Elizabeth Alcantar, Mayor
Jose R. Gonzalez, Vice Mayor
Chris Garcia, Council Member
Jack M. Guerrero, Council Member
Blanca Lozoya, Council Member

REMOTE TELECONFERENCE AND ELECTRONICALLY
This meeting will be conducted telephonically and electronically pursuant to the State of California Executive Order No. 29-20.

Teleconference Phone Number:
1 (253) 215-8782
Meeting ID: 896 4832 7295
https://us02web.zoom.us/j/89648327295

AGENDA

A REGULAR MEETING
OF THE CUDAHY CITY COUNCIL
and JOINT MEETING of the
CITY OF CUDAHY AS SUCCESSOR AGENCY and HOUSING SUCCESSOR AGENCY
TO THE CUDAHY DEVELOPMENT COMMISSION
Tuesday, September 15, 2020 – 6:30 P.M.

Written materials distributed to the City Council within 72 hours of the City Council meeting shall be available for public inspection at www.cityofcudahy.com

In compliance with the Americans with Disabilities Act (ADA) if you need special assistance to participate in this meeting, you should contact the City Clerk's Office at (323) 773-5143 at least 72 hours in advance of the meeting.

Rules of Decorum

Under the Government Code, the City Council may regulate disruptive behavior that impedes the City Council Meeting.

Disruptive conduct may include, but is not limited to:

- Screaming or yelling during another audience member's public comments period;
- Profane language directed at individuals in the meeting room;
- Throwing objects at other individuals in the meeting room;
- Verbal altercations with other individuals in the meeting room; and
- Going beyond the allotted three-minute public comment period granted.

When a person's or group's conduct disrupts the meeting, the Mayor or presiding officer will request that the person or group stop the disruptive behavior, and WARN the person or group that they will be asked to leave the meeting room if the behavior continues.

If the person or group refuses to stop the disruptive behavior, the Mayor or presiding officer may order the person or group to leave the meeting room, and may request that those persons be escorted from the meeting room. Any person who, without authority of law, willfully disturbs or breaks up a City Council meeting is guilty of a misdemeanor. (Pen. Code, § 403.)

1. CALL TO ORDER

2. ROLL CALL

Council / Agency Member Garcia
Council / Agency Member Guerrero
Council / Agency Member Lozoya
Vice Mayor / Vice Chair Gonzalez
Mayor / Chair Alcantar

3. PLEDGE OF ALLEGIANCE

4. PRESENTATIONS

5. CLOSED SESSION PUBLIC COMMENTS

(Each member of the public may provide a public comment telephonically or electronically if he or she wishes to address the City Council on closed session matters. During this time, members of the public are permitted to speak for three (3) minutes concerning only items on closed session.)

RECESS TO CLOSED SESSION

At this time, City Council will meet in closed session to go over items of business on the closed session agenda. Closed session discussion will end at 7:30 p.m. At that time, City Council will have the option to continue discussing closed session items after deliberating on all agenda items or continue the discussion to the next regular meeting. Once closed session is complete and the City Council returns from closed session into open session, members of the public may then rejoin the proceedings.

6. CLOSED SESSION

DELIBERATING AS CUDAHY SUCCESSOR AGENCY

A. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 1 Elizabeth Street Residential Property 5256 Elizabeth Street APN: 6224-001-014
5260 Elizabeth Street APN: 6224-001-015

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

B. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 2 Atlantic Avenue/Santa Ana Street Commercial
Property 4734 Santa Ana Street APN: 6224-018-008
8110 South Atlantic Avenue APN: 6224-018-071
8100 South Atlantic Avenue APN: 6224-018-068 Santa Ana Street APN: 6224-018-070
4720 Santa Ana Street APN: 6224-018-069

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

C. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 3 Santa Ana Street Residential
Property 4610 Santa Ana Street APN: 6224-019-014

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

D. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 4 Atlantic Avenue/Cecilia Street Commercial
Property 8135 South Atlantic Avenue APN: 6224-022-001
4629 Cecilia Street APN: 6224-022-004
8201 South Atlantic Avenue APN: 6224-022-002
8221 South Atlantic Avenue APN: 6224-022-012
4633 Cecilia Street APN: 6224-022-003

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

E. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:

Site No. 5 Atlantic Avenue/Patata Street Commercial
Property 4819 Patata Street APN: 6224-034-014
8420 South Atlantic Avenue APN: 6224-034-032 APN: 6224-034-040
Patata Street APN: 6224-034-041
Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative
Officer Under Negotiation: Price and Terms

F. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 6 Atlantic Avenue/Clara Street Commercial
Property 4613 Clara Street APN: 6226-022-002
7660 South Atlantic Avenue APN: 6226-022-008
7630 South Atlantic Avenue APN: 6226-022-019 APN: 6226-022-020
7638 South Atlantic Avenue APN: 6226-022-023
7644 South Atlantic Avenue APN: 6226-022-022
No address APN: 6226-022-021 APN: 6226-022-024
Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative
Officer Under Negotiation: Price and Terms

RECONVENE TO OPEN SESSION

7. CLOSED SESSION ANNOUNCEMENT

8. PUBLIC COMMENTS

(Each member of the public may provide a public comment telephonically or electronically if he or she wishes to address the City Council. Members of the public are permitted to speak for three (3) minutes concerning items under the City Council's jurisdiction, including items on the council agenda.)

(Any person who, without authority of law, willfully disturbs or breaks up a City Council meeting is guilty of a misdemeanor. (Pen. Code, § 403).)

9. CITY COUNCIL COMMENTS / REQUESTS FOR AGENDA ITEMS (Each Council Member is limited to three minutes.)

(This is the time for the City Council / Agency to comment on any topics related to "City Business," including announcements, reflections on city / regional events, response to public comments, suggested discussion topics for future council meetings, general concerns about particular city matters, questions to the staff, and directives to the staff (subject to approval / consent of the City Council majority members present, regarding staff directives). Each Council / Agency Member will be allowed to speak for a period not to exceed three (3) minutes. Notwithstanding the foregoing, the City Council

Members shall not use this comment period for serial discussions or debate between members on City business matters not properly agendized. The City Attorney shall be responsible for regulating this aspect of the proceeding.)

10. CITY MANAGER REPORT (information only)

11. REPORTS REGARDING AD HOC, ADVISORY, STANDING, OR OTHER COMMITTEE MEETINGS

12. WAIVER OF FULL READING OF RESOLUTIONS AND ORDINANCES

(Consideration to waive full text reading of all Resolutions and Ordinances by single motion made at the start of each meeting, subject to the ability of the City Council / Agency to read the full text of selected resolutions and ordinances when the item is addressed by subsequent motion.)
(COUNCIL / AGENCY)

Recommendation: Approve the Waiver of Full Reading of Resolutions and Ordinances.

13. CONSENT CALENDAR

(Items under the Consent Calendar are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless a Council / Agency Member so requests, in which event the item will be removed from the Consent Calendar and considered separately.)

A. Consideration to Review and Approve the Draft Minutes of August 25, 2020, for the Special Meeting of the City Council and September 1, 2020 for the Regular Meeting and the Joint Meeting of the City of Cudahy as Successor Agency and Housing Successor Agency to the Cudahy Development Commission *(page 9)*

Presented by Assistant City Clerk

Recommendation: The City Council is requested to review and approve the City Council / Successor Agency Draft Minutes for August 25, 2020 and September 1, 2020.

B. Receive and File 2020 California Fair Political Practices Commission Local Agency Biennial Notice *(page 21)*

Presented by Assistant City Clerk

Recommendation: The City Council is requested to:

1. Receive and file the attached California Fair Political Practices Commission Local Agency Biennial Notice; and

2. Direct City of Cudahy ("City") staff to effectuate the necessary amendments to the Conflict of Interest Code within 90 days, in accordance with the Political Reform Act.

C. Consideration and Adoption of an Ordinance Enacting a Temporary Moratorium on Evictions Due to the Nonpayment of Rent *(page 33)*

Presented by City Attorney's Office

Recommendation: The City Council is recommended to adopt Ordinance No. 710 by Second Reading, enacting a temporary moratorium on evictions due to the nonpayment of rent for tenants after the expiration of both State and County eviction protections. The proposed Ordinance has a six-month term and a six-month repayment period for unpaid rent.

14. PUBLIC HEARING

A. Appeal of the Planning Commission's decision to deny Development Review Permit No. 41-532 to allow the construction of a 67,148 square foot charter school located at 7801-7835 Otis Avenue (APN 6225-026-0201/002/003/013/014) *(page 45)*

Presented by Interim Community Development Manager

Recommendation: The City Council is requested to:

1. Reverse the Planning Commission's decision and adopt Resolution No. 20-15, approving Development Review Permit No. 41-532 (DRP 41-532) to allow the design, site layout, and construction of a new 67,148 square foot sate of the art charter school; or

2. Uphold the Planning Commission's decision and deny the project.

15. BUSINESS SESSION - NONE

16. ADJOURNMENT

I, Richard Iglesias, hereby certify under penalty of perjury under the laws of the State of California that the foregoing agenda was posted on the City's Website not less than 72 hours prior to the meeting. A copy of said Agenda is on file in the City Clerk's Office.

Dated this 11th day of September 2020

Richard Iglesias
Assistant City Clerk

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Item Number 13A

STAFF REPORT

Date: September 15, 2020

To: Honorable Mayor/Chair and City Council/Agency Members

From: Henry Garcia, Interim City Manager/Executive Director
By: Richard Iglesias, Assistant City Clerk

Subject: **Consideration to Review and Approve the Draft Minutes of August 25, 2020, for the Special Meeting of the City Council and September 1, 2020 for the Regular Meeting and the Joint Meeting of the City of Cudahy as Successor Agency and Housing Successor Agency to the Cudahy Development Commission**

RECOMMENDATION

The City Council is requested to review and approve the City Council / Successor Agency Draft Minutes for August 25, 2020 and September 1, 2020.

BACKGROUND / ANALYSIS

Historically

The Municipal Clerk is one of the oldest professions in government, dating back to 1272 A.D., originating in England. The record keeper then was called Remembrancer; an English official whose job was to remind the Lord Treasurer and Barons of Court, of business pending.

Years later in the 1600's when early colonist came to America, the office of the Clerk was one of the first offices to be established. Over the years the City Clerk's office has become the core for local government, and the liaison to the residents of the Community. The Municipal Clerk (City Clerk) is the record keeper of a City's recorded History.

William Bennett Munro a Canadian historian and political scientist, who taught at Harvard University and the California Institute of Technology, stated in one of his first textbooks written: "No other office in municipal service has so many contacts. It serves the Mayor, the City Council, the City Manager (when there is one), and all administrative departments,

without exception. All of them call upon it, almost daily, for some service or information. Its work is not spectacular, but it demands versatility, alertness, accuracy, and no end of patience. The public does not realize how many loose ends of city administration this office pulls together."

Moving forward to the present time, the City Clerk's office today is generally responsible for keeping record of City Council meetings; agreements; recordings of official documents; legal advertisements; municipal elections; commissions and committees current files; claims against the city; and other legal or official documents.

City Clerks in General Law cities are required to keep a record (minutes) of the proceedings of Council meetings (Government Code Sections 36814 and 40801). Minutes are the official record of a meeting which provides a record of the Council's decisions and actions.

CONCLUSION

City Council is requested to approve the attached City Council / Agency Draft Minutes of the proceedings of August 25, 2020 and September 1, 2020, City Council meeting.

FINANCIAL IMPACT

No Financial Impact.

ATTACHMENT

A. Draft Minutes August 25, 2020
B. Draft Minutes September 1, 2020
C. Resolution No. 16-38, approving the City Clerk's use of Summary Action Minutes as the Official Record of the City Council proceedings.

MINUTES

CUDAHY CITY COUNCIL SPECIAL MEETING and CITY OF CUDAHY AS SUCCESSOR AGENCY and HOUSING SUCCESSOR AGENCY TO THE CUDAHY DEVELOPMENT COMMISSION JOINT MEETING

August 25, 2020 6:30 P.M.

1. CALL TO ORDER

Mayor / Chair Alcantar called the meeting to order at 6:37 p.m.

2. ROLL CALL

PRESENT: Council / Agency Member Garcia (arrived at 6:48 p.m.)
Council / Agency Member Lozoya
Vice Mayor / Vice Chair Gonzalez
Mayor / Chair Alcantar

ABSENT: Council / Agency Member Guerrero

ALSO PRESENT: Interim City Manager Henry Garcia, City Attorney, Victor Ponto, Assistant City Clerk, Richard Iglesias, Finance Director, Steven Dobrenen, and Assistant City Engineer, Aaron Hernandez-Torres

3. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Vice Mayor Gonzalez.

4. PUBLIC COMMENTS

Edin Enamorado, spoke in regard to a health project he is coordinating with the University of Southern California, and asked if the City could help by allowing a presentation at a future council meeting.

CITY ATTORNEY VICTOR PONTO MADE A RECOMMENDATION TO ADD WAIVER OF THE FULL READING OF ORDINANCES AND RESOLUTIONS TO THE AGENDA.

IT WAS MOTIONED BY VICE MAYOR GONZALEZ AND SECONDED BY MAYOR GONZALEZ TO AMEND THE AGENDA TO ADD THE WAIVER OF THE FULL READING OF ORDINANCES AND RESOLUTIONS TO THE AGENDA. THE MOTION CARRIED (3-0-2) BY THE FOLLOWING ROLL CALL VOTE

AYES: Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: Garcia and Guerrero
ABSTAIN: None

DRAFT

5. BUSINESS SESSION

A. Consideration to Approve a Contract Services Agreement to Award Asbestos Instant Response, Inc. (AIR, Inc.), as well as approve Resolution No. 20-29, Resolution SA 20-04, for the Atlantic Avenue and Cecilia Street Property Clean-Up and Demolition Project – The City of Cudahy and its Redevelopment Dissolution Successor Agency

Presented by the Assistant City Engineer

The City Council is requested to:

1. Approve a Contract Services Agreement with Asbestos Instant Response, Inc. (AIR, Inc.), the lowest responsive and responsible bidder, for an amount up to $91,429 to undertake the Atlantic Avenue and Cecilia Street Property Clean-Up and Demolition Project;

2. Authorize the City Manager to give Notice to Proceed on the base bid schedule (Option 1. Property clean-up only. Contract amount $32,733) and any portions of the additive bid schedule as deemed necessary to complete the project (Option 2. Demolition of existing structures. Contract not to exceed $91,429);

3. Adopt Resolution No. 20-29, declaring the existence of a public nuisance on certain property owned by the successor agency to the former Cudahy Community Development Commission (Site 4 Lands), ordering the abatement thereof, and approving the form of a demolition and loan agreement between the City of Cudahy and the Successor Agency to the Former Cudahy Community Development Commission (Cudahy Long Range Property Management Plan Site 4); and

4. Adopt Resolution No. SA 20-04, acting in its capacity of the governing board of the Successor Agency and Housing Successor Agency to the former Cudahy Community Development Commission, approving a demolition and loan agreement between the City of Cudahy and the Successor Agency to the Former Cudahy Community Development Commission for the demolition of unoccupied and unsafe structures, fire damages debris disposal and abatement of hazardous materials at Cudahy Long Range Property Management Plan Site 4.

Motion: It was motioned by Vice Mayor Gonzalez and seconded by Mayor Alcantar to approve Resolution No. 20-29, Resolution SA 20-04, for the Atlantic Avenue and Cecilia Street Property Clean-Up and Demolition Project – The City of Cudahy and its Redevelopment Dissolution Successor Agency. The motion carried (4-0-1) by the following roll call vote:

AYES: Garcia, Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: Guerrero
ABSTAIN: None

B. Consideration to Receive and Review Development Impact Fee Analysis Presentation

Presented by the Finance Director

The City Council is requested to receive and review Development Impact Fee Analysis and receive a presentation by Willdan Financial highlighting the Development Impact Fee analysis.

DRAFT

Motion: It was motioned by Vice Mayor Gonzalez and seconded by Council Member Lozoya receive and review Development Impact Fee Analysis and receive a presentation by Willdan Financial highlighting the Development Impact Fee analysis. The motion carried (4-0-1) by the following roll call vote:

AYES: Garcia, Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: Guerrero
ABSTAIN: None

6. ADJOURNMENT

The City Council / Agency meeting was adjourned at 7:43 p.m.

Elizabeth Alcantar
Mayor

ATTEST:

Richard Iglesias
Assistant City Clerk

DRAFT

MINUTES

CUDAHY CITY COUNCIL REGUAR MEETING and CITY OF CUDAHY AS SUCCESSOR AGENCY and HOUSING SUCCESSOR AGENCY TO THE CUDAHY DEVELOPMENT COMMISSION JOINT MEETING

September 1, 2020 6:30 P.M.

1. CALL TO ORDER

Mayor / Chair Alcantar called the meeting to order at 6:35 p.m.

2. ROLL CALL

PRESENT: Council / Agency Member Garcia (arrived at 6:42 p.m.)
Council / Agency Member Guerrero
Council / Agency Member Lozoya
Vice Mayor / Vice Chair Gonzalez (arrived at 6:37 p.m.)
Mayor / Chair Alcantar

ABSENT: None

ALSO PRESENT: Interim City Manager Henry Garcia, City Attorney, Victor Ponto, Deputy City Attorney, Stephanie Arechiga, Human Resources Manager, Jennifer Hernandez, Assistant City Clerk, Richard Iglesias, Finance Director, Steven Dobrenen, and Administrative Analyst, Brenda Rodriguez.

3. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Council Member Lozoya.

4. PRESENTATIONS - NONE

5. CLOSED SESSION PUBLIC COMMENTS – NONE

6. CLOSED SESSION

DELIBERATING AS CUDAHY SUCCESSOR AGENCY

A. Closed Session Pursuant to Government Code Section 54956.9(d)(4) – Conference with Legal Counsel to Discuss the Initiation of Litigation – Three Matters

7. CLOSED SESSION ANNOUNCEMENT

For all three matters, counsel was given, direction was received. No further reportable action.

8. PUBLIC COMMENTS

DRAFT

Jaime Lopez asked Council where Council members in the 40th district stand on the Black Lives Matter movement. He further asked if the Council and City Manager could specifically express their stance on the Black Lives Matter movement tonight.

Marcos Oliva, quoted Thomas Watson highlighting the importance of expressing ideas in a public forum, regardless whether it offends or not. He spoke regarding business item 15A, informing Council the state legislature has extended a moratorium on evictions, and asked to table the item pending development by the state legislature. He noted several remedies in the ordinance, citing judicial expenses mandated by the ordinance that he is asking to strike out.

9. CITY COUNCIL COMMENTS / REQUESTS FOR AGENDA ITEMS

Council Member Guerrero, encouraged residents who require rental assistance to visit the city of Cudahy and apply for the emergency rental assistance program. He further addressed a public comment stating that he is a supporter of reform in the system, expressing his support for the First Step Act signed by President Donald Trump, bringing generation wide reform of criminal justice as well as reform of various police practices.

Vice Mayor Gonzalez, expressed his excitement regarding the change in street sweeping schedule tonight.

Mayor Alcantar, thanked Jaime Lopez for checking with Council regarding the Black Lives Matter Movement. She further expressed her solidarity with the Black Lives Matter Movement. She echoed her support for the change in street sweeping schedule as well as the eviction protection moratorium discussed tonight. She concluded her comments by lamenting that the City could have had eviction data if an ordinance was passed earlier in the year.

10. CITY MANAGER REPORT (information only)

11. REPORTS REGARDING AD HOC, ADVISORY, STANDING OR OTHER COMMITTEE MEETINGS - NONE

12. WAIVER OF FULL READING OF RESOLUTIONS AND ORDINANCES

13. CONSENT CALENDAR (COUNCIL MEMBER GUERRERO PULLED ITEMS A,B,D, AND E FOR DISCUSSION)

A. Approval of the Local Agency Investment Fund (LAIF) for the Month of June 2020

Presented by the Finance Director

The City Council is requested to approve the Local Agency Investment Fund (LAIF) Report for the month of June 2020 in the amount of $7,607,124.65.

Motion: It was motioned by Vice Mayor Gonzalez and seconded by Mayor Alcantar to approve the Local Agency Investment Fund (LAIF) Report for the month of June 2020 in the amount of $7,607,124.65. The motion carried (4-1-0) by the following roll call vote:

AYES: Garcia, Lozoya, Gonzalez, and Alcantar
NOES: Guerrero
ABSENT: None
ABSTAIN: None

B. Approval of the City Demands and Payroll Including Cash and Investment Report for the Month of June 2020

Presented by the Finance Director

The City Council is requested to approve the Demands and Payroll in the amount of $1,018,634.63 including Cash and Investment Report by Fund for the month of June 2020.

Motion: It was motioned by Vice Mayor Gonzalez and seconded by Mayor Alcantar to approve the Demands and Payroll in the amount of $1,018,634.63 including Cash and Investment Report by Fund for the month of June 2020. The motion carried (4-0-1) by the following roll call vote:

AYES: Garcia, Lozoya, Gonzalez, and Alcantar
NOES: Guerrero
ABSENT: None
ABSTAIN: None

C. Consideration to Review and Approve the Draft Minutes of August 18, 2020, for the Regular Meeting of the City Council and the Joint Meeting of the City of Cudahy as Successor Agency and Housing Successor Agency to the Cudahy Development Commission

Presented by the Assistant City Clerk

The City Council is requested to review and approve the City Council / Successor Agency Draft Minutes for August 18, 2020.

Motion: It was motioned by Council Member Lozoya and seconded by Vice Mayor Gonzalez to review and approve the City Council / Successor Agency Draft Minutes for August 18, 2020. The motion carried (5-0-0) by the following roll call vote:

AYES: Garcia, Guerrero, Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: None
ABSTAIN: None

D. Adoption of a Second Amendment Agreement for Street Sweeping Services, Amending the Current Scope of Work and Compensation

Presented by the Interim City Manager

The City Council is requested to review and approve the proposed Second Amendment Agreement with Nationwide Environmental Services (NES) for Street sweeping Services, amending Section 2 (scope of work), and Section 3 (compensation).

Motion: It was motioned by Mayor Alcantar and seconded by Council Member Guerrero to review and approve the proposed Second Amendment Agreement with Nationwide Environmental Services (NES) for Street sweeping Services, amending Section 2 (scope of work), and Section 3 (compensation). The motion carried (5-0-0) by the following roll call vote:

AYES: Garcia, Guerrero, Lozoya, Gonzalez and Alcantar
NOES: None

DRAFT

ABSENT: None
ABSTAIN: None

E. Adoption of a Proposed Resolution No. 20-30, Extending the Continuation of a Citywide Program to Allow Permitted Overnight On-Street Parking in Designated Parking Areas between July 1, 2020 to June 30, 2021 (Fiscal Year (FY) 2020-21)

Presented by the Interim City Manager

The City Council is requested to review and approve proposed Resolution No. 20-30, extending the continuation of a Citywide overnight parking program (the "Parking Program") that allows permitted overnight on-street parking in designated parking areas for the period between July 1, 2020 to June 30, 2021.

Motion: It was motioned by Mayor Alcantar and seconded by Vice Mayor Gonzalez review and approve proposed Resolution No. 20-30, extending the continuation of a Citywide overnight parking program (the "Parking Program") that allows permitted overnight on-street parking in designated parking areas for the period between July 1, 2020 to June 30, 2021. The motion carried (5-0-0) by the following roll call vote:

AYES: Garcia, Guerrero, Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: None
ABSTAIN: None

14. PUBLIC HEARING - NONE

15. BUSINESS SESSION

A. Consideration and Adoption of an Ordinance Enacting a Temporary Moratorium on Evictions Due to the Nonpayment of Rent

Presented by the City Attorney's Office

The City Council is recommended to adopt an Ordinance enacting a temporary moratorium on evictions due to the nonpayment of rent for tenants after the expiration of both State and County eviction protections. The proposed Ordinance has a six-month term and a six-month repayment period for unpaid rent.

Motion: It was motioned by Mayor Alcantar and seconded by Vice Mayor Gonzalez to adopt an Ordinance enacting a temporary moratorium on evictions due to the nonpayment of rent for tenants after the expiration of both State and County eviction protections. The proposed Ordinance has a six-month term and a six-month repayment period for unpaid rent. The motion did not carry (3-1-0) by the following roll call vote:

AYES: Garcia, Gonzalez, and Alcantar
NOES: Guerrero
ABSENT: None
ABSTAIN: Lozoya

DRAFT

16. ADJOURNMENT

The City Council / Agency meeting was adjourned at 8:36 p.m.

Elizabeth Alcantar
Mayor

ATTEST:

Richard Iglesias
Assistant City Clerk

DRAFT

RESOLUTION NO. 16-38

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CUDHAY APPROVING THE CITY CLERK'S USE OF SUMMARY ACTION MINUTES AS THE OFFICIAL RECORD OF THE MEETINGS OF THE CITY COUNCIL OF THE CITY OF CUDAHY

WHEREAS, pursuant to Section 2.20.010(1) of the Municipal Code of the City of Cudahy, the City clerk is required to perform such duties as are set forth in the Government Code and in the City's Municipal Code and as the City Council from time to time shall direct or authorize; and

WHEREAS, under Government Code Section 40801, the City Clerk is tasked with keeping accurate records of the proceeding of the legislative body; and

WHEREAS, pursuant to Government Code Section 36814, the City Council shall cause the City Clerk to keep a correct record of its proceedings;

WHEREAS, the City Clerk currently prepares and keeps full written minutes of the City Council's meetings and proceedings; and

WHEREAS, instead of summary minutes, the City Council now wishes for the City Clerk to prepare and keep summary action minutes as the official record of its meetings or proceedings; and

BASED UPON THE ABOVE RECITALS, THE CITY COUNCIL OF THE CITY OF CUDAHY, CALIFORNIA, DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

SECTION 1. The recitals set forth above are true and correct and incorporated herein by reference.

SECTION 2. The City Council hereby approves the use of summary action minutes as the official record of its meetings or proceedings in lieu of full form written minutes.

SECTION 3. This Resolution shall take effect immediately upon its adoption by the City Council and the City Clerk shall certify to the passage and adoption of this Resolution and enter it into the book of original Resolutions.

PASSED, APPROVED AND ADOPTED by the City Council of the City of Cudahy at its regular meeting on this 12th day of December, 2016.

Baru Sanchez
Mayor

ATTEST:

Richard Iglesias
Deputy City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:
CITY OF CUDAHY)

I, Richard Iglesias, Deputy City Clerk of the City of Cudahy, hereby certify that the foregoing Resolution No. 16-38 was passed and adopted by the City Council of the City of Cudahy, signed by the Mayor and attested by the Deputy City Clerk at a regular meeting of said Council held on the 12th day of December, 2016, and that said Resolution was adopted by the following vote, to-wit:

AYES: Garcia, Markovich, Hernandez, Sanchez

NOES: None

ABSENT: None

ABSTAIN: Guerrero

Richard Iglesias
Deputy City Clerk

Item Number
13B

STAFF REPORT

Date: September 15, 2020

To: Honorable Mayor/Chair and City Council/Agency Members

From: Henry Garcia, Interim City Manager/Executive Director
By: Richard Iglesias, Assistant City Clerk
City Attorney's Office

Subject: **Receive and File 2020 California Fair Political Practices Commission Local Agency Biennial Notice**

RECOMMENDATION

The City Council is requested to:

1. Receive and file the attached California Fair Political Practices Commission Local Agency Biennial Notice; and

2. Direct City of Cudahy ("City") staff to effectuate the necessary amendments to the Conflict of Interest Code within 90 days, in accordance with the Political Reform Act.

BACKGROUND

1. In June of 1974, Proposition 9 passed as a ballot measure in the State of California, known today as the Political Reform Act.

   The Political Reform Act requires every local government agency to review its conflict of interest code biennially. California Fair Political Practice Commission requires that a biennial notice be filed with an agency's code reviewing body in order to determine if any amendments to the agency's conflict of interest code are necessary.

2. On October 16, 2018, the City filed its Local Agency Biennial Notice concerning the update of its Conflict of Interest Code with the agency's code reviewing body (City Council).

3. On December 18, 2018, the City Council adopted Resolution No. 18-62, updating the Conflict of Interest Code for the City.

ANALYSIS

The purpose of the conflict of interest provisions of the Political Reform Act (Gov. Code, § 87300 et seq.) is to prevent public decisions makers from participating decisions in which they have a personal financial stake. The Political Reform Act specifically requires members of city councils and planning commissions, as well as city managers, city treasurers, and city attorneys to disclose specified financial interests (Gov. Code, §§ 87200-87210). Many other public officials and employees not covered by these provisions are subject to the disclosure requirements set forth in local conflict of interest codes adopted by state and local governments. Such interests are indicated on a California Fair Political Practices Commission Form 700/Statement of Economic Interests.

