



City of Huntington Beach, Declaration
Californians for Homeownership v. the City of Huntington Beach

DECLARATION OF MARK H. MILLER

Date: January 27, 2020

I, Mark H. Miller, declare the following:

I obtained a Bachelor of Science Degree in civil/traffic engineering from California Polytechnic University Pomona in 1974. I am a Registered Civil Engineer (CE) with the State of California, License #40956. I am a Registered Traffic Engineer (TE) with the State of California, License #1575. I am also a Professional Traffic Operations Engineer (PTOE), License #233.

The PTOE certification is sponsored by the Transportation Professional Certification Board, Inc., and promulgated by the Institute of Transportation Engineers. The certification process, which has been adopted for professional traffic operations engineers, requires that the holder be a licensed professional engineer if he or she practices in the United States, Canada, or any other country that provides governmental licensing of engineers. This certification process builds on and supports the practice of professional engineering registration. The PTOE is the highest-level licensing available in the field of Traffic Engineering. Currently, there are approximately 3,000 licensed PTOEs within the United States and Canada.

While employed by the State of Illinois DOT as State Signing Engineer, I continued my education at Northwestern University in Evanston, Illinois. The course work included, but was not limited to, Traffic & Transportation Engineering, Highway Capacity Workshop, Institute of Transportation Studies, Safety Design and Operational Practices for Streets and Highways, Traffic Signal Equipment & Operations, Urban Street Design, Public Works Inspections, Legal Aspects and Liabilities, and Risk Management and Traffic Safety.

I am a member of the following professional associations: American Public Works Association (APWA), American Society of Civil Engineers (ASCE), City Traffic Engineers Association (CTE) (former Chairman), Institute of Transportation Engineers (ITE), Orange County Traffic Engineering Council (OCTEC) and the American League of Cyclists.

Filed concurrently herein, is a true and correct copy of my Curriculum Vitae.

I joined Mohle, Grover & Associates in 1990 and became co-founder of Albert Grover & Associates, Inc. (AGA) in 1993. I serve as President of AGA and provide the firm with 44 years of extensive experience in all elements of Traffic and Transportation Engineering in both governmental and private contexts. Throughout my career, I have worked on various highway projects which include safety of streets and highways, traffic impact analyses, neighborhood traffic calming projects, Intelligent Transportation Systems (ITS) design, signal interconnect and coordination plans, Closed Circuit Television (CCTV) installations, traffic signal system design, and street lighting evaluation and design. I have also developed and implemented design standards, and prepared/reviewed plans, specifications and cost estimates

(PS&E) for traffic signal, communications interconnect, and CCTV projects. I have "hands on" experience programming all models of traffic signal controllers and have developed numerous traffic signal coordination and timing plans for use with a wide variety of central control and local controller software.

Having been employed full time with multiple municipal entities, including the Cities of San Dimas, Pomona, and Pasadena, as well as for the State of Illinois, I know what it takes to get design plans and study documentation approved, projects completed, and invoices paid. In the City of Pasadena, as Assistant Traffic Engineer, I prepared and reviewed major transportation studies, assisted in the preparation and implementation of the Rose Bowl/Rose Parade Major Event Traffic Studies, and developed an accident recording system for the City. As City Traffic Engineer for the City of Pomona, I was responsible for a multimillion-dollar Operations and Capital Improvement budget and managed 14 subordinates in the Traffic Engineering Division.

As a senior, tenured Traffic/Transportation Engineer at AGA, I have provided on-call, as-needed Traffic Engineering services to the Cities of Fullerton, Huntington Beach, Laguna Beach, Montclair, Placentia, Torrance, and Victorville, to name a few. I am presently serving as the Contract City Traffic Engineer for the Cities of Fullerton (since 1998) and San Dimas. In this capacity, I give general Traffic Engineering guidance, make presentations to Commissions and Councils, check construction plans and review traffic studies and General Plan circulation elements, and advise in the determination of projects for Capital Improvement Programs (CIP).

