow Pass Rd (BP) to Willow Pass Rd (Concord), widen to 4 lanes	County		
19	Wilbur Avenue	Widen to 4 lanes, Minaker Drive to SR 160	Antioch, County	\$ 31.0	



Table 2: ECCRFFA Project List

Number	Project	Description/ Project Limits	Sponsor	Total Cost (\$ Million)	Status
20	Neroly Road	Widen to 4 lanes, Oakley Rd to Laurel Rd	Oakley	\$ 7.7	
21	Deer Valley Road	Widen to 4 lanes, Antioch city limits to Balfour Road	County	\$ 13.9	
22	Walnut Boulevard	Widen to 4 lanes, Brentwood city limits to SR 4 Bypass	County	\$ 18.6	
23	John Muir Parkway	New Roadway between Balfour Road and Fairview Avenue	Brentwood	\$ 17.7	Design in progress
24	Byron Highway	Safety Improvements between Delta Road and SR 4	County	\$ 5.6	
27	Sand Creek Road	Extension of 4-lane roadway between SR 4 and Deer Valley Road	Antioch	\$ 34.9	
Regional Transit Projects					
25	East County Express Bus		Tri-Delta Transit	\$ 8.3	
26	Commuter Rail		CCTA	\$ 513.0	Completed
TOTAL				\$2,531.5	

Note: Project #27, the Sand Creek Road Extension, is not currently part of the ECCRFFA program. As explained above, the SCR extension is being considered for incorporation into the program.

Source: ECCRFFA.



3. Growth Projections

An important element of every fee calculation is the estimate of future growth in the fee area. As part of this update, the current land use files available from the Contra Costa Transportation Authority (CCTA) travel demand model were reviewed. These files contain projections of the amount of residential and employment growth that is anticipated to occur in East County. CCTA has just completed an update of the travel model and has developed a new set of land use files that reflect the totals from the Association of Bay Area Governments (ABAG) Projections 2017 publication, which is the most current set of regional growth projections available.

The first step in the process was to identify which of the model's traffic analysis zones (TAZs) are within ECCRFFA's jurisdiction. The ECCRFFA jurisdictional boundary was available as a GIS file, and was overlaid with the CCTA TAZ structure to identify the TAZs that are located within ECCRFFA's jurisdiction. For those TAZs that are only partially within ECCRFFA's jurisdiction, the TAZ was included in the calculation only if more than 50% of the TAZ land area was within ECCRFFA's jurisdiction.

The next step was to tabulate the total amount of households and employment in the ECCRFFA TAZs, as shown in **Table 3**. The year 2020 is used as the baseline and the year 2040 is the horizon year. The employment categories shown are those that have historically been used in prior nexus studies for the ECCRFFA program, and are used here for consistency with the existing fee program.

Table 3: Projected Land Use in East County

Jurisdiction	Year 2020 ¹					Year 2040				
	Employment			Residential Units		Employment			Residential Units	
	Service	Retail	Other	Single Family	Multi-family	Service	Retail	Other	Single Family	Multi-family
Antioch	6,055	7,819	8,105	27,956	7,326	7,587	9,923	10,280	31,808	10,425
Brentwood	2,160	2,883	3,134	15,565	1,880	2,901	3,321	3,833	20,037	2,555
Oakley	1,121	1,355	1,918	10,411	2,002	1,944	1,762	2,494	13,411	3,836
Pittsburg	4,232	4,472	7,463	14,573	7,039	5,952	5,660	8,129	18,953	11,557
Unincorporated East County	1,327	3,051	5,514	15,827	3,456	2,798	3,643	4,815	18,657	4,685
Total East County	14,895	19,580	26,134	84,332	21,703	21,182	24,309	29,551	102,866	33,058

Relationship between land use categories in the model and the fee program were assumed to be: Retail=Commercial; Service=Office; and Other=Industrial, Manufacturing, Agriculture and other land use categories included in the CCTA model.

1. 2020 land use was derived by a linear interpolation between the 2010 and 2040 land use data provided by CCTA in March 2019.

Source: ECCRFFA, CCTA, Fehr & Peers.



Dwelling Unit Equivalent Factors

It is common in many fee programs to convert the projected growth into a standard unit of measurement called the dwelling unit equivalent (DUE), in order to account for the fact that different types of development have different travel characteristics. The factors used to convert the future land use numbers into DUEs are shown in **Table 4**. These factors have been developed following the same structure established in the 2005 Report; the values in each column have been updated to reflect the most current data available. These DUE conversion factors involve the following elements: land use-specific PM peak hour trip rates from *ITE Trip Generation*, 10th Edition; estimates of the percent new trips from SANDAG *Brief Guide of Vehicular Traffic Generation Rates* (2002); and average trip lengths from the 2012 California Household Travel Survey for census tracts within ECCRFFA's jurisdiction.