City staff has reviewed the City's Conflict of Interest Code and noted areas that require amendments. The City Council constitutes the "code reviewing body" of the City for purposes of the Political Reform Act. Accordingly, staff requests the City Council to receive and file the attached 2020 Local Agency Biennial Notice.

CONCLUSION

Upon filing with the City Council, amendments to the Conflict of Interest Code must be forwarded to the City Council within 90 days. Note that Conflict of Interest Code records are retained by the City Clerk and are not required to be forwarded to the California Fair Political Practices Commission, which specifically requests that local jurisdictions do not send them such documents.

FINANCIAL IMPACT

The City Council's receipt and filing of the attached 2020 Local Agency Biennial Notice will have no significant fiscal impact on the City.

ATTACHMENTS

A. 2020 Local Agency Biennial Notice
B. Resolution No. 18-62

2020 Local Agency Biennial Notice

Name of Agency: City of Cudahy

Mailing Address: 5220 Santa Ana Street, Cudahy, CA 90201

Contact Person: Richard Iglesias Phone No. (323) 773-5143 x227

Email: cityclerk@cityofcudahyca.gov Alternate Email: riglesias@cityofcudahyca.gov

Accurate disclosure is essential to monitor whether officials have conflicts of interest and to help ensure public trust in government. The biennial review examines current programs to ensure that the agency's code includes disclosure by those agency officials who make or participate in making governmental decisions.

This agency has reviewed its conflict of interest code and has determined that *(check one BOX):*

☑ **An amendment is required. The following amendments are necessary:**

(Check all that apply.)

- ☒ Include new positions
- ☐ Revise disclosure categories
- ☒ Revise the titles of existing positions
- ☐ Delete titles of positions that have been abolished and/or positions that no longer make or participate in making governmental decisions
- ☐ Other *(describe)* _____

☐ **The code is currently under review by the code reviewing body.**

☐ **No amendment is required.** (If your code is over five years old, amendments may be necessary.)

Verification (to be completed if no amendment is required)

This agency's code accurately designates all positions that make or participate in the making of governmental decisions. The disclosure assigned to those positions accurately requires that all investments, business positions, interests in real property, and sources of income that may foreseeably be affected materially by the decisions made by those holding designated positions are reported. The code includes all other provisions required by Government Code Section 87302.

_____ _____

Signature of Chief Executive Officer *Date*

All agencies must complete and return this notice regardless of how recently your code was approved or amended. Please return this notice no later than **October 1, 2020**, or by the date specified by your agency, if earlier, to:

(PLACE RETURN ADDRESS OF CODE REVIEWING BODY HERE)

PLEASE DO NOT RETURN THIS FORM TO THE FPPC.

FAIR POLITICAL PRACTICES COMMISSION

2020 Conflict of Interest Code
Biennial Notice Instructions for Local Agencies

The Political Reform Act requires every local government agency to review its conflict of interest code biennially. A conflict of interest code tells public officials, governmental employees, and consultants what financial interests they must disclose on their Statement of Economic Interests (Form 700).

By **July 1, 2020:** The code reviewing body must notify agencies and special districts within its jurisdiction to review their conflict of interest codes.

By **October 1, 2020:** The biennial notice must be filed with the agency's code reviewing body.

The FPPC has prepared a 2020 Local Agency Biennial Notice form for local agencies to complete or send to agencies within its jurisdiction to complete before submitting to the code reviewing body. The City Council is the code reviewing body for city agencies. The County Board of Supervisors is the code reviewing body for county agencies and any other local government agency whose jurisdiction is determined to be solely within the county (e.g., school districts, including certain charter schools). The FPPC is the code reviewing body for any agency with jurisdiction in ***more than one county*** and will contact them.

The Local Agency Biennial Notice is not forwarded to the FPPC.

If amendments to an agency's conflict of interest code are necessary, the amended code must be forwarded to the code reviewing body for approval within 90 days. An agency's amended code is not effective until it has been approved by the code reviewing body.

If you answer yes, to any of the questions below, your agency's code probably needs to be amended.

- Is the current code more than five years old?
- Have there been any substantial changes to the agency's organizational structure since the last code was approved?
- Have any positions been eliminated or re-named since the last code was approved?
- Have any new positions been added since the last code was approved?
- Have there been any substantial changes in duties or responsibilities for any positions since the last code was approved?

If you have any questions or are still not sure if you should amend your agency's conflict of interest code, please contact the FPPC. Additional information including an online webinar regarding how to amend a conflict of interest code is available on FPPC's website.

RESOLUTION NO. 18-62

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CUDAHY ADOPTING A REVISED LIST OF DESIGNATED POSITIONS AND DISCLOSURE CATEGORIES FOR OFFICERS AND EMPLOYEES OF THE CITY AND ITS LEGISLATIVE BODIES, PURSUANT TO GOVERNMENT CODE SECTION 87306 AND SECTION 18730 OF TITLE 2, DIVISION 6 OF THE CALIFORNIA CODE OF REGULATIONS

WHEREAS, the purpose of the conflict of interest provisions of the Political Reform Act (Gov. Code, §87300, et seq.) (the "Act") is to prevent public decision makers from participating decisions in which they have a personal financial stake; and

WHEREAS, the Act requires public officials and employees to complete Form 700 Statements of Economic Interests, to disclose financial interests which may be impacted by their public agency decisions; and

WHEREAS, the Act specifically requires members of city councils and planning commissions, as well as city managers, city treasurers, and city attorneys to disclose specified financial interests (Gov. Code, §§87200-87210); and

WHEREAS, the many other public officials and employees not covered by these provisions are subject to the disclosure requirements set forth in local conflict of interest codes adopted by state and local governments; and

WHEREAS, the Act requires state and local government agencies to adopt and promulgate such local conflict of interest codes (Gov. Code, §87300); and

WHEREAS, the City of Cudahy (the "City") has accordingly adopted and promulgated such a local conflict of interest code; and

WHEREAS, Government Code section 87306(a) requires the City to amend its Conflict of Interest Code every two years when "change is necessitated by changed circumstances, including the creation of new positions which must be designated"; and

WHEREAS, the Fair Political Practices Commission ("FPPC"), created by the Act, established section 18730 of title 2, division 6 of the California Code of Regulations, which contains the standard conflict of interest code that can be incorporated by reference and which may be amended by the FPPC to conform to amendments in the Act, after public notice and hearings; and

WHEREAS, the terms of section 18730 of title 2, division 6 of the California Code

of Regulations are hereby reincorporated by reference, and such provisions, along with the additional positions and categories set forth in the attached **Exhibit "A,"** shall constitute the updated Conflict of Interest Code for the City; and

WHEREAS, this Resolution amends the City's Conflict of Interest Code in accordance with Government Code section 87306(a) and section 18730 of title 2, division 6 of the California Code of Regulations and repeals previous Resolutions adopting and amending the City's Conflict of Interest Code.

BASED UPON THE ABOVE RECITALS, THE CITY COUNCIL OF THE CITY OF CUDAHY, CALIFORNIA, DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

SECTION 1. The revised list of designated officials and employees, attached hereto as **Exhibit "A"** and concomitant amendment of the City's Conflict of Interest Code are hereby approved.

SECTION 2. Persons holding designated positions set forth in **Exhibit "A"** of this Resolution shall timely file Form 700 Statements of Economic Interest with the City Clerk, who shall function as the filing officer for the City and make such Form 700 Statements of Economic Interest on file in the City Clerk's office based upon the disclosure categories set forth in **Exhibit "B**."

SECTION 3. This Resolution shall take effect immediately upon its adoption by the City Council and the City Clerk shall certify to the passage and adoption of this Resolution and enter it into the book of original Resolutions.

PASSED, APPROVED AND ADOPTED by the City Council of the City of Cudahy at its regular meeting on this 18th day of December, 2018.

Chris Garcia
Mayor

ATTEST:

Richard Iglesias
Deputy City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:
CITY OF CUDAHY)

I, Richard Iglesias, Deputy City Clerk of the City of Cudahy, hereby certify that the foregoing Resolution No. 18-62 was passed and adopted by the City Council of the City of Cudahy at a regular meeting held on the 18th of December, 2018 and that said Resolution was adopted by the following vote, to-wit:

AYES: Sanchez, Markovich, Gonzalez, Hernandez, and Garcia

NOES: None

ABSENT: None

ABSTAIN: None

Richard Iglesias
Deputy City Clerk

EXHIBIT A:

REVISED LIST OF DESIGNATED OFFICIALS AND EMPLOYEES

(Updated as of December 18, 2018)

DESIGNATED POSITIONS AND PERSONS PERFORMING DESIGNATED SERVICES

The Mayor, members of the City Council, members of the Oversight Board to the City of Cudahy as Successor Agency to the Former Cudahy Community Development Commission/Redevelopment Agency, members of the Planning Commission, the City Manager, the City Attorney, the City Treasurer, and all other city officials who manage public investments as defined by Section 18700.3 of title 2, division 6 of the California Code of Regulations, such as the Finance Director, are not required to be included in the Code but are subject to the mandatory disclosure requirements of the Political Reform Act (Gov. Code, §87100 et seq.)

POSITION	DISCLOSURE CATEGORY
City Clerk	1, 2
Assistant City Clerk	1, 2
Junior Deputy City Clerk	1, 2
Deputy City Clerk	1, 2
Account Clerk	1, 2, 3
Account Technician	1
Administrative Assistant	1
Administrative Analyst	1, 2
Administrative Assistant (Purchasing)	3, 4, 5, 6
Assistant City Engineer	2, 3, 4, 5, 6
Associate Engineer	2, 3, 4, 5, 6

Assistant Planner	2, 3, 4, 5, 6
Associate Planner	2, 3, 4, 5, 6
Building Inspector	3, 4, 5, 6
Community Preservation Officer	3, 5, 6
Senior Community Preservation Officer	3, 5, 6
Community Development Manager	1, 2, 3, 4, 5, 6
Finance Manager	1, 2, 6
Human Resources Specialist	1, 2, 6
Human Resources Manager	1, 2, 6
Maintenance Leader	6
Maintenance Supervisor	6
Maintenance Superintendent	5, 6
Planning Technician	2, 3, 4, 5, 6
Public Safety & Services Manager	1, 2, 3, 4, 5
Recreation Program Coordinator	5, 6
Assistant Recreation Program Coordinator	6
Auditing Services Contractor	1
Building and Safety Contractor	1, 2, 3, 4
Engineering Service Contractor	1, 2, 3, 4
Housing Rehabilitation Contractor	1, 2, 3, 4
Information Technology Consultant	1, 5
Planning Contractor	1, 2, 3, 4
Public Works Contractor	1, 2

Redevelopment Consultant	1, 2, 3, 4
Legislative Services Consultant	1, 2, 3, 4

CONSULTANTS

Definition:

Section 18700.3 of title 2, division 6 of the California Code of Regulations, a Fair Political Practices Commission regulation, defines "consultant" as an individual who, pursuant to a contract with a State or local governmental agency:

(a) Makes a governmental decision whether to:

(1) Approve a rate, rule or regulation;

(2) Adopt or enforce a law;

(3) Issue, deny, suspend, or revoke a permit, license, application, certificate, approval, order, or similar authorization or entitlement;

(4) Authorize the agency to enter into, modify, or renew a contract provided it is the type of contract which requires agency approval;

(5) Grant agency approval to a contract which requires agency approval and in which the agency is a party or to the specifications for such contract;

(6) Grant agency approval to a plan, design, report, study, or similar item;

(7) Adopt, or grant agency approval of, policies, standards, or guidelines for the agency, or for any subdivision of the agency; or

(b) Serves in an ongoing staff capacity with the agency and in that capacity performs the same or substantially all the same duties for the agency that would otherwise be performed by an individual holding a position specified in the agency's local conflict of interest code.

Consultants shall be included in the list of designated employees and shall disclose all of the information required by designated employees subject to the City Manager's discretion to determine, in writing, that a particular consultant is hired to perform a range of duties that is limited in scope and thus is not required to fully comply with the disclosure requirement described in this Appendix. Such a determination shall include a description of the consultant's duties and, based upon that description, a statement of disclosure requirements. The City Manager's determination is a public record and shall be retained for public inspection in the same manner and location as this Conflict of Interest Code.

Exhibit B:

DISCLOSURE CATEGORIES

REPORTABLE INVESTMENTS, INTEREST IN REAL PROPERTY AND INCOME

1. All investments and sources of income.

2. All interests in real property.

3. All investments, interests in real property, and sources of income subject to the regulatory, permit, or licensing authority of the designated employee's department.

4. Investments in business entities and business positions and sources of income which engage in land development, construction or the acquisition or sale of real property.

5. Investments in business entity and business positions and sources of income of the type which, within the past two years, have contracted with the City of Cudahy to provide services, supplies, materials, machinery, or equipment.

6. Investments in business entities and business positions and sources of income of the type which, within the past two years, have contracted with the designated employee's department to provide services, supplies, materials, machinery, or equipment.

Item Number
13C

STAFF REPORT

Date: September 15, 2020

To: Honorable Mayor/Chair and City Council/Successor Agency Members

From: Henry Garcia, Interim City Manager/Executive Director
By: City Attorney's Office

Subject: **Consideration and Adoption of an Ordinance Enacting a Temporary Moratorium on Evictions Due to the Nonpayment of Rent**

RECOMMENDATION

The City Council is recommended to adopt Ordinance No. 710 (Attachment A) by Second Reading, enacting a temporary moratorium on evictions due to the nonpayment of rent for tenants after the expiration of both State and County eviction protections. The proposed Ordinance has a six-month term and a six-month repayment period for unpaid rent.

BACKGROUND/JUSTIFICATION OF RECOMMENDED ACTION:

On March 4, 2020, in response to the continued spread of Coronavirus (COVID-19), California Governor Gavin Newsom declared a State of Emergency to make additional resources available, formalize emergency actions already underway across multiple state agencies and departments, and help the State prepare for a broader spread of COVID-19. On March 16,2020, Governor Newsom issued Executive Order No. N-28-20 ("N-28-20") putting a temporary moratorium on all evictions throughout the State through May 31, 2020, N-28-20 was later amended by Executive Order No. N-37-20 ("N-37-20"), with the same expiration date. N-28-20 was then extended by Executive Order No. N-71-20 ("N-71-20") providing protections for all tenants throughout the state through September 30, 2020.

In addition to the protection by Governor Newsom, the Los Angeles County Board of Supervisors ("Board of Supervisors") issued an Executive Order ("County Executive Order") that imposed a temporary moratorium on evictions for non-payment of rent by residential or

commercial tenants impacted by COVID-19 commencing March 4, 2020 through May 31, 2020. On April 14, 2020, the Board of Supervisors expanded the County Executive Order to include all incorporated cities within the County of Los Angeles.

The actions taken to contain the spread of COVID-19 have resulted in the unemployment of many residents of the City. Increasing unemployment rates results in residents being unable to pay their rent. At the moment, both N-71-20 and the County Executive Order are offering protection from evictions through September 30, 2020. The City wishes to protect its residents from additional undue hardship during this difficult time and is proposing this additional protection to the tenants of Cudahy.

FISCAL IMPACT

There is currently no fiscal impact on the City's budget.

RECOMMENDATION

Accordingly, it is recommended that the City Council approve the attached Ordinance.

ATTACHMENTS

A. Ordinance No. 710

ORDINANCE NO. 710

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF CUDAHY, CALIFORNIA ENACTING A TEMPORARY MORATORIUM ON EVICTIONS DUE TO THE NONPAYMENT OF RENT

WHEREAS, Article XI, Section 7 of the California Constitution provides that the City of Cudahy ("City") may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws; and

WHEREAS, on March 4, 2020, in response to the continued spread of Coronavirus (COVID-19), California Governor Gavin Newsom declared a State of Emergency to make additional resources available, formalize emergency actions already underway across multiple state agencies and departments, and help the State prepare for a broader spread of COVID-19; and

WHEREAS, on March 16, 2020, Governor Newsom issued Executive Order No. N-28-20 ("N-28-20") putting a temporary moratorium on all evictions throughout the State through May 31, 2020, N-28-20 was later amended by Executive Order No. N-37-20 ("N-37-20"), with the same expiration date; and

WHEREAS, on May 29, 2020, N-28-20 was then extended by Executive Order N-66-20 ("N-66-29") extending the protection for evictions through July 30, 2020; and

WHEREAS, on June 30, 2020, Executive Order No. N-71-20 ("N-71-20") later extended the protection for all evictions through September 30, 2020; and

WHEREAS, on March 19, 2020, the Los Angeles County Board of Supervisors ("Board of Supervisors") issued an Executive Order ("County Executive Order") that imposed a temporary moratorium on evictions for non-payment of rent by residential or commercial tenants impacted by COVID-19 commencing March 4, 2020 through May 31, 2020; and

WHEREAS, on April 14, 2020, the Board of Supervisors expanded the County Executive Order to include all incorporated cities within the County of Los Angeles; and

WHEREAS, on July 21, 2020, the Board of Supervisors expanded the County Executive Order through September 30, 2020; and

WHEREAS, displacement through eviction destabilizes the living situation of tenants and impacts the health of the City's residents by uprooting children from schools, disrupting the social ties and networks that are integral to citizens' welfare and the stability of communities within the City; and

WHEREAS, displacement through eviction creates undue hardship for tenants through additional relocation costs, stress, and anxiety, and the threat of homelessness due to the lack of alternative housing; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CUDAHY, CALIFORNIA DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. The recitals above are true and correct and incorporated herein by reference.

SECTION 2. Title. This Ordinance shall be known as the "City of Cudahy's Eviction Moratorium Ordinance."

SECTION 3. Definitions

A. "Affected Tenant" means a Tenant who satisfies one or more of the criteria in paragraph A of Section 8, of this Ordinance below.

B. "Effective Date" means the day after the expiration of the County Executive Order or N-71-20, or any extension thereto, the later date of the two.

C. "Health Department" means the County of Los Angeles Department of Public Health.

D. "Landlord" means an owner, lessor, or sublessor who receives or is entitled to receive rent for the use and occupancy of any Rental Unit, Mobilehome or Mobilehome lot, and the agent, representative, or successor of any of the foregoing.

E. "Mobilehome" means a structure transportable in one or more sections, designed and equipped to contain no more than one dwelling unit, to be used with or without a foundation system.

F. "Mobilehome Park" means any area or tract of land where two or more mobilehome lots are rented or leased, or held out for rent or lease, to accommodate mobilehomes used for human habitation for permanent, as opposed to transient, occupancy.

G. "Mobilehome Owner" means a person who owns a Mobilehome and rents or leases the Mobilehome Park lot on which the Mobilehome is located.

H. "Mobilehome Resident" means a person who rents a mobilehome from a Mobilehome Owner.

I. "Moratorium Period" means the period beginning on the Effective Date and ending after six (6) months.

J. "Notice of Termination" shall mean the notice informing a Tenant Household or Mobilehome Resident of the termination of its tenancy in accordance with California Civil Code Section 1946.1 and California Code of Civil Procedure Section 1161, as amended.

K. "Rental Unit" means: (i) a Mobilehome, building, structure or the part of a structure that is used as a home, residence, or sleeping structure by one person

who maintains a household or by two or more persons who maintain a common household; (ii) a rented lot within a Mobilehome Park where a Mobilehome Owner's Mobilehome coach is located.

L. "Tenant" means a residential tenant, subtenant, lessee, sublessee, or any other person entitled by written or oral rental agreement, or by sufferance, to use or occupy a Rental Unit. The term "Tenant" is inclusive of the defined terms "Tenant Household", "Mobilehome Resident" and "Mobilehome Owner."

M. "Tenant Household" means one or more Tenant(s) who occupy any individual Rental Unit, including each dependent of any Tenant whose primary residence is the Rental Unit.

SECTION 4. Application. This Ordinance applies to Affected Tenants in any Rental Unit and Landlords of Affected Tenants.

SECTION 5. Moratorium on Eviction and Termination of Tenancies for Affected Tenants.

A. For the period commencing upon the Effective Date and **ending six months after the Effective Date** ("Moratorium Period") a Landlord may not terminate the tenancy of a Tenant who qualifies as an Affected Tenant for non-payment of rent. During the term of the Moratorium Period established under this Ordinance, a Landlord shall not serve a notice pursuant to California Code of Civil Procedure Sections 1161 or 1162, file or prosecute an unlawful detainer action based on a three-day pay or quit notice, or otherwise endeavor to evict an Affected Tenant for nonpayment of rent.

B. The Moratorium Period established under this Ordinance is intended to have greater scope and longer duration than the moratorium established under the County Executive Order and N-71-20, or any extension thereto, the later date of the two.

SECTION 6. Just Cause Termination.

A. The provisions of Section 7 of this Ordinance notwithstanding, a Landlord, subject to compliance with the requirements of this Ordinance may terminate the tenancy of a Tenant who otherwise qualifies as an Affected Tenant if a Landlord can show any of the following circumstances apply thereby rendering the termination a "Just Cause Termination":

1. Nuisance Behavior. The Affected Tenant, after written notice to cease, continues to be so disorderly or to cause such a nuisance as to destroy the peace, quiet, comfort, or safety of the Landlord or other Tenants of the structure or rental complex containing the Rental Unit. Such nuisance or disorderly conduct includes violations of state and federal criminal law that destroy the peace, quiet, comfort, or safety of the Landlord or other Tenants of the structure or rental complex containing the Rental Unit, and may be further defined in the regulations adopted by the City, including but not limited to regulations established by ordinance or resolution.

2. Refusing Access to the Unit. The Affected Tenant, after written notice to cease and a reasonable time to cure, continues to refuse the Landlord reasonable access to the Rental Unit, so long as the Landlord is not abusing the right of access under California Civil Code Section 1954, as amended.

3. Unapproved Holdover Subtenant. The Affected Tenant holding over at the end of the term of the oral or written rental agreement is a subtenant who was not approved by the Landlord.

4. Ellis Act Removal. The Landlord seeks in good faith to recover possession of the Rental Unit to remove the building in which the Rental Unit is located permanently from the residential rental market under the Ellis Act and, having complied in full with the Ellis Act and any related ordinance of the City, including the provision of relocation assistance as may be required by applicable state law.

5. Owner Move-In. With respect to residential tenancies, the Landlord seeks in good faith, honest intent, and without ulterior motive to recover possession for: a) the Landlord's own use and occupancy as the Landlord's principal residence for a period of at least thirty-six (36) consecutive months commencing within three (3) months of vacancy; or (b) the principal residence of the Landlord's spouse, domestic partner, parent(s), child or children, brother(s), or sister(s) (each an "authorized family member") for a period of at least thirty-six (36) consecutive months and commencing within three (3) months of vacancy, so long as the Rental Unit for the Landlord's authorized family member is located in the same building as the Landlord's principal residence and no other Rental Unit in the building is vacant. It shall be a rebuttable presumption that the Landlord has acted in bad faith if the Landlord or the Landlord's qualified relative, for whom the Tenant was evicted, does not move into the Rental Unit within three (3) months from the date of the Tenant's surrender of possession of the premises or occupy said unit as his/her principal residence for a period of at least thirty-six (36) consecutive months. The Landlord shall have provided relocation assistance as may be required by the Cudahy Municipal Code or applicable state law.

6. Order to Vacate. The Landlord seeks in good faith to recover possession of the Rental Unit in order to comply with a court or governmental agency's order to vacate, order to comply, order to abate, or any other City enforcement action or order that necessitates the vacating of the building in which the Rental Unit is located as a result of a violation of the Cudahy Municipal Code or any other provision of law, and provides a notice of the right to reoccupy. The Landlord shall have provided relocation assistance as may be required by the Cudahy Municipal Code or applicable state law.

7. Vacation of Unpermitted Rental Unit. The Landlord seeks in good faith to recover possession of an unpermitted Rental Unit in order to end the unpermitted use. The Landlord shall have provided relocation assistance as may be required by the Cudahy Municipal Code or applicable state law.

8. Criminal Activity.

   a. The Tenant Household, after receiving a written notice to cure (which notice shall include the return provisions listed in subsection d, below) by removing the Violating Tenant (as defined below) from the household, and, where necessary, amending the lease to remove the Violating Tenant's name, fails to do so within a reasonable time, by one of the following methods as further described in the regulations:

      i. Filing a restraining order or providing evidence to the Landlord of similar steps being taken to remove the Violating Tenant from the household.

      ii. Removing the Violating Tenant from the household and providing written notice to the Landlord that the Violating Tenant has been removed.

   b. For purposes of this subsection 8, a "Violating Tenant" shall mean an adult Tenant that is indicted by a grand jury or held to answer pursuant to Penal Code Section 872, as amended, for a serious felony as defined by Penal Code Section 1192.7(c), as amended, or a violent felony as defined by Penal Code Section 667.5(c), as amended, which occurred during the tenancy and within 1,000 feet of the premises on which the Rental Unit is located.

   c. The past criminal history of a Tenant shall not be a factor in determining whether the Tenant is a Violating Tenant.

   d. If a Violating Tenant, as defined above, is acquitted from the charges or the charges are dismissed or reduced, he or she may return to the Rental Unit as a Tenant, so long as: 1) the Tenant Household still resides in the Rental Unit; and 2) the Tenant Household consents to the Violating Tenant's return.

B. Relocation Assistance and Deposits.

   1. Nothing in this Ordinance shall operate to relieve a Landlord to pay relocation assistance to Affected Tenants where required by applicable state law.

   2. Refund of Security Deposit. A Landlord shall refund to the Tenant Household any security deposit paid by the Tenant Household, provided however, that the Landlord may withhold any properly itemized deductions from the security deposit pursuant to California Civil Code Section 1950.5, as amended.

SECTION 7. Affirmative Defense to Eviction; Penalties and Remedies.

A. Affirmative Defense. Each Landlord that seeks to terminate a tenancy of an Affected Tenant must comply with this Ordinance. Non-compliance with any applicable component of this Ordinance shall constitute an affirmative defense

for an Affected Tenant against any unlawful detainer action under California Code of Civil Procedure Section 1161, as amended. To assert this defense and to establish Affected Tenant status, a Tenant shall have first notified the Landlord in writing before rent is due, or within a reasonable period of time afterwards not to exceed thirty (30) calendar days, that the Tenant needs to delay all or some payment of rent attributable to an inability to pay the full amount due to reasons related to the novel coronavirus (COVID-19) pandemic, including but not limited to the following:

1. The Tenant was unable to work because the Affected Tenant was sick with COVID-19 and hospitalized or otherwise required to stay at home and self-quarantine by written order of the Health Department, or the Affected Tenant was caring for a household or family member who was/is sick with COVID-19; or

2. The Tenant experienced a lay-off, work furlough, reduction in work hours or income reduction resulting from the COVID-19 pandemic and/or related emergency responses of governmental entities, including orders and/or declarations of the Governor of the State of California and the Health Department; or

3. The Tenant needed to miss work to care for a minor child whose school was closed in response to the COVID-19 pandemic and the Tenant was either ineligible to receive paid leave; unable to make use of accrued but unused paid vacation time or exhausted all such leave or vacation time before the minor's school was re-opened

B. Along with the notification referenced under paragraph A of this section, above, the Affected Tenant must also include true and correct copies of verifiable documentation that reasonably corroborate any or all of the permitted reasons for the non-payment of rent under paragraph A of this section, above. The following documentation shall create a rebuttable presumption that the Affected Tenant has satisfied one or more of the permitted reasons for non-payment of rent set forth under paragraph A of this section, above, but are not necessarily the exclusive form of documentation corroborating such reasons:

1. A written notice or like documentation from the Affected Tenant's employer citing COVID-19 as a reason for reduced work hours, work furlough, or termination; or

2. Employer paycheck stubs, payroll checks, bank statements, or medical bills or signed letters or statements from the Affected Tenant's employer or supervisor explaining the Affected Tenant's changed financial circumstances; or

3. Notification from a school declaring a school closure related to COVID-19

C. Civil Remedies

1. Any Landlord that fail(s) to comply with this Ordinance may be subject to civil proceedings for displacement of Affected Tenant(s) initiated by the City or the Affected Tenant Household for actual and exemplary damages.

2. Whoever is found to have violated this Ordinance shall be subject to appropriate injunctive relief and shall be liable for damages, costs and reasonable attorneys' fees.

3. Treble damages shall be awarded for a Landlord's willful failure to comply with the obligations established under this Ordinance.

4. Nothing herein shall be deemed to interfere with the right of a Landlord to file an action against a Tenant or non-Tenant third party for the damage done to said Landlord's property. Nothing herein is intended to limit the damages recoverable by any party through a private action.

SECTION 8. Repayment by Affected Tenant Following Expiration of Moratorium Period. Nothing in this Ordinance shall relieve a Residential Tenant of liability for any unpaid rent following the expiration of the Moratorium Period established under this Ordinance. The foregoing notwithstanding and except as otherwise agreed to in writing by the Affected Tenant and the Landlord, the Affected Tenant shall be given a period of six (6) months after Moratorium Period has expired to pay all rent sums that became due but were not paid by the Affected Tenant during the moratorium period established under the Ordinance or any extension thereto. During this six-month period for the repayment of unpaid back-rent, an Affected Tenant shall continue to be afforded the protections set forth under the Ordinance specific to the payment of rent sums that became during the moratorium period, but which were unpaid. A Landlord shall not assess and the Affected Tenant shall not be liable for the payment of any late fees or penalties for the delay in payment of rent sums that became due but which were unpaid by the Affected Tenant during the period of the moratorium established under the Ordinance or any extension thereto.