I have also served as an Expert Witness providing investigative review, giving professional advice, and testifying in the defense of claims and legal actions for a number of governmental agencies. As my professional experiences are significant, my involvement in several professional associations gives me the opportunity to share my depth of knowledge with those outside the field as well as a new generation of Traffic Engineers. While serving as an active member of CTE and as past Chairman, I conduct workshops throughout Southern California to educate Traffic Commissioners and Planning Commission members regarding pertinent traffic and safety issues. As an active member of ITE, I mentor several local student chapters and speak at various workshops and conferences, where I also discuss current innovations and informative topics in the Traffic Engineering industry.

The opinions set forth herein are based upon my education, experience, and background in traffic and transportation engineering over the past 45 years, as well as my review of the materials related to this case which were provided to me by the City of Huntington Beach. Those materials include, but are not limited to, the following items:

1. Traffic Impact Analysis of Ellis Avenue Condominiums dated April 16, 2019, by Linscott, Law & Greenspan (LLG).
2. Tentative Tract Map No. 18157/Conditional Use Permit No. 17-042 (Ellis Avenue Condominiums) – Notice of Action – Findings for Denial, dated June 12, 2019.
3. Planning Commission Staff Report dated May 28, 2019 with staff recommendation to approve the project with conditions, including all supplemental correspondence.
4. Latest Site Plan, including the ingress and egress access driveway on Ellis Avenue.
5. Huntington Beach Fire Department City Specifications No. 401 and No. 403.

6. Planning Department Project Implementation Code Requirements dated May 22, 2019 and signed by Nicolle Aube, Associate Planner.
7. Various photographs date stamped November 1, 2017 and January 10, 2018.
8. Notice of Appeal, dated June 20, 2019, of the Planning Commission Action of June 11, 2019.
9. Video of Planning Commission Meeting held May 28, 2019
10. Video of Planning Commission meeting held June 22, 2019 wherein the project was denied.
11. Video of City Council Meeting held August 19, 2019 wherein the project appeal review was continued.
12. Video of City Council Meeting held September 3, 2019 wherein the Planning Commission denial was upheld.
13. Accident Rates Before and After the Elan Development (the existing multi-use project on Ellis Avenue) at various intersections.
14. City calculations wherein it was stated that an increase of 222 U-turns will be generated at the intersection of Patterson Lane and Ellis Avenue in the eastbound-to-westbound direction. However, this is a miscalculation and was corrected in an email from Daniel Chan, dated December 10, 2019, which stated that 111 U-turns is the correct value.
15. Sketch showing a proposed pork-chop median island to prohibit left turns into and out of the project site from Ellis Avenue.
16. Video recordings of traffic operations made on Wednesday, December 4, 2019, for a 24-hour period at the intersection of Patterson Lane and Ellis Avenue. An extensive review was conducted of the 7:00-9:00 AM and the 4:00-6:00 PM periods of the video.
17. Layout of Fire Department apparatus showing turning radii into/out of the proposed driveway. At a City Council meeting held September 3, 2019, Fire Department staff stated they require a 17-foot inside radius and 45-foot outside radius with a 28-foot driveway approach; thus, the Fire Department is not in favor of a pork-chop median island.
18. Traffic issues raised by Planning Commissioners for denial are summarized as follow:
 - Ellis Avenue traffic congestion both existing and future.
 - Increased U-turns at Patterson Lane.
 - Potential vehicle conflicts on Ellis Avenue.
 - No bicycle connectivity to Beach Boulevard.
 - Insufficient vehicle access to the project site.
 - Raised pork-chop median island restriction of Fire Department vehicles.

