San Clemente Arterial and Mobility Study

City of San Clemente
IBI Group
March 20, 2018

Project Overview

Transportation Corridor Agencies (TCA) are considering an extension of the SR-241 toll road from the existing southern terminus at Oso Parkway with a direct connection to I-5 (to any point from San Clemente south). This study aims to develop and evaluate alternative roadway improvements to the SR-241 extension project.

Project Goals

- Understand baseline conditions with and without 241 extension
- Identify and develop potential roadway alternative packages to improve mobility
- Analyze and compare the alternative packages to SR-241 extension
- Provide findings and conclusions

Scenario Development

- **Package 1**
  - 2040 No Project
    - MPAH/M2 buildout without SR-241 Extension
  - 2040 With Project
    - MPAH/M2 buildout with SR-241 Extension
- **Package 2**
  - 2040 Projections
  - MPAH/M2 buildout
  - No SR-241 extension
  - Los Patrones (F Street) extended from Cow Camp to Ortega Hwy
  - La Pata extended to Cristianitos Rd as primary roadway (4 lanes)
  - La Pata widened to major roadway (6 lanes) b/w Ortega Hwy and Ave Pico
- **Package 3**
  - 2040 Projections
  - MPAH/M2 buildout
  - No SR-241
  - Los Patrones (F Street) extended from Cow Camp to Ortega Hwy
- **Package 4**
  - 2040 Projections/Demographics
  - No MPAH/M2 buildout
  - "Do nothing" scenario
  - 2012 Network Configuration (baseline)

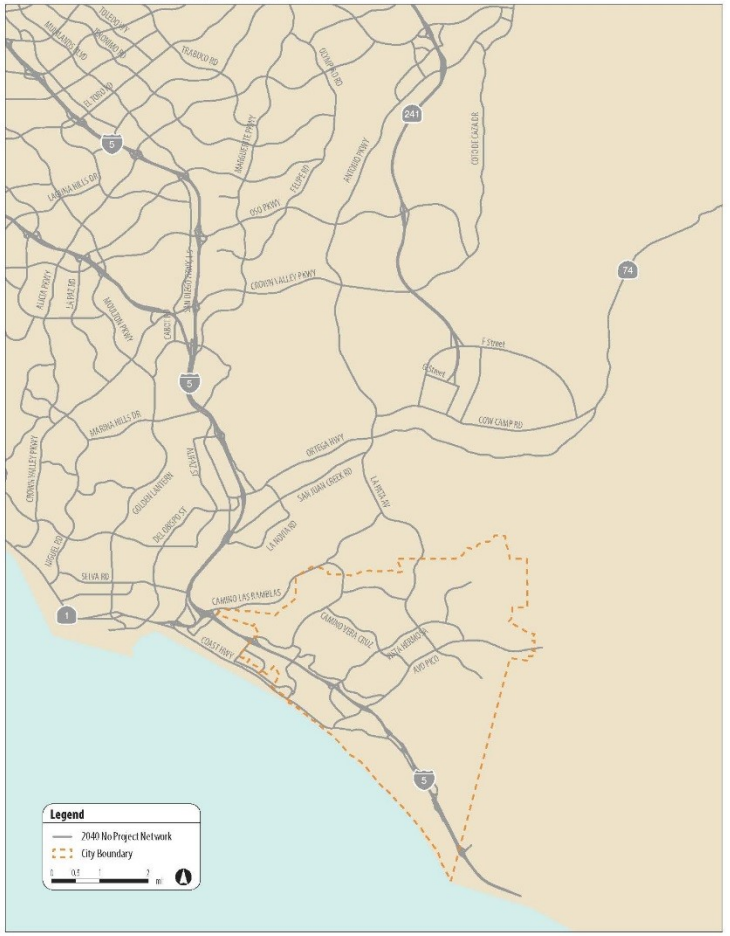
- *MPAH Highlights**
  - *Ortega Hwy Widening*
  - *Rancho Mission Viejo (RMV) Roads*
  - *Crown Valley Parkway Extension*
- *M2 Highlights**
  - *I-5 HOV extension between San Juan Creek to Pico*
  - *I-5 HOV extension between Pico to county limit*
  - *Ortega Interchange Project*

*Not an exhaustive list

Network Configurations

FIGURE 1: ROADWAY NETWORK EXISTING (2012)

