August 2014 | Final Environmental Impact Report and Response to Comments

HARBOR BOULEVARD MIXED USE TRANSIT CORRIDOR PLAN

for City of Santa Ana

Prepared for:

City of Santa Ana
Contact: Melanie G. McCann, AICP
Associate Planner
20 Civic Center Plaza, M-20
Santa Ana, California 92701
714.667.2746

Prepared by:

PlaceWorks
Contact: Nicole Morse, Esq.
Associate Principal
3 MacArthur Place, Suite 1100
Santa Ana, California 92707
714.966.9220
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

APPENDICES

Table of Contents

LIST OF FIGURES

LIST OF TABLES

1. Introduction

1.1 INTRODUCTION

This Final Environmental Impact Report (FEIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code Section 21000 et seq.) and CEQA Guidelines (California Administrative Code Section 15000 et seq.).

According to CEQA Guidelines, Section 15132, the FEIR shall consist of:

(a) The Draft Environmental Impact Report (DEIR) or a revision of the Draft;

(b) Comments and recommendations received on the DEIR either verbatim or in summary;

(c) A list of persons, organizations, and public agencies comments on the DEIR;

(d) The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and

(e) Any other information added by the Lead Agency.

This document contains responses to comments received on the DEIR for the Harbor Boulevard Mixed Use Transit Corridor Plan during the public review period, which began April 18, 2014, and closed June 2, 2014. This document has been prepared in accordance with CEQA and the CEQA Guidelines and represents the independent judgment of the Lead Agency. This document and the circulated DEIR comprise the FEIR, in accordance with CEQA Guidelines, Section 15132.

1.2 FORMAT OF THE FEIR

This document is organized as follows:

Section 1, Introduction. This section describes CEQA requirements and content of this FEIR.

Section 2, Response to Comments. This section provides a list of agencies and interested persons commenting on the DEIR; copies of comment letters received during the public review period, and individual responses to written comments. A public hearing was held by the City on May 12, 2014 at a regularly scheduled Planning Commission Hearing to receive public comment on the DEIR. None of the comments received during the public hearing addressed the DEIR analysis or other environmental analysis. Therefore, no responses were provided for the May 12, 2014 public testimony as part of this FEIR. To facilitate review of the responses, each comment letter has been reproduced and assigned a number (A-1 through A-11 for letters received from agencies and organizations; no letters were received from residents).

Individual comments have been numbered for each letter and the letter is followed by responses with references to the corresponding comment number.

Section 3. Revisions to the Draft EIR. This section contains revisions to the DEIR text and figures as a result of the comments received by agencies and interested persons as described in Section 2, and/or errors and omissions discovered subsequent to release of the DEIR for public review.

The responses to comments contain material and revisions that will be added to the text of the FEIR. City of Santa Ana staff has reviewed this material and determined that none of this material constitutes the type of significant new information that requires recirculation of the DEIR for further public comment under CEQA Guidelines Section 15088.5. None of this new material indicates that the project will result in a significant new environmental impact not previously disclosed in the DEIR. Additionally, none of this material indicates that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation described in Section 15088.5.

1.3 CEQA REQUIREMENTS REGARDING COMMENTS AND RESPONSES

CEQA Guidelines Section 15204 (a) outlines parameters for submitting comments, and reminds persons and public agencies that the focus of review and comment of DEIRs should be "on the sufficiency of the document in identifying and analyzing possible impacts on the environment and ways in which significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects. At the same time, reviewers should be aware that the adequacy of an EIR is determined in terms of what is reasonably feasible.…CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR."

CEQA Guidelines Section 15204 further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence." Section 15204(d) also states, "Each responsible agency and trustee agency shall focus its comments on environmental information germane to that agency's statutory responsibility." Section 15204 states, "This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

In accordance with CEQA, Public Resources Code Section 21092.5, copies of the written responses to public agencies will be forwarded to those agencies at least 10 days prior to certifying the environmental impact report. The responses will be forwarded with copies of this FEIR, as permitted by CEQA, and will conform to the legal standards established for response to comments on DEIRs.

2. Response to Comments

Section 15088 of the CEQA Guidelines requires the Lead Agency (City of Santa Ana) to evaluate comments on environmental issues received from public agencies and interested parties who reviewed the DEIR and prepare written responses.

This section provides all written responses received on the DEIR and the City of Santa Ana's responses to each comment. Comment letters and specific comments are given letters and numbers for reference purposes. Where sections of the DEIR are excerpted in this document, the sections are shown indented. Changes to the DEIR text are shown in underlined text for additions and ~~strikeout~~ for deletions.

The following is a list of agencies and persons that submitted comments on the DEIR during the public review period.

2. Response to Comments

This page intentionally left blank.

LETTER A1 – City of Fountain Valley (1 page)

CITY OF FOUNTAIN VALLEY

10200 SLATER AVENUE • FOUNTAIN VALLEY, CA 92708-4736 • (714) 593-4400, FAX: (714) 593-4498

May 29, 2014

Mr. Sergio Klotz, AICP
City of Santa Ana, Planning & Building Agency
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

RE: Draft Environmental Impact Report for the Harbor Boulevard Mixed Use Corridor Plan

Dear Mr. Klotz:

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) prepared for the Harbor Boulevard Mixed Use Corridor Plan. The proposed project includes 425 acres along Harbor Boulevard. The southern end of the project area is adjacent to the City of Fountain Valley.

The City of Fountain Valley has the following comments pertaining to the DEIR:

1. On page 5.13.21 in Table 5.13.12, the intersections of Euclid/Edinger and Newhope/Edinger show improved levels of service (LOS) with the project during the Future Year 2035 scenarios. While the City recognizes there is the potential for improved LOS when providing elements that encourage alternative modes of transportation, as this project does, the City requests a detailed explanation as to why these intersections improve with the project. A1-1

2. On page 5.13.21 in Table 5.13.12, the City requests an explanation as to why the intersection of Harbor/Heil was not analyzed. A1-2

Once again, thank you for the opportunity to comment on the Draft Environmental Impact Report. We look forward to receiving responses to comments noted above. If you have any questions, please give me a call at 714-593-4426.

Sincerely,

Andrew Perea
Planning & Building Director

C: Public Works Director
Deputy City Engineer

2. Response to Comments

This page intentionally left blank.

A1. Response to Comments from Andrew Perea, Planning & Building Director, dated May 29, 2014.

A1-1 Future 2035 No Project and With Project volumes were derived based on the existing peak hour count data and forecast link volumes obtained from the Orange County Transportation Model (OCTAM 3.4). Growth factors for each intersection approach and departure were interpolated with OCTAM 3.4 link plots for 2010 and 2035. These growth factors where then applied to existing counts in order to forecast future turning movement volumes at each of the study intersections.

The volume-to-capacity (V/C) and level of service (LOS) for the intersections of Euclid/Edinger (#3) and Newhope/Edinger (#8) decrease slightly in the With Project Condition, as shown in Table 1.

Table 1. Future Year 2035 With Project Intersection LOS – PM Peak Hour

Intersection		No Project		With Project		Change in V/C	Project Impact
		V/C	LOS	V/C	LOS		
3	Euclid St and Edinger Ave	0.901	**E**	0.891	D	-0.010	No
8	Newhope St and Edinger Ave	0.791	C	0.754	C	-0.037	No

The decrease is a result of slightly lower forecast growth in the east leg approach at Euclid/Edinger and in the west leg departure at Newhope/Edinger for the With Project scenario when compared to the No Project scenario. This translates to slightly lower westbound through volumes at both intersections, resulting in a lower V/C. Traffic worksheets for these intersections are included in Appendix A of this FEIR. Tables 2 and 3 show the No Project and With Project model growth for these intersections during the PM peak hour. OCTAM plots showing the link volumes are provided in the Appendix C of the traffic study (in Appendix H of the DEIR).

Table 2. 2035 No Project Model Growth – PM Peak

No.	Intersection	South Leg		Northleg		West Leg		East Leg	
		App	Dep	App	Dep	App	Dep	App	Dep
3	Euclid St and Edinger Ave	100.9%	100.5%	100.3%	101.3%	99.8%	100.1%	100.6%	99.6%
8	Newhope St and Edinger Ave	99.7%	99.5%	99.3%	99.9%	99.5%	100.4%	100.5%	99.5%

Table 3. 2035 With Project Model Growth – PM Peak

No.	Intersection	South Leg		Northleg		West Leg		East Leg	
		App	Dep	App	Dep	App	Dep	App	Dep
3	Euclid St and Edinger Ave	100.8%	100.6%	100.4%	101.3%	99.9%	100.0%	100.4%	99.6%
8	Newhope St and Edinger Ave	99.5%	99.9%	99.5%	100.0%	99.5%	100.2%	100.5%	99.6%

2. Response to Comments

A1-2 The traffic impact analysis included the assessment of signalized intersections along Harbor Boulevard within the boundaries of the Specific Plan and the adjacent arterial street to arterial street intersections along east-west corridors that pass through the Specific Plan boundaries. Beyond the Specific Plan boundaries on Harbor Blvd, the primary distribution of traffic is north-south along Harbor Boulevard. Therefore, the analysis focuses on traffic conditions at intersections of Harbor Blvd and cross-streets that are designed as Primary Arterials or higher. Higher numbers of turning movements were not forecast at minor streets such as Heil (classified as a secondary arterial).

For the intersection of Harbor and Heil, volumes are forecast to increase along Harbor in this segment, but the forecast increase in 2035 is generally less than 5 percent and would not be expected to result in an impact. For example, no impacts are forecast at Harbor and Warner and Harbor and Edinger. Therefore, no new significant impacts are anticipated.

LETTER A2 –City of Garden Grove (2 pages)

From: Tony Aquino [mailto:tony1@ci.garden-grove.ca.us]
Sent: Monday, June 02, 2014 8:48 AM
To: Klotz, Sergio
Subject: City of Santa Ana Harbor Blvd. Mixed Use Transit Corridor Plan - Draft EIR

Dear Mr. Klotz,

I have reviewed the Harbor Corridor Specific Plan - Traffic Impact Study and have these comments: A2-1

1. Please provide information as to why the signalized intersection of Harbor and Cardinal which is between Westminster and Trask was not included in the study.

2. The intersection geometry of Harbor and Trask is not correct. We currently have dual right turns, one single thru lane, and one left turn lane for westbound Trask at Harbor. A2-2

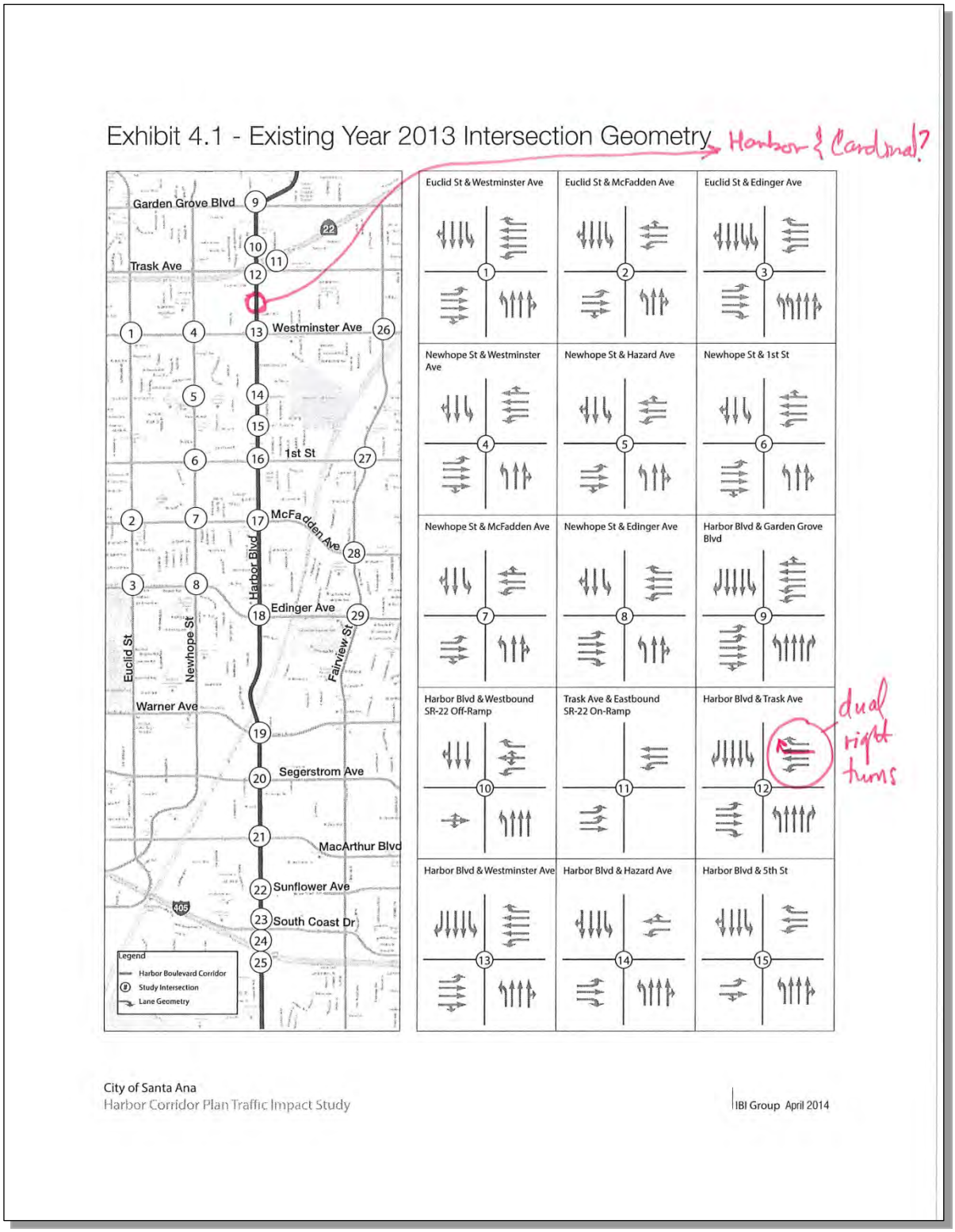
Please see attached. If you have any questions, please contact me.

Sincerely,

Tony Aquino, P.E.
Acting City Traffic Engineer
City of Garden Grove
Public Works Dept.
(714) 741-5193

1

2. Response to Comments



A2. Response to Comments Tony Aquino, P.E., Acting City Traffic Engineer, dated June 2, 2014.

A2-1 The traffic impact analysis included the assessment of signalized intersections along Harbor Boulevard within the boundaries of the Specific Plan and the adjacent arterial street to arterial street intersections along east-west corridors that pass through the Specific Plan boundaries. Beyond the Specific Plan boundaries on Harbor Blvd, the primary distribution of traffic is north-south along Harbor Boulevard. Therefore, the analysis focuses on traffic conditions at intersections of Harbor Blvd and cross-streets that are designed as Primary Arterials or higher. Higher numbers of turning movements were not forecast at minor streets such as Cardinal (classified as a local street).

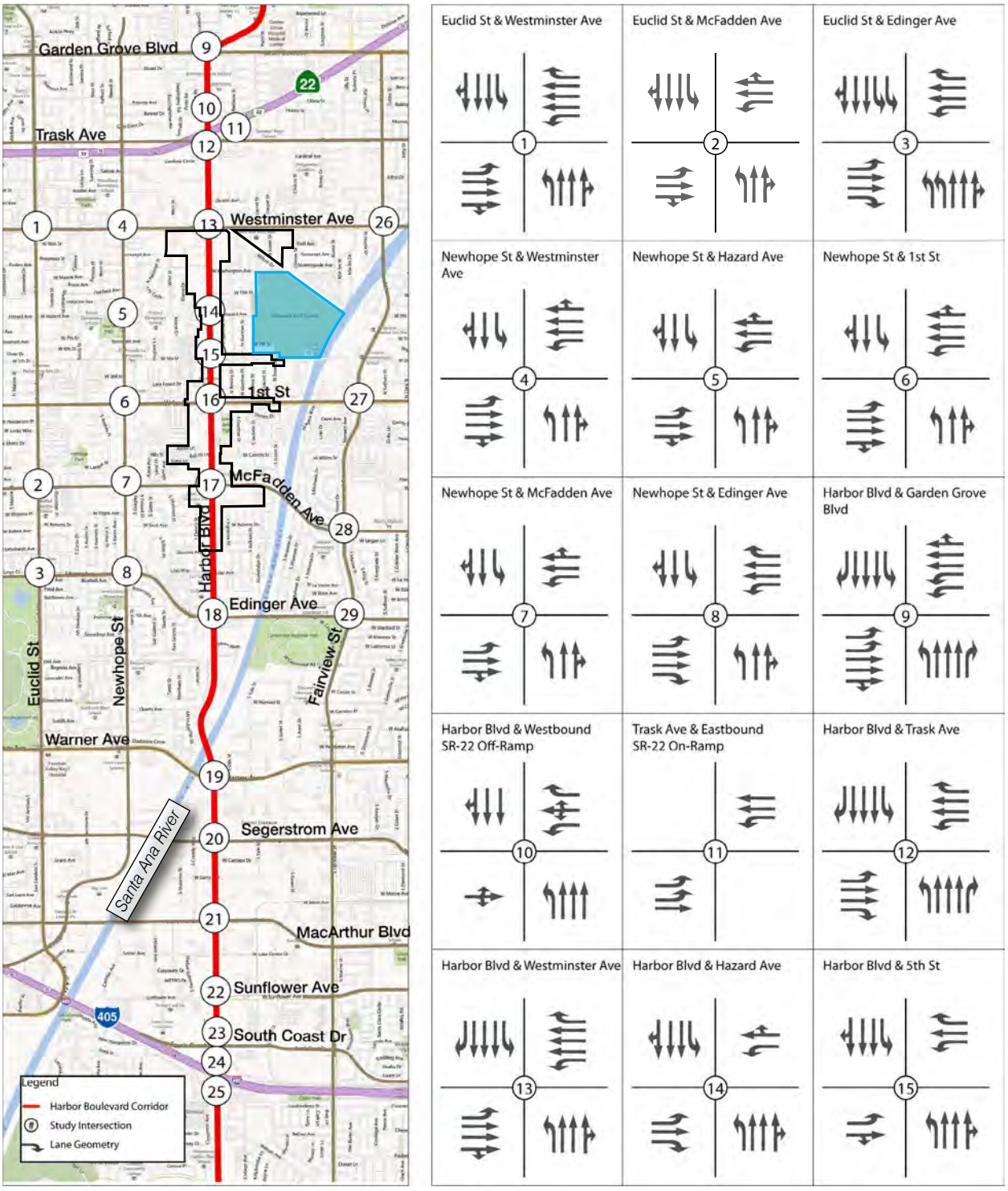
At the intersection of Harbor and Cardinal, the through volumes on Harbor for the 2035 with project conditions are generally forecast to be lower than the no project condition, based on the changes to trip generation and trip distribution with the proposed change in land use. Therefore, no new significant impacts are anticipated.

A2-2 Per the comment, the geometry at Harbor and Trask has been revised (see Figure 5.13-1, *Study Area Intersections and Existing Turn Lane Geometries*). The revisions at Harbor/Trask would improve LOS for both the No Project and With Project scenarios, which would reduce any potential impacts. There was no impact identified at this intersection and therefore no changes to the analysis or conclusions are required.

2. Response to Comments

This page intentionally left blank.

Figure 5.13-1 Study Area Intersections and Existing Turn Lane Geometries
5. Environmental Analysis



Harbor Mixed Use Transit Corridor Plan

Conventional Zoning

0 1
Scale (Miles)

Basemap Source: IBI Group 2013

2. Response to Comments

This page intentionally left blank.

LETTER A3– Department of Transportation, District 12 (CalTrans) (2 pages)

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 12
3347 MICHELSON DRIVE, SUITE 100
IRVINE, CA 92612-8894
PHONE (949) 724-2086
FAX (949) 724-2592
TTY 711
www.dot.ca.gov

Serious drought. Help save water!

May 12, 2014

MAY 15 2014

Mr. Sergio Klotz AICP,
Principal Planner
City of Santa Ana
20 Civic Center Plaza M-20
Santa Ana, CA. 92701

File: IGR/CEQA
SCH#: None
Log #: 3309A
SR-22

Dear Mr. Klotz:

Thank you for the opportunity to review and comment on **Draft Environmental Impact Report for the Harbor Boulevard Mixed Use Transit Corridor Plan**. The Harbor Boulevard Mixed Use Transit Corridor Plan would replace the existing 425-acre North Harbor Specific Plan ("NHSP"). The plan would change the boundaries of the NHSP so that the project would consist of two separate areas: 1) 305 acres within the boundaries of the existing 425-acre NHSP generally along Harbor Boulevard ("Harbor Corridor Plan" or "Specific Plan"), and 2) 120 acres within the existing NHSP in the Willowick Golf Course area (or "Conventional Zoning Area"). Both of these areas constitute the "project" for purposes of CEQA.

