

**Traffic Commission
REGULAR MEETING AGENDA
January 8, 2014 – 7:00 p.m.**

**City of Los Alamitos
3191 Katella Avenue
Los Alamitos, CA 90720**

NOTICE TO THE PUBLIC

This Agenda contains a brief general description of each item to be considered. Except as provided by law, action or discussion shall not be taken on any item not appearing on the agenda. Supporting documents, including staff reports, are available for review at City Hall in the Engineering office once the agenda has been publicly posted.

Any written materials relating to an item on this agenda submitted to the Traffic Commission after distribution of the agenda packet are available for public inspection in the Engineering Office, 3191 Katella Ave., Los Alamitos CA 90720, during normal business hours. In addition, such writings or documents will be made available for public review at the respective public meeting.

It is the intention of the City of Los Alamitos to comply with the Americans with Disabilities Act (ADA) in all respects. If, as an attendee, or a participant at this meeting, you will need special assistance beyond what is normally provided, please contact the Engineering Office at (562) 431-3538, extension 101, 48 hours prior to the meeting so that reasonable arrangements may be made. Assisted listening devices may be obtained from the Traffic Commission Secretary at the meeting for individuals with hearing impairments.

Persons wishing to address the Traffic Commission on any item on the Traffic Commission Agenda should complete a "Request to Speak" card and will be called upon at the time the agenda item is called or during the Traffic Commission's consideration of the item and may address the Traffic Commission for up to three minutes.

1. CALL TO ORDER

2. ROLL CALL

Commissioner Biri
Commissioner Mejia
Commissioner Patz
Commissioner Vardeman

Commissioner Wilhelm
Vice-Chair Emerson
Chair Person Schleuter

3. PLEDGE OF ALLEGIANCE

4. ORAL COMMUNICATIONS

At this time any individual in the audience may address the Traffic Commission and speak on any item within the subject matter jurisdiction of the Commission. Please state if you wish to speak on an item on the Agenda. Remarks are to be limited to not more than five minutes.

5. ELECTION OF OFFICERS

A Chairperson and Vice Chairperson shall be elected at the first regular meeting in the month of January. Election shall be by a majority vote cast by those commissioners present and voting at the meeting at which the election is held. Officers shall assume office immediately. Any vacancy in office shall be filled at the next regular meeting. (*Ord. 555 § 1 (part), 1992: Ord. 486 § 2 (part), 1986*)

6. MINUTES

Approval of November 13, 2013, Special and Regular Traffic Commission Meeting minutes, and December 11, 2013, Regular Traffic Commission Meeting minutes.

7. STAFF REPORTS

A. Review of Draft Scope of Work for School Traffic Study

Traffic circulation around the four (4) schools north of Katella Avenue has been an issue for years, especially in the morning rush hour when students are driving to, or being dropped off at school. Staff has been having open discussions with the School District about how to improve the traffic flow around the school. This staff report presents a draft scope of work the City's Traffic Engineer, Hartzog & Crabill, Inc. (HCI) will be performing.

Recommendations: It is recommended that the Traffic Commission review the scope of work and provide further input to staff before the study begins.

B. Review of Existing and Projected I-605/Katella Avenue Interchange Traffic Conditions

The purpose of this study by OCTA is to summarize and document the existing and projected 2050 traffic operating conditions along 1-605 freeway, Katella Avenue and their connecting ramps within the study area of the 1-605 and Katella Avenue interchange. It has been noted that the intersection of Los Alamitos Boulevard and Katella Avenue operates with overall very poor operating conditions and with vehicle queues that back up and affect the interchange. This is not evident from the analysis and thus the project team needs to review the results and discuss any possible changes to the analysis that will reflect actual operations conditions in the field. Alternatives for the interchange will be presented in the next phase of the project.

Recommendation: Receive and file.

8. ITEMS FROM THE PUBLIC WORKS DEPARTMENT

A. Traffic Commission Status Log

9. TRAFFIC COMMISSION INITIATED BUSINESS

At this time, Commissioners may report on items not included on the agenda, but no such matter may be discussed, nor may any action be taken in which there is interest to the community, except as to provide staff direction to report back or to place the item on a future agenda.

10. ADJOURNMENT

Adjourn to Wednesday, February 12, 2014.

I hereby certify, under penalty of perjury under the laws of the State of California that the foregoing Agenda was posted at the Community Center, Museum, and City Hall not less than 72 hours prior to the meeting. Dated this 2nd day of January, 2014.

Sharon Nowell

Sharon Nowell, Department Secretary

MINUTES OF REGULAR TRAFFIC COMMISSION MEETING

CITY OF LOS ALAMITOS
3191 Katella Avenue
Los Alamitos, California

December 11, 2013

1. CALL TO ORDER

A Regular meeting of the Traffic Commission was called to order at 7:02 p.m. on December 11, 2013, in the Council Chambers, 3191 Katella Avenue, Los Alamitos, Chair Schleuter presiding.

2. ROLL CALL

PRESENT: COMMISSIONERS Biri, Emerson, Mejia, Patz, Schleuter,
Vardeman, Wilhelm

ABSENT: COMMISSIONER

PRESENT: STAFF Dave Hunt, City Engineer
Bruce McAlpine, Police Captain
Sharon Nowell, Department Secretary

3. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Chair Schleuter.

4. ORAL COMMUNICATIONS

None

5. STAFF REPORTS

A. **Update on the Los Alamitos Race Course Race Track Extension Project – Initial Study/Environmental Checklist**

Dave Hunt, City Engineer provided the Commission with a copy of the letter that Steven Mendoza, Community Development Director, sent to the City of Cypress in response to the Mitigated Negative Declaration for the proposed extension of the Los Alamitos Race Track. Mr. Hunt asked Vice-Chair Emerson, who attended the December 9th Cypress City Council meeting, to give a brief summary of the Race Track Expansion discussion. Vice-Chair Emerson stated that a dozen people spoke, all in favor of the expansion, however, half of those people had concerns that they felt had not been adequately addressed. The individuals that spoke all stated that they were from Los Alamitos. Cypress gave assurance that if there are complaints they

will be addressed. The Cypress City Council voted 5-0 to approve the expansion project.

Mr. Hunt concluded by stating that staff has been thorough in their documentation and has put forth its best effort in responding to the Mitigated Negative Declaration. This will give the City recourse when all is said and done with the proposed project. The City will continue to watch impacts that may occur as a result of this project.

B. Request to Install “KEEP CLEAR” Striping at the Los Alamitos High School Teacher Parking Entrance Driveway on the East Side, and Los Alamitos Business Park Driveway on the West Side of Los Alamitos Boulevard

Council Member Dean Grose was in the audience and stated that he was at the meeting to speak as a resident, and would wait to speak on the topic after the Commission’s discussion.

Dave Hunt gave a summary of the report and information contained therein. Mayor Kusumoto brought this issue up in December, 2012 and again at the November 13, 2013 meeting. Mr. Hunt stated that the Keep Clear striping at the two areas will help drivers make safer left-turns into the driveways, and will help with the flow of traffic during the morning school traffic. The cost is estimated to be around \$750.

At this time, discussion was turned over to the Commissioners. Discussion was as follows:

- Has staff reached out to School Board to help with traffic issues?
Mr. Hunt stated that he has met recently with the school Safety Officer to discuss concerns at the schools and the need to take a comprehensive look at traffic issues. The Safety Officer feels that he can help get some bond money to share costs for school safety. The City’s Traffic Engineer is working on a scope for a Traffic Study for the school traffic.
- Student safety needs to be stressed to the School District.
- New administration may be more amenable to improvements on school property.
- Driveway to the Los Alamitos Business Park is impacted by the school traffic.

- Is it possible to put time limitations on Keep Clear restriction? *Mr. Hunt stated that would cause confusion for motorists.*
- Concern that vehicles using the Keep Clear space to make u-turns would create a hazard. Consider option of putting No U-Turn signs if it becomes a problem.
- Regardless of cooperation from the school, public safety is a concern.

The Commissioners concluded their discussion with a consensus of support for the Keep Clear striping at both locations.

At this time, Chair Schleuter asked Councilmember Grose for his comments.

Councilmember Grose stated that he was speaking as a resident and was recommending that the Commission not approve the Keep Clear striping. He stated that the School District has hired a Safety Officer who is making recommendations for expenditure of Measure K money for safety improvements on campus, and the City intends to do a traffic study around the school. He feels that the School District is not cooperative and does not look at things with mutual understanding. He stated that the City should work with the School District to solve problems, and work towards a master plan. Recently, the School Board passed a resolution exempting themselves from all City ordinances and zoning, thus giving the City no control over lights newly installed at the high school sports field.