FIGURE 2: ROADWAY NETWORK 2040 NO PROJECT



Source: OCTAM 4.0 TransCAD

Network Configurations

FIGURE 3: ROADWAY NETWORK 2040 WITH PROJECT

FIGURE 4: ROADWAY NETWORK 2040 PACKAGE 2

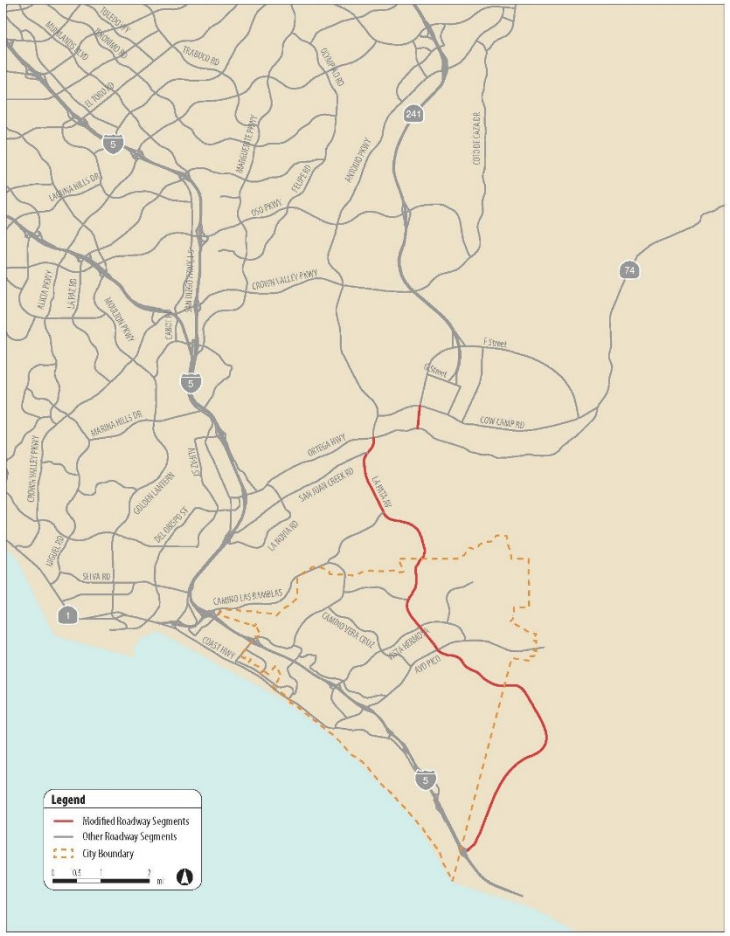
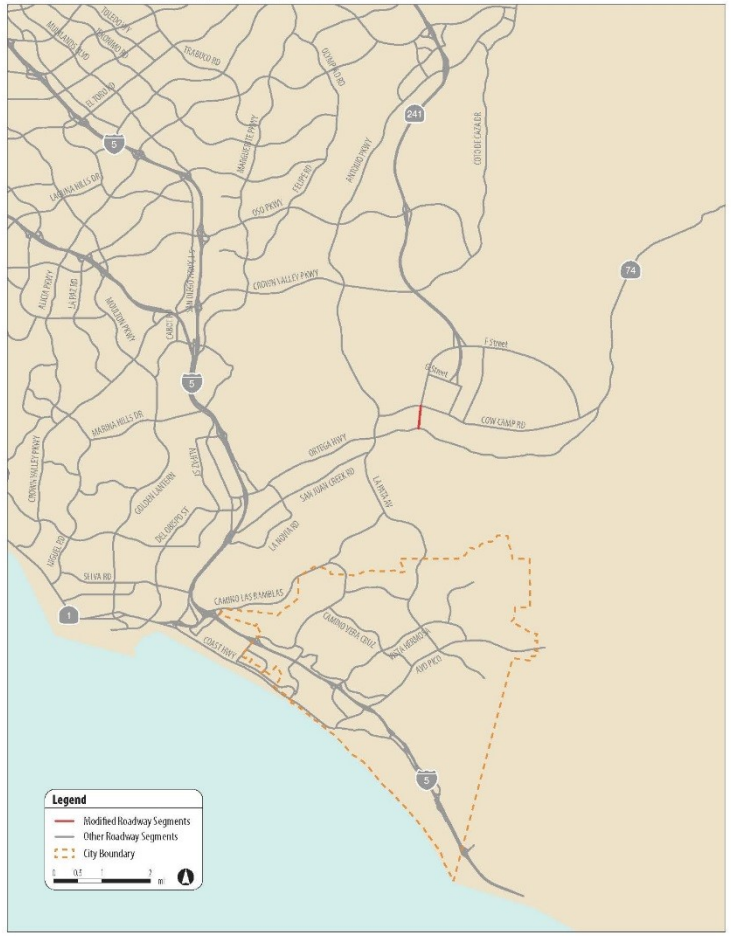


