

TECHNICAL ADVISORY COMMITTEE MEETING NOTICE AND AGENDA

DATE & TIME: Thursday, November 19, 2015, 9:00 a.m. – Noon

LOCATION: WCCTAC Offices
6333 Potrero Ave (at San Pablo Avenue)
El Cerrito, California (Accessible by AC Transit #72, #72R, #72M and BART)

Note: Different Meeting Location & Extended Meeting Time. Directions & Parking Information Attached

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.*
3. **Minutes & Sign-In Sheet from October 8, 2015.** (Attachments; APPROVE).

REGULAR AGENDA ITEMS (Time Estimate: 9:05 AM-9:45 AM)

4. **Draft 2016 TAC and Board Calendar.** Review the draft TAC and Board meeting schedule for calendar year 2016 and forward to the WCCTAC Board for approval. (WCCTAC Staff; Attachment; Forward to WCCTAC Board)
5. **Nominations for Countywide Bicycle and Pedestrian Advisory Committee (CPBAC) Representatives from West County.** CCTA staffs the CPBAC and asks for two year appointments from each RTPC. The attached letter explains the process and appointments. At this time, the TAC is being asked to forward to the WCCTAC Board suggested representatives from West County, including a citizen representative, a TAC representative, and an alternate to fill in when either of those two representatives are unable to attend meetings. (WCCTAC Staff; Attachments; Forward Recommendations to the WCCTAC Board)
6. **CCTA Strategic Plan.** CCTA has initiated the 2015 Measure J Strategic Plan. The outcome of the Strategic Plan is a firm commitment of Measure J funds for the next 5-7 years. The attached letter from CCTA explains the process and how much is being allocated in West County. CCTA staff will explain the next steps in more detail at the meeting. (CCTA Staff; Attachments; Provide Information and Feedback)
7. **TDM – West County Employer Survey.** WCCTAC staff will provide an update on an upcoming employer survey. (WCCTAC Staff; Information Only)

SPECIAL DISCUSSION (Time Estimate: 9:45-11:45)

8. West County High Capacity Transit Study - Review of Draft Technical Memos.

The primary focus of discussion will be draft Technical Memo 8: Preliminary Alternatives and draft Technical Memo 9: Evaluation Criteria. However, revisions to Technical Memo 5: Existing and Planned Transportation Network (Ferry information only) and Technical Memo 7: Travel Markets, will be presented as well along with updates on outreach efforts and the study schedule. (*WCCTAC Staff and Study Consultants; Attachments and Links for Downloading Larger Documents; Provide Feedback on Current Deliverables*).

[Link](#) to Technical Memo 7 Travel Markets (Revised)

[Link](#) to Technical Memo 8 Preliminary Alternatives (New)

Attached Technical Memo 9 Evaluation Criteria (New)

[Link](#) to Technical Memo 5 Existing and Planning Transportation Network (Revised Section 4.1.4 Ferries and 4.1.5 Hercules Intermodal Transit Center, pages 51-57)

STANDING ITEMS (Time Estimate: 11:45 AM-Noon)

9. TAC and Staff Comments and Announcements

- a. Technical Coordinating Committee (TCC) Report
- b. Feedback on Future TAC Meeting Locations

10. Other Business

11. Adjourn

Next Meetings:

- a. Board - Friday, December 11, 2015- 8:00 a.m. at El Cerrito City Council Chambers.
- b. TAC – Thursday, January 7, 2016, 9:00 a.m. at TBD.

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- 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 510.210.5930 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 office.
 - 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.

Directions to WCCTAC's Office

6333 Potrero Avenue, Suite 100
 El Cerrito, CA 94530
 510.210.5930

From Eastbound I-580	From Westbound I-580
Exit at Potrero Ave. and make a <u>right</u> at the end of the ramp onto Potrero Ave.	Exit at Cutting Blvd. and make a <u>left</u> at the end of the ramp onto Cutting Blvd.
Cross San Pablo Avenue and make the first <u>left</u> onto Kearney St.	Make a <u>right</u> on San Pablo Ave. and go three blocks and make a <u>left</u> onto Potrero Ave. Make the first <u>left</u> onto Kearney St.
Make first left into driveway for 6333 Potrero.	

3. Entrance to Denny's Restaurant's Parking Lot

2. If no space in WCCTAC lot, park here in Denny's lot and walk through to WCCTAC's office by tree.

1. Entrance via Kearney St. to small parking lot at WCCTAC's office. Ok to park in spaces labeled Suite 100 or other spaces are ok if parking for just a few minutes.

4. Entrance to WCCTAC's Office via parking lot door.

I-580 Eastbound Freeway Off-Ramp

View from Potrero Ave. looking across San Pablo Avenue:

Denny's Restaurant

WCCTAC's Office Building aka InConcert Building

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El Cerrito

WCCTAC TAC Meeting Minutes

Hercules

MEETING DATE: October 8, 2015

Pinole

MEMBERS PRESENT: Barbara Hawkins, Coire Reilly, Robert Sarmiento, Mike Roberts, Nathan Landau, Rob Thompson, Chad Smalley, Charlie Anderson, Yvetteh Ortiz

Richmond

GUESTS: Wendy Goodfriend, Jim Allison, Shirley Qian, Robert Del Rosario

STAFF PRESENT: John Nemeth, Joanna Pallock, Leah Greenblat, Danelle Carey

San Pablo

ACTIONS LISTED BY: Joanna Pallock

Contra Costa County

AC Transit

BART

WestCAT

ITEM/DISCUSSION	ACTION/SUMMARY
4. County Health Services Safe Routes to Schools Update	Coire Reilly gave a presentation on the expanded SR2S program efforts in West County over the past year.
5. Adapting to Rising Tides (ART)	Wendy Goodfriend of BCDC presented the current Contra Costa ART efforts to gather an assessment of threatened assets along the Bay in Contra Costa County.
6. Capital Corridor Overview	Jim Allison from Capitol Corridor gave a presentation about long range planning goals. This included some of the challenges the rail service faces in West County and beyond. Some of these include a need for greater capacity and the risk of sea level rise to the Union Pacific line.

<p>7. WestCAT Overview of Future Financial Needs</p>	<p>Charlie Anderson, WestCAT General Manager, gave a presentation on the current state of WestCAT and its future financial needs with an eye toward the Transportation Expenditure Plan (TEP).</p>
<p>8. Presentation of AC Transit Service Expansion Plan</p>	<p>AC Transit staff reviewed the Service Expansion Plan (SEP) effort which involves improving frequencies and making routing adjustments on some key bus lines in West County. AC Transit noted that these improvements required funding, which could be provided in a TEP.</p>
<p>9. Review of AC Transit's Major Corridors Study</p>	<p>AC Transit staff reviewed the Major Corridors Study which is proposing Bus Rapid Transit on San Pablo Ave. and McDonald Ave. Staff noted that these projects could receive funding in a future sales tax measure.</p>
<p>10. TAC and Staff Comments and Announcements</p>	<p>John Nemeth provided a brief update on the High Capacity Transit Study's upcoming technical memos. Leah Greenblat mentioned that modeling for the Countywide Transportation Plan would be on the next TCC agenda. Joanna Pallock mentioned a February 2016 call for projects for TLC/PBTF/OBAG funds. Yvetteh Ortiz mentioned that each RTPC is being asked to send a representative to develop guidelines for these grants. Chad Smalley is the rep. for West County.</p>

WCCTAC Technical Advisory Committee Meeting:

770NAME	INITIALS	AGENCY	EMAIL	PHONE
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Wil Buller		AC Transit	wbuller@actransit.org	510.891.5414
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<i>[Handwritten Signature]</i>				
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John Nemeth		WCCTAC	john@sanpabloca.gov	510.215.3221
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Yvetteh Ortiz	<i>[Handwritten Initials]</i>	El Cerrito	yortiz@ci.el-cerrito.ca.us	510.215.4345
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CHARLIE ANDERSON	<i>[Handwritten Initials]</i>	WESTCAT	CHARLIE@WESTCAT.ORG	510.724.3331
Rita Xavier		San Pablo		
John Xu		Caltrans	Zhougping.xu@dot.ca.gov	510.286.5577
Jim Allizon	<i>[Handwritten Initials]</i>	CCJPA	jallison@bart.gov or jim@capitolcorridor.org	510.464.6944
Shirley Qian	<i>[Handwritten Initials]</i>	CCJPA	shirleyq@capitolcorridor.org	

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Wendy Goodfriend

BCDC ART Program wendy.goodfriend@bcdc.ca.gov 415.352.3646

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DRAFT - 2016 WCCTAC Board and TAC Meetings



WCCTAC Board Meeting - 8 A.M.



WCCTAC TAC Meeting - 9 A.M.

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
January						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
February	31	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	1	2	3	4	5
March	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	1	2
April	3	4	5	6	7	8	9
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	24	25	26	27	28	29	30
May	1	2	3	4	5	6	7
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	22	23	24	25	26	27	28
	29	30	31	1	2	3	4
June	5	6	7	8	9	10	11
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	26	27	28	29	30		

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
July						1	2
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August	31	1	2	3	4	5	6
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	28	29	30	31	1	2	3
September	4	5	6	7	8	9	10
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	25	26	27	28	29	30	1
October	2	3	4	5	6	7	8
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	16	17	18	19	20	21	22
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	30	31	1	2	3	4	5
November	6	7	8	9	10	11	12
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December	4	5	6	7	8	9	10
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CONTRA COSTA
transportation
authority

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Karen Mitchoff

Kevin Romick

Don Tatzin

Robert Taylor

Randell H. Iwasaki,
Executive Director

October 15, 2015

Hon. Sherry McCoy
Chair of WCCTAC
City of Hercules
111 Civic Drive
Hercules, CA 94547

**Subject: Appointment to the Countywide Bicycle and Pedestrian Advisory
Committee (CBPAC) for Two Year Term Beginning January 1, 2016**

Dear Chair McCoy,

The Contra Costa Transportation Authority first established the Countywide Bicycle and Pedestrian Plan Advisory Committee (CBPAC) to help oversee the preparation of its first Countywide Bicycle and Pedestrian Plan (CBPP), which was adopted in December 2003. Since that time the CBPAC has helped review and recommend applications for funding bicycle and pedestrian projects, review complete streets checklist required by MTC, and oversee the development of the 2009 update to the CBPP. The Authority expects the CBPAC to continue its role in implementing the Authority's bicycle and pedestrian policies and advising it on funding decisions, including making recommendations on funding through the Measure J Pedestrian, Bicycle and Trail Facilities program, and on issues affecting walking and bicycling in Contra Costa and the region.