SECTION 9. Environmental. This Ordinance is exempt from the requirements of the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines, as it is not a "project" and has no potential to result in a direct or reasonably foreseeable indirect physical change to the environment. (Cal. Code Regs., tit.14, § 15378, subd. (a).) Further, this Ordinance is exempt from CEQA as there is no possibility that it or its implementation would have a significant negative effect on the environment. (Cal. Code Regs., tit.14, § 15061, subd. (b)(3).)

SECTION 10. Inconsistent Provisions. Any provision of the Cudahy Municipal Code or appendices thereto inconsistent with the provisions of this Ordinance, to the extent of such inconsistencies and no further, is hereby repealed or modified to the extent necessary to implement the provisions of this Ordinance.

SECTION 11. Severability. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or any part thereof, is for any reason held to be invalid or unconstitutional by a decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof, irrespective of

the fact that any one or more section, subsection, subdivision, paragraph, sentence, clause or phrase would be subsequently declared invalid or unconstitutional.

SECTION 12. Construction. The Ordinance is intended to supplement, not to duplicate or contradict, applicable state and federal law and this Ordinance shall be construed in light of that intent. To the extent the provisions of the Cudahy Municipal Code as amended by this Ordinance are substantially the same as the provisions of that Code as it read prior to the adoption of this Ordinance, those amended provisions shall be construed as continuations of the earlier provisions and not as new enactments.

SECTION 13. Publication and Effective Date. The Mayor shall sign, and the City Clerk shall attest to the passage of this Ordinance. The City Clerk shall cause the same to be published once in the official newspaper within fifteen (15) days after its adoption. This Ordinance shall become effective thirty (30) days after adoption.

PASSED, APPROVED AND ADOPTED by the City Council of the City of Cudahy at the regular meeting of this ___ day of September 2020.

_____
Elizabeth Alcantar
Mayor

ATTEST:

_____
Richard Iglesias
Assistant City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:
CITY OF CUDAHY)

I, Richard Iglesias, Assistant City Clerk of the City of Cudahy, hereby certify that the foregoing Ordinance No.710 was introduced for a first reading on the 1st day of September, 2020 and approved for a second reading and adopted by said Council at its regular meeting held on the _____ day of _____, 2020 by the following vote, to-wit:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____
Richard Iglesias
Assistant City Clerk

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Item Number
14A

STAFF REPORT

Date: September 15, 2020

To: Honorable Mayor/Chair and City Council/Agency Members

From: Henry Garcia, Interim City Manager/Executive Director
By: Salvador Lopez Jr., Interim Community Development Manager

Subject: **Appeal of the Planning Commission's decision to deny Development Review Permit No. 41-532 to allow the construction of a 67,148 square foot charter school located at 7801-7835 Otis Avenue (APN 6225-026-0201/002/003/013/014)**

RECOMMENDATION

The City Council is requested to:

1. Reverse the Planning Commission's decision and adopt Resolution No. 20-15, approving Development Review Permit No. 41-532 (DRP 41-532) to allow the design, site layout, and construction of a new 67,148 square foot sate of the art charter school; or

2. Uphold the Planning Commission's decision and deny the project.

BACKGROUND

1. At the February 24, 2020 Planning Commission Meeting, this project was considered by the Planning Commission. Staff provided an overview of the proposed development with a recommendation of approval. After public testimony in support and opposition, and questions of the applicant and staff, the Commission denied the project with a 3-1 vote.

2. On March 4, 2020, staff received a letter from the applicant's attorney appealing the decision of the Planning Commission's denial to the City Council (See Attachment C).

3. On May 21, 2020, staff received a letter outlining their subsequent grounds for their appeal (See Attachment D). In summary the letter provides the following reasons:

- The Project satisfies all the mandatory evaluation criteria identified in CMC section 20.84.210;
- The Planning Commission improperly denied the Project based on conclusions that are inconsistent with evidence in the record;
- The community concerns regarding environmental and traffic issues have been addressed in comprehensive technical reports prepared by subject matter experts;
- The Planning Commission improperly rejected a use permitted by-right on the Project Site; and
- The Planning Commission violated KIPP's due process rights by failing to provide a fair hearing.

Additionally, the applicant's appeal further asserts the following:

1. The Applicant Has Undertaken Substantial Efforts to Engage with the Community;
2. The Commission Violated the CMC by Failing to Evaluate or Consider the Required Findings for Design Review Permits as Required by Law;
3. The Planning Commission's Denial Is Not Supported by Evidence in the Record;
4. The Project May Not be Denied Solely Based on the Proposed By-Right Use of the Project Site; and
5. The Project Denial is a Violation of Applicant's Procedural Due Process Rights.

Attached to this report as Attachment E is a series of support letters (provided by the applicant) from Cudahy residents in support of the project.

Also attached to this report as Attachment F are 2 letters of opposition received by city staff.

4. On June 2, 2020, the project was scheduled for consideration by the city council. At that time, the city council motioned to table the item to a subsequent meeting and asked the applicant to consider having a workshop to solicit additional community input. In addition, the public hearing was open and limited comments to one minute. Approximately 70 individuals provided comment.

   See Attachment G, Minutes of the June 2, 2020 City Council Meeting.

5. On May 27, 2020 the applicant hosted the first virtual community workshop where they provided an overview of the project and provided the public with opportunities for live public questions and comment. The workshop was advertised locally and open to all members of the public including the City Councilmembers.

6. On September 3, 2020, the applicant hosted and facilitated a second virtual informational session. At this session, interested community members and stakeholders were provided an opportunity to ask questions and to learn more about the project. The Public Information Sessions were advertised locally, open to all members of the public, including City Councilmembers, and provided an opportunity for public engagement. In preparation

of the September 3rd session, the applicant solicited questions in advance in order to allow for a streamlined presentation and efficiently address additional comments and concerns.

ANALYSIS

PROJECT DESCRIPTION:

The subject property is located on an approximately 95,832 square foot (2.2 acres) lot located at 7801-7835 Otis Avenue in the City of Cudahy in the Low Density Residential (LDR) Zone. The site is currently vacant with demolition of the former Covert Iron Works and an auto shop already complete. The immediate area is developed with a mix of multi-family and single-family residential land uses, as well as Lugo Park and Recreation Center directly to the east.

The applicant, Etmny Cornejo, proposes to construct a 67,148 square foot elementary and middle charter school (Kipp Pueblo Unido School). According to the plans submitted to the city's Planning Division the development will consist of a single two-story structure with a subterranean parking garage. The building would house an elementary and middle school, including fifty classrooms, offices, bathrooms, multi-function rooms, and associated outdoor accessories like a basketball court and playground equipment. There are 99 parking spaces proposed for the site in order to fulfill the zoning code's requirement of one parking space for every classroom on site plus one for every employee.

Vehicular ingress to the Project's drop-off/pick-up area and subterranean parking garage will be provided via one driveway along the west side of Otis Avenue approximately midway between Olive Street and Elizabeth Street. The ingress driveway is proposed to accommodate right-turn vehicular ingress only (i.e., right-turn egress and left-turn ingress and egress movements will not be permitted). Signage on Otis Avenue prohibiting northbound left-turn ingress movements during drop-off/pick-up periods will be provided. Additionally, staff and parents/caregivers will be provided with information regarding the site access scheme prior to the start of the school year. Therefore, motorists destined to the Project will be aware of the right-turn only ingress operation at the Otis Avenue driveway and will plan their travel routes in advance so as to arrive at the Project site via southbound Otis Avenue. Traffic destined to the Project to drop-off or pick-up students will enter the proposed Otis Avenue ingress driveway, travel within the site in the proposed drop-off/pick-up lane, complete the student drop-off or pick-up, and then exit onto Olive Street via the proposed driveway at the northwesterly portion of the Project Site. Traffic destined to the Project to access the subterranean parking garage will enter the Otis Avenue driveway and travel down the ramp to the parking garage. Traffic departing the Project from the parking garage will travel up the ramp at the northwesterly portion of the Project Site and exit via the proposed Olive Street egress driveway.

Vehicular egress from the Project's drop-off/pick-up area, as well as from the subterranean parking garage, will be provided via one driveway along the south side of Olive Street, at the northwest portion of the Project Site. The Olive Street driveway is proposed to accommodate

vehicular egress movements only (i.e., left-turn and right-turn ingress movements are not permitted).

The proposed student drop-off/pick-up area destined to the Project to drop-off or pick-up students will enter the site via the proposed ingress driveway on Otis Avenue, travel within the site in the proposed drop-off/pick-up lane, complete the student drop-off or pick-up for Grades 5-8, continue northbound within the site in the proposed drop-off/ pick-up lane, complete the student drop-off or pick-up for Grades K-4, and then exit via the northwesterly driveway onto Olive Street. The proposed drop-off/pick-up lane can accommodate approximately 26 vehicles queued within the site. The proposed on-site drop-off/pick-up area lane is approximately 20 feet in width, which is sufficient to accommodate one lane of queued vehicles, plus a bypass lane to allow vehicles to bypass the queue should there be delay related to the passenger loading/unloading of one or more of the queued vehicles.

This configuration will provide efficient and safe ingress and egress from the site while maintaining less vehicular conflict points to both Otis and Olive Street. These driveways and additional emergency access as shown on the site plan have been reviewed and approved by the Los Angeles County Fire Department.

The project architecture is modern contemporary. Treatments incorporate a blend of contemporary and traditional architectural forms and details which include a flat façade, hip style roof, plaster walls, and articulated facades such as inset windows and doors, offset/projected wall features and recessed entryways. Proposed building colors incorporate an earth-tone palette with a dark grey smooth stucco finish, brown trims, and decorative veneers.

The buildings would be set back from the eastern side of the property by 15 feet, the rear setback by 20 feet, the western setback by 15 feet, and the front setback by 20 feet. A six-foot tall, ivy-covered, concrete-masonry-unit (CMU) wall would be constructed along the rear perimeter of the property. A preliminary landscape plan has been submitted showing landscape areas on the buildings' perimeter and in interior open space areas and within the front yard setback. A more detailed plan will be submitted with the formal plan check submittal. Project lighting would consist of security lighting and wall lights on the building perimeters, using LED fixtures. All lighting would be designed to avoid light spillage to neighboring properties.

A minimum number of on-site parking spaces is required for the property, based on the number of classrooms and employees. The table below identifies the number of spaces required by the zoning code.

Number of classrooms plus number of employees	Required parking spaces	Parking spaces provided
99	99	99

The applicant has provided a Traffic Impact Study (See Attachment G) analyzing the proposed development. This traffic impact analysis has been prepared to evaluate the potential impacts to the local street system. Twenty intersections were identified and analyzed in order to determine changes in operations following construction and occupancy of the proposed Project. Application of the impact threshold criteria consulted with the City of Cudahy indicate that none of the 20 study intersections would be significantly impacted by the forecast Project traffic. Incremental, but not significant, impacts are noted at the 20 study intersections evaluated in this analysis. As no significant impacts are expected due to the proposed Project, no traffic mitigation measures are required or recommended for the study intersections. A VMT assessment has been prepared in accordance with SB 743 for informational purposes. Based on available census and VMT data provided by Caltrans, the Project VMT is determined to be 35.97 miles per Employee.

General Plan and Zoning. The General Plan designates the site and surrounding area as "Low Density Residential" as noted above, the property's zoning is Low Density Residential (LDR). Table 1 below shows the project site and surrounding area's zoning and land uses.

Table 1
Zoning and Land Use

	ZONING	LAND USE
PROJECT SITE	LDR	Previously developed, rough graded
NORTH	LDR	Single-Family Residential
EAST	City Parks	Lugo Park
SOUTH	City Parks	Parklet
WEST	LDR	Single-Family Residential

The proposed project meets General Plan and Zoning standards for use (described above), building height, and front and side setbacks. Table 2 below compares the project's characteristics with development standards.

Table 2

Development Standards: Required vs. Proposed Project

	General Plan	Zoning	Density	Height	Setbacks	Min Floor Area	Parking
Required	LDR	LDR	15 du/acre maximum	2 stories; 35 feet	Front: 20 ft Side: 5/15 ft. Rear: 10 ft.	N/A	Greater than or equal to the number of classrooms plus employees (99)
Proposed	LDR	LDR	-	1 story	Front: 20 ft. Side: 15 ft. Rear: 10 ft.	N/A	99
Consistent?	**YES**	**YES**	**N/A**	**YES**	**YES**	**N/A**	**YES**

Table 2 shows that the proposed development complies strictly with all applicable development standards for development of the proposed use in the LDR zone, where applicable.

REQUIRED FINDINGS:

<u>DEVELOPMENT REVIEW PERMIT</u>

CMC § 20.84.210, Basis for Approval or Denial of a Development Review Permit.

- **20.84.210(a) The project is consistent with the City of Cudahy General Plan, any applicable specific plan, and any plan of another governmental agency made applicable by statue or ordinance.**

  Support for Finding: The project is compatible with the City of Cudahy's General Plan because it proposes a coherent development incidental to residential use in the Low-Density Residential zone.

- **20.84.210(b) The height, bulk, and other design features of structures are in proportion to the building site, and external features are balanced and unified to present a harmonious appearance.**

  Support for Finding: There is sufficient area in the 20-foot front setback for ample and dense landscaping, presenting a harmonious appearance with nearby residences and parks that also face the Otis Avenue. Accordingly, the project is consistent with the height, bulk, and other design features required by the City Zoning design guidelines and provides a unified and uniform appearance.

- **20.84.210(c) The project design contributes to the physical character of the community, relates harmoniously to existing and anticipated development in the vicinity, and is not monotonously repetitive in and of itself or in conjunction with neighboring uses and does not contribute to excessive variety among neighboring uses.**

  Support for Finding: The existing surrounding properties include single story and two-story single-family residents, a park, and a parklet. The proposed development includes features more consistent with residential and recreational areas, particularly when compared to the previous industrial uses on the site. The proposed surface articulations on the proposed structure itself, including trimmed windows, pop-out terraces etc., avoid monotonous repetition.

- **20.84.210(d) The site layout and the orientation and location of structures and their relationship to one another and to open spaces, parking areas, pedestrian walks, signs, illumination, and landscaping achieve safe, efficient, and harmonious development.**

  Support for Finding: The proposed site layout presents a balanced plan that relates to similar structures along Otis Avenue and surrounding streets. The development's orientation beyond the setback helps to screen the building's mass from the public right of way and adjacent properties. There are areas available for landscaping, including the front setback, the rear setback, the private open space and common areas. The driveway entrances permit good visibility along the length of the project interior and will have security lighting for safety.

- **20.84.210(e) The grading and site development show due regard for the qualities of the natural terrain and landscape and do not call for the indiscriminate destruction of trees, shrubs, and other natural features.**

  Support for Finding: The proposed development requires precise grading; the site is previously developed, graded, and the existing structures have been demolished. Some of the lot is currently dirt and does not contain any trees. However, the rest of the site is urbanized, flat and there is little evidence of "natural" terrain. There are no "natural" features on the site. Moreover, the project would add new landscaping, including trees and shrubs.

- **20.84.210(f) The design, lighting, and placement of signs are appropriately related to the structure and grounds and are in harmony with the general development of the site.**

  Support for Finding: The project will not have illuminated signage, with the exception for possible illuminated identifying address signs on the front elevation. That sign must meet CMC standards for property identification signs and the conditions of approval for the project, and thus would be in harmony with the general development of the site.

- **20.84.210(g) Mechanical equipment, machinery, trash, and other exterior service areas are screened or treated in a manner which is in harmony with the design of the structures and grounds.**

  Support for Finding: There are no proposed exterior mechanical equipment, machinery, or service areas except for the trash enclosures which are located behind decorative view obscuring doors to prevent stormwater runoff and to provide further screening and meets zoning code requirements for multi-family developments. Other mechanical equipment must comply with CMC design guidelines and Building Code standards, which require that all mechanical equipment, machinery, trash, and other exterior service areas be screened from public view.

- **20.84.210(h) The project shows proper consideration for adjacent residentially zoned or occupied property and does not adversely affect the character of such property.**

  Support for Finding: The proposed project would re-develop a site that was previously industrial and therefore not compatible with surrounding residential and park uses. By introducing new, up-to-date development in the form of a school with new landscaping, the project would improve the character of the adjacent properties and maintain or improve property value. The design is consistent with the City's General Plan and zoning designation, meets all development standards within the provisions of the Development Review Permit for the project, is compatible with the surrounding residential use, and will not adversely affect the value or quality of the neighborhood.

Additional Findings for Approval:

- **There are adequate provisions for public and emergency vehicle access, fire protection, sanitation, water, and public utilities and services to ensure that the proposed development would not be detrimental to public health and safety**.

  Support for Finding: Planning staff and the Los Angeles County Fire Department reviewed the site plan. With application of the conditions of approval, the proposed site plan complies with the City's Zoning Code and Fire Department requirements related to vehicle access, fire protection, sanitation, water, and public utilities and services.

CEQA (CALIFORNIA ENVIRONMENTAL QUALITY ACT):

In accordance with the provisions of the California Environmental Quality Act (CEQA), an environmental analysis has been completed for this case. As a result of that analysis, it has been determined that this case is exempt from the requirements of CEQA and no further environmental documentation will be required, pursuant to Article 18, Statutory Exemptions Section 15268, *Ministerial Projects*, of the California Environmental Quality Act.

FINANCIAL IMPACT

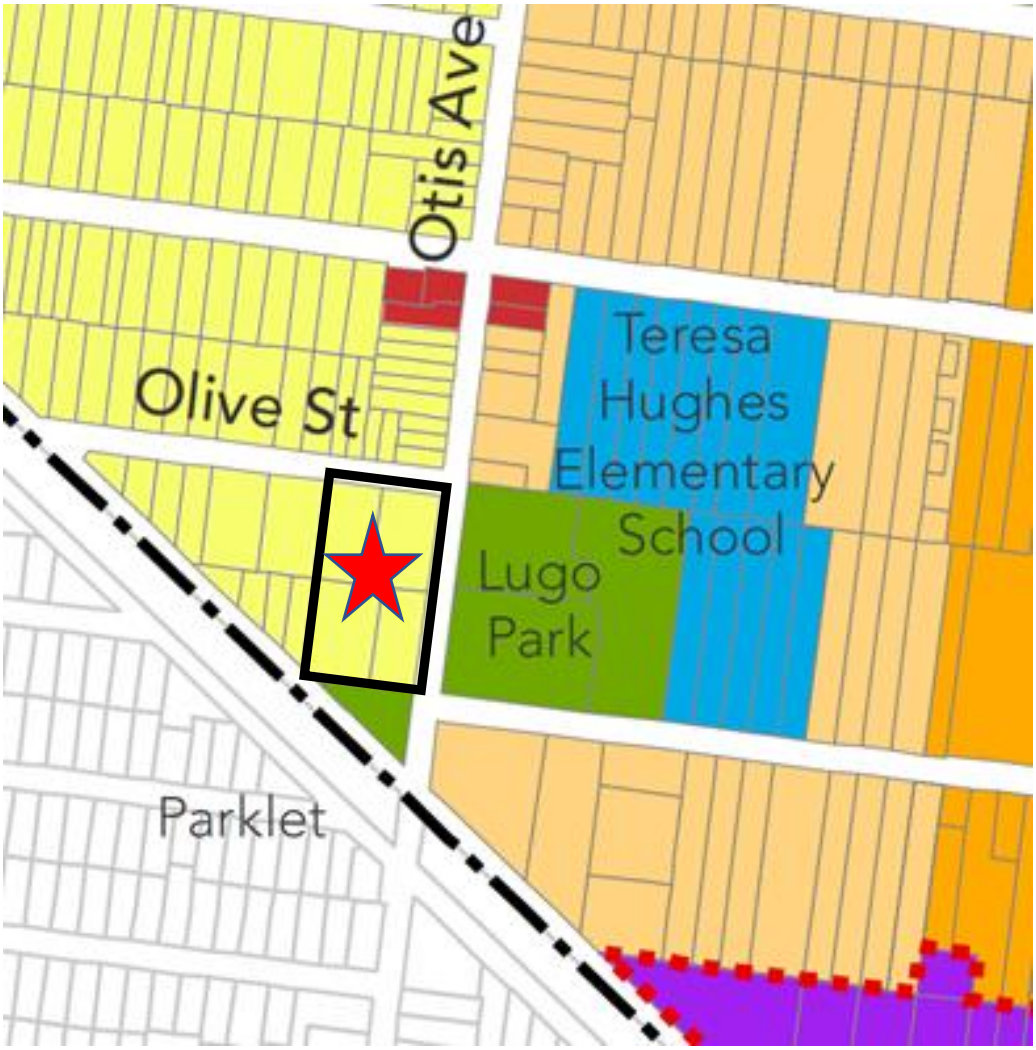
There will be no fiscal impact to the city's General Fund.

ATTACHMENTS

A. Location Map
B. Proposed Development Plans
C. Applicant's Appeal Letter
D. Applicant's Subsequent Appeal Letter
E. Letters of Support
F. Letter of Opposition
G. Minutes of the June 2, 2020 City Council Meeting
H. Traffic Impact Study
I. Resolution No. 20-15

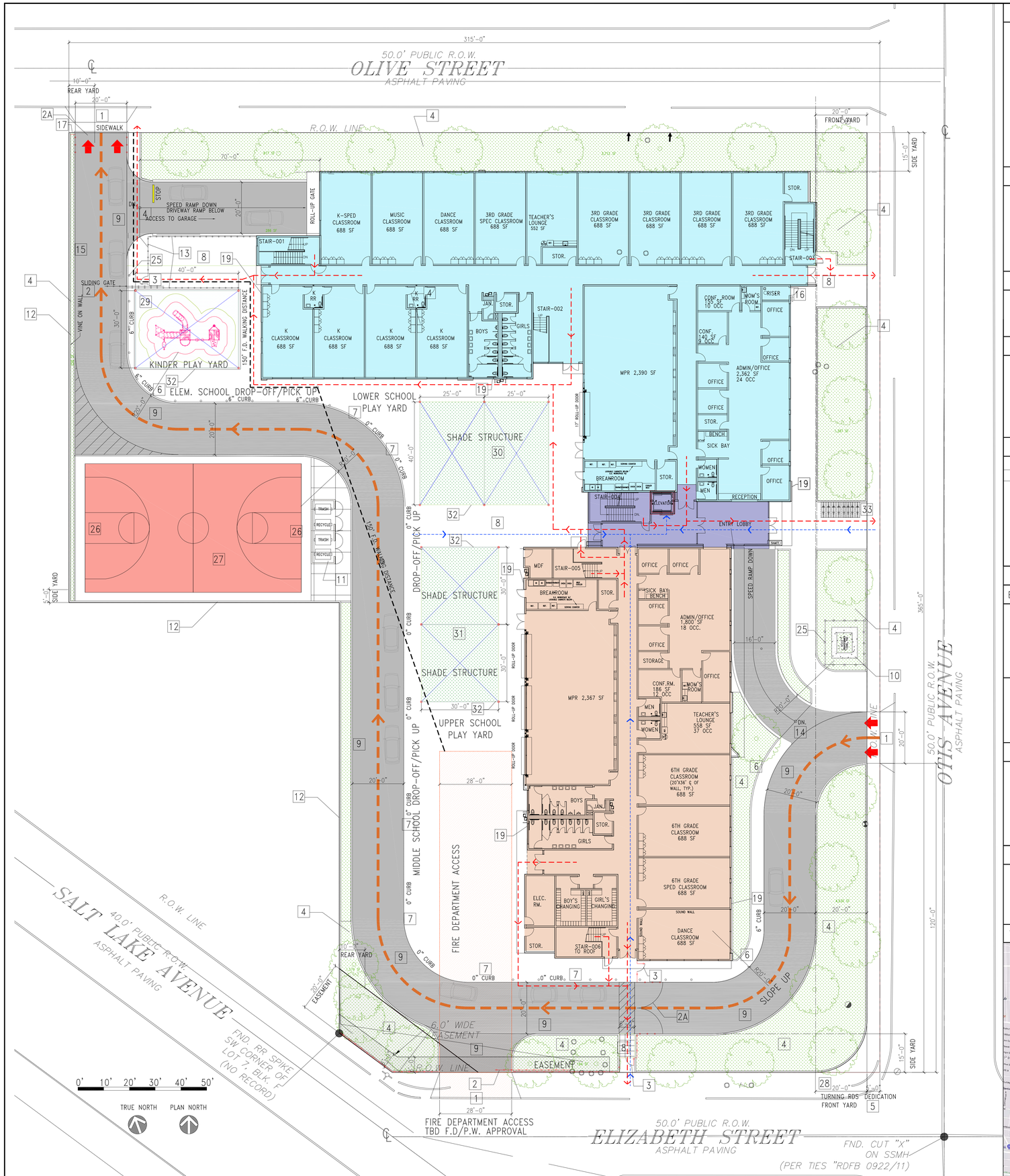
Attachment A

LOCATION MAP



7801 – 7835 Otis Avenue

Attachment B



1 ENLARGED SITE PLAN
SCALE: 1/16" = 1'-0"

PROJECT INFORMATION

PROJECT:	KIPP SCHOOL – OTIS AVE.
LOCATION:	7801–7835 OTIS AVE., CUDAHY, CA
BUILDING USE:	EDUCATION – K THRU 8TH GRADE (LOWER SCHOOL AND UPPER SCHOOL)
APPLICABLE CODES:	2016 CA BUILDING CODE (2016 CBC), 2016 CA ELECTRICAL CODE, 2016 CA MECHANICAL CODE, 2016 CA PLUMBING CODE, 2016 CA GREEN BUILDING STANDARD CODE, 2016 CA ENERGY CODE
OCCUPANCY:	E OCCUPANCY, A–3 AND B
CONSTRUCTION TYPE:	TYPE V–A, FULLY SPRINKLERED
ZONING:	LDR
BUILDING HEIGHT:	2–STORY, 31'–6" (HEIGHT LIMIT: 35' MAX.) WITH UNDERGROUND PARKING GARAGE (–12'–0")
FAR:	NONE

SCOPE OF WORK

TWO NEW 2–STORY CLASSROOM BUILDINGS AND SITE DEVELOPMENT FOR LOWER AND UPPER SCHOOL – K THRU. 8TH GRADE

INCLUDING: ONE FULLY–SPRINKLERED TWO–STORY BUILDING WITH BASEMENT PARKING GARAGE; 33 CLASSROOMS FOR K THRU. 5TH GRADES

ONE FULLY–SPRINKLERED TWO–STORY BUILDING; 17 CLASSROOMS FOR 6TH THRU. 8TH GRADES

LEGAL DESCRIPTION

REFER TO LEGAL DESCRIPTION ON ALTA SURVEY

SITE AREA SUMMARY

SITE PLAN SUMMARY

LOT AREA:	2.20 ACRES (95,832 SF)
TOTAL BUILDING AREA:	67,148 SF
FAR = 67,148 / 2.2 AC = 0.70	

BUILDING FLOOR AREA SUMMARY

BASEMENT AREA: 45,300 SF

ELEMENTARY SCHOOL (NORTH)	MIDDLE SCHOOL (SOUTH)
GROUND FLOOR AREA: 21,092 SF	GROUND FLOOR AREA: 12,667 SF
SECOND FLOOR AREA: 21,351 SF	SECOND FLOOR AREA: 12,482 SF
TOTAL BUILDING GROSS FLOOR AREA: 42,443 SF	TOTAL BUILDING GROSS FLOOR AREA: 25,149 SF

PARKING SUMMARY

BLDG 1: LOWER SCHOOL – K TO 5TH	BLDG 2: UPPER SCHOOL – 6TH TO 8TH
K–5TH SCHOOL REQ'D PARKING CALCULATION:	6TH–8TH SCHOOL REQ'D PARKING CALCULATION:
REQUIRED PARKING SPACES : 1 PER EMPLOYEE PLUS 1 PER CLASSROOM	REQUIRED PARKING SPACES : 1 PER EMPLOYEE PLUS
PARKING SPACE REQUIRED: 33 + 32(EMPLOYEES) = 65	PARKING SPACE REQUIRED: 17 + 17(EMPLOYEES) = 34
PARKING SPACE PROVIDED: 65	PARKING SPACE PROVIDED: 34