FIGURE 5: ROADWAY NETWORK 2040 PACKAGE 3



Source: OCTAM 4.0 TransCAD

Methodology

OCTA Travel Demand Model*

(Regional Model)

Run and Compare Scenario Results

(Study Area, City-Wide, Key Corridors)

Key Metrics

(VMT, VHT, VHD)

*OCTAM 4.0 TransCAD

Measures of Effectiveness

Vehicle Miles Traveled (VMT)

(Total Vehicles) x (Distance)

Vehicle Hours Traveled (VHT)

(Total Vehicles) x (Total Travel Time)

Vehicles Hours Delayed (VHD)

(Actual Travel Time) – (Free Flow Travel Time)

Overall Results (Daily)

Study Area

Scenario	VMT	VHT	VHD
(Do Nothing) Package 4	3,412,847	88,090	17,959
2040 NP	3,759,082	86,764	7,867
2040 WP	3,806,399	86,758	7,433
Package 2	3,738,331	86,248	7,628
Package 3	3,747,520	86,303	7,772
Delta (Pkg4/NP)	**346,236 [10.1%]**	**(1,326) [-1.5%]**	**(10,091) [-56.2%]**
Delta (NP/WP)	**47,317 [1.3%]**	**(6) [-0.1%]**	**(434) [-5.5%]**
Delta (NP/Pkg2)	**(20,751) [-0.6%]**	**(516) [-0.6%]**	**(239) [-3.0%]**
Delta (NP/Pkg3)	**(11,563) [-0.3%]**	**(461) [-0.5%]**	**(95) [-1.2%]**

Source: OCTA Traffic Model

VMT – Vehicle Miles Traveled VHT – Vehicle Hours Traveled

VHD – Vehicle Hours Delay

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Overall Results (Daily)

City-Wide

Scenario	VMT	VHT	VHD
(Do Nothing) Package 4	1,428,751	38,874	3,462
2040 NP	1,440,220	38,472	3,672
2040 WP	1,409,726	37,443	3,642
Package 2	1,439,311	38,228	3,666
Package 3	1,438,696	38,444	3,673
Delta (Pkg4/NP)	**11,469** [0.8%]	**(402)** [-1.0%]	**211** [6.1%]
Delta (NP/WP)	**(30,494)** [-2.1%]	**(1,029)** [-2.7%]	**(30)** [-0.8%]
Delta (NP/Pkg2)	**(909)** [-0.1%]	**(244)** [-0.6%]	**(7)** [-0.2%]
Delta (NP/Pkg3)	**(1,524)** [-0.1%]	**(28)** [-0.1%]	**1** [0.1%]