The advisory committee is composed of representatives from the following agencies and organizations:

- One citizen and one staff person plus one alternate appointed by each of the four Regional Transportation Planning Committees
- One staff person plus one alternate appointed by the County of Contra Costa
- One representative plus one alternate appointed by the East Bay Regional Park District
- One citizen representative plus one alternate appointed by Bike East Bay
- Two citizen representatives appointed by the Authority, one familiar bicycling and walking issues affecting youths and one familiar with bicycling and walking issues affecting seniors and people with disabilities

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Suite 100
Walnut Creek
CA 94597
PHONE: 925.256.4700
FAX: 925.256.4701
www.ccta.net

We are now writing to ask that your organization reaffirm its current appointments to the advisory committee or appoint a new member or members.

According to the CBPAC by-laws, which outline the role of the committee and the responsibilities of its members, members are appointed for two year terms. There is no limit on the number of consecutive terms that a member may serve.

CCTA's adopted Conflict of Interest Code requires advisory committee members to file with CCTA a California Fair Political Practices Commission (FPPC) Form 700 – Statement of Economic Interests. Form 700 statements are due within 30 days of assuming office and leaving office, and annually by April 1st. Committee members should be aware that these are public documents. Additional information regarding the Form 700 may be obtained from the FPPC's website at www.fppc.ca.gov.

CBPAC meetings are generally scheduled for 11:00 a.m. on the fourth Monday of every other month beginning in January. Meetings, however, may be added or cancelled depending on need. Because the committee is made up of both citizens and public agency staff, members will need to have a certain amount of flexibility in meeting times. While the committee has recently met most frequently at lunch, it has also met in the late afternoon and early evening.

If you have any further questions, please call Brad Beck, Senior Transportation Planner, at (925) 256-4726.

Sincerely,



Randell H. Iwasaki
Executive Director

Bill Pinkham

-Bike East Bay (formerly the East Bay Bicycle Coalition)
Board of Directors

-Current Vice Chair, County BPAC

-Contra Costa County Bicycle Advisory Committee (TDA grants)

-Richmond Bicycle Pedestrian Advisory Committee,
Vice Chair

-350 Bay Area (one of the founders)

-SunFlower Alliance, Coordinating Committee (coalition of environmental groups)

-Richmond Environmental Justice Coalition (mainly Richmond-centric but includes organizations like the Sierra Club, the Asian Pacific Environmental Network, and Communities for a Better Environment which have chapters in other cities)

Education: B.A. in Philosophy and English Literature

I bike almost every day and am a frequent BART rider. I am sensitive to issues seniors might have with transportation, since I'm retired myself. For three years, along with other members of the Richmond BPAC, I helped develop the Master Bicycle and Pedestrian Plans which were adopted by the City Council several years ago. The BPAC works closely with the City of Richmond to implement them as funds permit, helpful experience for reviewing and evaluating other cities' projects. On advantage of being retired is that I have the chance to go to more meetings and do other relevant work that would not have been possible when I was working. It makes me happy that now I am able to devote much more time and energy to the important work of reviewing and developing worthwhile, environmentally friendly transportation projects. I attend bicycle/pedestrian workshops, public input meetings, such as ones held by the MTC about the Plan Bay Area, and testify at City Council meetings and those of other government agencies when it's pertinent. I attend most meetings of WCCTAC's TAC, so I'm able to help make an ongoing connection with Bike East Bay and bring to their attention issues, plans, and infrastructure developments in Contra Costa County. Our Board is predominately from Alameda County and they are often unfamiliar with what is happening in our county. (I was the first Board member from West County.) Participating in TAC meetings continues to help me with my work in the CBPAC, keeping me abreast of current programs, plans, and projects and in contact with city, county, and transit representatives. I'm also happy to be a member of the BAC and help review cities' projects. (It doesn't hurt that although there's a bit of homework, the committee meets only once a year!) As you can tell from my bio, I'm very concerned with issues relating to global warming and a just transition to clean energy, so if reappointed, I will look forward to the

continuing opportunity to weigh in on active transportation projects and do my part to help keep our county on an environment-friendly track.



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Randell H. Iwasaki,
Executive Director

October 15, 2015

Re: 2015 Measure J *Strategic Plan*

Dear Regional Transportation Planning Committee (RTPC) Managers:

At its May 2015 meeting, the Contra Costa Transportation Authority initiated the update to the 2013 Measure J *Strategic Plan*. Every two years, the Authority reviews its assumptions on future Measure J revenues, debt service costs, and projected Measure J expenditures in order to respond to fluctuations in economic conditions and project schedules.

The outcome of the *Strategic Plan* is a firm commitment of Measure J funds by year to specific projects for the next 5-7 years. In addition, project sponsors will know the amount of Measure J funds programmed for their projects beyond the 5-7 year time horizon, but not the exact year for funding. With every update, an additional 2 years are added to the previous *Strategic Plan* time horizon providing the project sponsors more specificity on the funding years for their projects.

Programming Capacity

The approved revenue forecast for the 2015 *Strategic Plan* shows a slight increase in revenues over the life of Measure J (\$4 million for projects). Given the large size of the Authority's current construction program, the Authority instructed staff to augment the programmed construction reserve by a total of \$4 million for unforeseen cost increases, as follows: \$1.94M (east), \$1.18M (central), \$0.52M (southwest), and \$0.36M (west). Therefore, at this time, no additional programming capacity beyond the \$4 million is projected in the 2015 *Strategic Plan*.

Cashflow Capacity

It is estimated that \$27 million in cashflow capacity will be available in the last two years of the 2015 *Strategic Plan* time horizon (FY2019-20 and FY2020-21). Table 1 shows the break-down of this capacity by sub-region, while adhering to each sub-region's proportional share of Capital Project Categories in Measure J Expenditure Plan which takes into consideration previously programmed Measure J funds in each subregion.

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Table 1
Cashflow Capacity in FY2019-20 and FY2020-21

Sub-region	Millions of YOE dollars
Central County	\$10
East County	\$8
Southwest County	\$5
West County	\$4

Attachments 1 through 4 highlight projects with funding currently programmed outside the current time horizon for the 2013 Measure J Strategic Plan (FY2019-20 through FY2033-34). Measure J funds programmed for those projects may be advanced in the 2015 *Strategic Plan* subject to the limitation of cashflow capacity by sub-region.

Since there isn't enough cashflow capacity within the *Strategic Plan* time horizon for all programmed Measure J projects, priority should be assigned to on-going projects with cost increases and projects that are ready to proceed.

Below is a summary of funding issues on ongoing Measure J projects.

a) Requests to Increase Measure J Programmed Funds: *Since there is no additional programming capacity in the 2015 Strategic Plan, increasing Measure J programmed funds on these projects will require reducing funding on other projects within the same sub-region(s).*

State Route 4/Balfour Road Interchange: Construction is expected to start in 2016 but there is currently a funding shortfall of \$17 million. ECCRFFA and Measure J funds are needed to bridge this funding gap.

To keep the project on schedule, staff proposes to program \$6 million from "East County Corridor Reserve" to the project. ECCRFFA will be requested to fund the remaining \$11 million.

State Route 4 Integrated Corridor Mobility (ICM): The Authority has received \$200,000 grant to develop the scope for the SR4 ICM project. In addition, the Authority will be competing for another \$6 million in federal grants for the project. A local match of \$4 million is needed.

In order to provide the match for the grant, staff proposes programming \$4 million from Central and East County shares (\$2 million each) in the 2015 *Strategic Plan*. In East County,

it is proposed to program funds from the "Subregional Needs" category for this project. In Central County, it is more challenging since the "Subregional Needs" category is fully programmed and the project is eligible under one other category (Interchange Improvements on I-680 and SR242) in the expenditure plan. One option would be to reprogram \$2 million from the SR242/Clayton Road, as the project is not likely to be constructed prior to FY2020-21 given its funding shortfall.

- b) Requests to Advance the Programming Year for Measure J funds:** *Advancing programmed Measure J funds will not require reducing funding on other projects but will impact Measure J cashflow capacity.*

Caldecott Tunnel: Changes introduced by the State Fire Marshall, other design changes and differing site conditions are the basis for "claims" submitted by the contractor. Caltrans and the contractor are continuing to resolve the final cost of the tunnel contract. It is possible that additional project reserves will have to be expended. Measure J commitments at this time are approximately \$129.8 million which includes \$5.4 million commitment to backfill RM2 funds reprogrammed by MTC to the I-680 Carpool Lane Completion project back in anticipation of construction savings. Currently \$125 million is programmed in the 2013 *Strategic Plan*, potentially requiring another \$4.8 million to be reserved for the project until the final cost is resolved.

In order to ensure sufficient funding is available to address the final cost of the project, staff proposes maintaining the existing and additional construction reserves in Southwest and Central counties for the project. This will require advancing the programming year for the reserves to FY2019-20 or earlier, thereby reducing the cashflow capacity for Southwest and Central counties by \$3 million and \$1.8 million, respectively. A strategic plan amendment will be completed in the future to reprogram the funds from the reserves to the Caldecott tunnel if needed.

I-680 Southbound Carpool Lane Completion: In December 2013, the Authority and TRANSPAC approved reprogramming up to \$4.9 million for the I-680 SB Carpool Lane Completion project from the I-680 Corridor Reserve. The final amount to be reprogrammed was to be determined after settling all claims on the Caldecott tunnel. Assuming there will be no savings on the Caldecott Tunnel, \$4.9 million will need to be programmed in the 2015 *Strategic Plan* to the I-680 Carpool Lane Completion project.

In order to keep the I-680 Carpool Lane Completion project on schedule, staff proposes advancing the programming year for the \$4.9 million to FY2019-20 or earlier.

I-680/State Route 4: The I-680/SR-4 (phase 3) project, which will widen State Route 4 in the vicinity of I-680, has currently a funding shortfall of \$38 million. The shortfall is due to the need to replace (in lieu of widening as originally envisioned) a deteriorating state-owned bridge (Grayson Creek Bridge) within the project limits. Staff is actively working with Caltrans to add SHOPP funds to the project, and continuing to advance utility relocations and right-of-way work while considering possible phasing.

To reduce the funding shortfall, staff recommends moving all remaining Measure J funds programmed to the project from future years to FY2019-20 or earlier.

BART Del Norte Station: BART has requested moving an additional \$2.5 million programmed to the project from future years to FY2019-20 or earlier.

Richmond Parkway: The City of Richmond has requested moving all remaining Measure J funds programmed to the project of \$0.5 million from future years to FY2015-16.

- c) ***Projects with Surplus Funding.*** At this time, it is anticipated that only one project t surplus Measure J funding that can be reprogrammed to other projects in the same subregion. Surplus funds will help offset the demand on cashflow capacity in earlier years.

Alhambra Creek Bridge and Ferry Street Improvements (Martinez): Project is currently under construction and is expected to have at least \$3.3 million in Measure J funds that can be programmed to other projects in the same category.

Table 2 summarizes the remaining cashflow capacity by sub-region based on staff recommendations above.

