City of Los Alamitos

Agenda Report
Consent Calendar

April 21, 2014

Item No: 8D

To:

Mayor Gerri L. Graham-Mejia & Members of the City Council

Via:

Bret M. Plumlee, City Manager

From:

Steven A. Mendoza, Community Development/Public Works Director

David L. Hunt, City Engineer

Subject:

Review of Engineering and Traffic Survey for Speed Limits

Summary: The Engineering and Traffic Survey for Speed Limits was authorized by the City and was performed by the engineering consulting firm of Hartzog & Crabill, Inc. The goal of the review was to determine whether changes in pre-existing conditions have occurred where older speed limits should be modified.

Recommendation:

- 1. Approve Engineering and Traffic Survey for Speed Limits as submitted in this report; and,
- Adopt Resolution No. 2014-09, entitled, "A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LOS ALAMITOS, CALIFORNIA, ADOPTING THE 2014 ENGINEERING AND TRAFFIC SURVEY FOR SPEED LIMITS."

Background

In accordance with procedures established by the State of California, this Engineering and Traffic Survey has been developed for the City of Los Alamitos as the basis for the establishment and enforcement of speed limits for selected streets within the City.

All fifty states base their speed regulations on the Basic Speed Law. In California, CVC 22350 defines the basic speed law as:

"No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of the highway, and in no event at a speed which endangers the safety of persons or property."

This law recognizes that driving conditions vary widely from time-to-time and place-to-place and, therefore, no set of fixed driving rules will adequately serve all conditions. The motorists will constantly adjust their driving behavior to fit the conditions encountered, and must learn to do this with a minimum of assistance from the police. The Basic Speed Law is founded on the belief that a majority of motorists are able to modify their driving behavior properly, as long as they are aware of the conditions around them.

Discussion

The reason that speed limit areas and their required postings are done is to guard reasonable drivers from the unreasonable behavior of reckless, unreliable, or otherwise dangerous drivers. As with other similar laws, the limits identified are based on the consensus of the majority of those who drive the highway as to what speed is reasonable and safe. It is this type of information that is reflected in the analysis section of this report. Namely, posted speed limits are a reflection of that speed which most people deem to be safe as opposed to a minority of drivers who do not drive in a reasonable manner.

Speed zones are also established to advise drivers of road conditions or hazards that may not be readily apparent to a reasonable driver. For that reason, a field review of related road/traffic variables is conducted which considers the analytical data and accident history of a particular roadway segment to determine a safe and reasonable speed limit.

Speed evaluation data was collected at 17 different survey segments on 7 different roadways in the City of Los Alamitos. These areas and the number of segments on each are described as follows:

- 1. Ball Road (1)
- 2. Bloomfield Street (3)
- 3. Cerritos Avenue (3)
- 4. Farguhar Avenue (1)
- 5. Katella Avenue (5)
- 6. Lexington Drive (1)
- 7. Los Alamitos Boulevard (3)

Results

The Summary indicates that 13 of the 17 segments studied are recommended for no speed limit changes. The reason centers mostly on the fact that the newly measured values of the 85th percentile and the 10 MPH pace are still within the parameters of the existing speed limits. Additional factors such as the presence of horizontal or vertical curves reducing sight distance from the basis in some instances of our recommendations. Therefore, the current postings should remain as is.

Locations of "Speed Limit Increases":

With the combination of the speed data, field review and accident history, the following segments are recommended for a speed limit increase.

	STREET	SEGMENT	CURRENT	PROPOSED
1.	Bloomfield St.	Cerritos Ave. to Katella Ave.	35 MPH	40 MPH
2.	Katella Ave.	West City limits to Los Alamitos Bl.	35 MPH	40 MPH
3.	Katella Ave.	Los Alamitos Bl. to Bloomfield St.	35 MPH	40 MPH
4.	Katella Ave.	Bloomfield St. to Lexington Dr.	35 MPH	40 MPH

Support Explanations of "Speed Limit Increases":

1. Bloomfield Street - Cerritos Avenue to Katella Avenue

This section of Bloomfield Street is a four lane roadway. Currently, a 35 mph speed limit is posted for this area. The adjacent land uses are business, industrial, elementary and middle schools, and a park. Field notes state that there are no shoulders throughout the majority of the segment except for approximately 1000' of cut out on-street parking south of Cerritos Avenue southbound, painted bike lanes, and heavy pedestrian traffic at school arrive and release. The speed data resulted with an 85th percentile speed of 41.0 mph and a 10 mph pace range of 33 to 42 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

2. Katella Avenue - West City Limits to Los Alamitos Boulevard

This section of Katella Avenue is an eight lane roadway. Currently a 35 mph speed limit is posted for this area. The adjacent land uses are business, City Hall and the Police Station, a church and non-fronting residential. Field notes state that there are no shoulders throughout the majority of the segment, truck traffic is heavy as is conventional vehicular traffic. The speed data resulted with an 85th percentile speed of 39.9 mph and a 10 mph pace range of 32 to 41 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

3. Katella Avenue - Los Alamitos Boulevard to Bloomfield Street

This section of Katella Avenue is a six lane roadway. Currently a 35 mph speed limit is posted for this area. The adjacent land uses are business, medical and a church. Field notes state that there are areas of on-street parking and areas of restricted parking, heavy truck traffic and bus stops. The speed data resulted with an 85th percentile speed of 35.7 mph and a 10 mph pace range of 27 to 36 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

4. Katella Avenue - Bloomfield Street to Lexington Drive

This section of Katella Avenue is a six lane roadway. Currently a 35 mph speed limit is posted for this area. The adjacent land uses are business, medical, park, industrial and a church. Field notes state that there are areas of on-street parking and areas of restricted parking, heavy truck traffic and bus stops. The speed data resulted with

an 85th percentile speed of 39.9 mph and a 10 mph pace range of 30 to 40 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

New Signs To Be Posted:

Cerritos Avenue - Bloomfield Street to East City Limit

• The recommended 40 mph is within 4.9 mph of the 85th percentile speed and meets CVC standards. Field notes state that only one speed sign is posted (eastbound) within the segment length. Although in the City of Cypress, there is a 40 mph speed sign posted for the westbound direction west of Denni Street. Therefore, it is recommended that a 40 mph speed sign be installed westbound west of Santa Clara Street (East City Limit).

Katella Avenue - Lexington Drive to Siboney Street

• This section of Katella Avenue is a six lane roadway. The adjacent land uses are residential non-fronting to the roadway, commercial, business, medical offices, and the Los Alamitos Race Track. Field observations include a 40 mph speed sign posted only eastbound east of Lexington Drive, no shoulders westbound, bus stops and heavy truck traffic. With the speed data results showing an 85th percentile speed of 43.8 mph, it is recommended that the existing 40 mph speed limit be maintained. For enforcement, it is recommended that a 40 mph speed sign be posted for the westbound direction as well.

City of Cypress

The City of Cypress Engineering Department was given a copy of the speed survey in February 19, 2014 for their files. The City of Cypress accused Los Alamitos of changing the speed limits signs on west bound Katella Ave from Lexington to Walker from 45 mph to 40 mph. The northern most outside lane in this reach does belong to Cypress. We could not find any paperwork that we changed the speed limits sign. In Los Alamitos' 2003 and 2013 studies both shows the existing speed signs in this reach at 40 mph.

We requested a copy the City of Cypress' 2009 and 1999 studies. The City of Cypress' speed survey of May 2009 states the existing speed limit is 45 mph but we found several discrepancies in their study versus existing conditions in the field. They are summarized below.

- Katella Ave. west of Lexington the Cypress study shows the existing posted speed limit is 45 mph where it is 40 mph.
- Katella Ave. between Lexington to Winners Circle the Cypress study shows the existing speed limit is 45 mph where it is 40 mph.
- Katella Ave. between Winners Circle and Walker the Cypress study shows the existing speed limit is 45 mph where it is 40 mph.
- Cerritos Ave. west of Bloomfield the Cypress study shows the existing posted speed limit is 40 mph where it is 35 mph.

 Cerritos Ave. between Bloomfield and Denni the Cypress study shows the existing posted speed limit is 45 mph where it is 40 mph.

Cypress stated the reach on Katella Avenue from Lexington Drive to Walker Street was not covered in their 1999 study. With all of the above discrepancies in Cypress' report we believe the Los Alamitos report is correct.

Traffic Commission

The Traffic Commission reviewed the draft report on February 12, 2014, and approved the report with some modifications that have been incorporated into this final report (see attached minutes). Therefore, City staff and the Traffic Commission recommend approval of the report, and adopt Resolution No. 2014-09 accepting the Engineering and Traffic Survey for 2014.

Fiscal Impact

The construction estimate for adding new speed limit signs and painting speed limits on the street is \$3,000, and will come out of the 2013/2014 Street Marking and Striping budget and the Traffic Impact Fund.

Prepared By:

Reviewed By:

David L. Hunt, PE

City Engineer

Steven Mendoza

Community Development/Public Works Director

Fiscal Impact Reviewed By:

Glenn Steinbrink

Interim Administrative Services Director

Approved By:

Bret M. Plumlee City Manager

Attachments: 1. Resolution No. 2014-09, Exhibit A, Engineering and Traffic Survey for Speed Limits

2. Excerpt Minutes from February 12, 2014 Traffic Commission Meeting

RESOLUTION NO. 2014-09

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LOS ALAMITOS, CALIFORNIA, ADOPTING THE 2014 ENGINEERING AND TRAFFIC SURVEY FOR SPEED LIMITS

WHEREAS, an Engineering and Traffic survey as defined by the California Vehicle Code (CVC) section 627 is a survey of highway and traffic conditions in accordance with methods determined by the Department of Transportation for use by state and local authorities, and;

WHEREAS, an Engineering and Traffic survey shall include a minimum of the following considerations; 1) Prevailing speeds as determined by traffic engineering measurements; and, 2) Accident records; and 3) Highway, traffic and roadside conditions not readily apparent to the driver, and;

WHEREAS, the requirement to perform Engineering and Traffic surveys for the support of prima facie speed limits and the use of radar or other approved electronic devices to enforce speed limits is based on CVC 40802a, and;

WHEREAS, CVC also outlines the requirement to update the Engineering and Traffic survey every 5 to 10 years depending on changes in the road conditions, and;

WHEREAS, the Los Alamitos Municipal Code 10.08.100 establishes that the City Council may, by Resolution, designate prima facie speed limits upon streets in the City based upon engineering and traffic surveys as authorized by State Vehicle Code, and;

WHEREAS, the City traffic engineer has completed the Engineering and Traffic Survey for Speed Limits dated January, 2014.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LOS ALAMITOS DOES RESOLVE AS FOLLOWS:

SECTION 1. The City Council of the City of Los Alamitos, California, finds that the above recitals are true and correct.

SECTION 2. To accept the recommendations as outlined in the Engineering and Traffic Survey for Speed Limits completed January, 2014, attached hereto as Exhibit A.

SECTION 3. The City Clerk shall certify as to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 21st day of April, 2014.

Gerri L.	Graham-Mejia,	Mayor

ATTE	ST:	
Windr	nera Quintana	ar, City Clerk
APPR	OVED AS TO	FORM:
Cary I	Reisman, City	Attorney
COU	E OF CALIFO NTY OF ORAI OF LOS ALA	NGE) ss
forego	oing Resolution	nar, City Clerk of the City of Los Alamitos, do hereby certify that the on was adopted at a regular meeting of the City Council held on the the following vote, to wit:
	AYES:	COUNCILMEMBERS:
	ABSENT:	COUNCILMEMBERS: COUNCILMEMBERS: COUNCILMEMBERS:

Windmera Quintanar, City Clerk

ENGINEERING AND TRAFFIC SURVEY FOR SPEED LIMITS

CITY OF LOS ALAMITOS

JANUARY 2014

PREPARED FOR:

CITY OF LOS ALAMITOS 3191 KATELLA AVENUE LOS ALAMITOS, CALIFORNIA 90720 (562) 431-3538

PREPARED BY:

HARTZOG & CRABILL, INC. TRAFFIC ENGINEERS 17852 EAST 17TH STREET TUSTIN, CA 92780 (714) 731-9455

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CERTIFICATION

I, Gerald Stock, do hereby certify that this Engineering and Traffic Survey for the City of Los Alamitos was performed under my supervision and is accurate and complete. I certify that I am both experienced in performing surveys of this type and duly registered in the State of California as a professional Traffic Engineer.

Gerald Stock RTE # 2049

File: Los Alamitos Radar Rpt 2013.doc

CITY OF LOS ALAMITOS ENGINEERING AND TRAFFIC SURVEY FOR SPEED LIMITS

In accordance with procedures established by the State of California, this Engineering and Traffic Survey has been developed for the City of Los Alamitos as the basis for the establishment and enforcement of speed limits for selected streets within the City. The work provided herein was authorized by the City and was performed by the engineering consulting firm of Hartzog & Crabill, Inc. The goal of the review was to determine whether changes in pre-existing conditions have occurred where older speed limits should be modified.

