

**Costa Mesa General Plan
Update**

Vehicle Traffic Forecasts



Prepared for:
City of Costa Mesa

Prepared by:
Stantec Consulting Services Inc.

September 25, 2015 Draft

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**COSTA MESA GENERAL PLAN UPDATE
VEHICLE TRAFFIC FORECASTS**

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COSTA MESA GENERAL PLAN UPDATE VEHICLE TRAFFIC FORECASTS

1.0 Introduction

This report, prepared by Stantec Consulting Services Inc. (Stantec), summarizes the vehicle traffic data forecasts prepared as part of the City of Costa Mesa General Plan update. For the analysis, vehicle traffic generation estimates were calculated based on the existing land uses in the City as well as the land uses associated with buildout of the City's current General Plan and the proposed General Plan that is under consideration. The analysis also compares existing and future vehicle traffic volumes on the City's roadway system. Existing traffic volumes are based on observed traffic counts collected in 2012 and 2013 whereas future traffic volumes are based on buildout of the current and proposed General Plan were determined using the Costa Mesa Traffic Model (CMTM). The CMTM is derived from the Orange County Transportation Analysis Model, Version 3.4 (OCTAM 3.4), which is maintained by the Orange County Transportation Authority (OCTA). The CMTM has been certified by the OCTA as being consistent with the OCTAM regional model.

2.0 Citywide Land Use and Trip Generation

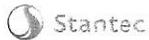
As part of the Costa Mesa General Plan update process, an inventory of the existing land uses in the City of Costa Mesa was compiled and the future land uses associated with the buildout of the current and proposed General Plan were determined. Average daily vehicle (ADT) trip generation estimates based on the existing and future land uses were calculated using vehicle trip generation rates from various sources, primarily the Institute of Transportation Engineers Trip Generation Manual (9th Edition). The trip generation rates are summarized in Table 2-1, and citywide existing and future (current and proposed General Plan) land use and ADT trip generation estimates are summarized in Table 2-2. Note that future land uses in Home Ranch under the current General Plan and in Sakioka Lot 2 under the current and propose General Plan are subject to the trip generation caps that have been established for those areas. Also note that the future trip generation growth assumed for Orange Coast College (OCC) is based on the recently adopted OCC Facilities Master Plan.

As indicated in Table 2-2, the ADT generated under the current and proposed General Plan is estimated to increase by 20.2% and 24.3%, respectively, over the City's existing ADT trip generation level. The land use and trip generation information presented here was also applied in the CMTM traffic model to forecast future traffic volumes on the City's roadway system. For the traffic model, the land use is specified according to the model's traffic analysis zone (TAZ) system. Figure 2-1 illustrates the trip generation difference by CMTM TAZ between existing conditions and buildout of the current General Plan, and Figure 2-2 illustrates the trip generation difference between buildout of the current General Plan and the proposed General Plan.

**COSTA MESA GENERAL PLAN UPDATE
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Table 2-1 Average Daily Traffic (ADT) Trip Generation Rates

Land Use Category	Units	Source	ADT Trip Rate
1. Low Density Residential	DU	ITE Category 210 Single Family Detached	9.52
2. Medium Density Residential	DU	Average of ITE Category 210 Single Family Detached and ITE Category 220 Apartments	8.09
3. High Density Residential	DU	ITE Category 220 Apartments	6.65
4. Higher Density Residential	DU	ITE Category 220 Apartments	6.65
5. Age Qualified Housing	DU	ITE Category 252 Senior Adult Housing - Attached	3.44
6. General Office	TSF	ITE Category 710 General Office Building	11.03
7. Medical Office	TSF	ITE Category 720 Medical-Dental Office Building	36.13
8. General Commercial	TSF	ITE Category 820 Shopping Center Equation for 200 TSF	53.28
9. Regional Commercial	TSF	ITE Category 820 Shopping Center Equation for 2000 TSF	23.80
10. Light Industrial	TSF	ITE Category 110 Light Industrial	6.97
11. Golf Course	Acre	ITE Category 430 Golf Course	5.04
12. Elementary/Middle School	Stu	ITE Category 520 Elementary School	1.29
13. High School	Stu	ITE Category 530 High School	1.71
14. College/University	Stu	ITE Category 540 Junior/Community College	1.23
15. Public Facility	Acre	ITE Category 411 City Park	1.89
16. Fairgrounds	Acre	OC Fairgrounds (Special Use)	12.30
17. Storage	TSF	ITE Category 151 Mini-Warehouse	2.50
18. City Hall	TSF	ITE Category 733 Government Office Complex	27.92
19. Performance Theater	TSF	Field Survey	1.23
20. Convalescent Care	Bed	ITE Category 254 Assisted Living	2.66
21. Hospital	Bed	ITE Category 610 Hospital	12.94
22. Hotel	Room	ITE Category 310 Hotel	8.17
23. Motel	Room	ITE Category 320 Motel	5.63
24. Auto Dealership	TSF	ITE Category 841 New Car Sales	32.30
25. Passive Park	Acre	ITE Category 411 City Park (ADT)	1.89
26. Agriculture	Acre	Assumed to be negligible	.00
27. Religious Facility	TSF	ITE Category 560 Church	9.11
28. Vacant	Acre	Assumed to be negligible	.00
29. Museum	TSF	ITE Category 590 Library	56.24
30. Home Ranch	TSF	ITE Category 710 General Office Building adjusted based on the established peak hour trip caps for Home Ranch	11.03



