

Coverage Acceptance Test for Alameda County East Sector

Executive Summary

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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 being built by Motorola. This coverage report provides the details of the radio coverage testing in the Alameda County (ALCO) East 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 from the data.

In February March 2012, 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.

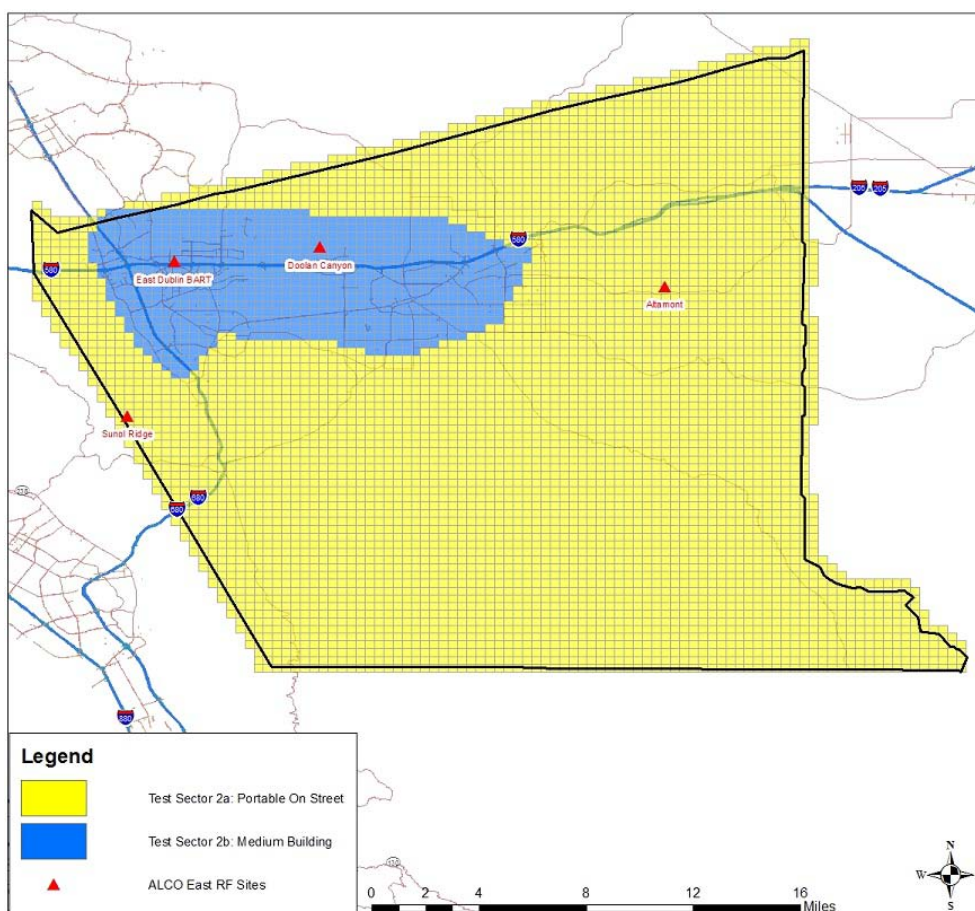


Figure 1 Test Sectors

The ALCO East area was divided into two sectors: in the developed areas around Livermore, Pleasanton, and Dublin, DAQ testing simulated a portable radio being used inside medium buildings (test sector 2b). In the rest of the area (test sector 2a), 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, 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 to determine if Motorola's system met the specifications, AECOM tested as much of the service area as possible for informational purposes.

For the system to meet the 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 99.8% of the tiles in the covered area passed.

Test Sector	Covered Area Reliability: Two-Way DAQ			
	Pass	Fail	Total	%
2a	436	1	437	99.8%
2b	535	1	536	99.8%

Table 1 Two Way DAQ Test Results

Based on the results of this testing, AECOM noted that this system has coverage greater than what is required by the specifications. Therefore, we recommend the acceptance of the Alameda County East Simulcast cell.

Figure 7-3
Alameda County East
Portable On Street - Sector 2a
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 score < 3 .