Table 4: DUE Conversion Factors

Land Use Category	Unit	PM Peak Trip Rate ¹	% New Trips ²	Average Trip Length (miles) ³	PM Peak New Trip Length per Unit ⁴	DUE per Unit ⁵
Housing						
Single Family ^a	Dwelling Unit	0.99	100	9.0	8.9	1.00
Multi-Family ^b	Dwelling Unit	0.56	100	7.5	4.2	0.47
Employment						
Commercial ^c	1,000 square feet	3.81	45	5.0	8.6	0.96
Office ^d	1,000 square feet	1.15	75	14.0	12.1	1.36
Industrial ^e	1,000 square feet	0.63	80	14.0	7.1	0.79

- The average PM peak hour (between 4 and 6 PM) trip rate was taken from the *ITE Trip Generation Manual*, 10th Edition, for the following land use codes:
 - Single Family Detached - Code 210
 - Multifamily Housing (Low Rise) - Code 220
 - Shopping Center - Code 820
 - General Office - Code 710
 - General Light Industrial - Code 110
- Taken from the SANDAG Brief Guide of Vehicular Traffic Generation Rates, April 2002.
- Average trip lengths for the East County area as derived from 2012 California Household Travel Survey Data. For single family and multifamily housing, used travel survey data for all home-based trip purposes. For commercial uses, used data for home-based shopping purpose. For office and industrial uses, used data for all work-related trips.
- Calculated as: PM Peak Trip Rate * % New Trips * Average Trip Length.
- DUE per Unit is calculated by normalizing the PM Peak New Trip Length for each category such that the single-family residential category is assigned a DUE of 1.00. This is accomplished by dividing the PM Peak New Trip Length for each category by the PM Peak New Trip Length of the single-family residential category. So, for example, the DUE per Unit for the Multi-family category is calculated as 4.2 / 8.9 = 0.47.

Source: ECCRFFA, Fehr & Peers.



Projected Growth in East County

Forecasted growth in East Contra Costa County is shown in **Table 5** in absolute numbers of new jobs and residential units, and then those numbers are converted to DUEs. The total number of new DUEs projected in the 20 years from 2020 to 2040 is 29,808. As a point of comparison, in the 2005 Report the amount of growth projected over the 20-year period from 2005 to 2025 was approximately 42,000 DUEs. This result is an indication that the East County area is moving closer to a build-out condition, as the amount of future growth begins to moderate.

Table 5: Forecasted Growth in East Contra Costa County (2020 to 2040)

Jurisdiction	Estimated Growth (2020 to 2040)					Estimated Growth in DUEs (2020 to 2040)					Total DUEs
	Employment			Residential Units		Employment DUEs			Residential DUEs		
	Service	Retail	Other	Single Family	Multi-family ⁴	Office ¹	Commercial ²	Industrial ³	Single Family	Multi-family ⁴	
Antioch	1,532	2,104	2,175	3,852	3,099	571	1,012	689	3,852	1,461	7,585
Brentwood	741	438	699	4,472	675	276	211	221	4,472	318	5,498
Oakley	823	407	576	3,000	1,834	307	196	182	3,000	865	4,549
Pittsburg	1,720	1,188	666	4,380	4,518	641	572	211	4,380	2,130	7,933
Unincorporated East County	1,471	592	0	2,830	1,229	548	285	0	2,830	579	4,242
Total East County	6,287	4,729	4,116	18,534	11,355	2,343	2,275	1,304	18,534	5,353	29,808

Relationship between land use categories in the model and the fee program were assumed to be: Retail=Commercial; Service=Office; and

Other=Industrial, Manufacturing, Agriculture and other land use categories included in the CCTA model.

1. Office DUE conversion assumes 275 square feet per employee and a DUE per thousand square feet of 1.36. $DUE = EMP * 0.275 * 1.36$
2. Commercial DUE conversion assumes 500 square feet per employee and a DUE per thousand square feet of 0.96. $DUE = EMP * 0.500 * 0.96$
3. Industrial DUE conversion assumes 400 square feet per employee and a DUE per thousand square feet of 0.79. $DUE = EMP * 0.400 * 0.79$
4. The multifamily units were multiplied by a DUE of 0.47.

Source: ECCRFFA, Fehr & Peers.