The Harbor Corridor Plan would allow up to 4,623 dwelling units and 1,954,261 square feet of commercial units within four zones: Transit Node (TN), Corridor (CDR), Neighborhood Transitional (NT), and Open Space (OS). Build out would allow for a net increase of 3,884 dwelling units and 13,721 square feet of commercial uses. The Conventional Zoning area would be removed from the NHSP and redesignated to match the existing land uses. The intensity of development is not expected to change and build out would match the existing uses with 92 dwelling units and 3,700 square feet of commercial.

The Department of Transportation (Department) is a commenting agency on this project and has the following comment for your consideration.

The Department supports Environmental Impact Reports that foster a more efficient land use pattern that (a) supports improved mobility and reduced dependency on single-occupant vehicle trips, (b) accommodates an adequate supply of housing for all incomes, (c) reduces impacts on valuable habitat, productive farmland, and air quality, (d) increases resources use efficiency, and (e) results in safe and vibrant neighborhood. The Department recognizes that non-motorized travel is a vital element of the transportation

A3-1

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

2. Response to Comments

system and therefore, encourages communities to make pedestrian and bicycle activity possible, thus expanding transportation options, and creating a streetscape that better serves a range of users, including pedestrians, bicyclists, transit riders and automobiles.

A3-1 cont'd

Please continue to keep us informed of this project and any future developments that could potentially impact State transportation facilities. If you have any questions or need to contact us, please do not hesitate to call Aileen Kennedy at (949) 724-2239.

Sincerely,

MAUREEN EL HARAKE
Branch Chief, Regional-Community-Transit Planning
District 12

c: Saied Hashemi, Traffic Operations North

A3. Response to Comments from Maureen El Harake, Branch Chief, Regional-Community-Transit Planning, dated May 8, 2014.

A3-1 The commenter states that the Department of Transportation supports EIRs that foster more efficient land use patterns and multimodal transportation and requests to be informed of future developments of the project. No response is necessary.

2. Response to Comments

This page intentionally left blank.

LETTER A4 – The Kennedy Commission (4 pages)

THE Kennedy COMMISSION

May 30, 2014

www.kennedycommission.org
17701 Cowan Ave., Suite 200
Irvine, CA 92614
949 250 0909
Fax 949 263 0647

Mr. Sergio Klotz, Principal Planner
City of Santa Ana
Planning and Building Agency
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

RE: Comments on Harbor Blvd. Mixed Use Transit Corridor Plan Draft EIR- April 2014

Dear Mr. Klotz,

The Kennedy Commission (the Commission) is a broad based coalition of residents and community organizations that advocates for the production of homes affordable for families earning less than $20,000 annually in Orange County. Formed in 2001, the Commission has been successful in partnering and working with jurisdictions in Orange County to create strategic and effective housing and land-use policies that has led to the new construction of homes affordable to lower income work-force families.

The Commission would like to commend the City for its leadership in encouraging and facilitating the development of homes affordable to lower income working families in the Harbor Boulevard Mixed Use Transit Corridor Plan (Harbor Corridor Plan). Locating homes, especially affordable homes, near job centers mass transit and neighborhood amenities will create a more walkable, healthier and sustainable Santa Ana. **As the City moves forward with the implementation of the plan, the Commission strongly urges the City to continue to make the development of homes affordable to lower income working families a priority at the Harbor Corridor Plan.**

With high housing costs and significant lack of affordable homes, many workers and families, especially those who earn lower wages, struggle financially to live close to where they work. These impacts not only hurt workers and families but it may also have negative environmental impacts to the City.

A4-1

By living in an affordable home development that's near transit services, many residents, especially lower income working residents, can rely on the local bus service and Bus Rapid Transit for their commute to and from work and to other destinations. Residents and workers will become less dependent on driving their automobile and it can help decrease the environmental impacts of traffic congestion, vehicle miles travelled (VMT) and greenhouse gas emissions. Addressing these environmental impacts will also align with the Sustainable Communities and Climate Protection Act of 2008 (SB 375) and help the City implement and comply with the goals of SB 375.

Working for systemic change resulting in the production of homes affordable to Orange County's extremely low-income households

2. Response to Comments

Mr. Sergio Klotz
May 30, 2014
Page 2 of 2

The Commission looks forward to continuing our partnership with the City to increase affordable home opportunities for lower income working families. If there are any questions, please feel free to contact me at (949) 250-0909 or cesarc@kennedycommission.org.

A4-1 cont'd

Sincerely,

Cesar Covarrubias
Executive Director

cc: Paul McDougall, California Housing and Community Development Department

May 30, 2014

THE Kennedy COMMISSION

www.kennedycommission.org
17701 Cowan Ave., Suite 200
Irvine, CA 92614
949 250 0909
Fax 949 263 0647

Mr. Sergio Klotz, Principal Planner
City of Santa Ana
Planning and Building Agency
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

RE: Comments on Harbor Blvd. Mixed Use Transit Corridor Plan - April 2014

Dear Mr. Klotz,

The Kennedy Commission (the Commission) is a broad based coalition of residents and community organizations that advocates for the production of homes affordable for families earning less than $20,000 annually in Orange County. Formed in 2001, the Commission has been successful in partnering and working with jurisdictions in Orange County to create strategic and effective housing and land-use policies that has led to the new construction of homes affordable to lower income work-force families.

The Commission would like to commend the City for its leadership in encouraging and facilitating the development of homes affordable to lower income working families in the Harbor Boulevard Mixed Use Transit Corridor Plan (Harbor Corridor Plan). **As the City moves forward with the implementation of the plan, the Commission strongly urges the City to continue to make the development of homes affordable to lower income working families a priority at the Harbor Corridor Plan.**

A4-1 cont'd

At build out, the Harbor Corridor Plan projects a development potential increase of 3,884 residential homes.[1] **The proposed plan presents a great opportunity for the City to create more homes, especially affordable homes for lower income working families in the City. More importantly, the development of affordable homes in the plan can be counted towards the City's lower income Regional Housing Needs Assessment (RHNA).** Earlier this year, the California Department of Housing and Community Development found the City's 2014-2021 Housing Element in compliance but was contingent on:

> "…Santa Ana's commitment to rezone sites to address the shortfall of sites for lower income households from the 2008-2013 planning period. Program 19 commits the City to rezone at least 10.1 acres to residential/mixed use by October 2014 allowing for multifamily uses by-right with minimum densities of 20 units per acre to address the identified shortfall of 201 units."[2]

[1] Harbor Mixed Use Transit Corridor Specific Plan Public Review Draft, p. 1-2, April 2014.
[2] Letter from the Department of Housing and Community Development to the City of Santa Ana, p.1, January 27, 2014.

2. Response to Comments

To address the shortfall, the City identified the Harbor Corridor Plan as a potential housing opportunity site[3] and committed to rezoning the plan that will help accommodate the City's 2008-2014 RHNA carryover/ shortfall (111 very low-income and 90 low-income homes) and the current 2014-2021 RHNA housing needs (45 very low-income and 32 low-income homes).[4]

A4-1 cont'd

The Commission looks forward to continuing our partnership with the City to increase affordable home opportunities for lower income working families. If there are any questions, please feel free to contact me at (949) 250-0909 or cesarc@kennedycommission.org.

Sincerely,

Cesar Covarrubias
Executive Director

cc: Paul McDougall, California Housing and Community Development Department

[3] City of Santa Ana General Plan Housing Element 2014-2021, p. C-11, January 2014.
[4] City of Santa Ana General Plan Housing Element 2014-2021, p. A-34, January 2014.

A4. Response to Comments from Cesar Covarrubias, Executive Director, dated May 30, 2014.

A4-1 The commenter commends the City for its efforts in encouraging and facilitating the development of affordable homes. No response is necessary.

2. Response to Comments

This page intentionally left blank.

LETTER A5 – Native American Heritage Commission (4 pages)

SATE OF CALIFORNIA — Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3715
Fax (916) 373-5471
Web Site www.nahc.ca.gov
Ds_nahc@pacbell.net
e-mail: ds_nahc@pacbell.net

January 15, 2014

Mr. Sergio Klotz, AICP, Planner
CITY OF SANTA ANA
20 Civic Center Plaza
Santa Ana, CA 92701

RE: SCH#2013061027 CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the **"Santa Ana Harbor Boulevard Mixed-Use Transit Corridor Plan Project;"** located in the City of Santa Ana; Orange County, California

Dear Mr. Klotz:

The Native American Heritage Commission (NAHC) has reviewed the above-referenced environmental document. This project is also subject to California Government Code Sections 65040.2, 65352/3, *et seq.* (SB 18)

The California Environmental Quality Act (CEQA) states that any project which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064.5(b). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required: A5-1

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, pursuant to California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Also, California Public Resources Code Section 21083.2 require documentation and analysis of archaeological items that meet the standard in Section 15064.5 (a)(b)(f).

We suggest that this (additional archaeological activity) be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. Any information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant A5-2

2. Response to Comments

to California Government Code Section 6254.10.

A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources.

California Government Code Section 65040.12(e) defines "environmental justice" to provide "fair treatment of People…with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies." (The California Code is consistent with the Federal Executive Order 12898 regarding 'environmental justice.' Also, applicable to state agencies is Executive Order B-10-11 requires consultation with Native American tribes their elected officials and other representatives of tribal governments to provide meaningful input into the development of legislation, regulations, rules, and policies on matters that may affect tribal communities. A5-3

Lead agencies should consider first, avoidance for sacred and/or historical sites, pursuant to CEQA Guidelines 15370(a). Then if the project goes ahead then, lead agencies include in their mitigation and monitoring plan provisions for the analysis and disposition of recovered artifacts, pursuant to California Public Resources Code Section 21083.2 in consultation with culturally affiliated Native Americans. A5-4

Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery. A5-5

Sincerely,

Dave Singleton
Program Analyst

CC: State Clearinghouse

Attachment: Native American Contacts list

Native American Contacts
Orange County California
April 23, 2014

Juaneno Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capistrano CA 92675
chiefdavidbelardes@yahoo.
(949) 493-4933 - home
(949) 293-8522

Juaneno Band of Mission Indians Acjachemen Nation
Teresa Romero, Chairwoman
31411-A La Matanza Street Juaneno
San Juan Capistrano CA 92675-2674
(949) 488-3484
(949) 488-3294 - FAX
(530) 354-5876 - cell

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Private Address Gabrielino Tongva
,
tattnlaw@gmail.com
310-570-6567

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-761-6417- fax

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 286-1232 - FAX
(626) 286-1758 - Home
(626) 286-1262 -FAX

Juaneno Band of Mission Indians
Adolph 'Bud' Sepulveda, Vice Chairperson
P.O. Box 25828 Juaneno
Santa Ana , CA 92799
bssepul@yahoo.net
714-838-3270
714-914-1812 - CELL
bsepul@yahoo.net

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
sgoad@gabrielino-tongva.com
951-845-0443

Gabrielino-Tongva Tribe
Bernie Acuna, Co-Chairperson
P.O. Box 180 Gabrielino
Bonsall , CA 92003
(619) 294-6660-work
(310) 428-5690 - cell
(760) 636-0854- FAX
bacuna1@gabrielinotribe.org

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list s only applicable for contacting locative Americans with regard to cultural resources for the proposed SSCH#2013061027; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Santa Ana Harbor Boulevard Mixed-Use Transit Corridor Plan; located in the City of Santa Ana; Orange County, California.

2. Response to Comments

Native American Contacts
Orange County California
April 23, 2014

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry, Representing Tribal Chairperson
4955 Paseo Segovia Juaneno
Irvine , CA 92612
kaamalam@gmail.com
949-293-8522

Gabrielino /Tongva Nation
Sam Dunlap, Cultural Resorces Director
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net
909-262-9351

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
P.O. Box 180 Gabrielino
Bonsall , CA 92003
palmsprings9@yahoo.com
626-676-1184- cell
(760) 636-0854 - FAX

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabrielino
Covina , CA 91723
gabrielenoindians@yahoo.
(626) 926-4131

Gabrielino-Tongva Tribe
Conrad Acuna,
P.O. Box 180 Gabrielino
Bonsall , CA 92003

760-636-0854 - FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list s only applicable for contacting locative Americans with regard to cultural resources for the proposed SSCH#2013061027; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Santa Ana Harbor Boulevard Mixed-Use Transit Corridor Plan; located in the City of Santa Ana; Orange County, California.

A5. Response to Comments from Dave Singleton, Program Analyst, dated January 15, 2014.

A5-1 This comment describes the NAHC's role as a trustee agency and the various state codes protecting Native American resources. A cultural records search was completed at the South Central Coastal Information Center (SCCIC) at California State University Fullerton on May 1, 2013 and did not identify any archaeological sites or isolates. The project area is currently developed and redevelopment would occur on previously disturbed soils. However, due to the potential to uncover unknown archaeological resources, Mitigation Measure 3-1 was included in the project to require on call monitoring during grading activities and a detailed mitigation plan where resources are discovered.

A5-2 As determined in the initial study (Appendix A of the DEIR) the project is not expected to disturb any human remains. In addition, future development within the project area will be required to comply with Government Code Section 6254.10.

A5-3 This comment describes the need to for the project to provide environmental justice. Please note that a Tribal Consultation was conducted as described on Page 5.3-9 of the DEIR. As stated, all Tribes identified by NAHC on June 19, 2013 were provided notice of the project and opportunity to consult.

A5-4 Refer to Response to Comment A5-1.

A5-5 Refer to Response to Comment A5-2. Development under the Harbor Boulevard Mixed Use Transit Corridor Plan would be required to comply with California Health and Safety Code Section 7050.5. If human remains are discovered within the project area, any disturbance of a development site shall halt and remain halted until the coroner has conducted an investigation and made recommendations to the person responsible for the excavation, or to his or her authorized representative. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes or has reason to believe the human remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. Additionally, Public Resources Code Section 5097.98 mandates the process to be followed in the event of a discovery of any human remains and would mitigate all potential impacts.

2. Response to Comments

This page intentionally left blank.

LETTER A6 – Orange County Sanitation District (1 pages)

Serving:
Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
Yorba Linda
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

Orange County Sanitation District

10844 Ellis Avenue, Fountain Valley, CA 92708
(714) 962-2411 www.ocsewers.com

May 20, 2014

RECEIVED
MAY 22 2014
SANTA ANA PLANNING DEPT

Sergio Klotz, AICP, Principal Planner
City of Santa Ana, Planning and Building Agency
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

SUBJECT: Draft Environmental Impact Report for the City of Santa Ana Harbor Blvd. Mixed Use Transit Corridor Plan

Orange County Sanitation District (OCSD) has reviewed the Draft Environmental Impact Report for the Santa Ana Harbor Boulevard Mixed Use Transit Corridor Plan (Harbor Corridor Plan). The Harbor Corridor Plan will replace the existing North Harbor Specific Plan by changing the boundaries of the North Harbor Specific Plan and proposing new land use designations for approximately 305 acres along Harbor Boulevard. Build out of the revised land use plan would increase the number of residents/dwelling units as well as the amount of commercial space/employees.

Section 5.14.3 indicates that the wastewater generated from the newly proposed land uses will increase by approximately 1.15 million gallons a day (MGD). The sewer study modelled local sewers (and found many of them to be deficient) but did not model the impacts of the increased wastewater generation rates on the adjacent OCSD regional trunk facilities (Newhope-Placentia Trunk, located in Newhope Boulevard). Although planning level analysis of the Newhope-Placentia Trunk has not identified the pipe as being capacity deficient in this location, the analysis was based on previous land use designations. Please provide an analysis regarding impacts on the downstream regional trunks for the length of the project. The analysis of treatment capacity of OCSD's wastewater treatment plants is sufficient. A6-1

Please note, if the impacts to regional trunks are significant or otherwise, per OCSD Ordinance 40, Capital Facility Capacity Charges (CFCCs) or capacity fees are collected for new or upgraded connections to the sewer collection system. These fees are a one-time fee that pays for additional capacity in the collection system and wastewater treatment plants. The fee schedule is available on OCSD's website (www.ocsd.com) and expires at the end of the fiscal year. A6-1

Coordinating efforts between the City and OCSD is imperative to ensure the success of both the City, and OCSD. Please contact me for any questions or additional information needed. I can be reached at 714-593-7119 or via e-mail at dcovarrubias@ocsd.com A6-1

Thank you for the opportunity to review the subject document.

Daisy Covarrubias, MPA
Senior Staff Analyst

DC:sa
EDMS:003990520/ 1.8g

We protect public health and the environment by providing effective wastewater collection, treatment, and recyling.

2. Response to Comments

This page intentionally left blank.

A6. Response to Comments from Daisy Covarrubias, MPA, Senior Staff Analyst, dated May 20, 2014.

A6-1 The Harbor Boulevard Mixed Use Transit Corridor Sewer Study was updated on July 7, 2014 to provide additional information on the Orange County Sanitation District (OCSD) trunkline in the area and is provided in Appendix B, herein. Additional modeling of the existing OCSD Newhope-Placentia trunkline was performed to observe current capacities as it parallels the Harbor Boulevard Mixed Use Transit Corridor Plan from Edinger Avenue to Westminster Avenue. The existing trunkline wet weather conditions are shown in Table 2.2 of the Sewer Study (Appendix B).

Wastewater generation numbers were summarized and flows concentrated at connection points are shown in Table 3.6 of the Sewer Study (Appendix B). Table 3.7 of the Sewer Study (Appendix B) shows the impact of buildout of the Harbor Boulevard Mixed Use Transit Corridor Plan and increased flows on the Newhope-Placentia trunkline. Modeling of the trunkline shows that the existing trunkline has adequate capacity for buildout of the Harbor Boulevard Mixed Use Transit Corridor Plan. No new significant impacts were identified.

A6-2 The commenter states that if the project has a significant impact on regional trunks, then capacity fees are collected per OCSD Ordinance 40, Capital Facility Capacity Charges (CFCCs). The capacity fees pay for additional capacity in the collection system and wastewater treatment plants and are a one-time fee. No response is necessary.

A6-3 The commenter emphasizes the importance of City and OCSD coordination. The City agrees. No additional response is necessary.

2. Response to Comments

This page intentionally left blank.

LETTER A7 – Santa Ana School District (1 page)

Santa Ana Unified School District

Facilities & Governmental Relations
Joe Dixon, Assistant Superintendent

Richard L. Miller, Ph.D., Superintendent

RECEIVED
APR 28 2014

April 22, 2014

Sergio Klotz | Principal Planner
City of Santa Ana | Planning & Bldg. Agency
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

Re: Notice of Availability of a Draft Environmental Impact Report and Public Meeting for the City of Santa Ana Harbor Boulevard Mixed Use Transit Corridor Plan

Dear Mr. Klotz,

Thank you for notifying us regarding the Santa Ana Harbor Boulevard Mixed Use Transit Corridor Plan. We have reviewed the Draft Environmental Impact Report, Harbor Mixed Use Transit Corridor Specific Plan, and Notice of Availability. We have no comments at this time, but we ask to be kept informed regarding the project. A7-1

Thank you,

Jessica Mears, Facilities Planner

1601 East Chestnut Avenue, Santa Ana, CA 92701-6322, (714) 480-5356

2. Response to Comments

This page intentionally left blank.

A7. Response to Comments from Jessica Mears, Facilities Planner, dated April 22, 2014.

A7-1 The commenter has no comment and would like to be kept informed of the project. No response is necessary.

2. Response to Comments

This page intentionally left blank.

LETTER A8 – OC Public Works (1 page)

OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

RECEIVED
JUN 03 2014
SANTA ANA PLANNING DEPT

NCL 13-024

May 29, 2014

Mr. Sergio Klotz, Principal Planner
City of Santa Ana/Planning and Building Agency
20 Civic Center Plaza, M-20
Santa Ana, California 92701

SUBJECT: Second Notice of Availability of a Draft Environmental Impact Report for the City of Santa Ana Harbor Boulevard Mixed Use Transit

Dear Mr. Klotz:

The County of Orange has reviewed the Second Notice of Availability of a Draft Environmental Impact Report for the City of Santa Ana Harbor Boulevard Mixed Use Transit located in City of Santa Ana and has no comment at this time. We would like to be advised of any further developments on the project. Please continue to keep us on the distribution list for future notifications related to this project. A8-1

Sincerely,

Polin Modanlou, Manager
Strategic Land Planning Division
OC Public Works/OC Planning Services
300 North Flower Street
Santa Ana, California 92702-4048
Polin.modanlou@ocpw.ocgov.com

PM/yj

300 N. Flower Street, Santa Ana, CA 92703
P.O. Box 4048, Santa Ana, CA 92702-4048
www.ocpublicworks.com
714.667.8800 | Info@OCPW.ocgov.com

2. Response to Comments

This page intentionally left blank.

A8. Response to Comments from Polin Modanlou, Manager, dated May 29, 2014.

A8-1 The commenter has no comment and would like to be kept informed of the project. No response is necessary.