I also visited the site on December 6, 2019 from 7:00-9:00 AM to observe traffic operation, driver behavior, any unusual conditions, and vehicle conflicts. My observations are noted below:

- There is limited sight distance looking easterly for vehicles exiting Patterson Lane onto Ellis Avenue, especially when making south to eastbound left turns.
- Vehicles exiting the Elan development proceeding westerly occupy the two-way left-turn pocket preventing eastbound left turns onto Patterson Lane.

- In one hour of time (7:30-8:30 AM), the westbound signal at Beach Boulevard did not clear through traffic 5 different cycles. Two vehicles in each through lane were left in the queue at the signal at Beach Boulevard.
- Westbound vehicles queued to Patterson Lane from Beach Boulevard did not clear traffic 5 times during 7:30-8:30 AM.
- Two bicyclists were observed going westbound on Ellis Avenue.
- Two pedestrians crossed Ellis Avenue in the north-south direction at Patterson Lane.

The following statements are my professional opinions regarding the Ellis Avenue condominium project based on my review of the documents, field visit, and review of the video recordings.

1. The traffic study conducted by LLG is acceptable per direction given by the City regarding traffic distribution to and from the project, resulting in traffic impacts, and required onsite/offsite mitigations, including ingress/egress to the project site from Ellis Avenue. However, the study did not, in my opinion, satisfactorily address existing or future operational deficiencies on Ellis Avenue between Patterson Lane and Beach Boulevard such as collision history, queuing of vehicles in the westbound direction, turning radius required for U-turns of passenger vehicles and Fire Department apparatus, restriction of ingress/egress to the project site, and various health and safety issues on Ellis Avenue resulting from the proposed project.
2. In reviewing the City's Citywide Bicycle Master Plan, Ellis Avenue is not a designated bike lane or bike route in the vicinity of the project; therefore, in my opinion, the project is not required to accommodate bicycle traffic except as provided in the California Vehicle Code (CVC). Bicycles are permitted to use all City streets and must obey all traffic laws according to Sections 21200-21213 and 21650 of the CVC.
3. According to project requirements, the sidewalk frontage provided is sufficient for pedestrian traffic, with an existing 8 foot sidewalk and an additional 4 foot dedication for landscape purposes.
4. Academic/theoretical/"by the book" collision rate calculations do not adequately address potential impacts of the proposed project. According to City calculations, the collision rate at the intersection of Ellis Avenue and Patterson Lane (0.11 before the Elan project and 0.15 after the Elan project) are well below the State average of 0.23 for similar types of intersections per the 2016 Collision Data on California State Highways.

Intersection collision rates are expressed as crashes per million entering vehicles (MEV). The formula typically used is:

$$R = \frac{1,000,000 \times C}{365 \times N \times V}$$

Where R = crash rate for the intersection expressed as crashes per MEV
C = total number of intersection related crashes in the study period
N = number of years of data
V = traffic volumes entering the intersection

The Table 1 shows the City's calculation of the intersection collision (crash) rate at Ellis Avenue and Patterson Lane for 3 years of data before and after the Elan development project.

TABLE 1
Accident Rates Before and After Elan Development

Location	Accident Rate Before Elan	Accident Rate After Elan
Beach Blvd/Ellis Ave	0.68	0.62
Ellis Ave/Patterson Ln	0.11	0.15

Notes:

Intersection accident rate per million entering vehicles.

"Before" rates calculated based on 3 years of data prior to development.

"After" rates calculated based on 3 years of data after development.

Crash rates can be an effective tool to measure the relative safety at a particular intersection. The ratio of crash frequency (crashes per year) to vehicle exposure (number of vehicles entering the intersection) results in a crash rate. Crash rate analysis can be a useful tool to determine how a specific intersection compares to the average intersection on the roadway network.

As previously stated, the crash rates for both "before" and "after" the Elan development are below the expected crash rates published by Caltrans (2016) for similar types of intersections. However, although the historical crash rates are low, there still needs to be a review of the types of collisions occurring at Ellis Avenue and Patterson Lane intersection. Based on a review of "before" and "after" collisions, there are significantly different types of collisions taking place.