4. Nexus Analysis and Fee Calculations

Existing Deficiencies

One of the key functions of a fee program is to charge fees to new development in order to fund new development's proportional share of transportation improvements needed to serve the demand and impacts generated by that new development. The purpose of an impact fee is not to correct existing deficiencies, which should be funded through other revenue sources. Therefore, it is necessary to determine whether there are existing deficiencies in the roadway network that may be related to or affected by the SCR extension.

Because the SCR extension would be a new east-west roadway that does not currently exist, the determination of existing deficiencies is done by addressing whether the existing roadways that currently serve east-west travel in this general vicinity are already experiencing deficient operations. The following intersections, which are parallel to, and roughly the same east-west extent as, the proposed SCR extension, were chosen for analysis:

- Lone Tree Way/Canada Valley Road
- Lone Tree Way/Hillcrest Avenue
- Lone Tree Way/Deer Valley Road
- Balfour Road/Cortona Way
- Balfour Road/Foothill Drive
- Balfour Road/Deer Valley Road

AM and PM peak period traffic counts were collected on a typical weekday with good weather conditions and when school was in session. The count data was used to calculate the peak hour Level of Service (LOS) at each study intersection. These results were compared to the applicable LOS standard for those facilities in order to identify existing deficiencies.

The City of Brentwood requires that "intersection levels of service should be maintained at LOS D or better" for Signalized Suburban Arterial Routes (City of Brentwood General Plan, July 2014). Similarly, the City of Antioch's requirement for signalized intersections is that they be maintained at LOS D (City of Antioch General Plan, 2003).

The results of the LOS analysis performed at each study intersection are presented in **Table 6**. The analysis identified one deficiency, at the intersection of Balfour Road and Cortona Way in Brentwood. During the PM peak hour, the results of the analysis indicate LOS E at that intersection with a total average delay of



78 seconds. The threshold for LOS D operations at a signalized intersection is 55 seconds of delay (Highway Capacity Manual, 2010).

The analysis indicated that the southbound approach at the Balfour Road/Cortona Way intersection has the highest reported delay, and reducing the volume of the southbound left-turn movement would have the greatest effect on level of service. To achieve LOS D, a reduction of southbound left-turning volume, from 176 vehicles to 123 vehicles, would be required. However, it should be noted that the southbound left-turn movement at this intersection is largely unrelated to the SCR extension. Cortona Way is a short north-south street that serves several commercial businesses, an assisted living facility, and a relatively small number of residences. The vehicles that are turning left from southbound Cortona Way onto Balfour Road in the PM peak hour will be heading either onto SR 4 or further eastward into southern Brentwood. These travel patterns would not be served or affected by the SCR extension. Therefore, while this intersection currently operates at a deficient level of service, the particular travel patterns involved lead to the conclusion that the Balfour Road/Cortona Way intersection does not represent an existing deficiency that would affect the nexus determination for the SCR extension.

Table 6: Existing Intersection Level of Service (LOS)

Intersection		Control Type ¹	Peak Hour ²	Delay ³	LOS ⁴
1	Lone Tree Way/Canada Valley Road	Signalized	AM	17.9	B
			PM	28.2	C
2	Lone Tree Way/Hillcrest Avenue	Signalized	AM	19.5	B
			PM	21.6	C
3	Lone Tree Way/ Deer Valley Road	Signalized	AM	27.3	C
			PM	24.8	C
4	Balfour Road/Cortona Way	Signalized	AM	43.9	D
			PM	78.0	E
5	Balfour Road/Foothill Drive	Signalized	AM	48.9	D
			PM	32.3	C
6	Balfour Road/Deer Valley Road	Side-Street Stop-Controlled	AM	13.8 (21.7)	B (C)
			PM	9.9 (13.8)	A (B)

Notes:

- Existing intersection traffic control type
- AM = Weekday morning peak hour, PM = Weekday evening peak hour
- Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
- LOS designation per HCM 2010.

Bold indicates a LOS result lower than the relevant standard.

Source: Fehr & Peers, March 2019.

Proportional Cost Allocation

As described previously, the purpose of this study is to evaluate the incorporation of the proposed SCR extension into the ECCRFFA fee program. As such, the focus here is on defining the proportion of the SCR



extension project cost that could be included in the fee program. No changes are being made to the cost proportions included in the fee for all of the other projects that are already part of the ECCRFFA fee program. **Table 7** includes the total cost of each project, as well as the portion of that cost that is considered part of the ECCRFFA fee program.

Per the above discussion, there are no current existing deficiencies that would affect the determination about what proportion of the SCR extension cost should be included in the ECCRFFA fee program. If a facility is not subject to an existing deficiency, then the need for the improvement can be presumed to be generated by new development. As described in Section 2 of this report, the SCR extension is designed to serve multiple purposes, including access to the proposed new development areas in southern Antioch, and serving the anticipated increase in regional travel demand without overburdening the parallel routes. The extension would also provide a more direct connection to the existing Kaiser Medical Center and Dozier-Libbey High School.