TOTAL PARKING SPACES REQUIRED FOR BOTH SCHOOLS: 99
TOTAL PARKING SPACES PROVIDED FOR BOTH SCHOOLS: 99

BIKE PARKING SUMMARY

BIKE PARKING SPACES REQUIRED: SHORT TERM: 8 FOR STUDENTS AND 4 FOR STAFFS (PER CAL GREEN CODE 5106.4.2.1 AND 5106.4.2.2)
LONG TERM: 5 (5% OF TENANT VEHICLE PARKING SPACES 5106.4.1.2)

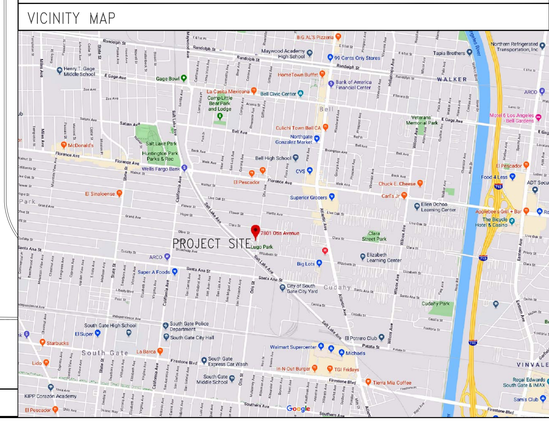
BIKE PARKING SPACES PROVIDED: SHORT TERM: 12
LONG TERM: 5

LANDSCAPE SUMMARY

LANDSCAPE AREA:

PROVIDED: 12,462 SF (12,462/95,832) = 13% OF THE LOT AREA)

VICINITY MAP



INDEX TO DRAWINGS

NUMBER	TITLE
A1.0	DRAWING INDEX, PROJECT INFORMATION & SITE PLAN
A0.1.1	ALTA SURVEY
A0.1.2	ALTA SURVEY
A2.0	FLOOR PLANS
A3.0	FLOOR PLANS
A4.0	BUILDING ELEVATIONS
A5.1	RENDERINGS
A5.2	RENDERINGS
C1.0	CIVIL CONCEPTUAL PLAN – BASEMENT
C2.0	CIVIL CONCEPTUAL PLAN – FIRST FLOOR
L1.0	LANDSCAPE CONCEPTUAL PLAN

LEGENDS

- PATH OF TRAVEL, LESS THAN 5% SLOPE UNLESS PROVIDE A RAMP AND CANNOT BE MORE THAN 2% CROSS SLOPE
- PATH OF EGRESS
- KB — FIRE DEPARTMENT ACCESS BOX BOX SHALL BE KNOX CO. MODEL 3502 COLOR: RED
- DROP–OFF/PICK–UP CIRCULATION
- LANDSCAPED AREA
- FIRE HYDRANT
- FLOOR LEVEL EXIT SIGN
- MIN. UNOBSTRUCTED WIDTH OF 28' FIRE DEPT. ACCESS TO WITHIN 150' OF ALL PORTION OF THE EXTERIOR WALLS OF THE 1ST STORY OF THE BUILDING

SITE KEY NOTES

1. NEW CONC. DRIVEWAY CURB–CUT, SEE CIVIL PLANS
2. NEW MOTORIZED SLIDING VEHICULAR GATE–SEE DOOR SCHEDULE
2A. NEW MOTORIZED SWING VEHICULAR GATE–SEE DOOR SCHEDULE
3. NEW W.I. ACCESSIBLE PEDESTRIAN GATE WITH PERFORATED PANEL & PANIC HARDWARE–SEE DOOR SCHEDULE
4. LANDSCAPE AREA, SEE LANDSCAPE PLAN
5. 5' DEDICATION ALONG OTIS AVE.
6. 6" CONCRETE CURB
7. 0" CURB
8. SCORED CONCRETE PAVING
9. ASPHALT CONC. PAVING
10. NEW TRANSFORMER, SEE ELECTRICAL PLANS
11. FULLY ENCLOSED TRASH ENCLOSURE W/STEEL GATES
12. 8'–0" HT. PROTO II WALL WITH GREY SPLIT–FACE BLOCK
13. 8' WROUGHT IRON FENCE, W/PERFORATED PANEL, NO MORE THAN 50% OF THE FACE IS OPEN
14. DRIVEWAY SLOPE UP TO ACHIEVE 0" CURB
15. DRIVEWAY SLOPE DOWN TO ACHIEVE 6" CURB
16. FDC LOCATION
17. ADD SIGN: "WRONG WAY. DO NOT ENTER,"
18. PROVIDE CONDUIT AND JUNCTION BOX FOR VOICE/INTERCOM /VIDEO SYSTEM – HFX–700M AT EXTERIOR ENTRY GATE.
19. INSTALL A HOSE BIB AT THIS LOCATION. REFER TO PLUMBING ENGINEERING PLANS FOR FURTHER INFO.
20. CONCRETE WHEEL STOP
21. DOUBLE STRIPING OF STALLS SHALL BE PER FIG.7 OF THE CITY OF LA BLDG. DEPT. STANDARDS
22. PAINT LETTERS "VISITOR" ON GROUND.
23. NO PARKING–IN 12" WHITE LETTERS
24. UPRIGHT DISABLED ACCESS PARKING SIGN
25. STANDARD 31"H STEEL BOLLARD INSTALLED 60" O.C. MFG: RELIANCE FOUNDRY CO. LTD. MODEL: R7835, INSTALLED BY ANCHOR CASTING
26. FIXED–HEIGHT PERMANENT PLAYGROUND BASKETBALL SYSTEM W/PERFORATED STEEL BACKBOARD GOAL AND POLE: STEEL FINISH: DARK BRONZE POWDER–COATED MANUFACTURER: SCHOOL OUTFITTERS – BISON SPORTS OR EQUAL
27. OUTDOOR PLAY AREA W/ BASKETBALL COURT
28. 20' RADIUS CURB AT CORNER – REQUIRED DEDICATION
29. RUBBERIZED SURFACE O/DEPRESSED CONCRETE SLAB W/DRAINAGE
30. TURF OVER DEPRESSED CONCRETE W/DRANAGE SYSTEM
31. TURF OVER DEPRESSED PERMEABLE CONCRETE
32. SHADE STRUCTURE(S)
33. SHORT TERM BIKE PARKING

FRANCO ARCHITECTS INC.
12345 Ventura Blvd. H
Studio City, CA 91604
Tel 818 754-2030
Fax 818 754-2032
Architecture and Planning

KIPP PUEBLO UNIDO SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	11/12/2019

PROJECT: KIPP PUEBLO UNIDO SCHOOL

PROJECT ADDRESS: 7801–7835 OTIS AVE., CUDAHY, CA

DRAWING TITLE: DRAWING INDEX, PROJECT INFORMATION & SITE PLAN

DRAWN BY:
ISSUE DATE: 2/14/2020
JOB NUMBER:
DRAWING SCALE:
APPROVED BY:

DRAWING NUMBER: A1.0

PARKING GARAGE

ACCESSORY SPACE

1-HR RATED EXIT ENCLOSURE AND ELEVATOR

TRUE NORTH PLAN NORTH

1 BASEMENT FLOOR PLAN
SCALE: 1/16" = 1'-0"

FRANCO ARCHITECTS INC.
12345 Ventura Blvd. H
Studio City, CA 91604
Tel 818 754-2030
Fax 818 754-2032
Architecture and Planning

KIPP PUEBLO UNIDO SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	11/12/2019

PROJECT
KIPP PUEBLO UNIDO SCHOOL

PROJECT ADDRESS:
7801-7835 OTIS AVE., CUDAHY, CA

DRAWING TITLE
BASEMENT FLOOR PLAN

DRAWN BY:
ISSUE DATE: 1/15/2020
JOB NUMBER:
DRAWING SCALE:
APPROVED BY:

DRAWING NUMBER
A2.0

1 FIRST FLOOR PLAN
SCALE: 1/16" = 1'-0"

2 SECOND FLOOR PLAN
SCALE: 1/16" = 1'-0"

FRANCO ARCHITECTS INC.
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Architecture and Planning

KIPP PUEBLO UNIDO SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	11/12/2019

PROJECT
KIPP PUEBLO UNIDO SCHOOL

PROJECT ADDRESS
7801-7835 OTIS AVE., CUDAHY, CA

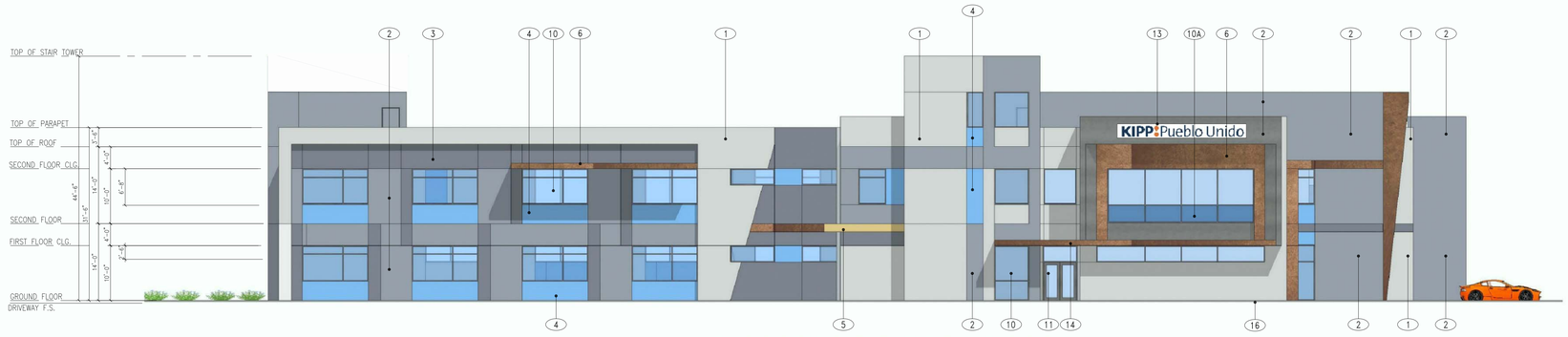
DRAWING TITLE
FLOOR PLANS

DRAWN BY:
ISSUE DATE: 1/15/2020
JOB NUMBER:
DRAWING SCALE:
APPROVED BY:
DRAWING NUMBER
A3.0

EAST ELEVATION

NORTH ELEVATION

WEST ELEVATION



SOUTH ELEVATION

LEGEND:

1. PTD. STUCCO O/LATH, O/WRB, O/5/8" EXTERIOR GYP. BD, O/EXT. PLYWOOD, O/ WOOD FRAMING
   STUCCO WALL – LA HABRA STUCCO
   FINISH – SMOOTH
   PAINT: DUNN EDWARDS
   COLOR– LIGHT GRAY, TBD
   ALL EXTERIOR STUCCO TO BE PAINTED WITH ELASTOMERIC 10 FLAT FINISH
   PRIOR TO APPLYING FINAL ACRIBOND FLAT PAINT COLOR.
   CONTRACTOR SHALL SUBMIT 8"X11" FINISH SAMPLE FOR APPROVAL
2. STUCCO: ACCENT PAINT– DUNN EDWARDS
   COLOR– MED. GRAY, TBD.
3. STUCCO: ACCENT PAINT– DUNN EDWARDS
   COLOR– DARK GRAY, TBD.
4. STUCCO: ACCENT COLOR– MED. BLUE, TBD.
5. STUCCO: ACCENT COLOR– YELLOW, TBD.
6. POWDER COATED ALUMINUM WALL PANEL
   RESEMBLE COR-TEN STEEL COLOR AND TEXTURE
7. 3/4" CLEAR ALUM. REVEAL/CONTROL JOINT, SEE 18/D1.0
8. OUTDOOR DRINKING FOUNTAIN: HYDRO-STATION
9. PROVIDE ANTI-GRAFFITI FINISH AT THE FIRST 9 FEET, MEASURED FROM GRADE, AT EXTERIOR WALLS AND DOORS. (6306)
   (PAINTED SURFACE – LARR #25601T, UNFINISHED SURFACE – LARR #25286T)
10.

    STOREFRONT GLASS WINDOW:
    1" LOW-E INSULATED TEMPERED DUAL GLAZED GLASS,
    2" X 4 1/2" CLEAR ALUMINUM STOREFRONT FRAME
    GLASS SPEC. – PPG VISTA COOL(2) AZURIA SOLORBAN 60
10A. STOREFRONT SPANDREL GLASS WINDOW:
    1" LOW-E INSULATED TEMPERED DUAL GLAZED GLASS,
    2" x 4 1/2" CLEAR ANODIZED ALUMINUM FRAME
    GLASS SPEC. – PPG VISTA COOL(2) AZURIA SOLORBAN 60
11. 6'-0" W X 7'-0" HT. PAIR OF STOREFRONT TEMPERED GLASS DOORS CLEAR ANODIZED ALUMINUM FRAME.
12. BUILDING ADDRESS – ALUMINUM LETTERS
    FONT & COLOR SPEC TO FOLLOW
13. SCHOOL LOGO/SIGN – 1/4" THK. STAINLESS STEEL LETTERS
    FONT & COLOR SPEC TO FOLLOW
14. CANOPY WITH PAINTED METAL GUTTER FASCIA
15. 42" GUARDRAIL (1-1/2 DIA GUARDRAIL ON TOP OF PARAPET)
16. GALVANIZED MTL. FLASHING AT BUILDING BASELINE, TYP. PAINTED
17. 20'-0" W. X 10'-0"HT.
    NON-RATED; MOTORIZED OVER HEAD DOOR
    SPEC: "RENLITA S-3000 FOLDAWAY" OR EQUAL

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KIPP PUEBLO UNIDO SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	11/12/2019

PROJECT: KIPP PUEBLO UNIDO SCHOOL

PROJECT ADDRESS: 7801-7835 OTIS AVE., CUDAHY, CA

DRAWING TITLE: BUILDING ELEVATIONS

DRAWN BY: | ISSUE DATE: 1/15/2020

JOB NUMBER: | DRAWING SCALE:

APPROVED BY:

DRAWING NUMBER: A4.0

1 ELEVATIONS
SCALE: 3/32" = 1'-0"

2 ELEVATION LEGENDS

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KIPP PUEBLO UNIDO SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	11/12/2019

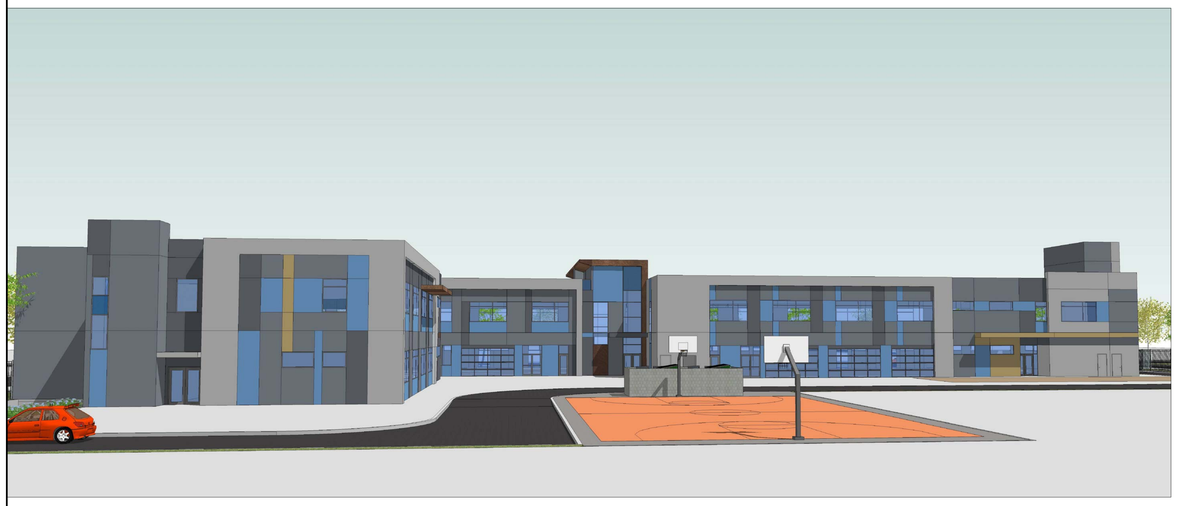
PROJECT
KIPP PUEBLO UNIDO SCHOOL

PROJECT ADDRESS
7801-7835 OTIS AVE., CUDAHY, CA

DRAWING TITLE
RENDERINGS

DRAWN BY:
ISSUE DATE 1/15/2020
JOB NUMBER
DRAWING SCALE
APPROVED BY:

DRAWING NUMBER
A5.1



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KIPP PUEBLO UNIDO SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	11/12/2019

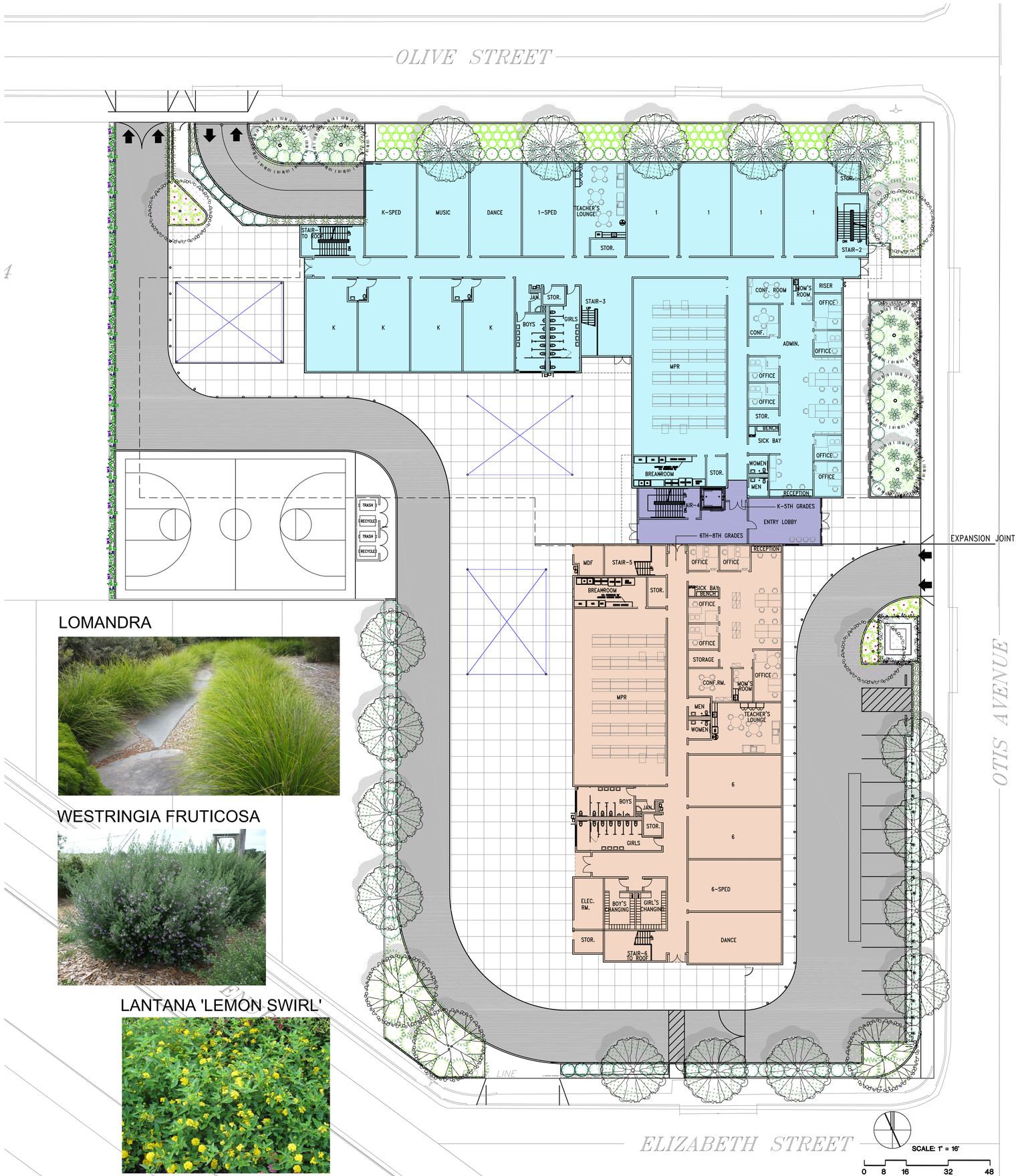
PROJECT
KIPP PUEBLO UNIDO SCHOOL

PROJECT ADDRESS:
7801–7835 OTIS AVE., CUDAHY, CA

DRAWING TITLE
RENDERINGS

DRAWN BY:
ISSUE DATE: 1/15/2020
JOB NUMBER
DRAWING SCALE
APPROVED BY:

DRAWING NUMBER
A5.2



PROPOSED PLANT MATERIAL

ACACIA STENOPHYLLA
SHOESTRING ACACIA
24" BOX STANDARD
LOW WATER USE

CHITALPA TASHKENTENSIS
24" BOX STANDARD
LOW WATER USE

RHUS LANCEA
AFRICAN SUMAC
36" BOX STANDARD
LOW WATER USE

TIPUANA TIPU
TIPU TREE
24" BOX STANDARD
LOW WATER USE

ANIGOZANTHOS Hy. 'HARMONY
HARMONY KANGAROO PAWS
5 GALLON – LOW WATER USE

AGAVE BLUE FLAME
BLUE FLAME AGAVE
15 GALLON – LOW WATER USE

CALLISTEMON VIMINALIS 'LITTLE JOHN'
DWARF BOTTLEBRUSH
5 GALLON – LOW WATER USE

CAREX DIVULSA (TUMULICOLA)
BERKELEY SEDGE
PLUGS 15" O.C – LOW WATER USE

DIANELLA CAERULEA 'SILVER STREAK'
VARIEGATED FLAX LILY
5 GALLON – MEDIUM LOW WATER USE

DIETES VEGETA 'VARIEGATA'
VARIEGATED BUTTERFLY LILY
5 GALLON – MEDIUM LOW WATER USE

LANTANA 'LEMON SWIRL'
HYBRID LANTANA
5 GALLON – LOW WATER USE

LOMANDRA TENAKA 'LONGIFOLIA'
BREEZE GRASS
1 GALLON – MEDIUM LOW WATER USE

MYRTUS COMMUNIS 'COMPACTA'
DWARF MYRTLE
15 GALLON – LOW WATER USE

OLEA EUROPAEA 'LITTLE OLLIE'
DWARF OLIVE
15 GALLON – LOW WATER USE

WESTRINGIA FRUTICOSA
COAST ROSEMARY
5 GALLON – LOW WATER USE

HARDENBERGIA VIOLACEA
LILAC VINE – TIE TO WALL
15 GALLON – LOW WATER USE

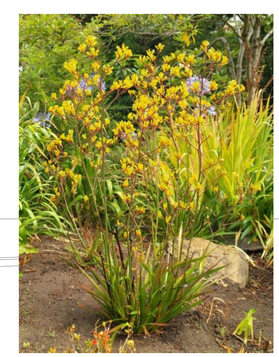
ACACIA STENOPHYLLA

RHUS LANCEA

CHITALPA TASHKENTENSIS

TIPUANA TIPU

HARDENBERGIA



ANIGOZANTHOS 'HARMONY'

LOMANDRA

WESTRINGIA FRUTICOSA

LANTANA 'LEMON SWIRL'

FRANCO ARCHITECTS INC.
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Tel 818 754-2030
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Architecture and Planning

CONSULTANT
CARTER ROMANEK
Landscape Architects, Inc.
28720 Roadside Drive, Suite 100
Agoura Hills, California 91301
(310)477-3300

KIPP SCHOOL

7801-7835 OTIS AVE., CUDAHY, CA

REV	DESCRIPTION	DATE
	PLANNING SUBMITTAL	10/31/2019

PROJECT: KIPP SCHOOL

PROJECT ADDRESS: 7801-7835 OTIS AVE., CUDAHY, CA

DRAWING TITLE: CONCEPTUAL LANDSCAPE PLAN

DRAWN BY:
ISSUE DATE: 10/22/2019
JOB NUMBER:
DRAWING SCALE:
APPROVED BY:

DRAWING NUMBER: L1.0

Attachment C

SheppardMullin

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Los Angeles, California 90071-1422
213.620.1780 main
213.620.1398 fax
www.sheppardmullin.com

213.617.5567 direct
afraijo@sheppardmullin.com

March 4, 2020

VIA HAND DELIVERY & E-MAIL

Richard Iglesias
City Clerk
City of Cudahy
5220 Santa Ana Street
Cudahy, CA 90201

Re: Initial Request for Appeal of Planning Commission's Denial of Development Review Permit No. 41-532

Dear Mr. Iglesias,

This firm represents KIPP Socal Public Schools ("KIPP") in connection with the development of a proposed two-story, 67,148-square-foot school facility for elementary school and middle school students (the "Project"). Etmny Cornejo of Franco Architects (the "Applicant") submitted the Project application on KIPP's behalf. The Project is located at 7801-7835 Otis Avenue ("Project Site") in the city of Cudahy ("City"). We submit this letter on behalf of KIPP to appeal the Cudahy Planning Commission's ("Commission") decision to deny the Project on February 24, 2020. We reserve the right to submit additional information prior to the City Council hearing on the appeal.

The Commission's denial of the Project occurred despite the fact that the Project meets all required criteria for approval. In a letter dated February 14, 2020, the Applicant received notification from the City that the Project had been reviewed by the Cudahy Community Development Department, and would be recommended for approval. In a staff report to the Commission dated February 24, 2020, Cudahy's Community Development Director, Salvador Lopez, also recommended that the Project be approved on the grounds that the Project complies with the evaluation criteria in Section 20.84.210 of the Cudahy Municipal Code ("CMC").

Notwithstanding recommendations from City staff, the Commission:

- Denied the Project based on conclusions that are inconsistent with evidence in the record;
- Failed to evaluate the mandatory evaluation criteria in CMC Section 20.84.210;
- Rejected a use permitted by right on the Project Site; and
- Violated KIPP's due process rights by failing to provide a fair hearing.

For these reasons, we respectfully appeal the Commission's February 24 denial of the Project as permitted by CMC Section 20.84.160 and request that Cudahy's City Council consider and approve the Project.

I. The Commission's Reasons for Denial are Not Supported by Evidence in the Record.

The Commission must approve an application for Design Review "based on findings and conclusions drawn from information and evidence presented at a public hearing." CMC § 20.84.210. However, the Commission improperly relied on general complaints from the public to draw cursory conclusions, even though many of these public complaints are unrelated to the Project or already addressed by experts in technical reports prepared at the behest of the Applicant. For example, the Commission did not evaluate or consider the Applicant's comprehensive traffic study, or the analysis of proposed soil remediation measures contained in the Phase I and Phase II reports. During the public hearing, the Commission cited generalized public complaints about traffic and environmental concerns as reasons for denying the Project without reference or comparison to technical evidence. For this reason, the Commission's reliance on the public concerns is not supported by the evidence in the record.

II. The Commission Violated the CMC by Failing to Evaluate or Consider the Required Findings for Design Review Permits as Required by Law.

The Commission must "approve any case which is in general accord with the [codified] principles and standards" in CMC Section 20.84.210, ("Evaluation Criteria"). The Evaluation Criteria include: (i) Consistency; (ii) Proportionality; (iii) Design; (iv) Site Layout; (v) Site Development; (vi) Signs; (vii) Equipment and Service Areas; and (viii) Compatibility. However, during the public hearing, the Commission failed to reference, evaluate, or make conclusions or findings regarding any of these Evaluation Criteria. Instead, the Commission improperly relied on public comment only to justify denial of the Project without providing a meaningful analysis of the Project or potential impacts based on the evidence in the record. Because the Commission's denial of the Project was improper and inconsistent with Cudahy's mandatory permit evaluation procedures, this appeal is required.

III. The Commission May Not Object to the Proposed Use at the Project Site.

The Commission may not object to the Project based on the proposed use as a school. The Project Site is zoned for "Low-Density Residential" uses, which include public elementary and secondary schools by right. CMC § 20.16-1. The Project is a public elementary school and middle school within the Low-Density Residential zone. Therefore, the Commission may not subsequently determine that the school is not an appropriate use on the Project Site where schools are permitted by right. For this reason, the Commission's evaluation of the use, and reliance on public objections to this use during the public hearing were improper.

IV. The Applicant Has Not Received a Fair Hearing, in Violation of Its Procedural Due Process Rights.

It is well established that procedural due process requirements are applicable to quasi-judicial proceedings like planning commission hearings. *Beck Development Co. v. Southern Pacific Transportation Co.* (1996) 44 Cal.App.4th 1160, 1188. The lynchpin of procedural due process is a fair hearing. *Nightlife Partners, Ltd. v. City of Beverly Hills* (2003) 108 Cal.App.4th 81, 90. ("Due process in an administrative hearing … demands an appearance of fairness.") Here, the public hearing cannot be classified as "fair" where there was no meaningful evaluation of the facts in the record, no findings or conclusions based on the evidence presented, and no reference to the Evaluation Criteria as required in the CMC. Furthermore, the Commission did not consult the City Attorney regarding its obligations to draw findings and conclusions based on the evidence in the record, even though this issue was raised during the Commission's deliberations. In addition, denying the Project without regard for the substantial amount of time, funding, and environmental analysis that KIPP has already invested in the Project (consistent with the advice and recommendations of Cudahy's planning staff) illustrate that Cudahy's mandatory evaluation procedures were violated in denying this Project.

