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Reference: Costa Mesa General Plan – Traffic Study Overview

These technical notes provide an overview of the traffic study conducted by Stantec Consulting Services Inc. (Stantec) for the City of Costa Mesa 2015-2035 General Plan. The traffic study, which is included as an appendix to the Draft Environmental Impact Report for the General Plan update, analyzes existing and future traffic conditions in the city and identifies future roadway circulation system improvements that are needed to accommodate the future land uses envisioned in the General Plan. The findings of the traffic study are applied to define the roadway circulation plan that is included in the General Plan Circulation Element.

A key planning tool that was utilized in the traffic study is a computerized travel demand forecasting model that was prepared specifically for the City of Costa Mesa. The city traffic model is a derivative of a countywide model maintained by the Orange County Transportation Authority (OCTA). The city model covers the same regional area as the OCTA model, but compared to the OCTA model, the city model incorporates a much greater level of detail within Costa Mesa in terms of the specification of land use information and the definition of the roadway circulation system.

A notable component of the city traffic model is a land use database for existing and future conditions. For the General Plan update, two future land use scenarios were analyzed, one based on the current General Plan Land Use Element and the other based on the Land Use Element proposed in the General Plan update. The land use database is applied in the traffic model to produce AM peak hour, PM peak hour and daily vehicle traffic generation estimates. The traffic generation estimates are based according to the type of land use (e.g., housing, retail, office, hotel, schools, recreational, etc.) and are organized by defined zones to account for the specific location of each type of land use in the city.

Table 1 on the following page summarizes the land use and daily vehicle trip generation for existing conditions and for buildout of the City under the previous General Plan and the proposed General Plan.

In the traffic model, the specific citywide trip generation estimates are combined with trip generation estimates for the remainder of the region that is covered by the model. Procedures established in the OCTA model are then used to create a set of trip patterns by connecting generated trips together, for example, a work trip generated by a household is connected with a workplace trip, a retail trip generated by a household or a workplace is connected with a trip generated by a retail site, a school trip generated by a household is connected with a trip generated at a school site, etc. The resulting "trip patterns" are distributed by the model onto the

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existing and future roadway network to produce traffic volume estimates for the City's roadways and intersections.

Table 1 - Land Use and Trip Generation Summary

Land Use Type	Existing Conditions		Previous General Plan Buildout		Proposed General Plan Buildout	
	Amount	Daily Trips	Amount	Daily Trips	Amount	Daily Trips
Residential	42,623 DU	329,083	48,859 DU	372,815	51,894 DU	393,297
<i>Increase vs. Existing</i>			6,236 DU	43,732	9,271 DU	64,214
Commercial (a)	31,847 TSF	593,164	37,139 TSF	733,690	37,446 TSF	740,071
<i>Increase vs. Existing</i>			5,292 TSF	140,526	5,599 TSF	146,907
Miscellaneous (b)	--	96,543	--	122,620	--	110,772
<i>Increase vs. Existing</i>				26,077		14,229
Total Daily Trips		1,018,790		1,229,125		1,244,140
<i>Increase vs. Existing</i>				210,335 (+21%)		225,350 (+22%)
(a) Includes retail, office and industrial land uses.			Abbreviations: DU – dwelling unit			
(b) Includes schools, colleges, hotels, motels, hospitals, churches, golf courses, parks, fairgrounds, agriculture, etc.			TSF – thousand square feet			

The resulting future traffic forecasts are the basis for evaluating and sizing a General Plan roadway circulation plan to support the General Plan Land Use Element. The specific process involved a series of analyses to test various land use and circulation plans during the evolution of the General Plan update. With each step a land use and circulation plan was tested using the future traffic forecasts to calculate levels of traffic congestion at intersections and roadways throughout the city. Roadway and/or intersection improvements were then identified for locations where forecasted congestion levels were considered unacceptable. The traffic analysis of the final citywide land use plan was used to define the proposed General Plan Circulation Element roadway plan, which includes future improvements to widen or add arterial roadways and to improve intersection locations by adding and/or modifying intersection lanes.

The traffic analysis also evaluated and provided recommendations regarding the potential downgrade and deletion of various roadways on the General Plan roadway plan. The City of Costa Mesa is required to initiate a process with OCTA to amend the Orange County Master Plan of Arterial Highways (MPAH) for each of the following roadway downgrades and deletions that are proposed in the updated General Plan:

- **West 17th Street west of Placentia Avenue** – Downgrade from a four-lane secondary arterial roadway to a two-lane divided collector roadway.

-211-

Reference: Costa Mesa General Plan – Traffic Study Overview

- **West 19th Street west of Placentia Avenue** – Downgrade from a four-lane primary arterial roadway to a two-lane divided collector roadway.
- **East 22nd Street between northbound Newport Boulevard and Orange Avenue** – Downgrade from a four-lane secondary arterial roadway to a two-lane collector roadway.
- **Baker Street between Mesa Verde Drive and Royal Palm Drive** – Downgrade from a four-lane secondary arterial roadway to a two-lane collector roadway.
- **Bluff Road between Victoria Street and West 19th Street** – Delete from the General Plan roadway plan.