Table 2
Demands on Cashflow Capacity by Subregion
(millions of YOE dollars)

Sub-region	Subregion Share	Caldecott	I-680 Carpool	SR 4 ICM	SR4 Balfour	SR 4/ I-680	Others	Remain- der
Central County	10.0	-3.0	-4.9	-2.0	-	-3.4	+3.3 (Alhambra)	0
East County	8.0	-	-	-2.0	-6.0	-		0
Southwest Co.	5.0	-1.8	-	-	-	-		3.2
West County	4.0	-	-	-	-	-	-3.0 (BART & RP)	1.0

Request for RTPCs Input

The Authority is requesting RTPCs input and concurrence on proposed programming of Measure J funds through FY2020-21. Input is requested by November 30, 2015.

Should you have any questions, please contact Hisham Noeimi at 925.256.4731 or by email at hnoeimi@ccta.net.

Sincerely,



Randell H. Iwasaki
Executive Director

**CONTRA COSTA TRANSPORTATION AUTHORITY
PROGRAM OF PROJECTS**
(VOE Dollars x 1000)

		Prior	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY20 - 34	TOTAL
9625	CALDECOTT TUNNEL FOURTH BORE												
1001	Caldecott Tunnel Fourth Bore	19,123	70,021	35,857	-	-	-	-	-	-	-	-	125,000
9632	I-680 CARPOOL LANE GAP CLOSURE/TRANSIT CORRIDOR IMPROV.												
8003	I-680 Direct Access Ramps	1,506	487	1,141	2,692	1,138	-	-	-	-	-	13,628	20,592
9634	BART PARKING, ACCESS, and OTHER IMPROVEMENTS												
10003	BART Parking, Access and Other Improvements - Southwest County	-	-	-	111	-	-	-	-	-	-	3,879	3,989
9648	MAJOR STREETS: TRAFFIC FLOW, SAFETY, & CAPACITY IMPROV.												
24009	Danville Major Streets Improvements (Danville)	-	-	1,728	1,776	-	-	-	-	-	-	-	3,504
24010	Olympic Blvd/Reliez Station Rd (Lafayette)	-	-	-	2,102	-	-	-	-	-	-	-	2,102
24011	Traffic Operation and Congestion Improvements in Downtown Corridors (Lafayette)	-	-	200	-	-	-	-	-	-	-	-	200
24014	St. Mary's Road/Rheem Blvd Roundabout (Moraga)	-	-	-	136	314	-	-	-	-	-	-	450
24015	Rheem Blvd Landslide Repair and Repaving (Moraga)	-	-	-	-	-	729	-	-	-	-	-	729
24016	Canyon Road Bridge Replacement (Moraga)	-	-	65	328	-	-	-	-	-	-	-	393
24017	Camino Pablo Pavement Rehabilitation (Orinda)	-	-	655	1,388	-	-	-	-	-	-	-	2,043
24020	Camino Tassajara Bike Lane Completion (County)	-	-	75	225	700	-	-	-	-	-	-	1,000
24021	Alcoston Blvd Pavement Rehabilitation (San Ramon)	-	-	500	2,000	-	-	-	-	-	-	-	2,500
24022	Crow Canyon Road Pavement Rehabilitation (San Ramon)	-	-	-	-	1,414	-	-	-	-	-	-	1,414
24023	Norris Canyon Safety Barrier (County)	-	-	250	250	800	-	-	-	-	-	-	1,300
24024	Downtown Alamo Pedestrian Safety Improvements (County)	-	-	-	200	1,047	-	-	-	-	-	-	1,247
	CONSTRUCTION RESERVE	Prior											
	Construction Reserve - Southwest County	-	-	-	-	-	-	-	-	-	-	1,772	1,772

**CONTRA COSTA TRANSPORTATION AUTHORITY
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(YOE Dollars x 1000)

		Prior	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY20 - 34	TOTAL
9625 CALDECOTT TUNNEL FOURTH BORE													
1001 Caldecott Tunnel Fourth Bore		19,123	70,021	35,857	-	-	-	-	-	-	-	-	125,000
9628 CAPITOL CORRIDOR IMPROVEMENTS													
4002 Martinez Intermodal Station - Phase 3		5,641	350	1,779	-	-	-	-	-	-	-	-	7,770
9630 INTERCHANGE IMPROVEMENT ON I-680 & STATE ROUTE 242													
6001 I-680/SR4 Interchange Improvements - Phase 3		-	-	2,521	2,591	4,549	21,171	-	-	-	-	3,629	30,833
6002 SR242/Clayton Road Southbound Off-Ramp		165	210	250	250	624	-	-	-	-	-	2,001	1,499
6006 State Route 4 Operational Improvements		-	-	494	507	892	887	-	-	-	-	1,872	2,780
6004 SR242/Clayton Road Northbound On-Ramp		127	210	250	250	674	-	-	-	-	-	-	1,511
9632 I-680 CARPOOL LANE GAP CLOSURE/TRANSIT CORRIDOR IMPROV.													
8001 I-680 Carpool Lane Completion/Express Lanes (Central County)		265	(265)	-	1,040	366	25,083	5,565	-	-	-	-	32,055
8002 I-680 Southbound Carpool Lane Extension (Restripe)		1,470	105	437	-	-	-	-	-	-	-	-	2,011
8006 I-680 Corridor Reserve (Central County)		-	-	-	-	-	-	-	-	-	-	27,269	27,269
9634 BART PARKING, ACCESS, and OTHER IMPROVEMENTS													
10001 BART Parking, Access and Other Improvements - Central County		-	3,505	898	-	4,500	5,275	-	-	-	-	-	14,178
9648 MAJOR STREETS: TRAFFIC FLOW, SAFETY, & CAPACITY IMPROV.													
24001 Marsh Creek Road Upgrade (Clayton)		-	100	1,053	-	-	-	-	-	-	-	-	1,153
24003 Pacheco Blvd Realignment and Widening (Contra Costa County)		-	-	-	-	-	-	-	-	-	-	5,930	5,930
24004 Kirtler Pass Road Truck Lanes - Northbound (Contra Costa County)		-	-	630	1,943	-	-	3,574	-	-	-	-	6,148
24005 Court Street Overcrossing - Phase 1 (Martinez)		52	75	128	-	-	-	-	-	-	-	-	255
24006 Buskirk Avenue Widening - Phase 2 (Pleasant Hill)		2,292	1,494	7,877	-	-	-	-	-	-	-	-	11,663
24007 Geary Rd. Widening - Phase 3 (Walnut Creek & Pleasant Hill)		-	322	7,220	2,339	-	-	-	-	-	-	-	9,881
24012 Farm Bureau Road Safe Route to School Improvements		-	-	-	4,081	-	-	-	-	-	-	-	4,081
24013 Salvio Street Complete Streets - Sidewalk		-	-	-	227	-	-	-	-	-	-	-	227
24026 Contra Costa Blvd Improvements (Pleasant Hill)		-	-	1,249	-	-	-	-	-	-	-	-	1,249
24027 Ygnacio Valley Road Permanent Restoration - Phase 2 (Concord)		2,547	-	-	-	-	-	-	-	-	-	-	2,547
24028 Clayton Rd/Treat Blvd/Denkinger Rd Intersection Capacity Improvements (Concord)		69	-	2,261	-	-	-	-	-	-	-	-	2,329
24029 Old Marsh Creek Road Overlay (Clayton)		370	-	-	-	-	-	-	-	-	-	-	370
24031 Alhambra Creek Bridge and Ferry Street Improvements (Martinez)		-	-	1,000	5,000	2,000	2,013	-	-	-	-	-	10,013
9651 CAPITOL CORRIDOR RAIL STATION IMPROVEMENTS AT MARTINEZ													
27001 Capitol Corridor Rail Station Improvements at Martinez		-	-	2,837	-	-	-	-	-	-	-	-	2,837
CONSTRUCTION RESERVE													
Continuon Reserve - Central County		-	-	-	-	-	-	-	-	-	-	3,003	3,003

**CONTRA COSTA TRANSPORTATION AUTHORITY
PROGRAM OF PROJECTS**
(YOE Dollars x 1000)

	Prior	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY20 - 34	TOTAL
9656 BART - EAST CONTRA COSTA EXTENSION												
2001 East Contra Costa Rail Extension (eBART)	10,782	10,863	38,379	20,922	38,706	18,050	-	-	-	-	-	137,702
2002 Pittsburg Center Station	-	-	500	302	-	2,102	-	-	-	-	-	2,904
9627 STATE ROUTE 4 EAST WIDENING												
3001 SR 4 East Widening: Somersville Road to SR160	44,863	12,756	11,737	7,256	3,904	6,562	7,028	-	-	-	-	94,105
3003 SR4 East Widening: Loveridge Rd to Somersville Rd	-	18,793	10,252	1,675	-	-	-	-	-	-	-	30,720
9629 EAST COUNTY CORRIDORS												
5002 SR4: Widen to 4 Lanes - Laurel Rd to Sand Creek Rd	4,083	187	-	-	-	-	-	-	-	-	-	4,269
5003 SR4: Sand Creek Interchange - Phase 1	8,598	11	5,038	-	-	-	-	-	-	-	-	13,647
5005 SR4: Balfour Road Interchange - Phase 1	-	-	-	6,668	15,170	16,162	-	-	-	-	-	38,000
5006 Vaseo Road Safety Improvements - Phase 1 (CC County)	647	-	-	-	-	-	-	-	-	-	-	647
5010 SR4: Segments 1 and 3	25,001	-	-	-	-	-	-	-	-	-	-	25,001
5011 East County Corridor Reserve	-	-	-	-	-	-	-	-	-	-	19,645	19,645
9634 BART PARKING, ACCESS, and OTHER IMPROVEMENTS												
10004 BART Parking, Access and Other Improvements - East County	-	-	-	-	-	-	-	-	-	-	2,000	2,000
9648 MAJOR STREETS: TRAFFIC FLOW, SAFETY, & CAPACITY IMPROV.												
24025 Major Streets in East County	-	-	-	-	-	-	-	-	-	-	19,400	19,400
9652 TRANSPORTATION FOR LIVABLE COMMUNITIES (EAST COUNTY)												
12001 TLC Reserve - East County	-	-	-	-	-	-	-	-	-	-	17,600	17,600
9653 SUBREGIONAL TRANSPORTATION NEEDS (EAST COUNTY)												
28001 Subregional Transportation Needs Reserve (East County)	-	-	-	-	-	-	-	-	-	-	3,900	3,900
CONSTRUCTION RESERVE												
Construction Reserve - East County	-	-	-	-	-	-	-	-	-	-	1,940	1,940