Councilmember Grose expressed concern that band-aid fixes are not effective, and are not a solution. Southern California Association of Government (SCAG) has offered to do a Safe Routes to School study in conjunction with the School District. He stated that we need to determine what the school is willing to do to mitigate traffic issues; continue to work with the school and keep some ammunition on our side of the table in terms of some of the things they want to do. He repeated that he did not feel that now was the time to install the Keep Clear striping.

At the conclusion of his comments, the Commissioners thanked Councilmember Grose for his thoughts regarding this issue.

After further discussion, the Commissioners were in agreement that the City needs to work with the School District and look at the big picture. Mr. Hunt

stated that installing the Keep Clear striping will improve safety and although it is a minor part of the big picture, he does not feel that it will be a deal breaker. The Commission expressed the desire to make conditions safer for the school and better for the businesses on the west side of Los Alamitos Boulevard by installing the Keep Clear striping now; but also saw the advantage of waiting to address it later with a more comprehensive approach.

MOTION: FIRST/SECOND: PATZ/BIRI

Motion carried 4 to 3 (Commissioners Vardeman, Wilhelm, and Emerson cast the dissenting votes) to install Keep Clear striping at Los Alamitos Boulevard high school teacher parking entrance, east side; and Los Alamitos Business Park driveway on Los Alamitos Boulevard on the west side as shown on the diagram included in the staff report.

6. ITEMS FROM THE PUBLIC WORKS DEPARTMENT

Dave Hunt informed the Commissioners that the following items will be on the upcoming January agenda:

1. Speed survey
2. Update traffic study Katella Avenue and 605 Freeway
3. Scope of school traffic study

7. TRAFFIC COMMISSION INITIATED BUSINESS

- Commissioner Mejia:
 - Delivery trucks at Katella Deli continue to be an issue. The big rigs are blocking the alley and make it difficult to go through the alley at all times during the day. Would like matter looked into. *Mr. Hunt will look into this again.*
 - Signs in the City should be installed according to MUTCD. Standard heights for regulatory street signs are specified; some signs in the City seem low. Going forward standards should be adhered to.
 - Looked at driveway at intersection of Katella Avenue and Cherry Street; that access driveway is very narrow. Not sure what City's responsibility is.
 - Alley speed bumps need reflective paint around them; they are difficult to see. Also, speed bumps that have been removed still have reflective paint on the pavement. *Mr. Hunt will pass on to Public Works crew.*
 - Have signal lights and pedestrian heads been changed to LED? *Mr. Hunt stated that the reds and greens have been changed to LED, and the yellows are being changed out as they are replaced. He was not sure about the pedestrian heads but would inquire.*

- Questioned if it was possible for the Commissioners to have name tags identifying them as Traffic Commissioners, he would even be willing to pay for his own. Feels that this would be helpful to identify Commissioners when they are out in the community at community events. *Mr. Hunt will inquire with City Manager.*
- Commissioners Vardeman and Patz:
 - Going southbound on Los Alamitos Boulevard at Florista Street, the right turn only striping needs a dashed line. *Mr. Hunt stated that this task is on the Public Works crews' task list.*
- Vice Chair Emerson:
 - Thanked staff for left-turn arrows on Farquhar Avenue.
 - What is status of closing the south end of alley onto Farquhar Avenue? *Mr. Hunt has not addressed this yet.*
- Commissioner Wilhelm:
 - Follow up on possibility of increase of speed limit from 35 MPH to 40 MPH on Katella Avenue. *Mr. Hunt stated that the speed limit study will be brought to the Commission in January for their review.*

8. ADJOURNMENT

MOTION/SECOND: PATZ/VARDEMAN

There being no further business, the meeting was adjourned at 8:47 p.m. to the next regularly scheduled meeting on January 8, 2014, at 7:00 p.m.

Dave Hunt, City Engineer

MINUTES OF REGULAR AND SPECIAL TRAFFIC COMMISSION MEETING

CITY OF LOS ALAMITOS
3191 Katella Avenue
Los Alamitos, California

November 13, 2013

1. CALL TO ORDER

A Special meeting of the Traffic Commission was called to order at 7:00 p.m. on November 13, 2013, in the Council Chambers, 3191 Katella Avenue, Los Alamitos, Chair Schleuter presiding.

2. ROLL CALL

PRESENT: COMMISSIONERS Biri, Emerson, Mejia, Patz, Schleuter,
Vardeman, Wilhelm

ABSENT: COMMISSIONER

PRESENT: STAFF Dave Hunt, City Engineer
Bruce McAlpine, Police Captain
Sharon Nowell, Department Secretary

3. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Commissioner Wilhelm.

4. ORAL COMMUNICATIONS

Alice Jempsa, Resident – Ms. Jempsa expressed appreciation for installation of new 'No Right Turn When Children are Present' signs on Farquhar Avenue and Los Alamitos Boulevard. She is also very happy with new street name signs installed in the neighborhood. Ms. Jempsa also requested that staff not install a handicap ramp on the corner of Rochelle and Denwood because of the poor site visibility at that corner. Commissioner Emerson requested that this information be kept in records for future reference.

Warren Kusumoto, Resident – Mr. Kusumoto thanked the Commission for their service and requested that they take a look at installing a 'KEEP CLEAR' zone at northbound Los Alamitos Boulevard by the high school driveway and at the southbound driveway by Napa Auto Parts. Installation of the 'KEEP CLEAR' zone would enforce courtesy and maintain access into the driveways during the morning hour school traffic.

SPECIAL ORDERS OF THE DAY

3A. Los Alamitos Race Course Race Track Extension Project – Initial Study/Environmental Checklist

This item is being addressed at a Special Concurrent Meeting because it came to the *attention of staff after the Regular Meeting Agenda was posted and distributed*. Community Development Director, Mr. Mendoza, introduced Doug Hawkins, the Cypress Planning Manager who was present in the audience.

Mr. Mendoza then gave a presentation on the proposed project.

Milestones for the project review are as follows:

- Commission review traffic report
- City Council consider policy related temporary
- City's Traffic Engineer to review
- Final comments due 12/5/13
- Cypress hearing 12/9/13

Mr. Mendoza concluded his presentation and discussion was turned over to the Commission. Their concerns/comments were as follows:

- With Los Alamitos Boulevard and Katella Avenue already the 3rd busiest intersection in the County, concern was expressed over impacts on that intersection.
- Will there be any additional run-off or environmental concerns? *Mr. Mendoza stated that staff will be looking into those impacts.*
- The trend in thoroughbred racing has been in off track betting. Is Los Alamitos Race Track being looked at to replace Hollywood Park, and does that translate into revenue for Cypress. Strongly suggest that somebody find out plans of Racing Association.
- Potentially, Los Alamitos Race Track could be on plane with Santa Anita. How can the City of Los Alamitos benefit from that?
- Is there any possibility for profit sharing or revenue for the City of Los Alamitos as compensation for impacts to surrounding community? *Mr. Mendoza stated that there may not be any traffic impacts from this project.*
- How many days does the Los Alamitos Race Track currently have races? Concern for 20 days in winter occurring around the holidays.
- Any correlation to the 33-acre project? Do they have to take into consideration impacts from Prologis development? *Mr. Mendoza stated that if the Prologis development was approved, it would have been considered for this study.*
- How many stalls currently open?

- Traffic concerns on intersections need to be mitigated. *Mr. Mendoza assured that our Traffic Engineer will be looking at this data.*
- Los Alamitos and Cypress are co-mingled, both communities have common concerns.
- No acknowledgement in traffic study of lack of through streets and the impacts on neighborhoods . . . additional cut-through traffic in neighborhoods not addressed.
- JFTB traffic impacts should be addressed.
- Impacts caused by additional employees should be addressed. Build-out of Denni and Lexington would alleviate traffic onto Cerritos Avenue.
- Worst case scenario should be considered.
- Why was it assumed in the report that satellite betting would cease to exist during thoroughbred racing days?
- What is the basis for the assumption that quarter horse racing will not take place when thoroughbred racing occurs?
- Concern about 33 acre parcel – is it being considered for development at any time in the near future. *Mr. Mendoza said unless someone files another application with the City of Cypress it is a done deal.*
- Speed on segment of Cerritos Avenue near High School is **25 MPH** – needs to be corrected.
- Adequate free parking should be retained to prevent spill-over parking from affecting businesses and residents.
- Concern that satellite betting will come to Los Alamitos Race Track instead of going to Inglewood. Need worst case scenario estimates.
- Posted limited speed limit on Cerritos Ave. should be **25 MPH**, not **35 MPH** as stated in existing conditions.

Discussion concluded and Mr. Mendoza stated that the comments will be relayed to the City of Cypress.