The requirement to perform Engineering and Traffic surveys for speed limits is based on the California Vehicle Code (CVC). CVC Section 40802 states that at least once every five (5), seven (7) or ten (10) years, States and local agencies should re-evaluate non-statuary speed limits on segments of their roadways. Recent changes to the CA. MUCTD changed the policy and procedure for setting speed limits in California. Engineering and Traffic Surveys must be performed with the use of radar or other approved electronic devices if the use of radar is to be employed to enforce speed limits. If such a survey is not performed within five years (or seven years, or ten years as stated previously) of the date of the preceding survey, then the new data and its use will constitute a speed trap. Hence, evidence using such would not be admissible in court. From the Vehicle Code, a "speed trap" is either of the following:

- (a) A particular section of a highway measured as to distance and with boundaries marked, designated, or otherwise determined in order that the speed of a vehicle may be calculated by securing the time it takes the vehicle to travel the known distance.
- (b) A particular section of a highway with a prima facie speed limit provided by this code or by local ordinance under sub-paragraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established pursuant to Section 22354, 22357, 22358, or 22358.3 if that prima facie speed limit is not justified by an engineering and traffic survey conducted within five years prior to the date of the alleged violation, and where enforcement involves the use of radar or other electronic devices that measures the speed of moving objects. This paragraph does not apply to a local street, road, or school zone.

The definition of a Traffic and Engineering Survey is contained in Section 627 of the Vehicle Code and is as follows:

Engineering and Traffic survey, as used in this code, means a survey of highway and traffic conditions in accordance with methods determined by the California Department of Transportation (Caltrans) for use by State and local authorities. An engineering and traffic survey shall include, among other requirements deemed necessary by the department, consideration of the following:

- (a) Prevailing speeds as determined by traffic engineering measurements.
- (b) Accident records.
- (c) Highway, traffic and roadside conditions not readily apparent to the driver.

The California Vehicle code has set certain regulations regarding the posting and enforcement of speed zones. These regulations generally reflect the viewpoint that speed zoning should be based on traffic conditions and natural driver behavior and not because of an arbitrary response to a traffic event or occurrence. Therefore, it is important to have a general understanding of the "Basic Speed Law", "Prima Facie Speed Limits" and "Intermediate Speed Zones".

Basic Speed Law (CVC 22350)

All fifty states base their speed regulations on the Basic Speed Law. In California, CVC 22350 defines the basic speed law as:

"No Person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of the highway, and in no event at a speed which endangers the safety of persons or property."

This law recognizes that driving conditions vary widely from time-to-time and place-to-place and, therefore, no set of fixed driving rules will adequately serve all conditions. The motorist will constantly adjust their driving behavior to fit the conditions encountered, and must learn to do this with a minimum of assistance from the police. The Basic Speed Law is founded on the belief that a majority of motorists are able to modify their driving behavior properly, as long as they are aware of the conditions around them.

Prima Facie Speed Limits (CVC 22352)

All other speed limits are prima facie limits which, "on the face of it", are reasonable and prudent under normal conditions. The opportunity given to the driver to exceed a prima facie speed limit when it is safe to do so recognizes the fact that any posted speed limit cannot adequately reflect the many different conditions of traffic, weather, visibility, etc., that may be found on the same highway at different times.

Certain prima facie limits are automatically established by law (CVC 22352), including a 15 mph limit in alleys, blind intersections, blind railroad crossing, and the 25 mph limit in business and residence districts. There is also a part time 25 mph limit in school zones when children are present in route to or from school.

Business and residence districts are defined in the Vehicle Code as specific areas meeting a specified minimum density of roadside development. CVC Sections 235 and 515 define these regulations. A count of houses or active businesses facing on a highway must be made to determine whether or not a valid business or residence district exists. The law does not require posting these prima facie limits that are readily apparent.

Residence District (CVC 515)

A "residence district" is that portion of a highway and the property contiguous thereto, other than a business district, (a) upon one side of which highway, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures, or (b) upon both sides of which highway, collectively, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or

business structures. A residence district may be longer than one-quarter of a mile if the above ratio of separate dwelling houses or business structures to the length of the highway exists.

Establishment of Speed Zones

The reason that speed limit areas and their required postings are done is to guard reasonable drivers from the unreasonable behavior of reckless, unreliable, or otherwise dangerous drivers. As with other similar laws, the limits identified are based on the consensus of the majority of those who drive the highway as to what speed is reasonable and safe. It is this type of information that is reflected in the analysis section of this report. Namely, posted speed limits are a reflection of that speed which most people deem to be safe as opposed to a minority of drivers who do not drive in a reasonable manner.

Speed zones are also established to advise drivers of road conditions or hazards that may not be readily apparent to a reasonable driver. For that reason, a field review of related road/traffic variables is conducted which considers the analytical data and accident history of a particular roadway segment to determine a safe and reasonable speed limit.

Data Collection Procedures

Speed evaluation data was collected at 17 different survey segments on 7 different roadways in the City of Los Alamitos. These areas and the number of segments on each are described as follows:

- 1. Ball Road (1)
- 2. Bloomfield Street (3)
- 3. Cerritos Avenue (3)
- 4. Farquhar Avenue (1)
- 5. Katella Avenue (5)
- 6. Lexington Drive (1)
- 7. Los Alamitos Boulevard (3)

As described in various traffic engineering documents - including information provided by the State of California, the individual locations on which radar data collection procedures were used involved considerations for the following:

- a. Stop sign or traffic signal locations;
- b. Visibility issues;
- c. Traffic flow at intersections, cross-traffic, major driveways, crosswalks, railroad crossings and unusual turning movements;
- d. The influence of other traffic factors on the speed of cars: such as on street parking, roadway features, adjacent land uses, and lighting.

Speed Zoning Methodology

The California Manual on Uniform Traffic Control Devices (CA. MUTCD) specifies a "short method of determining speed limits on City and County through Highways, Arterial and Collector Roads Procedures.

Introduction - This short method of speed zoning is based on the premise that the reasonable speed limit is one that conforms to the actual behavior of the majority of motorists, and that by

measuring motorist's speeds, one will be able to select a speed limit that is both reasonable and effective. Other factors that need to be considered include, but are not limited to: the most recent three-year collision record, roadway design speed, safe stopping sight distance, superelevation, shoulder conditions, profile conditions, intersection spacing and offsets, commercial driveway characteristics, pedestrian traffic in the roadway without sidewalks.

Speed Zone Survey

- Only one person is required for the fieldwork. Speeds can be read directly from a radar speed meter.
- A section of road should be selected with representative operating speeds. If speeds vary on a given road, additional surveys should be conducted. In this case, it may be necessary to establish additional speed zones with different speed limits. The section selected should be straight and should have no traffic signal, stop sign or intersection with a major cross street.
- Speed measurements should be taken during off-peak hours on weekdays. The weather should be fair with no unusual conditions prevailing. It is important that the surveyor and his equipment be so inconspicuous as not to affect traffic speeds. For this reason, an unmarked car is recommended, with the radar speed meter located as inconspicuously as possible. It should be placed so as to be able to survey traffic in both directions, and should not make an angle greater than 15 degrees with the roadway centerline.
- It is desirable to have a minimum sample of 100 automobiles in each survey. This may result in excessive survey periods for low-volume roads. Under these conditions, the survey should be conducted for a minimum of two hours, but in no case should the sample for any survey contain less than 50 automobiles.
- The California MUTCD states that speed limits are established at or near the 85th percentile speed, which is defined as that speed at or below which 85 percent of the traffic is moving. This speed can be selected directly from the data sheet. However, roadway conditions not readily apparent to the motorist such as vertical or horizontal curves or other roadway conditions that may impact sight distance may result in a further reduction of 5 mph in the recommended speed limit.
- As a check on the validity of the proposed speed limit, an analysis should be made of the twoyear accident record for the section of roadway under consideration. If this record shows an abnormally high percentage of accidents normally associated with excessive speeds, the proposed speed limit should be further reduced. This is a judgment situation, and will not usually be a factor.
- Short speed zones of less than half a mile should be avoided, except in transition areas.
- Speed zone changes should be coordinated with changes in roadway conditions or roadway development.
- Speed zoning in 5 mile per hour increments should be avoided if possible. A 10-mile per hour increment is preferable.
- Speed zoning should be coordinated between adjacent jurisdictions.

Local Street Exemptions (CVC 40802)

Many streets are designated as "Local" streets per CVC 40802. These streets are exempt from the radar study. Therefore, the speed limit for these streets does not require an Engineering and Traffic Survey. The code is as follows:

"For the purpose of this section, local streets and roads shall be defined by the latest functional usage and federal aid system maps as submitted to the Federal Highway Administration. When these maps have not been submitted, the following definition shall be used: A local street or road primarily provides access to abutting residential property and shall meet the following three conditions:

- 1. Roadway width of not more than 40 feet.
- 2. Not more than one half mile of uninterrupted length.
- 3. Not more than one traffic lane in each direction.

Other Considerations

Every street should be inspected for unusual traffic, roadway and roadside conditions not readily apparent to a motorist. A check should be made of the adequacy of traffic control devices, roadway alignment, width surface conditions, accident history and any unique traffic hazards that may exist. Any of these conditions may warrant the selection of a speed lower than the 85th percentile speed for speed zoning.

Radar Collection Time Frames

The hours of radar operation were restricted to off-peak periods for heavily traveled streets and to uncongested peak periods on lightly traveled streets. All surveys were conducted in fair weather.

The radar unit was mounted at the top of the front dash of an unmarked vehicle with the meterreading unit sustained inside the vehicle. The radar unit's calibration was checked periodically using a tuning fork.

The radar operator and assistant recorded the speed meter readings for each location on Radar Speed Survey Field Sheets included in the appendix of this report. A representative sampling of at least 100 vehicles were surveyed in each direction or a cumulative sample of 200 vehicles for both directions where possible. On low volume roads, where a total sample of 200 vehicles would result in an excessive time period, sampling was continued until a representative bell-shaped frequency distribution was attained.

Analysis Factors

Several factors were used as input to our recommendations for speed limits. These include the 85th Percentile, the 10 MPH Pace and others. These are described in detail below.

1. The **CRITICAL SPEED**, or the 85th percentile is defined as that speed at or below which 85 percent of the traffic is moving. From experience, traffic engineers have found that this is one of the most reliable factors in determining appropriate speed limits.

Hence, the accepted practice, and one that has been used in this case is to set the speed limit at or near the critical speed. This recognizes that other factors could be present where the above may not be appropriate. When this procedure is used, it not only conforms to that required by the State but it also provides a strong base for law enforcement personnel to properly enforce speed limits.

- 2. The 10 MPH PACE is that continuous 10 mph incremental range of speeds in which the largest number of recorded vehicles is contained. It is a measure of the dispersion of speeds within the sample surveyed. For this element, the accepted practice to the greatest extent possible is to try and keep the recommended speed limit within the 10 mph pace after considering the critical speed and any factors requiring a speed lower than the critical speed.
- 3. The **MEDIAN** (**MIDDLE**) **SPEED**, or 50th percentile speed, represents the mid-point value within the range of recorded speeds for a particular roadway location. In other words, 50% of the vehicles travel faster, and 50% travel slower than the median speeds. This value is another measure of the central tendency of the vehicle speed distribution.
- 4. The **15th PERCENTILE SPEED** is that speed at or below which 15% of the vehicles are traveling. This value is important in determining the minimum allowable speed limit, given that the vehicles traveling below this speed tend to obstruct the flow of traffic, thereby increasing the accident potential.
- 5. **MODAL SPEED**: The modal speed is the speed, which occurs most frequently in the distribution (the most). It serves as another useful measure in verifying the correct recommendation for speed limits.
- 6. STANDARD DEVIATION: This is a mathematical element, which relates to measures of dispersion of data. It is used to assist in describing the center of speed distribution information around the arithmetic mean or the time mean speed. It also is used in the overall review of recommended speed limits and serves to verify the level of confidence of data used in making recommendations.
- 7. The MEAN (AVERAGE) is the sum of the speeds of the samples divided by the number of samples.

The numerical values of the above factors are derived from the speed distribution curves calculated for each survey location. These distribution curves represent a method of graphic analysis that compares the cumulative percentage of vehicles to the speed at which the vehicles are traveling.

Field Review

In addition to the availability of the above statistical data, a significant aspect of speed limit recommendations is based on the field review. Its importance is that existing conditions may warrant a lower speed than is actually indicated by the application of survey data. Examples of the field data collected for the purposes of analyzing related roadway characteristics as they pertain to the determination of appropriate speed limits are listed below:

- 1. Segment length, width and alignment
- 2. Level of pedestrian activity
- 3. Traffic flow characteristics
- 4. Vertical and/or horizontal curves.
- 5. Driver sight distance constraints.
- 6. Adjacent residential/commercial/industrial etc. zoning.
- 7. Number of lanes and other channelization/striping factors
- 8. Frequency of intersections, driveways and on street parking;
- 9. Location of stop signs, traffic signals, and other regulatory traffic control devices;
- 10. Roadway conditions, bumps and dips;
- 11. Obstructions to pedestrian visibility;
- 12. Land use and proximity of schools;
- 13. Uniformity with existing speed zones to/with adjacent jurisdictions;
- 14. Any other unusual conditions not readily apparent to the driver.

The results of the field review of related road/traffic variables are summarized on the Engineering and Traffic Survey forms found in the Appendix of this report.

Accident History

The Engineering and Traffic Survey forms summarize the available two-year accident information for the subject streets. The accident information includes the total number of accidents within each street segment and of those accidents, the number that are speed-related. This information was obtained from the California Statewide Integrated Traffic Records System (SWITRS) for the City of Los Alamitos.

The annual accident rate figures represent the number of speed-related accidents divided by years of accident records. The evaluation of accidents is useful as a check on the accuracy of recommended or existing speed limits. Should this review show a high percentage of accidents associated with excessive speeds, consideration based on professional traffic engineering iudgment should be directed toward reducing the posted or recommended speed limit.

Results and Recommendations

The following Summaries: No Speed Limit Changes, New Speed Limit Postings, Speed Limit Increases, Speed Limit Reductions and Summary of Recommendations presents the results of the radar survey for the selected 17 locations. As shown, the Summary of Recommendations chart presents the necessary analysis elements that in addition to the field review of a registered traffic engineer led to the recommendations indicated.