According to Huntington Beach Police reports, the two "before" collisions involved one westbound rear-end collision just east of Patterson Avenue and one "hit object" (possibly hit the curb) just west of Patterson Avenue in the westbound direction. The three "after" development collisions are quite different than the "before". They involve one southbound left-turn vehicle and westbound through vehicle (broadside), one eastbound left turning vehicle on Ellis Avenue colliding with a westbound through vehicle (broadside), and one northbound through vehicle (out of Elan project) with an eastbound vehicle on Ellis Avenue (broadside).

It should be noted that a collision was observed on the video recording at 7:22 AM between an eastbound through vehicle (pickup truck) and a northbound left turning vehicle entering Ellis Avenue from the Beachview Villas driveway adjacent to the Elan development. Both police and fire departments rolled out to the scene and cleared the roadway within 20 minutes.

These types of "after" broadside collisions occur where there are a number of turning movements at uncontrolled full access intersections such as Ellis Avenue and Patterson Lane/Elan project.

5. The proposed driveway on Ellis Avenue will accommodate the City-required fire apparatus for both left and right turns into the project from Ellis Avenue (see Figure 1, attached); however, if a "porkchop" raised island is constructed to restrict left turns into and out of the project driveway, the fire apparatus cannot access the site based on required turning radius.

- Figure 1 shows a single unit passenger vehicle turning template for an eastbound to westbound U-turn at the intersection of Patterson Lane and Ellis Avenue. The vehicle must use the entire intersection to negotiate the U-turn as was observed on the videos dated December 4, 2019. According to the Traffic Impact Analysis prepared by LLG, the project will generate additional U-turns at the intersection of Ellis Avenue and Patterson Lane. There will be 3 additional U-turns in the morning peak period, and 11 additional U-turns in the afternoon peak period.

Based on a review of existing U-turns at this intersection, there will be a projected total of 4 U-turns in the morning peak period and 18 U-turns in the afternoon peak period. A major concern occurs during the afternoon peak period (when a majority of drivers return home from work) regarding eastbound left and U-turning vehicles which are unable to negotiate their turn due to the queuing of westbound vehicles stopped at the traffic signal red light for Beach Boulevard and backing up through Patterson Lane.

A review of the video of the intersection shows westbound vehicles blocking the intersection of Patterson Lane 23 times (Table 2) during the afternoon peak period of 5:00-6:00 pm. The signal cycle length at Beach Boulevard and Ellis Avenue is set at 140 seconds (by Caltrans). This means that in one hour of time there are 26 (3,600 seconds ÷ 140 seconds) opportunities for traffic to proceed westbound on Ellis Avenue. If the intersection is blocked by westbound traffic 23 times per hour, this means that vehicles cannot make an eastbound left-turn or U-turn approximately 90% of the usable time under existing conditions.

TABLE 2
Video Observations from December 4, 2019
Ellis Avenue at Patterson Lane/Elan Development
Turning Movements

Time	Patterson Lane				Backup Queue Events	Elan Development	
	Left Out	Right Out	Left In	U-turn		Left Out	Right Out
7:00-8:00 AM*	3	19	2	0	0	19	34
8:00-9:00 AM**	4	17	5	1	1	30	29
4:00-5:00 PM	6	12	11	6	9	13	6
5:00-6:00 PM***	3	20	16	7	23	10	15

* Eastbound collision with northbound vehicle exiting driveway adjacent to Elan development at 7:22 AM

** 3 pedestrians crossed south to north on Ellis Avenue at Patterson Lane

*** 5 pedestrians crossed south to north on Ellis Avenue at Patterson Lane

This condition will be exacerbated with the proposed Ellis condominium project, which will lead to driver frustration and impatience, and could lead to additional collisions at this intersection, as well as east and west from the intersection.