2. Response to Comments

This page intentionally left blank.

LETTER A9 – City of Costa Mesa (1 page)

---Original Message-----
..om: ASHABI, MINOO [mailto:MINOO.ASHABI@costamesaca.gov]
Sent: Wednesday, June 04, 2014 3:14 PM
To: Klotz, Sergio
Subject: FW: Harbor Boulevard Mixed Use Transit Corridor Plan - Santa Ana

Dear Sergio,

Please include the following in the comments for the DEIR for Harbor Blvd. Corridor.

1. Please provide trip generation and distribution graphic for the project. As a traffic model was used to develop the without and with project conditions, a select zone plot for the project zones will be helpful to identify the study area. A9-1

2. The intersections in the City of Costa Mesa that have more than 50 peak hour project trips should be included in the traffic impact analysis. A9-2

Please let me know if you have any questions. Thank you.

Minoo Ashabi, AIA

Principal Planner

City of Costa Mesa

714/754-5610

minoo.ashabi@costamesaca.gov <mailto:minoo.ashabi@costamesaca.gov>

1

2. Response to Comments

This page intentionally left blank.

A9. Response to Comments from Minoo Ashabi, AIA, Principal Planner, dated June 4, 2014.

A9-1 Please refer to the Traffic Impact Study (TIS) in Appendix H of the DEIR. The study area is shown on Figure 1.2. Project trip generation tables are provided in Appendix A of the TIS and OCTAM Link Plots are provided in Appendix C of the TIS.

A9-2 Major intersections in the study area were included in the TIS. In addition, intersections along Harbor Boulevard beyond the study area were analyzed to provide a conservative analysis. Based on the traffic model, the project does not add more than 50 trips at the southernmost intersections reviewed along Harbor (at Sunflower, South Coast Drive, and NB/SB I-405 ramps). Therefore, it is not expected that more than 50 trips would be added at intersections in Costa Mesa located further south of these intersections. No significant impacts would result.

2. Response to Comments

This page intentionally left blank.

LETTER A10 – Southern California Edison (1 page)

SOUTHERN CALIFORNIA EDISON

Eddie Marquez, Region Manager
Local Public Affairs
1325 S. Grand Avenue, Building B
Santa Ana, CA 92705

RECEIVED
JUN 05 2014
SANTA ANA PLANNING DEPT

June 1, 2014

Sergio Klotz,AICP, Principal Planner
City of Santa Ana, Planning and Building Agency
20 Civic Center Plaza, M-20
Santa Ana, CA 92701
SKlotz@santa-ana.org

Re: Harbor Boulevard Mixed Use Transit Corridor Plan

Mr. Klotz:

Southern California Edison (SCE) appreciates the opportunity to review and provide comments on the Draft Environmental Impact Report for the Harbor Boulevard Mixed Use Transit Corridor Plan. The proposed project would replace the existing 425-acre North Harbor Specific Plan (NHSP) and modify the project boundaries of the NHSP so the project would consist of two separate areas: 1) 305 acres within the boundaries of the existing 425-acre NHSP generally along Harbor Boulevard (or "Harbor Corridor Plan"), and 2) 120 acres within the existing NHSP in the Willowick Golf Course area (or "Conventional Zoning Area." Buildout of the Harbor Corridor Plan would generate 3,884 additional dwelling units, 15,327 new residents, 13,721 additional square feet of commercial space, and approximately 173 additional employees in the plan area.

SCE is the electrical service provider for the City of Santa Ana. SCE maintains an electrical system that consists of a network of electrical facilities (transmission, distribution, and supporting appurtenances) within the City. SCE has transmission and distribution lines within the project area. The proposed development should not impose constraints on SCE's ability to access, maintain, and operate its current and future facilities. If the proposed project anticipates encroachment or infringement of SCE's rights-of-way, these actions may impact SCE's facilities and require relocation, modification, or construction of new transmission and distribution line poles. The need to build new or relocate existing SCE electrical facilities that operate at or above 50 kilovolts (kV) may result in significant environmental impacts, which should be thoroughly discussed in the EIR. A10-1

SCE is subject to the California Public Utilities Commission's (CPUC) General Order 131-D[1], which contains rules relating to the planning and construction of electric generation, transmission/power/distribution line facilities and substations located in California. If significant impacts from the construction of SCE's facilities are not adequately addressed in the EIR, SCE may be required to prepare a separate, mandatory CEQA review, which could delay approval of the SCE transmission line portion of the project for two years or longer.

Any proposed use of SCE's easements and rights-of-way must be reviewed on a case-by-case basis by SCE. Please forward five (5) sets of plans depicting SCE's facilities and associated land rights to our Real Properties Department at the address below. Approvals or denials will be in writing based upon review of the maps provided by the developer and compatibility with SCE right-of-way constraints and rights. The impacts will need to be consented to and addressed by SCE prior to finalizing the plan of development. A10-2

Real Properties Department
Southern California Edison Company
2131 Walnut Grove Avenue, G.O.3 – Second Floor
Rosemead, CA 91770

If you have any questions regarding this letter, please do not hesitate to contact me at Eddie.Marquez@sce.com or (714) 973-5619.

Regards,

Eddie Marquez
Local Public Affairs Region Manager
Southern California Edison Company

[1] http://docs.cpuc.ca.gov/PUBLISHED/Graphics/589.PDF

2. Response to Comments

This page intentionally left blank.

A10. Response to Comments from Eddie Marquez, Local Public Affairs Region Manager, dated June 1, 2014.

A10-1 As shown in Table 5.14-13 of the DEIR, forecast electricity demands by buildout of the Harbor Boulevard Mixed Use Transit Corridor Plan are about 40.8 million kWh/yr, resulting in a net increase of 10.1 million kWh/year. SCE forecasts that it will have adequate electricity supplies to meet project electricity demands, and implementation of the Harbor Boulevard Mixed Use Transit Corridor Plan would not require SCE to obtain new or expanded electricity supplies.

The Harbor Boulevard Mixed Use Transit Corridor Plan does not propose the relocation, modification or construction of new transmission and distribution line poles. As future development is proposed within the Harbor Boulevard Mixed Use Transit Corridor Plan area each project would tie into the existing electrical transmission and distribution systems from the existing sources to serve the development. This service would be provided in accordance with the rules and regulations of SCE on file with and approved by the California Public Utilities Commission (CPUC) and the State of California.

While it is not anticipated that new lines or relocation of lines is necessary, the Harbor Boulevard Mixed Use Transit Corridor Plan does identify wider street cross sections that have the potential to require relocation or adjustment of SCE facilities. Potential environmental impacts that would be associated with the construction or relocation of SCE facilities are accounted for throughout the EIR. Any applicable mitigation measures identified in those sections will address potential significant impacts associated with construction of public utilities; specifically, see Sections 5.1 Air Quality, 5.9 Noise, and 5.13 Traffic. No additional impact related to construction and operation of the distribution system is anticipated.

A10-2 The Harbor Boulevard Mixed Use Transit Corridor Plan does not propose any specific development at this time. However, future development projects will be required to coordinate and consult with SCE, as indicated in the comment.

2. Response to Comments

This page intentionally left blank.

LETTER A11 – State of California, Governor's Office of Planning and Research (6 pages)

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

RECEIVED
JUN 05 2014
SANTA ANA PLANNING DEPT.

June 3, 2014

Sergio Klotz
City of Santa Ana
20 Civic Center Plaza
Santa Ana, CA 92701

Subject: Santa Ana Harbor Boulevard Mixed Use Transit Corridor Plan
SCH#: 2013061027

Dear Sergio Klotz:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on June 2, 2014, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

A11-1

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

2. Response to Comments

Document Details Report
State Clearinghouse Data Base

SCH# 2013061027
Project Title Santa Ana Harbor Boulevard Mixed Ust Transit Corridor Plan
Lead Agency Santa Ana, City of

Type EIR Draft EIR

Description The Harbor Boulevard Mixed Use Transit Corridor Plan would replace the existing 425-acre North Harbor Specific Plan (NHSP) to change the boundaries into two separate areas: 1) 305 acres within the existing 425-acre NHSP generally along Harbor Boulevard (or "Harbor Corridor Plan"), and 2) 120 acres within the existing NHSP in the Willowick Golf Course area (or "Conventional Zoning Area"). The Harbor Corridor Plan regulates 252 acres of the project through four zones: Transit Node, Corridor, Neighborhood Transitional, and Open Space. Buildout of the Harbor Corridor Plan would generate 3,884 additional dwelling units and 13,721 additional sf of commercial space. Buildout projections for NHSP areas proposed for conversion to conventional zoning assume no change in numbers of dwelling units or population.

Lead Agency Contact

Name Sergio Klotz
Agency City of Santa Ana
Phone 714 667 2796 **Fax**
email
Address 20 Civic Center Plaza
City Santa Ana **State** CA **Zip** 92701

Project Location

County Orange
City Santa Ana
Region
Lat / Long 33° 45' 31" N / 117° 55' 12" W
Cross Streets Harbor Boulevard/Westminster Ave. and Harbor Blvd/Gloxinia Ave
Parcel No. several
Township **Range** **Section** **Base**

Proximity to:

Highways SR-22
Airports
Railways
Waterways Santa Ana River
Schools
Land Use Commercial and residential/Specific Plan (North Harbor Specific Plan)/LR-7, LMR-11, MR-15, GC, IND, and O

Project Issues Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Landuse; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 5; Cal Fire; Office of Historic Preservation; Department of Parks and Recreation; California Highway Patrol; Caltrans, District 12; Department of Housing and Community Development; Air Resources Board; Air Resources Board, Transportation Projects; Regional Water Quality Control Bd., Region 6 (Victorville); Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission; State Lands Commission

Document Details Report
State Clearinghouse Data Base

Date Received 04/18/2014 *Start of Review* 04/18/2014 *End of Review* 06/02/2014

2. Response to Comments

STATE OF CALIFORNIA— NATURAL RESOURCES AGENCY EDMUND G. BROWN, Jr., *Governor*

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

P.O. Box 944246
SACRAMENTO, CA 94244-2460
Website: www.fire.ca.gov
(916) 653-4995
FAX: (916) 653-8957

clerk 6/2/14 e

RECEIVED
MAY 07 2014
STATE CLEARING HOUSE

April 23, 2014

Orange County Fire Authority
Attn: Michele Hernandez, Environmental Coordinator
P.O. Box 57115
Irvine, CA 92619-7115

The following environmental document was submitted to CAL FIRE Headquarters, Environmental Protection for review under the California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA). The proposed project, located within your Unit/Program Area, may have an impact upon CAL FIRE's fire protection and/or natural resource protection and management responsibilities or require a CAL FIRE permit or approval. Your determination of the appropriate level of CAL FIRE involvement with this project is needed. Please review the attached document and address your comments, if any, **to the lead agency** prior to the due date. Your input at this time can be of great value in shaping the project. If your Department's Environmental Coordinator is not available, please pass on to another staff member in order to meet the mandated deadline.

Please submit comments directly to the lead agency before the mandated due date with a copy to the State Clearing House (P.O. Box 3044, Sacramento, CA 95812-3044).

Project name: Santa Ana Harbor Boulevard Mixed Use Transit Corridor Plan
SCH #: 2013061027
Document Type: Draft Environmental Impact Report (DEIR)
Potential Area(s) of Concern: Fire Protection?

A11-2

MANDATED DUE DATE: 6/2/2014

X No Comment – Explain briefly on the lines below:
LRA high density land use plans. No CalFire issues and no openspace/wildland in this Urban city.

Name and Title of Reviewer: Michele Hernandez Management Analyst

Phone (714) 573-6199 Email: michelehernandez@ocfa.org

Note: Please complete this form and return it, with a copy of any comments, for CAL FIRE's records to Chris Browder, Deputy Chief, Environmental Protection, or Ken Nehoda, P.O. Box 944246, Sacramento, CA 94244-2460. If you have already reviewed and/or commented on this project, please send a copy to the address above.

CONSERVATION IS WISE-KEEP CALIFORNIA GREEN AND GOLDEN

PLEASE REMEMBER TO CONSERVE ENERGY. FOR TIPS AND INFORMATION, VISIT "FLEX YOUR POWER" AT WWW.CA.GOV.

CLEAF
04/02/14
E

SATE OF CALIFORNIA — Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3715
Fax (916) 373-5471
Web Site www.nahc.ca.gov
Ds_nahc@pacbell.net
e-mail: ds_nahc@pacbell.net

RECEIVED
APR 25 2014
STATE CLEARING HOUSE

January 15, 2014

Mr. Sergio Klotz, AICP, Planner
CITY OF SANTA ANA
20 Civic Center Plaza
Santa Ana, CA 92701

RE: SCH#2013061027 CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the **"Santa Ana Harbor Boulevard Mixed-Use Transit Corridor Plan Project;"** located in the City of Santa Ana; Orange County, California

Dear Mr. Klotz:

The Native American Heritage Commission (NAHC) has reviewed the above-referenced environmental document. This project is also subject to California Government Code Sections 65040.2, 65352/3, *et seq.* (SB 18)

The California Environmental Quality Act (CEQA) states that any project which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064.5(b). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required: A11-3

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, pursuant to California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Also, California Public Resources Code Section 21083.2 require documentation and analysis of archaeological items that meet the standard in Section 15064.5 (a)(b)(f).

We suggest that this (additional archaeological activity) be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. Any information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant

2. Response to Comments

to California Government Code Section 6254.10.

A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources.

California Government Code Section 65040.12(e) defines "environmental justice" to provide "fair treatment of People…with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies." (The California Code is consistent with the Federal Executive Order 12898 regarding 'environmental justice.' Also, applicable to state agencies is Executive Order B-10-11 requires consultation with Native American tribes their elected officials and other representatives of tribal governments to provide meaningful input into the development of legislation, regulations, rules, and policies on matters that may affect tribal communities.

A11-3 cont'd

Lead agencies should consider first, avoidance for sacred and/or historical sites, pursuant to CEQA Guidelines 15370(a). Then if the project goes ahead then, lead agencies include in their mitigation and monitoring plan provisions for the analysis and disposition of recovered artifacts, pursuant to California Public Resources Code Section 21083.2 in consultation with culturally affiliated Native Americans.

Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Dave Singleton
Program Analyst

CC: State Clearinghouse

Attachment: Native American Contacts list

A11. Response to Comments from Scott Morgan, Director of State Clearinghouse, dated June 3, 2014.

A11-1 The comment states that the City has complied with the State Clearinghouse review requirements for DEIRs. No response is necessary.

A11-2 This letter received from the State of California Department of Forestry and Fire Protection states that the project is within an urban area and there are no CAL FIRE issues. No response is necessary.

A11-3 Refer to Response to Comments for Letter A5.

2. Response to Comments

This page intentionally left blank.

3. Revisions to the Draft EIR

3.1 INTRODUCTION

This section contains revisions to the DEIR based upon (1) additional or revised information required to prepare a response to a specific comment; (2) applicable updated information that was not available at the time of DEIR publication; and/or (3) typographical errors. Revisions to the DEIR provides additional clarification to analysis included in the DEIR and do not alter any impact significance conclusions as disclosed in the DEIR. Changes made to the DEIR are identified here in ~~strikeout text~~ to indicate deletions and in <u>underlined text</u> to signify additions.

3.2 DEIR REVISIONS

The following text has been revised to correct minor errors found in the DEIR.

Page 1-10, Section 1, *Executive Summary*, Table 1-1 and Page 5.2-25, Section 5.2, *Air Quality*.

2-8 Applicants for non-residential projects within the Harbor Boulevard Mixed Use Transit Corridor Plan, that employ 20 or more people—which is equivalent to 16,000 square feet of retail space or 10,000 square feet of office space—shall implement an employee commute trip reduction (CTR) program. The CTR program shall identify alternative modes of transportation to the project, including transit schedules, bike and pedestrian routes, and carpool/vanpool availability. Information regarding these programs shall be readily available to employees and clients. The project applicant or designee shall consider the following incentives for commuters as part of the CTR program:

- Ride<u>share</u> ~~-~~matching assistance ~~(e.g. subsidized public transit passes)~~ <u>through OCTA</u>
- <u>Subsidized public transit passes</u>
- Vanpool assistance~~ or employer-provided vanpool/shuttle~~
- Car <u>or bike</u>-sharing program~~ (e.g. Zipcar)~~
- Bicycle end-trip <u>support</u> facilities~~, including~~ <u>such as</u> bike <u>storage or</u>~~parking and~~ lockers.

3. Revisions to the Draft EIR

Page 1-16, Section 1, *Executive Summary*, Table 1-1 and Page 5.6-23, Section 5.6, *Hazards and Hazardous Materials*.

6-1 Prior to the issuance of demolition permits for any buildings or structures that would be demolished in conjunction with individual development projects that would be accommodated by the Harbor Boulevard Mixed Use Transit Corridor, the project applicant shall conduct the following inspections and assessments for all buildings and structures onsite and shall provide the City of Santa Ana's ~~Community Development~~ Planning and Building Agency with a copy of the report of each investigation or assessment.

- The project applicant shall retain a certified lead inspector/assessor to inspect buildings and structures onsite for lead-based paint (LBP). The inspector/assessor's report shall include requirements for abatement, containment, and disposal of LBP, if encountered, in accordance with the State of California Occupational Safety & Health Administration Rule 29 CFR Part 1926.

- The project applicant shall retain a licensed or certified asbestos consultant to inspect buildings and structures onsite for asbestos-containing materials (ACM). The consultant's report shall include requirements for abatement, containment, and disposal of ACM, if encountered, in accordance with the South Coast Air Quality Management District's Rule 1403.

6-2 Prior to the issuance of grading permits for new development within the Harbor Boulevard Mixed Use Transit Corridor, the project applicant shall submit a Phase I Environmental Site Assessment (ESA) to identify environmental conditions and determine whether contamination is present. The Phase I ESA shall be prepared by a Registered Professional Engineer and in accordance with the American Society for Testing and Materials (ASTM) Standard E 1527.05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. If recognized environmental conditions related to soils are identified in the Phase I ESA, the project applicant shall perform soil sampling as a part of a Phase II ESA. If contamination is found at significant levels, the project applicant shall remediate all contaminated soils in accordance with state and local agency requirements (DTSC, RWQCB, Orange County Fire Authority, etc.). All contaminated soils and/or material encountered shall be disposed of at a regulated site and in accordance with applicable laws and regulations prior to the completion of grading. Prior to the issuance of building permits, a report documenting the completion, results, and any follow-up remediation on the recommendations, if any, shall be provided to the Building Official and the City of Santa Ana's ~~Community Development~~ Planning and Building Agency evidencing that all site remediation activities have been completed.

Pages 1-17 and 1-18, Section 1, *Executive Summary*, Table 1-1 and Page 5.7-29, Section 5.7, *Hydrology and Water Quality*.

7-1 Prior to issuance of grading permits for future development projects in the Harbor Corridor Plan, applicants shall submit site-specific hydrology and hydraulic Studies to the Public Works Agency for review and approval. If existing facilities are not adequate to handle runoff generated by the proposed development, then the applicant shall construct storm drain improvements. ~~If necessary s~~Storm drain upgrades shall~~cannot~~ be implemented prior to issuance of occupancy permits~~, the applicant shall provide onsite detention facilities, or other methods to ensure that post-construction runoff does not exceed pre-development quantities~~.

7 2 During the design of individual projects, applicants shall minimize impervious area by incorporating landscaped areas over substantial portions of a proposed project area. Furthermore, impervious areas shall be directly connected to landscaped areas or bioretention facilities to promote filtration and infiltration of stormwater. The applicant must comply with the latest Orange County Model Water Quality Management Plan (WQMP).

Page 1-19, Section 1, *Executive Summary*, Table 1-1 and Page 5.7-30, Section 5.7, *Hydrology and Water Quality*.

7-5 **Water Quality Management Plan (WQMP).** Prior to the issuance of precise grading~~building~~ permits, project-specific WQMPs shall be submitted for review and approved by the Public Works Agency~~Building Department~~. The WQMP shall identify the best management practices (BMPs) that will be used on the site to control predictable pollutant runoff. More specifically, the WQMP shall:

- Describe the routine and special post-construction BMPs to be used at the proposed development site (including both structural and non-structural measures);
- Describe responsibility for the initial implementation and long-term maintenance of the BMPs;
- Provide narrative with the graphic materials as necessary to specify the locations of the structural BMPs;
- Certify that the project applicant will seek to have the WQMP carried out by all future successors or assigns to the property.
- The applicant must comply with the latest Orange County Model Water Quality Management Plan (WQMP).

7-6 Prior to the issuance of precise grading permit for any lot or parcel wholly or partially located within the 100-year floodplain, the applicant shall furnish to the Building Official~~City~~

3. Revisions to the Draft EIR

~~Engineer~~ documentation required by FEMA for approval of the Conditional Letter of Map Revision/Letter of Map Revision (CLOMR/LOMR) process~~. The FEMA~~ for revision to the FIRM and Flood Insurance Study (FIS). The applicant shall pay all preliminary and subsequent fees as required by FEMA.