Locations of "No Speed Limit Changes"

The Summary indicates that 13 of the 17 segments studied are recommended for no speed limit changes. The reason centers mostly on the fact that the newly measured values of the 85th percentile and the 10 MPH pace are still within the parameters of the existing speed limits. Additional factors such as the presence of horizontal or vertical curves reducing sight distance form the basis in some instances of our recommendations. Therefore, the current postings should remain as is. One segment has a speed sign posted in one direction only and is listed for no change. Hence, the other direction should be posted. These segments noted as "install", as well as the segments recommended for "No Change" are listed below:

Ball Road

West City Limits to Bloomfield St

Remain posted at 40 mph

Bloomfield Street

North City Limits to Cerritos Ave

Remain posted at 40 mph

Katella Ave to Farquhar Ave

Remain posted at 25 mph

Cerritos Avenue

North City Limits to Los Alamitos Bl

Remain posted at 40 mph

Remain posted at 35 mph

Bloomfield St to East City Limits

Remain posted at 40 mph

Farquhar Avenue

Los Alamitos Bl to Lexington Dr Remain posted at 25 mph

Katella Avenue

Lexington Dr to Siboney St

Remain posted at 40 mph

Siboney St to Walker St

Remain posted at 40 mph

Lexington Drive

Katella Ave to Farquhar Ave Remain posted at 30 mph

Los Alamitos Boulevard

North City Limits to Katella Ave
Remain posted at 35 mph
Katella Ave to Farquhar Ave
Remain posted at 35 mph
Farquhar Ave to Bradbury Rd
Remain posted at 40 mph

Support Explanations for "No Speed Limit Changes"

The following are support explanations for the roadway segments that the recommended speed limit is 5 mph lower or more than the newly measured 85th percentile speed or has a speed sign posted in one direction only. The various reasons for the recommendations are provided below.

Katella Avenue

Lexington Drive to Sibonev Street

This section of Katella Avenue is a six lane roadway. The adjacent land uses are residential non-fronting to the roadway, commercial, business, medical offices, golf course, and the Los Alamitos Race Track. Field observations include a 40 mph speed sign posted only eastbound east of Lexington Drive, no shoulders westbound, bus stops and heavy truck traffic. With the speed data results showing an 85th percentile speed of 43.8 mph, it is recommended that the existing 40 mph speed limit be maintained. For enforcement, it is recommended that a 40 mph speed sign be posted for the westbound direction as well.

Locations of "Speed Limit Increases"

With the combination of the speed data, our field review and accident history, the following (4) segments are recommended for a speed limit increase.

Bloomfield Street

Cerritos Ave to Katella Ave Increase speed from 35 mph to 40 mph

Katella Avenue

West City Limits to Los Alamitos Bl
Los Alamitos Bl to Bloomfield St
Bloomfield St to Lexington Dr
Increase speed from 35 mph to 40 mph
Increase speed from 35 mph to 40 mph
Increase speed from 35 mph to 40 mph

Support Explanations of "Speed Limit Increases"

Bloomfield Street

Cerritos Avenue to Katella Avenue

This section of Bloomfield Street is a four lane roadway. Currently, a 35 mph speed limit is posted for this area. The adjacent land uses are business, industrial, elementary and middle schools, and a park. Field notes state that there are no shoulders throughout the majority of the segment except for approximately 1000' of cut out on-street parking south of Cerritos Avenue southbound, painted bikes lanes, and heavy pedestrian traffic at school arrive and release. The speed data resulted with an 85th percentile speed of 41.0 mph and a 10 mph pace range of 33 to 42 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

Katella Avenue

West City Limits to Los Alamitos Boulevard

This section of Katella Avenue is an eight lane roadway. Currently a 35 mph speed limit is posted for this area. The adjacent land uses are business, City Hall and the Police Station, a church and non-fronting residential. Field notes state that there are no shoulders throughout the majority of the segment, truck traffic is heavy as is conventional vehicular traffic. The speed data resulted with an 85th percentile speed of 39.9 mph and a 10 mph pace range of 32 to 41 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

Los Alamitos Boulevard to Bloomfield Street

This section of Katella Avenue is a six lane roadway. Currently a 35 mph speed limit is posted for this area. The adjacent land uses are business, medical and a church. Field notes state that there are areas of on-street parking and areas of restricted parking, heavy truck traffic and bus stops. The speed data resulted with an 85th percentile speed of 35.7 mph and a 10 mph pace range of 27 to 36 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

Bloomfield Street to Lexington Drive

This section of Katella Avenue is a six lane roadway. Currently a 35 mph speed limit is posted for this area. The adjacent land uses are business, medical, park, industrial and a church. Field notes state that there are areas of on-street parking and areas of restricted parking, heavy truck traffic and bus stops. The speed data resulted with an 85th percentile speed of 39.9 mph and a 10 mph pace range of 30 to 39 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

SUMMARY OF RECOMMENDATIONS

CITY OF LOS ALAMITOS SUMMARY OF RECOMMENDATIONS

STREET LOCATION	EXISTING SPEED LIMIT	RECOMMENDED SPEED LIMIT	85 TH PERCENTILE SPEED	AVERAGE SPEED	10 MPH PACE RANGE	PERCENT OF VEHICLES IN PACE	JUSTIFICATION / COMMENTS
DALL DOAD							
BALL ROAD WEST CITY LIMITS TO							
BLOOMFIELD ST	40	40	44.9	41.2	37-46	83.3	NO CHANGE – 85 [™] PERCENTILE
DI COMEICI D'ETDECT							
BLOOMFIELD STREET							
NORTH CITY LIMITS TO CERRITOS AVE	40 / 25*	40	44.8	41.3	38-47	83.9	NO CHANGE – 85 TH PERCENTILE
CERRITOS AVE TO KATELLA AVE	35 / 25*	40	41.0	36.2	33-42	79.5	INCREASE – 85 TH PERCENTILE
	JJ / ZJ	40	41.0	30.2	JJ-42	13.0	INUNEAGE - 65" PERCEIVILE
KATELLA AVE TO FARQUHAR AVE	25	25	25.2	22.5	19-28	96.9	NO CHANGE – 85 TH PERCENTILE
OFFICIAL AVENUE							
CERRITOS AVENUE							
WEST CITY LIMITS TO LOS ALAMITOS BL	40 / 25*	40	43.4	39.0	35-44	74.9	NO CHANGE – 85 TH PERCENTILE
LOS ALAMITOS BL TO BLOOMFIELD ST	35 / 25*	35	39.3	35.1	31-40	80.1	NO CHANGE – 85™ PERCENTILE
	30 / 20	33	39.3	JJ, I	31-40	00.1	NO CHANGE - 65" PERCENTILE
BLOOMFIELD ST TO EAST CITY LIMITS	40 / 25*	40	44.9	41.1	37-46	85.2	NO CHANGE – 85 TH PERCENTILE
FARQUHAR AVENUE							
LOS ALAMITOS BL TO							
LEXINGTON DR	25	25	29.9	25.9	22-31	87.2	NO CHANGE – 85 TH PERCENTILE
KATELLA AVENUE							
WEST CITY LIMITS TO							
LOS ALAMITOS BL	35	40	39.9	35.4	32-41	70.9	INCREASE - 85TH PERCENTILE
LOS ALAMITOS BL TO BLOOMFIELD ST	35	40	35.7	32.0	27-36	76.0	INCREASE – 85 TH PERCENTILE
BLOOMFIELD ST TO							
LEXINGTON DR	35	40	39.9	34.7	30-39	67.3	INCREASE - 85TH PERCENTILE
*25 mph Whan Children Drocent							

^{*25} mph When Children Present

STREET LOCATION	EXISTING SPEED LIMIT	RECOMMENDED SPEED LIMIT	85 TH PERCENTILE SPEED	AVERAGE SPEED	10 MPH PACE RANGE	PERCENT OF VEHICLES IN PACE	JUSTIFICATION / COMMENTS
KATELLA AVENUE (Continued)							
LEXINGTON DR TO SIBONEY ST	40	40	43.6	39.4	36-45	74.5	NO CHANGE – 85 TH PERCENTILE
SIBONEY ST TO WALKER ST	40	40	44.1	38.2	34-43	73.5	NO CHANGE – 85 TH PERCENTILE
LEXINGTON DRIVE							
KATELLA AVE TO FARQUHAR AVE	30	30	33.4	29.6	26-35	86.1	NO CHANGE – 85 TH PERCENTILE
LOS ALAMITOS BOULEVARD							
NORTH CITY LIMITS TO KATELLA AVE	35	35	38.5	34.5	30-39	83.0	NO CHANGE – 85 TH PERCENTILE
KATELLA AVE TO FARQUHAR AVE	35	35	36.8	32.3	28-37	84.5	NO CHANGE – 85 TH PERCENTILE
FARQUHAR AVE TO BRADBURY RD	40 / 25*	40	42.2	38.4	34-43	84.4	NO CHANGE – 85 TH PERCENTILE

^{*25} mph When Children Present

APPENDIX A

ENGINEERING AND TRAFFIC SURVEY

SURVEY BY:

CITY OF LOS ALAMITOS

HCI

BALL ROAD

WEST CITY LIMITS TO BLOOMFIELD ST

DATE: 11/14/2013

TIME: 11:30 F

11:30 PM - 12:00 PM

C. BUENDIA

CHECKED BY: JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE

POSTED SPEED LIMIT

WEST OF KAYLOR

11/14/2013 44.9 MPH 37 - 46 MPH 83.3 % 40 MPH

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS
ANNUAL ACCIDENT RATE

ACC./MILLION VEH. MILES

24

0

0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY)
0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

LANE CONFIGURATION
TRAFFIC CONTROLS

CROSSWALKS
PEDESTRIAN/BICYCLES

TRUCK TRAFFIC

ON-STREET PARKING

OTHER

20,000

2 LANES PER DIRECTION

SIGNAL - BLOOMFIELD / KAYLOR AT BLOOMFIELD (sch) / KAYLOR

YES / YES

YES

NO PARKING ANYTIME

BIKE ROUTE

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE HORIZONTAL CURVE LATERAL VISIBILITY ROAD CONDITIONS SIDEWALKS/DRIVEWAYS

STREET LIGHTING OTHER

0.25

SLIGHT-GRADUAL UP/DOWNHILL GRADES (OVER CREEK)

NONE GOOD GOOD YES / NO YES

PAINTED ISLAND

ADJACENT LAND USE

RESIDENTIAL (NF) / COMMERCIAL / CREEK

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 40 mph speed limit is within 4.9 mph of the 85th percentile speed and meets CVC standards. Note, a 40 mph speed limit is posted in the adjacent City of Long Beach.

File: Ball 2013-01

RADAR SPEED DISTRIBUTION SHEET

CITY OF LOS ALAMITOS

HCI BALL RO		a news to, or lifes at the selection of	WEST CITY LIN	MITS TO BLO	OMFIELD ST
DATE: T			SURVEY BY:	C. BUEND	
TIME: 1	1:30 PM - 12:00	PM	CHECKED BY:	JERRY ST	OCK
SPEED 20	CUMM 40	ULATIVE PERCENT 60	80	100	
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49]			X 100.0% X 99.3%	
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47				X 95.1%	
46 45	 		<u>x</u> _x	91.0%	PACE
44			x ^	78.5%	PACE85PCT
43]		х	70.1%	}PACE
42 41	1	x		59.7%	PACE MEAN
40	x			36.8%	PACE PACE
39) x			26.4%	PACE
38 x	9			19.4%	PACE15PCT
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34 × 33 ×	[2.8% 1.4%	
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PERCENT OVER PA			MEDIAN SPEED:		44.9 MPH 41.2 MPH
PERCENT IN PACE			15th PERCENTIL		
PERCENT UNDER			CARLETTO	L OFECU.	37.4 MPH

Radar Speed Survey Field Sheet

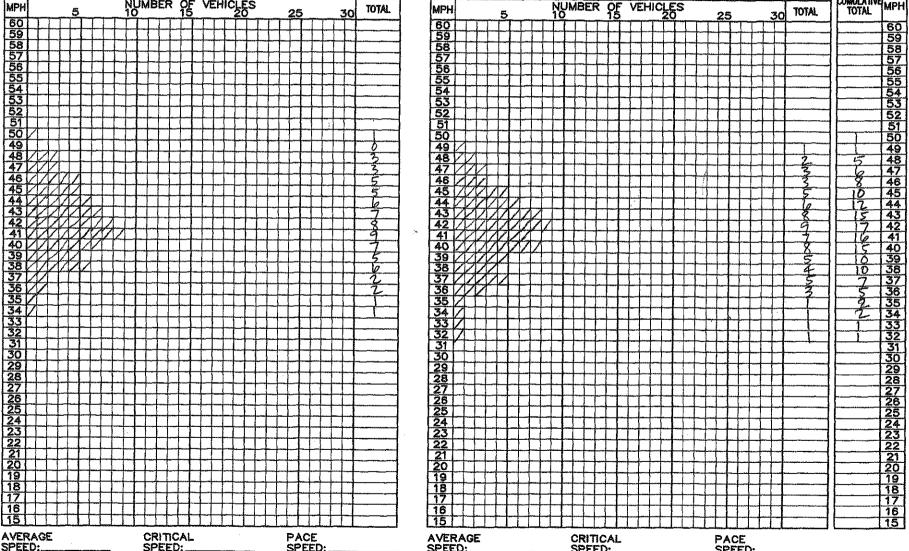
Ganguelling Teeffor Engineer

Fig. 18 Physical Side 101

Two Callerin 1976

YM 211 M15 See TH 751,000

_	
AGENCY: CITY OF LOS ALAMITOS	WEATHER: GUNNY DATE: 11/14/13
STREET: BALL ROAD	ROAD CONDITION: DRY START TIME: 11:30. AM
OCATION: WEST CITY LIMITS TO BLOOMFIELD ST.	OBSERVER: Cathy Buendia END TIME: 12:00 PM VUL
DIRECTION: EAST BOUND	DIRECTION: WESTBOUND
MPH 5 NUMBER OF VEHICLES 25 30 TOTAL	MPH 5 NUMBER OF VEHICLES 25 30 TOTAL TOTAL TOTAL TOTAL
	60
59	60 59 59