**CONTRA COSTA TRANSPORTATION AUTHORITY
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(YOE Dollars x 1000)

	Prior	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY20 - 34	TOTAL
9628 CAPITOL CORRIDOR IMPROVEMENTS												
4001 Hercules Rail Station	15	2,160	5,785	-	-	-	-	-	-	-	-	7,961
9631 I-80 CARPOOL LANE EXTENSION AND INTERCHANGE IMPROV.												
7002 I-80/San Pablo Dam Road Interchange Improvements	Prior	5,170	2,002	2,500	2,367	-	-	-	-	-	-	12,038
7003 I-80/Central Avenue Interchange Improvements	398	400	404	1,632	-	-	-	1,126	-	-	7,623	11,584
7005 I-80 Integrated Corridor Mobility	4,854	167	-	-	133	137	141	144	-	-	1,447	7,022
9633 RICHMOND PARKWAY												
9001 Richmond Parkway Upgrade Study	Prior	136	-	-	-	-	-	-	-	-	-	136
9002 Richmond Parkway Maintenance Upgrade	-	-	1,500	-	-	-	-	-	-	-	498	1,998
9003 Marina Bay Parkway Grade Separation	2,539	160	9,101	-	-	-	-	-	-	-	-	11,800
9634 BART PARKING, ACCESS, and OTHER IMPROVEMENTS												
10002 BART Parking, Access and Other Improvements - West County	Prior	2,002	777	-	4,500	4,636	-	-	-	-	4,775	16,690
9643 ADDITIONAL BUS TRANSIT ENHANCEMENT												
19002 WestCAT Transit Capital Improvements	Prior	8	17	1,025	-	-	-	-	-	-	-	1,051
CONSTRUCTION RESERVE												
Construction Reserve - West County	Prior	-	-	-	-	-	-	-	-	-	706	706

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TO: WCCTAC Board

DATE: November 13, 2015

FR: Leah Greenblat, Project Manager

RE: West County High Capacity Transit Study - Review of Draft Technical Memos

REQUESTED ACTION

Provide feedback on presentation and deliverables.

BACKGROUND AND DISCUSSION

The consultant team for the West County High Capacity Transit Study will present their current work focusing primarily on draft Technical Memo 8: Preliminary Alternatives and draft Technical Memo 9: Evaluation Criteria. Two other technical memos have also been revised: Technical Memo 5: Existing and Planned Transportation Network and Technical Memo 7: Travel Markets. In Technical Memo 5 the section on planned ferry service in Hercules was expanded. In Technical Memo 5, Existing and Planning Transportation Network, the revised portions are Section 4.1.4 Ferries and 4.1.5 Hercules Intermodal Transit Center, pages 51-57. The revisions to Technical Memo 7 include more analysis about origins and destinations.

Technical Memo 9 is included as an attachment. Technical Memos 5, 7 and 8 are large documents that will take extra time to download. They must be downloaded from the consultant's FTP site using the links below:

[Link](#) to draft Technical Memo 8 Preliminary Alternatives (New)

[Link](#) to Technical Memo 7 Travel Markets (Revised)

[Link](#) to Tech Memo 5 Existing and Planning Transportation Network (Revised Section 4.1.4 Ferries and 4.1.5 Hercules Intermodal Transit Center, pages 51-57)

Attachments:

1. Draft Technical Memo 9: Evaluation Criteria

West Contra Costa High-Capacity Transit Study

REVISED DRAFT TECHNICAL MEMORANDUM #9 Evaluation Criteria

October 23, 2015



With
Kimley-Horn

Document Review

Revision Date	Updated By	Organization	Description of Revision
10/20/15	Jeff Allen	Kimley-Horn	Revisions to address client comments
10/21/15	Tam Tran	WSP/Parsons Brinckerhoff	Revisions to address client comments

Document Sign-off

Name	Date	Signature
Rebecca Kohlstrand	10/23/15	<i>Rebecca Kohlstrand</i>

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A	List of Initial Transit Alternatives for Evaluation
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Acronyms and Abbreviations

BART	Bay Area Rapid Transit
BNSF	Burlington Northern Santa Fe
BRT	bus rapid transit
DMU	diesel multiple unit
FTA	Federal Transit Administration
GHG	greenhouse gas emissions
GIS	Geographic Information System
HCT	high-capacity transit
I-80	Interstate 80
LRT	light rail transit
MAP-21	Moving Ahead for Progress in the 21st Century (Federal transportation funding and authorization bill)
MTC	Metropolitan Transportation Commission
O&M	Operations and maintenance
PDA	Priority Development Area
SR-4	State Route 4
TAC	Technical Advisory Committee
TAZ	Traffic Analysis Zone
TSI	Transit Suitability Index
UPRR	Union Pacific Rail Road
VMT	Vehicle Miles of Travel
WCCTAC	West Contra Costa Transportation Advisory Committee

1 INTRODUCTION

1.1 West Contra Costa County Transportation Setting

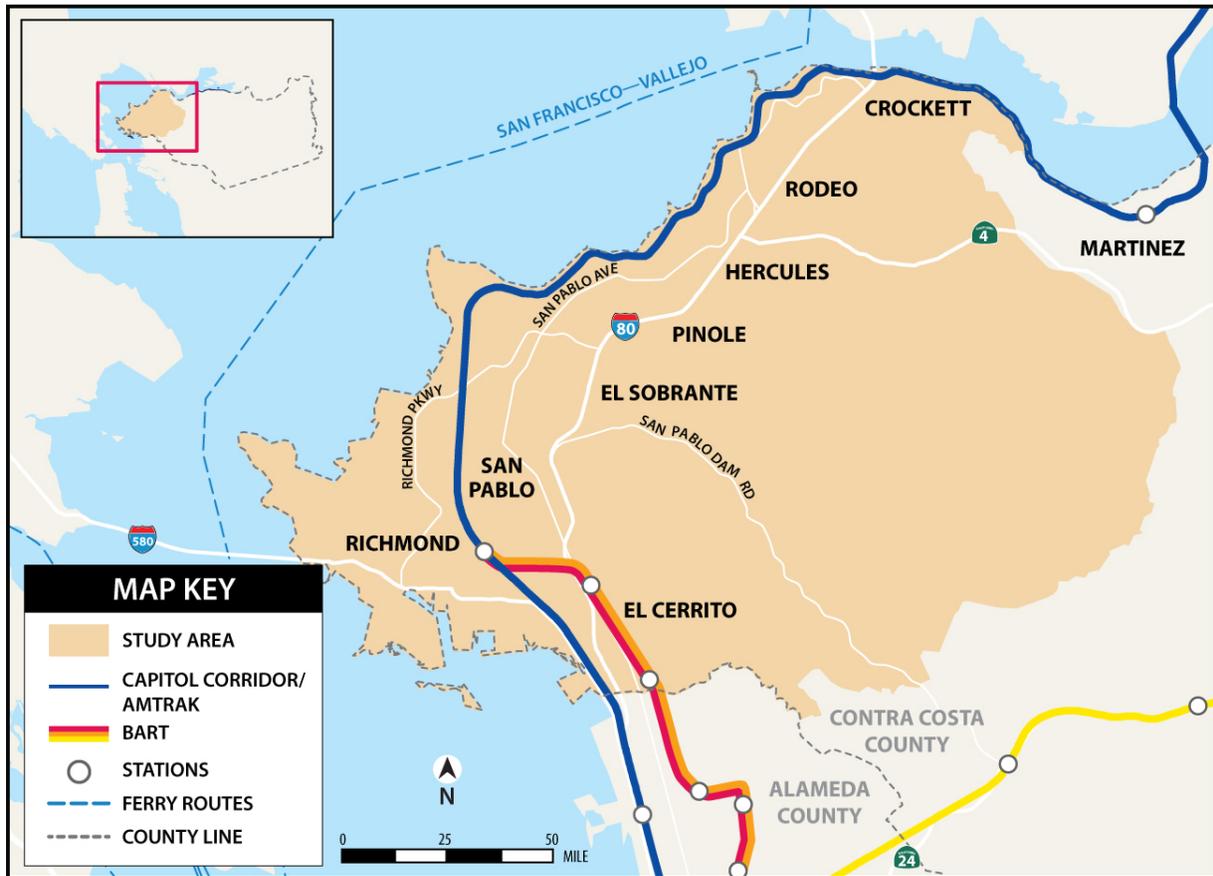
West Contra Costa County is a distinctive sub-region within the Bay Area set between the San Francisco Bay and the East Bay hills. Interstate 80 (I-80), the primary vehicular route running north-south through this sub-region, has major regional significance to Bay Area commuters, and is considered one of the most congested freeway corridors in the region. San Pablo Avenue is a major arterial that runs parallel and functions as a possible alternative to I-80. It links each jurisdiction in West Contra Costa and is a key commercial thoroughfare for the sub-region. Interstate 580 (I-580), running perpendicular to I-80, connects travelers west to and from Marin County across the Richmond-San Rafael Bridge to I-80, and continues east through Alameda County and beyond.

The study area encompasses West Contra Costa County from the southern boundary at the Alameda County line north to the Carquinez Bridge and Solano County line. It essentially encompasses the Metropolitan Transportation Commission's (MTC) Superdistrict 20, which includes the Cities of El Cerrito, Hercules, Pinole, Richmond, and San Pablo and the unincorporated communities of Crockett, El Sobrante, and Rodeo. **Figure 1-1** displays a map of the core study area, which includes I-80 and I-580, State Route 4 (SR-4), as well as major surface streets including San Pablo Avenue and Richmond Parkway. The West County High-Capacity Transit (HCT) Study will also include analysis of travel markets to the west of the study area along I-580, south along I-80 to Alameda County and the Bay Bridge, east along SR-4, and north along I-80 across the Carquinez Bridge to Solano County.

1.2 Study Purpose

The purpose of this study is to identify and evaluate the feasibility and effectiveness of HCT options in West Contra Costa County for WCCTAC's consideration. This will require understanding existing travel markets and future demand for HCT in the area as part of the larger regional transit network, identifying and evaluating HCT options, and assessing the costs and potential funding sources for these options. Central to the study purpose is providing WCCTAC with the analyses necessary to determine and advance the most promising HCT alternative(s). The study will consider multimodal transit options including, but not limited to: freeway-based express bus, bus rapid transit (BRT), light rail transit (LRT), extension of BART service, including diesel multiple unit (DMU) options in BART corridors, and commuter rail improvements. Study findings will guide future planning, investment priorities, and funding efforts for WCCTAC.

Figure 1-1: Study Area



Source: Parsons Brinckerhoff, Kimley-Horn, 2015

1.3 Purpose of this Technical Memorandum

This technical memorandum proposes evaluation criteria and methodologies to evaluate the individual performance of transit alternatives for the West Contra Costa HCT Study. Evaluation will consist of a two-step process based on adopted study goals and objectives outlined previously in Technical Memorandum #2. The first step, initial screening, will be focused on a qualitative assessment of the eight alternatives defined in Technical Memorandum #8. The second screening step will be a quantitative assessment that refines and builds on the most promising initial alternatives to further develop engineering and operation definitions and evaluate the potential benefits and costs of improvements.