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**COSTA MESA GENERAL PLAN UPDATE
VEHICLE TRAFFIC FORECASTS**

Table 2-1 Average Daily Traffic (ADT) Trip Generation Rates (continued)

Land Use Category	Units	Source	ADT Trip Rate
31. Sakioka Lot 2	TSF	ITE Category 710 General Office Building adjusted based on the established peak hour trip caps for Sakioka Lot 2	11.03
32. OCC Master Plan	SG Unit	Special Generator (SG) rates based on trip generation estimates from the August 2015 Orange Coast College (OCC) Facilities Master Plan	144.96
Abbreviations: ADT – average daily traffic DU – dwelling unit ITE – Institute of Transportation Engineers Trip Generation Manual, 9th Edition TSF – thousand square feet			

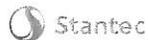


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**COSTA MESA GENERAL PLAN UPDATE
VEHICLE TRAFFIC FORECASTS**

Table 2-2 Costa Mesa Citywide Land Use and Trip Generation Summary

Land Use Category	Units	Existing		Current General Plan Buildout		Proposed General Plan Buildout	
		Amount	ADT	Amount	ADT	Amount	ADT
1. Low Density Residential	DU	14,210	135,290	14,788	140,789	14,791	140,817
2. Medium Density Residential	DU	4,370	35,349	4,791	38,758	4,792	38,766
3. High Density Residential	DU	23,593	156,896	28,830	191,720	32,695	217,423
5. Age Qualified Housing	DU	450	1,548	450	1,548	450	1,548
6. General Office	TSF	7,112	78,442	8,830	97,392	10,908	120,312
7. Medical Office	TSF	112	4,047	112	4,047	112	4,047
8. General Commercial	TSF	5,601	298,423	7,249	386,227	7,506	399,920
9. Regional Commercial	TSF	4,140	98,531	4,640	110,431	4,640	110,431
10. Light Industrial	TSF	13,087	91,217	13,108	91,365	13,078	91,156
11. Golf Course	Acre	535	2,696	535	2,696	535	2,696
12. Elementary/Middle School	Student	7,385	9,526	8,067	10,406	8,067	10,406
13. High School	Student	4,590	7,848	4,998	8,547	4,998	8,547
14. College/University	Student	25,990	31,968	26,186	32,209	26,186	32,209
15. Public Facility	Acre	176	336	176	336	203	387
16. Fairgrounds	Acre	150	1,845	150	1,845	150	1,845
17. Storage	TSF	1,171	2,931	877	2,196	877	2,196
18. City Hall	TSF	133	3,713	133	3,713	133	3,713
19. Performance Theater	TSF	585	720	691	850	691	850
20. Convalescent Care	Bed	448	1,191	448	1,191	448	1,191
21. Hospital	Bed	472	6,108	472	6,108	122	1,579
22. Hotel	Room	1,877	15,335	2,077	16,969	2,077	16,969
23. Motel	Room	2,272	12,793	2,272	12,793	946	5,327
24. Auto Dealership	TSF	491	15,860	491	15,860	491	15,860
25. Passive Park	Acre	592	1,122	592	1,122	592	1,122
26. Agriculture	Acre	72	0	--	--	--	--
27. Religious Facility	TSF	555	5,055	555	5,055	555	5,055
28. Vacant	Acre	18	0	6	0	6	0
29. Museum	TSF	--	--	140	7,874	140	7,874
30. Home Ranch Trip Cap	TSF	--	--	759	8,372	--	--



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**COSTA MESA GENERAL PLAN UPDATE
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Table 2-2 Costa Mesa Citywide Land Use and Trip Generation Summary (continued)