SPEED:

SPEED:

SPEED:

PACE SPEED:

CUMULATIVE (BOTH DIRECTIONS)_

ENGINEERING AND TRAFFIC SURVEY

CITY OF LOS ALAMITOS

HCI

BLOOMFIELD STREET

NORTH CITY LIMITS TO CERRITOS AVE

DATE:

11/14/2013

SURVEY BY:

C. BUENDIA

TIME:

12:30 PM -1:00 PM CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE

POSTED SPEED LIMIT

SOUTH OF BARCLAY

11/14/2013 44.8 MPH 38 - 47 MPH 83.9 %

40 MPH / 25 MPH*

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS ANNUAL ACCIDENT RATE 0

24

ACC./MILLION VEH. MILES

0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION TRAFFIC CONTROLS

CROSSWALKS

PEDESTRIAN/BICYCLES

TRUCK TRAFFIC

ON-STREET PARKING

OTHER

13,700

2 LANES PER DIRECTION SIGNAL - CERRITOS / BALL

AT CERRITOS (sch) / PED XING (at creek) / BALL

YES / YES

YES

PARTIAL (NB) / NO STOPPING ANYTIME (SB)

BIKE ROUTE

MANY AREAS OF RED CURB

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE HORIZONTAL CURVE LATERAL VISIBILITY **ROAD CONDITIONS**

SIDEWALKS/DRIVEWAYS STREET LIGHTING

OTHER

SLIGHT-GRADUAL UP/DOWNHILL GRADES (OVER CREEK)

NONE GOOD GOOD YES / NO

YES

PAINTED ISLAND

ADJACENT LAND USE

RESIDENTIAL (NF) / LAUREL HIGH SCHOOL / SCHOOL DISTRICT

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 40 mph speed limit is within 4.8 mph of the 85th percentile speed and meets CVC standards.

File: Bloomfield 2013-02

^{* 25} MPH When Children Present, School Zone NF = Non-Fronting

RADAR SPEED DISTRIBUTION SHEET

CITY OF LOS ALAMITOS

HCI	BLOOME	IELD STREE	Ţ		NORT	H CITY LIN	<u>aits</u>	TO CE	RRITOS	SAVE
	DATE: T	1/14/2013			SURVE	Y BY:	C. 1	BUENDI	Α	······································
	TIME: 1	12:30 PM - 1			CHECK	(ED BY:	JE	RRY ST	OCK	
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	R LIMIT 10 MI		47 MPH							
	ER LIMIT 10 M		38 MPH		85th PE	RCENTILE	SPE	ED:	44.8	MPH
PERC	ENT OVER P	ACE:	8.1 %		MEDIA	V SPEED:			41.3	MPH
PERC	ENT IN PACE	:	83.9 %			RCENTILE	SPF	ED:	37.3	MPH
PERC	ENT UNDER		13.0 %						_,	**** * 1

Radar Speed Survey Field Sheet

Hawas

Consulting Traffic Engineers 17557E 176 Sect. Sufe: DE Their Callenia 47760 77677945E But 374747.0056 4494 herbetsteld dess

AGENCY: CITY OF LOS ALAMITOS	WEATHER: SUNNY	DATE: 11/14/13
STREET: BLOOMFIELD STREET	ROAD CONDITION: DRY	START TIME: 12,30 PM
LOCATION: NORTH CITY LIMITS TO CERRITOS AVE	Cothy Buondia	FND THE 1:00 PM VAL
LOCATION: NORTH 1211 1294 127 TO CERTAIN AVE	OBSERVER: Cathy Buendia	END TIME: 1:00 PM VAL
DIRECTION: NORTHBOUND	DIRECTION: SAUTHBOUND	
NUMBER OF VEHICLES	NUMBER OF VEHICLES	25 30 TOTAL CUMULATIVE MPH
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AVERAGE CRITICAL PACE SPEED: SPEED: SPEED:	AVERAGE CRITICAL SPEED: SPEED:	PACE SPEED:
CHARLEATIVE (ROTH DIRECTIONS)		

ENGINEERING AND TRAFFIC SURVEY

CITY OF LOS ALAMITOS

HCI

BLOOMFIELD STREET

CERRITOS AVE TO KATELLA AVE

DATE:

11/14/2013

1.00 DE 4.20 DE

SURVEY BY:

C. BUENDIA

TIME: 1:00 PM - 1:30 PM

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE

PERCENT IN PACE
POSTED SPEED LIMIT

11/14/2013 41.0 MPH 33 - 42 MPH

79.5 %

35 MPH / 25 MPH*

SOUTH OF CERRITOS

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES

24 1

0.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY)
0.16 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

LANE CONFIGURATION TRAFFIC CONTROLS CROSSWALKS

PEDESTRIAN/BICYCLES
TRUCK TRAFFIC

ON-STREET PARKING

OTHER

16,900

2 LANES PER DIRECTION SIGNAL - CERRITOS / KATELLA AT CERRITOS (sch) / KATELLA (sch)

YES/YES

YES

PARTIAL w/RESTRICTIONS (SB) / NO STOPPING ANYTIME (NB)

BIKE ROUTE

HEAVY PEDS AT SCHOOL ARRIVAL-DEPARTURE

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE

HORIZONTAL CURVE LATERAL VISIBILITY ROAD CONDITIONS SIDEWALKS/DRIVEWAYS STREET LIGHTING

OTHER

0.50

NONE (Except over former RxR tracks)

NONE GOOD GOOD YES / YES

YES

2 WAY LEFT TURN CENTERLANE

AREAS OF RED CURB

ADJACENT LAND USE

BUSINESS / INDUSTRIAL / SCHOOLS / PARK

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

INCREASE

JUSTIFICATION:

This section of Bloomfield Street is a four lane roadway. Currently, a 35 mph speed limit is posted for this area. The adjacent land uses are business, industrial, elementary and middle schools, and a park. Field notes state that there are no shoulders throughout the majority of the segment except for approximately 1000' of cut out on-street parking south of Cerritos Avenue southbound, painted bikes lanes, and heavy pedestrian traffic at school arrive and release. The speed data resulted with an 85th percentile speed of 41.0 mph and a 10 mph pace range of 33 to 42 mph. Therefore, it is recommended that the existing 35 mph be increased to 40 mph.

File: Bloomfield 2013-03

^{*25} MPH When Children Present, School Zone

RADAR SPEED DISTRIBUTION SHEET

CITY OF LOS ALAMITOS

HCI	BLOOMF	IELD STR	EET			CERF	RITOS AVI	E TO K	ATELL	A AVE	
	DATE: 1						EY BY:		BUENDI		
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44 43 42			ł		I		×	X	94.0%	}PACE	
41							x ^]	84.9%	PACE	85PCT
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39 38 37						X X			74.7% 67.5%	PACE	
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1 361				X					48.2%	}PACE ·	MEAN
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	LIMIT 10 MI		42								
	LIMIT 10 M		33	MPH		85th Pi	ERCENTIL	E SPE	ED:	41.0	MPH
	NT OVER PA		9.6	%		MEDIA	N SPEED:			36.2	MPH
	NT IN PACE		79.5	%		15th P	ERCENTIL	E SPE	ED:	32.5	MPH
PERCE	NT UNDER	PACE:	10.8	%							

Radar Speed Survey Field Sheet

Oonsusting Traffic Engineer

Traffic Engineer

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ENGINEERING AND TRAFFIC SURVEY

CITY OF LOS ALAMITOS

HCI

BLOOMFIELD	STREET

SURVEY BY:

KATELLA AVE TO FARQUHAR AVE

DATE:

`E: 11/14/2013 E: 1:30 PM -

2:15 PM CHECKED BY:

C. BUENDIA JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY DATE OF SURVEY 85th PERCENTILE SOUTH OF GREEN 11/14/2013 25.2 MPH

10 MPH PACE
PERCENT IN PACE
POSTED SPEED LIMIT

19 - 28 MPH 96.9 % 25 MPH

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES

24

0

0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY)
0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION

TRAFFIC CONTROLS

CROSSWALKS
PEDESTRIAN/BICYCLES

TRUCK TRAFFIC

ON-STREET PARKING

OTHER

4,200

1 LANE PER DIRECTION

SIGNAL - KATELLA. STOP - FARQUHAR / GREEN / HOWARD

AT KATELLA (sch)

YES / YES

FIC NO (except delivery truck)

YES

NO PARKING 9am-12pm, 2nd-4th THURS

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)
VERTICAL CURVE
HORIZONTAL CURVE
LATERAL VISIBILITY
ROAD CONDITIONS
SIDEWALKS/DRIVEWAYS

STREET LIGHTING OTHER

0.25

NONE NONE GOOD GOOD YES / YES

YES

ADJACENT LAND USE

RESIDENTIAL (Multi-Family) / CHURCH / BUSINESS AND COMMERCIAL (at Katella)

RECOMMENDED SPEED LIMIT

25 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 25 mph is within 0.2 mph of the 85th percentile speed and meets CVC standards.

File: Bloomfield 2013-04

^{*25} MPH When Children Present, School Zone

RADAR SPEED DISTRIBUTION SHEET

CITY OF LOS ALAMITOS

HCI	BLOOMFIE	LD STREET			KATELLA AVE TO FARQUHAR AVE			<u>.</u>		
	DATE: 11/1	4/2013			SURVE	EY BY:	C.	BUEND	Α	-
	TIME: 1:3	30 PM - 2:1			CHECK	KED BY:	JEI	RRY ST	OCK	
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	NT IN PACE:							·		MPH
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Radar Speed Survey Field Sheet

Co.auditing Traffic Engineers
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AGENCY: CITY OF LOS ALAMITOS STREET: BLOOMFIELD STREET LOCATION: KATELLA AVE TO FARQUAR AVE NUMBER OF VEHICLES MPH TOTAL **AVERAGE** CRITICAL PACE

CUMULATIVE (BOTH DIRECTIONS)_

SPEED:

WEATHER: GUNNY	DATE: 11/14/13	_
ROAD CONDITION: DRY	START TIME: 1/30 PM	
	END TIME: 2:15 PM JUL	_

NUMBER OF VEHICLES 25 30 TOTAL	7
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AVERAGE CRITICAL PACE SPEED: SPEED: SPEED:	

CITY OF LOS ALAMITOS

HCI

CERRITOS AVENUE WEST CITY LIMITS TO LOS ALAMITOS BL

DATE: 11/14/2013

TIME: 10:45 AM - 11:15 AM **SURVEY BY:**

C. BUENDIA

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE **EAST OF RIVERBED** 11/14/2013

43.4 MPH 35 - 44 MPH

74.9 %

POSTED SPEED LIMIT

40 MPH / 25 MPH*

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES 24

0

0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION TRAFFIC CONTROLS **CROSSWALKS**

PEDESTRIAN/BICYCLES TRUCK TRAFFIC

ON-STREET PARKING

OTHER

28,500

2 LANES PER DIRECTION SIGNAL - LOS ALAMITOS AT LOS ALAMITOS (sch)

FEW/YES

YES

NO PARKING ANYTIME (EB) / FEW AT LOS ALAMITOS BL (WB)

NO SHOULDERS (EB) **BIKE ROUTE**

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE HORIZONTAL CURVE LATERAL VISIBILITY ROAD CONDITIONS SIDEWALKS/DRIVEWAYS STREET LIGHTING

OTHER

SLIGHT UP-DOWNHILL GRADE (over creek/riverbed)

NONE GOOD **GOOD** YES / YES YES

ADJACENT LAND USE

BUSINESS / COMMERCIAL

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 40 mph is within 3.4 mph of the 85th percentile speed and meets CVC standards.

File: Cerritos 2013-05

^{* 25} MPH When Children Present, School Zone

HC	CERRITO DATE: 11	OS AVENUE 1/14/2013 0:45 AM - 1			WEST SURVE CHECK		TO LOS BUENDI ERRY STO	A	TOS BL
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	CENT IN PACE		74.9 %			RCENTILE SPI	=ED·	34.2	MPH
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EHAMBIGE.

