



Submitted to
EBRCSA

Submitted by
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June 8, 2012

Executive Summary for Final Coverage Acceptance Test for Contra Costa County West Simulcast Cell

Executive Summary

The East Bay Regional Communications System Authority (EBRCSA) is procuring a public safety radio system to serve Alameda and Contra Costa counties. This radio system, the **East Bay Regional Communications System (EBRCS)**, is under construction by Motorola. This coverage report provides the details of the radio coverage testing by AECOM in the Contra Costa County West simulcast cell. Testing was conducted in accordance with the EBRCSA approved RaCESM Test Procedure. This report provides a detailed description of the testing process, the equipment used, the results, and our conclusions.

In June 2011 AECOM performed coverage testing. Our testing collected two types of data on system performance: Delivered Audio Quality (DAQ) and Received Signal Strength Indication (RSSI). Unique to RaCE testing, DAQ is measured in both directions: one direction is that of a radio user talking in to the system (talk-in), and the other is that of the system talking out to a radio user (talk-out). Traditional testing (e.g., RSSI and Bit Error Rate (BER)) only measure performance in the talk-out direction.

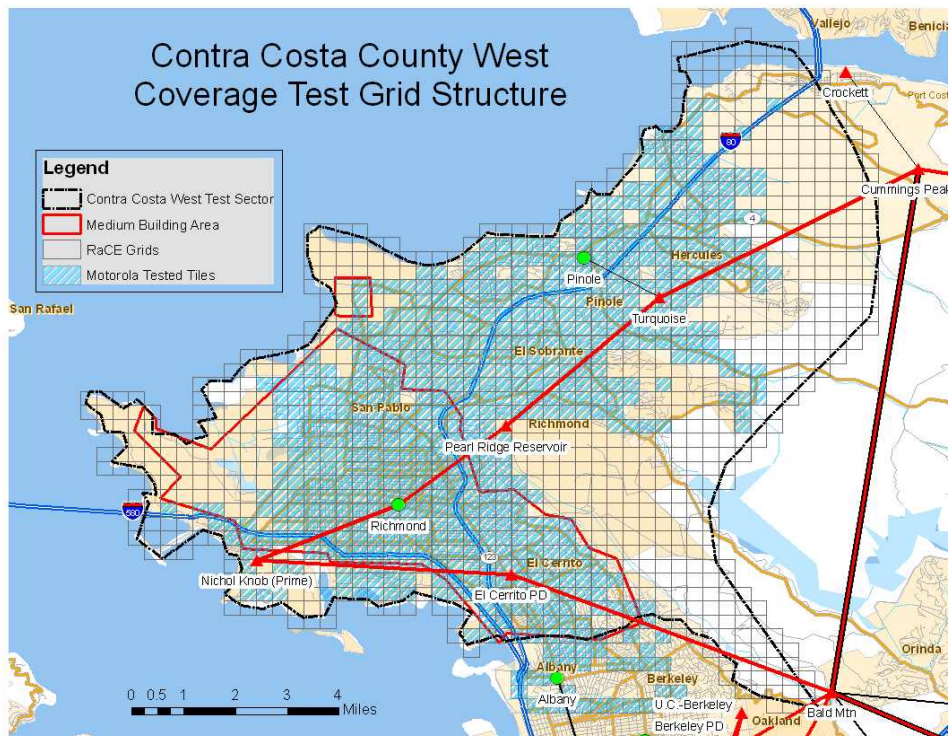


Figure 1 – Test Sectors

The Contra Costa County West area was divided into two sectors: in the developed areas around Richmond, DAQ testing simulated a portable radio being used inside medium buildings. In the rest of the area, DAQ testing simulated the performance of a portable radio outdoors. Both sections were then further divided into a grid of equal-size squares, or tiles. Each grid tile is approximately 0.25 x 0.25 miles. One complete test sequence was conducted within each accessible tile. This process is from **TIA Bulletin TSB-88.1-C, Wireless Communications Systems Performance in Noise-Limited Situations**, ensures that sufficient tests are performed, and that these tests are distributed throughout the area.

Testing serves both to determine if the system meets specifications, and to provide EBRCSA with detailed information on the performance of the EBRCS. In a covered area reliability test, only the areas inside the ALCO East service area that were predicted to have coverage are tested. So while only the results from the tiles where Motorola predicted coverage were used

For the system to meet specifications, 95% of the tests conducted inside the Covered Area must have resulted in a successful test: one where the DAQ in both talk-in and talk-out directions meets or exceeds a DAQ score of 3. Our test results show that 99.7% of the tiles in the Simulcast Trunked passed and 100% of the tiles in the trunked medium building area passed.

System	Test		Results		
			Result	Tiles Passed Tiles Tested	%
Simulcast Trunked Portable On the street	DAQ	Talk-in	Passed	$\frac{520}{528}$	98.5
		Talk-out	Passed	$\frac{523}{528}$	99.1
	BER	Motorola Data Only			
	RSSI	For Information Only			
Simulcast Trunked Medium building area	DAQ	Talk-in	Passed	$\frac{218}{218}$	100.0
		Talk-out	Passed	$\frac{218}{218}$	100.0
	BER	Motorola Data Only			
	RSSI	For Information Only			

Table 1 Two-Way DAQ Test Results

Based on the results of our testing, AECOM observed that Contra Costa County West simulcast cell has coverage greater than what is required by the specifications. Therefore, we recommend the acceptance of the Contra Costa County West simulcast cell.