The Special Concurrent Traffic Commission Meeting was concluded.

8. ITEMS FROM THE PUBLIC WORKS DEPARTMENT

Commissioners requested the following comments/changes on the Traffic Commission Updated Status List:

- Item F-11 – Change to ‘Street name sign poles in Carrier Row are crooked’.
- Item F-3 – Change to ‘NB Los Al. @ Katella Ave./left-turn – extend pocket’.
- Item A-16 – Southbound right-turn only lane is missing broken stripes leading up to triangle. Northbound is working well; Mr. Hunt will check the southbound.
- Item B-1 – Status on second left-turn lane. Mr. Hunt reported that it is pending with Public Works.

- Status of dead ending of alley northbound onto Farquhar Ave. Mr. Hunt stated that the study for this has not been done.

9. TRAFFIC COMMISSION INITIATED BUSINESS

- Commissioner Biri cautioned that even though Prologis is gone for now, that 33 acres of land has been re-zoned under Measure L and vigilance should be maintained for that property. Reported that she attended OCTA Coalition Working Group and the vote for the toll lanes was delayed until 12/9/13.
- Commissioner Wilhelm raised consideration of changing speed limit on Katella Avenue and Los Alamitos Boulevard from 35 MPH to 40 MPH. Mr. Hunt stated that the City's Traffic Engineer is currently working on the updating City's speed survey.
- Commissioner Mejia:
 - Questioned whether the 3-hour parking limit signs at Laurel Park would be updated to include the Ordinance number. Mr. Hunt answered yes.
 - Would like staff make sure that the right-turn only striping that was done on Los Alamitos Boulevard is what was approved by the Commission, and that striping in both directions is the same. He would also like to recommend the same striping be done on northbound Los Alamitos Boulevard at Sausalito Street. Mr. Hunt said that he can have that done.
 - Reported raised sidewalk (3") on Los Vaqueros in the Industrial Park. Mr. Hunt stated that he will inform the Superintendent, he also stated that staff will be seeking approval for a contract with a concrete contractor at the next City Council meeting.
- Commissioner Patz requested that the 'KEEP CLEAR' markings that Mayor Kusumoto requested be agendized for the next meeting.
- Commissioner Emerson requested that the issue of extending the fence at Laurel Park be agendized. Mr. Hunt stated that improvement would fall under the purview of the Parks and Recreation Commission.

10. ADJOURNMENT

MOTION/SECOND: PATZ/SCHLEUTER

There being no further business, the meeting was adjourned at 9:34 p.m. to the next regularly scheduled meeting on December 11, 2013, at 7:00 p.m.

Dave Hunt, City Engineer

City of Los Alamitos

TRAFFIC COMMISSION

Agenda Report
Discussion Item

January 8, 2014
Item No: 7A

To: Chairman and Members of the Traffic Commission
From: David L. Hunt, City Engineer
Subject: Review of Draft Scope of Work for School Traffic Study

Summary: Traffic circulation around the four (4) schools north of Katella Avenue has been an issue for years, especially in the morning rush hour when students are driving to, or being dropped off at school. Staff has been having open discussions with the School District about how to improve the traffic flow around the school. This staff report presents a draft scope of work the City's Traffic Engineer, Hartzog & Crabill, Inc. (HCI) will be performing.

Recommendations: It is recommended that the Traffic Commission review the scope of work and provide further input to staff before the study begins.

Background

The four (4) schools in Los Alamitos have 6,099 students going to school this year. Traffic around the schools has been a problem for years, especially in the morning from 7:30 am to 8:00 am, with parents dropping off students, and high school students themselves driving to school. Below is a breakdown of the number of cars travelling daily on major streets in Los Alamitos?

STREETS	CARS PER DAY
Cerritos Avenue – from Los Alamitos Blvd. to Bloomfield St.	20,000 to 25,000
Los Alamitos Boulevard – north of Cerritos Avenue	23,000
Cerritos Avenue	32,000
Bloomfield Street	17,000
Katella Avenue	50,000 to 60,000

Discussion

Following is HCI's proposal to perform a Traffic Study to assess school drop-off and pick-up activity at four school locations in Los Alamitos.

Proposed Scope of Work

General

The main purpose of this scope of work is to assess concerns of traffic congestion and related traffic issues associated with student drop-off and pick-up at the following four school locations:

	SCHOOL	NO. OF STUDENTS
1.	Los Alamitos High School	3,154
2.	McAuliffe Middle School	1,264
3.	Oak Middle School	1,028
4.	Los Alamitos Elementary School	648

Data Gathering

This project will quantify the magnitude of vehicular queuing at each school location, as well as the number of vehicles dropping-off and picking-up children, traffic counts will be collected at all driveways that provide access to each school property between the peak-hours of 7:00-9:00 am and 1:00-4:00 pm. A count of vehicles using the subject streets in proximity of each school during both the morning and afternoon school drop-off/pick-up hours will be taken to quantify the length of a possible school drop-off area. Pedestrian/vehicular interaction at these locations will also be reviewed.

In addition, an inventory of the existing parking utilization at all applicable parking lots at each school will be included. Layouts of each parking lot will be sketched including dimensions and aisle widths. The results will determine if existing marked parking spaces can be eliminated or relocated to create pick-up/drop-off areas.

Alternatives for Individual School Sites

Using the data obtained as described above, alternative solutions will be developed to address the concerns expressed.

Los Alamitos High School

- Create an on-site drop-off/pick-up area at the teacher's parking lot, see Attachment 1.
- Create an off-site drop-off/pick-up area on Cerritos Avenue.
- Analyze the existing operations at the school driveways and develop alternative solutions to address any queuing concerns. As it appears that congestion occurring inside the parking lot may hinder the inbound movements.
- The study will focus on possible options to relocate/modify the on-site drop-off/pick-up areas inside the school parking lots for improved circulation.

- Widen intersection at the High School entrance signal, see Attachment 2 & 3.
- Install pedestrian barrier on Los Alamitos Boulevard north of Cerritos Avenue see Attachment 4.
- Create a student parking lot exit on Los Alamitos Boulevard, see Attachment 5.
- Keep or remove one or both of the Keep Clears on Los Alamitos Boulevard north of Cerritos Avenue, one at the teacher parking lot on the east side and the other at the Industrial Park on the west side, see Attachment 6.
- Close southbound Los Alamitos Boulevard left-turn into teachers' parking lot.
- If the school buys the empty lot (old gas station) what could be done with property to improve traffic flow.
- New pedestrian bridge on Cerritos Avenue.
- Los Alamitos Boulevard at Cerritos Avenue.
 - All pedestrian walking time with no vehicle movement
 - Close the eastern crosswalk on Los Alamitos Boulevard and Cerritos Avenue and direct students east to signal at High School entrance signal or pedestrian bridge
 - Protected right-turn movement on northbound Los Alamitos Boulevard onto Cerritos Avenue and install a no U-Turn on the westbound Cerritos Avenue left turn arrow

Oak Middle School

- What effect would angled parking have on traffic around Oak Middle School, see Attachment 7.
- Changing location of crosswalk on Katella Avenue and Wallingsford.
- Pedestrian bridge at Katella Avenue and Wallingsford or Oak Street.

McAuliffe Middle School

- School wants a left-turn onto Cerritos Avenue from the school which would cross a left-turn pocket on Cerritos Avenue, see Attachment 8.

Los Alamitos Elementary School

- Parents drop off students in Laurel Park and the industrial area in addition to the school parking lot. How can this be improved?
- Parents make left-turns into the school from southbound Bloomfield Street - traffic crossing double yellow lines. Temporary barrier was put out each day and put away at night. What should the permanent fix be?

General

- General idea on how to improve traffic flow from the Rossmoor area to the schools north of Katella Avenue.
- Evaluate staggered start times for the school to improve traffic flow.

Cost Estimate

Order of magnitude of construction cost estimate for all alternatives will be provided for both public and private property improvements required.

Meetings

HCI staff will also include their attendance at six (6) meetings with City and school staff in order to review the issues and possible recommendations to improving traffic circulation at each school location.

Summary

HCI will provide a brief summary of the assessment results along with discussion of the advantages and disadvantages, and an estimate of probable cost for each of alternatives.