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Mino Ashabi, City of Costa Mesa



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We're active members of the communities we serve.
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The Stantec community unites more than 15,000 employees working in over 250 locations. We collaborate across disciplines and industries to bring buildings, energy and resource, and infrastructure projects to life. Our work—professional consulting in planning, engineering, architecture, interior design, landscape architecture, surveying, environmental sciences, project management, and project economics—begins at the intersection of community, creativity, and client relationships.

Founded: 1954 **Ownership:** Publicly Owned **Stock Exchange:** NYSE/TSX: STN **Gross Revenue:** CDN \$2.5 Billion (2014)

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Leadership:

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 Steve Fleck—Executive Vice President
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 Kirk Morrison—Executive Vice President
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Rankings:

No. 1 Top 300 Architecture/Engineering Firms (BD+C, 2015)
 No. 2 Top 130 Green Building Architecture Firms (BD+C, 2015)
 No. 6 Top 100 Pure Designers (ENR, 2015)
 No. 10 Top 89 International Architecture Firms (BD+C, 2014)
 No. 17 Top 150 Global Design Firms (ENR, 2015)
 No. 17 Top 100 Green Design Firms (ENR, 2015)
 No. 18 Top 200 Environmental Firms (ENR, 2015)
 No. 19 Top 500 Design Firms (ENR, 2015)
 No. 19 Top 226 International Design Firms (ENR, 2015)
 No. 44 Top 50 Program Management Firms (ENR, 2015)
 No. 83 Top 100 Construction Management-for-Fee Firms (ENR, 2015)

Sectors:

Airports	Municipal Government
Attractions, Arts & Entertainment	Oil and Gas
Bridges	Power and Energy
Commercial	Public Safety
Community Development	Roadways
Community Facilities	Science & Technology
Education	Sports and Recreation
Federal Government	State/Provincial Government
Healthcare	Transit & Rail
Industrial Buildings	Water
Mining	

Regions:

Alberta Central & Territories	New England
Alberta South	Nova Scotia & Newfoundland
Alberta North	Ontario GTA
Americas	Ontario North & East
British Columbia	Ontario Southwest
California South	Pacific North
Eurasia	Quebec
Gulf	Saskatchewan
Manitoba	Southeast
Mid-Atlantic	Southwest
Midwest	Tri-State
New Brunswick & P.E.I.	

One of Canada's Top Employers for Young People (2014)
 One of Canada's Greenest Employers (2014)
 One of Canada's Best 50 Corporate Citizens (2013)
 Alberta's Top 65 Employers (2014)
 No. 23 Top 31 Best Places to Work in Atlantic Canada (2014)

Daryl is a California registered traffic engineer and a certified professional transportation planner with 25 years of experience in multiple aspects of traffic engineering and transportation planning. He has a proven record of managing large-scale traffic studies efficiently and effectively. His projects include traffic impact studies for large-scale development projects, freeway facility and interchange studies for PSRs and PRs, General Plan updates, areawide transportation studies, traffic model development, and land-use related circulation studies.

EDUCATION

BS, Civil Engineering, University of California, Irvine, California, 1990

REGISTRATIONS

Professional Engineer #TR1824 (Traffic), State of California

Professional Transportation Planner #454,
Transportation Professional Certification Board Inc.

MEMBERSHIPS

Member, Orange County Traffic Engineers Council

Member, Institute of Transportation Engineers

Associate Member, American Society of Civil Engineers

PROJECT EXPERIENCE

Transportation Planning

City of Lake Forest Transportation Mitigation Program - 2014 Update, Lake Forest, California (Project Manager)

Daryl was project manager for this update to the City of Lake Forest's traffic fee program. The Lake Forest Transportation Mitigation (LFTM) program is utilized to fund roadway improvements throughout the City with costs allocated to development projects. For this update, the City's travel demand model was updated based on current development proposals, and an updated improvement program was developed based on the new traffic forecasts. Cost estimates for the identified improvements were utilized to develop traffic impact fees for various types of land development projects.

One Valley One Vision General Plan Traffic Study*, County of Los Angeles, California (Project Manager)

Daryl was project manager for the comprehensive traffic analysis used in the preparation of the One Valley One Vision (OVOV) County Area Plan and City of Santa Clarita General Plan update. The OVOV effort was undertaken by the County and the City to create a single vision and guidelines for the future growth of the Santa Clarita Valley and the preservation of natural resources. Together, these plans allow for a 93% increase in housing units and a 130% increase in jobs, substantially improving the area's jobs/housing balance. The strategy of each plan focuses growth in areas near existing job centers, transit and infrastructure. The study effort included an update to the joint County/City traffic demand model, which was used to determine modifications to the Highway Plan based on new trip patterns resulting from the more compact OVOV land use plan. The traffic study served as a resource document for the project's environmental documentation as well as the new County and City Circulation Elements. The OVOV project was awarded SCAG's 2013 Compass Blueprint Excellence Award for Visionary Planning for Sustainability.