Figure 7-3 Medium Building Two-Way DAQ Test

CLIENT: EBRCSA

PROJECT NO: 60175932

DATA SOURCE AND NOTES:

Shape File data provided from ESRI

Pass: Tiles containing both a talk-in DAQ score ≥ 3 and a talk-out DAQ score ≥ 3 .

Fail: Tiles with a completed test sequence and either talk-in or talk-out DAQ scores < 3 .

DESIGN: GAD - 07 June 2012

DRAWN: TRM- 08 June 2012

CHECKED: FUU - 8 June 2012

APPROVED: KAB - 8 June 2012

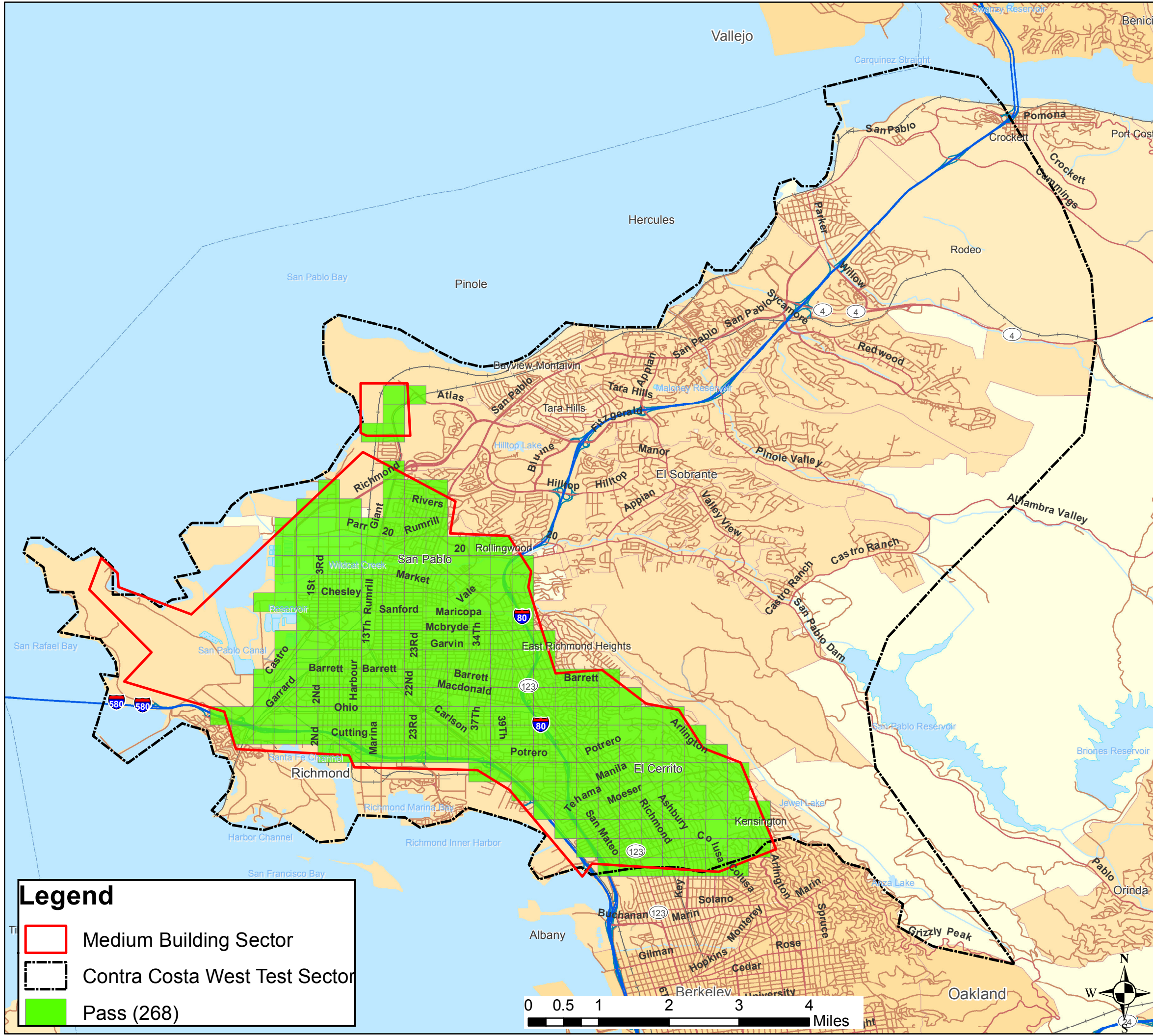
FILE NAME:

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Task E.00 RaCE Testing\CCCO West\Maps\
Figure 7-3 Medium Building Two_Way DAQ Test.mxd