Source: OCTA Traffic Model

VMT – Vehicle Miles Traveled VHT – Vehicle Hours Traveled

VHD – Vehicle Hours Delay

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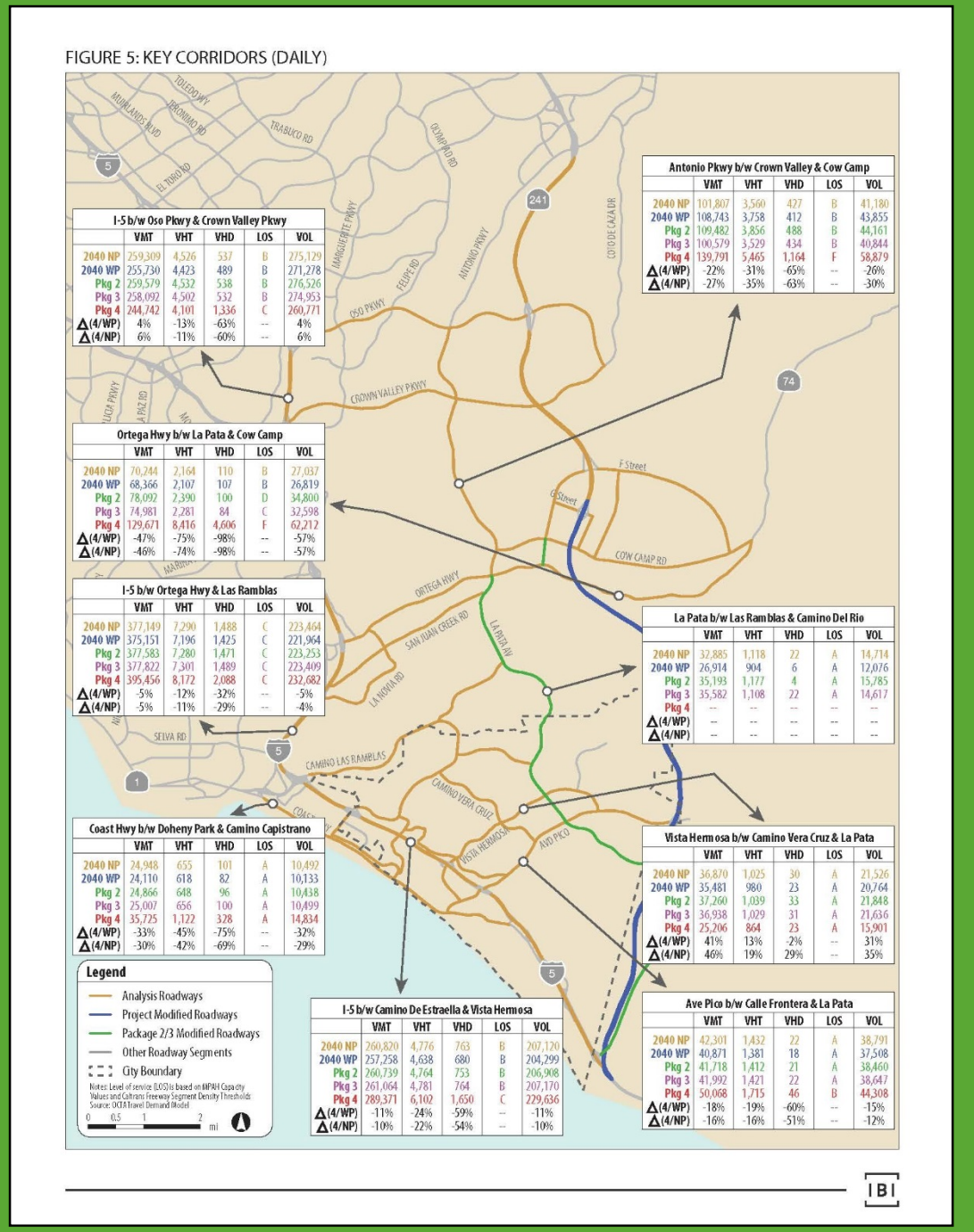
Key Corridors

- I-5 Segments
  - Oso and Crown Valley
  - Ortega and Las Ramblas
  - Camino De Estrella and Vista Hermosa
- Ortega Hwy
- Antonio Pkwy
- La Pata
- Ave Vista Hermosa
- Ave Pico
- Coast Hwy
- SR-241 Extension
  - 10-15,000 Daily Trips (2040 WP scenario)
    - OCTA Traffic Model
- La Pata Extension
  - <250 Daily Trips (Package 2 scenario)
    - OCTA Traffic Model



Findings

- Study Area metrics (VMT, VHT, VHD) between Project/Package 2/Package 3 scenarios are within 5.5% of each other
- City-Wide metrics (VMT, VHT, VHD) between Project/Package 2/Package 3 scenarios are within 2.7% of each other
- SR-241 extension (Project) and La Pata extension (Package 2) volumes are relatively low

Alternative	Length (miles)	Daily Volume
241 Extension (2040 WP)	11.20	< 12,000
La Pata Extension (Package 2)	4.48	< 250
Los Patrones (F Street) connection between Cow Camp and Ortega (Packages 2 and 3)	0.47	< 21,000

Source: OCTA Traffic Model

Summary

- Evaluated 4 groupings of projects at Year 2040 to understand future mobility impacts in South OC with and without the toll road extension
  1. Measure M2 and MPAH, with & without toll road extensions
  2. Measure M2 and MPAH, no toll road, with Los Patrones (F Street) to Ortega Hwy, and La Pata extension and widening
  3. Same as #3 but without the La Pata widening and extension
  4. “Do Nothing” – future traffic with existing road network
- Used OCTA’s certified regional traffic model to evaluate key metrics like VMT, VHT, and VHD
- Toll road extension doesn’t provide significant traffic relief; low volumes
- Completing Measure M2 and MPAH improvements just as effective for regional mobility and at a much lower cost than the toll road extension

MPAH = OC Master Plan of Arterial Highways

Takeaways

- Study Area metrics similar between Project and Packages 2/3 Scenarios
- SR-241 extension (Project) and La Pata extension (Package 2) volumes are relatively low (represents less than half of 1% of the total trips within the study area)
  - SR-241 extension to serve less than 12,000 daily vehicles
  - La Pata extension with less than 250 daily vehicles
  - Los Patrones (F Street) extension from Oso to Ortega (Package 2 and 3) exhibits approximately 20,000 daily volume
- Data shows that the E/W roadways are the areas of concern as opposed to the need for providing direct I-5 connections at any point from San Clemente south
- More effective from both a cost and mobility benefit standpoint to build upon the LRTP and MPAH/M2 improvements, where the metrics are comparable to the SR-241 extension scenario