Page 1-19, Section 1, *Executive Summary*, and Page 5.8-4, Section 5.8, *Land Use and Planning*.

Impact 5.8-1

Implementation of the Harbor Corridor Mixed Use Transit Corridor Plan would not conflict with applicable plans adopted for the purpose of avoiding or mitigating an~~d~~ environmental effect.

Page 1-23, Section 1, *Executive Summary*.

Impact 5.11-4

The proposed project would~~/would not~~ generate additional population increasing the service needs for the local libraries.

Pages 1-24 and 1-25, Section 1, *Executive Summary*, Table 1-1 and Pages 5.13-25 and 5.13-26, Section 5.13, *Transportation and Traffic*.

13-2 The City of Santa Ana shall implement a program for traffic improvements in the Harbor Corridor Plan. The program shall prescribe the method of participation in the mitigation program in the mitigation program by individual projects and guide the timely implementation of mitigation measures. The program shall include the following elements:

- A funding and improvement program should be established to identify financial resources adequate to construct all identified mitigation measures in a timely basis.
- All properties that redevelop within the Harbor Corridor Plan should participate in the program on a fair share per new development trip basis. The fair share shall be based upon the total cost of all identified mitigation measures (see Mitigation Measure 13 3), divided by the peak hour trip generation increase forecast. This rate per peak hour trip should be imposed upon the incremental traffic growth for any new development within the Harbor Corridor Plan.
- The project shall raise fund from full development of the Harbor Corridor Plan to fund all identified mitigation measures.
- The project shall monitor phasing development of the Harbor Corridor Plan and defer or eliminate improvements if the densities permitted in the Harbor Corridor Plan are not occurring.

- Program phasing shall be monitored through preparation of specific project traffic studies for any project that is expected to include more than 100 dwelling units or 100,000 sf of non-residential development. Traffic impact studies should use traffic generation rates that are deemed to be most appropriate for the actual development proposed.

- ~~Properties within Santa Ana and within one half-mile of the Harbor Corridor Plan that redevelop to result in higher traffic generation should also participate in the program to ensure equity.~~

- The City may elect to implement appropriate mitigation measures as a condition of approval of the proposed developments, where appropriate. All or part of the costs of these improvements may be considered to be a negotiated credit toward the program, however the program must be administered in a manner that assures that it can fund necessary improvements to maintain adequate level of service at all intersections within the study. If funding of priority improvements cannot be assured, credit for construction of lower priority improvements may not be assured or may be postponed until more program funds are available.

- Keep all construction-related traffic onsite at all times.

- Provide temporary traffic controls, such as a flag person, during all phases of construction to maintain smooth traffic flow.

13-3 Prior to the issuance of building permits, the project applicant shall participate in the program for traffic improvements in the Harbor Corridor Plan per MM 13-2~~prepare a traffic study, subject to review and approval of the City. The traffic study will verify whether the project within the Harbor Corridor Plan impacts the intersection locations identified below. For those intersections, which are projected to exceed the City's adopted performance criteria, the project will be conditioned to construct or provide fair share funding toward those improvements.~~ The traffic improvement program includes the following improvements~~ are as follows~~:

- Intersection #26: Fairview Street and 17th Street (Year 2035)
  - Improvements are to add a northbound through lane.
- Intersection #27: Fairview Street and 1st Street (Year 2035)
  - Improvements are to add a southbound right-turn lane.

Page 3-5, Section 3.1, Figure 3-2, *Local Vicinity*.

See Page 3-7, Section 3.1, Figure 3-2, *Local Vicinity*

3. Revisions to the Draft EIR

Page 3-7, Section 3.3, Figure 3-3, *Aerial Photograph.*

See Page 3-7, Section 3.3, Figure 3-3, *Aerial Photograph*

Page 3-15, Section 3.3, Figure 3-4, *Proposed Land Use Districts and Zoning Districts.*

See Figure 3-4, *Proposed Land Use Districts and Zoning Districts*

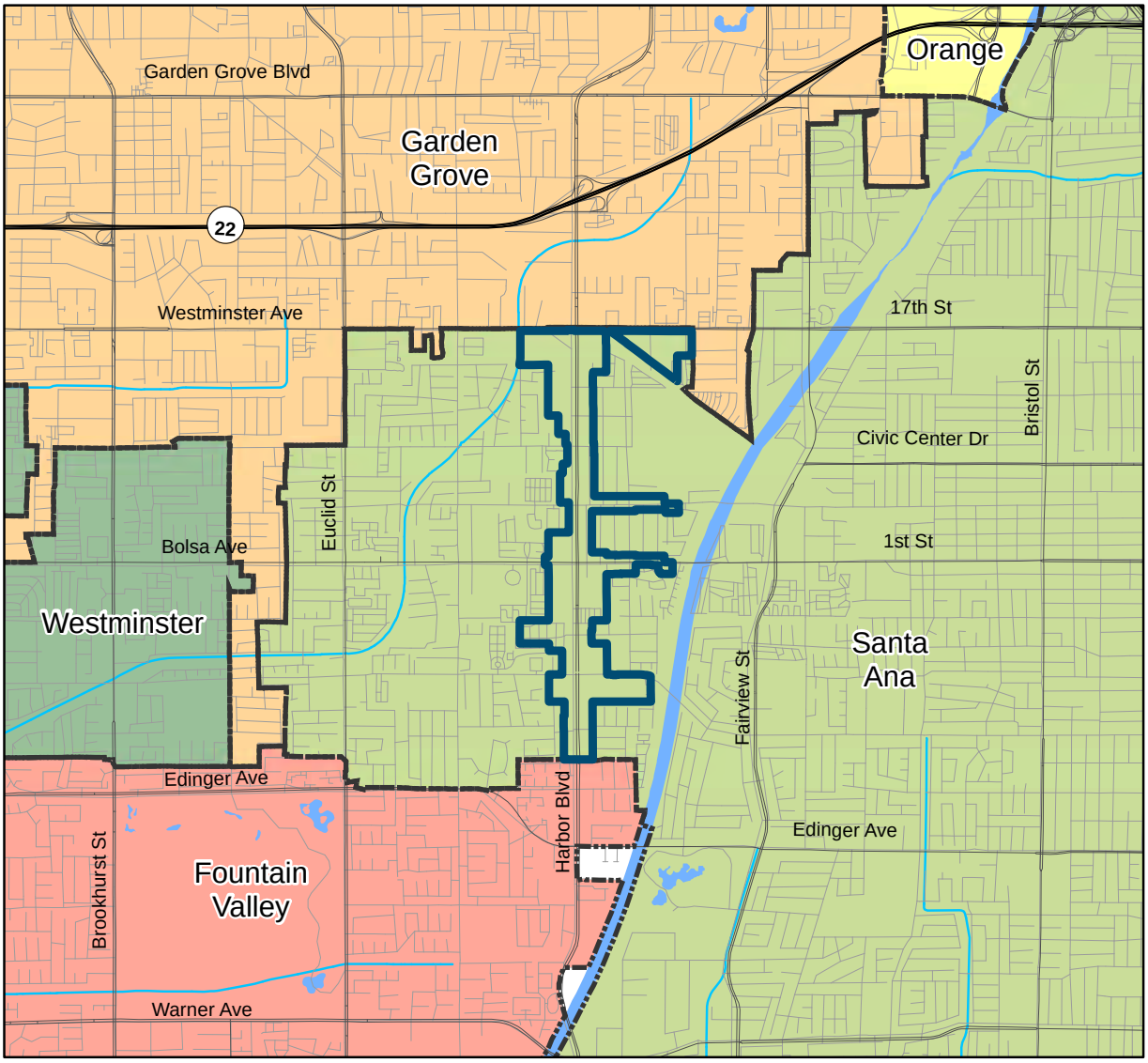
Page 4-11, Figure 4-1, *Current Zoning Designations.*

See Figure 4-1, *Current Zoning Designations*

Page 5.13-11, Section 5.13.3, Figure 5.13-1, *Study Area Intersections and Existing Turn Lane Geometries.*

See Figure 5.13-1, *Study Area Intersections and Existing Turn Lane Geometries*

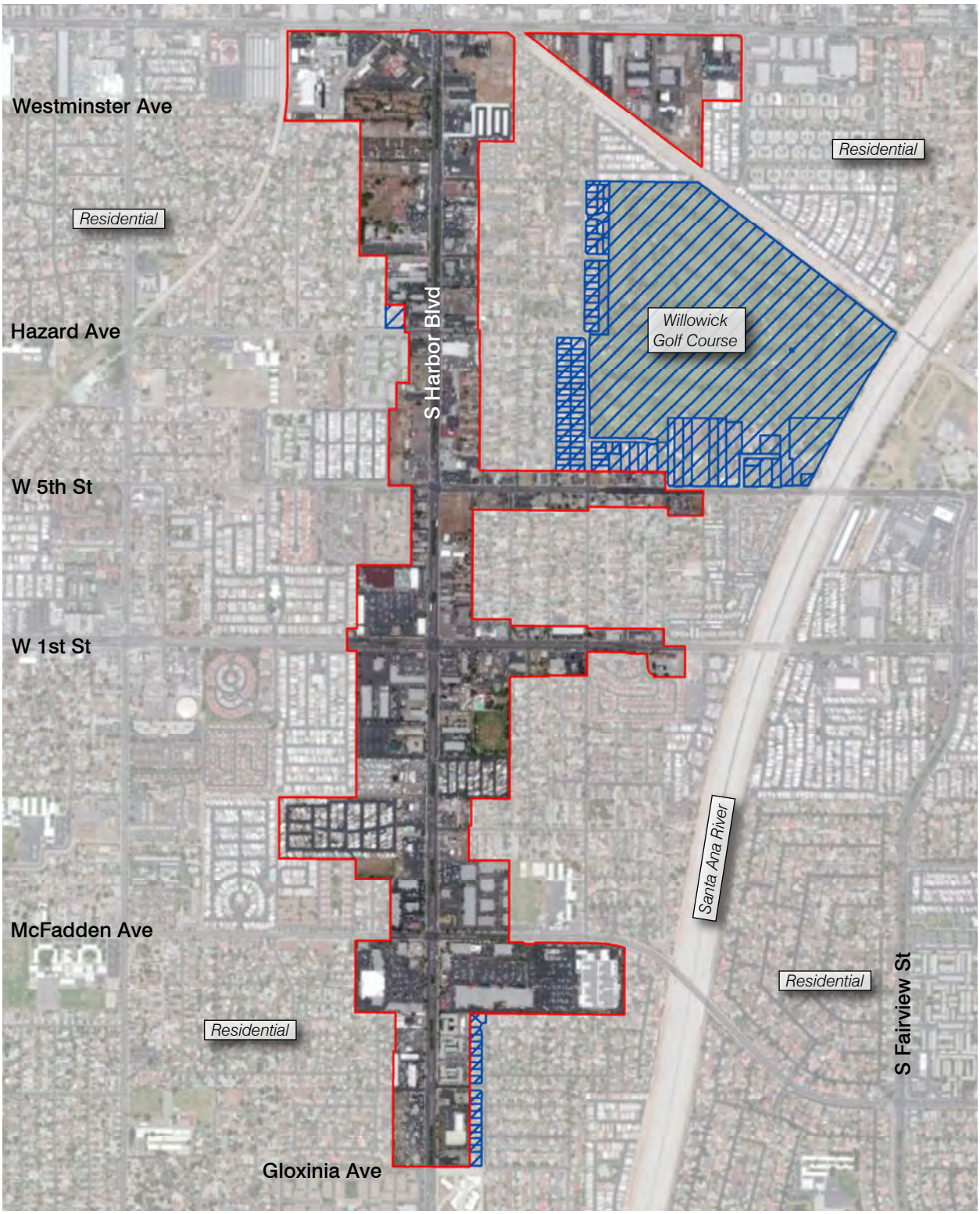
Figure 3-2 Local Vicinity
3. Project Description



3. Revisions to the Draft EIR

This page intentionally left blank.

Figure 3-3 Aerial Photograph
3. Project Description



Harbor Mixed Use Transit Corridor Plan

Conventional Zoning

0 1,500
Scale (Feet)

Basemap Source: Google Earth Pro 2012

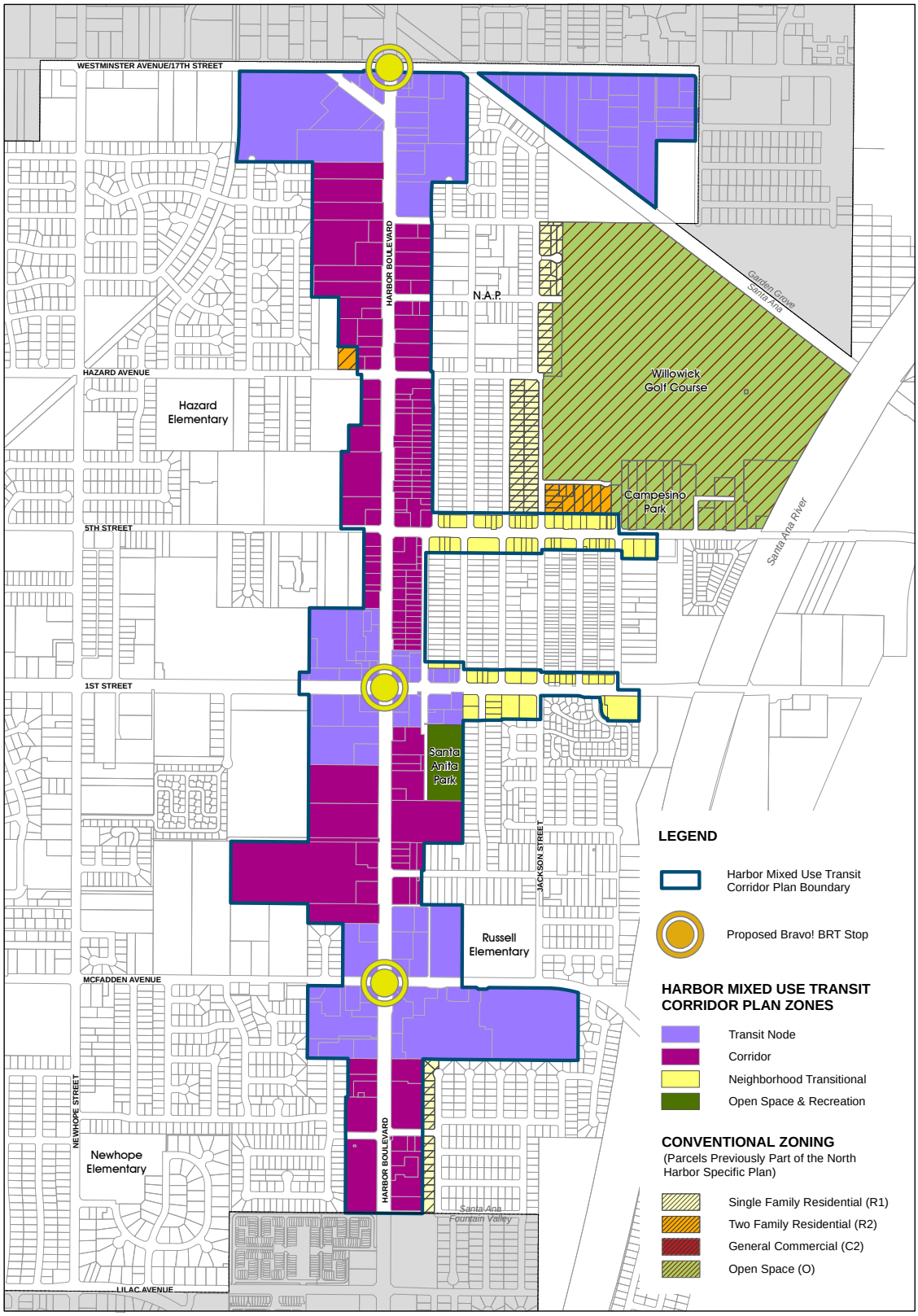
April 2014

PlaceWorks

3. Revisions to the Draft EIR

This page intentionally left blank.

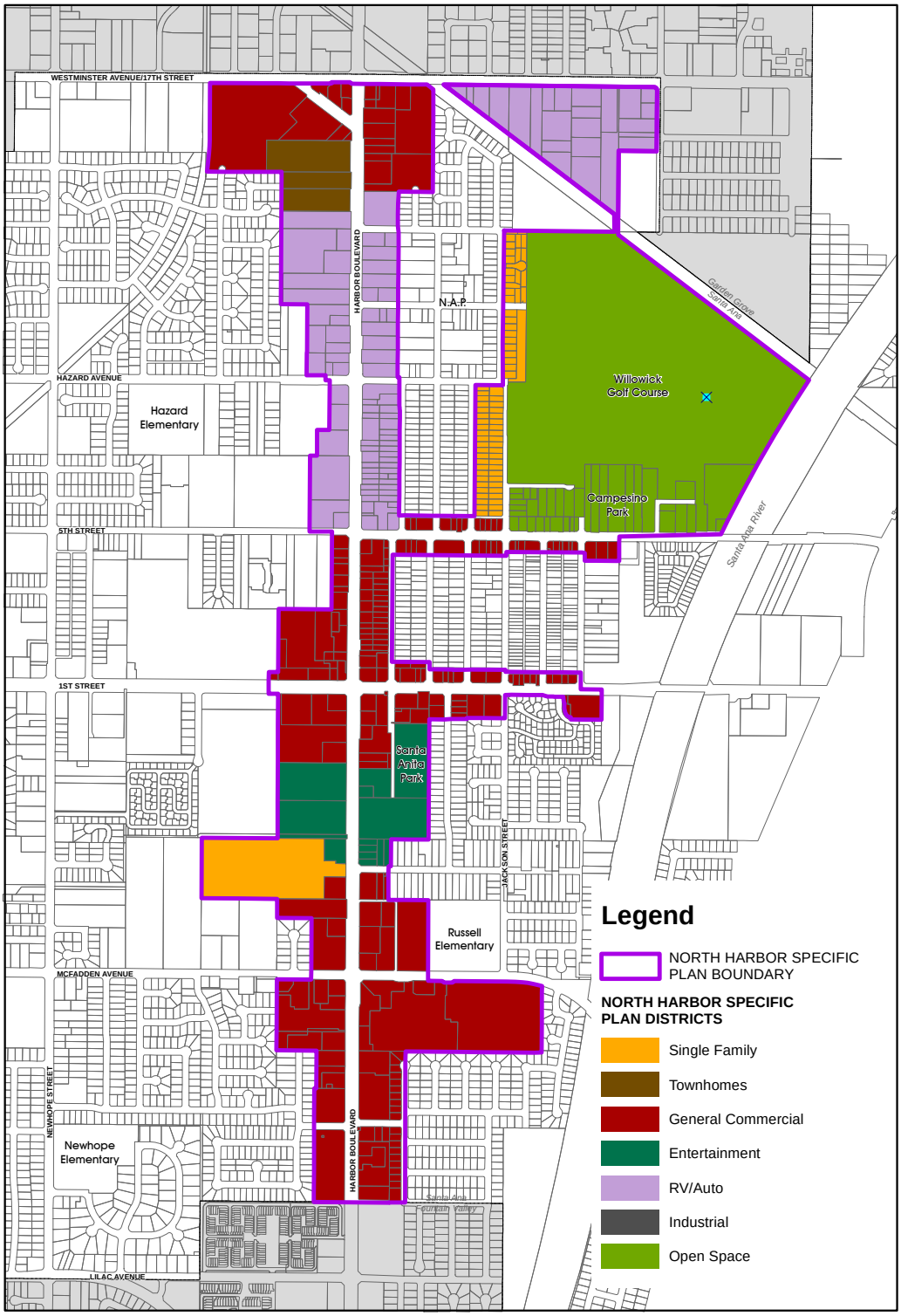
Figure 3-4 Proposed Land Use Districts and Zoning Designations



3. Revisions to the Draft EIR

This page intentionally left blank.