Consuling Traffic Engines 1755; E. 1765 Son, Suin 101 Twish, Editoria 97760 TH.711,965; St. 714,711,968 a what bosenbill stee

AGENCY: CITY OF L	OS ALAMÍTOS		WEATHER: SUNNY		DATE: 11/14/13	-
STREET: (ERRITOS	AVENUE		ROAD CONDITION: DRY	,	START TIME: 10:45	
LOCATION WEST CIT	IT LIMITS TO LOS,	LIAMITHS BL	OBSERVER: Cathy Bue	endia	END TIME: 11:15	
	_		OBSERVER: OSTIN DUS		END TIME: IV. LV	ALL VOICE
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CUMULATIVE (BOTH DIRECTIONS)_

CITY OF LOS ALAMITOS

HCI

CERRITOS AVENUE

LOS ALAMITOS BL TO BLOOMFIELD ST

DATE: 11/14/2013

10:15 AM - 10:45 AM

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

TIME:

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE

PERCENT IN PACE
POSTED SPEED LIMIT

EAST OF HIGH SCH ENT 11/14/2013

39.3 MPH 31 - 40 MPH 80.1 %

35MPH / 25 MPH*

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES

24 0

3

0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY)
0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION
TRAFFIC CONTROLS

TRAFFIC CONTROLS CROSSWALKS

PEDESTRIAN/BICYCLES TRUCK TRAFFIC ON-STREET PARKING

OTHER

28,500

2 LANES PER DIRECTION

SIGNAL - LOS ALAMITOS / H.S. ENTRANCE /HUMBOLT / BLOOMFIELD AT LOS ALAMITOS (sch) / H.S. ENTRANCE (sch) /HUMBOLT / BLOOMFIELD

YES / YES YES

YES

SHORT DISTANCE BTWN SIGNALS

BIKE ROUTE

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)
VERTICAL CURVE
HORIZONTAL CURVE
LATERAL VISIBILITY
ROAD CONDITIONS
SIDEWALKS/DRIVEWAYS

SIDEWALKS/DRIVEWA STREET LIGHTING OTHER 0.47

NONE NONE GOOD GOOD YES / YES YES

BUS STOPS

ADJACENT LAND USE

BUSINESS / COMMERCIAL / RESIDENTIAL (NF) / HIGH SCH

RECOMMENDED SPEED LIMIT

35 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 35 mph is within 4.3 mph of the 85th percentile speed and meets CVC standards.

File: Cerritos 2013-06

^{* 25} MPH When Children Present, School Zone

HCI	CERRITO	S AVENUE	_			LOS A	LAMITOS	BL T	O BLO	<u>OMFIEL</u>	D ST
	DATE: 11	1/14/2013				SURVE	Y BY:	C.	BUEND	Α	
	TIME: 1	0:15 AM ~				CHECK	CED BY:	JE	RRY ST	OCK	
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	NT IN PACE		80.1	%			RCENTIL		ED.	31.2	MPH
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Radar Speed Survey Field Sheet S ALAMITOS WEATHER: SUNNY DATE:

CHANGE .

Consulting Traffic Engineers 1935) K. (194: 69-21, Suite 19) Thefa California 93780 714311,941 Sui 714,311,544

AGENCY: CITY OF LOS ALAMITOS

STREET: LERRITOS AVENUE

LOCATION: LOS ALAMITOS BL TO BLOOMFIELD ST.

WEATHER: SUNNY ROAD CONDITION: PRY

DATE: 11/14/13

START TIME: 10:15 AM

OBSERVER: Cathy Buendia END TIME:

EASTBOUND DIRECTION: NUMBER OF VEHICLES MPH TOTAL 19

AVERAGE SPEED:____ CRITICAL SPEED: __ PACE SPEED: ____ AVERAGE SPEED: ____ CRITICAL SPEED: ____ PACE SPEED:

CUMULATIVE (BOTH DIRECTIONS)___

CITY OF LOS ALAMITOS

HCI

CERRITOS AVENUE BLOOMFIELD ST TO EAST CITY LIMITS (Santa Clara St)

DATE: 11/14/2013 SURVEY BY: C. BUENDIA CHECKED BY:

TIME: 9:45 AM - 10:15 AM **JERRY STOCK**

PREVAILING SPEED DATA

LOCATION OF SURVEY DATE OF SURVEY

EAST OF LOS VAQUEROS 11/14/2013

85th PERCENTILE 10 MPH PACE PERCENT IN PACE

44.9 MPH 37 - 46 MPH 85.2 %

POSTED SPEED LIMIT

40 MPH (EB) / 25 MPH*

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS TOTAL ACCIDENTS

24 0 2

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES 0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION

2 LANES PER DIRECTION TRAFFIC CONTROLS SIGNAL - BLOOMFIELD **CROSSWALKS** AT BLOOMFIELD YES / YES

PEDESTRIAN/BICYCLES TRUCK TRAFFIC **ON-STREET PARKING**

YES **PARTIAL**

0.50

25,500

OTHER

AREAS OF NO PARKING AND NO STOPPING

BIKE ROUTE

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE NONE HORIZONTAL CURVE NONE LATERAL VISIBILITY GOOD **ROAD CONDITIONS** GOOD SIDEWALKS/DRIVEWAYS YES / YES STREET LIGHTING YES

OTHER

BUS STOPS

ADJACENT LAND USE

RESIDENTIAL / BUSINESS / CHURCH / MIDDLE SCH

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE - POST WESTBOUND

JUSTIFICATION:

The recommended 40 mph is within 4.9 mph of the 85th percentile speed and meets CVC standards. Field notes state that only one speed sign is posted (eastbound) within the segment length. Although in the City of Cypress, there is a 40 mph speed sign posted for the westbound direction west of Denni Street. Therefore, it is recommended that a 40 mph speed sign be installed westbound west of Santa Clara Street (west of East City Limit).

HCI	CERRIT	OS AVENU	<u>JE</u>	*** *** * * * *** * *	8 00 00	BLOO	MFIELD	ST TO	EAST (CITY LI	MITS
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	TIME:	9:45 AM	- 10:1			CHECK	(ED BY:	JE	RRY ST	OCK	
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HATTOG & 17851

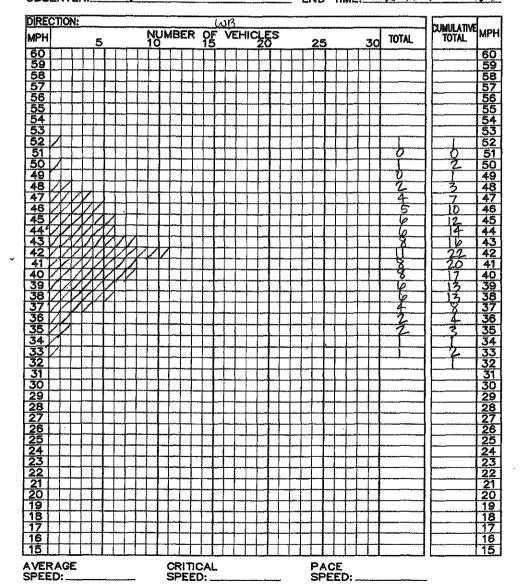
AGENCY: CITY OF LOS ALAMITOS

STREET: CERRITOS AVENUE

LOCATION: BLOOMFIELD ST TO EAST CITY LIMITS

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WEATHER: GUNNY	DATE: 11	14/13		
ROAD CONDITION: DRY	START TIME:	9:45	AM	
OBSERVER: Cathy Buendia	FND TIME:			



CUMULATIVE (BOTH DIRECTIONS)_

CITY OF LOS ALAMITOS

HCI

CADAL	ELIA ES	AVENUE	
PARU	MARK	AVENUE	

LOS ALAMITOS BL TO LEXINGTON DR

DATE: TIME:

11/14/2013 3:15 PM - SURVEY BY:

CHECKED BY:

C. BUENDIA **JERRY STOCK**

PREVAILING SPEED DATA

LOCATION OF SURVEY DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE POSTED SPEED LIMIT

WEST OF NOEL 11/14/2013 29.9 MPH 22 - 31 MPH 87.2 %

3:45 PM

25 MPH

24

0

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES 0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION TRAFFIC CONTROLS

1 LANE PER DIRECTION SIGNAL - LOS ALAMITOS, AND

CROSSWALKS PEDESTRIAN/BICYCLES TRUCK TRAFFIC

STOP- REAGAN / MAPLE / ROCHELLE / NOEL / BLOOMFIELD / LEXINGTON AT LOS ALAMITOS / REAGAN / MAPLE/ BLOOMFIELD / AMERICA / LEXINGTON

YES / YES NO

18,900

ON-STREET PARKING

YES (WB) / NO PARKING ANYTIME (EB)

OTHER

NO SHOULDERS (EB)

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES) VERTICAL CURVE

HORIZONTAL CURVE LATERAL VISIBILITY ROAD CONDITIONS SIDEWALKS/DRIVEWAYS

STREET LIGHTING OTHER

0.97 NONE

NONE GOOD FAIR YES / YES

YES

ADJACENT LAND USE

RESIDENTIAL / COMMERCIAL (at Los Alamitos) / PARK / MILITARY BASE

RECOMMENDED SPEED LIMIT

25 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 25 mph is within 4.9 mph of the 85th percentile speed and meets CVC standards.

HCI	FARQUH	AR AVENU	E	W. 1841		LOS A	LAMITO:	S BL T	O LEXI	NGTO	V DR
	DATE: 11					SURVE			BUEND		
	TIME: 3		3:45 F			CHECK	CED BY:	JE	RRY ST	OCK	
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21 20 x	X								4.7%		
19 X]	1						1.3%		
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UPPER	LIMIT 10 MI	PH PACE	31	MPH							
	LIMIT 10 M		22	MPH		REST DE	RCENTIL	E CDE	En.	29.9	MPH
	NT OVER PA		8.1	%					.نان.		
	NT IN PACE						N SPEED			25.9	MPH
			87.2	%		15th PE	RCENTIL	E SPE	ED:	22.4	MPH
PERCE	NT UNDER	PACE:	4.7	%							

AVERAGE

SPEED:

ROAD CONDITION: DRY

EHARTISME!

START TIME: 3:15 PM

Consuling Traffic Engineers
STASTE 17th Sect. Public Tol.
Thes. Callenda 92740
F14.711.905 Sec 714.741.905

AGENCY: UTY OF LOS ALAMITOS
STREET: FARQUHAR AVENUE
LOCATION: LOS ALAMITOS BL TO LEXINGTON DE

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CRITICAL

SPEED:

PACE SPEED:

CITY OF LOS ALAMITOS

HCI

KATELLA AVENUE	WEST CITY LIMITS TO LOS ALAMITOS BL

DATE: 11/15/2013 SURVEY BY: C. BUENDIA

TIME: 12:30 PM -1:00 PM CHECKED BY: **JERRY STOCK**

PREVAILING SPEED DATA LOCATION OF SURVEY WEST OF OAK DATE OF SURVEY 11/15/2013 85th PERCENTILE 39.9 MPH 10 MPH PACE 32 - 41 MPH PERCENT IN PACE

70.9 % **POSTED SPEED LIMIT 35 MPH**

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED 24 SPEED-RELATED ACCIDENTS 3 **TOTAL ACCIDENTS**

ANNUAL ACCIDENT RATE 1.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY) ACC./MILLION VEH. MILES 0.10 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION TRAFFIC CONTROLS

CROSSWALKS PEDESTRIAN/BICYCLES

TRUCK TRAFFIC ON-STREET PARKING

OTHER

59.800

4 LANES PER DIRECTION

SIGNAL - CIVIC CENTER / WELLINGSFORD-WALNUT / LOS ALAMITOS AT CIVIC CENTER / WELLINGSFORD-WALNUT / LOS ALAMITOS

FEW / FEW

YES (Heavy)

NO PARKING ANYTIME **NO SHOULDERS DENSE TRAFFIC**

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES) 0.68 **VERTICAL CURVE** NONE **HORIZONTAL CURVE** NONE LATERAL VISIBILITY GOOD **ROAD CONDITIONS** GOOD SIDEWALKS/DRIVEWAYS YES / FEW STREET LIGHTING YES

OTHER

RAISED MEDIAN ISLAND

ADJACENT LAND USE RESIDENTIAL (NF) / BUSINESS / COMMERCIAL / CITY HALL

RECOMMENDED SPEED LIMIT **35 MPH**

SPEED LIMIT CHANGE **NO CHANGE**

JUSTIFICATION:

The recommended 35 mph is within 4.9 mph of the 85th percentile speed and meets CVC standards.

File: Katella 2013-09

^{* 25} MPH When Children Present, School Zone

HCI	KATELLA	AVENUE					WEST	CITY LI	MITS T	OLOS	ALAM	ITOS BL
	DATE. T	1/10/2013					SURVE			BUEND		
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HARTZOG &

Consulting Treffix Engineers 1785 I 176 Sens Subject 101 Teats, California 92750 71478-9415 par 114,711,905

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STREET: KATELLA AVENUE		ROAD CONDITION: DRY		START TIME: 12:30	PM
LOCATION: WEST CITY LIMIT TO US ALL	MÍTOS	OBSERVER: Cathy But	∋ndia	END TIME: (1.00	
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CUMULATIVE (BOTH DIRECTIONS)___

CITY OF LOS ALAMITOS

HCI

KATELLA AVENUE	

DATE: 11/15/2013 LOS ALAMITOS BL TO BLOOMFIELD ST

SURVEY BY:

C. BUENDIA

TIME:

11:15 AM - 11:45 AM

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE POSTED SPEED LIMIT

EAST OF CHERRY 11/15/2013 35.7 MPH

27 - 36 MPH 76.0 % **35 MPH**

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES 24 1

> 0.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.04 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION TRAFFIC CONTROLS

CROSSWALKS PEDESTRIAN/BICYCLES TRUCK TRAFFIC

ON-STREET PARKING OTHER

57,700

3 LANES PER DIRECTION

SIGNAL - LOS ALAMITOS / CHERRY / BLOOMFIELD AT LOS ALAMITOS / CHERRY / BLOOMFIELD

YES / YES YES (Heavy) YES (Heavy)

MANY AREAS OF RED CURB / 2 HR PKNG (EB) 7am-6pm **BUS STOPS / SOME AREAS OF NO PARKING ANYTIME**

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES) **VERTICAL CURVE** HORIZONTAL CURVE LATERAL VISIBILITY **ROAD CONDITIONS** SIDEWALKS/DRIVEWAYS STREET LIGHTING OTHER

0.60 NONE NONE

GOOD GOOD YES / YES YES

RAISED MEDIAN ISLAND

NO BLOCKING AT INTERSECTIONS OF KAYLOR AND REAGAN

ADJACENT LAND USE

DENSE BUSINESS / DENSE MEDICAL / COMMERCIAL / SMALL CHURCH

RECOMMENDED SPEED LIMIT

35 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 35 mph is within 0.7 mph of the 85th percentile speed and meets CVC standards.