For the reasons stated above, we respectfully appeal the Commission's decision and request that City Council consider the entire record and approve DRP No. 41-532. We reserve the right to provide additional legal foundation for appeal prior to the City Council hearing.

Sincerely,

Alfred Fraijo Jr.
for SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

SMRH:4843-7582-1750.7

cc: Kyle Salyer, KIPP
Etmny Cornejo, Franco Architects
Elizabeth Alcantar, Mayor
Jose Gonzalez, Vice Mayor
Jack Guerrero, Councilmember
Chris Garcia, Councilmember
Blanca Lozoya, Councilmember
Robert McMurry, City Attorney

Attachment D

SheppardMullin

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May 21, 2020

VIA US MAIL & E-MAIL

Richard Iglesias
City Clerk
City of Cudahy
5220 Santa Ana Street
Cudahy, CA 90201
Email: Cityclerk@cityofcudahyca.gov

Re: Supplemental Grounds for Appeal of Planning Commission's Denial of Development Review Permit No. 41-532

Dear Mr. Iglesias,

On behalf of our client KIPP SoCal Public Schools ("KIPP" or the "Applicant"[1]), we appreciate the opportunity to submit this correspondence in connection with the proposed development of a two-story, 67,148-square-foot charter transitional kindergarten through eighth-grade school facility (the "Project"). The Project is proposed to be sited on a 2.2-acre site located at 7801-7835 Otis Avenue[2] ("Project Site"), in the City of Cudahy ("City"). We respectfully submit this correspondence on behalf of KIPP as additional support for our appeal, dated March 4, 2020.

By way of background, on February 24, 2020, the Cudahy Planning Commission ("Planning Commission") denied the Project despite City staff's recommendation to approve and the evidence provided that the Project satisfies all applicable regulations and requirements contained in the Cudahy Municipal Code ("CMC"). Throughout Project processing, KIPP worked closely with the City to alleviate and address the concerns raised prior to and during the Planning Commission hearing, demonstrating the Project was subject to comprehensive review and analysis. In establishing itself as a community partner, KIPP has executed a comprehensive community outreach strategy and has further committed itself to substantial environmental cleanup of the Project Site.

For the following reasons, we respectfully request the Cudahy City Council ("City Council") reverse the Planning Commission's denial of the Project as permitted by CMC section 20.84.160 and approve the Project:

[1] Etmny Cornejo and Franco Architects submitted the application on behalf of KIPP and is listed as the "Applicant" on various Project application materials. As used herein, "Applicant" shall mean KIPP and any consultants acting on its behalf and at its direction, including Franco Architects, collectively.

[2] Assessor Parcel Numbers 6225-026-001, -002, -003, -013 and -014.

- The Project satisfies all of the mandatory evaluation criteria identified in CMC section 20.84.210;
- The Planning Commission improperly denied the Project based on conclusions that are inconsistent with evidence in the record;
- The community concerns regarding environmental and traffic issues have been addressed in comprehensive technical reports prepared by subject matter experts;
- The Planning Commission improperly rejected a use permitted by-right on the Project Site; and
- The Planning Commission violated KIPP's due process rights by failing to provide a fair hearing.

I. The Applicant Has Undertaken Substantial Efforts to Engage with the Community

Since the Planning Commission hearing, KIPP has prioritized its engagement efforts with the community to address misconceptions about the Project and its anticipated impacts. KIPP is dedicated to building relationships within the community and being a good neighbor. KIPP has reached out to the City Councilmembers, Mayor Alcantar, local residents, environmental organizations, educational organizations, and other stakeholders to encourage open conversation about KIPP's accessibility to the community as a public school, and how the Project will serve its students and the broader community. In addition, KIPP is collaborating with community members to coordinate a virtual town hall meeting to ensure that information and opportunities to ask questions are made available to the public in light of gathering restrictions due to the COVID-19 pandemic. The town hall meeting is scheduled for May 27, 2020.

II. The Commission Violated the CMC by Failing to Evaluate or Consider the Required Findings for Design Review Permits as Required by Law.

Section 20.84.210 of the CMC requires the Planning Commission to "approve any case which is in general accord with the [codified] principles and standards" in the CMC ("Evaluation Criteria"). The identified Evaluation Criteria include: (i) Consistency; (ii) Proportionality; (iii) Design; (iv) Site Layout; (v) Site Development; (vi) Signs; (vii) Equipment and Service Areas; and (viii) Compatibility. As demonstrated in the February 24, 2020 comprehensive staff report to the Planning Commission ("Staff Report"), and as described in more detail below, the Project satisfies each of the Evaluation Criteria.

A. The Project Meets All Consistency Requirements.

A project meets consistency requirements if it complies "with the general plan, any applicable specific plan,[3] all applicable provisions of this zoning code, all other City ordinances and regulations, and any plan of another governmental agency made applicable by statute or

[3] Because the Project Site is not subject to a Specific Plan, the Consistency analysis is limited to the applicable General Plan and zoning requirements.

ordinance." (CMC § 20.84.210.) As required by the Evaluation Criteria, the Project is consistent with all applicable land use plans and related regulations.

The Project Site is designated "Low-Density Residential" in the City of Cudahy General Plan[4] ("General Plan") and is zoned "Low-Density Residential". As discussed, the proposed school use is permitted by-right in the Low-Density Residential zone. (CMC § 20.16.020, Table 20.16-1.) The Project is consistent with the Land Use Element policies of the General Plan, which includes "integrating schools, … community centers, infrastructure, green spaces and parks … into each neighborhood."[5] In addition, the Project is consistent with the guiding principles of the General Plan, which include: (i) fostering Cudahy's family-oriented values; and (ii) protecting and enhancing community health and the environment.[6] The Project will provide exceptional educational opportunities for local families and residents adjacent to a serene park setting. Moreover, the Project includes substantial soil removal and remediation of existing soil contamination on the Project Site, as part of KIPP's dedication to responsible stewardship of the property and to the safety of the broader community.

The Project, as proposed, will consist of a single two-story structure with a subterranean parking garage. The building would house an elementary and middle school, including fifty (50) classrooms, offices, bathrooms, multi-function rooms, and associated outdoor accessories like a basketball court and playground equipment. The Project will include ninety-nine (99) parking spaces in order to fulfill the zoning code's requirement of one parking space for every classroom on the Project Site, plus one for every employee. The Project buildings would include the following setbacks: (i) side-yard setbacks – (15) feet; (ii) rear setback – ten (10) feet; and (iii) front setback – twenty (20) feet. An eight-foot tall, ivy-covered, concrete-masonry-unit wall would be constructed along the rear perimeter of the Project Site. A preliminary landscape plan has been submitted showing landscape areas on the buildings' perimeter and in interior open space areas and within the front yard setback. A more detailed plan will be submitted with the formal plan check submittal. Project lighting would consist of security lighting and wall lights on the building perimeters, using LED fixtures. All lighting would be designed to avoid light spillage to neighboring properties. As evidenced in the table below, the Project will comply with the applicable development standards. (CMC § 20.16.030, Table 20.16-2.)

---

[4] *City of Cudahy General Plan, Land Use Element*, Exhibit LU-4 (*General Plan*).
[5] *General Plan*, Land Use Element, Policy LUE 6.1.
[6] *General Plan*, pg. I-8-I-9.

Development Standards: Required vs. Proposed Project

	General Plan	Zoning	Residential Density	Height Limit	Min Floor Area	Parking
Required	LDR	LDR	15 du /acre maximum	2 Stories; 35 feet	N/A	99
Proposed	LDR	LDR	--	2 stories; 33 feet, 6 inches	N/A	99
Consistent	Yes	Yes	N/A	Yes	Yes	Yes

Therefore, it is our position, as confirmed by City staff, the Project complies with the General Plan, the City zoning code and applicable development regulations in the CMC.

B. The Project Meets All Proportionality Requirements.

Proportionality is evaluated by determining that "the height, bulk, and other design features of structures are in proportion to the building site, and external features are balanced and unified so as to present a harmonious appearance." (CMC § 20.84.210(B).) The properties surrounding the Project Site include Lugo Park, a parklet at the corner of Elizabeth Street and Otis Avenue, Teresa Hughes Elementary School, and single-story and two-story single-family residences. The proposed development includes features more consistent with the residential and recreational areas, particularly when compared to the previous industrial uses onsite.

The Project's two-story school building, with an average height of 33 feet, 6 inches, is compatible with the surrounding residential neighborhood in mass, character, and use. The Project will utilize color blocks (gray and school accent colors) to add rhythms and interest around the windows, as well as rustic metal panels on the façade to add warmth and contemporary characters to the architecture. The colors, rhythms, and patterns on the façade will have the effect of reducing the large institutional scale to a more residential scale, while presenting an intriguing yet friendly image that is harmonious with the scale of surrounding properties. The 38-foot tall entrance hall connecting the elementary and middle schools provides a light-filled focal point to complement the façade facing Otis Avenue. The Project also includes a 20-foot front setback to create ample and dense landscaping. This additional landscaping and greenspace will create continuity with nearby properties.

The proposed Project layout presents a balanced plan that relates to similar structures along Otis Avenue and surrounding streets. The development's orientation beyond the setback assists in screening the building from the public right-of-way and adjacent properties. In the context of the surrounding neighborhood, these elements create an aesthetically-balanced design.

In summary, the Project would re-develop a site that was previously industrial, and incompatible with surrounding residential and park uses. By introducing new and updated development with improved landscaping, the Project will enhance the characters of the adjacent properties and maintain or improve property value due to its proportionality to the surrounding uses and buildings.

C. The Project Meets All Design Requirements.

Compliance with the Design factor of the Evaluation Criteria requires that "the project design contributes to the physical character of the community, relates harmoniously to existing and anticipated development in the vicinity, and is not monotonously repetitive in and of itself or in conjunction with neighboring uses, and does not contribute to excessive variety among neighboring uses." (CMC § 20.84.210(C).) As discussed above, the Project is a desirable, family-oriented addition to the community which complements the mixed-use nature of the surrounding neighborhood. As described in more detail in Section I(B), *supra*, the proposed charter school harmonizes with these existing uses. The Project's design is consistent with the General Plan and zoning designation, meets all the development standards within the provisions of the Development Review Permit, compatible with the surrounding residential use, and will not adversely affect the value or quality of the neighborhood.

D. The Project Meets All Site Layout Requirements.

Site Layout mean that the "the orientation and location of structures and their relationship to one another and to open spaces, parking areas, pedestrian walks, signs, illumination, and landscaping achieve safe, efficient, and harmonious development." (CMC § 20.84.210(D).) The proposed Project layout presents a balanced plan that relates to similar structures along Otis Avenue and surrounding streets. The development's orientation beyond the setback assists in screening the building from the public right-of-way and adjacent properties. As discussed in Section I(A), the Project is similar to nearby related structures in mass, character, and use. For example, the nearby Teresa Hughes Elementary School, which serves kindergarten through sixth grade students, is multiple stories. The adjacent Lugo Park Community Center is similar in layout, and provides a soccer field and other opportunities for recreation to the community.

The Project's school buildings are situated along Otis Avenue and Olive Street, with an underground parking garage and limited street parking on the east side of the building along Otis Avenue for visitor parking. The school playground is on the west of the building, away from traffic. The Project implements a longer queuing route to relieve traffic on Otis Avenue by entering the school site on Otis Avenue and exiting on Olive Street. The location of the

driveways have been vetted for safety and accepted by the Los Angeles County Fire Department ("LACFD"). Signage will be placed on the building facing Otis Avenue, Olive Street and Elizabeth Street to assist with queueing and traffic. The Project will also include landscape buffers along Otis Avenue, Olive Street and Elizabeth Street, as opposed to fences, to maintain existing aesthetics and provide a pedestrian friendly area compatible with surrounding residential neighborhood. All exterior walls will be illuminated by wall scones. Project open space will be illuminated by appropriate landscape lighting, and parking and play area will have light poles shielded to prevent spillover into residential properties.

E. The Project Meets All Site Development Requirements.

The "Site Development" factor of the Evaluation Criteria requires that "the grading and site development show due regard for the qualities of the natural terrain and landscape and do not call for the indiscriminate destruction of trees, shrubs, and other natural features." (CMC § 20.84.210(E).) The proposed development requires precise grading as the Project Site was previously flat, paved, and used for industrial purposes. The existing structures have since been demolished and the Project Site currently has very limited natural terrain with no natural features onsite. As disused in Section I(A), *supra*, the Project includes generous front and rear setbacks to incorporate additional landscaping that will include shrubs and trees. More specifically, the Project reserves thirteen percent (13%) of the Project Site for landscaping to provide screening for adjacent properties and to tie green spaces to adjacent maintained open spaces. The Project's landscaping has been designed to create a welcoming, green environment for future students, and a pleasing aesthetic for the community.

F. The Project Meets All Requirements for Signage.

The CMC requires that "the design, lighting, and placement of signs are appropriately related to the structure and grounds and are in harmony with the general development of the site." (CMC § 20.84.210(F).) The only illuminated signage for the Project is an address sign which was designed to harmonize with the scale and modern aesthetic of the school. The address signage as proposed is compliant with all CMC standards and proportionate with the development.

G. The Project Meets All Requirements for Equipment and Service Areas.

The CMC requires that "mechanical equipment, machinery, trash, and other exterior service areas are screened or treated in a manner that is in harmony with the design of the structures and grounds." (CMC § 20.84.210(G).) The Project's trash enclosures will be screened behind decorative doors designed to complement the school facility to keep the trash areas hidden from view. The Project does not include any other exterior mechanical equipment, machinery, or service areas.

H. The Project Meets All Compatibility Requirements.

To satisfy compatibility requirements, a project must demonstrate "proper consideration for adjacent residentially zoned or occupied property and … not adversely affect the character of such property." (CMC § 20.84.210(H).) The Project provides substantial environmental benefits to the community, and will improve the character of the Project Site and surrounding parcels. The Project Site was formerly used as an iron works facility and mechanic shop, and is currently vacant. As part of the Applicant's due diligence for the Project, testing on the Project Site revealed evidence of existing soil contamination. The Applicant has already commenced clean-up of the Project Site in accordance with all applicable regulations. For this reason, the Project will result in improved environmental conditions for the surrounding community, which is essential for sensitive segments of the population, such as children and the elderly. In addition, the Project is a charter school open to the public, which will serve the surrounding residences with elementary and middle-school-aged children. Thus, the Project will improve the character of the Project Site and through it, the property values and character of surrounding properties.

Because the Project complies with all of the Evaluation Criteria described above and adds tangible community benefits, it is our position the Development Review Permit should have been approved. It is our position that the decision to deny the Project application failed to take into consideration the applicable Evaluation Criteria, or the evidence and materials presented during the public hearing. Without the consideration of these City-mandated standards, the decision to deny the Project is inconsistent with the CMC and mandatory hearing procedures. Specifically, as noted in our prior correspondence, public comment was improperly utilized to justify denial of the Project. Reliance on non-expert and unsupported testimony resulted in an insufficient analysis of the Project based on the evidence in the record. Because of the substantial evidence demonstrating the Project's compliance with the Evaluation Criteria, we respectfully request that City Council reverse the Planning Commission's decision and approve the Project as proposed.

III. <u>The Planning Commission's Denial Is Not Supported by Evidence in the Record.</u>

The Planning Commission is required to issue a determination on an application for Design Review "based on findings and conclusions drawn from information and evidence presented at a public hearing." (CMC § 20.84.210.) However, here, general public comments regarding unsubstantiated environmental and traffic concerns formed the basis of the Project denial, despite the fact this testimony was rooted in a lack of understanding of plausible impacts when it denied the Project. Many of the public comments relating to environmental and traffic concerns have been previously addressed by experts at length in these technical reports. Other comments are wholly unrelated to the Project. (*Jensen v. City of Santa Rosa* (2018) 23 Cal.App.5th 877, 894 [Interpretation of technical or scientific information requires an expert evaluation. Testimony by members of the public on such issues does not qualify as evidence.].)[7]

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[7] See also, *Joshua Tree Downtown Bus. Alliance v. County of San Bernardino* (2016) 1 Cal.App.5th 677, 691 (attorney who was also business owner was not qualified to give opinion on whether project would have adverse economic impact causing urban decay); *Porterville Citizens for Responsible Hillside Dev. v. City of Porterville*

The safety and well-being of the students, and of the surrounding community is a top priority for KIPP. As demonstrated by the Phase I and Phase II environmental site assessment reports (collectively, "ESAs"), and the comprehensive traffic study, KIPP has gone above and beyond what is required to ensure that the Project Site will provide a safe environment for students and the community at large.

A. Environmental Concerns.

The denial of the Project cited the public concerns regarding soil contamination on the Project Site as a justification. However, this denial failed to consider, evaluate, or reference the extensive environmental investigations that have already been conducted on the Project Site during the ESA-related evaluations. Prior to the Planning Commission hearing, KIPP had completed substantial clean up and remediation of the Project Site in connection with the recommendations in the ESAs, including demolition and removal of the two existing structures on the property, removal of two large underground storage tanks. In connection with Project preparation, KIPP has removed approximately 50 cubic yards of soil from the Project Site. The Project Site fully conforms to State environmental standards for use as a public school. However, the denial did not consider the current status of the Project Site, or scope of soil remediation and other measures previously completed on the Project Site in anticipation of ultimate development. Instead, the denial relied on the unsupported environmental fears, notwithstanding the expert opinion and the obvious benefits of privately-funded site cleanup to the community as a whole. For this reason, the denial's dependence on the public's vague environmental concerns was inappropriate and is not substantiated by the evidence in the record.

B. Traffic Concerns.

Similarly, the denial improperly relied on public concerns regarding traffic without considering the evidence in the Applicant's comprehensive traffic study. This traffic study was made available to both the Planning Commission and the public, and included an in-depth analysis of twenty (20) intersections adjacent to the Project Site, including locations in the City, and the neighboring cities of Bell, Huntington Park, and South Gate. The study locations were evaluated using the Highway Capacity Manual ("HCM 2010") method of analysis in accordance with City directive. Based on this review, the traffic study indicates that although some of the twenty (20) intersections would experience incremental traffic increases, *none of the intersections would be significantly impacted by the Project*. Because no significant impacts are expected due to the proposed Project, no traffic mitigation measures were recommended in the traffic study. In addition, the driveways for student pick-up and drop-off, as well as additional

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(2007) 157 Cal.App.4th 885, 907 (neighbors' general concerns about erosion and drainage were not substantial evidence because neighbors had no demonstrated expertise in those subject matters); *Bowman v. City of Berkeley* (2004) 122 Cal.App.4th 572, 583 (neighbors' "lay reading" of technical report on hazardous material contamination was not substantial evidence because neighbors did not show expertise that would qualify them to interpret report); *Pala Band of Mission Indians .v County of San Diego* (1998) 68 Cal.App.4th 556, 580 (attorney's comment consisting of argument and opinion did not qualify as substantial evidence).

emergency access points, were reviewed and accepted by the LACFD.[8] The Project also features staggered pick-up and drop-off times for students, space for queuing at least sixty-six (66) vehicles onsite, space for onsite overflow parking, and valet parking during events to further reduce traffic concerns related to the Project. However, the traffic study or these project features were not discussed during the hearing. For these reasons, the Project denial's reliance on general public grievances related to traffic were inappropriate and are not supported by evidence in the record.

IV. The Project May Not be Denied Solely Based on the Proposed By-Right Use of the Project Site.

It is our position, the Project may not be denied solely based on the proposed use as a school. The Project Site is zoned for "Low-Density Residential" uses, which include public elementary and secondary schools as "by right" uses. (CMC § 20.16-1.) The Project is a public elementary school and middle school within the Low-Density Residential zone. Therefore, the any denial of the Project may not premised on the determination that the school is not an appropriate use on the Project Site. For this reason, the evaluation of the use, and reliance on public objections to this use during the public hearing were improper.

V. The Project Denial is a Violation of Applicant's Procedural Due Process Rights.

It is well established that procedural due process requirements are applicable to quasi-judicial proceedings like planning commission hearings. (*Beck Dev. Co. v. S. Pac. Trans. Co.* (1996) 44 Cal.App.4th 1160, 1188.) The lynchpin of procedural due process is a fair hearing. (*Nightlife Partners, Ltd. v. City of Beverly Hills* (2003) 108 Cal.App.4th 81, 90 ["Due process in an administrative hearing … demands an appearance of fairness."].) Here, the public hearing cannot be classified as "fair" where the Project denial is not based on meaningful evaluation of the facts in the record, no findings or conclusions based on the evidence presented and no reference to the Evaluation Criteria as required in the CMC. Furthermore, the City Attorney was not consulted regarding its obligations to draw findings and conclusions based on the evidence in the record, even though this issue was raised during the Planning Commission's deliberations. In addition, denying the Project without regard for the substantial amount of time, funding, and environmental analysis that KIPP has already invested in the Project (consistent with the advice and recommendations of City's planning staff) illustrate that the City's mandatory evaluation procedures were violated in the denial of this Project.

VI. Conclusion.

For the foregoing reasons, we respectfully request that the City Council reverse the Planning Commission's decision and consider the entire record and approve the Project entitlements. Please do not hesitate to contact the undersigned with any questions, concerns or

[8] February 24, 2020 Staff Report*: Design Review Permit 41-532*, pg. 2.

comments related to this Project, the application materials, or the contents of this correspondence. We reserve the right to supplement our appeal with additional materials.

Sincerely,

Alfred Fraijo Jr.
for SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

SMRH:4838-1867-3341.4

cc: Kyle Salyer, KIPP
Etmny Cornejo, Franco Architects
Salvador Lopez, Director of Community Development
Elizabeth Alcantar, Mayor
Jose Gonzalez, Vice Mayor
Jack Guerrero, Councilmember
Chris Garcia, Councilmember
Blanca Lozoya, Councilmember
Victor Ponto, City Attorney

Attachment E

Dear City Council Member,

My name is Rosemary, my daughter is in kindergarten and we are Cudahy residents. I am writing this letter in support of the new campus for KIPP Pueblo Unido in the city of Cudahy. Although I have two local schools that are walking distance from our home, I chose to enroll my daughter at KIPP Pueblo Unido in the city of Maywood.

After I attended their family orientation and met their staff who took the time to go over their educational curriculum, I was convinced and I enrolled my daughter at KIPP. It was the best decision I ever made!

Being a charter school parent is different for me. I attended public schools when I was a student but seeing the learning environment at KIPP encouraged me to become a KIPP parent.

At KIPP, the staff works hard to provide a high-quality learning experience that is nourishing for every student. School administrators also go out of their way to get to know their students. Every day, students are greeted at the door by their principal. Growing up, students who “misbehaved” were sent to the principal's office. As a result, those were the only students the principal knew on a first-name basis. At KIPP misbehavior is not a standard used to get to know students and their families.

When it comes to my daughter's academic curriculum my daughter's kindergarten learning includes a rigorous math and reading program. Within months of starting at KIPP, my daughter learned to add and subtract. At times she can solve math problems by just looking at the question. Currently, she reads at a first-grade reading level. I credit her teacher for taking the time to elevate every student in her class. Her teacher also sends unique reading and math learning packets to our home that ensure Rosemary is on track to hit her learning marks.

At Pueblo Unido, teachers and school administrators are accessible at all times. Our school has an app that helps families communicate with educators during non-school hours. Knowing that her teacher and school staff is always available is one of the many reasons why Rosemary feels supported and loved at KIPP.

As a proud community resident and parent, I ask that you take into account the positive impact that Pueblo Unido is already making in our great City. I hope you’ll join our family in supporting our school. Thank you for your time.

Respectfully,

Rosemary Moreno
[redacted]

April 8, 2020

Cudahy City Council
5220 Santa Ana St
Cudahy, CA 90201

Subject: Support for Kipp Pueblo Unido in the City of Cudahy

Dear School Board Member,

My name is Randy Espinoza, I am Luna Espinoza's father. Luna is a current kindergartener at KIPP Pueblo Unido. The reason I am writing this letter is to show support for the new campus project in the city of Cudahy.

When Luna was graduating from preschool I was worried about choosing the right school for my daughter. My wife and I searched for a school that had a great academic program and held it's students to high standards. Thankfully we found a home at KIPP Pueblo Unido.

Pueblo Unido, United People that's the translation of our school's name and is the exact representation of what it means to be part of our school community. Our students and educators are a community that works together to ensure our children have the right tools to succeed. As a united community we celebrate our student's hard work and civic accomplishments. Students who exemplify good citizenship traits are recognized at our "juntas". This is especially important because early on students learn the importance of being part of a larger community.

At only five years old, Luna is already reading and excelling in math. Besides her newly found love for adding and subtracting, Luna recently discovered her passion for music. At KIPP Luna gets to participate in music class. Seeing Luna excelling in her schoolwork and personal interests is another reason why we are proud to be KIPP parents.

As a parent and a resident of the City of Cudahy, I ask that you support the relocation of our existing school into our community. Thank you for your time and support!

Sincerely,

Randy Espinoza
[redacted]

My name is Maricela. I am a proud parent and mother of a Kippsters, Sofia Bella Castrejon.

When looking for schools that would encourage Sofia's curiosity I came across a few schools. After meeting the teachers, principal, and families at KIPP Corazon I knew this would be a great place for my daughter and our family.

This past year, I was nominated to be a Family Ambassador by my child's school principal. Part of our responsibilities as Family Ambassadors is to share educational resources with other KIPP families in our school. KIPP's Family Ambassador Program has offered me countless resources and opportunities to advocate on behalf of my daughter and other students.

KIPP has been a great place for my family to learn and grow. They have helped parents like myself develop their leadership skills and have provided me with a place where I could feel welcomed.

I am proud to be able to contribute to helping our community blossom. KIPP continues to build partnerships to support our families and our communities. KIPP is a community and I am happy to be part of this educational family.

Thank you for supporting KIPP Pueblo Unido. We look forward to having our sister school closer to us.

Sincerely,

Maricela Acuna
[redacted]

Dear Council Member,

My name is Carmen Rodriguez. My daughter is in 1st grade and attends Kipp Corazon. I write this letter in support of the new campus for Kipp Pueblo Unido in the city of Cudahy. I believe Kipp schools are a great asset to low-income communities like ours. My daughter believes in the power of learning because of the positive reinforcement she receives at her school.

KIPP shows students that education goes beyond academics. At KIPP, students understand the importance of respect. Early on students are cultivated to grow into kind and respectful adults. Seeing this behavior carried out through Carmen's school makes me proud to know my daughter is a KIPPster.

When it comes to academics, I know my daughter is ahead of the curve. I attribute her high test scores to her teacher. Carmen loves reading and her love for books is encouraged by her teacher everyday. Each week her teacher sends home a reading list so that learning can continue at home.

At Carmen's school students are greeted at the door every morning. Our principal welcomes students and their families with a high five or a handshake. The principal makes an effort to know everyone's name. In our short time at KIPP we have befriended parents and students from every grade level. We see one another as one community and know we can count on each other.

I hope that you'll support the relocation of our existing school to a physical location to our city. Please don't hesitate to reach out if you have any questions or if I can be of any help in your decision making.

Thank you,

Carmen Rodriguez
[redacted]

Dear City Council Member,

My name is Diana Martinez and my daughter is a current kindergartener at KIPP Corazon. I write this letter in support of the new campus for KIPP Pueblo Unido in the city of Cudahy.

One of the reasons why I chose KIPP for my child was its student to teacher classroom ratio. It is proven that smaller class sizes are beneficial for students and teachers. I know my daughter is more likely to receive the support she needs from her teacher. Her teacher also goes above and beyond for every child in her classroom. Students can seek additional academic support before or after school. Teachers top priority is student learning. Knowing that my daughter has a teacher who cares so much gives me peace of mind.

KIPP also offers families online tools like Clever and Lexia. Clever is used to help students develop their math skills and Lexia supports students with reading comprehension. My daughter loves to spend time on Clever and has dramatically improved her math skills. where she has reached level 7. On Lexia, my daughter has reached level 6 and has learned new words and immensely improved her vocabulary. Her grades have also gotten better. When she first started at KIPP her grade ranks were in the 2-3 level rank. In her most recent report card, my daughter scored almost all 5's the highest number rank granted in her grade. Our daughter has blossomed into a confident young woman. Her vocabulary and level of communication has increased greatly.

As someone who was born and raised in the city of Cudahy, I attended elementary school at Park Ave. and completed middle school/high school at Elizabeth Learning Center. While my experience at my local schools was a good fit for me, I wanted a school that would fit the needs of my daughter. Seeing my daughter thrive so much at KIPP proves that KIPP was the right choice for her.