It was also observed that left-turning vehicles exiting the Elan development in the morning used the existing two-way left-turn center lane to merge onto Ellis Avenue. This prevented drivers from

turning left or making U-turns at Patterson Lane in the eastbound direction. This movement could lead to potential head-on collisions in the two-way left-turn lane.

According to a report published the American Automobile Association (AAA) titled, "Crashes vs. Congestion – What's the Cost to Society", dated November 2001:

"At intersections in particular, volume of traffic (especially turning traffic) has a significant relationship to the number of crashes. Higher volumes usually correspond with a larger number of crashes simply because the probability of a crash occurring is greater when more vehicles are present." (Appendix B, page B-4, under "Volume-Related Crashes")

7. Table 2 also shows the various turning movements on Ellis Avenue at the intersection of Patterson Lane/Elan project driveway. This table was developed by reviewing the video, dated December 4, 2019, during the peak periods of 7:00-9:00 AM and 4:00-6:00 PM. The table shows the number of vehicles at the Ellis Avenue and Patterson Lane intersection making left and right turns out, left turns into, and U-turns at Patterson Lane. It also shows how many times Patterson Lane was blocked by westbound vehicles which were queued at Beach Boulevard. Table 2 also shows left and right turns out of the Elan project onto Ellis Avenue.

Additionally, it was observed for both morning and afternoon peak periods that southbound vehicles on Patterson Lane desiring to make a left-turn onto Ellis Avenue have a difficult time due to limited sight distance on the northeast corner of the intersection, especially if vehicles are parked on Patterson lane at Ellis Avenue. It is recommended to install at least 15 feet of red curb on both sides of Patterson Lane at Ellis Avenue.

8. Based on a review of the video, a number of pedestrians (3 in the morning, 5 in the afternoon) crossed Ellis Avenue at Patterson Lane in the south-to-north direction during the morning and afternoon peak periods. It is difficult to determine their destination; however, due to this pedestrian activity, traffic on Ellis Avenue slowed down to allow the pedestrians to cross the roadway. Crossing Ellis Avenue at Patterson Lane is legal since the intersection is an unmarked crosswalk according to CVC Section 21950(a).

In my opinion, pedestrians should be directed to cross Ellis Avenue at Beach Boulevard in order to avoid potential pedestrian collisions.

In summary, it is my professional opinion, that the subject Ellis Avenue condominium project as proposed will significantly negatively impact the existing roadway conditions adjacent to the project on Ellis Avenue and specifically at the intersection of Patterson Lane.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

