



El Cerrito

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Contra Costa  
County

AC Transit

BART

WestCAT

## TECHNICAL ADVISORY COMMITTEE SPECIAL MEETING NOTICE AND AGENDA

**DATE & TIME:** Wednesday 21, 2013, 10:00 – 11:30

**LOCATION:** City of San Pablo, Council Chambers  
13831 San Pablo Avenue (at Church Lane)

**San Pablo, California** (*Accessible by AC Transit #72 and #72R*)

1. **Call to Order and Self-Introductions**
2. **Public Comment.** The public is welcome to address the TAC on any item that is not listed on the agenda. *Please fill out a speaker card and hand it to staff.*

### DISCUSSION

3. **Safe Routes to School Needs Assessment.** CCTA is seeking RTPC TACs input in the development of Phase 2 of the SRTS Needs Assessment. (*Martin Engelmann, CCTA; Action: Give input to CCTA.*)
4. **Update of the West County Action Plan.** Project staff will provide an update on elements of the Action Plan and along with TAC members, decisions regarding Routes of Regional Significance and MTSO options (*Julie Morgan, Fehr and Peers; Action: Make recommendations to the Board.*)
5. **TAC & Staff Member Comments and Announcements**
6. **Other Business**
7. **Upcoming meetings:**
  - a. Board – Friday, September 27, 7:30 am
  - b. TAC – Thursday, September 12, 9:00 am

- In compliance with the Americans with Disabilities Act of 1990, if you need special assistance to participate in the WCCTAC Board meeting, or if you need a copy of the agenda and/or agenda packet materials in an alternative format, please contact Valerie Jenkins at 510.215.3217 prior to the meeting.
- If you have special transportation requirements and would like to attend the meeting, please call the phone number above at least 48 hours in advance to make arrangements.
- Handouts provided at the meeting are available upon request and may also be viewed at WCCTAC's offices.
- Please refrain from wearing scented products to the meeting, as there may be attendees susceptible to environmental illnesses. Please also put cellular phones on silent mode during the meeting.
- A meeting sign-in sheet will be circulated at the meeting. Sign-in is optional.



## MEMORANDUM

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**Date** July 25, 2013

**To** RTPC Managers

**From** Martin Engelmann

**RE** Safe Routes to School Needs Assessment

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The Authority would like to enlist the help of the RTPC TACs in the development of Phase 2 of the Safe Routes to School (SR2S) needs assessment. This phase focuses on getting a handle on the magnitude of SR2S needs in Contra Costa, both capital and programmatic. Fehr & Peers (F&P), the consultant on the project, has been working with the agency staff overseeing the three main SR2S programs in Contra Costa to estimate what it would cost to provide SR2S programs to all schools throughout the county. To do this, they are first defining a set of typical SR2S programs appropriate for each school type and, from that, estimating the costs for each set of typical SR2S programs by school type. That estimate will then be extrapolated to get a countywide estimate of programmatic SR2S needs.

Similarly, they are looking to calculate how much it might cost to develop a comprehensive set of capital improvements around a typical school. The process for this estimation will involve the following steps:

1. Identify one or more comparable capital investment packages for each type of school based on "typical" or "ideal" recent Contra Costa SR2S projects

2. Generate a total capital cost estimate by aggregating the cost estimates across all schools
3. Account for major “outlier” projects, such as pedestrian bridges or trail connections

To help in this process, we would like to meet with the RTPC TACs to define what SR2S improvements are typically needed to create an effective network of safe routes to schools in your part of Contra Costa. We hope that TAC members can build on their experience with developing SR2S projects around schools in their jurisdictions to delineate these needed improvements. From this typical set of improvements and an accounting of the “outlier” projects noted above, we will estimate the improvements needed at schools throughout Contra Costa (step 2 in the preceding process) and the cost for developing them to provide an effective network of safe routes for children walking or bicycling to school.

We are available to meet with your TACs at your next meetings and look forward to your help and participation.