DESIGN:	GAD - 28 MARCH 2012
DRAWN:	GAD - 28 MARCH 2012
CHECKED:	MJL - 11 April 2012
APPROVED:	KAB - 11 April 2012

FILE NAME:
M:\Projects\Radio Projects\60091361_20175 EBRCSA\Task E.00 RaCE Testing\ALCO East\Maps\Report\results.mxd

REV	DATE	APPROVED BY



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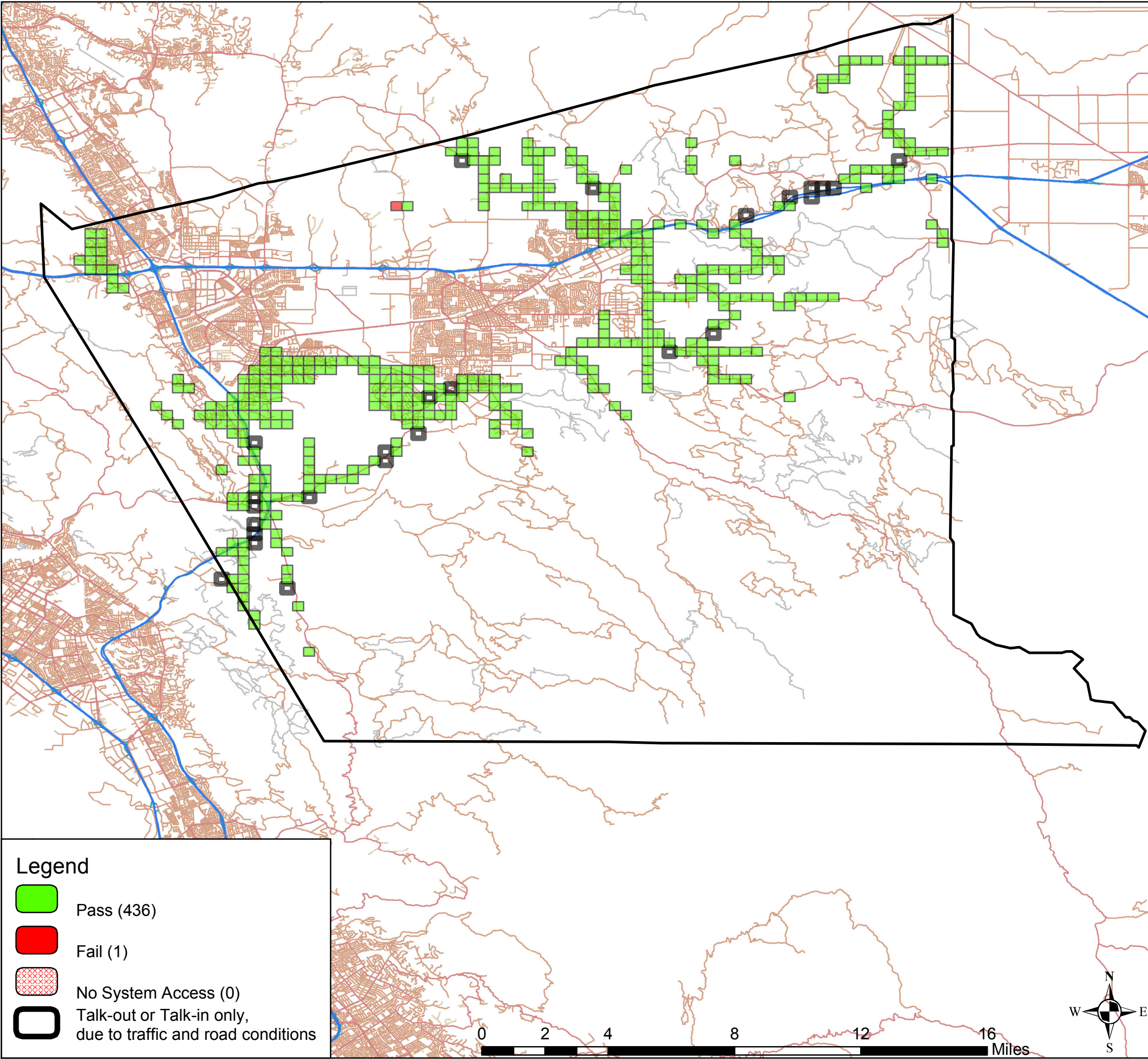


Figure 7-4
Alameda County East
Medium Building - Sector 2b
Two-way DAQ Test

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 .