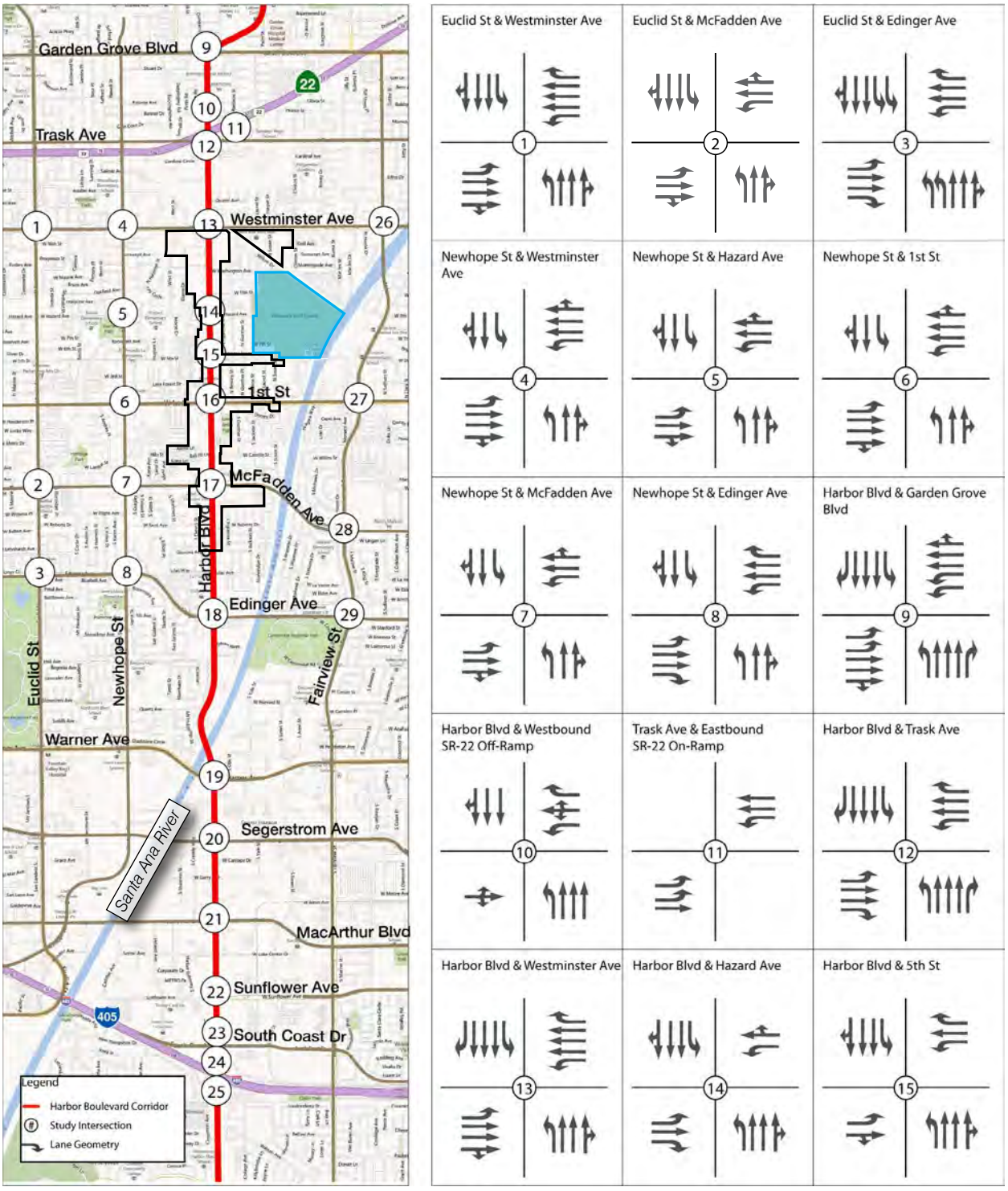
Figure 4-1 Current Zoning Designations
4. Environmental Setting



3. Revisions to the Draft EIR

This page intentionally left blank.

Figure 5.13-1 Study Area Intersections and Existing Turn Lane Geometries
5. Environmental Analysis



Harbor Mixed Use Transit Corridor Plan

Conventional Zoning

0 1
Scale (Miles)

Basemap Source: IBI Group 2013

3. Revisions to the Draft EIR

This page intentionally left blank.

Appendix A. Traffic Worksheets and Figure

Appendix

This page intentionally left blank.

Future Year 2035
Baseline

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 Euclid St and Edinger Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.901
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	E

Street Name:	Euclid St						Edinger Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2	1 0	2 0	2	1 0	1 0	2	0 1	1 0	2	0 1
Volume Module:												
Base Vol:	453	2028	122	164	912	186	218	565	174	108	902	239
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	453	2028	122	164	912	186	218	565	174	108	902	239
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	453	2028	122	164	912	186	218	565	174	108	902	239
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	453	2028	122	164	912	186	218	565	174	108	902	239
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	453	2028	122	164	912	186	218	565	174	108	902	239
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.04	1.00	1.00	1.05	1.00	1.00	1.06	1.00	1.00	1.06	1.00
Lanes:	2.00	2.83	0.17	2.00	2.49	0.51	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3200	4728	272	3200	4187	813	1600	3400	1600	1600	3400	1600
Capacity Analysis Module:												
Vol/Sat:	0.14	0.43	0.45	0.05	0.22	0.23	0.14	0.17	0.11	0.07	0.27	0.15
Crit Moves:			****	****			****				****	

Future Year 2035
With Project

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 Euclid St and Edinger Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.891
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	D

Street Name:	Euclid St						Edinger Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0 2	1 0	2	0 2	1 0	1	0 2	0 1	1	0 2	0 1
Volume Module:												
Base Vol:	437	1999	114	165	933	193	232	571	179	102	863	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	437	1999	114	165	933	193	232	571	179	102	863	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	437	1999	114	165	933	193	232	571	179	102	863	234
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	437	1999	114	165	933	193	232	571	179	102	863	234
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	437	1999	114	165	933	193	232	571	179	102	863	234
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.04	1.00	1.00	1.05	1.00	1.00	1.06	1.00	1.00	1.06	1.00
Lanes:	2.00	2.84	0.16	2.00	2.49	0.51	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3200	4741	259	3200	4177	823	1600	3400	1600	1600	3400	1600
Capacity Analysis Module:												
Vol/Sat:	0.14	0.42	0.44	0.05	0.22	0.23	0.15	0.17	0.11	0.06	0.25	0.15
Crit Moves:			****	****			****				****	

Future Year 2035
Baseline

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 Newhope St and Edinger Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.791
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	109	Level Of Service:	C

Street Name:	Newhope St						Edinger Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	2	0 1	1 0	2	0 1
Volume Module:												
Base Vol:	169	1063	124	102	441	78	94	649	99	96	1012	244
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	169	1063	124	102	441	78	94	649	99	96	1012	244
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	169	1063	124	102	441	78	94	649	99	96	1012	244
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	169	1063	124	102	441	78	94	649	99	96	1012	244
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	169	1063	124	102	441	78	94	649	99	96	1012	244
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.03	1.00	1.00	1.04	1.00	1.00	1.06	1.00	1.00	1.06	1.00
Lanes:	1.00	1.79	0.21	1.00	1.70	0.30	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2966	334	1600	2819	481	1600	3400	1600	1600	3400	1600
Capacity Analysis Module:												
Vol/Sat:	0.11	0.36	0.37	0.06	0.16	0.16	0.06	0.19	0.06	0.06	0.30	0.15
Crit Moves:			****	****			****				****	

Future Year 2035
With Project

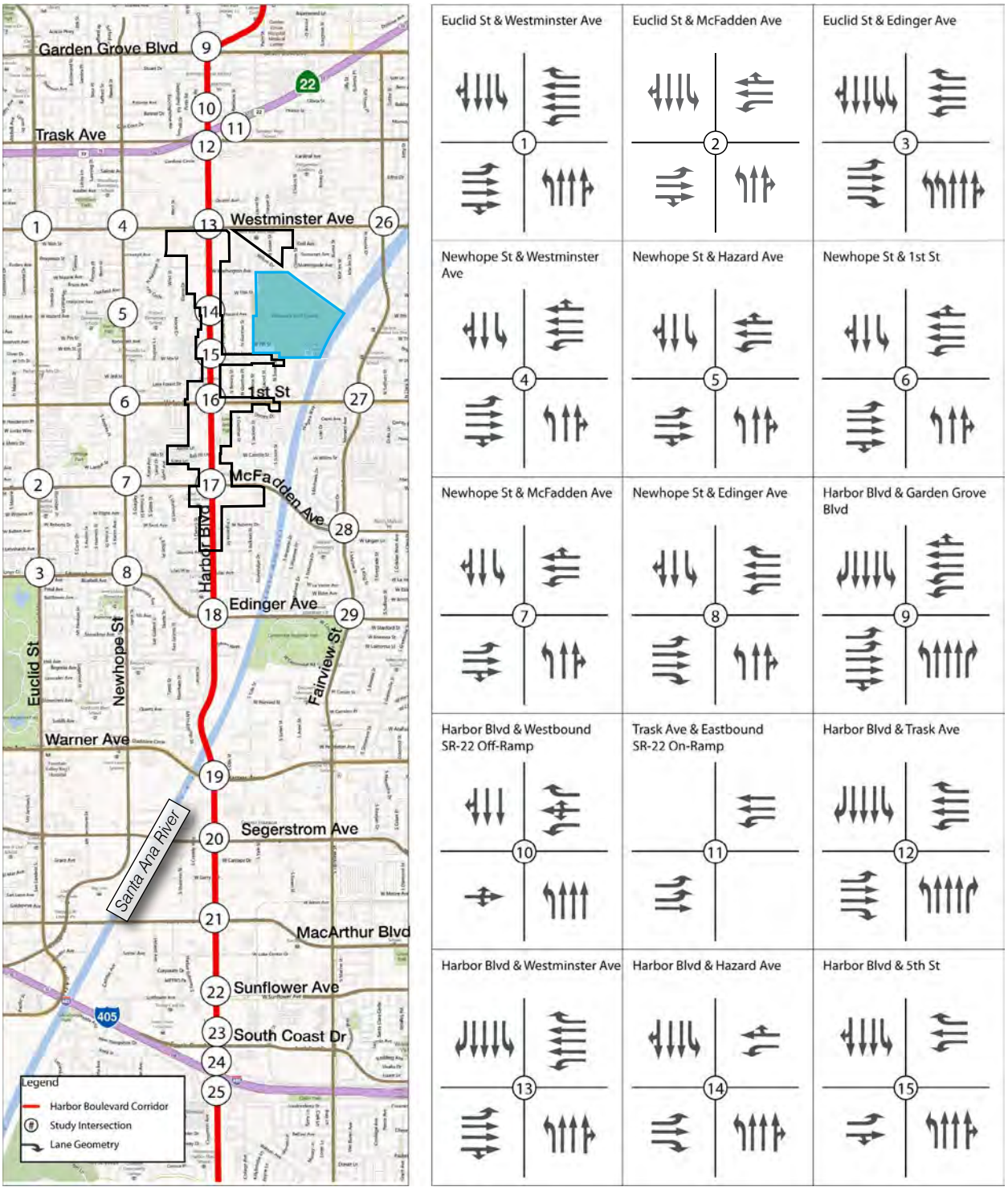
Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 Newhope St and Edinger Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.754
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	93	Level Of Service:	C

Street Name:	Newhope St						Edinger Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	1 0	2	0 1	1 0	2	0 1
Volume Module:												
Base Vol:	99	1053	135	121	483	50	88	666	94	141	857	350
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	1053	135	121	483	50	88	666	94	141	857	350
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	99	1053	135	121	483	50	88	666	94	141	857	350
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	99	1053	135	121	483	50	88	666	94	141	857	350
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	99	1053	135	121	483	50	88	666	94	141	857	350
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.04	1.00	1.00	1.03	1.00	1.00	1.06	1.00	1.00	1.06	1.00
Lanes:	1.00	1.77	0.23	1.00	1.81	0.19	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2936	364	1600	3000	300	1600	3400	1600	1600	3400	1600
Capacity Analysis Module:												
Vol/Sat:	0.06	0.36	0.37	0.08	0.16	0.17	0.06	0.20	0.06	0.09	0.25	0.22
Crit Moves:			****	****			****				****	

Figure 5.13-1 Study Area Intersections and Existing Turn Lane Geometries
5. Environmental Analysis



Harbor Mixed Use Transit Corridor Plan

Conventional Zoning

0 1
Scale (Miles)

Basemap Source: IBI Group 2013

Appendix

This page intentionally left blank.

Appendix B. Sewer Study

Appendix

This page intentionally left blank.

HARBOR BOULEVARD MIXED USE TRANSIT CORRIDOR

SEWER STUDY

DRAFT

JULY 7, 2014

IBI GROUP

DOCUMENT CONTROL

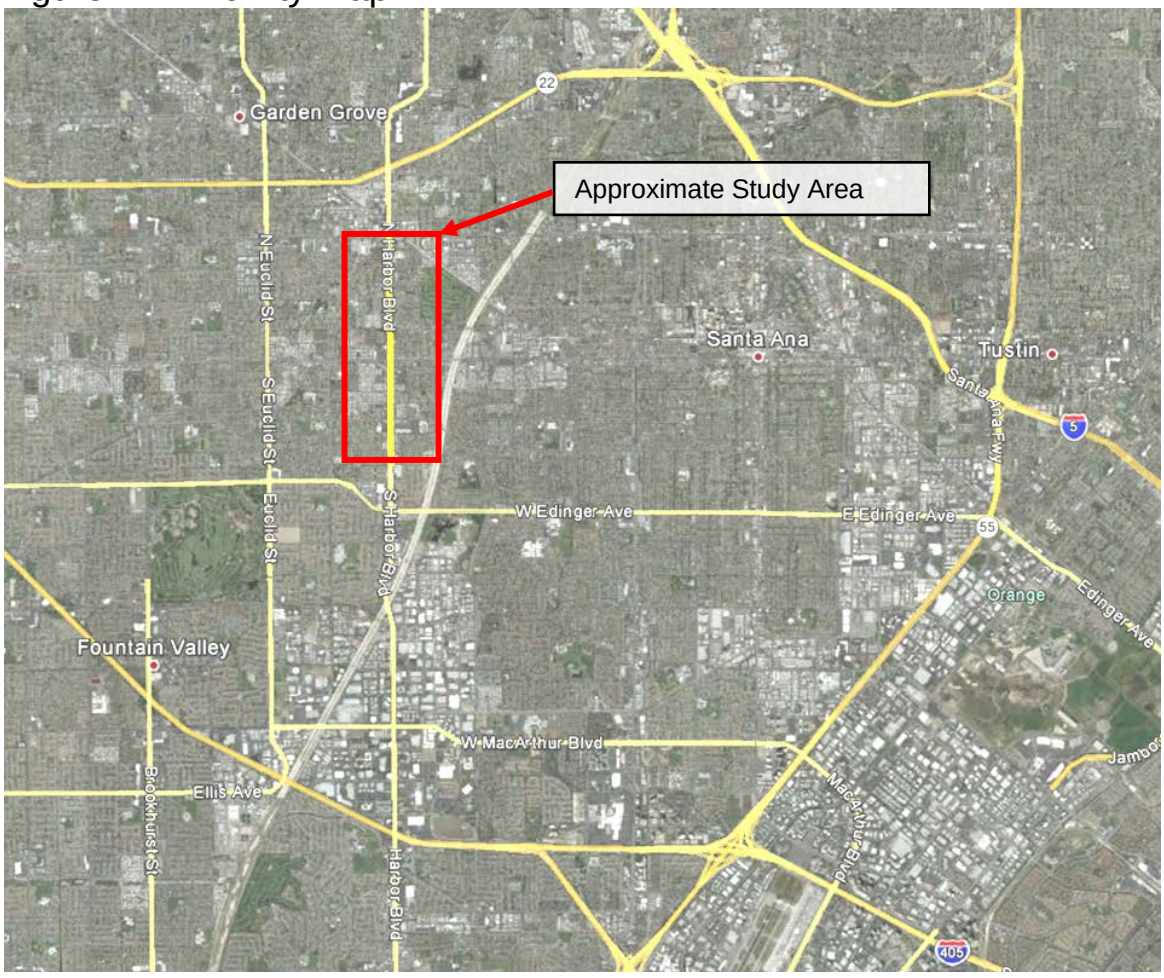
Client:	The Planning Center
Project Name:	Harbor Boulevard Mixed Use Transit Corridor
Report Title:	Sewer Study
IBI Reference:	29549
Version:	Version 2.0
Digital Master:	J:\29549_HarborSPEIR\10.0 Reports\2014-07-07 Sewer Study.docx
Originator:	Michael Russell
Reviewer:	Bill Delo
Authorization:	[Name]
Circulation List:	
History:	

TABLE OF CONTENTS

1. INTRODUCTION

The Harbor Boulevard Mixed Use Transit Corridor—hereafter referred to as Harbor Corridor Plan (HCP)—will amend the North Harbor Specific Plan, proposed by the City of Santa Ana in 1993. The project will consist of creating new residential housing with a mix of commercial and retail. The purpose of this report is to analyze the impacts that the new land uses within the HCP will have on the sanitary sewer infrastructure. Harbor Boulevard is a major north–south corridor that serves commercial and transportation purposes throughout Santa Ana and surrounding cities. The corridor study area largely covers the HCP area, which is located on the west side of the City and is bounded on the north by Westminster Avenue and on the south by the City limits near Gloxinia Avenue.

Figure 1.1: Vicinity Map



2. EXISTING CONDITIONS

Our findings of the existing conditions of the sanitary sewer infrastructure are based on information gathered from the City of Santa Ana Sewer Master Plan prepared by MWH, dated September 2003. Much of the sanitary sewer system within HCP was constructed in the 1950s and 1960s. According to the Atlas maps of the sewer system provided by the City, the majority of the pipes are vitrified clay pipe (VCP) and range in size from 8" to 15" in diameter. Figure 2.1, below, (seen as Figure 3-2 in the referenced 2003 Sewer Master Plan) shows that the entirety of the HCP falls within Sewer Basin 1, falls within three color-coded, delineated catchment areas and that the majority of the pipe was previously modeled.

Figure 2.1: Sewer Basins and Modeled Pipe Locations

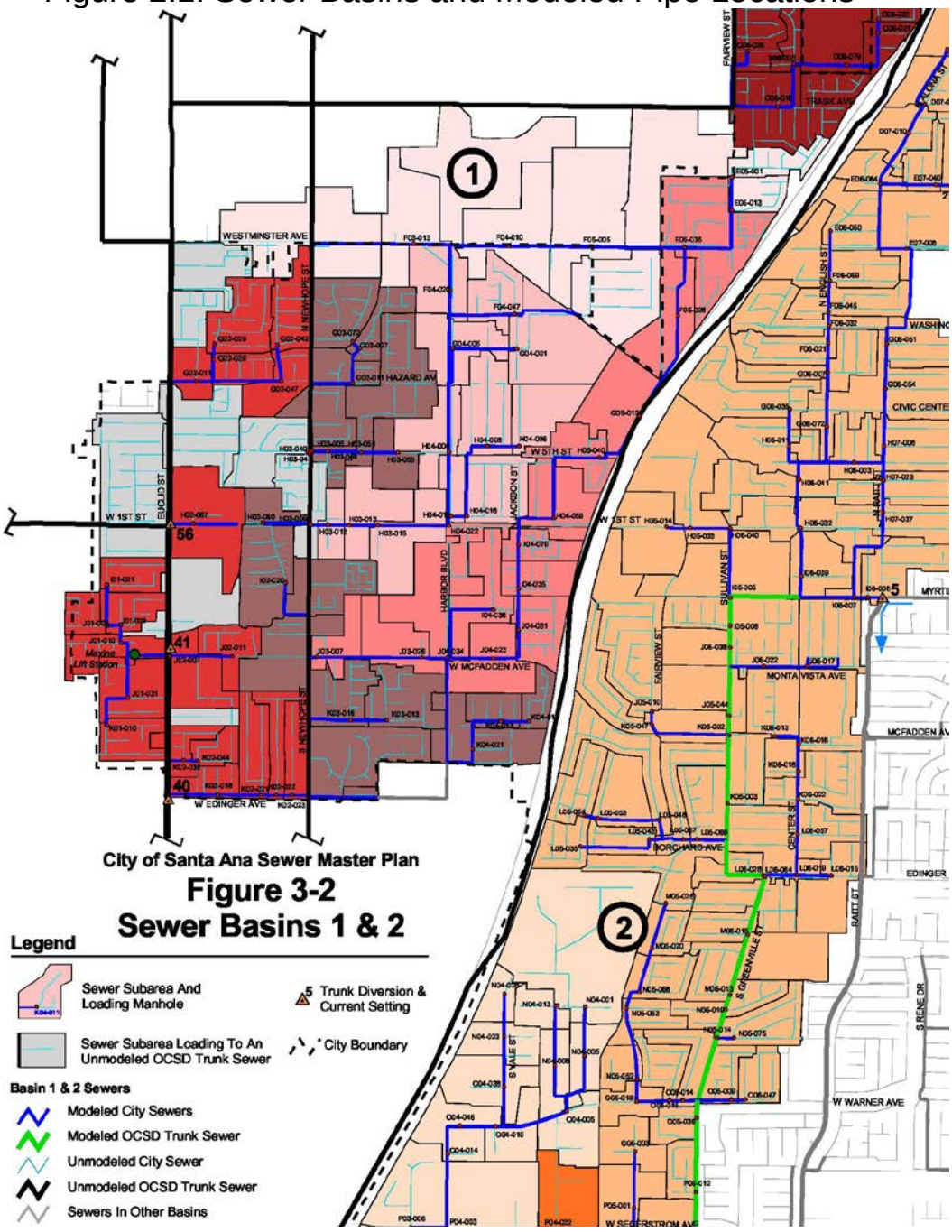


Table 2.1, below, shows the results of modeling the sanitary sewer system under population conditions found in the Year 2000 Census from the Census Bureau, and the 2000 Orange County Projections (OCP) from the City of Santa Ana Planning Department. The model was originally created by MWH. The model was calculated and performed assuming wet weather conditions. This assumption results in a conservative, worst-case scenario where runoff from storm events coincide with peak flows within the sanitary sewer. Nevertheless, infiltration was not a large factor in Sewer Basin 1. (See Figure 2.1, this report, for a graphical representation of Sewer Basin 1).