Thank you for listening to parents like myself. We hope we can count on your support relocating our sister KIPP school, Pueblo Unido to a physical location in our community.

Sincerely,

Diana Martinez
[redacted]

Dear Councilmembers,

My name is Tamara Manzanares and I am the guardian of Julia Herrera. My child is in 5th grade and will begin her final year at KIPP this coming year. I write to ask that you support KIPP Pueblo Unido as it makes its way to our own backyard.

As a current KIPP parent and resident of Cudahy, we chose Pueblo Unido because we believe in it's an excellent public school system. The educators and faculty at KIPP are focused on empowering every student to be creative and reach their full potential.

Likewise, my child is excited to continue her education at her school, KIPP Pueblo Unido as it moves closer to us. KIPP Pueblo Unido has been looking for a permanent home and we could not be more proud to have our school in our community.

I wholeheartedly believe that KIPP has improved my daughters academic academic achievements. Watching my child explore every academic subject with confidence reassures me that KIPP is the right school for her. If she's struggling in any subject, her teacher is there to give her extra practice materials.

KIPP Pueblo is more than a school; it is a community. I ask that you allow our school to officially join our great city of Cudahy. Having our school in our hometown will be great for our family and for so many other families in our community. Thank you for your time and consideration.

Sincerely,

Tamara Manzanares
[redacted]

Dear City Council Members,

Good afternoon, my name is Morena Mejia and I am submitting this letter to express my support for the construction of the KIPP Charter School at 7801-7835 Otis Avenue in Cudahy, CA.

As a resident of Cudahy, I welcome the opportunity of having a great school like KIPP SoCal Public Schools. One of the reasons why I decided to express my support for the school is because a friend of mine has her children in a KIPP school and her kids have achieved tremendous growth. As a parent, we want the best for our kids and having a great school such as KIPP Pueblo Unido would be beneficial for our community.

Please support the construction of a new building for the KIPP campus in the City of Cudahy that provides a high-quality education for the entire community.

Thank you, Cudahy City Council members, for listening to parents like myself who live in Cudahy and who can attest to why students in our community would benefit from having KIPP Pueblo Unido in our own backyard.

Sincerely,
Morena Mejia
[redacted]

Dear City Council Members,

Good afternoon, my name is Jose Rodriguez and I am submitting this letter to express my support for the construction of the KIPP Charter School at 7801-7835 Otis Avenue in Cudahy, CA.

I am a proud resident of Cudahy and I welcome the opportunity of having a great school like KIPP. For too long our community has been asking for quality options for its residents and having a quality school like KIPP Pueblo Unido will provide a tremendous option for Cudahy.

I trust that you will support the construction of a new building for the KIPP campus in the City of Cudahy that provides a high-quality education for the entire community.

Thank you, Cudahy City Council members, for listening to parents like myself who live in Cudahy and who can attest to why students in our community would benefit from having a great school.

Sincerely,
Jose Rodriguez
[redacted]

Dear City Council Members,

Good afternoon, my name is Maria Lopez and I am submitting this letter to express my support for the construction of the KIPP Charter School at 7801-7835 Otis Avenue in Cudahy, CA.

I am a resident of Cudahy and I am excited about having KIPP Pueblo Unido be a part of our community. As a community member, I see a lot of great benefits for our children to have a KIPP school here in Cudahy. I have heard a lot of great things about how KIPP helps their students academically and socially. Also, how they keep parents very involved in their children's education which is a great thing for me.

Thank you, Cudahy City Council members and please support the construction of a new building for the KIPP campus in the City of Cudahy that provides a high-quality education for the entire community.

Sincerely,
Maria Lopez
[redacted]

Dear City Council Members,

Good afternoon, my name is Soledad Barajas and I am submitting this letter to express my support for the construction of the KIPP Charter School at 7801-7835 Otis Avenue in Cudahy, CA.

As a resident of Cudahy, I welcome the opportunity of having a great school like KIPP SoCal Public Schools. I've heard a lot of great things about KIPP which is why I decided to express my support to you today. My friend has her kids at a KIPP school and has shared with me how KIPP is more than a school and how it is like a family. The schools from KIPP do a great job for its students and truly care about them.

I hope that you support the new permanent home for KIPP Pueblo Unido to be here in our community of Cudahy. Thank you for your time.

Sincerely,
Soledad Barajas
[redacted]

Dear City Council Members,

Good afternoon, my name is Trinidad Gomez and I am submitting this letter to express my support for the construction of the KIPP Charter School at 7801-7835 Otis Avenue in Cudahy, CA.

I am a proud community member of Cudahy and I have actually seen how KIPP is involved within the communities that they serve. KIPP is doing a great job for its current students and I hope my children and the kids within Cudahy have the same opportunity to benefit from having a great school like KIPP.

Thank you and I hope that you support the new campus for KIPP Pueblo Unido.

Sincerely,
Trinidad Gomez
[redacted]

Dear City Council Member,

My name is Rob Pollard, and I am the father of Kai Pollard who currently attends KIPP Pueblo Unido. The reason for my correspondence is to extend my FULL support for the construction of the new KIPP Pueblo Unido educational facility in the city of Cudahy.

My personal experience with KIPP's teachers, faculty, staff and infrastructure has been nothing short of amazing! Truth be told, KIPP wasn't immediately in our plans for my child's education (due to my lack of knowledge about the KIPP program) but during the summer of 2018 that took a quick turn. My son Kai (6 y/o) has an older family member who also attends a KIPP school in the neighboring city of South Gate. Our family member was enrolled in a traditional public school, up until his enrollment at KIPP in the fall of 2017.

By the summer of 2018, Kai's cousin had gravitated towards the likes of authors such as Hemingway, Jack London, and Edgar Allen Poe. His reading skills had improved tremendously, and I began to notice a complete change in the fabric of his educational dna. His entire approach in regards to his studies, were unlike anything we had ever seen. While his cousin had always been studious, the level of engagement/interest was questionable prior to his attendance at KIPP. When I asked, "who assigned you to read Hemingway and Call of the Wild?" his response was simple, "My teacher at KIPP. These are some of the books he recommended that I read over the summer." Not to sound overly dramatic, but that was the moment my wife and I decided that our son HAD to attend KIPP Pueblo Unido! Any teacher capable of convincing an eleven year old to take up reading Hemingway during their summer break is all right in my book. With that said, we immediately shifted focus from private schooling, and began the enrollment process at KIPP Pueblo Unido, and as they say, the rest was history!

Kai's reading, writing, math, and language development has been amazing. Most importantly, Kai's development as a young person has blossomed beyond measure! While we would like to take credit as parents, we owe a large share of Kai's improvement to the teachers and faculty at KIPP Pueblo Unido. During these trying times of the Covid19 pandemic, KIPP teachers and staff haven't skipped a beat. They've equipped the students with chromebooks, wifi access, and meals to combat food insecurity within our community. I can't sing their praises enough!

My wife and I are both college graduates, and have resided in the area for 25 years. We stress the importance of education to our children, and firmly believe that a solid educational foundation starts with the teachers and staff within that community. We have seen the immediate impact that the KIPP school program has had within the community and its children. We call it the "KIPPact". KIPP provides the children of the community with a safe-haven to learn, play, build, and become the future leaders of our community!

I close by asking the council to permanently provide KIPP Pueblo Unido with a long-term home. I ask the council to please allow our KIPP family accessibility to the land, where we will work tirelessly, to continue cultivating the seeds of Cudahy in a positive effort to bring forth an abundance of fruit for generations to come!

Thank you for your time, and lending an open ear to a neighbor in need. I am confident that we can work together and find a solution that benefits not only the community of Cudahy, but most importantly the children of Cudahy and surrounding areas. Please feel free to personally reach out anytime throughout the decision-making process if you have any questions.

Best regards,

Rob Pollard

Hola, mi nombre es Sonia Garcia. Mi hija asistira a primer grado en KIPP, la razón por la que escribo esta carta es para apoyar la relocación escolar de KIPP Pueblo Unido a la ciudad de Cudahy.

Yo apoyo a KIPP porque he notado que hija a tenido avances considerables en su nivel académico y en sus valores. Mi hija ya sabe leer y hacer sumas y restas. Ahora mi hija demuestra amor y respeto lo que hará una persona de bien en el futuro.

Por favor les pido que desde el fondo de su corazón que apoyen este proyecto que solo busca que los niños se superen y lleguen a ser personas de bien dentro de nuestra comunidad. Por favor acepten nuestra escuela, nuestro hijos estarán listos para personalmente agradecerles su apoyo. También los padres de nuestra comunidad estarán infinitamente agradecidos.

Gracias, miembros del concejal de la Ciudad de Cudahy, por escuchar a padres como yo que viven en Cudahy y que pueden dar testimonio a los beneficios de tener a KIPP Pueblo Unido en nuestra comunidad.

Sinceramente,
Sonia Garcia.

Dear City Council Member,

My name is Diana Itzel Garcia. My daughter is in grade TK. I am writing this letter in support of the new campus for KIPP Pueblo Unido in the City of Cudahy.

I have nephews and nieces who attend KIPP as well, I have seen their academic progress and have been pleasantly surprised by their learning progress. That's why I chose to enroll my daughter at KIPP Pueblo Unido.

My daughter did not attend a Head Start program. When she began her academic path at KIPP Pueblo Unido I saw her growth and progress. At the age of four, my daughter was already pushing herself outside her comfort zone. She challenged herself to read and write during her first year at KIPP. She currently reads at a grade B level. She enjoys getting tested on her sight words and is also able to make sentences using those words. She has managed to learn how to add and subtract and also knows how to count from 1-100. The KIPP math program has helped her place at a Kindergarten math level. Her favorite subjects at school are science, physical education, and music class. She enjoys having a variety of programs that help her explore her interests outside of academics.

KIPP Pueblo Unido teachers and staff have been very supportive, especially during this national pandemic. KIPP Pueblo Unido is more than just a school, it's a family! Teachers and staff make us feel welcome and greet us with a smile. They are always willing to lend a hand to every family, and continuously stay in touch with all parents.

Please support the relocation of our existing school, Pueblo Unido to a physical location in the City of Cudahy. Thank you, Cudahy City Council members for listening to families from our community.

Sincerely,

Diana Garcia

Estimado miembro del concejal de la Ciudad de Cudahy mi nombre es Esthela Montiel mi hija es Nathaly Montiel quien actualmente cursa el grado de kindergarten en la escuela KIPP Pueblo Unido.

Escribo esta carta para apoyar incondicionalmente a la escuela KIPP Pueblo Unido que busca ser reubicada a la ciudad de Cudahy. Nosotros como padres decidimos inscribir a nuestra hija en esta escuela después de conocer diferentes opciones. Nosotros consideramos que el sistema de educación de KIPP es sobresaliente y destacado. Hasta el dia de hoy estamos completamente convencidos de fue la mejor decisión que hemos tomado con respecto a la educación escolar de Nathaly.

Nathaly con la ayuda de sus maestras y el equipo KIPP ha podido desarrollarse académicamente de manera muy visible en poco tiempo; ya puede leer una gran cantidad de palabras. Se desenvuelve con alegría en la escuela, le encanta asistir a clases a pesar de que vivimos lejos y tiene que levantarse muy temprano, lo hace contenta porque sabe que su escuela KIPP es un lugar seguro donde la hacen sentir importante y la reciben con una sonrisa.

Nosotros como padres estamos satisfechos hasta el momento porque Nathaly ha adquirido muchos conocimientos en lectura, escritura, ciencias, matemáticas y música. La razón de su devoción a su educación son sus maestras, que dedican tiempo individual a cada niño y padre de familia. En mi propia experiencia puedo decir que las maestras son amables en todo momento al igual que la directora a quien en lo personal aprecio mucho.

Mi hija ha tenido un problema en su habla y KIPP le ha proporcionado ayuda, terapias y videollamadas hasta el dia de hoy la siguen atendiendo. Actualmente, ya puede hablar y expresarse mejor, lo cual le agradezco mucho a su terapistas y su maestra. Realmente KIPP Pueblo Unido es una familia donde los padres encontramos respuestas, conforte, consejo, explicaciones, en fin todas las inquietudes que nos pudieran surgir. Juntos encontramos soluciones y esto que escribo es totalmente verdadero, he platicado con mamas de niños que están en otras escuelas con experiencias un poco diferente.

Todo el personal de la escuela trata a cada alumno con amor. En base de todo esto que les escribo les pido a la comunidad de Cudahy que apoye el proyecto de establecer KIPP Pueblo Unido en esta ciudad. Así la misma comunidad tendrá la oportunidad de aprovechar todos los beneficios de la escuela. Juntos podremos crear una sociedad mejor para todos. Gracias por su tiempo!

Sinceramente
Esthela Montiel

Dear City Council Member,

My name is Anabel Morales and my husband's name is Roger Morales. Our daughter Leila is 6 years old and is currently a Kindergartner at KIPP Pueblo Unido in Maywood. Our family resides in the unincorporated area of LA called Walnut Park. I write this letter in support of our existing school.

My husband and I began planning for a family a lot later in life. As advantageous as that was, we quickly realized that our community (Walnut Park / Huntington Park) lacked the type of educational opportunities that we wanted for our children. While we are proud to live in our community, we felt uncertain of being able to find a school that would fit the needs of our family. We attended school tours and participated in school interviews of both public and private schools.

We then came upon the KIPP education system, from the beginning KIPP became our first option. Their curriculum, the overall school focus and its mission was perfectly aligned to our family goals and values. It was an easy choice to make, even the commute to school brings us daily reminders of how fortunate we are to have a KIPP school close to us.

Our KIPPster has grown so much this year! Her teachers and administrators make it easy for all students to learn! We continually praise the staff and faculty's transparency and willingness to accommodate any of our little one's needs.

Even before we went into quarantine, our kids already had homework at home. The staff was ready for distance learning three weeks prior to all school closures! This is the type of attention to detail that we know KIPP provides. Because of this, our KIPPsters did not miss a beat in learning. I am proud and happy to share that my daughter Leila has moved to a 1st grade math and reading level! She has two weekly teacher check-in video calls, "dancersize" video sessions and video music classes to continue to help her learn and maintain a positive attitude. It's wonderful to know we can count on our KIPP school during these uncertain times!

Our families are cared for and we know our school puts kids first. From meals to playtime, our kids constantly showcase positive and uplifting behavior. KIPP rest assured in knowing that our little ones are in good hands because we trust our staff and teachers.

As a parent I want to thank the Cudahy City Council for supporting our school and putting student needs first. Please feel free to contact me or reach out with any questions. I am happy to support you in any way I can in your decision making.

Sincerely,

Anabel Morales

Hello, my name is Sonia Garcia.

My daughter will be attending first grade. The reason I am writing this Letter is to support the school relocation of KIPP Pueblo Unido to the City of Cudahy.

I support KIPP because I have noticed that my daughter has made considerable progress in her academic level and values. My daughter already knows how to read and do addition and subtraction. Now, my daughter shows love and respect, which will make her a good person in the future. Please, I ask you from the bottom of my heart to support this project that only seeks for children to excel and become good people within our community. Please accept the school, the children's smile will be your greatest reward. Parents will be infinitely grateful that the City of Cudahy welcomes our children.

Thank you, Cudahy City Council Members, for listening to parents like me who live in Cudahy and who can testify to the benefits of having KIPP Pueblo Unido in our community.

Sincerely,
Sonia Garcia.

Dear Cudahy City Councilmembers,

My name is Esthela Montiel, and my daughter is Nathaly Montiel. Nathaly is currently in kindergarten at KIPP Pueblo Unido.

I am writing this letter to ask for your unconditional support for the relocation of KIPP Pueblo Unido to the City of Cudahy. As parents, we decided to enroll our daughter in this school after learning about different options because we consider the KIPP system to be very outstanding and prominent. This has been the case to this day. We are fully convinced that it is the best decision we have made regarding Nathaly's school education. Day by day, we have witnessed how Nathaly's teachers help her, and how the KIPP team has helped her to develop academically in a very visible way in a short time. Nathaly can already read a lot of words.

She learns with joy at school, and she loves attending classes. Even though we live far away and she has to get up very early, she is happy because she knows that KIPP Pueblo Unido School is a safe place where they make her feel important and where she is received with a sincere smile.

As parents, we are satisfied because Nathaly has gained a lot of knowledge in reading, writing, science, math, and music over the past months. This is because the teachers dedicate individual time to each child and to the parents. In my own experience, I can say that the teachers are kind at all times, as well as the Principal whom I personally appreciate very much.

My daughter has had a problem in her speech and KIPP has also provided help, therapies and video calls. To this day, she continues to attend and she can already speak and express herself better, for which I thank her therapists and her teacher very much.
KIPP Pueblo Unido is really a family where parents find answers, comfort, advice, and explanations, to any concerns that may arise. The truth is that KIPP Pueblo Unido is a

school where we find solutions together. I have talked with moms whose children attend other schools, and the children at KIPP schools are very advanced in education. They are enthusiastic children because all the school staff sees each one with love.

Based on all of this, I ask the Cudahy community to support the project to establish KIPP Pueblo Unido in Cudahy so that the community will have the opportunity to take advantage of all the benefits of the school, and with this, create a better future society.

Sincerely,
Esthela Montiel

Councilors of the City of Cudahy CA

My name is Gabriela Juarez and I live in this City of Cudahy CA. My interest and concern for my son's education is paramount, he currently attends the KIPP Start school in Huntington Park, a wonderful school that cares about our children instilling what today is very difficult to find in other schools, PRINCIPLES AND VALUES.

KIPP Begins emphasizes the principles and values of each student. Today there are so many influences outside of our homes that they can influence our children negatively. Through its system and plan of education, KIPP Start ensures that our children think about their personal growth. KIPP is an educational system that cares about our children, and leaves no detail to overlook.

At KIPP the staff is attentive. professional and effective. The teachers and administration are 100% dedicated to the education of our children. KIPP understands that the future of this country is our children.

As a resident of Cudahy I ask you, my representatives, to support the relocation of KIPP Pueblo Unido to our community. It would be a privilege to have your support! Thank you for giving me the opportunity to communicate with you and for paying attention to me. I thank you in advance for your work and everything you do for your residents.
With respect,

Gabriella Juarez

My name is Laura López and the reason I am writing this letter is because I want to support the KIPP Pueblo Unido school in the city of Cudahy where I live.
My children have attended KIPP Starts since kindergarten. My daughter is in eighth grade and my son is in seventh grade.

Our family has been with KIPP for nine years and we have appreciated how KIPP has supported all of its students. In particular, we appreciate that each student's goal is to graduate from a University. It is this culture of improvement that has kept us with KIPP.

To this day, the fundamental education my children received during their early years at KIPP has helped them in their academic career in recent years. My two children are advanced students in mathematics, literature, and science.

This year my child started his seventh year in school in the City of Bell. All the subjects his teachers taught him were a repetition of what he had already learned the previous year at KIPP. For this reason my child and I decided to reapply to a KIPP school for next year.

Another reason I have always liked KIPP schools is because parents and teachers work together to help our children achieve their goals of graduating from a University. Since students are young, KIPP teachers name each classroom in honor of the University from which the teacher graduated. This University culture inspires students to go to the same universities where their teachers went.

I hope that you can support the KIPP Pueblo Unido school in its recollection to our community, so that more Latino children have the opportunity to move forward and achieve all their goals. Thank you members of the Cudahy City Council for listening to moms like me who live in the City of Cudahy.

Sincerely,

Laura Lopez

[redacted]

Good afternoon, my name is Francisca Sorto and I am a proud Cudahy resident. My son Kevin and daughter Axelle attend the KIPP Start school.

Today you have in front of you an application for KIPP Pueblo Unido so they can obtain a permanent home in Cudahy.

Today I am in front of you because having a great public school for my children is of special importance to me. I hope you support the application of KIPP Pueblo Unido. To demonstrate KIPP's commitment to the community, I would like to share our experience with you.

I remember when I was looking for a school that my children could attend and I clearly remember that KIPP Start had the best academic performance in the neighborhood.

As soon as you enter school, you feel welcome. All teachers and staff greet you and welcome you to school with open dialogue.

KIPP Start has been a great blessing to my children as they are always encouraged to excel in their academic studies. My son used to have difficulties in math, however, from the beginning, the teachers provided us with adequate information to improve him.

They catered to his needs and catered to his unique learning style by giving him extra time so that he could better learn the subject. What I like the most about Start is that from an early stage, they pointed out my son's difficulties with the subject. They provided us with the necessary information so that it could improve and develop throughout the year. I have seen my children continually excel in their academic studies.

The school also addresses the needs of the family through monthly meetings that address the issues of establishing a college environment and a better understanding of my children and their academics.

KIPP is serving my family and community, so I kindly ask you to support the request for KIPP Pueblo Unido to have a permanent home in Cudahy. Supporting this application will allow other children like Kevin and Axelle and their peers the opportunity to be successful in Cudahy. Thank you!

Subject: Support for KIPP Pueblo Unido in the City of Cudahy
Dear Members of the City Council of Cudahy,

My name is Cristina Dueñas. Currently my children are in TK, at KIPP Pueblo Unido. I am writing this letter with the greatest intention of supporting the school relocation of KIPP Pueblo Unido to the City of Cudahy.

I chose KIPP, mainly because I had very good recommendations from other moms who attend KIPP. Throughout this time attending KIPP, my children have learned and developed their reading and math skills. They like going to school and attend with great enthusiasm every day. Interacting with high quality of teachers, they have learned to do things for themselves and above all to respect and help others.

The children entered the school without knowing how to read or write. Now they know how to read on a new level, in mathematics they know how to add and subtract, they know how to write and identify letters and words, among many other things. In the current situation, KIPP has proven to be more than a school, it is aware of our community.

They have offered us resources, food, information and above all they have kept in touch with all the students and parents. We have always been welcome and motivated to submit any suggestion with no problem. We have felt very comfortable and included in every way.

In closing, I want to request in the most respectful way, the relocation of our KIPP Pueblo Unido school to a physical location in the City of Cudahy.

Thank you, Cudahy City Council Members, for listening to parents like me who live in Cudahy and who can testify to the benefits of having KIPP Pueblo Unido in our community.

Sincerely,
Cristina Duenas

Concejales de la Ciudad de Cudahy CA

Presentes:

Mi nombre es Gabriela Juarez y vivo en esta Ciudad de Cudahy CA. Mi interés y preocupación por la educación de mi hijo es primordial, actualmente asiste a la escuela KIPP Comienza de Huntington Park, una escuela maravillosa que se preocupa por nuestros hijos inculcando lo que hoy en dia es muy difícil de encontrar en otras escuela, PRINCIPIOS Y VALORES.

KIPP Comienza hace enfacìs en los principios y valores de cada estudiante. Hoy en dia hay tantas influencias fuera de nuestras casas que pueden influir a nuestros hijos negativamente. A través de su sistema y plan de educación KIPP Comienza se encargar de que nuestros hijos piensen en su crecimiento personal. KIPP es un sistema educativo que se preocupa por nuestros hijos, y no deja ningún detalle pasar por alto.

En KIPP el personal el atento. profesional y eficaz. Los maestros y administración son 100% dedicados al a la educación de nuestro hijos. KIPP entiende que el futuro de este país son nuestros niños.

Como residente de Cudahy les pido a ustedes, mis representantes que apoyen la relocación de KIPP Pueblo Unido a nuestra comunidad. Seria un privilegio contar con su apoyo! Gracias por brindarme la oportunidad de comunicarme con ustedes y por prestarme atención. De antemano les agradezco su labor y todo lo que hacen por sus residentes.

Con Respeto,

Gabriella Juarez

Mi nombre es Laura López y la razón por la que estoy escribiendo esta carta es porque quiero apoyar a la escuela KIPP Pueblo Unido en la ciudad de Cudahy donde yo vivo.

Mis hijos han asistido a KIPP Comienza desde kinder. Mi hija esta el octavo grado y mi hijo está en el séptimo grado.

Nuestra familia ha estado con KIPP por nueve años y hemos apreciado la manera en la que KIPP ha apoyado a todos sus estudiantes. En particular, apreciamos que la meta de cada estudiante es graduarse de una universidad. Es esta cultura de superación lo que nos a mantenido con KIPP.

Hasta el dia de hoy, la educación fundamental que mis hijos recibieron durantes sus primeros años en KIPP los ha ayudado en su carrera académica en estos últimos años. Mis dos hijos son estudiantes avanzados en matemáticas, literatura y ciencias.

Este año mi niño comenzó su séptimo año en en escuela en la ciudad de Bell. Todas las materias que sus maestros le enseñaron fueran una repetición de lo él ya había aprendido el año anterior en KIPP. Por esta razón mi nino y yo decidimos volver a aplicar a una escuela KIPP para el ano proximo.

Otra razón por la que siempre me han gustado las escuelas KIPP, es por que los padres y maestro trabajan juntos para que nuestros hijos alcancen sus metas de graduarse de la universidad. Desde que los estudiantes son pequeños los maestros de KIPP nombran cada salón de clase en honor a la universidad de la que el maestro se graduó. Esta cultura universitaria inspira a los estudiantes a ir a las mismas universidades donde fueron sus maestros.

Espero que puedan apoyar a la escuela KIPP Pueblo Unido en su recolección a nuestra comunidad, para que más niños Latinos tengan la oportunidad de salir adelante y lograr todas sus metas. Gracias miembros del concejal de la ciudad de Cudahy por escuchar a mamás como yo que viven en la ciudad de Cudahy.

Sinceramente,

Laura Lopez

Buenas tardes, mi nombre es Francisca Sorto y soy una orgullosa residente de Cudahy. Mi hijo Kevin y hija Axelle asisten a la escuela KIPP Comienza.

Hoy tienen en frente de ustedes una solicitud de KIPP Pueblo Unido para que pueda obtener un hogar permanente en Cudahy.

Hoy estoy en frente de ustedes porque tener una gran escuela pública para mis hijos es de especial importancia para mí. Espero que apoyen a la aplicación de KIPP Pueblo Unido. Para demostrar el compromiso de KIPP con la comunidad, me gustaría compartir con ustedes nuestra experiencia.

Recuerdo cuando estaba buscando una escuela a la que mis hijos podían asistir y recuerdo claramente que KIPP Comienza tenía los mejores rendimientos académicos en el vecindario.

Tan pronto cuando entras a la escuela, te sientes bienvenido. Todos los maestros y el personal te saludan y te dan la bienvenida a la escuela con un diálogo abierto.

KIPP Comienza ha sido una gran bendición para mis hijos, ya que siempre se los alienta a sobresalir en sus estudios académicos. Mi hijo solía tener dificultades en matemáticas, sin embargo, desde el principio, los maestros nos proporcionaron la información adecuada para que mejorara.

Ellos atendieron sus necesidades y atendieron a su estilo de aprendizaje único dándole tiempo adicional para que pudiera aprender mejor el tema. Lo que más me gusta de Comienza es que desde una etapa temprana, señalaron las dificultades de mi hijo con el tema. Nos proporcionaron la información necesaria para que pudiera mejorar y desarrollarse durante todo el año. He visto cómo mis hijos se destacan continuamente en sus estudios académicos.

La escuela también atiende las necesidades de la familia a través de reuniones mensuales que abordan los temas de establecer un ambiente universitario y una mejor comprensión de mis hijos y sus académicos.

KIPP está sirviendo a mi familia y comunidad, por lo que le pido amablemente que apoye a la solicitud para que KIPP Pueblo Unido tenga un hogar permanente en Cudahy. Apoyando esta aplicación permitirá que otros niños como Kevin y Axelle y sus socios tengan la oportunidad de tener éxito en Cudahy. ¡Gracias!

Attachment F

KIPP Appeal

Susie de Santiago <[redacted]>

Fri 4/17/2020 7:28 PM

To: Elizabeth Alcantar <ealcantar@cityofcudahyca.gov>; Jose R. Gonzalez <jgonzalez@cityofcudahyca.gov>; Jack Guerrero <jguerrero@cityofcudahyca.gov>; Chris Garcia <cgarcia@cityofcudahyca.gov>; Blanca Lozoya <blozoya@cityofcudahyca.gov>
Cc: Santor Nishizaki <snishizaki@cityofcudahyca.gov>; City Clerk <cityclerk@cityofcudahyca.gov>

Good afternoon Mayor Alcantar, Vice Mayor Gonzalez, Council Members Guerrero, Garcia and Lozoya:

I am writing, on behalf of the Cudahy Community and myself, to express our strong opposition of the Public Hearing.

For the record; we the Cudahy Community, oppose the construction of a KIPP: Pueblo Unido Charter School in the City of Cudahy.

We support the Planning Commission's decision to deny the permit for KIPP: Pueblo Unido to build a new school in Cudahy. The construction of KIPP Pueblo Unido would have a detrimental effect in Cudahy. Already, KIPP Pueblo Unido has disrupted the quality of life of Cudahy residents with children enrolled at Teresa Hughes Elementary. KIPP is notorious for the amount of idling car lines at morning drop-off and afternoon pick-ups. There are many concerns regarding the environmental impact that this project would have on the air quality and noise pollution. Additionally, it is imperative council members are aware of the negative economic and educational impacts the charter industry has on Los Angeles Unified School District.