2 SUMMARY OF GOALS AND OBJECTIVES

The goals and objectives identified for this study serve as the framework for the study's development and evaluation of long-term HCT improvements. The goals and objectives specific to this study are as follows:

Goal #1: Increase transit ridership by providing efficient, frequent, and reliable service

- Objective 1a: Improve high-capacity transit service, travel times, and connections.
- Objective 1b: Improve access to existing and proposed transit hubs by all modes of transportation and increase the total number of trips taken by transit.

Goal #2: Improve connections between transit systems and services

- Objective 2a: Connect communities in the corridor to the regional transit network and other regional centers.
- Objective 2b: Provide user-friendly connections between regional and local transit services.

Goal #3: Expand transit in competitive corridors to new and underserved travel markets

- Objective 3a: Identify opportunities to match transit improvements with unmet and anticipated future needs in local, regional, and inter-regional markets.

Goal #4: Protect and enhance the environment and maintain a high quality of life

- Objective 4a: Avoid impacts to existing natural and cultural resources in the corridor.
- Objective 4b: Improve air quality and decrease greenhouse gas emissions by reducing the reliance on single-occupant vehicles.
- Objective 4c: Reduce transportation energy demand (per vehicle mile of travel) by increasing the use of high-capacity transit.
- Objective 4d: Take into account risks related to sea level rise and the effects of climate change in the location and design of transit facilities.
- Objective 4e: Be compatible with local plans and policies.

Goal #5: Support sustainable urban growth

- Objective 5a: Support economic and transit-oriented development in the corridor.
- Objective 5b: Support development and transit-oriented development in the corridor to advance the regional Sustainable Communities Strategies and Priority Development Area policies that support them.

Goal #6: Provide equitable access for residents and businesses

- Objective 6a: Improve transit access to jobs, housing, education, and other regional resources for a broad cross-section of socio-economic groups, ethnicities, and household types especially for transit-dependent populations.
- Objective 6b: Preserve mobility of people and goods throughout the corridor.

Goal #7: Make efficient use of public financial resources

- Objective 7a: Identify high-capacity transit investments that are cost-effective.
- Objective 7b: Seek public input on proposed transit investments.

3 METHODOLOGY

This section reviews the process for developing HCT alternatives for West Contra Costa County and then assessing their performance against a number of evaluation criteria. The criteria were developed to help the public and decision-makers determine how well alternatives perform in meeting the study's goals and objectives summarized in the previous section. Alternatives that best achieve the goals and objectives will be advanced for additional review, with the best performing alternatives recommended for further study and possible implementation.

3.1 Study Process

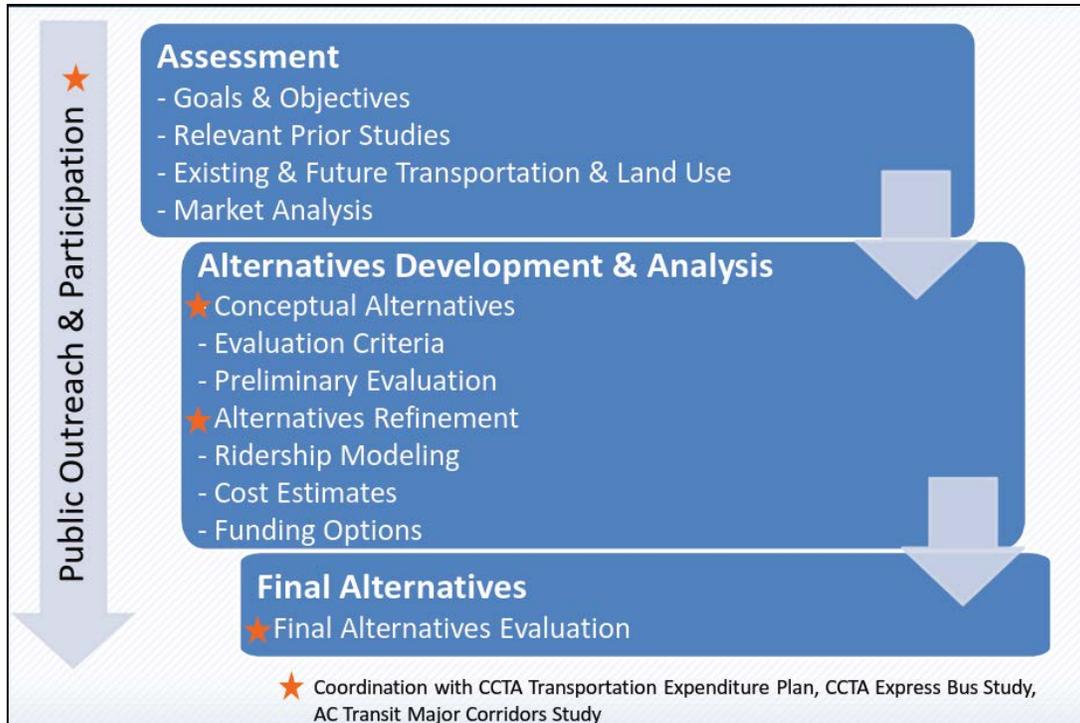
At the start of the West Contra Costa High-Capacity Transit Study, guiding goals and objectives were drafted by the consultant team and reviewed by the WCCTAC Technical Advisory Committee (TAC) then approved by the WCCTAC Board at its September 2015 meeting. The initial set of HCT alternatives identified for consideration in this study were developed using these goals and objectives as a framework. The alternatives were developed with guidance from the background analysis conducted, including identification of travel markets, land use patterns, and demographic trends within West County, and are consistent with state-of-the industry transit technologies and services that have demonstrated their capability and reliability in meeting mobility needs.

In earlier phases of the project, the study team collected information and analyzed existing and projected demographic and socioeconomic conditions in the study area and identified the major travel markets, including major internal and external destinations of West County residents. The project team also documented the study's existing transportation network, including transit services, and reviewed the recommendations of prior studies to understand previous attempts at serving the growing travel needs of West County residents and businesses. The study process is illustrated in **Figure 3-1**.

Taking into account all of this information, the study team developed an initial "long list" of transit alternatives for consideration in this study. The initial list was not artificially constrained to avoid prematurely excluding improvements that might otherwise be determined to have major travel benefits when more information on travel demand, modal opportunities and constraints becomes available. Requirements for alternatives to be included in the initial list were that they serve the documented travel markets, represent proven modes of transit travel,

and offer HCT options for West County residents and employees, consistent with the overarching purpose of this study.

Figure 3-1: HCT Study Process



Modal options determined to be the most practicable included:

- **Bus** – both express bus and bus rapid transit (BRT)/rapid bus.
- **Rail** – BART extensions to the existing Fremont-Richmond and San Francisco-Richmond lines; diesel multiple unit (DMU) trains similar to that of eBART service under development in eastern Contra Costa County; commuter rail similar in nature to the existing Capitol Corridor service; light rail transit (LRT) similar to the metro rail service in San Francisco.

Ferry service is also an option for expanded transit service in the study area, but enhancements to the ferry service are already programmed and moving ahead, so it is not identified as a specific new project alternative.

The consultant team, working in consultation with WCCTAC staff, developed the initial list of possible HCT alternatives. The alternatives are those that appeared most viable for meeting the mobility needs of West County residents and businesses and meet the criteria noted above. The alternatives include options for different termini and potentially different modal options. Multiple termini or destinations will be evaluated for ridership potential and then refined to

reflect a primary terminus or primary and secondary termini. This level of analysis will occur later in the study.

Dual modal options are under consideration for (1) BRT corridors that lend themselves to upgrade to LRT when transit demand increases with more intensive development along the BRT corridors, and (2) BART extensions, where DMU is an alternative modal option that offers greater flexibility to meet current grade constraints and could be upgraded to a higher capacity mode (based on potential train frequencies and total train capacity) like BART in the future if warranted by increased ridership. Like LRT, BART is a more cost-effective mode when transit demand increases and frequent, very high-capacity train service is required to accommodate demand – and when funding becomes available. The level of investment to construct BART and the annual costs to operate BART service are typically substantially greater than the costs to construct and operate DMU service. The costs for BART are probably only justified when they can be spread over a high number of riders. The initial alternatives are documented in Technical Memorandum #8 and listed in Attachment A.

The next steps in the study process will include screening the list of promising alternatives down to the most viable alternatives by applying the evaluation criteria described in this memorandum. The alternatives that best meet the study purpose, as reflected in their attainment of study goals and objectives, will be defined in more detail and subjected to a second step evaluation to identify the preferred alternative or alternatives for further studies that would establish the foundation for their possible implementation. The refinement of alternatives will include additional detail on each mode's physical features, including termini and stations; capital and operating costs; environmental impacts; and ridership in the context of current and future (2040) land use and socio-economic conditions.¹

The entire process of developing, evaluating, refining, and re-evaluating HCT alternatives for West County to identify one or more preferred projects for implementation will be informed by extensive outreach to obtain feedback from the public, stakeholders, the project's Study Management Group, the WCCTAC TAC, and the WCCTAC Board of Directors. Alternatives proposed for the second step of screening and the final alternatives recommended for possible implementation will be discussed with the public and stakeholders as further public outreach proceeds.

It is important to note that before any major HCT alternative can be implemented, the alternative must proceed through additional project development and review that would occur after this study's completion. This will include conceptual engineering and environmental

¹ Evaluation of a project's ridership potential given current land use, population, and employment, is a requirement if federal funding under MAP-21 is to be solicited.

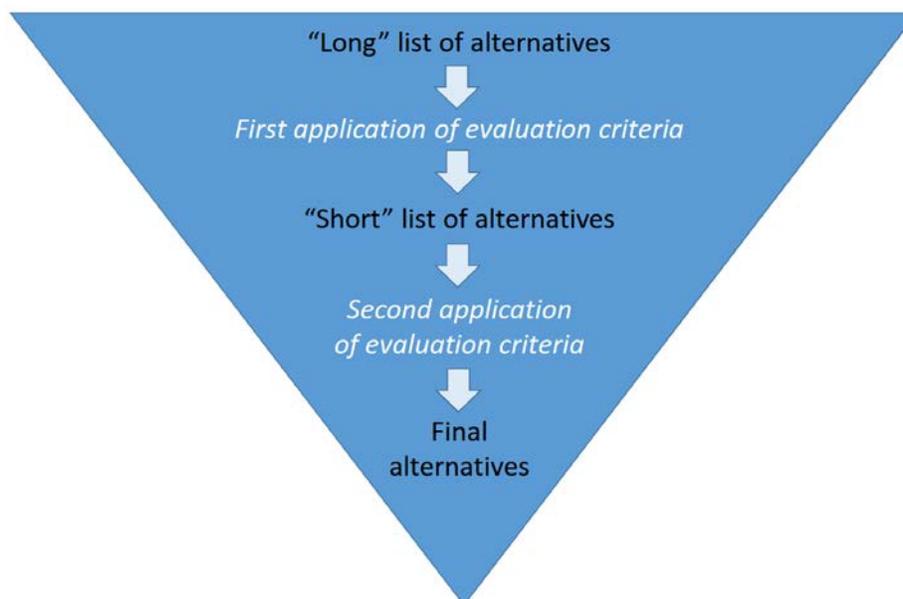
review and clearance. Based on the findings of these studies and taking into account funding availability, WCCTAC may authorize detailed engineering documents and construction.