Using the Orange County Sanitation District's (OCSD) sizing requirements for the sanitary sewer system, the model for existing conditions results in various existing pipes being undersized. The OCSD Design and Construction Requirements manual states that the maximum depth of flow versus diameter ratio is 0.50 for pipes up to 12" in diameter and 0.75 for pipes greater than 12" in diameter. Table 2.1 provides the existing depth of flow versus diameter ratio. Many of the pipes within the HCP area are over the maximum ratio of 0.50 and 0.75. Pipes that exceed the aforementioned design requirements have their ratios shown in red text. Figure 2.2 provides a schematic view of these pipes with higher ratios. It should be noted that this is a design consideration and does not reflect the actual flow in the pipes as compared to pipe capacity.

The model results performed by MWH were condensed to show the pipes within the HCP, which is schematically represented in Figure 2.3, along with pipe sizes and manhole ID's.

Additional modeling of the existing OCSD Newhope-Placentia trunkline was performed to observe current capacities as it parallels the HCP. The existing trunkline wet weather conditions are shown in Table 2.2.

Table 2.1: Year 2000 Existing Pipe Capacities in Wet Weather Conditions

MSLink	US MH	DS MH	Length (feet)	Diameter (inches)	Capacity (gpm)	Ex Peak Flow (gpm)	Ex Peak Velocity (ft/sec)	Ex Peak Depth of Flow (feet)	Ex d/D	Ex q/Q
13825	F05-005	F04-065	410	12	625	428	1.89	0.60	0.60	0.68
13826	F04-065	F04-064	217	12	625	428	1.96	0.44	0.44	0.68
13827	F04-064	F04-021	200	12	694	428	2.09	0.62	0.62	0.62
13828	F04-021	F04-022	331	12	625	428	1.90	0.65	0.65	0.68
13829	F04-022	F04-012	10	12	0	428	1.12	3.24	0.00	0.00
13830	F04-012	F04-010	364	12	694	444	2.04	0.65	0.65	0.64
13831	F04-010	F04-008	381	12	694	507	2.08	0.71	0.71	0.73
13832	F04-008	F04-007	131	12	486	507	1.82	0.66	0.66	1.04
13833	F04-007	F04-006	249	12	625	507	2.07	0.45	0.45	0.81
13834	F04-006	F04-001	351	12	1319	507	3.42	0.50	0.50	0.38
13810	F04-001	F03-012	420	15	1250	555	2.23	0.58	0.47	0.44
13811	F03-012	F03-013	269	15	1319	586	2.26	0.60	0.48	0.44
13812	F03-013	F03-014	341	15	1319	602	2.27	0.62	0.49	0.46
13861	F04-060	F04-059	328	15	833	301	1.37	0.47	0.38	0.36
13862	F04-059	F04-058	154	15	833	301	1.55	0.32	0.25	0.36
13863	F04-058	F04-057	102	8	0	206	0.94	9.58	0.00	0.00
13864	F04-057	F04-056	144	15	833	301	1.34	0.69	0.55	0.36
13839	F04-056	F04-055	325	15	833	301	1.33	0.91	0.73	0.36
13840	F04-055	F04-048	75	15	1042	301	0.94	1.11	0.88	0.29
13841	F04-048	F04-047	157	10	139	301	1.18	0.96	1.15	2.17
13842	F04-047	F04-042	709	10	347	412	1.61	0.42	0.51	1.19
13843	F04-042	F04-043	469	10	417	412	1.93	0.50	0.60	0.99
13844	F04-043	F04-005	56	12	694	412	2.30	0.40	0.40	0.59
13935	G04-004	G04-005	308	8	278	79	1.38	0.40	0.60	0.28
13936	G04-005	G04-008	322	8	278	206	1.91	0.40	0.60	0.74
13937	G04-008	G04-009	325	8	278	206	2.06	0.35	0.52	0.74
13938	G04-009	G04-010	62	8	347	206	2.44	0.32	0.48	0.59
13835	F04-001	F04-002	407	15	2292	0	0.00	0.07	0.05	0.00
13836	F04-002	F04-020	453	15	1181	0	0.00	0.21	0.17	0.00
13837	F04-020	F04-003	276	15	1458	79	1.34	0.26	0.21	0.05
13838	F04-003	F04-004	148	15	1111	79	1.05	0.34	0.28	0.07
13858	F04-004	F04-005	43	15	1667	79	0.67	0.48	0.39	0.05
14050	F04-005	G04-006	636	15	1736	476	2.67	0.47	0.38	0.27
13939	G04-006	G04-010	646	15	1597	476	2.54	0.44	0.35	0.30
13940	G04-010	G04-025	689	15	1667	681	2.88	0.56	0.45	0.41
14122	G04-025	H04-004	627	15	1667	681	2.85	0.71	0.57	0.41
14082	H03-012	H03-011	23	21	2569	1601	2.69	0.94	0.53	0.62
14081	H03-013	H03-012	374	21	3194	1537	2.88	0.95	0.54	0.48
14119	H04-004	H04-003	30	15	1042	760	2.36	0.57	0.46	0.73
14120	H04-003	H04-033	689	15	1111	760	2.20	0.74	0.59	0.68
14121	H04-033	H04-022	676	15	1111	760	2.22	0.52	0.41	0.68
14076	H04-022	H03-017	584	21	2639	1268	2.40	0.85	0.48	0.48
14077	H03-017	H03-016	659	21	2708	1268	2.44	0.92	0.53	0.47
14078	H03-016	H03-015	92	21	2361	1268	2.06	0.99	0.56	0.54
14079	H03-015	H03-014	118	21	2708	1442	2.31	1.04	0.59	0.53
14080	H03-014	H03-013	446	21	2153	1537	2.30	0.82	0.47	0.71
14104	H04-006	H04-007	305	8	278	47	1.16	0.20	0.30	0.17
14105	H04-007	H04-008	305	8	278	47	1.20	0.27	0.40	0.17
14106	H04-008	H04-009	299	10	486	253	1.98	0.33	0.40	0.52
14107	H04-009	H04-010	148	10	486	253	1.99	0.34	0.40	0.52
14108	H04-010	H04-011	82	10	486	253	2.03	0.38	0.46	0.52
14095	H04-011	H04-013	89	10	417	253	1.77	0.43	0.52	0.61
14096	H04-013	H04-014	98	10	347	253	1.80	0.34	0.40	0.73
14097	H04-014	H04-015	243	12	556	253	1.51	0.49	0.49	0.46
14098	H04-015	H04-016	249	12	556	253	1.50	0.49	0.49	0.46
14099	H04-016	H04-017	249	12	556	253	1.51	0.49	0.49	0.46
14100	H04-017	H04-018	249	12	556	253	1.48	0.55	0.55	0.46
14101	H04-018	H04-019	299	12	556	428	1.79	0.50	0.50	0.77
14116	H04-019	H04-020	56	12	278	476	1.60	0.73	0.73	1.71
14117	H04-020	H04-021	135	12	694	476	2.17	0.43	0.43	0.69
14118	H04-021	H04-022	7	12	1111	476	3.13	0.43	0.43	0.43

MSLink	US MH	DS MH	Length (feet)	Diameter (inches)	Capacity (gpm)	Peak Flow (gpm)	Peak Velocity (ft/sec)	DS Peak Depth of Flow (feet)	DS d/D	DS q/Q
14125	H05-040	H05-009	187	12	694	444	2.11	0.57	0.57	0.64
14109	H05-009	H04-076	331	12	694	444	2.12	0.58	0.58	0.64
14110	H04-076	H04-063	331	12	694	444	2.07	0.44	0.44	0.64
14111	H04-063	H04-062	285	12	694	444	2.14	0.57	0.57	0.64
14112	H04-062	H04-061	289	12	694	444	2.11	0.57	0.57	0.64
14113	H04-061	H04-060	289	12	694	444	2.11	0.57	0.57	0.64
14114	H04-060	H04-059	289	12	694	444	2.12	0.44	0.44	0.64
14115	H04-059	H04-054	331	12	1111	618	3.18	0.63	0.63	0.56
14102	H04-054	H04-058	331	12	903	618	2.64	0.56	0.56	0.68
14103	H04-058	H04-057	213	15	1042	618	1.90	0.73	0.58	0.59
14482	H04-057	H04-056	115	15	972	618	1.87	0.73	0.59	0.64
14261	H04-056	I04-079	187	15	1042	618	1.86	0.78	0.62	0.59
14271	I04-036	I04-037	272	8	278	158	1.74	0.38	0.57	0.57
14272	I04-037	I04-038	266	8	278	158	1.71	0.38	0.57	0.57
14273	I04-038	I04-039	266	8	278	158	1.72	0.28	0.42	0.57
14744	I04-039	I04-040	308	8	278	158	1.72	0.38	0.57	0.57
14405	I04-040	J04-032	308	8	278	158	1.71	0.38	0.57	0.57
14406	J04-032	J04-026	308	8	278	158	1.70	0.47	0.70	0.57
14262	I04-079	I04-070	135	15	972	697	1.93	0.78	0.62	0.72
14263	I04-070	I04-068	66	15	972	697	1.95	0.78	0.62	0.72
14264	I04-068	I04-066	253	15	972	697	1.95	0.78	0.63	0.72
14265	I04-066	I04-065	180	15	1042	697	1.93	0.80	0.64	0.67
14266	I04-065	I04-064	177	15	972	697	1.87	0.83	0.67	0.72
14267	I04-064	I04-025	20	15	1736	697	1.83	0.89	0.71	0.40
14268	I04-025	I04-026	200	15	694	808	1.77	0.87	0.70	1.16
14745	I04-026	I04-027	197	15	1042	808	1.98	0.89	0.71	0.78
14269	I04-027	I04-030	253	15	972	808	1.93	0.94	0.75	0.83
14270	I04-030	I04-031	7	15	4236	808	1.82	0.79	0.63	0.19
14394	I04-031	J04-031	135	15	556	808	1.80	0.86	0.68	1.45
14393	J03-007	J03-006	135	15	1319	1331	3.09	0.69	0.55	1.01
14392	J03-012	J03-007	253	15	1111	1331	2.48	0.92	0.73	1.20
14391	J03-013	J03-012	102	15	1389	1331	2.82	1.06	0.85	0.96
14390	J03-021	J03-013	295	15	1319	1268	2.67	1.05	0.84	0.96
14389	J03-022	J03-021	315	15	1319	1268	2.68	1.08	0.86	0.96
14388	J03-023	J03-022	299	15	1319	1268	2.68	1.09	0.87	0.96
14387	J03-024	J03-023	299	15	1319	1268	2.69	1.10	0.88	0.96
14395	J04-031	J04-019	262	15	1181	935	2.36	0.89	0.71	0.79
14396	J04-019	J04-020	269	15	1042	935	2.21	0.79	0.63	0.90
14397	J04-020	J04-021	200	15	1111	935	2.25	0.89	0.71	0.84
14398	J04-021	J04-022	26	15	0	935	2.12	0.90	0.72	0.00
14399	J04-022	J04-023	259	15	1042	935	2.17	0.92	0.73	0.90
14400	J04-023	J04-024	266	15	1111	999	2.33	0.91	0.73	0.90
14401	J04-024	J04-025	266	15	1111	999	2.35	0.75	0.60	0.90
14402	J04-025	J04-026	269	15	1528	999	2.90	0.95	0.76	0.65
14403	J04-026	J04-027	36	15	2014	1157	3.21	1.05	0.84	0.57
14404	J04-027	J04-028	43	10	0	745	2.81	2.13	0.00	0.00
14383	J04-028	J03-028	299	15	1319	1157	2.67	1.09	0.87	0.88
14384	J03-028	J03-026	174	15	1319	1157	2.51	1.15	0.92	0.88
14385	J03-026	J03-025	128	15	1250	1283	2.66	1.12	0.89	1.03
14386	J03-025	J03-024	299	15	1250	1283	2.67	1.12	0.89	1.03
14407	J04-034	J04-035	377	12	625	63	1.15	0.24	0.24	0.10
14408	J04-035	J04-036	374	12	625	63	1.08	0.23	0.23	0.10
14628	J04-036	K03-056	374	12	625	63	1.08	0.23	0.23	0.10
14629	K03-056	K03-006	374	12	625	63	1.08	0.23	0.23	0.10
14630	K03-006	K03-005	374	12	625	63	1.03	0.28	0.28	0.10
14631	K03-005	K03-003	75	12	833	63	0.83	0.47	0.47	0.08
14632	K03-003	K03-004	299	12	486	253	1.43	0.44	0.44	0.52
14633	K03-004	K03-055	387	12	625	253	1.70	0.44	0.44	0.40
14642	K04-021	K04-024	253	8	278	206	1.84	0.42	0.63	0.74
14643	K04-024	K04-029	233	10	417	190	1.59	0.42	0.50	0.46
14765	K04-029	K03-002	161	10	417	190	1.60	0.41	0.49	0.46
14764	K03-002	K03-003	89	10	486	190	1.68	0.46	0.55	0.39
14627	K03-013	K03-014	285	8	278	95	1.58	0.25	0.37	0.34
14619	K03-014	K03-015	200	8	278	95	1.59	0.25	0.38	0.34
14620	K03-015	K03-016	200	8	347	95	1.70	0.38	0.57	0.27

Table 2.2: Existing Newhope Trunkline Existing Pipe Capacities in Wet Weather Conditions

Street Intersection	US Node ID	DS Node ID	Length (ft)	Diameter (in)	Conduit Full Capacity (MGD)	Conduit Full Capacity (gpm)	Max DS Flow (MGD)	Max DS Flow (gpm)	Additional Capacity (gpm)
Edinger Avenue	NHP0080-0000	NHP0075-0000	1302.4	48	47.360	32889	33.114	22996	9893
Kent Avenue	NHP0085-0000	NHP0080-0000	1316	48	47.330	32868	32.915	22858	10010
McFadden Avenue	NHP0090-0000	NHP0085-0000	811.7	51	45.960	31917	31.597	21943	9974
	NHP0095-0000	NHP0090-0000	444.4	51	43.000	29861	31.600	21944	7917
	NHP0100-0000	NHP0095-0000	1240.9	51	45.000	31250	31.322	21751	9499
First Street	NHP0105-0000	NHP0100-0000	94.5	48	44.790	31104	29.456	20456	10648
	NHP0110-0000	NHP0105-0000	1273.5	48	44.530	30924	29.456	20455	10468
	NHP0115-0000	NHP0110-0000	1284.5	48	44.340	30792	28.879	20055	10737
	NHP0120-0000	NHP0115-0000	88.3	30	28.210	19590	15.659	10874	8716
Siphon	NHP0120-0000	NHP0115-0000	88.3	33	-20.890	-14507	13.035	9052	-23559
	NHP0125-0000	NHP0120-0000	1267.6	48	44.410	30840	28.694	19927	10914
	NHP0130-0000	NHP0125-0000	1269.6	48	44.680	31028	28.697	19928	11100
	NHP0135-0000	NHP0130-0000	104.5	48	43.560	30250	28.700	19931	10319
Westminster Avenue	NHP0140-0000	NHP0135-0000	1448.5	51	43.680	30333	28.701	19931	10402

Figure 2.2: Year 2000 Waste Water Flow Depth to Pipe Diameter Ratio

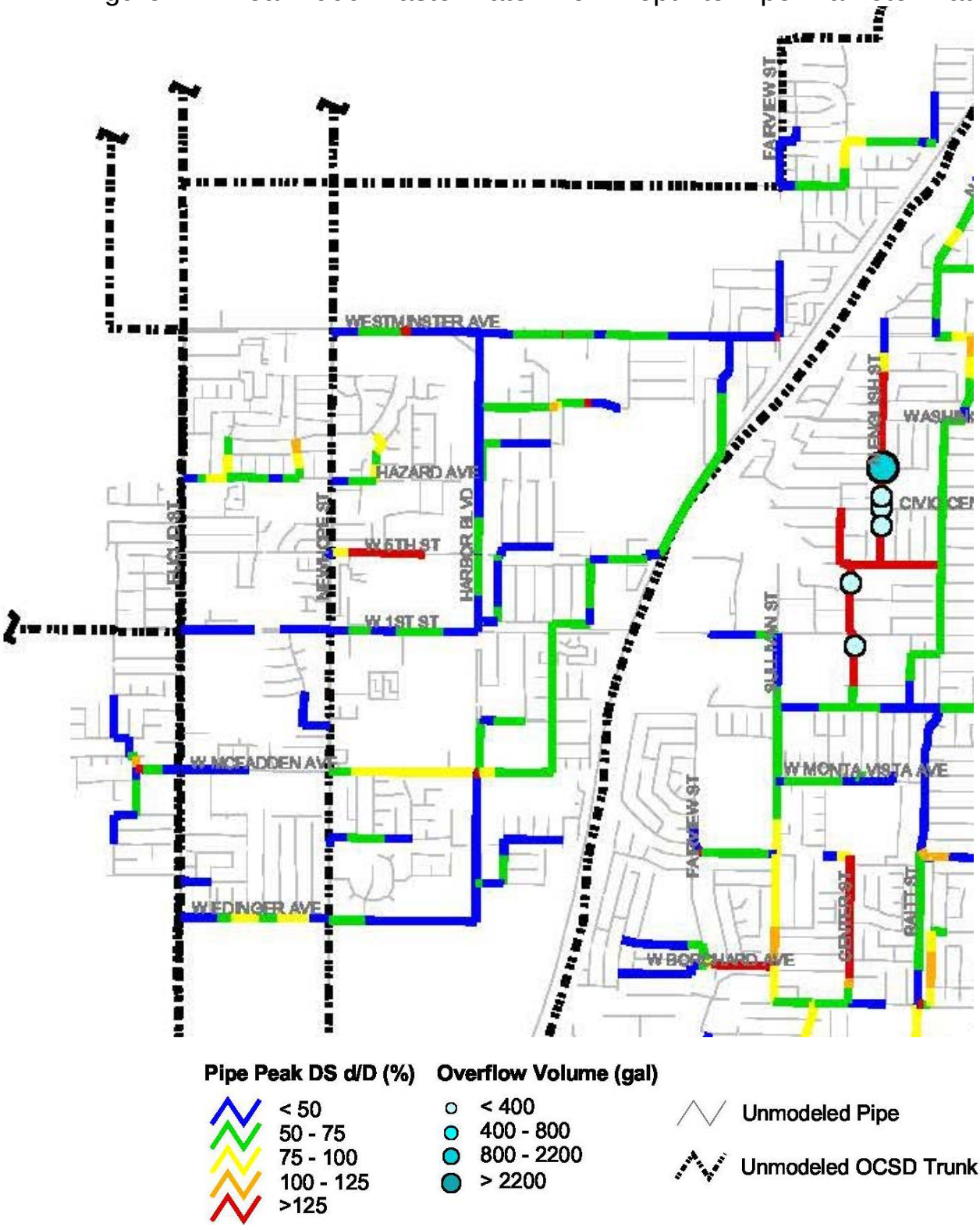


FIGURE 2.3A

SCALE: 1" = 600'

HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

K03–055 INFLOW # 12

SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER

CATCHMENT # INFLOW

BASIN 6
BASIN 1
BASIN 2
BASIN 8
BASIN 11
BASIN 12
BASIN 16
BASIN 20
BASIN 5
BASIN 10
BASIN 15
BASIN 19
HARBOR BOULEVARD
BASIN 14
BASIN 18
BASIN 4
BASIN 7
BASIN 9
BASIN 13
BASIN 17
BASIN 3
WESTMINSTER AVE
HAZARD AVE
5TH ST
1ST ST
NEWHOPE STREET

FIGURE 2.3B

SCALE: 1" = 600'

HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER

CATCHMENT # INFLOW

BASIN 16

BASIN 20

BASIN 15

BASIN 19

BASIN 22

BASIN 14

BASIN 18

BASIN 24

BASIN 13

BASIN 17

BASIN 21

BASIN 23

HARBOR BOULEVARD

5TH ST

1ST ST

McFADDEN AVE

NEWHOPE STREET

3. PROPOSED CONDITIONS

Figure 3.1, below, clearly outlines the boundary of the HCP. In order to determine the future impacts that the HCP would have on the existing sewer system, various studies were performed by The Planning Center. Tables 3.1 and 3.2 are based on population and land use data gathered in 2013 by the Orange County Transportation Authority (OCTA). Table 3.1 shows the *existing* land uses and populations of employees based on land use within the HCP. Table 3.2 shows the proposed or future land uses and populations of employees based on proposed or future land uses within the HCP. The HCP resides within eight traffic analysis zones (TAZ). These TAZs are listed in the tables below with the corresponding acres, units and populations within the HCP. See Figure 3.1 to see where the HCP lies within each TAZ.