Land Use Category	Units	Existing		Current General Plan Buildout		Proposed General Plan Buildout	
		Amount	ADT	Amount	ADT	Amount	ADT
30. Home Ranch Trip Cap	TSF	--	--	759	8,372	--	--
31. Sakioka Lot 2 Trip Cap	TSF	--	--	862	9,508	862	9,508
32. OCC Master Plan	SG	--	--	100	14,496	100	14,496
Total Trip Generation			1,018,790		1,224,423		1,266,250
Total Trip Generation Difference (a)					205,633		247,460
Total Trip Generation Percent Difference (a)					20.2%		24.3%
(a) Compared to existing trip generation. Abbreviations: ADT – average daily traffic DU – dwelling unit TSF – thousand square feet							



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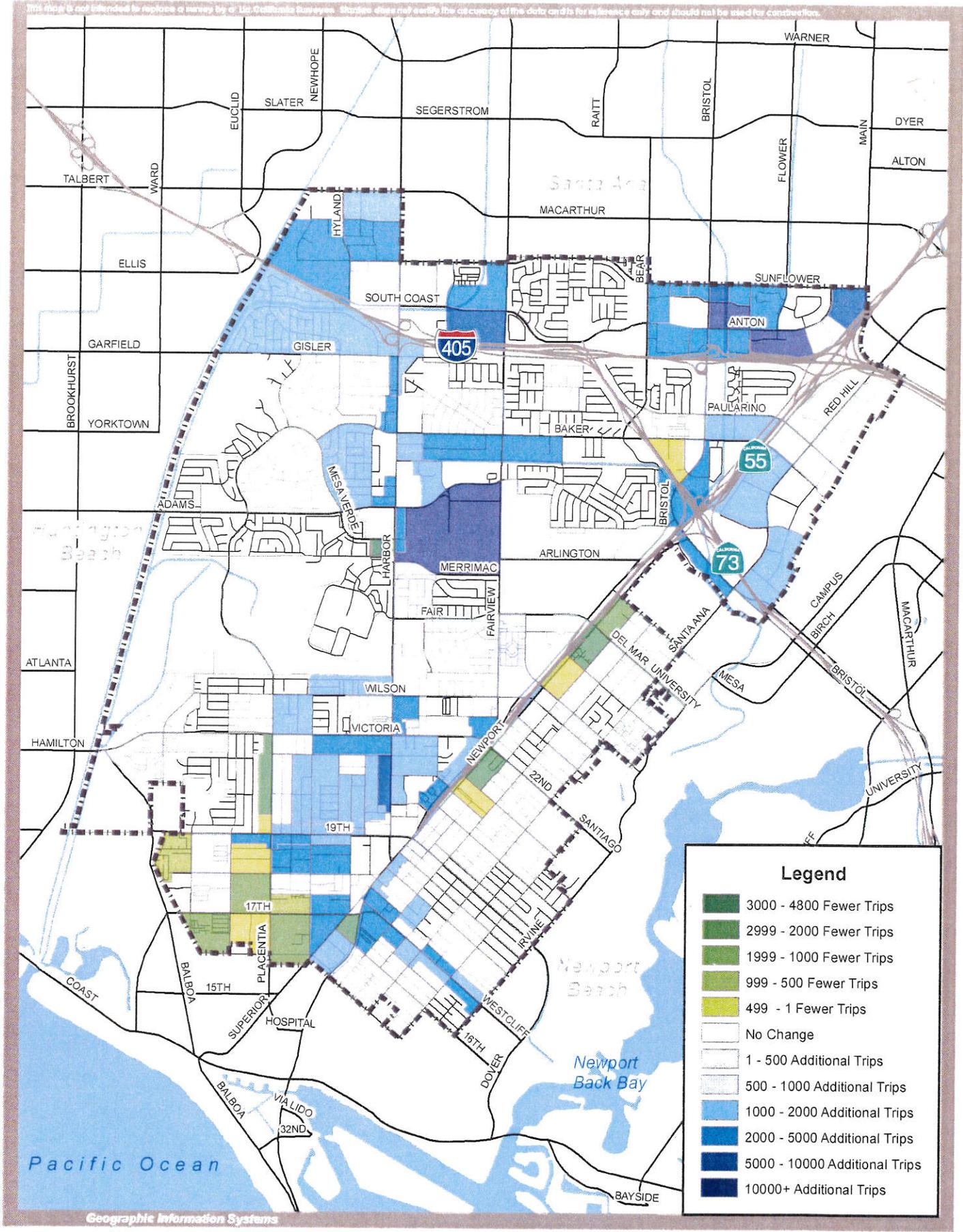
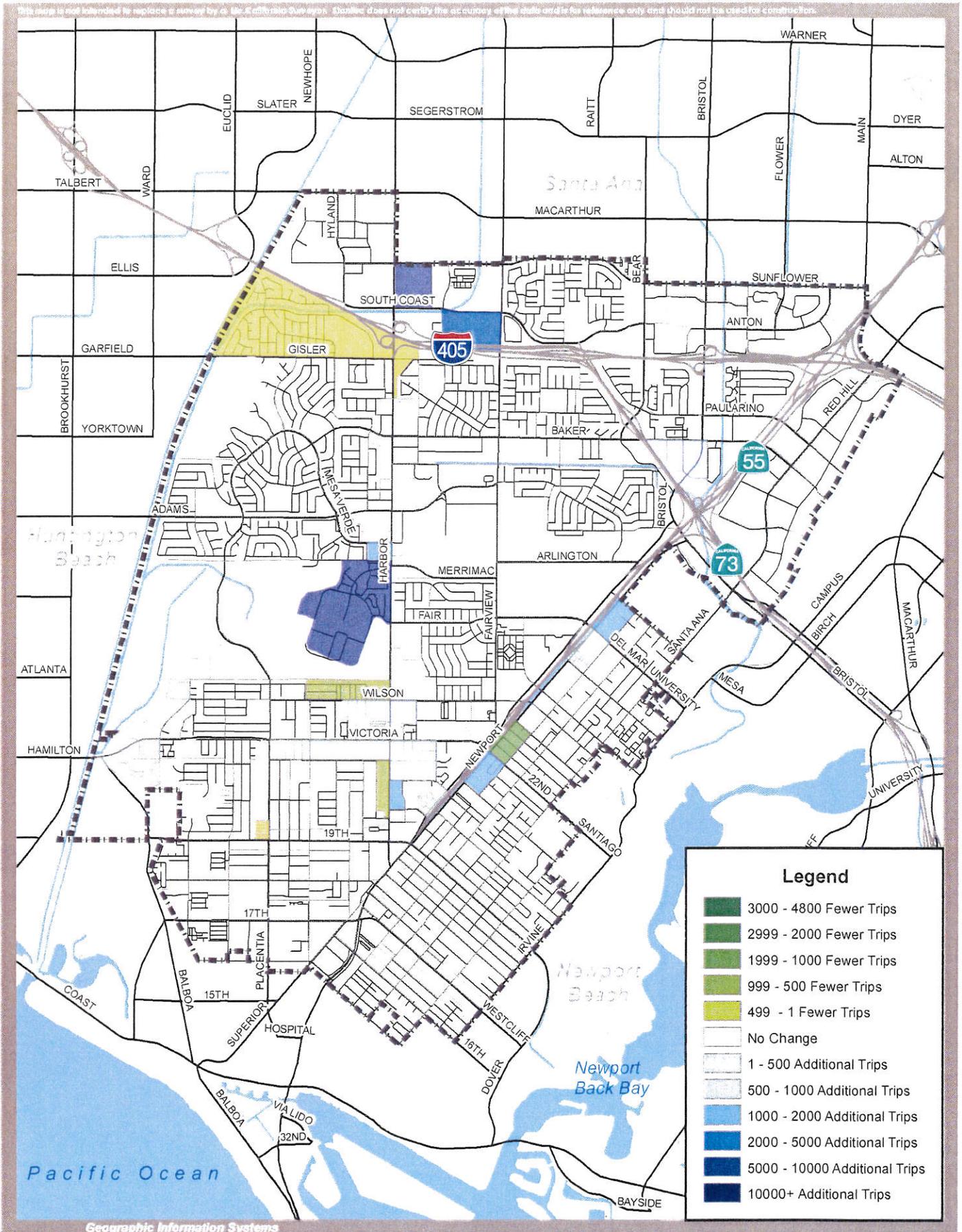


Figure 2-1
ADT Trip Generation Difference (Current General Plan Buildout vs. Existing Conditions)

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Geographic Information Systems



Figure 2-2 ADI Trip Generation Difference (Proposed General Plan Buildout vs. Current General Plan Buildout)