## AGENDA

### WCCTAC TAC Meeting

### West County Action Plan Update

**August 21, 2013 at 10:00 AM**

1. Regional Route status
  - a. County staff asked that Cummings Skyway remain in the RRS network
  - b. Master map of the Countywide RRS network will be brought to the meeting
  - c. *ACTION:* Need final confirmation of West County RRSs
2. Results of 2040 MTSO forecasting process (see attachment)
3. MTSO options
  - a. Multi-modal MTSO option for San Pablo Avenue (see attachment)
  - b. Example policy statement on vehicle LOS standard within PDAs (see attachment)
  - c. For I-80, CSMP focuses on average speed and delay – recommend continuing to use Delay Index as MTSO
  - d. *ACTION:* Need direction on MTSOs for all RRSs
4. Action items on specific routes (see attachment)
  - a. See list of future projects/plans on freeways and major corridors
  - b. *ACTION:* Need input on specific actions for each route

## **MTSO Forecasting Results**

I-580 Freeway Analysis: Average Demand

Direction	MTSO		2013 Observations				2040 Forecasts			
	LOS	Lanes	Average Demand AM	Average Demand PM	LOS AM	LOS PM	Average Demand AM	Average Demand PM	LOS AM	LOS PM
EB	E	3	2600	2650	C	C	2,869	3,871	C	D
WB	E	3	2900	2050	D	C	3,935	3,065	E	C

I-80 Freeway Analysis: Delay Index

Segment	Direction	MTSO	Delay Index	2013 Observations				2040 Forecasts			
				Average Speed AM	Average Speed PM	Delay Index AM	Delay Index PM	Average Speed AM	Average Speed PM	Delay Index AM	Delay Index PM
Carquinez Bridge to SR-4	EB	3	3	58	60	1.1	1.1	55	52	1.2	1.3
	WB	3	3	32	55	2.1	1.2	20	58	3.3	1.1
SR-4 to Cutting Blvd	EB	3	3	61	40	1.1	1.7	54	38	1.2	1.7
	WB	3	3	36	58	1.8	1.1	24	42	2.7	1.5
Carquinez Bridge to SR-4	EB	3	3	67	41	1.0	1.6	56	38	1.2	1.7
	WB	3	3	63	63	1.1	1.1	50	48	1.3	1.4

SR-4 Corridor: Average Demand

Direction	MTSO		2013 Observations				2040 Forecasts			
	LOS	Lanes	Average Demand AM	Average Demand PM	LOS AM	LOS PM	Average Demand AM	Average Demand PM	LOS AM	LOS PM
EB	E	2	1900	1800	C	C	2,570	2,500	D	D
WB	E	2	1600	1900	C	C	2,575	2,630	D	D

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West County MTSO Forecasts for Signalized Intersections