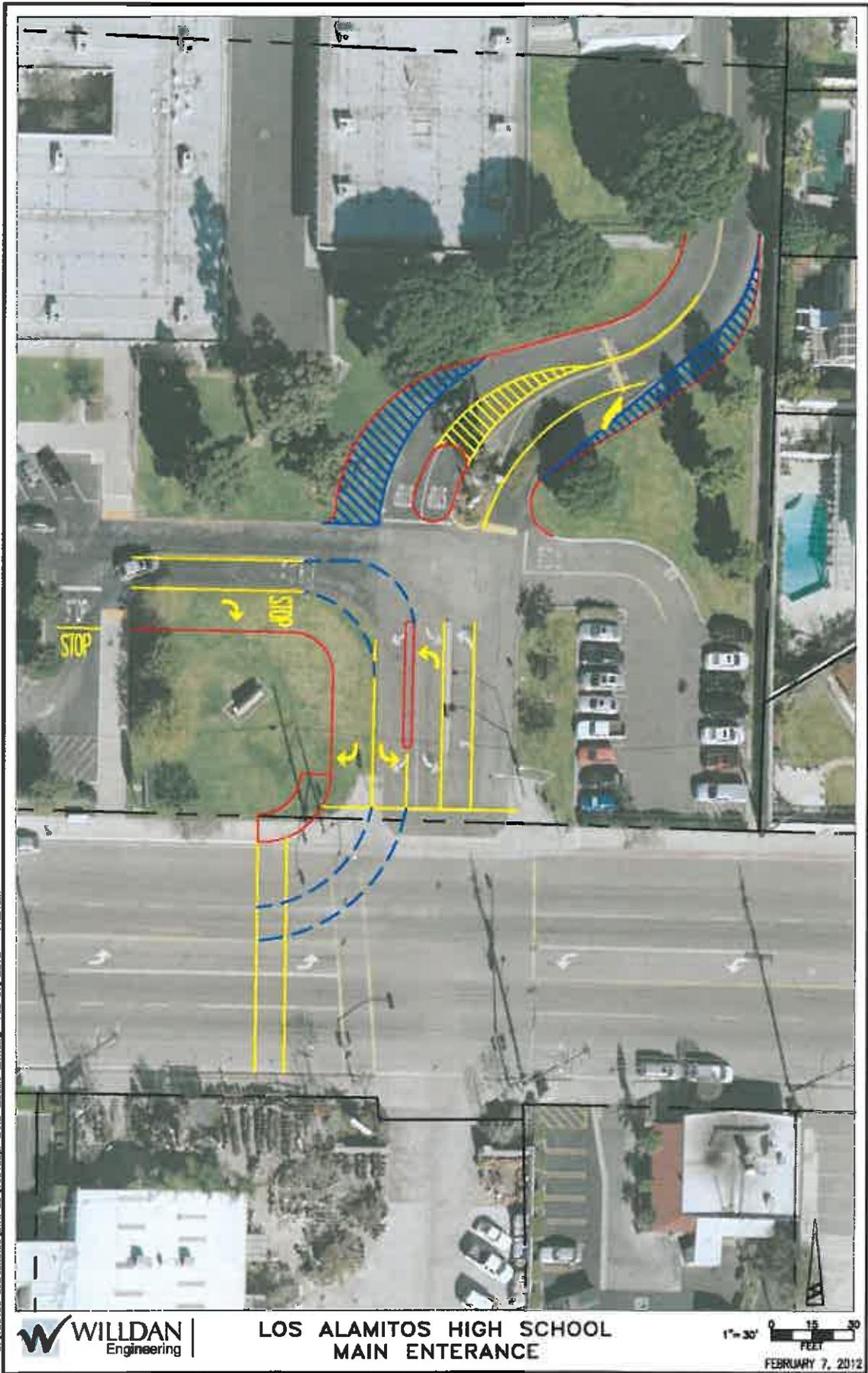
Submitted By:



David Hunt, PE
City Engineer

- Attachments:*
- 1) *Teacher Parking Lot – Student Loading/Unloading Area*
 - 2) *High School Entrance Modification*
 - 3) *Cerritos Avenue Re-striping at High School Entrance*
 - 4) *Pedestrian Barrier on Los Alamitos Boulevard*
 - 5) *New High School Parking Lot Exit Onto Cerritos Avenue*
 - 6) *Keep Clear Areas on Los Alamitos Boulevard North of Cerritos Avenue*
 - 7) *Angled Parking on Oak Street*
 - 8) *Left-turn Onto Cerritos Avenue From McAuliffe School*





UA100185 Loadsheet/CDL 30X100185d-4.145-2012-2012.dwg Feb 07, 2012 - 11:24am

WILLDAN
Engineering

**LOS ALAMITOS HIGH SCHOOL
MAIN ENTRANCE**

1" = 30' FEET
0 15 30
FEBRUARY 7, 2012



Pedestrian
Barrier

© 2012 Google

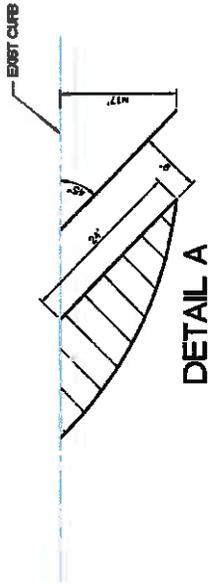
33° 48' 40.99" N 118° 04' 18.16" W elev 27 ft





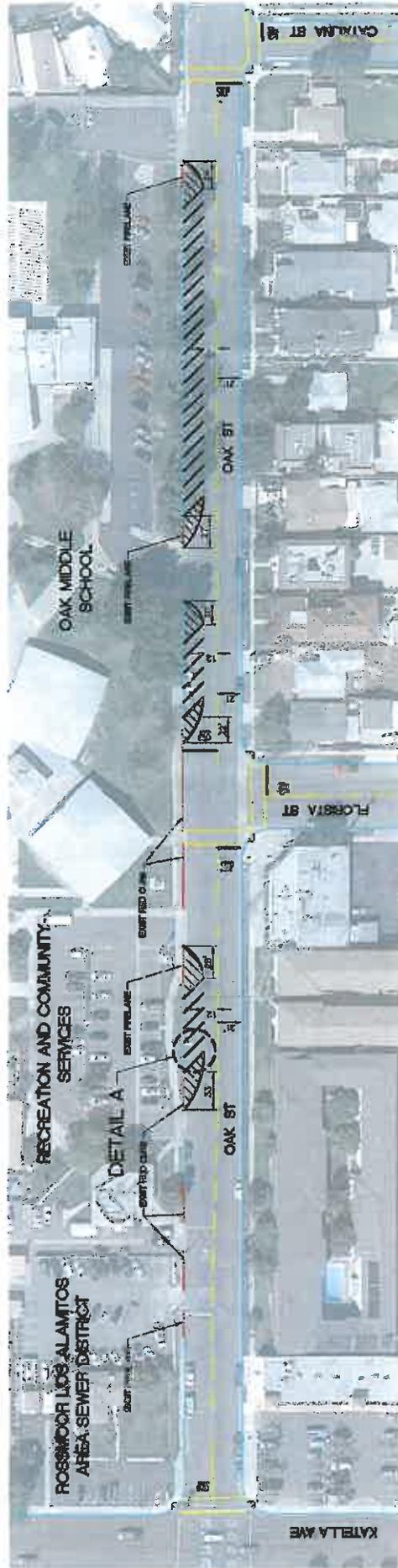
CITY OF LOS ALAMITOS

PUBLIC SERVICES DEPARTMENT
STREET PARKING CONCEPT - OAK STREET



DETAIL A

EXISTING PARALLEL PARKING SPACES - 21
PROPOSED DIAGONAL PARKING SPACES - 31





City of Los Alamitos

TRAFFIC COMMISSION

Agenda Report
Discussion Item

January 8, 2014
Item No: 7B

To: Chairman and Members of the Traffic Commission

From: David L. Hunt, City Engineer

Subject: Review of Existing and Projected I-605/Katella Avenue Interchange Traffic Conditions

Summary: The purpose of this study by OCTA is to summarize and document the existing and projected 2050 traffic operating conditions along I-605 freeway, Katella Avenue and their connecting ramps within the study area of the I-605 and Katella Avenue interchange. It has been noted that the intersection of Los Alamitos Boulevard and Katella Avenue operates with overall very poor operating conditions and with vehicle queues that back up and affect the interchange. This is not evident from the analysis and thus the project team needs to review the results and discuss any possible changes to the analysis that will reflect actual operations conditions in the field. Alternatives for the interchange will be presented in the next phase of the project.

Recommendations: Receive and file.

Background

The purpose of this study by OCTA is to summarize and document the existing and projected 2050 traffic operating conditions along I-605 freeway, Katella Avenue and their connecting ramps within the study area of the I-605 and Katella Avenue interchange.