File: Katella 2013-10

^{* 25} MPH When Children Present, School Zone

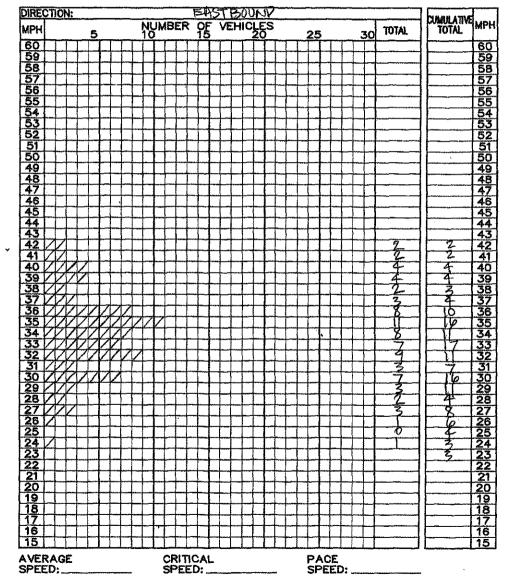
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STREET: KATEUA AVENUE
LOCATION: LOS ALAMITOS BI TO BLOOMFIELD ST

WEATHER: GUNNY	DATE: 11/15/13
ROAD CONDITION: DRY	START TIME: 11:15 AM
OBSERVER: Cathy Buendia	END TIME: 11:45 AM VUL

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CITY OF LOS ALAMITOS

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KATELLA AVENUE	BLOOMFIELD ST TO LEXINGTON DR

DATE: 11/15/2013

SURVEY BY: C. BUENDIA TIME: 10:45 AM - 11:15 AM CHECKED BY: **JERRY STOCK**

PREVAILING SPEED DATA

LOCATION OF SURVEY DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE POSTED SPEED LIMIT

WEST OF NOEL 11/15/2013 39.9 MPH 30 - 39 MPH 67.3 % **35 MPH**

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS **TOTAL ACCIDENTS**

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES 24 3

1.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.15 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC LANE CONFIGURATION TRAFFIC CONTROLS **CROSSWALKS**

PEDESTRIAN/BICYCLES TRUCK TRAFFIC **ON-STREET PARKING**

OTHER

53,200

3 LANES PER DIRECTION

SIGNAL - BLOOMFIELD / NOEL / LEXINGTON AT BLOOMFIELD (sch) / NOEL / LEXINGTON

YES / YES YES (Heavy)

YES

MANY AREAS OF RED CURB / 2 HR PKNG (EB) 7am-6pm

NO BLOCKING INTERSECTION AT PORTAL

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES) **VERTICAL CURVE** HORIZONTAL CURVE LATERAL VISIBILITY **ROAD CONDITIONS** SIDEWALKS/DRIVEWAYS STREET LIGHTING

OTHER

0.50

NONE NONE GOOD GOOD YES / YES YES

RAISED MEDIAN ISLAND

BUS STOPS

ADJACENT LAND USE

BUSINESS / MEDICAL / COMMERCIAL / PARK / CHURCH / INDUSTRIAL (at Lexington)

RECOMMENDED SPEED LIMIT

35 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 35 mph is within 4.9 mph of the 85th percentile speed and meets CVC standards.

File: Katella 2013-11

^{*25} MPH When Children Present, School Zone

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AGENCY: CITY OF LOS ALAMITOS STREET: KATELLA AVENUE LOCATION: BLOOMFIELD ST. TO LEXINGTON DR

WEATHER: SUNNY DATE: 11/15/13 ROAD CONDITION: DRY START TIME: LO: 45 AM OBSERVER: Cathy Buendia 11:15 AM In END TIME:

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CUMULATIVE (BOTH DIRECTIONS)_

SPEED:

SPEED:

CITY OF LOS ALAMITOS

HCI

KATEI	I A	AVENUE
1271		

LEXINGTON DR TO SIBONEY ST

DATE:

11/15/2013

SURVEY BY:

C. BUENDIA

TIME:

10:15 AM - 10:45 AM

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE PERCENT IN PACE POSTED SPEED LIMIT **EAST OF LEXINGTON**

11/15/2013 43.6 MPH 36 - 45 MPH 74.5 %

40 MPH (EB)

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE **ACC./MILLION VEH. MILES** 24 1

> 0.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY) 0.05 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

LANE CONFIGURATION TRAFFIC CONTROLS

CROSSWALKS

PEDESTRIAN/BICYCLES TRUCK TRAFFIC

ON-STREET PARKING

OTHER

47,000

3 LANES PER DIRECTION

SIGNAL - LEXINGTON / SIBONEY / COTTONWOOD

AT LEXINGTON / SIBONEY / COTTONWOOD

YES / FEW YES (Heavy)

PARTIAL (EB) / NO PARKING ANYTIME (WB)

NO SHOULDERS (WB)

BUS STOPS

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES) VERTICAL CURVE

HORIZONTAL CURVE LATERAL VISIBILITY **ROAD CONDITIONS** SIDEWALKS/DRIVEWAYS

STREET LIGHTING

OTHER

0.63

NONE NONE GOOD

GOOD YES / YES

YES

RAISED MEDIAN ISLAND

ADJACENT LAND USE

COMMERCIAL / BUSINESS / RACE TRACK / MOTEL / CHURCH

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE - POST WESTBOUND

JUSTIFICATION:

This section of Katella Avenue is a six lane roadway. The adjacent land uses are residential non-fronting to the roadway. commercial, business, medical offices, and the Los Alamitos Race Track. Field observations include a 40 mph speed sign posted only eastbound east of Lexington Drive, no shoulders westbound, bus stops and heavy truck traffic. With the speed data results showing an 85th percentile speed of 43.8 mph, it is recommended that the existing 40 mph speed limit be maintained. For enforcement, it is recommended that a 40 mph speed sign be posted for the westbound direction as well.

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EHATTON'S

Controlling Traffic Engineers 1763 E. 176 Soon, Suite 201 Trafe, Callinnia 92760 73478, 9451 Sep 714, 511, 1696

AGENCY: CITY OF LOS ALAMITOS

STREET: KATELLA AVENUE

LOCATION: LEXINGTON DR. TO SIBONEY ST

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WEATHER: SUNNY ROAD CONDITION: DRY	DATE: 11/15/13 START TIME: 10:15 AM	
OBSERVER: Cathy Buendia	END TIME: 10:45 AM VU	<u>u</u>
DIRECTION: EAST BOUND	THE RESERVE	
MPH 5 NUMBER OF VEHICLES 20	25 30 TOTAL TOTAL	IPH
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AVERAGE SPEED:____ CRITICAL SPEED: PACE SPEED:

CUMULATIVE (BOTH DIRECTIONS)_

CITY OF LOS ALAMITOS

HCI

KATELLA AVENUE

SIBONEY ST TO WALKER ST

DATE: 11/15/2013

SURVEY BY:

C. BUENDIA

TIME:

9:45 AM - 10:15 AM

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

DATE OF SURVEY

85th PERCENTILE

10 MPH PACE PERCENT IN PACE

POSTED SPEED LIMIT

EAST OF SIBONEY

11/15/2013 44.1 MPH

34 - 43 MPH

73.5 %

40 MPH

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED

SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES 24

3

1.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY)

0.22 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

LANE CONFIGURATION

TRAFFIC CONTROLS

CROSSWALKS PEDESTRIAN/BICYCLES

TRUCK TRAFFIC

ON-STREET PARKING

OTHER

48,900

3 LANES PER DIRECTION

SIGNAL - SIBONEY / WINNERS CIRCLE / WALKER

AT SIBONEY / WINNERS CIRCLE / WALKER

YES / FEW

YES (Heavy)

NO PARKING ANYTIME

BUS STOPS

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE HORIZONTAL CURVE

LATERAL VISIBILITY ROAD CONDITIONS

SIDEWALKS/DRIVEWAYS

STREET LIGHTING

OTHER

0.38

NONE

NONE GOOD

GOOD

YES / YES (EB) / YES / NO (WB)

YES

RAISED MEDIAN ISLAND

ADJACENT LAND USE

BUSINESS / COMMERCIAL / RACE TRACK

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 40 mph is within 4.1 mph of the 85th percentile speed and meets CVC standards.

File: Katella 2013-13

HCI	KATELL	A AVENUE	:		•	SIBON	IEY ST T	O WA	LKER S	Т	
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	NT IN PAC		73.5			15th PE	RCENTIL	E SPE	ED:	34.2	MPH
PERCE	NT UNDER	PACE:	9.9	%							

HANTING

CONTROL TRAFFIC Engineer 17631E. Its Sect. Sole 10 Toda, Collant 19725 116,751,945. So: 156,231,565

AGENCY: CITY OF LOS ALAMITOS	WEATHER: SUNNY	DATE: 11/15/13
STREET: KATELLA AVENUE	ROAD CONDITION: PRT	START TIME: 9:45 AM
OCATION: SIBONEY ST. TO WALKER ST	OBSERVER: Cathy Buendia	END TIME: 10:15 AM

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CITY OF LOS ALAMITOS

HCI

LEXINGTON DRIVE

KATELLA AVE TO FARQUHAR AVE

DATE:

11/15/2013

SURVEY BY:

C. BUENDIA

TIME:

1:15 PM -

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

SOUTH OF KATELLA 11/15/2013

1:45 PM

DATE OF SURVEY 85th PERCENTILE

33.4 MPH

10 MPH PACE

26 - 35 MPH

PERCENT IN PACE POSTED SPEED LIMIT 86.1 % **30 MPH**

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED

SPEED-RELATED ACCIDENTS

TOTAL ACCIDENTS

0

24

ANNUAL ACCIDENT RATE

ACC./MILLION VEH. MILES

0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY)

0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

LANE CONFIGURATION

TRAFFIC CONTROLS

1 LANE PER DIRECTION SIGNAL - KATELLA, STOP - FARQUHAR

CROSSWALKS

AT KATELLA / FARQUHAR

PEDESTRIAN/BICYCLES

TRUCK TRAFFIC

ON-STREET PARKING

OTHER

YES / NO YE\$

5.400

YES

NO PARKING 9am-NOON (2nd-4th TUES)

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE

HORIZONTAL CURVE LATERAL VISIBILITY

ROAD CONDITIONS SIDEWALKS/DRIVEWAYS

STREET LIGHTING

OTHER

0.77

NONE

NONE

GOOD **GOOD**

YES / YES

YES

DBL YELLOW CENTERLINE

WIDE ROADWAY

ADJACENT LAND USE

NATIONAL GUARD BASE / RESIDENTIAL / COMMERCIAL (at Katella)

RECOMMENDED SPEED LIMIT

30 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 30 mph is within 3.4 mph of the 85th percentile speed and meets CVC standards.

* 25 MPH When Children Present, School Zone

File: Lexington 2013-14

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Consulting Trailin Engineer

17552E Jill Stein, Rule 198
17552E Jill Stein, Rule 198
17553,9455 Eng 196711, pails
17673, 3455 Eng 196711, pails

AGENCY: CITY OF LOS ALAMITOS WEATHER: SUNNY STREET: LEXINGTON DRIVE ROAD CONDITION: DRY START TIME: 1:15 PM LOCATION: KATELLA AVE TO FARQUHAR AVE OBSERVER: Cathy Buendia 1:45 PM VAL END TIME: MOKTHEWNY DIRECTION: **SOUTHBOOND** DIRECTION: HHW SALLY TRWING NUMBER OF VEHICLES MPH NUMBER OF VEHICLES TOTAL мрн TOTAL TOTAL 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 AVERAGE CRITICAL PACE **AVERAGE** CRITICAL PACE SPEED: SPEED: _ SPEED: SPEED: CUMULATIVE (BOTH DIRECTIONS)_

CITY OF LOS ALAMITOS

HCI

LOS ALAMITOS BOULEVARD

NORTH CITY LIMITS TO KATELLA AVE

DATE: 11/

11/15/2013

SURVEY BY:

C. BUENDIA

TIME:

2:00 PM - 2:30 PM

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

SOUTH OF SAUSALITO

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE 11/15/2013 38.5 MPH 30 - 39 MPH

PERCENT IN PACE

83.0 %

POSTED SPEED LIMIT

35 MPH / 25 MPH*

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

24 1

TOTAL ACCIDENTS

15

ANNUAL ACCIDENT RATE ACC./MILLION VEH. MILES

0.50 ACCIDENTS PER YEAR (SPEED RELATED ONLY)

0.07 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

2 LANES PER DIRECTION

LANE CONFIGURATION TRAFFIC CONTROLS

SIGNAL - KATELLA / CERRITOS / SAUSALITO / FLORISTA AT KATELLA / CERRITOS (sch) / SAUSALITO / FLORISTA

PEDESTRIAN/BICYCLES YES

YES / FEW

23,400

TRUCK TRAFFIC

CROSSWALKS

YES YES

ON-STREET PARKING OTHER

AREAS OF RED CURB

BUS STOPS

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE

HORIZONTAL CURVE

LATERAL VISIBILITY

ROAD CONDITIONS

SIDEWALKS/DRIVEWAYS

STREET LIGHTING

GOOD YES / YES

YES

0.84

NONE

NONE

GOOD

OTHER

2 WAY LEFT TURN CENTERLANE NO U-TURNS (NB) BY HIGH SCHOOL

ADJACENT LAND USE

DENSE COMMERCIAL / LOS ALAMITOS HIGH SCH

RECOMMENDED SPEED LIMIT

35 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 35 mph is within 3.5 mph of the 85th percentile speed and meets CVC standards.