3.2 Two-Step Evaluation of Preliminary List of Alternatives

As noted above, the consultant team, in coordination with WCCTAC staff, developed a “long” list of promising alternatives defined in terms of alignments and modes that will be evaluated using the recommended screening criteria. This list will be distilled down to a “short” list of viable alternatives for further review, and then a second screening of the “short” list will identify the preferred alternative or alternatives to advance to the next phase of project development. The process of screening from the “long” list of promising alternatives to the preferred alternative or alternatives will be completed in two steps, as shown in Figure 3-2. The study team will apply evaluation criteria developed from the goals and objectives to the alternatives under consideration at each step.

To support a rigorous, transparent evaluation process, and provide information that supports the elimination of certain alternatives and the advancement of others, the study team has recommended that the evaluation criteria be applied in two steps. Step 1 of the evaluation will be more qualitative in its approach, than the second step, as the level of detail for the alternatives is very general at this time. The “long” list of viable alternatives will be defined at a high level. Ridership forecasts and cost estimates will be provided based on order of magnitude comparisons. The evaluation criteria have been designed to support reasonable qualitative comparisons of alternatives consistent with the information available in the Step 1 evaluation, not just within a mode, but among modes.

Figure 3-2: Evaluation Process



As high-capacity improvements are advanced and better defined, the comparisons of performance, including estimates of ridership potential and capital and operating costs, among other factors, will be more detailed in the second step. When possible, evaluation criteria will support quantitative comparisons of performance in addition to the qualitative comparisons. For quantitative comparisons of performance, this means evaluation criteria can be characterized using numerical data or values.

Another reason to use evaluation criteria that lend themselves to both qualitative and quantitative values is that the Federal Transit Administration (FTA) applies both types of criteria when rating projects for federal funding eligibility as part of its New Starts program (formally entitled the Capital Investment Grant Program). Projects are rated in two general areas: Project Justification and Local Financial Commitment. FTA's key Project Justification metrics include:

- Mobility Improvements (total trips on project),
- Environmental Benefits (reduction in air pollutants and greenhouse gases, savings in energy use, and improvements in transportation safety),
- Cost-Effectiveness (cost per rider),
- Land Use (existing characteristics), and
- Economic Development effects (the potential of a project to induce transit supportive development; plans and policies promoting integration of transit and future development).

The first three measures are quantitative, while the latter two are largely qualitative.

The other FTA project rating criteria fall into the category of Local Financial Commitment. They pertain to:

- Local (and state) funding committed for project construction,
- Federal funding likely to be requested,
- Financial condition of the project sponsor and its capacity to fund and operate a project,
- Reasonableness of project cost estimates and the financial plan.

At this phase of the West County project – or projects – it is premature to identify a project operator and a formal financial plan, and the Local Financial Commitment measures are relevant only for the purpose of understanding the potential future criteria against which the project may be evaluated.

Since WCCTAC may pursue federal funding in the future to assist with the implementation of recommended transit alternative(s) from this study, it is prudent to include evaluation criteria that indicate how well alternatives perform relative to the FTA Project Justification criteria as

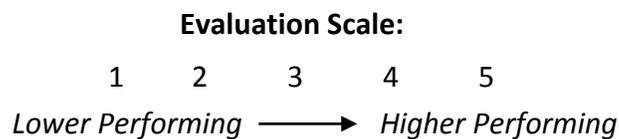
well as the study goals and objectives. Therefore, several of the evaluation criteria have been defined to allow WCCTAC to identify projects that would be most competitive if subjected to FTA evaluation in the Mobility Improvements, Environmental Benefits, Cost-Effectiveness, Land Use, and Economic Development categories. Due to data limitations, the study evaluation criteria may be calculated somewhat differently than how the FTA metrics are calculated, but the end result will provide reasonably accurate reflections of how a project will perform when the FTA metrics themselves are applied should a project be proposed for New Starts funding.

In summary, a number of the criteria proposed for the evaluation of high-capacity transit alternatives for this study support both qualitative and quantitative comparisons of performance.

Evaluation Scale (Rating of Alternatives)

To rate the performance of alternatives and provide a means of comparing alternatives, including a no-build alternative (i.e., the no project condition), scaling of performance relative to the adopted evaluation criteria is necessary. This implies adoption of a common scale that facilitates comparisons of performance across all alternatives.

The proposed system for rating the performance of HCT alternatives under consideration in this study is proposed to be a five-point scale, as shown below.



A five-point scale is consistent with the number of performance categories FTA uses to rate project performance, which include: Low; Medium-Low; Medium; Medium-High; and High. However, for this study the FTA terminology will not be used. A graphical scale representing the five rating categories will be utilized for each category, consistent with the high-level nature of the evaluation at this stage in the planning process.

The same scale will be used for both the initial Step 1 and subsequent Step 2 evaluations of alternatives. More detailed information will become available by the time the Step 2 evaluation (of the short list of HCT alternatives) is performed. Therefore, the rating levels will be more strongly supported by data. However, as long as the rationale for a project rating is explained, and how the rating levels have been established is transparent, it will be possible to apply the five-level scale during both steps.

The range of performance reflected in the scale will be based on quantitative data when available. Quantitative data will be used to establish the points, or values, along the project performance rating scale, which distinguish lower (or poor) performance from higher (or good) performance. Certain values will be designated as thresholds marking the change from one

rating level to the next (either higher or lower) level. These thresholds are referred to as the breakpoints.

An example helps to make this clear. When the preliminary list of promising HCT transit alternatives is screened to a "short" list of viable alternatives in the Step 1 evaluation, ridership forecasts will not yet be available. The study team proposes to estimate ridership by mode for each alternative based on other studies and also by looking at the performance of comparable transit improvements. Other bus, BRT, and BART studies in the Bay Area have developed detailed ridership for what are expected to be comparable improvements; in addition, there is ridership data for existing bus, BART and commuter rail lines in the Bay Area and rail lines elsewhere in California. Thus ridership potential for a proposed alternative will be order-of-magnitude in the Step 1 evaluation. Qualitative comparisons of performance across alternatives are defensible at this conceptual level, while detailed quantitative comparisons would be premature.

When the "short" list of alternatives recommended from the initial screening are advanced to the Step 2 evaluation, ridership potential will be quantified using the Contra Costa Transportation Authority's Countywide Travel Demand Model. Daily and annual ridership estimates for each alternative can then be compared to daily and annual ridership against other alternatives. Low absolute ridership would still rate as "poor" and high ridership as "good" performance. However, the breakpoints assumed in the scale will be derived directly from model outputs; an alternative's position on the scale will be based on a specific forecast of daily/peak period transit trips. Thus, the breakpoints can be more precise and refined, compared to the order-of-magnitude breakpoints that will be used in the Step 1 evaluation.

The breakpoints will be defined when more information is available. Ratings based on quantitative values will be documented.

More detail on the specific evaluation criteria proposed for this study, their definition, and the general method by which they are derived and applied in rating the performance of alternatives, is provided in the following section.

3.3 Evaluation Criteria

Evaluation criteria have been established that align with the seven goals and 16 corresponding objectives adopted for this study. **Table 3-1**, at the close of the narrative portion of this report, lists the criteria and their definitions to be applied in the screening of transit alternatives. The table indicates where additional information will be available during the Step 2 evaluation to support a more quantitative approach for measuring performance.

For certain study objectives, two or more evaluation criteria are proposed because the objective as defined has two or more distinct elements and/or there is more than one way to

measure the objective. For example, *Objective 1a: Improve high-capacity transit service, travel times, connections*, involves the evaluation of changes in travel time, improvements in service reliability, and the opportunities for multimodal connections resulting from the transit investment. *Objective 4b: Improve air quality; reduce greenhouse gas (GHG) emissions*, is best evaluated by examining the change in commonly accepted air pollutants separate from the change in GHG emissions. The former includes traditional transportation-generated pollutants such as carbon monoxide, nitrous oxide, volatile organic compounds, and particulates. The latter includes gases such as carbon dioxide (the primary GHG emission of autos, trucks and buses), not a pollutant per se but a cause of climate change if emitted at high levels.

For two of the 16 objectives, the same criterion is proposed as it is an effective measure of performance for both objectives.

The evaluation criteria to be applied do not change from the Step 1 to Step 2 screening of alternatives; however, the method for calculating the measures of performance underpinning the evaluation criteria will sometimes differ from Step 1 to Step 2. In instances where measures differ from the Step 1 analysis, it is because more detailed information will become available to support quantitative comparisons of alternatives in the second step of screening.

The tables summarize the general descriptions, or definitions, of evaluation criteria, the method of their calculation, and the general rationale for their application in this study. More background information follows:

Goal #1: Increase transit ridership

Two objectives were established to reinforce the goal of increasing transit ridership through HCT improvement in West County. They include *Objective 1a: Improve HCT service, travel times and connections*, and *Objective 1b: Improve access to existing and proposed transit hubs by all modes of transportation and increase the total number of trips taken by transit*. Four evaluation criteria are proposed to gauge how effectively the proposed transit alternatives achieve the objectives.

Travel time improvement and travel time reliability are proposed to measure attainment of Objective 1a. Faster transit trips and highly reliable service are key factors in attracting riders to transit, particularly commuters. Potential users of high-capacity modes will typically be destined to or from employment centers and, in general, are more travel time sensitive than non-commuters.

For the Step 1 evaluation, transit travel times for a HCT alternative can be calculated from the average speed of the transit vehicle, with provisions for access time to transit. The access time to transit depends upon the frequency of service as well as the time to get to transit itself. For simplification, and because an individual's trip origin cannot be easily determined, access time is limited to the wait time for transit, calculated as equivalent to one-half the service headway

of transit in minutes. (Egress time from transit to an individual's final destination is not affected by transit service frequencies. Also, for simplification, it can be assumed to be comparable across alternatives if they serve approximately the same destinations and thus ignored for the analysis.)

For the Step 2 evaluation of alternatives, estimated transit travel times can be compared to travel model projections of travel times. Transit travel times under the build alternatives can be compared to transit travel times absent any transit improvements, the change in times expressed as a percentage change relative to the no-build alternative. It is assumed transit improvements will produce travel time improvements, and alternatives that save riders the most time compared to the no-build alternative would have the greatest capacity to increase transit ridership.