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Legend

- Medium Building Sector
- Contra Costa West Test Sector
- Pass (268)

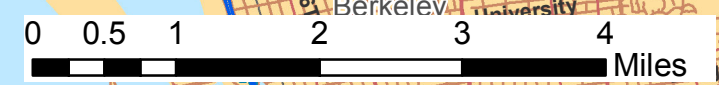


Figure 7-4 Portable on Street Two-Way DAQ Test

CLIENT: EBRCSA

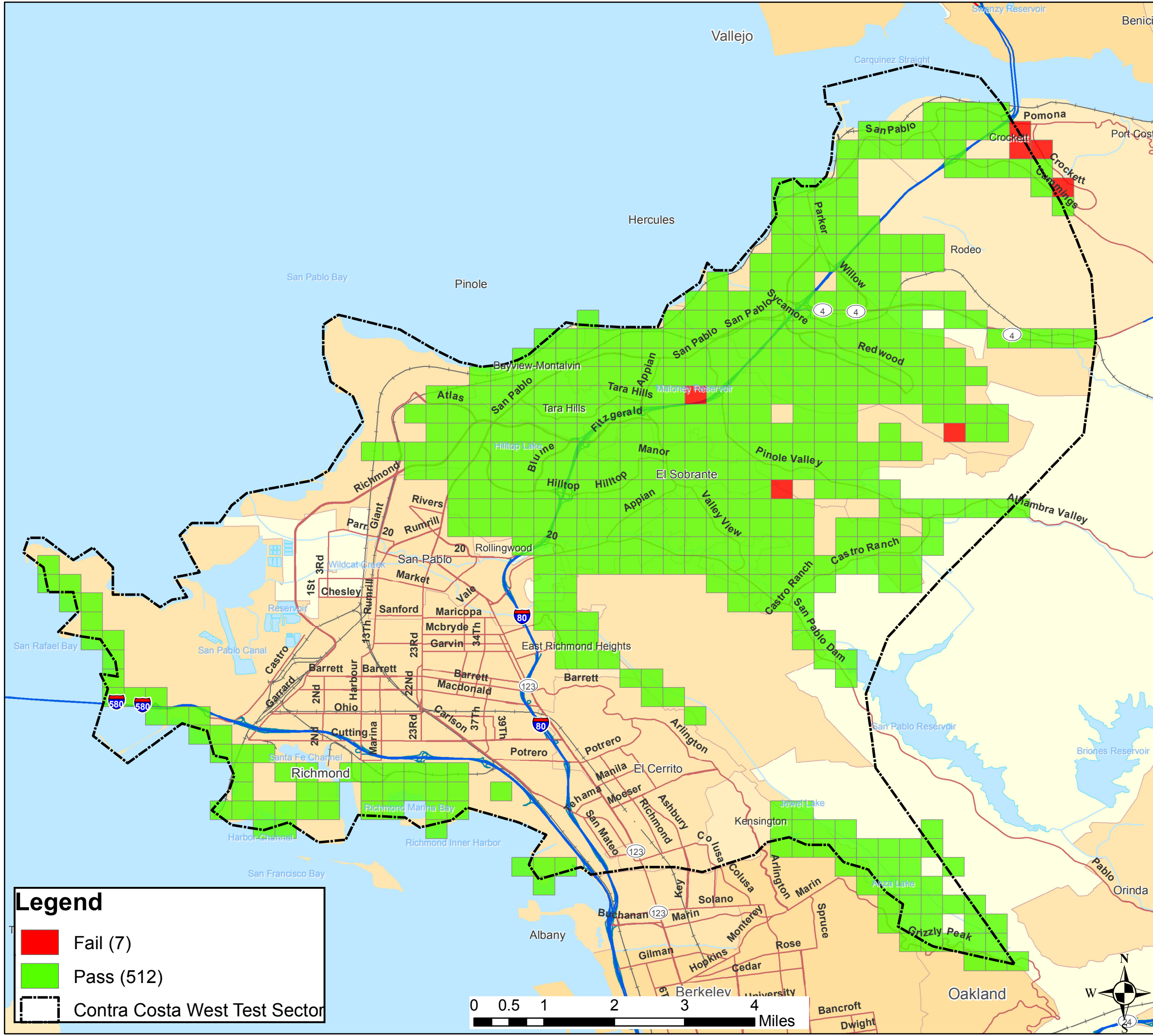
PROJECT NO: 60175932

DATA SOURCE AND NOTES:

Shape File data provided from ESRI

Pass: Tiles containing both a talk-in DAQ score ≥ 3 and a talk-out DAQ score ≥ 3 .

Fail: Tiles with a completed test sequence and either talk-in or talk-out DAQ scores < 3 .



DESIGN: GAD - 8 June 2012

DRAWN: TRM - 8 June 2012

CHECKED: FUO - 8 June 2012

APPROVED: KAB - 8 June 2012

FILE NAME:

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Task E.00 RaCE Testing\CCCO West\Maps\
Figure 7-4 Portable on Street Two_Way DAQ Test.mxd

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