COSTA MESA GENERAL PLAN UPDATE VEHICLE TRAFFIC FORECASTS

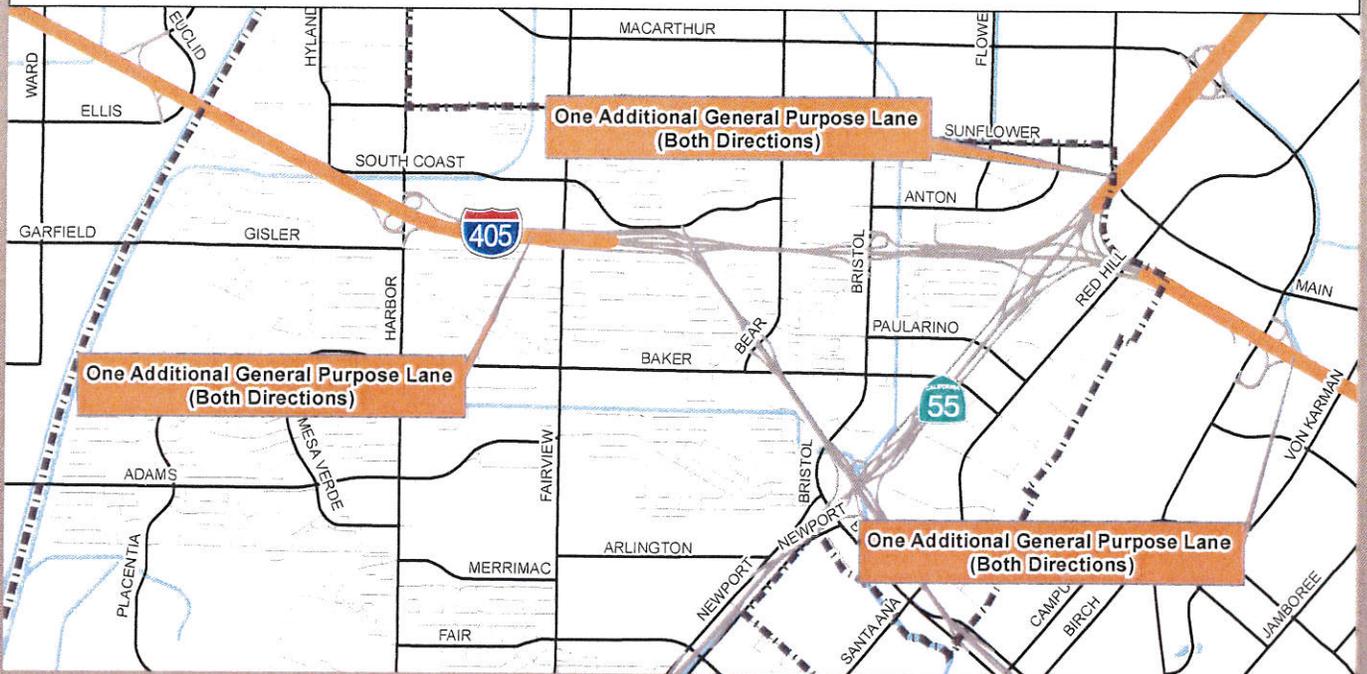
3.0 Existing and Future Traffic Volumes

Existing ADT volumes based on traffic counts collected in 2012 and 2013 for the City's roadway system are illustrated in Figure 3-1. Year 2035 ADT volumes in the City were forecast using the CMTM assuming the existing roadway in the City plus the planned improvements shown in Figure 3-2. Improvements planned on the City's arterial roadway network include adding a fourth northbound lane on Harbor Boulevard south of Sunflower Avenue and a fourth southbound lane on Newport Boulevard between 19th Street and 17th Street. Additional lanes planned on the I-405 and SR-55 Freeways as part of the OCTA Measure M2 funding program were also assumed. Year 2035 CMTM ADT volumes based on buildout of the current and proposed Costa Mesa General Plan are illustrated in Figures 3-3 and 3-4, respectively.

The differences in ADT volumes between existing conditions and 2035 current General Plan conditions are illustrated in Figure 3-5, and the differences in ADT volumes between 2035 current General Plan conditions and 2035 proposed General Plan conditions are illustrated in Figure 3-6.