Transit reliability can be determined from the length of the transit alignment that has exclusive right-of-way and/or dedicated transitways. Transit vehicles will be able to operate at a consistent speed, unaffected by unpredictable conditions caused by interactions with mixed-flow traffic.

For Objective 1b, determining how well alternatives provide access to major transit or employment hubs, the number of hubs where connections to other services are offered (thereby expanding users' abilities to reach more destinations conveniently by transit) will be quantified. Connecting to more transportation hubs improves the rating of an alternative.

The fourth evaluation criterion (*Objective 1b*), designed to measure a HCT alternative's potential to increase the absolute number of transit trips in West County is defined as transit market potential. For the Step 1 screening of alternatives, the transit suitability index (TSI) will be calculated for each alternative in the absence of travel model forecasts. The TSI provides a basis for qualitatively assessing the transit market for an alternative. The TSI will be based on a reasonable capture area around stations for each alternative. The size of the capture area will vary based on the mode in each alternative. The capture area for major rail and express bus projects is a half mile around station areas and for BRT alignments is a quarter mile around stops.

The half-mile capture area for express bus alternatives is the same as for rail alternatives because, operationally, the service is similar to that of rail systems, particularly commuter rail (i.e., few stations, relatively far apart with auto parking or auto drop-off a major mode of station access). BRT service, in contrast, is similar to local bus service when BRT is proposed in major urbanized corridors, as for this study. The generally accepted standard for determining accessibility is being within one-quarter mile of a bus stop or BRT station. Drive access to BRT stations is not a significant mode of access.

Using the TSI, capture areas of alternatives may overlap, as the tool cannot distinguish between alternatives in the catchment area. It does, however, provide an estimation of ridership by alternative, in the form of a transit potential index, with a higher value indicating greater propensity to use transit in the area under study. This relative approach for estimating potential for ridership is appropriate for Step 1 screening of alternatives. More detailed analysis will be undertaken in Step 2.

For the Step 2 screening, each alternative advancing to detailed evaluation will be coded into the Countywide Travel Demand Model. Quantitative estimates of daily and total annual riders (in the form of transit boardings) will be generated. Direct comparisons of transit market potential are then possible across alternatives. The ridership estimates will also be important inputs in evaluation measures covering transit-dependent populations served by an alternative (Goal #3) and project cost-effectiveness (Goal #7).

Goal #2: Improve transit connections

Transit ridership potential and overall effectiveness are enhanced if transit lines offer safe, convenient connections to other major transit lines and multimodal transportation facilities. Access to transit hubs is addressed as part of *Objective 1a* under Goal #1. Transit in West County is focused around several major regional hubs where services from different communities and operators connect to provide regional mobility. These hubs include the Richmond Parkway Transit Center, Hilltop Mall, Hercules Transit Center, and the El Cerrito Del Norte and Richmond BART stations. Some of these hubs provide only transfer connections because they are largely isolated from surrounding development; others, such as BART stations, are located in major activity centers. While this evaluation criterion focuses on connectivity, not access to activity centers, which is captured in other evaluation criteria, the ability to access nearby activity centers at transit hubs would be noted.

For *Objective 2a, Connect communities in the corridor to the regional transit network and other regional centers*, the connectivity of each alternative to regional hubs will be assessed. The evaluation will focus on the quality of these connections.

High-quality connections (e.g., safe and secure for transit users and offering convenient transfer opportunities; facilities with good transit user amenities) to other regional transit services are important. However, transfer opportunities to local or subregional transit services are equally important. These points for connections have been identified in work performed to date for this study. For *Objective 2b*, the number and types of connections offered by each HCT alternative will be quantified and compared across alternatives. For both the Step 1 and Step 2 screenings, the evaluation of connections will be primarily qualitative. However, the number of connections offered will be an important element of this evaluation.

Goal #3: Expand transit to new and underserved markets

In support of this goal, *Objective 3a: Match transit improvements with unmet needs in all markets* will focus on where to make transit investments to expand transit markets. A HCT improvement alternative should improve transit service to areas (1) with substantial underserved or unmet needs, and (2) lacking convenient connections to other transit services, in particular those services providing direct access to jobs and major activity centers. Two evaluation criteria are proposed to assess how well alternatives perform in meeting this objective.

The first criterion is the number of low-income households within a half-mile of station areas. It provides a means for assessing whether areas with likely high transit dependency will be served by an alternative. Transit alternatives that improve travel opportunities in areas (defined in terms of census tracts or traffic analysis zones [TAZ]) with high concentrations of low-income households will be rated higher than alternatives that provide fewer opportunities. Low-income riders are those from households in the lowest income category, a surrogate measure for transit dependency. Transit-dependent riders served by a transit project are an important MAP-21 measure of project performance.

A second evaluation criterion, new growth areas within a half-mile catchment area of stations, is proposed to assess whether an alternative will serve new markets with significant transit potential. Major growth areas will be identified. A quantitative analysis of whether the proposed transit alternatives improve transit options for major growth areas will be made, complemented by a qualitative assessment of whether other local transit services can be improved to enhance their integration with a new HCT mode. The assessment will also take into account the analysis of transit suitability and connectivity performed under Goals #1 and #2.

Goal #4: Protect and enhance the environment

There are five objectives under Goal #4, each with a corresponding evaluation criterion. A high-level environmental scan to identify potential impacts on neighborhoods and the natural environment will be performed to assess how well investment alternatives achieve *Objective 4a: Avoid impacts to natural and cultural resources*. Alternatives with potential major impacts are less attractive for further study than alternatives that have limited or no adverse impacts or have a net beneficial impact. To evaluate *Objective 4b: Improve air quality* and *Objective 4c: Reduce energy demand*, the potential of alternatives to reduce vehicle miles of travel (VMT) will be assessed. Emissions both of pollutants and GHG and also energy use are directly related to miles of travel. Quantitative estimates of each alternative's effects on regional VMT can be obtained from the Countywide Travel Demand Model for Step 2 screening.

Objective 4d: Consider risks of sea level rise and climate change will be evaluated by examining topography and determining an alternative's vulnerability to flooding from storms and, in the

long term, partial inundation of facilities by bay tides. Those with that vulnerability will be rated poorly as long-term investments. The final objective is *4e: Compatibility with local plans and policies*. This can be determined by examining an alternative's general correspondence with local jurisdictions' blueprints for development and transportation strategies. This type of analysis is part of the formal environmental review process for projects subject to the National Environmental Policy Act and California Environmental Quality Act.

Goal #5: Support sustainable urban growth

The first of two objectives under this goal is *5a: Support economic and transit-oriented development*. Sustainable urban growth can be reflected in a transit alternative's capacity to facilitate development in targeted areas – notably in Priority Development Areas (PDAs) designated in the 2040 Regional Transportation Plan and to a lesser extent in local zoning and growth policies of study area cities and Contra Costa County. Using Geographic Information System (GIS) tools, it is possible to accurately estimate the degree to which PDAs are served, by total area, and/or by a transit alternative. Areas must be within the service area of an alternative, represented by the land area within a half-mile of station areas on major rail and express bus projects and within a quarter-mile of stops along BRT alignments.

Objective 5b: Support compact, mixed-use sustainable communities can be measured by quantifying the amount of developable land in the service area of a transit alternative. This can also be calculated from electronic land use maps using GIS. Alternatives that serve more targeted growth areas and/or have the potential for concentrated mixed-use development near transit will rate higher than alternatives that are not aligned to serve these areas.

Goal #6: Provide equitable access for residents and businesses

Two objectives have been established in the study to represent this goal. A transit investment should achieve *Objective 6a: Improve transit access to jobs, housing, education, and other regional resources*. Attainment of this objective is gauged by the total number of households, population and jobs served by the proposed transit improvement in the current year and for the 2040 time horizon of this study. *Objective 6b: Preserve mobility of people and goods throughout the corridor*, can be measured by an alternative's effect on regional congestion. An alternative that reduces VMT, or slows the growth in VMT, compared to the no-build alternative is assumed to reduce congestion. Mobility is maintained or even improved if congestion does not worsen significantly or is, in fact, reduced in a corridor.

For the Step 2 analysis, travel forecasts will allow the study team to calculate the net effect on VMT of transit alternatives.

Goal #7: Make efficient use of public resources

The goal of an efficient use of public resources is associated with two objectives: *Objective 7a: Identify HCT investments that are cost effective*, and *Objective 7b: Seek public input on proposed transit investments*. Three criteria are proposed to evaluate these objectives, two for 7a and one for 7b. For *Objective 7a*, cost-effectiveness is defined as the cost relative to ridership benefits. The cost of a project includes capital costs required to implement the project and operating and maintenance costs, an ongoing requirement to continue operating the project. This study will consider the cost per rider for both capital and operating and maintenance costs.

Cost-effectiveness measures are calculated by dividing annualized costs in current dollars by annual riders. This study will evaluate each measure separately (annualized capital cost per rider; annual operating cost per rider) and then combined (annualized capital *and* operating costs per rider). The combined measure will only be calculated for alternatives advancing to Step 2, at which point sufficiently detailed information will be available to support accurate estimation of the cost-effectiveness. The combined measure is used by FTA when evaluating projects for funding eligibility. A project must have a cost per rider below a certain threshold, revised periodically, for FTA to find it eligible for federal funding. Because a major HCT investment in West County is expected to require a combination of funding sources – federal, state and local – it is useful to ascertain how cost effective alternatives are from FTA’s perspective.