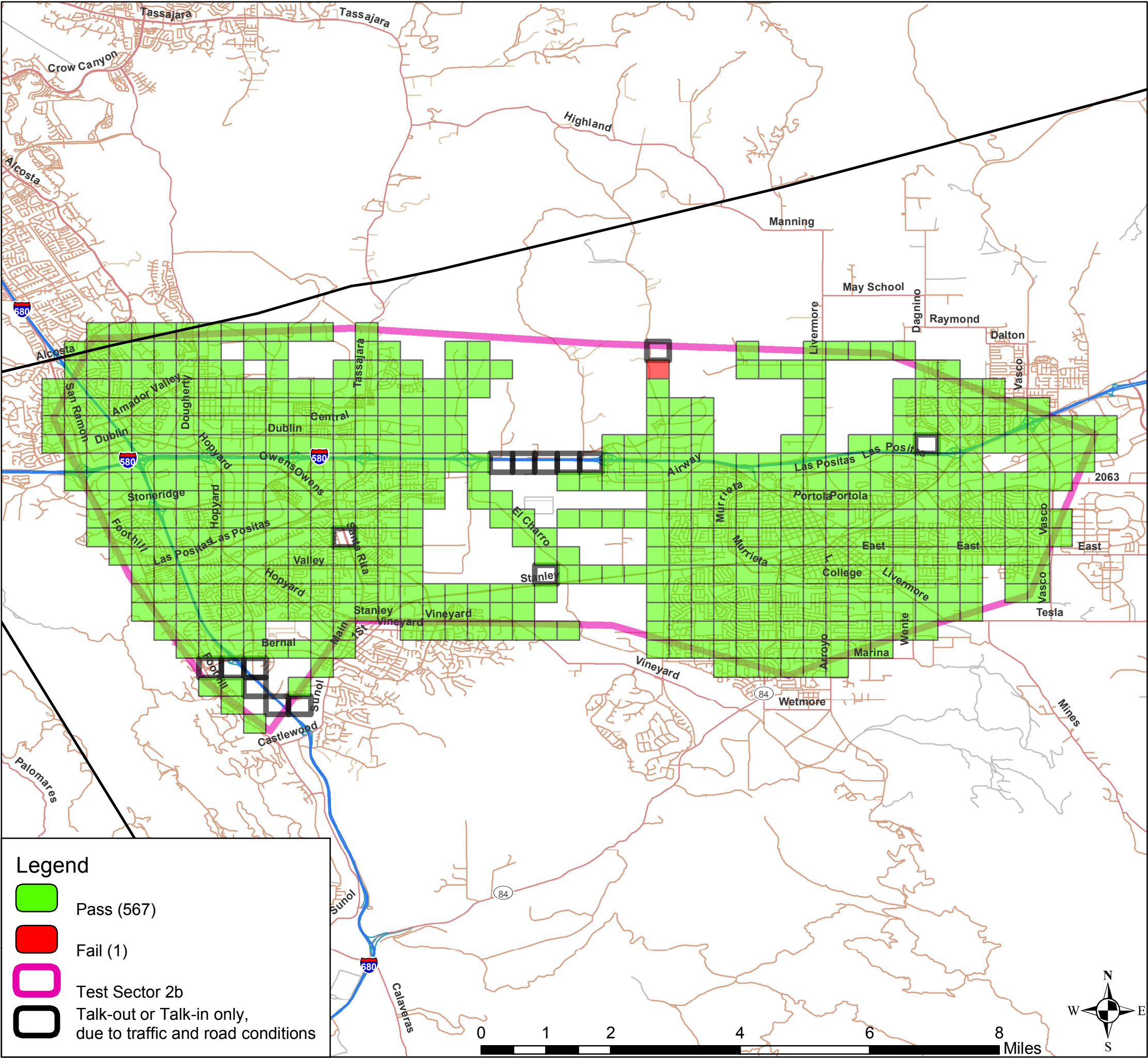
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