The SCR extension would fill a gap in east-west connectivity between Balfour Road and Lone Tree Way. Balfour Road is approximately one mile south of the SCR extension while Lone Tree Way is about one mile north, and both are projected to serve relatively high levels of traffic demand in the future. For example, the transportation impact analysis recently completed for the project known as The Ranch, which would be located just west of the future SCR/Deer Valley Road intersection, assumed that the SCR extension would be constructed; even with that assumption, that study identified several future LOS issues at major intersections along both Lone Tree Way and Balfour Road. If the SCR extension were not constructed, traffic volumes and the associated LOS results along those roadways are expected to be even higher than were analyzed in The Ranch study. This is an indication that the SCR extension is needed to accommodate future demand for travel in the area around southern Antioch and Brentwood.

When a new roadway will serve both local access and regional travel needs, it is common practice to divide the responsibility for constructing the facility between local and regional entities. As described above, the need for the SCR extension is due entirely to the demands of new growth and is not related to an existing deficiency. The project designers have developed a detailed cost estimate for the SCR extension and have determined how each cost element reflects the road's purpose. The regional portion will include the center median and one lane of travel on either side of the median, while the local portion will include all other cost elements (e.g., outside lanes, retaining walls, landscaping, most of the cost of grading and utilities). The logic is that a two-lane road would be necessary in order to provide local access to the new development areas, so only the cost elements required to expand the road's capacity to four lanes should be considered a regional responsibility. A detailed breakdown of the SCR extension's costs is attached as **Appendix A**. As shown, the division between local and regional responsibility is approximately a 70%/30% split: the total project cost is estimated to be \$34.9 million, of which approximately \$24.1 million would be the responsibility of the local developers, while approximately \$10.8 million is the regional share that will be included in the ECCRFFA program.



Table 7: Projects and Fee Contribution Amounts

Number	Project	Description/Project Limits	Sponsor	Total Cost (\$ million)	Fee Contribution (\$ million)
Freeway Improvements					
1	SR 4 Freeway widening	Railroad Avenue to Loveridge Road, widen to 8 lanes	CCTA	\$ 101.0	\$ 2.0
		Loveridge interchange	CCTA	\$ 157.8	
		Loveridge to Bypass (8 lanes to Hillcrest, 6 lanes to Bypass)	CCTA	\$ 374.7	
		Hillcrest interchange expansion	CCTA	\$ 10.0	
2	SR 4 Bypass Segment 1	Phase 1, 6 lanes to Laurel, interchanges at Laurel Rd and Lone Tree	Bypass Authority	\$ 113.7	\$ 88.7
		Phase 2, SR 160 interchange	Bypass Authority	\$ 50.1	\$ 0.2
		Laurel interchange, phase 2	Bypass Authority	\$ 1.0	\$ 1.0
3	SR 4 Bypass Segment 2	Phase 1, 2 lanes	Bypass Authority	\$ 33.3	\$ 33.3
		Phase 2, 4 lanes, Sand Creek Road to Balfour Road	Bypass Authority	\$ 16.0	
		Widen to 6 lanes, Laurel Road to Sand Creek Road	Bypass Authority	\$ 29.0	\$ 4.0
		Sand Creek interchange and 4 lanes, Laurel to Sand Creek	Bypass Authority	\$ 43.8	\$ 5.8
4	SR 4 Bypass Segment 3	Balfour to Marsh Creek (2 lanes) plus Marsh Creek east-west connector	Bypass Authority	\$ 77.8	\$ 77.8
		Marsh Creek to Vasco, 2 lanes	Bypass Authority	\$ 12.6	\$ 12.6
		Segment 3, widen to 4 lanes	Bypass Authority	\$ 58.9	\$ 58.9
		Balfour interchange	Bypass Authority	\$ 58.0	\$ 28.0
		Marsh Creek interchange	Bypass Authority	\$ 37.2	\$ 37.2
		Vasco interchange	Bypass Authority	\$ 31.0	\$ 31.0
Arterial Improvements					
5	Laurel Road extension	SR4 Bypass to Empire, 6 lanes	Bypass Authority	\$ 22.6	\$ 22.6