File: Los Alamitos 2013-15

^{* 25} MPH When Children Present, School Zone

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C HATTERS SE

Consulting Traffic Engineer 11553 E. 17th Space, Natio (M) Traffic CADO vity 12750 134751,965 Sec 194731,948 White Instrumental Consulting

AGENCY: CITY OF LOS ALAMITOS

STREET: LOS ALAMITOS BOULEVARD

LOCATION: NORTH CITY LINIT TO KATEUA AVE

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CUMULATIVE (BOTH DIRECTIONS)_

WEATHER: SUNNY	DATE: 11/15/13
ROAD CONDITION: DRY	START TIME: 2:00 PM
	END TIME: 2:30 PM JAL

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CITY OF LOS ALAMITOS

HCI

LOS ALAMITOS BOULEVARD KATELLA AVE TO FARQUHAR AVE

DATE: 11/15/2013

SURVEY BY:

C. BUENDIA

TIME:

2:30 PM -

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

11/15/2013

NORTH OF HEDWIG

3:00 PM

DATE OF SURVEY 85th PERCENTILE

36.8 MPH

10 MPH PACE

28 - 37 MPH

PERCENT IN PACE

84.5 %

POSTED SPEED LIMIT

35 MPH

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS

24

TOTAL ACCIDENTS

0

ANNUAL ACCIDENT RATE **ACC./MILLION VEH. MILES** 0.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY)

0.00 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC 60,000

LANE CONFIGURATION **3 LANE PER DIRECTION**

TRAFFIC CONTROLS SIGNAL - KATELLA / FARQUHAR

CROSSWALKS AT KATELLA / FARQUHAR

PEDESTRIAN/BICYCLES YES / FEW

TRUCK TRAFFIC YES

ON-STREET PARKING

YES (Heavy)

OTHER AREAS OF RED CURB

BUS STOPS

ROADWAY FACTORS

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE NONE **HORIZONTAL CURVE**

LATERAL VISIBILITY ROAD CONDITIONS

SIDEWALKS/DRIVEWAYS

STREET LIGHTING

0.84

NONE GOOD

GOOD

YES / YES

VES

PARTIAL 2 WAY LEFT TURN / PARTIAL RAISED MEDIAN ISLAND

ADJACENT LAND USE

OTHER

DENSE BUSINESS / DENSE COMMERCIAL

RECOMMENDED SPEED LIMIT

35 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 35 mph is within 1.8 mph of the 85th percentile speed and meets CVC standards.

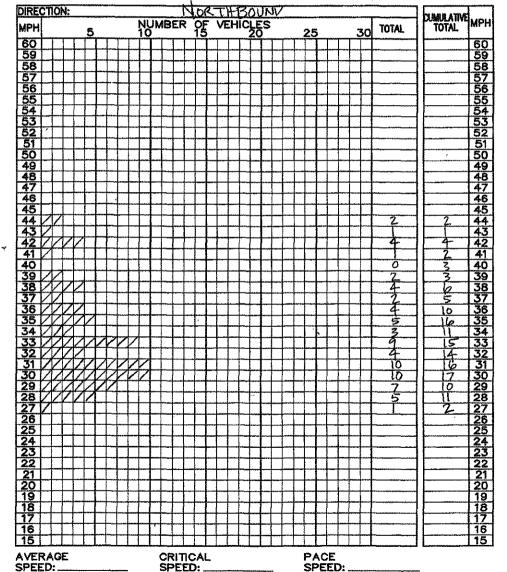
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HCI	LOS ALA	MITOS BO	DULEV	ARD			KATEL	LA AVE	TO FA	RQUH	AR AVE	<u>.</u>
	DATE: 1	1/15/2013					SURVE	Y BY:	C.	BUEND	Α	-
<u> </u>	TIME:	2:30 PM	- 3:00	PM			CHEC	(ED BY:	JE	RRY ST	OCK	
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	NT OVER P							RCENTIL		:ED:	36.8	MPH
	NT OVER P		14.2					V SPEED:			32.3	MPH
			84.5				15th PE	RCENTIL	E SPE	ED:	28.9	MPH
PERCE	NT UNDER	PACE:	1.4	%								

AGENCY: CITY OF US ALANITOS STREET: LOS ALAMITOS BONLEVARD LOCATION: KATELLY AVE TO FAROUHAR AVE

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VEI PEI	? ^	AGE CRITICAL D: SPEED:_												Αl	_								ł	P/ SF	C	E					

WEATHER: SUNNY	DATE: 11/15/13
ROAD CONDITION: DRY	START TIME: 2130 PM
OBSERVER: Cathy Buendia	END TIME: 3:00 PM VUL



CUMULATIVE (BOTH DIRECTIONS)_

CITY OF LOS ALAMITOS

HCI

FARQUHAR AVE TO BRADBURY RD LOS ALAMITOS BOULEVARD

DATE:

11/15/2013

SURVEY BY:

C. BUENDIA

TIME:

3:00 PM -

3:30 PM

CHECKED BY:

JERRY STOCK

PREVAILING SPEED DATA

LOCATION OF SURVEY

11/15/2013

DATE OF SURVEY 85th PERCENTILE 10 MPH PACE

42.2 MPH 34 - 43 MPH

PERCENT IN PACE

84.4 %

POSTED SPEED LIMIT

40 MPH / 25 MPH*

NORTH OF BRADBURY

ACCIDENT HISTORY

NO. OF MONTHS OBSERVED SPEED-RELATED ACCIDENTS 24 2

TOTAL ACCIDENTS

8

ANNUAL ACCIDENT RATE

1.00 ACCIDENTS PER YEAR (SPEED RELATED ONLY)

ACC./MILLION VEH. MILES

0.07 ACCIDENTS PER MVM (SPEED RELATED ONLY)

TRAFFIC FACTORS

AVERAGE DAILY TRAFFIC

3 LANE PER DIRECTION LANE CONFIGURATION

TRAFFIC CONTROLS

SIGNAL - FARQUHAR / ORANGEWOOD ROSSMOOR / BRADBURY AT FARQUHAR / ORANGEWOOD (sch) / ROSSMOOR / BRADBURY

CROSSWALKS PEDESTRIAN/BICYCLES

YES / YES

47,200

TRUCK TRAFFIC

YES NO PARKING ANYTIME

ON-STREET PARKING

MANY AREAS OF RED CURB

MANY AREAS OF NO SHOULDERS

ROADWAY FACTORS

OTHER

LENGTH OF SEGMENT (MILES)

VERTICAL CURVE

HORIZONTAL CURVE LATERAL VISIBILITY **ROAD CONDITIONS**

GOOD GOOD YES / YES

SIDEWALKS/DRIVEWAYS STREET LIGHTING

YES

0.81

NONE

NONE

OTHER

RAISED MEDIAN ISLAND

BUS STOPS

ADJACENT LAND USE

COMMERCIAL / BUSINESS / CHURCH / RESIDENTIAL (NF)

RECOMMENDED SPEED LIMIT

40 MPH

SPEED LIMIT CHANGE

NO CHANGE

JUSTIFICATION:

The recommended 40 mph is within 2.2 mph of the 85th percentile speed and meets CVC standards.

File: Los Alamitos 2013-17

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Consulting Traffic Engineers 1783 K. 17th Sean, Late 103 Toda, California 92740 731.731,0455 br: 734.741,048 www.haten.com/ficers

AGENCY: CITY OF LOS ALAMITOS

STREET: LOS ALAMITOS BOULEVARD

LOCATION: FARQUHAR AVE TO BRADBURY

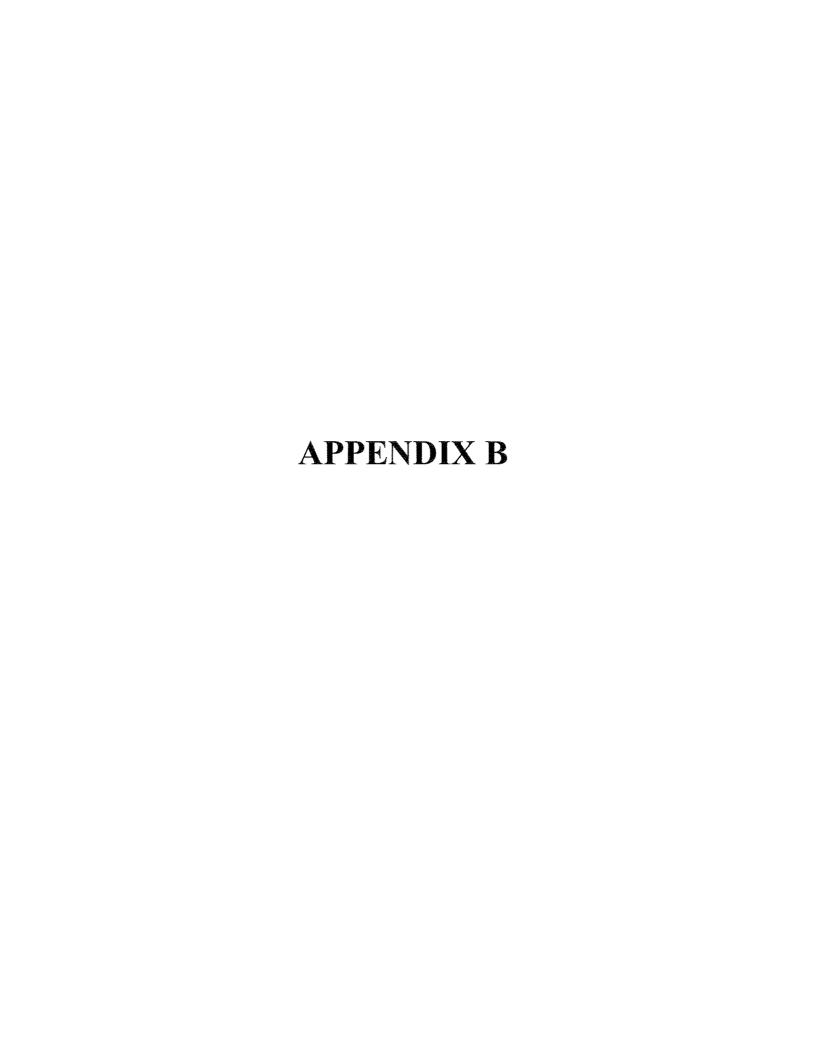
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Radar Certification

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TRAFFIC RADAR CERTIFICATION

TESTED TO NHTSA SPECIFICATIONS / IACP CRITICAL PERFORMANCE STANDARDS (NHTSA) National Highway and Traffic Safety Administration. (IACP) International Association of Chiefs of Police.

16202 Keats Circle Westminster, Calif. 92683

R.H.F. is a certified independent testing and repair facility.

1	TEST ID	Date Received	3	Certification	n Number	4903				
2	DEVICE ID	Manufacturer M P H		Model:	Tv	pe (1-IV)		Directional radar ☐ Yes No	Same direct	
	DEVICE ID	Counting unit S/N		Antenna-1				Antenna-2 S/N	N/A	
3	§ 2.4 / § 5.4 TUNING FORK	Low speed fork S/N	<u> </u>	late calib.	Freq. (Hz)	Speed (n		Measured (Hz)	(0,00)	77.477
	CALIBRATION	High speed fork S/N	Last d	late calib.	Freq. (Hz)	Speed (n	nph)	Measured (Hz)	PASS	FAIL
1				100	Lo fo	rk	<u> </u>	High fork		
		Stationary mode	Fork sp	eed (mph)	35			65		
	§ 2.5 / § 5.5 RADAR DEVICE	outionary mone	Disp. S	peed (mph)	3<	-		65		
4	TUNING FORK TESTS	Moving mode Opposite Direction	TARGET (Hi fork -	「SPEED - Lo fork)	Expected. (mph)	I/A.	Displ (mpl	ayed.	(PASS)	FAIL
		Moving mode Same Direction	TARGET Hi fork + Ho fork -	Lo fork	Expected. (mph)	I/A	Displ (mph	ayed.) N/A		
	§ 2.6.1. / § 5.6.1	Standard supply Voltage (V) 13.		Antenna l req. GHz	24.155	Anten Freq.		N/A		
5	TRANSMISSION	Standard supply	A	Intenna 1		Anten	na 2		PASS	FAIL
	FREQUENCY STABILITY	Voltage – 20% (V) 10. Standard supply		req. GHz Antenna 1	24.155	Freq. (N/A		TALL
		voltage + 20% (V) 16	.3 V F	req. GHz	24.15	Freq.	GHz	N/A		
6	§ 2.6.5 / § 5.6.5 POWER DENSITY	Mfg. Spec, (max mW/cm) ≤		Antenna I Power (mW/cn	n) .3	Anten Power	na 2 (mW/c	m) N/A	(ASS)	FAIL
7	§ 2.8 / § 5.8 LOW VOLTAGE		10.8V (VA activates V)	NIA	LVA (V)	leactiva	tes NIA	PASS	FAIL
8	§ 2.9.1 / § 5.9.1 DOPPLER AUDIO	A. Audio tone correla B. Functioning audio				e y	es 🗆	No No	PASS	FAIL
	§ 2.12.4 / § 5.12.4	Mfg. Spec.	TOTALINO MAJ	Jasanont Dona	Test results		v 9 🗆	NO		
9	INTERNAL CIRCUIT		37	, 		3	7 2_		PASS	FAIL
10	§ 2.12.6.5 / § 5.12.6.5 DIRECTIONAL	A. Selects only target B. Selects only target			er DY			N.A. N.A.	PASS	FAIL
		Stationary mode:	L	ow speed spee	c, 20	Lo spe	ed disp.	20		
	60107/60700/	target channel (mph)	H	li speed spec.	199	Hi spe	ed disp.	199	,	
11	§ 2.12.7 / § 2.12.8 / 5.12.7 / 5.12.8 LOW AND HIGH	Moving Mode	L	ow speed spee	c. N/A	Lo spe	ed disp.	N/A	PASS	FAIL
	SPEED DISPLAY TEST	target channel (mph)	н	li speed spec.	N/A	Hi spe	ed disp.	N/A	(FA33)	TAIL
	1631	Moving Mode:	L	ow speed spee	c. N/A	Lo spe	ed disp.	N/A		
		patrol channel (mph)	H	li speed spec.	N/A	Hi spe	ed disp.	N/A		
12	§ 2.13 / § 5.13 RFI TEST			147					PASS	FAIL
13	LABORATORY COMMENTS									
14	NHTSA/IACP CERTIFICATION	This radar device n Highway Safety Ad Certified by:		uion. Calij Ts				40802	tional Traffic TPASS -3-/3	
15	INVENTORY	☐ Fork Cert ☐ Ma ☐ Carrying Case C	anual Other: (plea	□ 2 nd Ant. se list)	☐ Remote	O B	Bert.			