The study area includes freeway mainline and on and off ramps along I-605 at Katella Avenue, and the Katella Avenue corridor between I-605 and Los Alamitos Boulevard. The analysis along Katella Avenue corridor includes five intersections, I-605 SB Ramps/Katella Avenue, I-605 NB Ramps/Katella Avenue, Civic Center Drive/Katella Avenue, Walnut Street-Wallingsford Road/Katella Avenue and Los Alamitos Boulevard/Katella Avenue.

Existing traffic data were collected from various sources to effectively evaluate local traffic impacts associated with the Katella Avenue interchange. Future 2050 projected traffic volumes were derived from the OCTAM model, using forecast volumes from the 2008 and 2035 versions of the model.

Discussion

Freeway – Existing Conditions

The results from the HCM and speed analyses show that most of the freeway segments and ramp merge and diverge locations are currently operating at LOS C or better with satisfactory average speed on each of the mainline segments during both the AM and PM peak hours, however the ramp weave segment at the southbound collector-distributor road operates at LOS D in the AM peak hour and E in the PM peak hour. The 1-605 southbound location between Katella Avenue on ramp and 1-405 off ramp is currently operating at good LOS C during both the AM and PM peak hours.

However, the speed results show that the traffic along this segment encounters significant slowing and experiences congested speeds before merging onto the northbound and southbound traffic on 1-405. In this case, the speeds may capture congestion conditions that the Highway Capacity Manual methodology does not.

The poor operating conditions on the C/D on and off ramp weave location can result in upstream traffic congestion along the 1-605 mainline and Katella Avenue during peak hours. Since HCM only analyzes segments in isolation, the overall consequences of individual weave components of the interchange on overall interchange operations is not able to be demonstrated by the HCM analysis results.

Year 2050 - the results from the 2050 HCM analyses show that many analysis locations degrade by a level of service as compared to existing conditions, but many remain at LOS C or better. As with the existing conditions analysis, the segment's operating at the worst level of service are the weave segments associated with the on- and off-ramps both on Katella Avenue as well as the 1-605 southbound C/D road.

In 2050, the Katella westbound weaving section between the ramps is projected to operate at LOS D during the AM peak hour, and the 1-605 southbound C/D weaving section is projected to operate at LOS E during the PM peak.

Intersection Analysis - Existing Conditions

It has been noted that the intersection of los Alamitos Boulevard and Katella Avenue operates with overall very poor operating conditions and with vehicle queues that back up and affect the interchange. This is not evident from the analysis and thus the project team needs to review the results and discuss any possible changes to the analysis that will reflect actual operations conditions in the field. The operations and vehicle queues can also be observed and discussed in the upcoming project field review.

Year 2050 - a forecast of intersection operations in 2050 was conducted using the growth developed from the OCTAM model as with the freeway operations analysis. The arterial volumes were post processed and balanced with the freeway ramp volumes. The growth in volumes rate varied from five percent to 27.1 percent per approach. The level of service worsened at three of the four analysis locations with 2050 conditions as compared to existing conditions. The intersections of Walnut Street and Katella Avenue

and Los Alamitos Boulevard and Katella Avenue are shown to operate at LOS F during the AM peak and LOS E and F respectively during the PM peak.

Alternatives for the interchange will be presented in the next phase of the project..

Recommendations for Next Phase Traffic Analysis

Congestion was observed during a project team field review along Katella Avenue. The noted congestion results from a combination of factors including very heavy traffic demand during short periods of time within the peak hours. The heavy flow is a result of local land uses plus pass-through traffic on Katella Avenue headed from the freeway to the east. North of Katella Avenue there is a large residential population and there are also several schools which contribute traffic during the peak period. Katella Avenue between 1-605 and Los Alamitos Boulevard does not have sufficient capacity to handle this level of traffic without resulting congestion and vehicle queues which extend from one intersection to the next.

During a portion of the AM peak hour, it was observed that eastbound vehicle queues extend from Los Alamitos Boulevard all the way back to the freeway ramps. For a portion of the peak hour, this also affects the ability of the traffic to exit the 1-605 freeway both northbound and southbound. This congestion is not accurately reflected in the capacity analysis results presented herein. The reason for this is that the techniques used in PSR-PDS-level studies consider each portion of the roadway network (ramps, freeway segments and intersections) as isolated locations which do not affect, and are not affected by, the adjacent roadway or freeway locations.

One recommendation to resolve this issue for studies beyond the PSR-PDS phase is to conduct a traffic micro simulation analysis using VISSIM software of the study corridor from just west of 1-605 to just east of Los Alamitos Boulevard. This technical methodology would account for the influences of congestion on adjacent locations. The VISSIM analysis would provide a better representation of the corridor conditions within the corridor and at the study intersections. While not required for the PSR-PDS, this could be conducted for subsequent project development efforts. This will also be noted in the Traffic Engineering performance Assessment (TEPA).

Submitted By:



David Hunt, PE
City Engineer

Attachment: 1) Iteris traffic Study

Technical Memorandum

To:	Bo Burick RBF	From:	Gary Hamrick, Luke Yang Iteris, Inc.
Date:	November 13, 2013	Job Number:	J13-1769
Re:	I-605/Katella Avenue Interchange PSR-PDS Existing and 2050 Traffic Operation Conditions Summary		

Summary

The purpose of this memorandum is to summarize and document the existing and projected 2050 traffic operating conditions along I-605 freeway, Katella Avenue and their connecting ramps within the study area of the I-605 and Katella Avenue interchange. The study area includes freeway mainline and on and off ramps along I-605 at Katella Avenue, and the Katella Avenue corridor between I-605 and Los Alamitos Boulevard. The analysis along Katella Avenue corridor includes five intersections, I-605 SB Ramps/Katella Avenue, I-605 NB Ramps/Katella Avenue, Civic Center Drive/Katella Avenue, Walnut Street-Wallingsford Road/Katella Avenue and Los Alamitos Boulevard/Katella Avenue. Existing traffic data were collected from various sources to effectively evaluate local traffic impacts associated with the Katella Avenue interchange. Future 2050 projected traffic volumes were derived from the OCTAM model, using forecast volumes from the 2008 and 2035 versions of the model. **Table 1** shows the existing traffic operations data collected and the analysis type for each of the data type.

Table 1 Study Traffic Data

Data Type		Source	Study Location	Analysis/Application
Freeway PeMS	Peak hour volumes and speeds	I-605 Congestion Hot Spots Study, PeMS, Iteris	I-605/Katella Interchange	Freeway mainline, merge/diverge, and weave analysis (LOS), Existing PeMS speed analysis
Intersection Counts	Peak hour turning movement volumes	City of Los Alamitos	Walnut/Katella	Intersection LOS, queuing analysis
		OCTA	I-605 NB Ramps/Katella Ave	
		I-605 Congestion Hot Spots Study, Iteris	I-605 SB Ramps/Willow St, I-605 NB/Katella Ave, Los Alamitos Blvd/Katella Ave	
OCTA Katella TLSP, Iteris	I-605 NB Ramps/Katella Ave, Civic Center Dr/Katella Ave, Walnut St/Katella Ave, Los Alamitos Blvd/Katella Ave			
SWITRS*	Arterial accident data	CHP, Caltrans, CA DMV	Katella Ave between I-605 and Los Alamitos Blvd	Accident summary
Projected Traffic Volumes	Peak Hour Volumes	OCTAM travel demand model (OCTA)	I-605/Katella Interchange and surrounding roadways	Growth factor based on rate of growth in OCTAM

Note: * Statewide Integrated Traffic Records System

Operating Condition Analysis

The operating condition analysis will be used to develop the existing setting for the I-605/Katella Avenue Interchange Project Study Report – Project Development Support (PSR-PDS) as well as assist with the Purpose and Need statement. The freeway operational conditions are based on the Highway Capacity Manual (HCM) methodology, as well as the Caltrans Freeway Performance Measurement System (PeMS) speed data. The existing intersection operational conditions are based on the *Highway Capacity Manual 2000* (HCM) and *Intersection Capacity Utilization* (ICU) methodologies for signalized intersections depending on the jurisdictions of the intersections. The arterial accident data is based on the California Highway Patrol’s (CHP) Statewide Integrated Traffic Records System (SWITRS) for the arterial system as well as prior Caltrans TASAS data for freeway accident analysis.

Freeway Analysis

The source of the existing freeway capacity analyses was the Congestion Hot Spots Study for the SR-91/I-605/I-405 Corridor completed in 2012 plus some new analyses completed for the PSR effort. Freeway volumes as well as speed data were collected during the weekday AM and PM peak hours between October 2010 and March 2011. The HCM method for freeways was used to estimate the capacity and to determine the level of service (LOS). For this study, the freeway segments adjacent to the I-605 and Katella Avenue interchange were determined to be part of the study locations. The freeway and ramp locations were analyzed as either a mainline, a merge/diverge, or weave section. The freeway mainline segments were analyzed using the methodology contained in “Chapter 23 – Basic Freeway Segments” of the HCM. The freeway ramps were analyzed using the freeway merge and diverge methodology and the weave methodology under “Chapter 25 – Ramps and Ramp Junctions” of the HCM. **Table 2** shows the performance criteria for the mainline analysis, and **Table 3** shows the performance criteria for the merge and diverge analyses.