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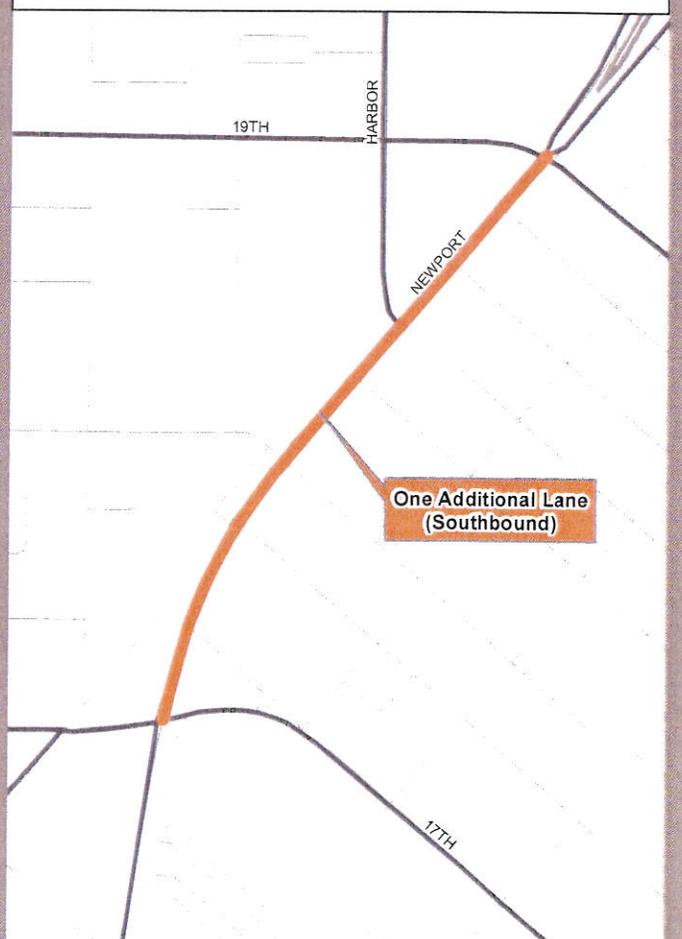
I-405 Widening (north of SR-73 & south of SR-55) & SR-55 Widening (East of I-405)



Harbor Boulevard Widening (Law Court to Sunflower Ave)



Newport Boulevard Widening (19th St to 17th St)



Geographic Information Systems



Figure 3-2
2035 Circulation System Improvements

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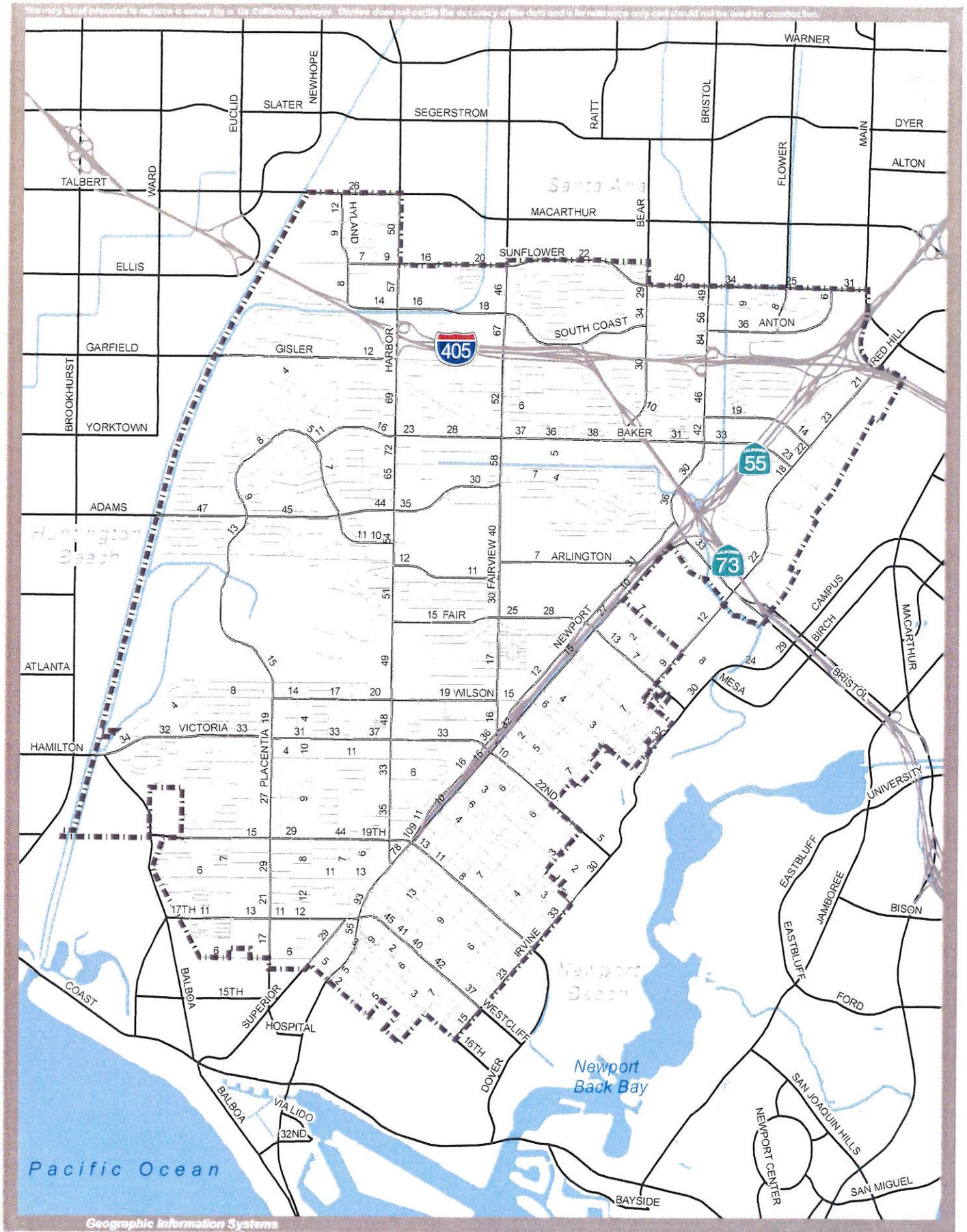