Table 7: Projects and Fee Contribution Amounts

Number	Project	Description/Project Limits	Sponsor	Total Cost (\$ million)	Fee Contribution (\$ million)
6	SR 239/84 Connector	Armstrong Road extension, 2 lanes (formerly Byron Airport Road)	County	\$ 9.5	\$ 9.5
7	SR 239	Corridor study and preliminary design (no construction costs)	County	\$ 15.5	\$ 15.5
8	SR 4 (Main St or Brentwood Blvd) widening	Vintage Pkwy in Oakley to Marsh Creek bridge in Brentwood and from Chestnut Street to Balfour Road in south Brentwood, 4 lanes	Oakley, Brentwood	\$ 48.0	\$ 48.0
9	Balfour Road widening	Deer Valley to Brentwood city limits, widen to 4 lanes	County	\$ 10.5	\$ 10.5
10	Marsh Creek Road/Deer Valley Road Safety Enhancements	Marsh Creek: Walnut Boulevard to Clayton City Limits; Deer Valley: Balfour Road to Marsh Creek Road	County	\$ 22.0	\$ 7.3
11	Route 84/Vasco Road	Widen to 4 lanes to County line	County	\$ 323.8	\$ 323.8
12	Pittsburg-Antioch Highway	Widen to 4 lanes, Auto Center Drive to Loveridge	Antioch, Pittsburg	\$ 17.0	\$ 17.0
13	Ninth and Tenth Streets	Couplet improvements, A St to L St	Antioch	\$ 7.0	\$ 7.0
14	California Avenue	Widen to 4 lanes, Railroad to Loveridge	Pittsburg	\$ 25.9	\$ 25.9
15	Willow Pass Road	Widen to 4 lanes, Range to Loftus and Bailey to city limits	Pittsburg, County	\$ 10.7	\$ 10.7
16	James Donlon Blvd Extension (formerly Buchanan Bypass)	New 2- to 4-lane arterial, Somersville to Kirker Pass Road	Pittsburg	\$ 105.8	\$72.0
17	West Tregallas/Fitzuren	Widen to 4 lanes, Lone Tree to Buchanan	Antioch	\$ 38.7	\$ 38.7
18	West Leland Road or Evora Road	Extend, San Marco to Avila Road	Pittsburg	\$ 18.0	\$ 18.0
		Willow Pass Rd (BP) to Willow Pass Rd (Concord), widen to 4 lanes	County		
19	Wilbur Avenue	Widen to 4 lanes, Minaker Drive to SR 160	Antioch, County	\$ 31.0	\$ 31.0
20	Neroly Road	Widen to 4 lanes, Oakley Rd to Laurel Rd	Oakley	\$ 7.7	\$ 7.7
21	Deer Valley Road	Widen to 4 lanes, Antioch city limits to Balfour Road	County	\$ 13.9	\$ 13.9
22	Walnut Boulevard	Widen to 4 lanes, Brentwood city limits to SR 4 Bypass	County	\$ 18.6	\$ 18.6
23	John Muir Parkway	New Roadway between Balfour Road and Fairview Avenue	Brentwood	\$ 17.7	\$ 3.6



Table 7: Projects and Fee Contribution Amounts

Number	Project	Description/Project Limits	Sponsor	Total Cost (\$ million)	Fee Contribution (\$ million)
24	Byron Highway	Safety Improvements between Delta Road and SR 4	County	\$ 5.6	\$ 1.9
27	Sand Creek Road	Extension of 4-lane roadway between SR 4 and Deer Valley Road	Antioch	\$ 34.9	\$ 10.8
Regional Transit Projects					
25	East County Express Bus		Tri-Delta Transit	\$ 8.3	\$ 2.7
26	Commuter Rail		CCTA	\$ 513.0	\$ 38.0
TOTAL				\$2,531.5	\$1,135.1

Note: Project #27, the Sand Creek Road Extension, is not currently part of the ECCRFFA program. As explained above, the SCR extension is being considered for incorporation into the program.

Fee Calculations

Table 8 displays the calculated maximum impact fees based on this nexus analysis. These fees have been calculated based on the complete list of projects as shown in Table 7. The total fee contribution toward all the projects shown in Table 7 (\$1,135.1 million) has been divided by the total number of future Dwelling Unit Equivalents (DUEs) expected in East County as shown in Table 5 (29,808 DUEs), to calculate the resulting maximum fee per DUE of \$38,080. These calculations represent new development's proportional share of the cost of projects on the project list, including the SCR extension, as determined by this study.

Table 8: New Maximum Fee Calculations

Land Use Category	New Maximum Fee
Single-Family Residential (dwelling unit)	\$38,080
Multi-Family Residential (dwelling unit)	\$17,950
Commercial (square foot)	\$36.64
Office (square foot)	\$51.61
Industrial (square foot)	\$30.16
Other (per peak hour trip)	\$38,080

Source: Fehr & Peers.



Appendix A:

SCR Extension Project Costs