No.	Primary Street	Secondary Street	2013				2040 Unconstrained Model Run				2040 Unconstrained Model Run				2040 Unconstrained Model Run					
			AM Peak		V/C		LOS		Delay		V/C		LOS		Delay		V/C		LOS	
			LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
11	San Pablo Avenue	Curting Boulevard	C	29.6	0.54	D	52.5	0.79	C	27.8	0.69	C	27.6	0.69	C	27.6	0.69	C	27.6	0.69
23	Carlson Boulevard	Central Avenue	B	17.8	0.52	D	35.9	0.85	A	9.5	0.56	B	14.4	0.87	B	14.4	0.87	B	14.4	0.87
30	San Pablo Avenue	Nichols Road	C	20.7	0.37	C	28.2	0.64	C	26.3	0.56	C	32.4	0.76	C	32.4	0.76	C	32.4	0.76
38	EB I-80 on-off ramps	El Portal Avenue	C	32.2	0.47	D	40.9	0.94	C	33.6	0.85	D	40.6	0.92	D	40.6	0.92	D	40.6	0.92
39	Appian Way-La Colina Road	San Pablo Dam Road	C	33.8	0.42	D	35.8	0.56	C	29.3	0.64	D	40.3	0.87	D	40.3	0.87	D	40.3	0.87
50	Pine Valley Road	San Pablo Avenue	B	16.3	0.65	F	32.2	1.14	B	19.3	0.61	F	109.5	1.09	F	109.5	1.09	F	109.5	1.09
71	San Pablo Avenue	San Pablo Dam Road	C	32.4	0.61	F	125.4	0.99	D	53.6	0.84	E	77.5	1.04	E	77.5	1.04	E	77.5	1.04
81	San Pablo Avenue	El Portal Drive-Broadway Avenue	C	26.4	0.59	D	52.4	1.12	C	26.2	0.6	C	26.4	0.75	C	26.4	0.75	C	26.4	0.75
93	San Pablo Avenue	Hilltop Drive	C	30.5	0.74	E	73.8	1.07	D	36.3	0.87	F	153	1.3	F	153	1.3	F	153	1.3
97	San Pablo Avenue	John Muir Parkway	D	39.2	0.94	F	241.5	1.53	E	67	1.11	F	224	1.54	F	224	1.54	F	224	1.54
125	San Pablo Dam Road	EB I-80 on-off ramps-Roosevelt Avenue	D	35.1	0.74	F	252.6	1.2	D	38.7	0.73	E	76.8	1.07	E	76.8	1.07	E	76.8	1.07
128	San Pablo Avenue	El Portal Drive	D	35.9	0.64	F	171.6	1.08	C	33.8	0.82	D	44.7	1.14	D	44.7	1.14	D	44.7	1.14
132	23rd Street	Rumell Avenue-College Lane	A	9.3	0.37	B	30.7	0.66	C	33.8	0.82	D	48.2	0.98	D	48.2	0.98	D	48.2	0.98
143	San Pablo Dam Road	Macedonald Avenue	C	26.2	0.73	E	78.3	0.94	B	12.6	0.65	D	35.4	0.81	D	35.4	0.81	D	35.4	0.81
150	Appian Way-Pinnon Avenue	WB I-80 on-off ramps	C	30.8	0.48	C	30.5	0.72	C	28	0.66	C	29	0.7	C	29	0.7	C	29	0.7
158	Appian Way	San Pablo Avenue	C	25.6	0.68	C	33.2	0.8	A	8.6	0.59	C	24.9	0.62	C	24.9	0.62	C	24.9	0.62
159	Appian Way	Tara Hills Drive-Canyon Drive	A	8.6	0.43	B	13.7	0.69	B	12.8	0.79	B	17.5	0.77	B	17.5	0.77	B	17.5	0.77
160	Appian Way	EB I-80 on-off ramps	C	25.1	0.61	D	48.5	0.86	B	12.6	0.65	D	35.4	0.81	D	35.4	0.81	D	35.4	0.81
171	San Pablo Avenue	Fitzgerald Drive-Sarah Drive	C	30.9	0.58	D	40.1	0.74	C	33.6	0.67	E	63.2	0.9	E	63.2	0.9	E	63.2	0.9
175	Appian Way	Central Avenue	D	44.5	0.94	F	96	1.12	C	27.2	1.06	F	98.8	1.05	F	98.8	1.05	F	98.8	1.05
186	Bayview Avenue	Carbon Boulevard	D	42.1	0.51	F	163.2	0.88	A	7.9	0.45	F	93.6	0.81	F	93.6	0.81	F	93.6	0.81
231	San Pablo Avenue	Barrett Avenue	B	16.1	0.48	B	17.8	0.68	B	12.8	0.65	B	18.9	0.78	B	18.9	0.78	B	18.9	0.78
237	23rd Street	Barrett Avenue	C	25.9	0.34	F	134.5	1.03	C	29.4	0.65	E	62.2	0.91	E	62.2	0.91	E	62.2	0.91
248	San Pablo Avenue	Rheem Avenue	C	24.1	0.71	E	75.6	0.93	C	25.1	0.79	F	120.1	1.03	F	120.1	1.03	F	120.1	1.03
249	EB I-80 on-off ramps-Amador St	23rd Street-Road 20	F	50.3	0.52	F	203.3	0.96	D	42.2	0.58	D	54.7	0.89	D	54.7	0.89	D	54.7	0.89
251	I-80 NB Ramps	San Pablo Dam Road	C	22.4	0.55	D	36.4	0.73	D	36.7	0.73	D	43.6	0.85	D	43.6	0.85	D	43.6	0.85
257	Castro Ranch Road	San Pablo Dam Road	C	22.9	0.49	C	22.8	0.54	B	14.6	0.29	D	36.9	0.52	D	36.9	0.52	D	36.9	0.52
1	Castro Street	San Pablo Dam Road	C	21.4	0.48	D	43.3	0.62	C	27.5	0.42	C	25.5	0.55	C	25.5	0.55	C	25.5	0.55
2	Castro Street	I-580 EB Ramps	B	17.2	0.35	C	20	0.37	D	40.4	0.77	D	41.8	0.79	D	41.8	0.79	D	41.8	0.79
5	Castro Street	I-580 WB Ramps	D	49.5	0.79	E	68.8	0.92	C	26.5	0.71	C	28.4	0.75	C	28.4	0.75	C	28.4	0.75
6	Castro Street	Hensley St	C	20.9	0.51	F	93.9	0.73	E	69.2	0.67	E	73.7	0.68	E	73.7	0.68	E	73.7	0.68
7	Richmond Parkway	Richmond Lane	C	25.3	0.49	F	82	0.71	D	54.7	0.91	E	58.5	0.92	E	58.5	0.92	E	58.5	0.92
8	Richmond Parkway	Gertrude Ave	C	32.6	0.98	F	239	1.43	D	38.6	0.94	F	91.9	1.16	F	91.9	1.16	F	91.9	1.16
9	Richmond Parkway	Pittsburgh Ave.	F	144.3	0.86	F	159.5	0.95	F	237	0.93	F	247.3	1.1	F	247.3	1.1	F	247.3	1.1
10	Richmond Parkway	Parr Blvd	F	85.2	0.92	F	102.6	1	C	23.7	0.94	D	52.1	1.05	D	52.1	1.05	D	52.1	1.05
11	Richmond Parkway	Hensley St	C	33.8	0.56	D	35.7	0.58	C	26	0.4	D	46.4	0.54	D	46.4	0.54	D	46.4	0.54
12	Richmond Parkway	Barrett Ave.	B	17.2	0.43	B	19.5	0.49	C	27.8	0.42	F	185.4	0.77	F	185.4	0.77	F	185.4	0.77
13	Richmond Parkway	McDonald	C	33.7	0.54	D	51.6	0.76	C	28.6	0.44	F	168.7	0.79	F	168.7	0.79	F	168.7	0.79
14	Richmond Parkway	I-580 WB Ramps	B	14.2	0.48	B	16.6	0.69	B	17.2	0.3	C	20.6	0.6	C	20.6	0.6	C	20.6	0.6
15	Richmond Parkway	I-580 EB Ramps	B	11.9	0.65	B	12.8	0.71	B	14.3	0.4	E	71.7	0.76	E	71.7	0.76	E	71.7	0.76
		Curting Blvd	C	34.5	0.43	F	94.4	0.59	C	28.1	0.39	C	28.3	0.41	C	28.3	0.41	C	28.3	0.41