Figure 3-3

2035 Current General Plan ADT Volumes (000)

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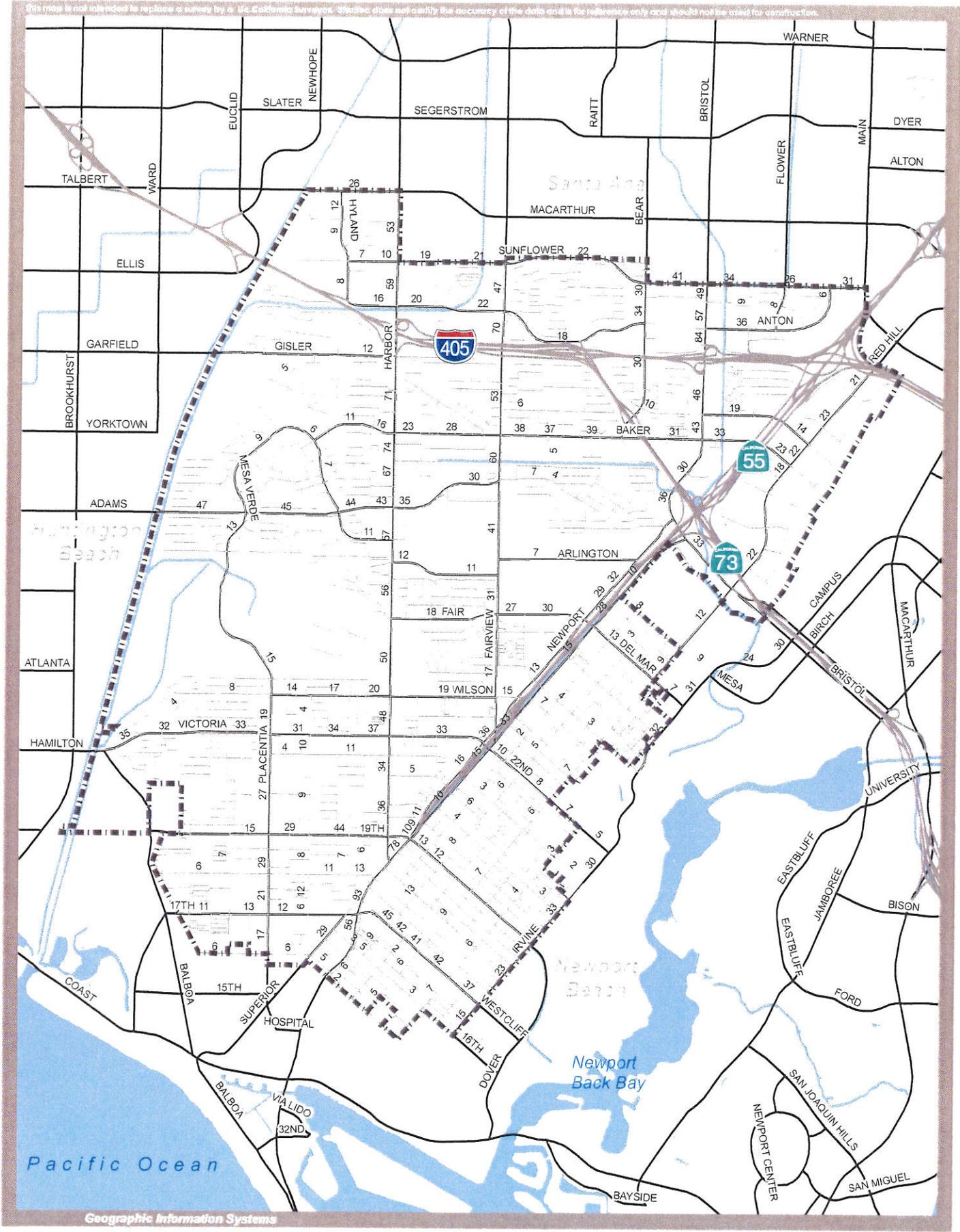