For the record; We oppose the public hearing which is scheduled for April 21, 2020. We urge the council to schedule KIPP: Pueblo Unido's appeal hearing at a safer time, when residents can attend the council meeting to show support for the Planning Commission's vote. As you know, residents are practicing social distancing and following the stay-at-home-order due to the COVID-19 pandemic. These orders will likely continue through the end of April. The appeal should be heard after the orders are lifted. Again, the project does not have the support of Cudahy residents.

Sincerely,

Susie de Santiago

April 17, 2020

Advocates for the Environment

A non-profit public-interest law firm
and environmental advocacy organization

Cudahy City Council
5220 Santa Ana Street
Cudahy, CA 90201

Development Services Department
Planning Division
5220 Santa Ana Street
Cudahy, CA 90201

Re: KIPP Pueblo Unido School Project, 7801-7835 Otis Avenue

Dear Members of the Cudahy City Council and Development Services Department:

Advocates for the Environment submits the comments in this letter on its own behalf, and on behalf of concerned residents of Cudahy and the surrounding communities, regarding the proposed project to construct a 67,592 square foot charter school on a lot located at 7801-7835 Otis Avenue in the City of Cudahy (the **Project**). We understand the City Council is currently scheduled to consider an appeal of the Planning Commission's decision to deny Development Review Permit No. 41-532 for Project.

The Project is not exempt from environmental review under the California Environmental Quality Act.

The City of Cudahy has determined that the Project is exempt from the requirements of the California Environmental Quality Act (**CEQA**), under CEQA Guidelines section 15268, Ministerial Projects. The exemption is inappropriately applied to the City's actions as to the Project.

CEQA Guidelines section 15369 provides that ministerial government decisions "involve only the use of fixed standards or objective measurements." Common examples include automobile registrations, marriage licenses, and building permits where the public official is limited to determining whether the proposed building will conform to zoning requirements, strength requirements in the Uniform Building Code, and whether the applicant's fee has been paid. Notably, a municipality's determination that an approval process is ministerial is not dispositive, and where the city's decision involves any exercise of judgment, the decision is discretionary rather than ministerial, and the CEQA exemption does not apply. (*Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal.App.3d 259, 270-271.)

10211 Sunland Blvd., Shadow Hills, CA 91040 (818) 353-4268 dw@aenv.org

The Project involves a Development Review Permit under the Cudahy Municipal Code. The Municipal Code itself provides that Development Review Permits are discretionary permits subject to CEQA. (Cudahy Municipal Code § 20.84.180(B).) The grant of a Development Review Permit requires the City to make specified findings, including that the design features are "in proportion to the building side, and external features are balanced and unified so as to present a harmonious appearance"; that the design "relates harmoniously to existing and anticipated development"; and that the "grading and site development show due regard for the qualities of the natural terrain and landscape." (Cudahy Municipal Code § 20.84.210.) These are determinations requiring the exercise of judgment or deliberation, not decisions involving the use of fixed standards. Moreover, the Municipal Code allows the City to approve a Development Review Permit with conditions, which provides for discretion in deciding "how to carry out or approve a project." (CEQA Guidelines § 15357.)

The Project may also involve a Conditional Use Permit (**CUP**). A CUP is a discretionary decision for which the exemption for ministerial projects is inappropriate. (See Cudahy Municipal Code §§ 20.84.300-20.84-330.)

No other statutory exemption applies to the Project. Furthermore, no categorical exemption is available for the Project. The Project is not exempt from the requirements of CEQA, and it cannot be lawfully approved without preparation of an environmental impact report (**EIR**) or a negative declaration.

Furthermore, the Project poses the potential for significant environmental impacts in multiple areas, and a negative declaration is unlikely to be appropriate. Instead, a full EIR should be prepared. Among the potential significant impacts are the following.

- The Project site previously was occupied by industrial uses, and Project construction and operation potentially will expose individuals on the site and nearby to hazards and hazardous materials and public-health effects.
- The site is located next to one of the most heavily trafficked streets in the area, and the Project potentially will have significant effects on traffic in the vicinity.
- The Project's effect on traffic and its plan for dropping off and picking up students will lead to increased emissions from vehicles, which will have potentially significant air quality impacts, including increased levels of nitrogen oxides, carbon monoxide, and carbon dioxide.
- Increased traffic and emissions from vehicles, especially vehicles idling while they wait to pick up or drop of students, also pose potential risk of significant greenhouse-gas impacts.

The potential for these and other significant impacts means that an EIR must be completed for the City to be able to make an informed decision regarding whether to approve the Project.

The City should postpone the public hearing on the project.

Additionally, we request that the City Council postpone the public hearing on the KIPP Pueblo Unido Project until an adequate and full opportunity for public participation can be ensured. The current Los Angeles County and State of California orders related to the COVID-19 pandemic have sharply limited public access to public documents and thus render it extremely difficult if not impossible to ensure a full public review process for this project and others.

Moreover, the Notice of Public Hearing states that the files related to the Project are available during counter hours or by appointment. But under the current COVID-19 orders and guidance, residents are ordered to stay home except for specified and extremely limited activities, for their own safety and that of others. Therefore, the public availability and accessibility of Project-related documents has been dramatically curtailed. First, this renders the Notice of Public Hearing, at best, unhelpful, and at worst, inaccurate and therefore legally inadequate. Second, this severely impairs the public's ability to participate meaningfully in a public hearing on the project held during the COVID-19 emergency.

A brief search of the City's website did not turn up any online documents related to the Project. If the Project files are available online, a link to them should be made prominently on the main page of the website, and if the files are not available online, they should be.

Providing greater access to Project documents, as well as postponing the public hearing, will ensure the public has an adequate opportunity to participate in the review process for the Project and that the City's decision will be conducted openly and properly informed by public input.

Conclusion

For the reasons given above, the City would violate the law by approving the Project under the claimed CEQA exemption and without a full CEQA review. We urge the City to deny the appeal and the Project. In the alternative, the City should continue the matter and order that an EIR be prepared for the Project before further consideration of its approval.

Additionally, the City should postpone the public hearing, and should ensure that a Phase I Environmental Site Assessment, if already completed, be made available immediately for public review, and if not, be completed and shared with the public, including residents

concerned about the risks of siting a school on a former industrial property. If the Phase I Environmental Site Assessment indicates that hazardous materials may have contaminated the soil on the Project site, a full Phase II assessment should be done as well, so the EIR can properly analyze the environmental impacts of Project construction.

Sincerely,

Kathleen R. Unger
Legal Director

10211 Sunland Blvd., Shadow Hills, CA 91040 (818) 650-0030 ku@aenv.org

Daniel E. McKay
[redacted]
Cudahy, CA 90201

Development Services Department
Planning Division
5220 Santa Ana Street
Cudahy, CA 90201

RE: Development Review Permit No. 41-532

April `15, 2020

Dear Council Members:

I wish to go on record in firm opposition to the building of the proposed Charter School. Building such a school on the proposed site would create a traffic nightmare worse than that which currently exists on nearby 2-lane streets already used by persons transporting students to and from Teresa Hughes School on Clara Street, located only 5 lots west of the intersection of Otis and Clara Streets. Heavy foot traffic and school buses on Otis and Clara, resulting from the presence of Teresa Hughes School, make for very heavy traffic around the opening and closing times of school.

I live directly across Clara Street from the entrance to the Teresa Hughes staff parking lot, and I have frequently had difficulty in getting out of my own driveway, not to mention waiting through multiple cycles of the traffic signal at the corner of Otis and Clara as the crosswalk is frequently full of students (and the crossing guard) until the light changes and one or two cars get through.

To place yet another school only 2 blocks from the existing school would be intolerable. More school buses (and even the Metro bus using Otis) would turn a nightmare into a disaster.

There is plenty of vacant land in Cudahy if another school is truly needed. Adding the burden of additional vehicle and pedestrian traffic to small 2-lane streets like Otis or Olive Streets is entirely unnecessary.

Please uphold our Planning Commission's decision to deny the permit.

Sincerely,

Daniel E. McKay

Daniel E. McKay

Attachment G

MINUTES

**CUDAHY CITY COUNCIL REGUAR MEETING and
CITY OF CUDAHY AS SUCCESSOR AGENCY and
HOUSING SUCCESSOR AGENCY TO THE CUDAHY
DEVELOPMENT COMMISSION JOINT MEETING**

June 2, 2020 6:30 P.M.

1. CALL TO ORDER

Mayor / Chair Alcantar called the meeting to order at 6:35 p.m.

2. ROLL CALL

PRESENT: Council / Agency Member Garcia
Council / Agency Member Guerrero
Council / Agency Member Lozoya
Vice Mayor / Vice Chair Gonzalez
Mayor / Chair Alcantar

ABSENT: None

ALSO PRESENT: Interim City Manager Henry Garcia, City Attorney, Victor Ponto, Assistant City Clerk, Richard Iglesias, Finance Director, Steven Dobrenen, and Human Resources Manager Jennifer Hernandez.

3. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Council Member Garcia.

4. PRESENTATIONS

A. Young Men's Christian Association (YMCA)
B. Gateway Cities Council of Governments - Update on the I-710 South Corridor by Karen Heit, Transportation Deputy

DEPUTY CITY ATTORNEY RECOMMENDED COUNCIL TO AMEND THE AGENDA AND MOVE THE PUBLIC HEARING ITEM 11A TO THE BEGINNING OF THE AGENDA.

DEPUTY CITY ATTORNEY RECOMMENDED TO OPEN UP THE FLOOR TO PUBLIC COMMENT AND THEN CONTINUE THE ITEM TO A DATE UNCERTAIN NEXT MONTH. HE ALSO FURTHER RECOMMENDED TO REDUCE PUBLIC SPEAKING TIME TO ONE MINUTE.

IT WAS MOTIONED BY COUNCIL MEMBER GUERRERO AND SECONDED BY COUNCIL MEMBER LOZOYA TO AMEND THE AGENDA AND MOVE PUBLIC HEARING ITEM 11A TO THE BEGINNING OF THE AGENDA, ALLOW THE APPLICANT TO PRESENT ITS ITEM WITH STAFF FEEDBACK, OPEN UP THE FLOOR FOR PUBLIC HEARING LIMITED TO ONE MINUTE, AND THEN CONTINUE THE ITEM TO AN UNCERTAIN DATE NEXT MONTH. THE MOTION DID NOT CARRY (2-3-0) BY THE FOLLOWING ROLL CALL VOTE:

AYES: Guerrero and Lozoya

NOES: Garcia, Gonzalez, and Alcantar
ABSENT: None
ABSTAIN: None

IT WAS MOTIONED BY COUNCIL MEMBER GARCIA AND SECONDED BY VICE MAYOR GONZALEZ TO AMEND THE AGENDA AND MOVE PUBLIC HEARING ITEM 11A TO THE BEGINNING OF THE AGENDA, OPEN UP THE FLOOR FOR PUBLIC HEARING LIMITED TO ONE MINUTE, AND THEN CONTINUE THE ITEM TO AN UNCERTAIN DATE NEXT MONTH, COORDINATE A DATE TO CONDUCT A POTENTIAL WORKSHOP AND HAVE A PHYSICAL CITY COUNCIL MEETING. THE MOTION CARRIED (3-2-0) BY THE FOLLOWING ROLL CALL VOTE:

AYES: Garcia, Gonzalez, and Alcantar
NOES: Guerrero and Lozoya
ABSENT: None
ABSTAIN: None

5. PUBLIC COMMENTS

Francisca Sorto, spoke in favor of the KIPP development, emphasizing the importance of a variety of educational choices. She further commented that she appreciated that the City has allowed for high participation and community engagement as well as thanked city staff for their work.

Susie de Santiago, thanked the mayor for enforcing the rules of decorum and how to conduct the meeting. She expressed her concerns and disappointment over public comment at the public hearing section, reducing public comment time from three minutes to one minute at the last minute. She further asked to hear more from Council Member Lozoya stating that she would like to know more about her opinions, and what her stance is on community issues. She further expressed her frustrations over Council Member Lozoya's lack of comments during council meetings as well as her unwillingness to answer emails or calls when residents try to get in contact with her.

Sophie Ryan, expressed her concern over council member's alleged biased approach over the public hearing item, specifically with the reduction of public comment time and allegedly allowing members of the public that were in favor of the KIPP project more time to speak. She further commented that neighboring cities have already taken proactive steps to develop affordable housing homeless prevention projects, and Cudahy has been falling behind regarding this endeavor.

Tevina Quintana, agreed with Ms. De Santiago regarding the lack of community involvement from certain council members, inviting them to attend future community events. She further questioned certain council members voting record, arguing that it does not align with the community's wants.

6. CITY COUNCIL COMMENTS

Council Member Guerrero, appreciated everybody's participation. He clarified that the Council collectively and unanimously agreed to reduce public speaking time to one minute reminding members of the public that if it were to stay at three minutes, the meeting could have ended at 3 in the morning. Regarding KIPP he asked residents to keep an open mind, prioritizing children's academic excellence and parental choice. He went on to commend Cudahy residents for its peaceful disposition amidst a turbulent national environment, citing that not a single incident of violence or disturbance was reported in the City. He continued to pray for peace in the city, region, and throughout the country, also calling for an end to theft and destructive conduct. Regarding

the vents concerning the George Floyd case, he joined decent people everywhere in condemning the reprehensible conduct of rogue officers and demanding swift justice to this and similar cases. He further called upon mayors and local leaders everywhere to begin the necessary conversations with law enforcement agencies, district attorneys, and state legislators about meaningful and comprehensive police reform to rebuild public trust and ensure justice and fairness for all stakeholders, adding that upon speaking with law enforcement agencies, they too share the same goals. He asked to introduce a resolution outlining basic principles for this endeavor at the next council meeting.

Council Member Lozoya, was glad that everybody had a chance to speak about the public hearing item. She added that she is intently listening to both sides of this issue, and expressed her gratitude of the community's willingness to share their opinions about the issue. She clarified that she would rather keep her opinions to herself and vote, stating that she would rather not repeat the same opinion already stated by another council member, if it already expresses the way she feels about an item. She further clarified that anybody wishing to speak with her is welcomed to reach out, set up an appointment, and discuss whatever they find important.

Vice Mayor Gonzalez, thanked the community for coming together and being civically engaged stating that their participation and input is appreciated. He further reminded that it is also important to go out and vote, and not just come out for certain issues. He emphasized on voting people who accurately reflect communities to office. He also commended staff for working diligently and invited people to continue to get involved and participate in the community.

Mayor Alcantar, thanked members of the public for coming out and having an open dialogue about the public hearing item. She mentioned that coronavirus is still an issue in the community, asking residents to seek testing if needed. She reminded residents to participate in the census, and asked the council meeting to be adjourned in memory of longtime city resident Michelle Gessner. She concluded her comments by acknowledging the civil unrest caused by the George Floyd case.

7. CITY MANAGER REPORT (information only)

8. REPORTS REGARDING AD HOC, ADVISORY, STANDING OR OTHER COMMITTEE MEETINGS – NONE

IT WAS MOTIONED BY COUNCIL MEMBER GUERRERO AND SECONDED TO REVISIT THE AGENDA AMENDMENT MOTION AND INCLUDE ITEM 9 AS WELL. THE MOTION CARRIED (5-0-0) BY THE FOLLOWING ROLL CALL VOTE:

AYES: Garcia, Guerrero, Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: None
ABSTAIN: None

9. WAIVER OF FULL READING OF RESOLUTIONS AND ORDINANCES

Motion: It was motioned by Council Member Guerrero and seconded by Council Member Garcia to approve the waiver of full reading of resolutions and ordinances. The motion carried (5-0-0) by the following roll call vote:

AYES: Garcia, Guerrero, Lozoya, Gonzalez, and Alcantar
NOES: None
ABSENT: None

ABSTAIN: None

10. CONSENT CALENDAR

A. Consideration to Adopt Resolution No. 20-14, Updating the Authorizing Agents for Operation and Management of the City‘s Wells Fargo Bank Fund Accounts

Presented by the Finance Director

The City Council is requested to approve Resolution No. 20-14 to update the authorized agents for the City’s Wells Fargo Bank Fund Accounts.

Motion: It was motioned by Council Member Garcia and seconded by Vice Mayor Lozoya to approve Resolution No. 20-14 to update the authorized agents for the City’s Wells Fargo Bank Fund Accounts. The motion carried (4-1-0) by the following roll call vote:

AYES: Garcia, Lozoya, Gonzalez, and Alcantar
NOES: Guerrero
ABSENT: None
ABSTAIN: None

B. Consideration to Approve a Second Amendment to Professional Services Agreement Between the City of Cudahy and MV Cheng & Associates Inc. for Technical and Practical Accounting Services

Presented by the Finance Director

The City Council is requested to approve the Second Amendment to the Professional Services Agreement between the City of Cudahy and MV Cheng & Associates Inc. for technical and practical accounting / payroll support through June 30, 2021.

ITEM WAS TABLED TO A SUBSEQUENT COUNCIL MEETING.

C. Consideration to Review and Approve the Draft Minutes of April 7, 2020, and April 21, 2020, for the Regular Meeting of the City Council and the Joint Meeting of the City of Cudahy as Successor Agency and Housing Successor Agency to the Cudahy Development Commission and Draft Minutes of April 10, 2020 Special Meeting of the City Council

Presented by the City Clerk’s Office

The City Council is requested to review and approve the City Council / Successor Agency Draft Minutes for April 7, 2020, April 10, 2020, and April 21, 2020.

ITEM WAS TABLED TO A SUBSEQUENT COUNCIL MEETING.

11. PUBLIC HEARING

A. Appeal of the Planning Commission’s decision to deny Development Review Permit No. 41-532 to allow the construction of a 67,148 square foot charter school located at 7801-7835 Otis Avenue (APN 6225-026-0201/002/003/013/014)

Presented by the Interim Community Development Manager

The City Council is requested to reverse the Planning Commission's decision and adopted Resolution No. 20-15, approving Development Review Permit No. 41-532 (DRP 41-532) to allow the design, site layout, and construction of a new 67,148 square foot sate of the art charter school.

MAYOR ALCANTAR OPENED THE FLOOR TO PUBLIC COMMENT AT 7:15 PM

Francisco Paz-Sorto, spoke in favor of KIPP asking council to approve the project.

Star Laca, asked her daughter to speak against KIPP who also spoke in favor of Teresa Hughes. She recommended council to instead use that plot of land to build a park for the kids.

Bertha Martinez, teacher from Ellen Ochoa Learning Center objected to the KIPP project. She felt that given this difficult time, it is unfair for council to make a decision without more input from the public.

Marco R., teacher from Teresa Hughes Elementary spoke about the successful petition to prevent KIPP from co existing in his school. He felt that there should be a focus on taking care of families, and therefore objects to the public hearing item.

Sofi Ryan, argued that there is no need for another school given that Teresa Hughes already serves those students KIPP focuses on. She proposed more affordable housing rather than develop a charter school.

Edin Enamorado, spoke against council member Guerrero for limiting speaker time to one minute. He also asked the Council Member if KIPP is donating to his campaign. Furthermore, he argued that the lot is not environmentally suited to serve as a school.

Anabe Morales, commented that she has a kindergartener enrolled in KIPP. She highlighted there will always be traffic issues in Los Angeles and is therefore not unique if KIPP comes in. She also contrasted LAUSD schools and KIPP charter during the pandemic, specifically emphasizing on how much more effective and quicker KIPP charter was in designating a remote curriculum as opposed to LAUSD. She concluded her comments by asking city council to approve the item.

Carlos Montes, opposed the KIPP charter school arguing that there is no environmental impact report. He argues that an additional school may lead to more negative environmental effects. He said it would be better to dedicate that lot to a park. He told council that his city successfully petitioned to not allow KIPP to build a school in their city, arguing that public schools already provide quality education to students.

Sonia, commented that she has a child in KIPP, and asked Council to welcome the school. She further highlighted that the youth are the future, and argued that noise pollution is not an appropriate arguments to not build KIPP charter school.

Ayde Bravo, commented that the City of Cudahy inappropriately applied a CEQA environmental analysis exemption. She argued that an environmental impact report is needed as the previous lot use was dedicated to metal processing and automotive repairs, as well as expressing her skepticism of the soil's quality.

Victor Frias, opposed the development of the charter school arguing that its corporate structure is not reflective of the community nor is it democratic. He demanded KIPP to stop allegedly targeting communities of color for its personal gain. He further added that the teachers and students in Cudahy know what is best for the community, not city council nor KIPP.

Maria Flores, spoke in favor of the KIPP charter school development, she highlighted the effective teachers and organization. She stated that she worked at LAUSD and LBUSD and enjoyed KIPP's organization. She believed KIPP would be a positive for the community.

Christian Markovich, opposed the KIPP charter school development. He argued that the lot the school wishes to develop is not built for education. He further argued that Cudahy already has plenty of schools that serve the demographic, and that the added traffic would negatively affect the City.

Melissa R., spoke in favor of the KIPP development, speaking favorably of public schools, but stressing the importance of families having options when choosing schools. She concluded her comments by asking members of the community to have a positive discourse as both sides want what is best for their children.

Stephany Ramirez, spoke in favor of the KIPP development, highlighting its commitment to embrace its community's heritage. She emphasized the importance of an early quality education as an imperative to success in college and beyond.

Susie de Santiago, spoke against the KIPP development, warning that KIPP would be detrimental to the city's public schools. She argued that the city should not allow an outside company to buy the lot for an undisclosed fee as well as silence the community. She concluded her comments by reading an excerpt from KIPP's website and noting that it favors expansion and profit over quality education.

Randy Espinoza, spoke in support of the KIPP development testifying his daughter's positive experience at a KIPP school.

Robert Martinez, spoke against the KIPP development speaking highly of Teresa Hughes elementary school and its programs that prepare students for a university education.

Manny, spoke in support of the KIPP development, emphasizing its commitment to providing a high quality education to its students. He concluded his comments by asking the support from council for the project.

Lorraine Alcala, spoke against the KIPP development, warning that bringing KIPP to the community will severely cut the already limited funding public schools receive.

Claudia Valladares, spoke against the KIPP development, warning that public schools in the community will suffer financially by losing funding and inevitably getting its services cut.

Joseline Ramirez, spoke against the KIPP development arguing on the already limited funding Teresa Hughes receives.

Tevina Quintana, spoke against the KIPP development, highlighting the high quality public schools the community already does. She further argued that charter schools do not follow the same standards as LAUSD, as well as pointing out its mixed successes.

Evelyn, spoke in support of KIPP, expressing the positive experiences her children received while at KIPP. She further argued that traffic impacts do not outweigh the quality education children in the community would receive.

Antonio Buenabad, spoke against the KIPP development, citing research that concludes that charter schools take away funding from public schools, as well as prioritizing expansion, and

KIPP's insistence on placing the school on a lot that is contaminated and exacerbating traffic, and allegedly wasting taxpayer money, because the school is not going to be built or is going to stay there.

Alfredo Fraijo Jr., commented that KIPP had not been aware of the last minute letter that influenced the Council's motion, asked that the item be continued to a time certain, and requested that KIPP receive a fair and just hearing. He further mentioned that the reason the appeal was made to council was because the planning commission violated its own code, obligating it to review the project in accordance with the development standards that were adopted by the City. He asked Council to do the right thing, review the project in accordance to the City's adopted standards, and not vote off a free referendum.

Eve Renteria-Ramirez, commented on her child's experience attending KIPP Academy, noting that the experience was highlighted by broken promises, alleged discrimination with IEP students, rather than quality education.

Nickki Turner, teacher for KIPP Academy spoke in favor of the KIPP development, expressing her excitement to see the academy be a space for community events, unity, multiethnic classes, and best practices.

Evelyn Flores, spoke in favor of the KIPP development, noting her daughter's positive experience at KIPP Academy. She also commented that traffic impacts should not deter the development as traffic exacerbation is not unique to the KIPP development.

Arellana de Santiago, spoke about her positive experiences in Teresa Hughes, and how it was instrumental to her success in higher education as well as to the success of her sibling's pursuit for higher education.

Jazim Garcia, spoke against the KIPP development, arguing approving the hearing item would negatively affect the residents' quality of life. She further highlighted that the City already has great public schools, and therefore no need to vote in favor of the KIPP development.

Julie, spoke against the KIPP development, arguing it is pushing its schools in areas where schools are not needed. She further highlighted petitions that have been signed against the KIPP development in the community.

Jessica Mandonado, spoke of her pride of working for KIPP academy, noting that it prioritizes the students' interests. She concluded her comments by urging the Council to prioritize the community's families when it votes on the public hearing item.

Marisol, spoke against the KIPP development, citing her daughter's negative experience attending at KIPP Academy. She noted students do not come first, rather test scores are prioritized. She concluded her comments by urging council to support its public schools rather than approve KIPP Academy.

J. Estrada, spoke in favor of the KIPP development, arguing that the Council should be approved under the guise of a land use issue. Therefore, he further argued that Council's policy stances should not influence the voting outcome.

Adriana Cortez, principal of Teresa Hughes Elementary invited KIPP parents to register their kids at Teresa Hughes if they as looking to enroll their kids in a school, noting the positive achievements they have made and could be found on their social media accounts and website.

Anabel Samperio, teacher at Park Avenue Elementary spoke about the environmental concerns related to the lot where KIPP plans to develop. She asked council to look at the land and assess if it is appropriate to develop anything in the area, not just KIPP. She concluded her comments by expressing her opposition on the KIPP development.

Carla Amedarlis, staff member from KIPP, spoke in favor of the KIPP development, believing education is the most important social issue of our time, and having free quality education should be a right. She further highlighted the educational quality of KIPP's special education services. She concluded her comments by asking Council for the ability to choose schools.

Eloisa, spoke against the KIPP development, arguing there are already too many schools in the community. She further argued that welcoming KIPP would result in public schools losing funding. She concluded her comments by suggesting funding public education instead of allowing the KIPP development.

Diego Chavarria, spoke against the KIPP development, expressing her solidarity with the community's public schools. She further argued that the City already has excellent public schools, and do not need to bring a charter school. She concluded her comments by suggesting to instead increase funding for existing public schools.

Jos, spoke against the KIPP development, citing grade inflation, and its tendency to target low income communities.

Star Laca, spoke about her daughter's positive experience in Teresa Hughes during the pandemic transition. She stressed that a child's safety and education is a foremost priority, and although the community's public school address those priorities, she argues it will alter if KIPP is brought to the community. She concluded her comments by emphasizing that a charter school is not needed when the school already has five public schools.

Marcos Oliva, reminded Council that it is being asked to vote under the basis of land use regulation. He further argued that bringing KIPP academy would not hinder the educational quality public schools already produces, and that bringing a school to the proposed lot may decrease crime and vandalism.

Los Angeles Community Member, told KIPP parents that people are not against them, rather against the KIPP corporation. She further argued administration is not from the community, and should not be forcing itself on an immigrant minority community.

Juan Carlos, argued that investing on education is the most important investment somebody could make. He argued that investment should be made regardless of it being a public or charter school. He further argued that KIPP charter schools exhibit a high quality of education, reflected by statistics and high testing scores.

Elba Palafox, teacher at Teresa Hughes Elementary, spoke against the KIPP development. She argued that the City already has high quality public schools, and furthermore the community does not want KIPP to open in Cudahy.

Angel Hernandez, spoke against the KIPP development arguing that current public schools are high quality but require more funding and resources.

Fatima Murrieta, spoke against the KIPP development arguing to invest in public education at a time when public education is cutting services. Furthermore, she urged for an independent EIR, noting the community's history of environmental degregation.

Vidian Carrillo, spoke in favor of the KIPP development, emphasizing the importance of having the ability to choose between charter and public schools.

Estrella Galindo, spoke in favor of the KIPP development, stating it does not matter if the school is a corporation or not, as she says all schools only seek money. She said that people should fight for the right to choose whether they can enlist their child in a public or charter school.

Diana Itza Garcia, spoke in favor of the KIPP development, noting the growth and progress her children experiences attending KIPP.

Rob Ollard, spoke in favor of the KIPP development, noting his positive experience with KIPP staff and his child's progress attending the school.

David Garcia, spoke against the KIPP development, asking the Council to listen to the community.

Emilia Casillas, spoke against the KIPP development.

Elizabeth Rubio, spoke against the KIPP development, arguing more schools are not needed as the community's public schools are sufficient.

Marcos Rodriguez, spoke against the KIPP development.

Rocio Azcano, spoke against the KIPP development, noting the extensive schools in the community.

Tevina Quintana, spoke against the KIPP development, noting the extensive schools in the community, and the high quality teachers those schools hire. Additionally, she argued KIPP does not follow the same standards the district follows, does not track student progress appropriately, and is a corporation.