Table 2 – Freeway Mainline Performance Criteria

LOS	General Purpose Lanes Density (pc/mi/ln)
A	≤ 11.0
B	>11.0-18.0
C	>18.0-26.0
D	>26.0-35.0
E	>35.0-45.0
F	>45.0

Table 3 – Merge and Diverge Performance Criteria

LOS	Weaving, Merge, Diverge Density (pc/mi/ln)
A	≤ 10.0
B	>10.0-20.0
C	>20.0-28.0
D	>28.0-35.0
E	>35.0-43.0
F	>43.0

To supplement the HCM analysis, Caltrans PeMS speed data was also extracted and reviewed to evaluate any existing congestion activity along the study freeway segments. PeMS is the most comprehensive source of empirical speed data on the freeway system. **Table 4** and **5** show the combine results of the HCM analysis and PeMS speed analysis of the existing conditions along the I-605 study segments near the Katella Avenue interchange.

Table 4 Existing AM Freeway Analysis

I-605 Northbound					I-605 Southbound				
Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)	Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)
Immediately South of Katella Off Ramp	N/A	6,047	N/A	64	Immediately North of Katella Off Ramp	Basic Freeway Segment	5,262	B	61
Katella Off Ramp*	Diverge	1,342	B	-	Katella Off Ramp*	Diverge	421	C	-
Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	5,100	B	78	Katella Off Ramp*	Diverge	431	C	-
Katella On Ramp*	Merge	746	B	-	Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	4,831	B	42
Immediately North of Katella Slip On Ramp	Basic Freeway Segment	5,546	C	66	Katella On Ramp*	Merge	1,052	B	-
-	-	-	-	-	Immediately South of Katella On Ramp	Basic Freeway Segment	5,883	C	26
-	-	-	-	-	SB I-605 C/D Road (from WB Katella on ramp to EB Katella off ramp)	Weave	1,063	B	-
WB Katella Avenue (from I-605NB off ramp to I-605 SB on ramp)	Weave	727	C	-	-	-	-	-	-

Note: * On and off ramps do not have PeMS speed data

Source: Congestion Hot Spots Study for the SR-91/I-605/I-405 (Prepared by Iteris, Dec 2011)

Table 5 Existing PM Freeway Analysis

I-605 Northbound					I-605 Southbound				
Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)	Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)
Immediately South of Katella Off Ramp	N/A	6,148	N/A	58	Immediately North of Katella Off Ramp	Basic Freeway Segment	5,962	B	68
Katella Off Ramp*	Diverge	803	B	-	Katella Off Ramp*	Diverge	333	C	-
Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	5,472	C	76	Katella Off Ramp*	Diverge	840	C	-
Katella On Ramp*	Merge	1,091	C	-	Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	4,790	B	45
Immediately North of Katella Slip On Ramp	Basic Freeway Segment	6,563	C	56	Katella On Ramp*	Merge	886	B	-
-	-	-	-	-	Immediately South of Katella On Ramp	Basic Freeway Segment	5,676	C	22
-	-	-	-	-	SB I-605 C/D Road (from WB Katella on ramp to EB Katella off ramp)	Weave	1,394	B	-
WB Katella Avenue (from I-605NB off ramp to I-605 SB on ramp)	Weave	681	C	-	-	-	-	-	-

Note: * On and off ramps do not have PeMS speed data

Source: Congestion Hot Spots Study for the SR-91/I-605/I-405 (Prepared by Iteris, Dec 2011)

The results from the HCM and speed analyses show that most of the freeway segments and ramp merge and diverge locations are currently operating at LOS C or better with satisfactory average speed on each of the mainline segments during both the AM and PM peak hours, however the ramp weave segment at the southbound collector-distributor road operates at LOS D in the AM peak hour and E in the PM peak hour. The I-605 southbound location between Katella Avenue on ramp and I-405 off ramp is currently operating at good LOS C during both the AM and PM peak hours. However, the speed results show that the traffic along this segment encounters significant slowing and experiences congested speeds before merging onto the northbound and southbound traffic on I-405. In this case, the speeds may capture congestion conditions that the Highway Capacity Manual methodology does not.

The poor operating conditions on the C/D on and off ramp weave location can result in upstream traffic congestion along the I-605 mainline and Katella Avenue during peak hours. Since HCM only analyzes segments in isolation, the overall consequences of individual weave components of the interchange on overall interchange operations is not able to be demonstrated by the HCM analysis results.



Future year 2050 traffic volumes were forecasted using the OCTAM travel demand model. The growth in traffic volume from the 2010 OCTAM model to the 2035 OCTAM model was calculated and applied to the freeway segments, ramps and arterial segments. The model is a regional tool and is not intended for application at specific ramps or intersections without further model detailing and calibration, which is not included in a PSR-PDS level study. Thus, the growth rates were post processed after reviewing the model results and differences between 2008 and 2035 forecasts. In order to derive 2050 volumes, the annualized growth rate from 2030 to 2035 was extrapolated into a 15-year growth rate of approximately three percent.

The SR-22/I-405/I-605 high-occupancy vehicle connector lanes which are currently under construction will passing across the study area, but will connect north of the I-605/Katella Avenue interchange. Thus, they are not present in the 2010 OCTAM model. The effect of the connectors is to cause minimal model growth in mainline I-605 volume through the Katella Avenue interchange as the new connectors will carry approximately 40,000 vehicles per day (20,000 per direction) by 2035. Therefore the 20 percent growth factor was applied to all roadway and ramp segments except for the I-605 mainline.

Table 6 and **7** show the analysis of the 2050 conditions (with the adjustment for model growth to existing volumes) along the study freeway and roadway segments near the Katella Avenue interchange.



Table 6 2050 AM Freeway Analysis

I-605 Northbound					I-605 Southbound				
Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)	Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)
Immediately South of Katella Off Ramp	N/A	6,200 GP, 1,400 HOV	N/A	64	Immediately North of Katella Off Ramp	Basic Freeway Segment	5,710 GP, 1,460 HOV	B	61
Katella Off Ramp*	Diverge	1,480	C	-	Katella Off Ramp*	Diverge	620	C	-
Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	5,100	B	78	Katella Off Ramp*	Diverge	490	C	-
Katella On Ramp*	Merge	830	C	-	Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	4,830	B	42
Immediately North of Katella Slip On Ramp	Basic Freeway Segment	5,510 GP, 1,400 HOV	C	66	Katella On Ramp*	Merge	1,710	B	-
-	-	-	-	-	Immediately South of Katella On Ramp	Basic Freeway Segment	6,210 GP, 1,460 HOV	C	26
-	-	-	-	-	SB I-605 C/D Road (from WB Katella on ramp to EB Katella off ramp)	Weave	1,170	C	-
WB Katella Avenue (from I-605NB off ramp to I-605 SB on ramp)	Weave	810	D	-	-	-	-	-	-

Note: * Mainline, HOV Ramp, and Katella Avenue volume growth based on 2035 OCTAM growth and annualized factor to 2050



Table 7 2050 PM Freeway Analysis

I-605 Northbound					I-605 Southbound				
Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)	Location	HCM Analysis Type	Volume	LOS	Average Speed (mph)
Immediately South of Katella Off Ramp	N/A	5,880 GP, 2,010 HOV	N/A	58	Immediately North of Katella Off Ramp	Basic Freeway Segment	5,710 GP, 1,240 HOV	B	68
Katella Off Ramp*	Diverge	880	B	-	Katella Off Ramp*	Diverge	480	C	-
Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	5,470	C	76	Katella Off Ramp*	Diverge	910	C	-
Katella On Ramp*	Merge	1,170	C	-	Between Katella Off Ramp & Katella On Ramp	Basic Freeway Segment	4,790	B	45
Immediately North of Katella Slip On Ramp	Basic Freeway Segment	6,430 GP, 2,010 HOV	C	56	Katella On Ramp*	Merge	1,150	B	-
-	-	-	-	-	Immediately South of Katella On Ramp	Basic Freeway Segment	5,660 GP, 1,240 HOV	C	22
-	-	-	-	-	SB I-605 C/D Road (from WB Katella on ramp to EB Katella off ramp)	Weave	1,510	E	-
WB Katella Avenue (from I-605NB off ramp to I-605 SB on ramp)	Weave	750	C	-	-	-	-	-	-

Note: * Mainline, HOV Ramp, and Katella Avenue volume growth based on 2035 OCTAM growth and annualized factor to 2050

The results from the 2050 HCM analyses show that many analysis locations degrade by a level of service as compared to existing conditions, but many remain at LOS C or better. As with the existing conditions analysis, the segment’s operating at the worst level of service are the weave segments associated with the on- and off-ramps both on Katella Avenue as well as the I-605 southbound C/D road. In 2050, the Katella westbound weaving section between the ramps is projected to operate at LOS D during the AM peak hour, and the I-605 southbound C/D weaving section is projected to operate at LOS E during the PM peak.