TRAFFIC RADAR CERTIFICATION

TESTED TO NHTSA SPECIFICATIONS / IACP CRITICAL PERFORMANCE STANDARDS (NHTSA) National Highway and Traffic Safety Administration.

(IACP) International Association of Chiefs of Police.

16202 Keats Circle Westminster, Calif. 92683

R.H.F. is a certified independent testing and repair facility.

1	TEST ID	Date Received	3	Certification	Number				
2	DEVICE ID	Make: Kustom Electronics	and the second s	Model: KR-10SP		pe (1-IV) IV	Directional radar □ Yes No	Same direct	ion No
2	DEVICE ID	Counting unit S/N			SNCC	7/08	Antenna_2 S/N		
3	§ 2.4 / § 5.4 TUNING FORK	Low speed fork S/N	Last d	late calib.	Freq. (Hz)	Speed (n	iph) Measured (Hz) 2	- (0.00)	BAY
	CALIBRATION	High speed fork S/N	Last d	late calib.	Freq. (Hz)	Speed (m	iph) Measured (Hz) 4 7 3 Z	(PASS)	FAIL
			water to the same of		Lo fo	rk	High fork		
		Stationary mode		eed (mph)	35		65		
	§ 2.5 / § 5.5 RADAR DEVICE		Disp. Sp	peed (mph)	3		65		
4	TUNING FORK TESTS	Moving mode Opposite Direction	TARGET (Hi fork-	SPEED Lo fork)	Expected. (mph) 30	•	Displayed. (mph)	PASS	FAIL
		Moving mode Same Direction	TARGET Hi fork + Ho fork -	Lo fork	Expected. (mph)	V/A	Displayed. (mph) N/A		
	§ 2.6.1. / § 5.6.1	Standard supply Voltage (V) 13.		Antenna 1 req. GHz	24.162	Anten Freq. (
5	TRANSMISSION FREQUENCY	Standard supply Voltage - 20% (V) 10.	A	Antenna I req. GHz	24.162	Anten	na 2	PASS	FAIL
	STABILITY	Standard supply	A	Intenna I req. GHz	24.16	Anten	na 2		
6	§ 2.6.5 / § 5.6.5 POWER DENSITY	Mfg. Spec. (max mW/cm) ≤		intenna i ower (mW/cn	_ ,	Anten		PASS!	FAIL
7	§ 2.8 / § 5.8 LOW VOLTAGE	Mfg. spec. (V) ≤1		VA activates	9.9	LVA (leactivates 10.4	PASS	FAIL
8	§ 2.9.1 / § 5.9.1 DOPPLER AUDIO	A. Audio tone correlat B. Functioning audio	es with rec		r signal ·	E Y	es 🗆 No	PASS	FAIL
9	§ 2.12.4 / § 5.12.4 INTERNAL CIRCUIT	Mfg. Spec.			Test results	32		PASS	FAIL
.10	§ 2.12.6.5 / § 5.12.6.5 DIRECTIONAL	A. Selects only targets B. Selects only targets	moving to moving a	owards radar way from rada	ar O Y			PASS	FAIL
		Stationary mode:	L	ow speed spe	c. 15	Lo spe	ed disp. 15		
	§ 2.12.7/§ 2.12.8/	target channel (mph)	F:	li specd spec.	175	Hi spe	ed disp. 175.		
11	5.12.7 / 5.12.8 LOW AND HIGH	Moving Mode	ŗ	ow speed spee	c. 20	Lo spe	ed disp. Z 0	PASS	FAIL
	SPEED DISPLAY TEST	target channel (mph)	H	li speed spec.	155	Hi spe	ed disp. 155		FAIL
	2201	Moving Mode:	L	ow speed spee	c. 20	Lo spe	ed disp. Z U		
	C 2 12 / C 5 12	patrol channel (mph)	H	li speed spec.	80	Hi spe	ed disp.		
12	§ 2.13 / § 5.13 RF1 TEST							PAS8	FAIL
13	LABORATORY COMMENTS								
14	NHTSA/IACP CERTIPICATION	Highway Safety Ad	neets or d ministra	exceeds the tion. Calif	e minimal ope fornia Vehicl	erational e Code S	standards of the Nation ection 40802	onal Traffic PASS 🏻	
		Certified by:	-	13	o Cenn	وسيصد	Date: 6	-3-13	ļ
15	INVENTORY	☐ Fork Cert ☐ Ma ☐ Carrying Case ☐	mual ther: (plea	□ 2 nd Ant. se list)	☐ Remote	ÜE	3at.		

EXCERPT

MINUTES OF REGULAR TRAFFIC COMMISSION MEETING

February 12, 2014

6. STAFF REPORTS

A. Review of Draft Engineering and Traffic Survey for Speed Limits

Dave Hunt introduced Jerry Stock, of Hartzog & Crabill. Hartzog & Crabill performed the speed limit survey to determine whether any modifications to the survey were needed. Mr. Hunt gave a summary of the staff report and the information contained therein. In summary, changes were recommended for the following segments:

- Bloomfield Street Cerritos Avenue to Katella Avenue increase speed limit from 35 mph to 40 mph
- Cerritos Avenue Bloomfield Street to East City limits install 40 mph speed limit sign westbound west Santa Clara Street (east City limit)
- Katella Avenue Lexington Drive to Siboney Street install 40 mph speed limit sign for westbound direction

The Traffic Commission is being asked to review and approve the Draft Engineering and Traffic Survey for Speed Limits, which will then be forwarded to City Council for their approval. Mr. Hunt then turned the meeting over to Chair Emerson for questions and comments from the Traffic Commission.

Commission asked for clarification of the Radar Speed Survey Field Sheet and the Radar Speed Distribution Sheet. Mr. Stock explained the information contained on the sheets. He stated that the criteria contained in the Vehicle Code and MUTCD (Manual of Uniform Traffic Control Devices) states that the speed limit should be posted within 5 mph of the 85th percentile speed. A compelling reason (reasons not readily apparent to the motorist) would be needed to post outside of the 5 mph threshold.

Mr. Stock explained that he tries not to change speed limits as long as they are able to stay in compliance the Vehicle Code & MUTCD. Motorists are dictating the speed limit, based on the premise that the average motorist is safety conscious and drives at a safe speed. Speed limits are consistent with driver behavior.

The first item discussed was the recommendation to increase speed from 35 mph to 40 mph on Bloomfield Street from Cerritos Avenue to Katella Avenue.

Commission is concerned with recommending a 40 MPH speed limit on Bloomfield Street between Cerritos Avenue and Katella Avenue. With McAuliffe and Los Alamitos Elementary school located there, kids are present on and around campus more than just during the day. What consideration was given for the fact that there are two schools on that street? Mr. Stock explained that there are signs posted alerting motorists that there are schools in the area. The definition of "not readily apparent" to motorists is not met and there is no justification for deviating from 40 mph; therefore, we are compelled to stay within 5 mph of the 85th percentile.

Commission inquired about time and conditions for the data collection for Bloomfield Street. Mr. Stock stated that the data was collected for the segment recommended for change, on November 14, between 1:00 p.m. and 1:30 p.m. He stated that the data collector sits in an inconspicuous position on each side of the roadway for a duration of time needed to collect data on a statistically representative number of vehicles. Mr. Stock stated the 25 mph speed limit applies to areas contiguous to schools within a specific time period and a specific geographic location. He also explained that the data collection was conducted outside of the sphere of influence of schools, which is why the greatest number of vehicles was traveling 33-42 mph.

Commission noted that the accident history showed one accident in a 24 month period; and felt that was fairly low.

Commission was concerned that once you cross Katella Avenue the speed limit changes to 25 mph for the residential area and felt that is the one place where the base speed should be raised. Feel that it seems more prudent to err on the side of caution because of the two schools and a park. Mr. Stock stated that there were "no compelling reasons" to justify maintaining the speed at 35 mph, which is below the 85th percentile. He stated that there are no factors "not readily apparent" to the motorist; i.e., high rate of collisions. areas of limited site distance, vertical curve. He believes that if a citation was challenged in court it would not hold up. Based on the statistical data, motorists are slowing down traveling southbound on Bloomfield Street; north city limits to Cerritos Avenue speed data shows the 85th percentile speed as 44.8 mph, Cerritos Avenue to Katella Avenue is 41.0 mph, Katella Avenue to Farguhar Avenue drops to 25.2 mph. He stated that, as reflected in the statistical data, the characteristics of the roadway and adjacent land uses are compelling the motorists to alter their driving.

Commission asked Mr. Stock if, in his view, and in studying other cities, how often the decision is made not to go with the 85th percentile and stay with the current speed limit. Mr. Stock stated if that was the case City Council would have to adopt an ordinance. However, if it is contested he does not believe it would hold up in court as there is no compelling reason to maintain the 35 mph speed limit and it is inconsistent with the Vehicle Code and MUTCD guidelines.

Mr. Stock likened the Vehicle Code and MUTCD guidelines to a recipe. The traffic engineers are required to follow that recipe, which means staying within a 5 mph window of the 85th percentile unless there is a compelling reason. He prefers personally to be consistent with what the existing posting is, and not to change postings unless his hand is forced.

Commission questioned why this did not apply to maintaining the 35 mph on Bloomfield Street between Cerritos Avenue and Katella Avenue. Both Mr. Hunt and Mr. Stock explained that the survey data shows a 6 mph higher speed, which is outside the 5 mph cutoff. Mr. Stock stated that guidelines of the Vehicle Code and MUTCD must be followed. To keep the speed limit at 35 mph there must be a reason or justification that meets the definition of 'not readily apparent' to the motorist. Bloomfield Street is straight, flat, has good lateral visibility, a low accident rate, and the adjacent land use is clearly visible. In doing due diligence, data did not show a compelling reason that would meet the test of 'not readily apparent' to a motorist. That is the basis of the recommendation to raise the speed limit to 40 mph.

Commission questioned whether using radar is the most effective method to obtain vehicle speed data. Mr. Stock answered that the data reflects the percentage of vehicles in pace is 75% - 90%, which is a tight spread resulting in good statistical data.

Commission inquired about the location of the tester gathering speed data; are they positioned midblock? Mr. Stock stated that is what is required by the MUTCD; the tester is in an unmarked vehicle, in an inconspicuous location, using a calibrated device.

Commission questioned whether tubes across the pavement are more accurate for measuring speed than radar. Mr. Stock stated tubes are used to obtain speed profiles but are not accurate enough for this application. He

stated that tubes are also more conspicuous, which could alter driver behavior.

The Commission then discussed raising the 35 mph speed limit on segments of Katella Avenue currently 35 mph to 40 mph. The following points were raised:

- 40 mph would be consistent with other segments on Katella Avenue.
- Does measuring speed at off-peak traffic periods introduce a bias?
 Mr. Stock stated that the guidelines require 'off-peak' optimal flow.
- Citizens have complained that most vehicles do not drive at the posted 35 mph speed limit on Katella Avenue.
- Would be interesting to see how many vehicles have been cited for excessive speed on Katella Avenue. Mr. Stock stated that it is not a factor of consideration for this analysis.
- Katella Avenue can be perceived as a speed trap, as the speed drops from to 35 mph from 40 mph coming from Cypress and 45 mph from Long Beach.
- Question was raised as to whether or not on-street parking is a factor in determining speed. Mr. Stock stated that the presence or absence of on-street parking is not a factor.
- If the speed limit is raised to 40 mph, perhaps the speed indicator placed going westbound on Katella Avenue can be moved to another location.

Commission consensus was to increase the speed limit on the three segments on Katella Avenue from 35 mph to 40 mph. Mr. Stock stated that this change was within guidelines and could be made by the Traffic Commission and taken to City Council for approval; or the Traffic Commission could approve the survey as presented and let City Council recommend the increase. The Commission was in favor of making the changes and forwarding it to City Council.

MOTION: FIRST/SECOND: Emerson/Biri

Accept the Draft Engineering and Traffic Survey for Speed Limits as presented, with the recommendation to revise the speed limit survey to increase the speed limit from 35 mph to 40 mph on the three segments on Katella Avenue prior to City Council review. Motion passed unanimously.