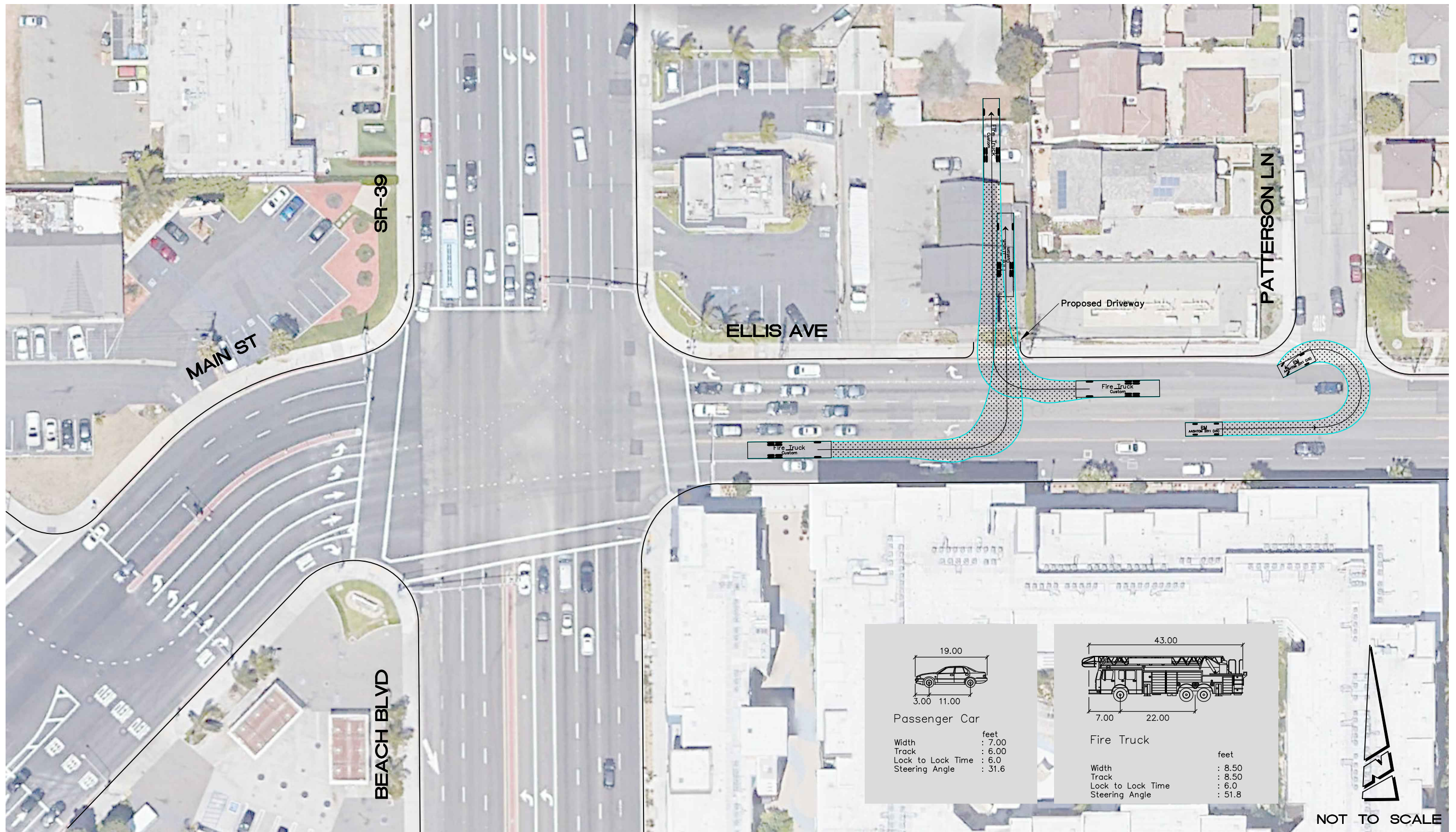
Executed on this 27th day of January 2020 at Fullerton, California.



Mark H. Miller, P.E., T.E., P.T.O.E.



TRAFFIC No. 1575



Mark H. Miller, PE, TE, PTOE

Executive Vice President



EDUCATION

**California Polytechnic University
Pomona, California**

BS Civil/Traffic Engineering, 1974

**Northwestern University
Evanston, Illinois**

Traffic & Transportation Engineering
Highway Capacity Workshop

Institute of Transportation Studies

Safety Design and Operational Practices
for Streets and Highways
Traffic Signal Equipment & Operations
Urban Street Design
Public Works Inspections
Legal Aspects and Liabilities
Risk Management & Traffic Safety

PROFESSIONAL REGISTRATION

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CA Registered Traffic Engineer – TE #1575
Professional Traffic Operations Engineer
– PTOE #233

PROFESSIONAL ASSOCIATIONS

American Public Works Association
American Society of Civil Engineers
City Traffic Engineers Association
(former Chairman)
Institute of Transportation Engineers
(former President)
Orange County Traffic Engineering Council
American League of Cyclists

Mr. Miller is a co-founder of Albert Grover & Associates, Inc. with over forty years of extensive experience in Traffic and Transportation Engineering in both governmental and private sectors. Throughout his career, he has worked on many projects including ITS, signal interconnect and coordination plans, CCTV installations, traffic signal systems, and street lighting. He has also developed and implemented design standards, and Plans, Specifications & Cost Estimates (PS&E) for traffic signals, interconnect communications, and CCTV projects. He has hands-on experience programming all models of traffic signal controllers and has developed numerous traffic signal coordination and timing plans for a wide variety of central system and local controller software.