John Wayne Airport EIR Traffic Impact Analysis*, Orange County, California (Project Engineer)

Daryl was the lead project engineer for the preparation of the EIR traffic impact analysis that evaluated the extension and modification of the settlement agreement pertaining to operations of John Wayne Airport (JWA) in Orange County, CA. Three project scenarios, plus two project alternatives were evaluated as part of the study. Each had different implications with respect to air passenger volumes at JWA, with passenger volumes ranging from 8.4 MAP to 13.9 MAP, and the resulting vehicular traffic impacts on the surrounding circulation system were evaluated. The study included a validation of JWA's vehicular trip generation rates by collecting multi-day traffic counts at each of the airports access locations.

* denotes projects completed with other firms

Daryl Zeffass FE, P.E.

Principal Transportation Planning & Traffic Engineering

Bridge and Major Thoroughfare Construction Fee District Traffic Volume Forecasts*, Los Angeles County, California (Task Manager)

Daryl was responsible for updating the joint County/City travel demand model and for preparing traffic forecasts to be used for the development of traffic impact fees for multiple districts in unincorporated Los Angeles County and in the City of Santa Clarita. The Bridge and Major Thoroughfare Construction Fee Districts provide an equitable financing mechanism by which new development within an identified area will share the costs of providing full mitigation improvements. Daryl prepared long-range traffic forecasts based on the planned land development projects and determined roadway and intersection improvements that accommodate the significant amount of future traffic in this fast growing area of Los Angeles County.

Costa Mesa SOBECA/Westside General Plan Amendment*, Costa Mesa, California (Task Manager)

Daryl prepared the transportation analysis for two urban plan areas that were the subject of a General Plan Amendment by the City of Costa Mesa. The South on Bristol Entertainment Culture Arts (SOBECA) District and the Westside Plan Area were developed to provide for mixed-use zoning opportunities to supplement and enhance existing development. Our role on the project was to coordinate with City staff and the multi-discipline project team and prepare a traffic analysis in support of the City's General Plan Amendment.

Newhall Ranch Master-Planned Community*, Santa Clarita Valley, California (Project Manager)

Daryl was the project manager for the planning of the transportation system of this master-planned community in Los Angeles County, California. In total, the Newhall Ranch Specific Plan area and the adjacent planned communities consisted of over 27,000 residential dwelling units and over eight million square feet of commercial development. Various types of analysis have been prepared in support of the planning and entitlement process. These include the development of an overall phasing plan for on-site roadways, large scale impact studies that satisfy CEQA and NEPA requirements, traffic impact studies of individual development area, operational analysis of local circulation, and the development of fair-share nexus calculations for off-site impacts.

Traffic Operations

State Route 241 Tesoro Extension Regional Benefits and Independent Utility Analysis, Orange County, California (Project Manager)

Daryl was project manager for this traffic study to demonstrate the regional benefits and the independent utility of the proposed SR-241 Tesoro Extension (toll road) project. The Orange County Transportation Analysis Model (OCTAM) and a specially prepared focused sub-area model were used to forecast travel time and mileage information. VHT and VMT comparisons were utilized to show the benefits of the project.

Interstate 5/El Toro Road Interchange (PSR) Traffic Study, Orange County, California (Traffic Task Manager)

Daryl was the traffic engineering manager for the PSR traffic studies and the Traffic Engineering Performance Assessment (TEPA) prepared for the proposed reconstruction of the I-5/El Toro Road interchange. The study effort included the development of multiple interchange concepts that were evaluated using a microsimulation model. Design year traffic forecasts were derived using the Orange County Transportation Analysis Model (OCTAM) and the local sub-area models of the Cities of Lake Forest and Laguna Hills.

State Route 126 Feasibility Study Traffic Study, Los Angeles County (Project Manager)

Daryl was project manager for the traffic study that addressed the feasibility of enhancing the SR-126 corridor between Commerce Center Drive and the Ventura County line in the north Los Angeles County area. Improvements such as the addition of intersection turn pockets, installation of traffic signals, and adding additional travel lanes where needed were evaluated and a recommended corridor plan was developed. The enhancements will occur over time based on traffic capacity needs and a phasing plan for the improvements was determined based on land use growth projections. The study involved traffic operations analysis of the highway, signalized and unsignalized cross-street intersections, and the preparation of comprehensive traffic study reports.

Interstate 5 HOV Lane Access Conversion Project from State Route 57 to State Route 39 (PSR/PR) Traffic Study, California (Project Manager)

Daryl is project manager for the PSR (PR) traffic study that address the design of a "continuous access" feature that will convert the existing buffer separated and limited access HOV facilities to provide continuous access for I-5 between SR-57 and SR-39 (Beach Boulevard).

* denotes projects completed with other firms