Public and agency support for a project alternative, measured for *Objective 7b*, will become evident from the feedback, both the quantity and type of written and verbal comments, offered at public, stakeholder and other meetings and on the project website. Elected officials will also provide input to the HCT study and the WCCTAC Board will make the final decision as to which alternatives are advanced for further study. This objective is also related to compatibility with local plans and policies, which is an objective under Goal #4

Table 3-1: Evaluation Criteria and Measures of Performance

HCT Study Goals	Objectives	Evaluation Criteria	Definition & Methodology: Step 1 Evaluation	Definition & Methodology: Step 2 Evaluation	Comment
1. Increase transit ridership	1a: Improve high capacity transit service, travel times, connections	Travel time improvement	Based on average speed of modal alternative, compare change in travel time with and without project improvements. Expressed as percentage change (decrease) in travel time between origins and destinations.	Change in travel times between major origins and destinations in corridor served by proposed transit improvements; derived from Countywide Travel Demand Model.	The greater the potential improvement in travel time, the higher the rating of the alternative. Travel time to major destinations outside the study area is calculated for alternatives serving employment districts of Alameda and San Francisco counties. Travel model forecasts support quantitative comparison of peak hour travel times, build versus no-build alternatives in Step 2.
		Travel time reliability	Based on length of alignment in exclusive guideway and/or dedicated transit lanes.	Same as Step 1	More miles in exclusive guideway or dedicated transit lanes are an indicator of better transit reliability. Evaluation takes account of congestion along running way prior to implementing transit improvements.
	1b: Improve access to transit hubs	Regional transit centers served	Number of BART stations, multimodal transit centers, and major business districts with high levels of transit that are directly served by the alternative.	Same as Step 1	More centers served indicates greater transit connectivity and potential for increased transit ridership. Regional transit centers will include employment centers in the East Bay and San Francisco, if served directly.
	1.b cont.: Increase total number transit trips	Transit market potential	Transit ridership potential based on calculated transit suitability index (TSI) of corridor served by alternative.	Ridership projections from Countywide Travel Model, 2013 and 2040; total transit trips and new transit trips compared to no-build alternative.	For Step 1, the TSI evaluates demographic and economic conditions along a corridor that support transit use. The higher the TSI of an alternative, the greater the potential for transit to effectively serve an area. For Step 2, alternatives will be evaluated in context of existing and future land use and demographic conditions to estimate average weekday and annual transit trips. Ridership potential is compared to no-build transit ridership, as estimated by the travel model.
2. Improve transit connections	2a: Connect communities to regional transit and other centers	Regional centers served	See Goal #1, Objective 1b, above.	See Goal #1, Objective 1b, above.	
	2b: Provide user-friendly regional and local transit connections	Quality of connections to existing transit systems and facilities	Ease of connections to other modes (multimodal transfer opportunities) and to same mode (intramodal transfer opportunities) provided along alignment of alternative. Qualitative assessment of connections at center served.	Same as Step 1	Alternatives that provide convenient transfers to other transit services will tend to generate more transit trips. Transfer facilities should be safe and secure and offer high levels of passenger amenities.

Table 3-1: Evaluation Criteria and Measures of Performance

HCT Study Goals	Objectives	Evaluation Criteria	Definition & Methodology: Step 1 Evaluation	Definition & Methodology: Step 2 Evaluation	Comment
3. Expand transit to new and under-served markets	3a: Match transit improvements with unmet needs in all markets	Service to low-income areas	Number of low-income households within a one-half mile radius of stations, derived from Census data.	Average weekday and total annual transit trips by low-income households.	In Step 1, derived by using GIS to estimate number of low-income households within a one-half mile radius of transit stations. For BRT alternatives with multiple local stops, calculation is based on a one quarter-mile accessibility to the transit alignment. In Step 2, derived from Countywide Travel Demand Model forecasts. Low-income riders are those from households in lowest income category and are an important MAP-21 measure of project performance.
		Service to markets currently lacking major transit connections	Serves existing areas and/or new growth areas with strong transit potential but currently lacking convenient or sufficient service. Qualitative assessment of number and character of growth areas with direct service.	Same as Step 1	Measure reflects an alternative's capacity to improve service where needed and attract choice and other new riders.
4. Protect and enhance the environment and maintain a high quality of life	4a: Avoid impacts to natural and cultural resources	Potential significant environmental impacts, both socio-economic and natural resources	Identification of environmental issues potentially resulting from implementation of an alternative.	Same as Step 1	Major environmental concerns flagged in an environmental scan. Alternatives that could adversely affect the natural environment, cultural and historic resources, community cohesion, etc. are rated lower than those with limited or no major impacts.
	4b: Improve air quality; reduce greenhouse gas (GHG) emissions	Change in total Air Quality Criteria Pollutants including CO, NOx, VOC, and PM _{2.5} Change in GHG emissions	Estimated change in primary transportation air pollutants and GHG resulting from net reduction in VMT (auto and transit). The changes in two types of emissions will be estimated separately.	Same as Step 1 except VMT reduction for individual alternatives is derived from Countywide Travel Model.	VMT reduction assumed to be proportional to mode shift in travel, that is, from low capacity auto to high capacity transit. Mode of access to transit and trip length are also factors. For Step 1 evaluation, VMT reduction is estimated by extrapolating from other studies while model forecasts will be available for Step 2. Change in emissions calculated using FTA tables correlating VMT with air pollutants and GHG.
	4c: Reduce transportation energy demand	Transportation energy use	Estimated change in total energy use from net reduction in VMT (auto and transit).	Same as Step 1 except VMT reduction is derived from Countywide Travel Model.	Similar to the Step 1 analysis for GHG, potential VMT reduction will be order of magnitude, estimated from other studies. Energy savings are estimated using FTA tables correlating VMT and energy use. In Step 2 model data will be available.
	4d: Consider risks of sea level rise and climate change	Avoidance of low-lying (tidal or flood-prone) areas	Length in feet of alignment in low elevation areas subject to sea level surges and sea level rise over time.	Same as Step 1.	Investment in facilities that could be damaged by flooding or be partially submerged before reaching their useful lives should be identified. Topographic maps in combination with data from adaptingtorisingtides.org will be used to identify the low-lying areas through which some investment alternatives travel.
	4e: Be compatible with local plans and policies	Policies in local jurisdictions' general plans	Consistency with local plans and policies is part of environmental review activities.	Same as Step 1	The study's data collection efforts included review of background documents. Public and stakeholder outreach (see Goal #7) will also garner feedback from community members and municipal staff.

Table 3-1: Evaluation Criteria and Measures of Performance

HCT Study Goals	Objectives	Evaluation Criteria	Definition & Methodology: Step 1 Evaluation	Definition & Methodology: Step 2 Evaluation	Comment
5. Support sustainable urban growth	5a: Support economic and transit oriented development	West County PDAs served	Area in square miles of designated West County PDAs accessible from transit stations.	Same as Step 1	Total area of PDAs in MTC's current San Francisco Bay Area Regional Transportation Plan within station catchment areas (e.g., one half-mile radius) provides an indication of potential to facilitate transit oriented development and economic development in general. The more areas served, the better the performance.
	5b: Support compact, mixed-use sustainable communities	Availability and type of developable land served by transit	Area in square miles within a half mile of stations.	Same as Step 1	Total developable area in vicinity of stations reflects an alternative's capacity to help promote higher density development.
6. Provide equitable access for residents and businesses	6a: Improve transit access to jobs, housing, education and other resources, especially for transit dependents	Population, employment and households with access to (or accessible from) transit stations	Population, households and employment within half-mile radius of stations, current and projected in 2040.	Same as Step 1	An alternative serving more households, population, and employment opportunities offers greater transit access. See Goal #3 for measuring access by transit-dependent populations.
	6b: Preserve mobility of people and goods throughout corridor	Congestion relief based on estimated reduction in VMT	Estimated reduction in VMT. See Goal #4.	Estimated reduction in VMT. See Goal #4. VTA reduction in Step 2 is from Countywide Travel Model.	A reduction in VMT, build versus no-build, should have a beneficial effect on congestion, potentially reducing the absolute levels of average vehicle delay or the growth in delay compared to the no-build condition.
7. Make efficient use of public funds	7a: Identify cost-effective investments	Order of magnitude capital costs relative to ridership potential (cost/rider)	Total estimated capital costs (engineering through construction) in current dollars compared to annual ridership; expressed as ratio.	Same as Step 1 except model forecasts of ridership will be used.	Step 1 capital costs are based on representative unit costs for each modal alternative, drawing on other studies. See Goal #1 for Step 1 estimates of ridership potential. In Step 2 costs are more detailed and riders are from Countywide Travel Model.
		Order of magnitude operating and maintenance (O&M) costs relative to ridership potential	Annual O&M costs by alternative in current dollars compared to annual ridership; expressed as a ratio of O&M cost per rider.	Same as Step 1 except model forecasts of ridership will be used.	Step 1 O&M costs are based on representative unit costs for each modal alternative, drawing on other studies. See Goal #1 for Step 1 estimates of ridership potential. In Step 2, O&M costs are refined and riders are from Countywide Travel Model.
		Annualized capital and operating cost per rider	(Not calculated during Step 1 of alternatives evaluation).	Annualized capital costs plus annual operating cost in current dollars divided by total annual linked trips (individual riders). Result is cost per rider.	Combining the above two costs per rider produces the cost-effectiveness measure used by FTA when rating project eligibility for New Starts funding.
	7b: Seek public input on transit investments	Public and stakeholder support for proposed alternative	Number and types of comments received during public and stakeholder meetings and from contacts with elected officials.	Same as Step 1	Public support is necessary for a project to advance through further study and possible implementation. It will be based on feedback from public and stakeholder meetings and outreach to elected officials.

ATTACHMENT A

List of Initial Transit Alternatives for Evaluation

LIST OF INITIAL TRANSIT ALTERNATIVES FOR EVALUATION

- Alternative #1** **Express Bus Service** on I-80 from Hercules Transit Center (at Willow Avenue/State Route 4) and on I-580 from Marin County to Alameda County via I-80.
- Alternative #2** **San Pablo Avenue/Macdonald Avenue Bus Rapid Transit (BRT)**, from El Cerrito del Norte BART to Richmond Parkway Transit Center and serving Contra Costa College and Hilltop Mall on the San Pablo alignment and to Tweksbury Turnaround and serving the Richmond BART/Capitol Corridor station on Macdonald Avenue. Possible extensions of San Pablo BRT to Hercules Transit Center and to the Hercules Intermodal Transit Center (at Bayfront Boulevard).*
- Alternative #3** **23rd Street BRT**, from Richmond Ferry Terminal to Richmond BART/Capitol Corridor station continuing to Contra Costa College, with possible extension along San Pablo Avenue to Hilltop Mall and Hercules.*
- Alternative #4** **Union Pacific Railroad (UPRR) Corridor Commuter Rail**, from Richmond BART to Downtown Martinez with an intermediate station at the Hercules Intermodal Transit Center (at Bayfront Boulevard) and with a potential extension to Oakland.
- Alternative #5** **UPRR-Burlington Northern Santa Fe (BNSF) Corridor Commuter Rail**, from Richmond BART to Hercules Transit Center (at Willow Avenue/SR-4) with possible east extension to I-680 in Martinez and South Extension to Oakland.
- Alternative #6** **BART Extension from Richmond Station to Hercules**, from Richmond BART station along the UPRR right-of-way transitioning to 13th Avenue and Rumrill Boulevard before tunneling under Hilltop Mall then following the I-80 right-of-way to the Hercules Transit Center (at Willow Avenue/SR-4)
- Alternative #7.1** **BART Extension from El Cerrito del Norte Station to Hercules** from El Cerrito del Norte BART station to Hercules Transit Center (at Willow Avenue/SR-4) along the I-80 right-of-way.
- Alternative #7.2** **DMU Extension from El Cerrito del Norte Station to Hercules** from El Cerrito del Norte BART station to Hercules Transit Center (at Willow Avenue/SR-4) along the I-80 right-of-way.

* Potential for improving to light rail transit in future when demand warrants evaluation