Figure 3.1:
Harbor Corridor Plan with TAZ and Catchment Basin Boundaries

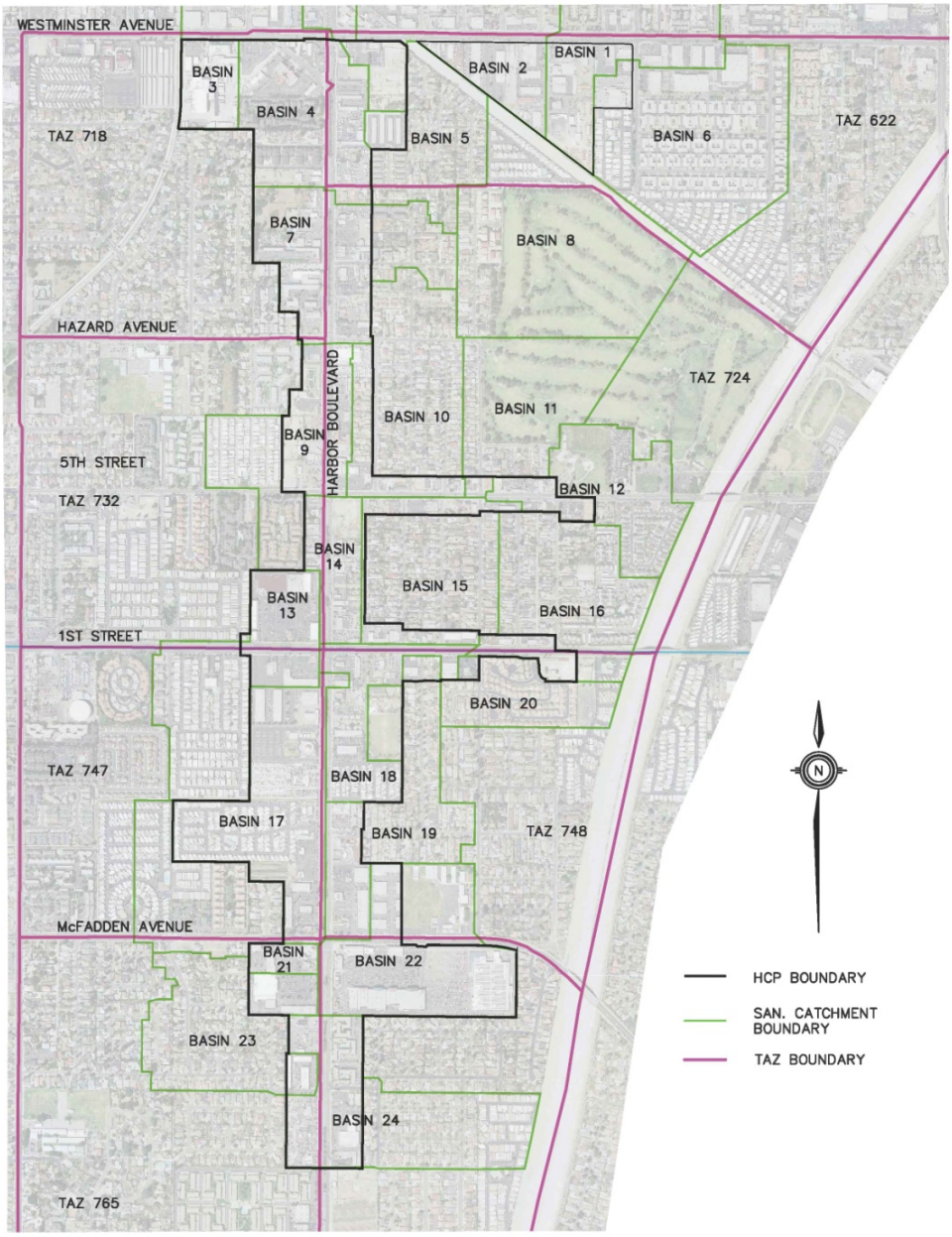


Table 3.1:
Existing HCP Land Use and Commercial Employee Populations

TAZ	Acres (exclude ROW)	Units	Pop.	Retail Square Feet	Service Square Feet	Other Square Feet	Retail Employ.	Service Employ.	Other Employ.	Total Employ.
622	39.38	0	0	46,269	187,546	147,530	40	145	61	246
718	41.39	230	1,012	21,215	86,738	174,233	21	63	73	157
724	36.98	61	268	52,278	202,154	13,312	47	155	6	208
732	18.78	0	0	70,011	80,757	1,979	61	64	3	128
747	38.14	150	660	34,486	33,310	88,500	32	24	37	93
748	32.11	105	462	41,995	96,953	76,787	38	77	32	147
765	16.22	0	0	50,840	87,468	2,696	41	69	1	111
766	30.1	193	849	316,784	40,420	0	264	34	0	298

Table 3.2:
Proposed HCP Land Use and Commercial Employee Populations

TAZ	Acres (exclude ROW)	Units	Pop.	Retail Square Feet	Service Square Feet	Other Square Feet	Retail Employ.	Service Employ.	Other Employ.	Total Employ.
622	39.38	1,229	4,915	125,000	375,000	0	104	313	0	417
718	41.39	708	2,833	102,000	0	161,000	85	0	67	152
724	36.98	628	2,526	88,827	0	0	74	0	0	74
732	18.78	272	1,086	208,271	0	0	174	0	0	174
747	38.14	749	3,072	83,000	0	34,000	69	0	14	83
748	32.11	544	2,177	115,000	0	0	96	0	0	96
765	16.22	268	1,073	185,600	0	0	155	0	0	155
766	30.1	224	897	490,284	0	0	409	0	0	409

Table 3.3, below, illustrates growth of residential units, population, and commercial space and employee numbers in a more condensed format, as well as showing the change in percentage between the existing and proposed conditions.

Table 3.3: HCP Growth

	Existing	HCP	% Change
Units	739	4,622	525%
Population	3,251	18,579	471%
Total SF	1,954,261	1,967,982	1%
Total Emp	1,388	1,559	12%

Table 3.3 shows that there is only a nominal increase in the commercial employment populations. The vast majority of the increase of waste water generation (WWG) will result from the growth in the residential population. Due to this fact, the proposed modeling of the HCP will focus on the increases in WWG due to residential influences. The commercial increases are assumed to be negligible. This is a conservative approach as the WWG for residential populations is 75 gpd/capita, whereas the WWG for commercial employees is 25 gpd/capita.

The projected residential populations found in Table 3.2 were used to calculate the population the resulting WWG from the proposed conditions within each catchment area (see figure 3.1 for catchment areas as they relate to the TAZ's and the HCP boundary). Table 3.4 shows the results of these calculations, below.

Table 3.4: Proposed HCP Waste Water Generation

Basin ID (Inflow)	TAZ	Inflow Manhole	Portion of Harbor Corridor in Basin (acres)	Proposed Residential Population (per acre)	Proposed Residential Population	Peaking Factor	Proposed Residential WWG (GPD)	Proposed Residential WWG (GPM)
3	718	F03-013	8.89	68.45	608.49	1.46	66630	46.27
2	622	F04-010	16.24	124.81	2026.91	1.40	212825	147.80
4	718	F04-020	26.28	68.45	1798.77	1.05	141653	98.37
5	622	F04-047	2.69	124.81	335.74	1.65	41548	28.85
6	622	F04-060	2.58	124.81	322.01	1.69	40815	28.34
1	622	F05-005	11.04	124.81	1377.90	1.58	163281	113.39
7	718	G04-005	21.98	68.45	1504.45	1.65	186176	129.29
13	747	H03-015	12.26	80.55	987.49	1.42	105167	73.03
9	732	H04-004	12.05	57.83	696.82	1.37	71598	49.72
11	724	H04-006	0.93	68.31	63.53	1.66	7909	5.49
10	724	H04-008	9.08	68.31	620.23	1.70	79079	54.92
15	724	H04-018	8.34	68.31	569.68	1.64	70071	48.66
14	724	H04-019	9.04	68.31	617.50	1.64	75952	52.74
18	748	H04-022	13.29	67.80	901.04	1.64	110828	76.96
16	724	H04-059	4.84	68.31	330.61	1.65	40913	28.41
12	724	H05-040	4.93	68.31	336.75	1.67	42178	29.29
19	748	I04-036	12.49	67.80	846.80	1.61	102188	70.96
20	748	I04-079	4.84	67.80	328.14	1.67	41100	28.54
21	747	J03-026	3.58	80.55	288.35	1.60	34602	24.03
22	748	J04-023	22.47	67.80	1523.43	1.64	187381	130.13
17	747	J04-034	34.77	80.55	2800.56	2.03	426386	296.10
23	765	K03-013	6.81	66.15	450.50	1.29	43586	30.27
24	766	K04-021	13.48	29.80	401.71	1.56	47000	32.64

The wastewater generation numbers were then added to each applicable sanitary sewer junction to determine the impacts to the system. The impacts to the sanitary sewer system are numerically shown in Table 3.5. Most of the modeled sanitary flows within the HCP increase approximately 25%. This increase results in 17% of the pipe sections within the HCP surpassing capacity. The approximate proposed d/D and q/Q ratios are shown, with non-compliant d/D ratios and over-capacity pipes shown in red text. Again, it should be noted that the d/D criteria is a design consideration and does not reflect the actual flow in the pipes as compared to pipe capacity.

The wastewater generation numbers have been summarized and flows concentrated at connection points in Table 3.6. Table 3.7 shows the impacts to the Newhope-Placentia trunkline as it parallels the HCP from the additional flows.

Table 3.5: Future Pipe Capacities in Wet Weather Conditions

MSLink	US MH	DS MH	Diam. (in)	Capacity (gpm)	Ex Peak Flow (gpm)	Ex d/D	Ex q/Q	Future Additional Flow (gpm)	Future Total Peak Flow (gpm)	% Change	Approx. Future d/D	Approx. Future q/Q
13825	F05-005	F04-065	12	625	428	0.60	0.68	113.39	541.39	26.49%	0.80	0.87
13826	F04-065	F04-064	12	625	428	0.44	0.68	113.39	541.39	26.49%	0.51	0.87
13827	F04-064	F04-021	12	694	428	0.62	0.62	113.39	541.39	26.49%	0.81	0.78
13828	F04-021	F04-022	12	625	428	0.65	0.68	113.39	541.39	26.49%	0.87	0.87
13829	F04-022	F04-012	12	0	428	0.00	0.00	113.39	541.39	26.49%	1.37	
13830	F04-012	F04-010	12	694	444	0.65	0.64	113.39	557.39	25.54%	0.87	0.80
13831	F04-010	F04-008	12	694	507	0.71	0.73	261.18	768.18	51.52%	1.15	1.11
13832	F04-008	F04-007	12	486	507	0.66	1.04	261.18	768.18	51.52%	1.05	1.58
13833	F04-007	F04-006	12	625	507	0.45	0.81	261.18	768.18	51.52%	0.66	1.23
13834	F04-006	F04-001	12	1319	507	0.50	0.38	261.18	768.18	51.52%	0.77	0.58
13810	F04-001	F03-012	15	1250	555	0.47	0.44	261.18	816.18	47.06%	0.67	0.65
13811	F03-012	F03-013	15	1319	586	0.48	0.44	261.18	847.18	44.57%	0.68	0.64
13812	F03-013	F03-014	15	1319	602	0.49	0.46	307.46	909.46	51.07%	0.74	0.69
13813	F03-014	F03-015	15	1528	776	0.42	0.51	307.46	1083.46	39.62%	0.56	0.71
13814	F03-015	F03-016	10	0	491	13.82						
13815	F03-016	F03-017	15	1528	776	0.51	0.51	307.46	1083.46	39.62%	0.71	0.71
13816	F03-017	F03-018	15	1528	824	0.52	0.54	307.46	1131.46	37.31%	0.74	0.74
13818	F03-018	F03-008	15	1458	824	0.43	0.57	307.46	1131.46	37.31%	0.57	0.78
13861	F04-060	F04-059	15	833	301	0.38	0.36	28.34	329.34	9.42%	0.39	0.40
13862	F04-059	F04-058	15	833	301	0.25	0.36	28.34	329.34	9.42%	0.22	0.40
13863	F04-058	F04-057	8	0	206	0.00	0.00	28.34	234.34	13.76%		
13864	F04-057	F04-056	15	833	301	0.55	0.36	28.34	329.34	9.42%	0.45	0.40
13839	F04-056	F04-055	15	833	301	0.73	0.36	28.34	329.34	9.42%	0.36	0.40
13840	F04-055	F04-048	15	1042	301	0.88	0.29	28.34	329.34	9.42%	0.77	0.32
13841	F04-048	F04-047	10	139	301	1.15	2.17	28.34	329.34	9.42%	1.00	2.37
13842	F04-047	F04-042	10	347	412	0.51	1.19	57.20	469.20	13.88%	0.59	1.35
13843	F04-042	F04-043	10	417	412	0.60	0.99	57.20	469.20	13.88%	0.72	1.13
13844	F04-043	F04-005	12	694	412	0.40	0.59	57.20	469.20	13.88%	0.43	0.68
13935	G04-004	G04-005	8	278	79	0.60	0.28	129.29	208.29	163.66%	1.46	0.75
13936	G04-005	G04-008	8	278	206	0.60	0.74	129.29	335.29	62.76%	1.04	1.21
13937	G04-008	G04-009	8	278	206	0.52	0.74	129.29	335.29	62.76%	0.88	1.21
13938	G04-009	G04-010	8	347	206	0.48	0.59	129.29	335.29	62.76%	0.79	0.97
13835	F04-001	F04-002	15	2292	0	0.05	0.00					
13836	F04-002	F04-020	15	1181	0	0.17	0.00					
13837	F04-020	F04-003	15	1458	79	0.21	0.05	98.37	177.37	124.52%	0.32	0.12
13838	F04-003	F04-004	15	1111	79	0.28	0.07	98.37	177.37	124.52%	0.48	0.16
13858	F04-004	F04-005	15	1667	79	0.39	0.05	98.37	177.37	124.52%	0.83	0.11
14050	F04-005	G04-006	15	1736	476	0.38	0.27	155.57	631.57	32.68%	0.45	0.36
13939	G04-006	G04-010	15	1597	476	0.35	0.30	155.57	631.57	32.68%	0.39	0.40
13940	G04-010	G04-025	15	1667	681	0.45	0.41	284.86	965.86	41.83%	0.62	0.58
14122	G04-025	H04-004	15	1667	681	0.57	0.41	284.86	965.86	41.83%	0.82	0.58
14082	H03-012	H03-011	21	2569	1601	0.53	0.62	284.86	1885.86	17.79%	0.64	0.73
14081	H03-013	H03-012	21	3194	1537	0.54	0.48	284.86	1821.86	18.53%	0.66	0.57
14119	H04-004	H04-003	15	1042	760	0.46	0.73	334.58	1094.58	44.02%	0.63	1.05
14120	H04-003	H04-033	15	1111	760	0.59	0.68	334.58	1094.58	44.02%	0.89	0.99
14121	H04-033	H04-022	15	1111	760	0.41	0.68	334.58	1094.58	44.02%	0.57	0.99
14076	H04-022	H03-017	21	2639	1268	0.48	0.48	573.35	1841.35	45.22%	0.70	0.70
14077	H03-017	H03-016	21	2708	1268	0.53	0.47	573.35	1841.35	45.22%	0.77	0.68
14078	H03-016	H03-015	21	2361	1268	0.56	0.54	573.35	1841.35	45.22%	0.84	0.78
14079	H03-015	H03-014	21	2708	1442	0.59	0.53	646.39	2088.39	44.83%	0.89	0.77
14080	H03-014	H03-013	21	2153	1537	0.47	0.71	646.39	2183.39	42.06%	0.65	1.01
14104	H04-006	H04-007	8	278	47	0.30	0.17	5.49	52.49	11.69%	0.28	0.19
14105	H04-007	H04-008	8	278	47	0.40	0.17	5.49	52.49	11.69%	0.24	0.19
14106	H04-008	H04-009	10	486	253	0.40	0.52	60.41	313.41	23.88%	0.46	0.64
14107	H04-009	H04-010	10	486	253	0.40	0.52	60.41	313.41	23.88%	0.46	0.64
14108	H04-010	H04-011	10	486	253	0.46	0.52	60.41	313.41	23.88%	0.54	0.64
14095	H04-011	H04-013	10	417	253	0.52	0.61	60.41	313.41	23.88%	0.64	0.75
14096	H04-013	H04-014	10	347	253	0.40	0.73	60.41	313.41	23.88%	0.46	0.90
14097	H04-014	H04-015	12	556	253	0.49	0.46	60.41	313.41	23.88%	0.59	0.56
14098	H04-015	H04-016	12	556	253	0.49	0.46	60.41	313.41	23.88%	0.59	0.56
14099	H04-016	H04-017	12	556	253	0.49	0.46	60.41	313.41	23.88%	0.60	0.56
14100	H04-017	H04-018	12	556	253	0.55	0.46	60.41	313.41	23.88%	0.65	0.56
14101	H04-018	H04-019	12	556	428	0.50	0.77	109.07	537.07	25.48%	0.56	0.97
14116	H04-019	H04-020	12	278	476	0.73	1.71	161.81	637.81	33.99%	1.07	2.29
14117	H04-020	H04-021	12	694	476	0.43	0.69	161.81	637.81	33.99%	0.56	0.92
14118	H04-021	H04-022	12	1111	476	0.43	0.43	161.81	637.81	33.99%	0.57	0.57