Figure 3-4
2035 Proposed General Plan AOF Volumes (000s)

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Figure 3-5
ADT Volume Difference (Current General Plan Buildout vs. Existing Conditions)

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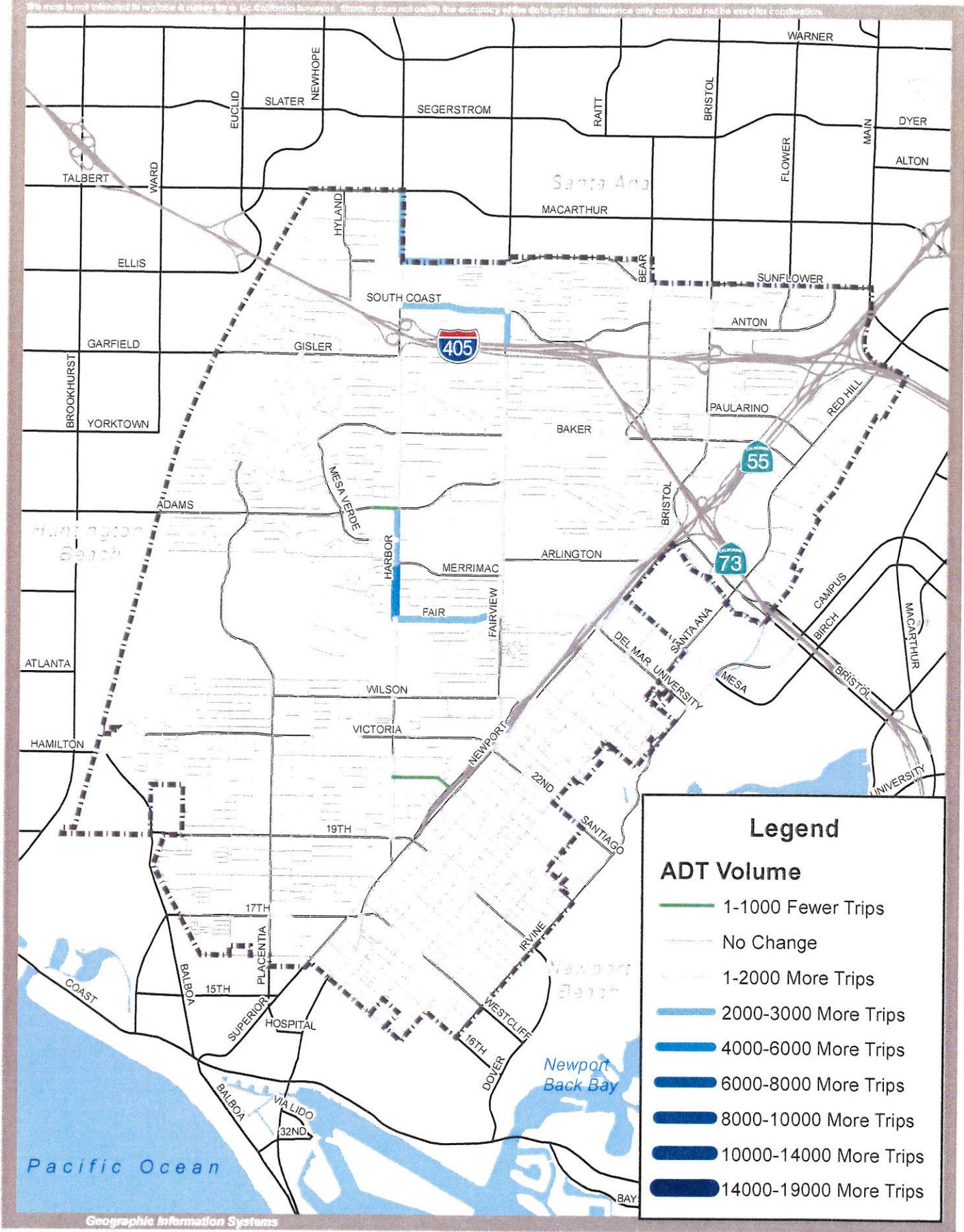


Figure 3-6
ADT Volume Difference (Proposed General Plan Buildout vs. Current General Plan Buildout)