Intersection Analysis

Intersection levels of service analyses were conducted using the *Intersection Capacity Utilization* (ICU) methodology for signalized study intersections under the jurisdiction of City of Los Alamitos, and the *Highway Capacity Manual 2000* (HCM) methodology (based on vehicle delay) for the study

intersection under the control of Caltrans. Under the ICU methodology, the intersection LOS's were analyzed with a saturation flow rate of 1,700 pc/hr/in per the guidelines from the 2009 Orange County Congestion Management Plan. Under the HCM methodology, the intersection LOS's were analyzed with a saturation flow rate of 1,900 pc/hr/in, which is the default value for HCM methodology. The interchange itself only has one intersection for which traffic flow is controlled via a traffic signal (I-605 northbound on-ramp and Katella Avenue). The remaining ramps all operate with merge and diverge movements from Katella Avenue and thus are not controlled by either stop signs or traffic signals and cannot be analyzed as intersections. The reason for using two different methods to assess the intersections is that Caltrans requires HCM methodology for all Caltrans documents, while the City traditionally applies the ICU method. **Table 8** lists the study intersections and the corresponding jurisdictions.

Table 8 Study Intersections

Intersection	Control Type	Jurisdiction
I-605 NB Ramps & Katella Avenue	Signalized	Caltrans
Civic Center Drive & Katella Avenue	Signalized	Los Alamitos
Walnut Street/Wallingsford Road & Katella Avenue	Signalized	Los Alamitos
Los Alamitos Boulevard & Katella Avenue	Signalized	Los Alamitos

Level of service (LOS) is a qualitative measure that characterizes traffic congestion on a scale of A to F with LOS representing free-flow condition and LOS F representing extreme congestion. It represents the ability of a roadway or an intersection to accommodate traffic given its physical and operational characteristics such as number of lanes and traffic control. The LOS definition is based on volume to capacity (V/C) ratio or intersection average delay and provides a more quantitative description of capacity of roadways or intersections. The LOS definitions are described in **Tables 9**.

Table 9 – Signalized Intersection Level of Service Definitions

Level of Service	Description	Volume to Capacity Ratio (V/C)	Average Delay (Sec Del/Veh)
A 	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.00-0.60	0.0-10.0
B 	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	0.61-0.70	10.1-20.0
C 	Good operation. Occasionally drivers may have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	0.71-0.80	20.1-35.0
D 	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues.	0.81-0.90	35.1-55.0
E 	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	0.91-1.00	55.1-80.0
F 	Forced flow. Represents jammed conditions. Backups form locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	>1.00	>80.0

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C., 2000.

A level of service analysis for the study intersections was conducted based on a combination of AM and PM peak hour volumes from the Congestion Hot Spots Study for the SR-91/I-605/I-405 Corridor and the OCTA Katella Avenue Traffic Light Synchronization Project. The results of the intersection LOS analysis are summarized in Table 8. As shown, all the signalized study intersections operate at LOS D or better during both peak hours. Note that the southbound I-605 freeway off-ramp traffic movement is controlled by a yield sign where it merges with Katella Avenue. This movement includes freeway off-ramp traffic merging onto Katella Avenue eastbound. The Highway Capacity Manual does allow calculation of theoretical vehicle delay at this type of yield controlled location, however, the resulting values are not reflective of what is experienced in the field as they indicated very high average vehicle delay of over 600 seconds per vehicle during both the AM and PM peak hours. Clearly this level of delay does not occur in the field at this location, thus the results are not reported. It is proposed that another type of analysis methodology be applied at this location, possibly including traffic simulation studies.

It has been noted that the intersection of Los Alamitos Boulevard and Katella Avenue operates with overall very poor operating conditions and with vehicle queues that back up and affect the interchange. This is not evident from the analysis and thus the project team needs to review the

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results and discuss any possible changes to the analysis that will reflect actual operations conditions in the field. The operations and vehicle queues can also be observed and discussed in the upcoming project field review.

Table 10 – Existing Intersection Levels of Service

Intersection	Control Type	AM Peak Hour			PM Peak Hour		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1) I-605 NB Ramps and Katella Ave	Signalized	0.8	-	A	7.4	-	A
2) Civic Center Dr and Katella Ave*	Signalized	-	0.531	A	-	0.552	A
3) Walnut St and Katella Ave*	Signalized	-	0.860	D	-	0.778	C
4) Los Alamitos Blvd and Katella Ave*	Signalized	-	0.820	D	-	0.823	D

* Analysis based on ICU

A forecast of intersection operations in 2050 was conducted using the growth developed from the OCTAM model as with the freeway operations analysis. The arterial volumes were postprocessed and balanced with the freeway ramp volumes. The growth in volumes rate varied from five percent to 27.1 percent per approach. As shown in **Table 11**, the level of service worsened at three of the four analysis locations with 2050 conditions as compared to existing conditions. The intersections of Walnut Street and Katella Avenue and Los Alamitos Boulevard and Katella Avenue are shown to operate at LOS F during the AM peak and LOS E and F respectively during the PM peak.

Table 11 – 2050 Intersection Levels of Service

Intersection	Control Type	AM Peak Hour			PM Peak Hour		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1) I-605 NB Ramps and Katella Ave	Signalized	1.5	-	A	7.7	-	A
2) Civic Center Dr and Katella Ave*	Signalized	-	0.602	B	-	0.602	B
3) Walnut St and Katella Ave*	Signalized	-	1.066	F	-	0.935	E
4) Los Alamitos Blvd and Katella Ave*	Signalized	-	1.063	F	-	1.058	F

* Analysis based on ICU

** Volume growth from 2010 to 2035 OCTAM with an annualized growth rate to 2050

Arterial Accident Summary

The arterial accident data is based on the California Highway Patrol’s (CHP) Statewide Integrated Traffic Records System (SWITRS). This data shows a summary of accidents over a 3 year period from 2010 to 2012. **Table 12** summarizes the accidents by location. Column (F+I) refers to fatality and injury combined, and (PDO) refers to property damage only accidents. The SWITRS data show that most of the traffic collisions occurred along the study corridor were concentrated near the I-605 northbound and southbound on and off ramps.

Table 12 Accident Summary (2010 to 2012)

#	Location	Total Accidents (2010 - 2012)		
		F+I	PDO	Total
1	Willow St/Katella Ave between I-605 SB and NB Ramps	27	72	99
2	Intersection of Los Alamitos Blvd and Katella Ave	2	0	2

Freeway Accident Summary

Freeway accident data was assessed previously as part of the Congestion Hot Spots project and it includes the Caltrans Traffic Accident Surveillance and Analysis System (TASAS) Table B, Table C and TASAS Selective Accident Retrieval (TSAR) which provide information on accident rates, number of accidents, potential accident investigation locations, vehicle type and accident type, for each freeway facility. The time period covered by the accident data as obtained from Caltrans is the latest cumulative 3-year period available at the time the data was requested. The following information and analyses are presented in the prior analysis:

- Accident Rates and Number of Accidents (Caltrans Table B) – This data compares the actual accident rate with the statewide average accident rate for similar facility segments having similar characteristics and it presents accident rates for the freeway mainline segments, the freeway-to-freeway direct connector ramps and freeway to arterial interchange ramps.
- Potential Accident Investigation Locations (Caltrans Table C) – This data identifies potential high accident concentration areas along the study area routes that require further investigation.
- Vehicle Type and Accident Type (Caltrans Traffic Accident Surveillance and Analysis System - TSAR) – This data shows the type of vehicle that was involved in each accident, including 29 different types of vehicles.

One of the key measurements used to determine significant accident locations is where the accident rate is approximately 30 percent or more above the statewide average accident rate for similar facilities. The prior analysis contained in the Congestion Hot Spots analysis indicates that one freeway mainline location near the interchange and one arterial ramp interchange location within the interchange has an accident rate that exceeds the statewide average by 30 percent or more. The freeway location is I-605 southbound segment from the Los Angeles County line to Katella Avenue and the ramp location is the northbound on-ramp from Katella Avenue to I-605.