Notes:  
 Highlighted locations have LOS worse than the applicable standard  
 Modeling assumptions are very conservative; applied existing signal timings and peak hour factors

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**Multi-Modal MTSO Option for San Pablo Avenue**  
**(Person Delay by Mode)**

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## Example Calculation of Person Delay at Intersections (Potential application as an MTSO on San Pablo Avenue)

### Elements of the calculation for a typical peak hour:

- Automobile Person Delay = **Average Auto Occupancy** \* Intersection Volume \* Intersection Signal Delay
- Bus Rider Delay = Sum of Bus Rider Delays by direction on each route
  - Bus Rider Delay on each route = **Average Number of Riders per Bus** \* **Frequency of Bus Route** \* Signal Delay for Bus Movement(s)
- Pedestrian Delay = Sum of Pedestrian Delay at all crosswalks
  - Pedestrian delay at each crosswalk = **Delay Waiting for Walk Signal** \* Pedestrian Demand
- Bicyclist Delay = Intersection Average Signal Delay \* Total Bicycle Demand

- New calculation; requires additional data beyond what is typically done for intersection analysis
- New calculation; does not require additional data

### Applying this metric to the intersection of San Pablo Avenue/Cutting Boulevard:

**Table 1**  
**Intersection Operations – PM Peak Hour<sup>1</sup>**

Location	Intersection		Route 72 Movements			
			NBT <sup>2</sup>		SBT <sup>2</sup>	
	Delay	LOS	Delay	LOS	Delay	LOS
San Pablo Avenue / Cutting Blvd	31.0	C	11.9	B	32.4	C

1 Auto, pedestrian, and bike volumes collected in May 2012; PM peak hour from 5:00 PM to 6:00 PM

2 NBT – Northbound thru; SBT – Southbound thru

**Table 2**  
**Person Delay and Mode Share – PM Peak Hour**

Mode	People	Total Delay (person-seconds)	Average Delay (seconds)	Person-Based Mode Share (%)	Person-Based Delay Share (%)
Auto	3,847	119,263	31.0	86.9	88.7
Bus Rider <sup>1</sup>	511	12,108	23.7	11.5	9.0
Pedestrian <sup>2</sup>	57	2,774	48.7	1.3	2.1
Bike	12	372	31.0	0.3	0.3
<b>Total</b>	<b>4,427</b>	<b>134,517</b>	<b>30.4</b>		

1 Includes routes 72R, 72M, and 72 only. Ridership Data from AC Transit, 2008.

2 Pedestrian delay includes delay at the three available crosswalks. Because the southern leg of the intersection does not have a crosswalk, we could apply an additional time penalty to account for that inconvenience to some pedestrians.