MSLink	US MH	DS MH	Diam. (inches)	Capacity (gpm)	Ex Peak Flow (gpm)	Ex d/D	Ex q/Q	Future Additional Flow (gpm)	Future Total Peak Flow (gpm)	% Change	Approx. Future d/D	Future q/Q
14125	H05-040	H05-009	12	694	444	0.57	0.64	29.29	473.29	6.60%	0.63	0.68
14109	H05-009	H04-076	12	694	444	0.58	0.64	29.29	473.29	6.60%	0.65	0.68
14110	H04-076	H04-063	12	694	444	0.44	0.64	29.29	473.29	6.60%	0.44	0.68
14111	H04-063	H04-062	12	694	444	0.57	0.64	29.29	473.29	6.60%	0.64	0.68
14112	H04-062	H04-061	12	694	444	0.57	0.64	29.29	473.29	6.60%	0.64	0.68
14113	H04-061	H04-060	12	694	444	0.57	0.64	29.29	473.29	6.60%	0.63	0.68
14114	H04-060	H04-059	12	694	444	0.44	0.64	29.29	473.29	6.60%	0.44	0.68
14115	H04-059	H04-054	12	1111	618	0.63	0.56	57.70	675.70	9.34%	0.73	0.61
14102	H04-054	H04-058	12	903	618	0.56	0.68	57.70	675.70	9.34%	0.62	0.75
14103	H04-058	H04-057	15	1042	618	0.58	0.59	57.70	675.70	9.34%	0.66	0.65
14482	H04-057	H04-056	15	972	618	0.59	0.64	57.70	675.70	9.34%	0.66	0.70
14261	H04-056	I04-079	15	1042	618	0.62	0.59	57.70	675.70	9.34%	0.70	0.65
14271	I04-036	I04-037	8	278	158	0.57	0.57	70.96	228.96	44.91%	0.86	0.82
14272	I04-037	I04-038	8	278	158	0.57	0.57	70.96	228.96	44.91%	0.85	0.82
14273	I04-038	I04-039	8	278	158	0.42	0.57	70.96	228.96	44.91%	0.58	0.82
14744	I04-039	I04-040	8	278	158	0.57	0.57	70.96	228.96	44.91%	0.85	0.82
14405	I04-040	J04-032	8	278	158	0.57	0.57	70.96	228.96	44.91%	0.86	0.82
14406	J04-032	J04-026	8	278	158	0.70	0.57	70.96	228.96	44.91%	0.58	0.82
14262	I04-079	I04-070	15	972	697	0.62	0.72	86.24	783.24	12.37%	0.73	0.81
14263	I04-070	I04-068	15	972	697	0.62	0.72	86.24	783.24	12.37%	0.73	0.81
14264	I04-068	I04-066	15	972	697	0.63	0.72	86.24	783.24	12.37%	0.74	0.81
14265	I04-066	I04-065	15	1042	697	0.64	0.67	86.24	783.24	12.37%	0.76	0.75
14266	I04-065	I04-064	15	972	697	0.67	0.72	86.24	783.24	12.37%	0.78	0.81
14267	I04-064	I04-025	15	1736	697	0.71	0.40	86.24	783.24	12.37%	0.84	0.45
14268	I04-025	I04-026	15	694	808	0.70	1.16	86.24	894.24	10.67%	0.82	1.29
14745	I04-026	I04-027	15	1042	808	0.71	0.78	86.24	894.24	10.67%	0.84	0.86
14269	I04-027	I04-030	15	972	808	0.75	0.83	86.24	894.24	10.67%	0.89	0.92
14270	I04-030	I04-031	15	4236	808	0.63	0.19	86.24	894.24	10.67%	0.73	0.21
14394	I04-031	J04-031	15	556	808	0.68	1.45	86.24	894.24	10.67%	0.79	1.61
14395	J04-031	J04-019	15	1181	935	0.71	0.79	86.24	1021.24	9.22%	0.83	0.86
14396	J04-019	J04-020	15	1042	935	0.63	0.90	86.24	1021.24	9.22%	0.71	0.98
14397	J04-020	J04-021	15	1111	935	0.71	0.84	86.24	1021.24	9.22%	0.83	0.92
14398	J04-021	J04-022	15	0	935	0.72	0.00	86.24	1021.24	9.22%	0.84	
14399	J04-022	J04-023	15	1042	935	0.73	0.90	86.24	1021.24	9.22%	0.84	0.98
14400	J04-023	J04-024	15	1111	999	0.73	0.90	216.37	1215.37	21.66%	0.94	1.09
14401	J04-024	J04-025	15	1111	999	0.60	0.90	216.37	1215.37	21.66%	0.75	1.09
14402	J04-025	J04-026	15	1528	999	0.76	0.65	216.37	1215.37	21.66%	0.81	0.80
14403	J04-026	J04-027	15	2014	1157	0.84	0.57	287.33	1444.33	24.83%	0.82	0.72
14404	J04-027	J04-028	10	0	745	0.00	0.00	287.33	1032.33	38.57%	1.49	
14383	J04-028	J03-028	15	1319	1157	0.87	0.88	287.33	1444.33	24.83%	1.05	1.10
14384	J03-028	J03-026	15	1319	1157	0.92	0.88	287.33	1444.33	24.83%	1.10	1.10
14385	J03-026	J03-025	15	1250	1283	0.89	1.03	311.36	1594.36	24.27%	1.06	1.28
14386	J03-025	J03-024	15	1250	1283	0.89	1.03	311.36	1594.36	24.27%	1.08	1.28
14407	J04-034	J04-035	12	625	63	0.24	0.10	296.10	359.10	470.00%	0.94	0.57
14408	J04-035	J04-036	12	625	63	0.23	0.10	296.10	359.10	470.00%	0.94	0.57
14628	J04-036	K03-056	12	625	63	0.23	0.10	296.10	359.10	470.00%	0.94	0.57
14629	K03-056	K03-006	12	625	63	0.23	0.10	296.10	359.10	470.00%	0.95	0.57
14630	K03-006	K03-005	12	625	63	0.28	0.10	296.10	359.10	470.00%	1.23	0.57
14631	K03-005	K03-003	12	833	63	0.47	0.08	296.10	359.10	470.00%	2.59	0.43
14632	K03-003	K03-004	12	486	253	0.44	0.52	328.74	581.74	129.94%	0.97	1.20
14633	K03-004	K03-055	12	625	253	0.44	0.40	328.74	581.74	129.94%	0.96	0.93
14642	K04-021	K04-024	8	278	206	0.63	0.74	32.64	238.64	15.84%	0.81	0.86
14643	K04-024	K04-029	10	417	190	0.50	0.46	32.64	222.64	17.18%	0.57	0.53
14765	K04-029	K03-002	10	417	190	0.49	0.46	32.64	222.64	17.18%	0.54	0.53
14764	K03-002	K03-003	10	486	190	0.55	0.39	32.64	222.64	17.18%	0.59	0.46
14627	K03-013	K03-014	8	278	95	0.37	0.34	30.27	125.27	31.86%	0.45	0.45
14619	K03-014	K03-015	8	278	95	0.38	0.34	30.27	125.27	31.86%	0.47	0.45
14620	K03-015	K03-016	8	347	95	0.57	0.27	30.27	125.27	31.86%	0.78	0.36

Table 3.6: Additional Flows to Newhope Trunkline Pipe

Street Intersection	US Node ID	DS Node ID	Future Additional Flows (gpm)
Edinger Avenue	NHP0080-0000	NHP0075-0000	328.7
Kent Avenue	NHP0085-0000	NHP0080-0000	30.3
McFadden Avenue	NHP0090-0000	NHP0085-0000	311.4
First Street	NHP0105-0000	NHP0100-0000	646.4
Westminster Avenue	NHP0140-0000	NHP0135-0000	307.5

Table 3.7: Future Newhope Trunkline Pipe Capacities in Wet Weather Conditions

Street Intersection	US Node ID	DS Node ID	Length (ft)	Diameter (in)	Future Conduit Full Capacity (MGD)	Future Conduit Full Capacity (gpm)	Future Max DS Flow (MGD)	Future Max DS Flow (gpm)	Future Additional Flows (gpm)	Total Flow (gpm)	Future q/Q
Edinger Avenue	NHP0080-0000	NHP0075-0000	1302.4	48	47.360	32889	39.926	27726	1624.3	29350	0.89
Kent Avenue	NHP0085-0000	NHP0080-0000	1316	48	47.330	32868	39.700	27570	1295.6	28865	0.88
McFadden Avenue	NHP0090-0000	NHP0085-0000	811.7	51	45.960	31917	38.229	26548	1265.3	27813	0.87
	NHP0095-0000	NHP0090-0000	444.4	51	43.000	29861	38.226	26546	953.9	27500	0.92
	NHP0100-0000	NHP0095-0000	1240.9	51	45.000	31250	37.918	26332	953.9	27285	0.87
First Street	NHP0105-0000	NHP0100-0000	94.5	48	44.790	31104	35.899	24930	953.9	25884	0.83
	NHP0110-0000	NHP0105-0000	1273.5	48	44.530	30924	35.898	24929	307.5	25237	0.82
	NHP0115-0000	NHP0110-0000	1284.5	48	44.340	30792	35.274	24496	307.5	24804	0.81
	NHP0120-0000	NHP0115-0000	88.3	30	28.210	19590	16.547	11491	307.5	11799	0.60
Siphon	NHP0120-0000	NHP0115-0000	88.3	33	-20.890	-14507	18.749	13020	307.5	13327	-0.92
	NHP0125-0000	NHP0120-0000	1267.6	48	44.410	30840	35.071	24355	307.5	24663	0.80
	NHP0130-0000	NHP0125-0000	1269.6	48	44.680	31028	35.072	24356	307.5	24663	0.79
	NHP0135-0000	NHP0130-0000	104.5	48	43.560	30250	35.077	24359	307.5	24667	0.82
Westminster Avenue	NHP0140-0000	NHP0135-0000	1448.5	51	43.680	30333	35.078	24359	307.5	24667	0.81

4. CONCLUSIONS

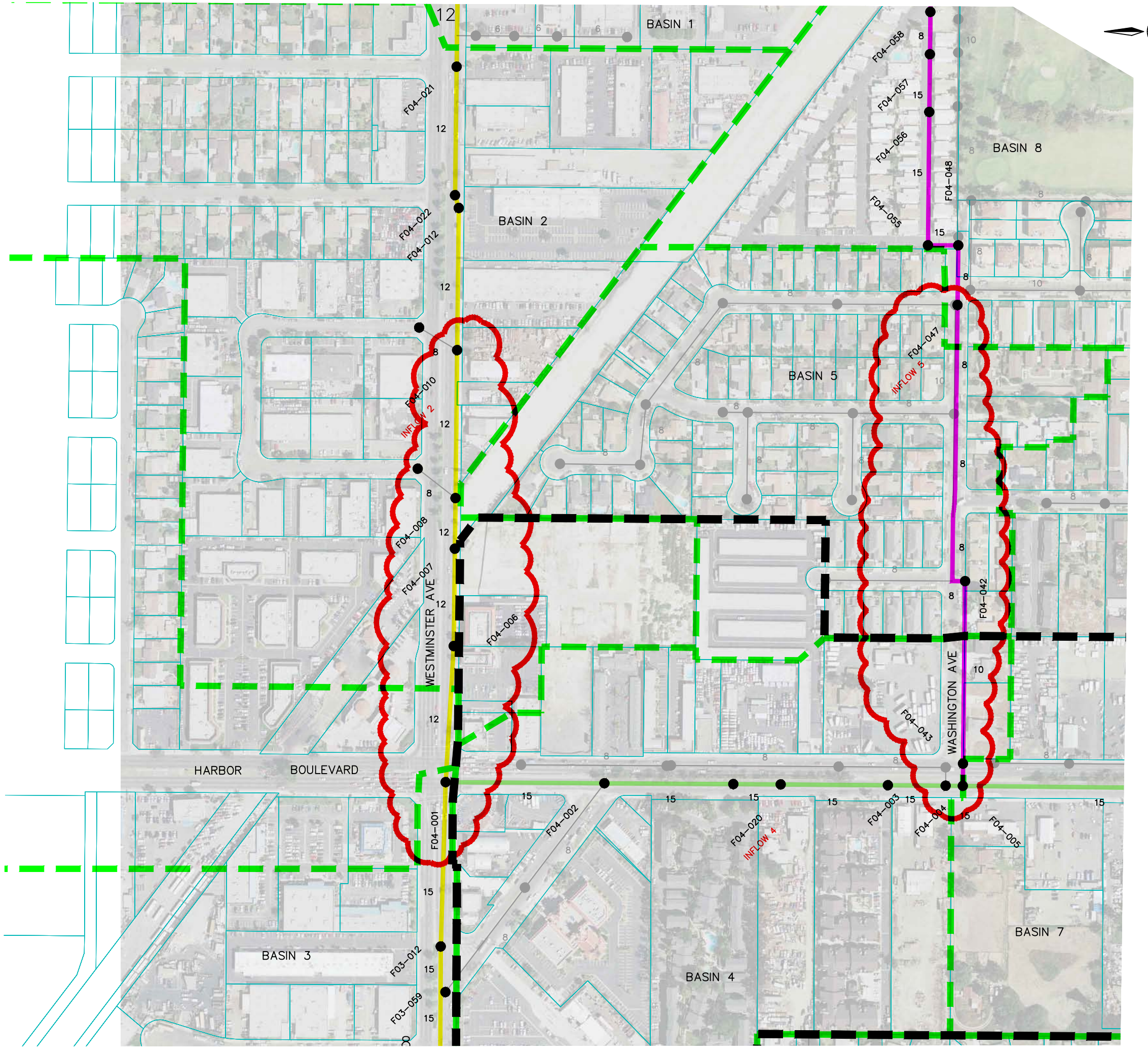
The model performed by MWH illustrates that the existing sewer infrastructure within the Harbor Corridor Plan is deficient, largely based on OCSD depth of flow versus diameter requirements. As the HCP goes to full build-out conditions, the OCSD depth of flow versus diameter requirement remains as a deficiency within the system. A more critical deficiency is found where future calculated flows exceed pipe capacities. The calculations for future flows, compared to pipe capacities, result in a number of links with insufficient capacity. It is recommended that these pipes be upsized prior to full implementation of the Harbor Corridor Plan. The following links will need to be upsized as shown in Table 4.1. Figure 4.1 shows the location of these links. See Table 3.5 for links that fail the depth of flow versus diameter criteria.

The modeling of the Newhope-Placentia trunkline demonstrates capacity in the existing pipeline for the HCP at full build-out conditions.

Table 4.1: Recommended Upgrades

MSLink	US MH	DS MH	Length (feet)	Existing Diameter (inches)	Existing Capacity (gpm)	Existing Peak Flow (gpm)	Ex d/D	Ex q/Q	Future Total Peak Flow (gpm)	Approx. Future d/D	Future q/Q	Proposed Diameter (inches)	Cost Estimate
13831	F04-010	F04-008	381	12	694	507	0.71	0.73	768	1.15	1.11	**15**	**$ 184,034**
13832	F04-008	F04-007	131	12	486	507	0.66	1.04	768	1.05	1.58	**15**	**$ 63,277**
13833	F04-007	F04-006	249	12	625	507	0.45	0.81	768	0.66	1.23	**15**	**$ 120,274**
13834	F04-006	F04-001	351	12	1319	507	0.50	0.38	768		0.58	**15**	**$ 169,544**
13841	F04-048	F04-047	157	10	139	301	1.15	2.17	329	1.00	2.37	**15**	**$ 75,836**
13842	F04-047	F04-042	709	10	347	412	0.51	1.19	469	0.59	1.35	**15**	**$ 342,468**
13843	F04-042	F04-043	469	10	417	412	0.60	0.99	469	0.72	1.13	**15**	**$ 226,541**
13936	G04-005	G04-008	322	8	278	206	0.60	0.74	335	1.04	1.21	**12**	**$ 134,693**
13937	G04-008	G04-009	325	8	278	206	0.52	0.74	335	0.88	1.21	**12**	**$ 135,948**
13938	G04-009	G04-010	62	8	347	206	0.48	0.59	335		0.97	**12**	**$ 25,935**
13837	F04-020	F04-003	276	15	1458	79	0.21	0.05	177	0.32	0.12	**18**	**$ 115,451**
13838	F04-003	F04-004	148	15	1111	79	0.28	0.07	177	0.48	0.16	**18**	**$ 61,908**
13858	F04-004	F04-005	43	15	1667	79	0.39	0.05	632	0.83	0.11	**18**	**$ 17,987**
14050	F04-005	G04-006	636	15	1736	476	0.38	0.27	632	0.45	0.36	**18**	**$ 266,039**
13941	G03-076	G03-020	299	10	347	285	0.42	0.82	966	0.62	1.27	**18**	**$ 125,072**
13940	G04-010	G04-025	689	15	1667	681	0.45	0.41	966	0.62	0.58	**18**	**$ 288,209**
14083	H03-011	H03-009	322	21	2708	1601	0.40	0.59	1,886	0.43	0.70	**18**	**$ 134,693**
14082	H03-012	H03-011	23	21	2569	1601	0.53	0.62	1,822	0.64	0.73	**18**	**$ 9,621**
14085	H03-058	H03-008	20	8	694	63	0.23	0.09	1,095	0.87	0.50	**18**	**$ 8,366**
14119	H04-004	H04-003	30	15	1042	760	0.46	0.73	1,095	0.63	1.05	**18**	**$ 15,852**
14120	H04-003	H04-033	689	15	1111	760	0.59	0.68	1,095	0.89	0.99	**18**	**$ 259,388**
14116	H04-019	H04-020	56	12	278	476	0.73	1.71	638	1.07	2.29	**15**	**$ 15,028**
14117	H04-020	H04-021	135	12	694	476	0.43	0.69	638	0.56	0.92	**15**	**$ 6,227**
14118	H04-021	H04-022	7	12	1111	476	0.43	0.43	0.34	0.57	0.57	**15**	**$ 1,878**
14268	I04-025	I04-026	200	15	694	808	0.70	1.16	894	0.82	1.29	**18**	**$ 105,678**
14745	I04-026	I04-027	197	15	1042	808	0.75	0.78	894	0.84	0.86	**18**	**$ 104,093**
14269	I04-027	I04-030	253	15	972	808	0.63	0.83	894	0.89	0.92	**18**	**$ 133,683**
14270	I04-030	I04-031	7	15	4236	808	0.68	0.19	894	0.73	0.21	**18**	**$ 3,699**
14394	I04-031	J04-031	135	15	556	808	0.68	1.45	894	0.79	1.61	**18**	**$ 71,333**
14393	J03-007	J03-006	135	15	1319	1331	0.73	1.01	1,417	0.61	1.07	**18**	**$ 71,333**
14392	J03-012	J03-007	253	15	1111	1331	0.85	1.20	1,417	0.84	1.28	**18**	**$ 133,683**
14391	J03-013	J03-012	102	15	1389	1331	0.84	0.96	1,354	0.93	1.02	**18**	**$ 53,896**
14390	J03-021	J03-013	295	15	1319	1268	0.86	0.96	1,354	0.92	1.03	**18**	**$ 155,875**
14389	J03-022	J03-021	315	15	1319	1268	0.87	0.96	1,354	0.92	1.03	**18**	**$ 166,443**
14388	J03-023	J03-022	299	15	1319	1268	0.88	0.96	1,354	0.92	1.03	**18**	**$ 57,989**
14387	J03-024	J03-023	299	15	1319	1268	0.71	0.96	1,021	0.92	1.03	**18**	**$ 157,989**
14395	J04-031	J04-019	262	15	1181	935	0.63	0.79	1,021	0.83	0.86	**18**	**$ 138,438**
14396	J04-019	J04-020	269	15	1042	935	0.71	0.90	1,021	0.71	0.98	**18**	**$ 142,137**
14397	J04-020	J04-021	200	15	1111	935	0.72	0.84	1,021	0.83	0.92	**18**	**$ 105,678**
14398	J04-021	J04-022	26	15	0	935	0.73	0.00	1,021	0.84	-	**18**	**$ 13,738**
14399	J04-022	J04-023	259	15	1042	935	0.73	0.90	1,215	0.84	0.98	**18**	**$ 136,853**
14400	J04-023	J04-024	266	15	1111	999	0.73	0.90	1,215	0.94	1.09	**18**	**$ 140,552**
14401	J04-024	J04-025	266	15	1111	999	0.60	0.90	1,215	0.75	1.09	**18**	**$ 140,552**
14383	J04-028	J03-028	299	15	1319	1157	0.87	0.88	1,444	1.05	1.10	**18**	**$ 157,989**
14384	J03-028	J03-026	174	15	1319	1157	0.92	0.88	1,444	1.10	1.10	**18**	**$ 91,940**
14385	J03-026	J03-025	128	15	1250	1283	0.89	1.03	1,594	1.06	1.28	**18**	**$ 67,634**
14386	J03-025	J03-024	299	15	1250	1283	0.89	1.03	1,594	1.08	1.28	**18**	**$ 157,989**
14632	K03-003	K03-004	299	12	486	253	0.44	0.52	582	0.97	1.20	**15**	**$ 144,426**

FIGURE 4.1A



HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

K03-004 — 12 — K03-055 (INFLOW #)

SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER

CATCHMENT # INFLOW

UPGRADES RECOMMENDED TO SERVICE THE HARBOR CORRIDOR MIXED USE TRANSIT CORRIDOR

FIGURE 4.1B

HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER
CATCHMENT # INFLOW

UPGRADES RECOMMENDED TO SERVICE THE HARBOR CORRIDOR MIXED USE TRANSIT CORRIDOR

BASIN 8
BASIN 5
BASIN 10
BASIN 15
BASIN 14
BASIN 6
BASIN 16
BASIN 4
BASIN 7
BASIN 9
BASIN 13
HARBOR BOULEVARD
HAZARD AVE
5TH ST
1ST ST

FIGURE 4.1C

HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

K03–004 — 12 — K03–055 (INFLOW #)
SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER
CATCHMENT # INFLOW

UPGRADES RECOMMENDED TO SERVICE THE HARBOR CORRIDOR MIXED USE TRANSIT CORRIDOR

BASIN 19
BASIN 18
BASIN 17
BASIN 22
BASIN 21
BASIN 23
BASIN 24
HARBOR BOULEVARD
McFADDEN AVE
INFLOW 19
INFLOW 22
INFLOW 17
INFLOW 21

FIGURE 4.1D

HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

K03–004 — 12 — K03–055 (INFLOW #)

SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER
CATCHMENT # INFLOW

UPGRADES RECOMMENDED TO SERVICE THE HARBOR CORRIDOR MIXED USE TRANSIT CORRIDOR

BASIN 17
BASIN 24
BASIN 24
BASIN 23
BASIN 21
INFLOW 21
INFLOW 23
J03–028
J03–026
J03–025
J03–024
J03–023
J03–022
J03–021
J03–013
J03–012
J03–007
J03–006
K03–013
K03–014
K03–015
K03–016
NHP009–0000
75–0000
McFADDEN AVE.
NEWHOPE STREET
48
48
51
15
8
10

FIGURE 4.1E

HCP BOUNDARY

SAN. CATCHMENT BOUNDARY

SAN. MANHOLES W/ ID NUMBERS & PIPE DIAMETER
CATCHMENT # INFLOW

UPGRADES RECOMMENDED TO SERVICE THE HARBOR CORRIDOR MIXED USE TRANSIT CORRIDOR

BASIN 22

BASIN 24

BASIN 23

HABOR BOULEVARD

LILAC AVE.

K04–021
INFLOW 24

K04–024

K04–029

K03–002

K03–004

K03–055

K03–006

K03–005

K03–003

K03–056

J04–036

K03–013
23