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Mr. Miller also serves as an Expert Witness, conducting investigative review, providing professional advice, and speaking in the defense of claims and legal actions for a number of governmental agencies.

On top of his significant professional experience, Mr. Miller has long been involved in several professional associations, sharing his depth of knowledge with those both outside of and newly entering the field of traffic engineering. While serving as Chairman of the City Traffic Engineers Association (CTE), he conducted workshops throughout Southern California to educate Traffic Commission and Planning Commission members regarding pertinent traffic and safety issues.

As a former President of the Institute of Transportation Engineers (ITE) and current member, he mentors several local student chapters, including that at the Fullerton campus of the California State University. He also regularly attends and speaks at workshops and conferences, presenting on innovative and informative topics in the industry.

Relevant Experience

Signal Interconnect Analysis, Design and Coordination: Mr. Miller performed these services for the Cities of Bakersfield, Cerritos, Chino, Colton, La Habra, Lancaster, Loma Linda, Montclair, Palm Springs, Pomona, Rialto, San Bernardino, Santa Clarita, Temecula, and Upland.

Multijurisdictional Traffic Signal Synchronization SCAQMD and Orange County Growth Management Area No. 6

Multiple Traffic Signal Design, CCTV, Striping & Street Light Design projects for California Cities, Counties, and State entities.

Montclair Plaza Traffic Operations Study: Mr. Miller was project leader for this large redevelopment project in the City of Montclair.

Roadway Signal Improvements: Cities of Cerritos, Chino, Claremont, Cypress, Ontario, and Upland.

School Safety Studies and Development of Safe Route to School Programs: Mr. Miller led the AGA team on important safety studies in the Cities of Costa Mesa, Fullerton, and Huntington Beach

Expert Witness: Mr. Miller is highly qualified and performs the duties of an Expert Witness for Cities throughout Los Angeles and Orange Counties.

Citywide Engineering and Traffic Speed Survey: Mr. Miller has provided consultation for over 50 different municipalities in Southern California

City Contract Traffic Engineer: Mr. Miller serves on behalf of AGA for Fullerton, Montclair and San Dimas

School Safety Projects: Mr. Miller puts his expertise to work for school districts in Fullerton, Huntington Beach, San Marino, Pomona and Diamond Bar.

Identification of High Accident Locations: With years of experience in traffic and transportation engineering, Mr. Miller has helped several municipalities to enhance safety on busy streets and intersections.

Computerized Traffic Accident Record System: Mr. Miller developed the first of such systems during his tenure with the City of Pasadena.

Papers/Presentations

“Three Year Experience with Flashing Yellow Arrow Display” Presented at ITE Annual Conference, Anaheim, California

“Strategies to Recapture Lost Arterial Traffic Carrying Capacities” Presented at ITE Annual Conference, Rapid City, South Dakota

“Effectively Slowing Drivers – Speed Feedback Signs” Presented at ITE District 6 Annual Meeting, Honolulu, Hawaii

“School Area Traffic Safety” Presented at City Traffic Engineers’ Traffic Commissioners Workshop

“Minimize Delay Maximize Progression with Protected Permissive Lead/Lag Phasing” Presented at ITE Inland Empire Section Technical Workshop

“Microwave Traffic Signal Interconnect—A Viable Alternative to Land Lines” Presented at ITE District 6 Annual Meeting, Portland Oregon

“Quantifications of Air Quality Benefits Achieved Through Traffic Signal Coordination” Presented at ITE District 6 Annual Meeting, Salt Lake City, Utah

“A Successful Multijurisdictional Traffic Signal Coordination Project” Presented at ITE Annual Conference, Dana Point, California