**Example of applying this metric in evaluating a project application:**

Hypothetical project definition:

Apartment complex of 500 units is proposed for the northeastern corner of Cutting Boulevard and San Pablo Avenue. Site would have one partial-access driveway on San Pablo Avenue, and one driveway on Cutting Boulevard.

Process for applying the person-delay MTSO to a project:

- Calculate mode-specific peak hour trip generation for the proposed project
- Assign the project-generated vehicle trips to the appropriate movements at the intersection
- Assign the project-generated transit trips to the bus routes serving the site, and the ped and bike trips to the likely paths used to get to the site
- Re-calculate the person delay by mode at the intersection, accounting for these new project-generated trips

**Table 3  
Person Delay and Delay Share – Existing Plus Project**

Mode	Average Delay (seconds)		Delay Share (%)	
	Existing	Plus Project	Existing	Plus Project
Auto	31.0	33.6	88.7	88.8
Bus Rider	23.7	25.8	9.0	8.8
Pedestrian	48.7	48.0	2.1	2.0
Bike	31.0	33.1	0.3	0.4
<i>Total</i>	<i>30.4</i>	<i>32.9</i>		

**Options for defining an MTSO using person delay calculations:**

1. Delay for bus riders/pedestrians/bicyclists should be LOS C or better (i.e., delay < 35 seconds) at all signalized intersections within PDAs.
2. The share of intersection delay experienced by non-auto modes should not increase compared to existing conditions.
3. The share of intersection delay experienced by non-auto modes should not exceed the person-based mode share for each mode.

**Example Policy Language for Vehicle LOS MTSO on All Regional  
Routes or Within All PDAs**

**Proposed MTSO for Arterial Routes of Regional Significance**

Peak hour LOS at signalized intersections should be LOS D or better, based on the method of analysis presented in the Authority's Technical Procedures.

Within Priority Development Areas, any vehicle flow improvement identified as a result of applying the above standard shall be evaluated for its effect on pedestrians, cyclists, and transit users; if there are adverse effects on any of these user groups, then the sponsoring agency may choose not to implement the vehicle improvement.

## **List of Route-Specific Projects/Actions**

## **Route-Specific Actions and Projects on Freeways and Major Corridors**

### **I-580**

- Richmond-San Rafael Bridge Pedestrian/Bike PSR
- Study of operational improvements (ramp metering?)
- Access improvements between I-580 and Richmond Ferry Terminal site

### **I-80**

- Implementation of I-80 ICM
- Reconstruction of I-80/SPDR and I-80/Central interchanges
- Increase park-and-ride lot capacity
- Conversion of HOV lanes to Express Lanes
- Add auxiliary lanes to I-80 where appropriate
- Signalize ramp intersections at I-80/Carlson
- Improve I-80/Pinole Valley Rd interchange EB on-ramp
- Construct new connector ramps from I-80 to Del Norte BART
- Direct connectors between WB I-80 and EB SR 4

### **SR 4**

- Complete full freeway between I-80 and Cummings Skyway
- Implement recommendations of SR 4 Integrated Corridor Analysis

### **San Pablo Avenue**

- Implementation of I-80 ICM
- Improve bicycle and pedestrian access to BART stations
- Implement Complete Streets projects in El Cerrito and San Pablo
- Enhance reliability and efficiency of bus service along San Pablo Avenue by:
  - Implementing 10-minute service frequencies of the 72 Rapid Route
  - Implementing transit signal priority at all signalized intersections
  - Studying opportunities for queue-jump and transit-only lanes
  - Applying minimum bus stop spacing of 800-1300 feet
  - Considering peak-hour parking restrictions near bus stops

### **Richmond Parkway**

- Implement recommendations of North Richmond Truck Study
- Conduct a bicycle route feasibility study
- Make Bay Trail crossing improvements at Wildcat Creek; close Bay Trail gaps along Richmond Pkwy
- Make improvements to transit service and pedestrian crossings

### **San Pablo Dam Road**

- Reconstruction of I-80/SPDR
- Increase frequency and connectivity of bus services
- Implement signal coordination and intersection improvements for pedestrian/bike access