Recommendations for Next Phase Traffic Analysis

Congestion was observed during a project team field review along Katella Avenue. The noted congestion results from a combination of factors including very heavy traffic demand during short periods of time within the peak hours. The heavy flow is a result of local land uses plus pass-through traffic on Katella Avenue headed from the freeway to the east. North of Katella Avenue there is a



large residential population and there are also several schools which contribute traffic during the peak period. Katella Avenue between I-605 and Los Alamitos Boulevard does not have sufficient capacity to handle this level of traffic without resulting congestion and vehicle queues which extend from one intersection to the next. During a portion of the AM peak hour, it was observed that eastbound vehicle queues extend from Los Alamitos Boulevard all the way back to the freeway ramps. For a portion of the peak hour, this also affects the ability of the traffic to exit the I-605 freeway both northbound and southbound.

This congestion is not accurately reflected in the capacity analysis results presented herein. The reason for this is that the techniques used in PSR-PDS-level studies consider each portion of the roadway network (ramps, freeway segments and intersections) as isolated locations which do not affect, and are not affected by, the adjacent roadway or freeway locations. One recommendation to resolve this issue for studies beyond the PSR-PDS phase is to conduct a traffic micro simulation analysis using VISSIM software of the study corridor from just west of I-605 to just east of Los Alamitos Boulevard. This technical methodology would account for the influences of congestion on adjacent locations. The VISSIM analysis would provide a better representation of the corridor conditions within the corridor and at the study intersections. While not required for the PSR-PDS, this could be conducted for subsequent project development efforts. This will also be noted in the Traffic Engineering performance Assessment (TEPA).

I-605 / Katella Avenue Interchange PEAR Study Area



TRAFFIC COMMISSION UPDATED STATUS LIST - 2011 to 2013

ITEM	DESCRIPTION	DATE INITIATED	REQUESTED BY	TAKEN TO		REMARKS
				T.C.	C.C.	
RECOMMENDATION APPROVED/COMPLETED						
A-1	Review of Draft I-605 Freeway @ Spring St./Cerritos Ave. Interchange		City Engineer	May-11		Received and filed
A-2	General Plan Review		Steven Mendoza	Aug. 2011		Received and filed
A-3	Katella Ave. Removal of U-turn restrictions		Marilynn Poe	Aug. 2011		Approved remove Midw., Ticon., Ent.
A-4	Laurel H.S. xwalk on Bloomfield - consideration of limit line		Kusumoto			Done - 9/13/11
A-5	Alley Safety - Phase 1 Speed Survey Results		City Engineer	Oct-11		Receive and File
A-6	General Plan-Overview of Circulation Element & Strategic Plan		Steven Mendoza	Nov-11		Receive and File
A-7	Consideration of right-turn only lane on sbound Los Al @ Florista	Nov-11	Resident	Jan-12		TC Approved - implemented
A-8	Alley Safety - Katella Ave. - from Noel to Lexington		City Engineer	Dec-11		Signage, move humps
A-9	General Plan Overview - Part III	Feb-12	S. Mendoza			Review and discuss
A-10	Traffic Calming Information-Neighborhood Traffic Management	Mar-12	City Engineer	Mar & Apr	Jun-12	Traffic Calming Budgeted
A-11	Traffic Circulation Issues at Los Alamitos High School	Jun-12	City Engineer	12-Jun		Input from Commission
A-12	Katella Ave. (TLSP) Project		City Engineer	Aug-12		Receive and file
A-13	High Traffic Volume Hour Data-Rossmoor Way/Bradbury Rd.	Dec-12		Jan-13		Receive and file
A-14	Medical Center traffic control during Phase 1 construction	Dec-12		Jan-13		Receive and file
A-15	7-Year Capital Improvement Program (CIP)	Mar-13	Dave Hunt	Mar-13		Receive and file
A-16	Additional measures - right-turn only Los Al Bl. & Florista St.		T.C.	Mar-13		Approved triangular striping
A-17	Proposed Cypress Developments - Katella Avenue	Apr-13				Receive and file
A-18	Left-turn signal modifications Los Al & Rossmoor Way/Bradbury			Dec-12		H&C modified timing
A-19	Change Drop Off to Unloading Zone - 10904 Reagan St.	Mar-13	Reagan Surgery Center	Mar-13		Installed
A-20	Add 20' white curbing and install passenger loading/unloading sign	Jun-13	4152 Katella Ave.	Jun-13		Installed
A-21	4 - Way Stops Apartment Row	Dec-12	Traffic Commission	Dec-12	Aug-13	CC approved
A-22	Laurel Park Parking Lot Improvements			Sep-13		TC approved Option 4 - temporary
A-23	Traffic Calming - Farquhar Ave. traffic	Feb-13		May-13		Install 2nd left-turn lane

RECOMMENDATION APPROVED & PENDING IMPLEMENTATION						
B-1	Lexington Dr./Howard Ave. red curb	Jun-13	Comm. Schleuter	Jun-13		Approved 20' red curb Lex/Howard
B-2	KEEP CLEAR-Los Al. HS driveway & Los Al. Bus. Park driveway	Nov-13	W. Kusumoto	Dec-13		

RECOMMENDATION DENIED						
C-1	Permit parking restriction Lexington Dr.-from Katella to Howard	Mar-11	Petition	Mar-11		Permit Parking request denied
C-2	Two-hour parking restriction - east side of Humbolt	Jan-11		Jan-11		Denied
C-3	Keep Clear @ Los Al High School driveway, Farq. & Rochelle	Nov-12		Dec-12		Denied
C-4	No Parking' SB Los Al. Blvd., south of Katella Ave.	Jan-13	Kyle Poff, OCTA	Feb-13		Motion failed
C-5	Remove parking restriction in front of 3691 Katella Ave.	Mar-13	Dean Grose	Mar-13		Denied

ITEMS PENDING CONSIDERATION - TRAFFIC COMMISSION						
D-1	Diagonal parking Cherry Street @ Catalina Street	Jan-13	Wilhelm	Feb-13		Re-visit after hospital construction
D-2	Review of draft scope of work for school traffic study		Dave Hunt	January-14		
D-3	Review Katella Ave./605 Freeway Study		Dave Hunt	January-14		

TRAFFIC COMMISSION UPDATED STATUS LIST - 2011 to 2013

ITEM	DESCRIPTION	DATE INITIATED	REQUESTED BY	TAKEN TO		REMARKS
				T.C.	C.C.	

ITEMS PENDING CONSIDERATION - CITY COUNCIL

TRAFFIC COMMISSION INITIATED ITEMS - ENGINEERING						
F-1	20' curb radius - no parking	Mar-13	J. Mejia			Done
F-2	Barricade on Bloomfield in front of elementary school	Mar-13	J. Mejia			Gone
F-3	NB Los Al. @ Katella Ave./left-turn extend pocket	Apr-13	Emerson			Part of school traffic study
F-4	Katella Deli loading dock - used as break area	Mar-13	J. Mejia			Done
F-5	NB one-way alley for three month trial period east of Los Al/no. of Farquhar	May-13	N. Wray			
F-6	SB Bloomfield - street markings unclear	May-13	J. Mejia			Done
F-7	Speed limit sign on Katella Ave. near Bloomfield St. is bent	May-13	J. Mejia			Done
F-8	Crosswalk across Los Alamitos Blvd. @ Ganahl Lumber	Aug-13				Dave to obtain more information
F-9	Get crossing guard uniforms	Jun-13	J. Mejia			No
F-10	Laurel Park Manor - needs left turn restriction sign on east side	Oct-13	J. Wilhelm			Dave to look into
F-11	Street name signs in Carrier Row are crooked	Oct-13	J. Schleuter			
F-12	Wbound Katella Ave. approaching Walnut - striping needs to be repainted	Oct-13	J. Schleuter			P.W. to replace soon
F-13	Additional enforcement Cerritos & Humbolt - bet. 7:30 & 8:00 am	Oct-13	D. Patz			Sent to P.D.
F-14	Right-turn only striping on Los Al./include northbound Sausalito	Nov-13	J. Mejia			Dave to request P.W. do
F-15	Los Vaqueros/Industrial Park - sidewalk raised	Nov-13	J. Mejia			Dave to request P.W. do
F-16	Delivery trucks @ Katella Deli still blocking alley	Dec-13	J. Mejia			Dave to look into
F-17	Alley speed bumps need reflective paint	Dec-13	J. Mejia			Dave to request P.W. do
F-18	Commissioner name tags	Dec-13	J. Mejia			Dave to discuss w/City Manager
F-19	SB Los Al. @ Florista St. - needs dashed line @ right-turn only	Dec-13	Vardeman/Patz			Dave to request P.W. do