Victor Frias, spoke against the KIPP development, noting the high number of schools in the community, and arguing instead to invest more in those public schools. He further argued that KIPP's board members do not have a public education background, and do not know the community.

Teresa Espinoza, spoke against the KIPP development, noting the extensive schools in the community, arguing public schools are just as good, and further arguing that the charter school will take away funding from public schools.

Anabel Morales, spoke in favor of the KIPP development, arguing that communities do not have variety in education, and therefore KIPP is needed to bring more variety when choosing schools.

Ivonne Luceo, spoke against the KIPP development, arguing that the city does not need more schools, and instead should increase funding to public schools. She further argued that charter schools take away funding from public schools. She concluded her comments by arguing that KIPP removes students that do poorly in tests, and those who typically need the most help.

Sonia Garcia, spoke in favor of the KIPP development, stating that she has seen notable academic progress in her child since she started attending KIPP Academy. She concluded her comment by stating that children and parents alike will be grateful if Council approves the project.

Estela Muntiel, spoke in favor of the KIPP development, emphasizing the education quality of the Academy they have seen first-hand from her daughter.

Carlos Montes, opposed the KIPP development project citing the lack of EIR, and potential environmental harm that may arise from the project. He proposed revenue generating businesses or affordable housing projects as suitable alternatives to the project.

Jose Sorria, opposed the KIPP development project, arguing it is a corporation, and will negatively affect the educational quality in the community. He proposed to instead fund public school education.

Ayde Bravo, opposed the KIPP development project, arguing that it is not exempt from CEQA regulations and therefore not exempt from environmental review.

MAYOR ALCANTAR CLOSED THE FLOOR TO PUBLIC COMMENT AT 7:08 PM

ITEM WAS TABLED TO A DATE UNCERTAIN.

IT WAS MOTIONED BY COUNCIL MEMBER GUERERO AND SECONDED BY COUNCIL MEMBER LOZOYA TO TABLE ALL ITEMS EXCEPT ITEMS 10A, 12C, AND, PUBLIC COMMENTS COUNCIL COMMENTS TO A SUBSEQUENT COUNCIL MEETING. THE MOTION CARRIED (5-0-0) BY THE FOLLOWING ROLL CALL VOTE:

AYES:	Garcia, Guerrero, Lozoya, Gonzalez, and Alcantar
NOES:	None
ABSENT:	None
ABSTAIN:	None

12. BUSINESS SESSION

A. Presentation of Proposed Fiscal Year (FY) 2020-21 City Budget

Presented by the Finance Director

The City Council is requested to receive a presentation of the Proposed Fiscal Year (FY) 2020-21 City Budget.

ITEM WAS TABLED TO A SUBSEQUENT COUNCIL MEETING.

B. Consideration and Adoption of an Urgency Ordinance Enacting a Temporary Moratorium on Evictions for Residential Tenants

Presented by the City Attorney's Office

The City Council is recommended to adopt an Urgency Ordinance enacting a temporary moratorium on evictions due to the nonpayment of rent for residential tenants where failure to pay rent results from income loss attributable to the novel Coronavirus (COVID-19).

ITEM WAS TABLED TO A SUBSEQUENT COUNCIL MEETING.

C. Discussion of Cudahy's 2020 Firework Sales in light of COVID-19

Presented by the Interim Community Development Manager

The City Council is requested to provide direction to staff concerning the sale of fireworks for the 2020 4th of July celebrations.

IT WAS MOTIONED BY COUNCIL MEMBER GUERRERO AND SECONDED BY COUNCIL MEMBER GARCIA TO OPEN THE FLOOR FOR ANOTHER ROUND OF COUNCIL DISCUSSION. THE MOTION CARRIED (4-0-0) BY THE FOLLOWING ROLL CALL VOTE:

AYES: Garcia, Guerrero, Lozoya, and Gonzalez
NOES: None
ABSENT: None
ABSTAIN: Alcantar

A DISCUSSION ENSUED AMONGST COUNCIL REGARDING THIS ITEM.

13. COUNCIL DISCUSSION

A. Council Member Guerrero

i. Municipal Code Hotel Permitting Process.

14. CLOSED SESSION

DELIBERATING AS CUDAHY SUCCESSOR AGENCY

A. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 1 Elizabeth Street Residential Property 5256 Elizabeth Street APN: 6224-001-014
5260 Elizabeth Street APN: 6224-001-015

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

B. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 2 Atlantic Avenue/Santa Ana Street Commercial Property 4734 Santa Ana Street APN: 6224-018-008
8110 South Atlantic Avenue APN: 6224-018-071
8100 South Atlantic Avenue APN: 6224-018-068 Santa Ana Street APN: 6224-018-070
4720 Santa Ana Street APN: 6224-018-069

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

C. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 3 Santa Ana Street Residential Property 4610 Santa Ana Street APN: 6224-019-014

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

D. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 4 Atlantic Avenue/Cecilia Street Commercial Property 8135 South Atlantic Avenue APN: 6224-022-001
4629 Cecilia Street APN: 6224-022-004
8201 South Atlantic Avenue APN: 6224-022-002
8221 South Atlantic Avenue APN: 6224-022-012
4633 Cecilia Street APN: 6224-022-003

Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

E. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 5 Atlantic Avenue/Patata Street Commercial Property 4819 Patata Street APN: 6224-034-014
8420 South Atlantic Avenue APN: 6224-034-032 APN: 6224-034-040
Patata Street APN: 6224-034-041
Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

F. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators

Property Location:
Site No. 6 Atlantic Avenue/Clara Street Commercial Property 4613 Clara Street APN: 6226-022-002
7660 South Atlantic Avenue APN: 6226-022-008
7630 South Atlantic Avenue APN: 6226-022-019 APN: 6226-022-020
7638 South Atlantic Avenue APN: 6226-022-023
7644 South Atlantic Avenue APN: 6226-022-022
No address APN: 6226-022-021 APN: 6226-022-024
Successor Agency Negotiator: Henry Garcia, Executive Director, Dave Gondek, Deputy City Attorney, Victor Ponto, City Attorney
Negotiating parties: Chief Administrative Officer Under Negotiation: Price and Terms

G. Closed Session Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiator

Properties:
-8100 Atlantic Ave., 4720 Santa Ana St., 8110 Atlantic Ave., 4734 Santa Ana St. (APN 6224-018- 068, 069, 070, 071, 008)
-8135 Atlantic Ave., 4629 Cecilia St., 8201 S. Atlantic, 4633 Cecilia St., 8221 S. Atlantic Ave. (APN 6224-022-001, 004, 002, 003, 012)
-4819 Patata, 8420 S. Atlantic Ave. (APN 6224-034-014, 032, 040, 041)
-4613/4615 Clara St., 7630 Atlantic Blvd., 7660 Atlantic Blvd., 7638 Atlantic Blvd., 7644 Atlantic Blvd. (APN 6226-022-002, 019, 020, 008, 021, 022, 023, 024)
-4610 Santa Ana St. (APN 6224-019-014)

City Negotiators: Interim City Manager, Henry Garcia and City Attorney Negotiating Parties: Cudahy LF, LLC
Under Negotiation: Price and terms of payment

DELIBERATING AS CITY COUNCIL

H. Closed Session Pursuant to Government Code Section 54956.9(d)(4) – Conference with Legal Counsel to Discuss the Initiation of Litigation – One Matter

15. CLOSED SESSION ANNOUNCEMENT

Deputy City Attorney Victor Ponto reported that for each closed session items, legal counsel was given, direction was received, no further reportable action.

16. ADJOURNMENT

The City Council / Agency meeting was adjourned at 10:15 p.m.

Elizabeth Alcantar
Mayor

ATTEST:

Richard Iglesias
Assistant City Clerk

Attachment H

LINSCOTT
LAW &
GREENSPAN
engineers

TRAFFIC IMPACT STUDY

7801-7835 OTIS AVENUE
CHARTER SCHOOL PROJECT

City of Cudahy, California
February 18, 2020

Prepared for:

KLARE 16, LLC
3601 E. 1st Street
Los Angeles, CA 90063

LLG Ref. 5-19-0474-1

REGISTERED PROFESSIONAL ENGINEER
DAVID S. SHENDER
No. C45324
Exp. 09/30/20
CIVIL
STATE OF CALIFORNIA

Prepared by:

Amrita Shankar
Transportation Engineer I

Under the Supervision of:

David S. Shender, P.E.
Principal

Linscott, Law & Greenspan, Engineers

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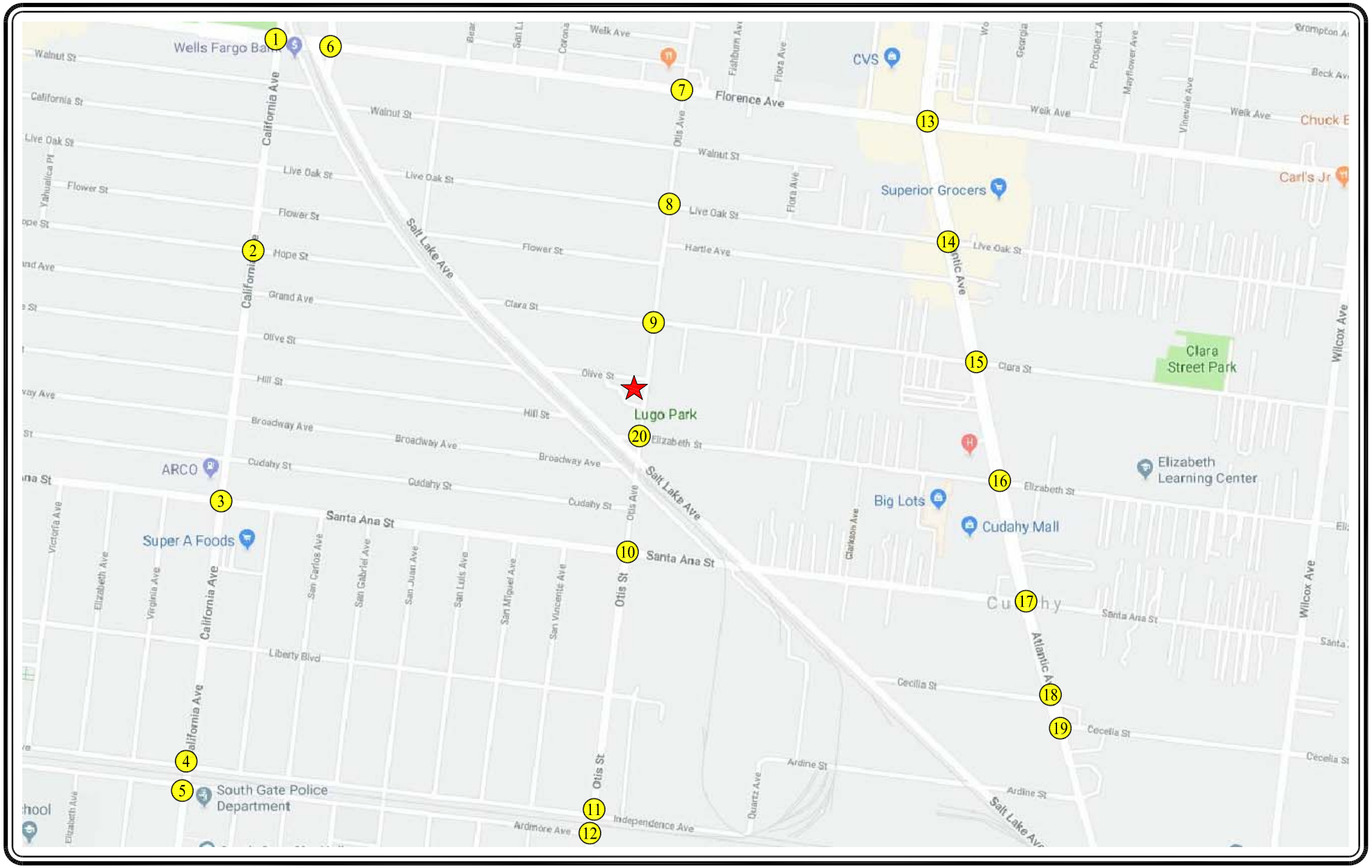
1.0 INTRODUCTION

This traffic analysis has been conducted to identify and evaluate the potential traffic impacts of the proposed charter school project (the "Project") located at 7801-7835 Otis Avenue in the City of Cudahy, California (the "Project Site"). The Project proposes the development of a charter school (Grades K-8) accommodating a maximum enrollment of 1,075 students. Two two-story buildings are proposed to be developed on the site. One building will be dedicated to Grades K-4 and will accommodate a maximum enrollment of 575 students. The other building will be dedicated to Grades 5-8 and will accommodate a maximum enrollment of 500 students. The Project Site is bounded by Olive Street to the north, Elizabeth Street to the south, Otis Avenue to the east, and industrial uses to the west. The Project Site location and general vicinity are shown in ***Figure 1–1***.

As directed by the City of Cudahy (the "City"), the traffic analysis follows Los Angeles County Department of Public Works (LACDPW) traffic study guidelines[1] and is consistent with traffic impact assessment guidelines set forth in the Los Angeles County Congestion Management Program[2]. This traffic analysis evaluates potential Project-related impacts at 20 key intersections in the vicinity of the Project Site. The study intersections were determined in consultation with City staff. As directed by the City, the Highway Capacity Manual 2010 (HCM) method was used to determine average control delays and corresponding Levels of Service (LOS) at the 20 study intersections located within or shared with the City of Cudahy, the City of Bell, the City of Huntington Park, and the City of South Gate. A review also was conducted of Los Angeles County Metropolitan Transportation Authority (Metro) freeway and intersection monitoring stations to determine if a Congestion Management Program transportation impact assessment analysis is required for the proposed Project. In addition, as directed by the City, an assessment is provided of the Project's Vehicle Miles Traveled (VMT) transportation impact.

This study (i) presents existing traffic volumes, (ii) includes existing traffic volumes with the forecast net new traffic volumes from the proposed Project, (iii) recommends mitigation measures, where necessary, (iv) forecasts future cumulative baseline traffic volumes, (v) forecasts future traffic volumes with the proposed Project, (vi) determines future forecast with Project-related impacts, and (vii) recommends mitigation measures, where necessary. In addition, this study presents the VMT assessment based on Senate Bill 743.

[1] County of Los Angeles' *Traffic Impact Analysis Report Guidelines*, January 1997.
[2] *2010 Congestion Management Program for Los Angeles County*, Los Angeles County Metropolitan Transportation Authority, 2010.



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MAP SOURCE: GOOGLE MAPS
★ PROJECT SITE
Ⓧ STUDY INTERSECTION

FIGURE 1-1
VICINITY MAP

LINSCOTT, LAW & GREENSPAN, engineers

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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1.1 Study Area

Upon coordination with City staff, 20 study intersections have been identified for evaluation during the weekday morning and afternoon peak hours. The study intersections were evaluated from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM to determine the respective peak commuter hours. The 20 study intersections provide local access to the study area and define the extent of the boundaries for this traffic impact analysis. Further discussion of the existing street system and study area is provided in Section 4.0.

The general location of the Project in relation to the study locations and surrounding street system is presented in *Figure 1–1*. The traffic analysis study area is generally comprised of those locations which have the greatest potential to experience significant traffic impacts due to the proposed Project as defined by the Lead Agency. In the traffic engineering practice, the study area generally includes those intersections that are:

a. Immediately adjacent or in close proximity to the Project Site;

b. In the vicinity of the Project Site that are documented to have current or projected future adverse operational issues; and

c. In the vicinity of the Project Site that are forecast to experience a relatively greater percentage of Project-related vehicular turning movements (e.g., at freeway ramp intersections).

The locations selected for analysis were based on the above criteria, the peak-hour vehicle trip generation associated with the proposed Project, the anticipated distribution of Project vehicular trips, and existing intersection/corridor operations.

2.0 PROJECT DESCRIPTION

2.1 Site Location

The proposed Project Site is located at 7801-7835 Otis Avenue in the City of Cudahy. The Project Site is bounded by Olive Street to the north, Elizabeth Street to the south, Otis Avenue to the east, and industrial uses to the west. The Project Site location and general vicinity are shown in *Figure 1–1*.

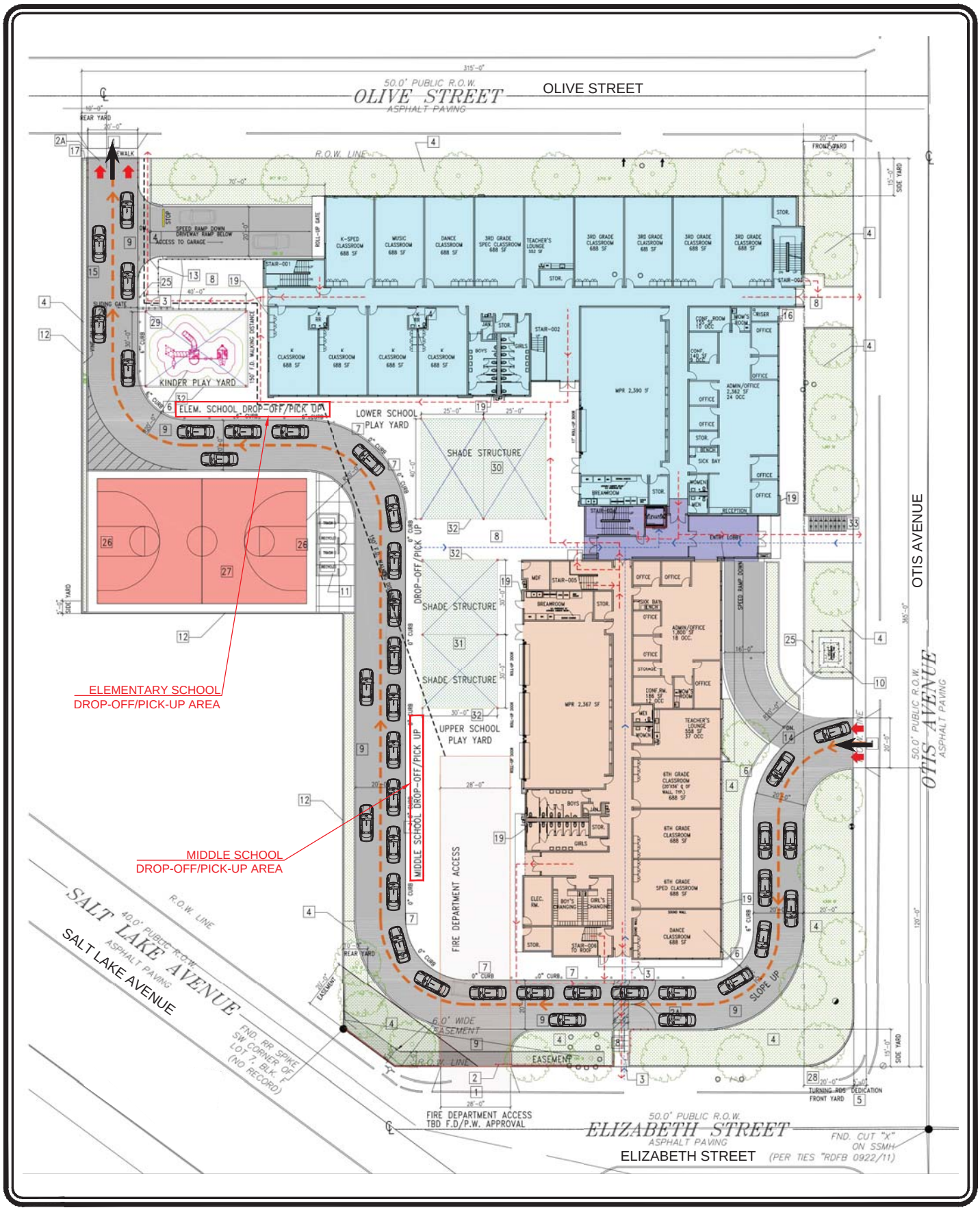
2.2 Existing Project Site

The Project Site is currently occupied by an auto repair shop with approximately 3,600 square feet of building floor area and an industrial site with approximately 30,265 square feet of building floor area. Vehicular access to the existing Project Site is provided via two driveways along the west side of Otis Avenue and one driveway along the south side of Olive Street. An additional driveway along the south side of Olive Street is currently fenced off.

2.3 Proposed Project Description

The Project applicant seeks to remove the existing buildings and construct a charter elementary school (Grades K-4) accommodating an enrollment of 575 students and a charter middle school (Grades 5-8) accommodating an enrollment of 500 students. An on-site subterranean parking garage providing 99 spaces is proposed as part of the Project to be used by staff and visitors. Construction and occupancy of the proposed Project is planned to be completed by the year 2021. The site plan for the proposed Project is illustrated in ***Figure 2–1***.

Vehicular access to the Project's drop-off/pick-up area and subterranean parking garage will be provided via one inbound driveway along the west side of Otis Avenue at the easterly portion of the Project Site, as well as one outbound driveway along the south side of Olive Street, at the northwest portion of the Project Site. Further discussion on the Project Site access and circulation schemes is provided in Section 3.0.



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SOURCE: FRANCO ARCHITECTS INC.

FIGURE 2-1
PROJECT SITE PLAN

LINSCOTT, LAW & GREENSPAN, engineers

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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3.0 SITE ACCESS AND CIRCULATION

The proposed site access scheme for the Project is displayed in *Figure 2–1*. A description of the proposed site access and circulation scheme is provided in the following subsections.

3.1 Existing Vehicular Site Access

Vehicular access to the existing Project Site is provided via two driveways along the west side of Otis Avenue and one driveway along the south side of Olive Street.

3.2 Vehicular Project Site Access

Descriptions of the Project Site driveways are provided in the following paragraphs:

- *Otis Avenue Driveway:*

  Vehicular ingress to the Project's drop-off/pick-up area and subterranean parking garage will be provided via one driveway along the west side of Otis Avenue approximately midway between Olive Street and Elizabeth Street. The ingress driveway is proposed to accommodate right-turn vehicular ingress only (i.e., right-turn egress and left-turn ingress and egress movements will not be permitted). Signage on Otis Avenue prohibiting northbound left-turn ingress movements during drop-off/pick-up periods will be provided. Additionally, staff and parents/caregivers will be provided with information regarding the site access scheme prior to the start of the school year. Therefore, motorists destined to the Project will be aware of the right-turn only ingress operation at the Otis Avenue driveway and will plan their travel routes in advance so as to arrive at the Project site via southbound Otis Avenue. Traffic destined to the Project to drop-off or pick-up students will enter the proposed Otis Avenue ingress driveway, travel within the site in the proposed drop-off/pick-up lane, complete the student drop-off or pick-up, and then exit onto Olive Street via the proposed driveway at the northwesterly portion of the Project Site. Traffic destined to the Project to access the subterranean parking garage will enter the Otis Avenue driveway and travel down the ramp to the parking garage. Traffic departing the Project from the parking garage will travel up the ramp at the northwesterly portion of the Project Site and exit via the proposed Olive Street egress driveway.

- *Olive Street Driveway:*

  Vehicular egress from the Project's drop-off/pick-up area, as well as from the subterranean parking garage, will be provided via one driveway along the south side of Olive Street, at the northwest portion of the Project Site. The Olive Street driveway is proposed to accommodate vehicular egress movements only (i.e., left-turn and right-turn ingress movements are not permitted).

3.3 Proposed Student Drop-Off and Pick-Up Operations

The proposed student drop-off/pick-up area is shown in *Figure 2–1*. Vehicles destined to the Project to drop-off or pick-up students will enter the site via the proposed ingress driveway on Otis Avenue, travel within the site in the proposed drop-off/pick-up lane, complete the student drop-off or pick-up for Grades 5-8, continue northbound within the site in the proposed drop-off/pick-up lane, complete the student drop-off or pick-up for Grades K-4, and then exit via the northwesterly driveway onto Olive Street. The proposed drop-off/pick-up lane can accommodate approximately 26 vehicles queued within the site. As shown, the proposed on-site drop-off/pick-up area lane is approximately 20 feet in width, which is sufficient to accommodate one lane of queued vehicles, plus a bypass lane to allow vehicles to bypass the queue should there be delay related to the passenger loading/unloading of one or more of the queued vehicles.

3.3.1 *Estimated Peak Vehicle Queue*

Private vehicles are the main component that contributes to the vehicle queuing analysis during the peak student drop-off and pick-up periods. The analysis focuses on the morning student drop-off period as the pick-up of students tends to be dispersed on a relative basis throughout the afternoon, particularly as students are involved with after-school activities.

The proposed Project is forecast to generate 365 inbound trips and 310 outbound trips during the AM peak hour (refer to Section 7.0, Traffic Forecasting Methodology, for a discussion of the Project's trip generation forecasts). While the ITE trip rates do not distinguish between trips related to staff arrivals and student drop-offs in the morning, it can be generally assumed that the 310 outbound trips during the AM peak hour would correlate with at least 310 inbound trips during this period related to student drop-off operations. The remaining inbound vehicle trips during the AM peak hour are likely due to administrative staff, visitors, etc., at the campus. Therefore, for this queuing analysis, it has been assumed that approximately 310 vehicles would utilize the on-site vehicle queue area as part of the student drop-off operations.

While the ITE forecasts are made for a peak one-hour (i.e., 60-minute) period, it has been observed that student drop-offs are typically concentrated in shorter timeframes leading up to the start of classes for the day. Thus, for this analysis it has been conservatively (i.e., worst case) assumed that the 310 vehicles would arrive in a 30-minute period, which is equivalent to approximately 10.3 vehicles per minute. Multiplying this average arrival by two to approximate the 95th percentile confidence level of a Poisson distribution (which is typically used by traffic engineers in planning the lengths of left and right-turn pockets at intersections) results in an estimated maximum of 21 vehicles during the peak minute. As previously noted, the on-site vehicle queue area can accommodate a maximum of 26 queued vehicles within the site. Accordingly, Project-related trips are not expected to queue onto Otis Avenue. Therefore, it is concluded that the planned on-site vehicle queue area can adequately accommodate the forecast peak demand of 21 queued vehicles during the morning student drop-off operation. It is noted that vehicles are expected to depart the Project Site at a similar peak rate (21 exiting vehicles during the peak one-minute period).

4.0 EXISTING STREET SYSTEM

4.1 Regional Highway System

Regional access to the Project Site is provided by the I-105 (Glenn Anderson) Freeway and I-710 (Long Beach) Freeway. Brief descriptions of the I-105 and I-710 Freeways are provided in the following paragraphs.

I-105 (Glenn Anderson) Freeway is an east-west freeway connecting the City of Norwalk to the City of El Segundo. In the Project vicinity, three-mixed flow lanes are generally provided in each direction on the I-105 Freeway with auxiliary merge/weave lanes provided between some interchanges as well as one carpool lane in each direction. Eastbound and westbound ramps are provided on the I-105 Freeway at Long Beach Boulevard in the Project vicinity, which are located approximately 2.8 miles south of the Project Site.

I-710 (Long Beach) Freeway is a north-south oriented freeway connecting the City of Long Beach with the City of Los Angeles. In the Project vicinity, four mixed flow lanes are generally provided in each direction on the I-710 Freeway with auxiliary merge/weave lanes provided between some interchanges. Northbound and southbound ramps are provided on the I-710 Freeway at Florence Avenue in the Project vicinity, which are located approximately 1.5 miles north of the Project Site.

4.2 Local Roadway System

Immediate access to the Project Site is provided via Otis Avenue and Olive Street. The following study intersections were selected in consultation with City staff for analysis of potential impacts due to the proposed Project:

1. Salt Lake Avenue – California Avenue / Florence Avenue (City of Huntington Park)
2. California Avenue / Hope Street (City of Huntington Park)
3. California Avenue / Santa Ana Street (City of Huntington Park / City of South Gate)
4. California Avenue / Independence Avenue (City of South Gate)
5. California Avenue / Ardmore Avenue (City of South Gate)
6. California Avenue – Salt Lake Avenue / Florence Avenue (City of Bell / City of Huntington Park)
7. Otis Avenue / Florence Avenue (City of Bell)
8. Otis Avenue / Live Oak Street (City of Cudahy)
9. Otis Avenue / Clara Street (City of Cudahy)

10. Otis Avenue – Otis Street / Santa Ana Street (City of Huntington Park / City of South Gate)

11. Otis Street / Independence Avenue (City of South Gate)

12. Otis Street / Ardmore Avenue (City of South Gate)

13. Atlantic Avenue / Florence Avenue (City of Bell / City of Cudahy)

14. Atlantic Avenue / Live Oak Street (City of Cudahy)

15. Atlantic Avenue / Clara Street (City of Cudahy)

16. Atlantic Avenue / Elizabeth Street (City of Cudahy)

17. Atlantic Avenue / Santa Ana Street (City of Cudahy)

18. Atlantic Avenue / N. Cecilia Street (City of Cudahy)

19. Atlantic Avenue / S. Cecilia Street (City of Cudahy)

20. Otis Avenue / Elizabeth Street (City of Cudahy)

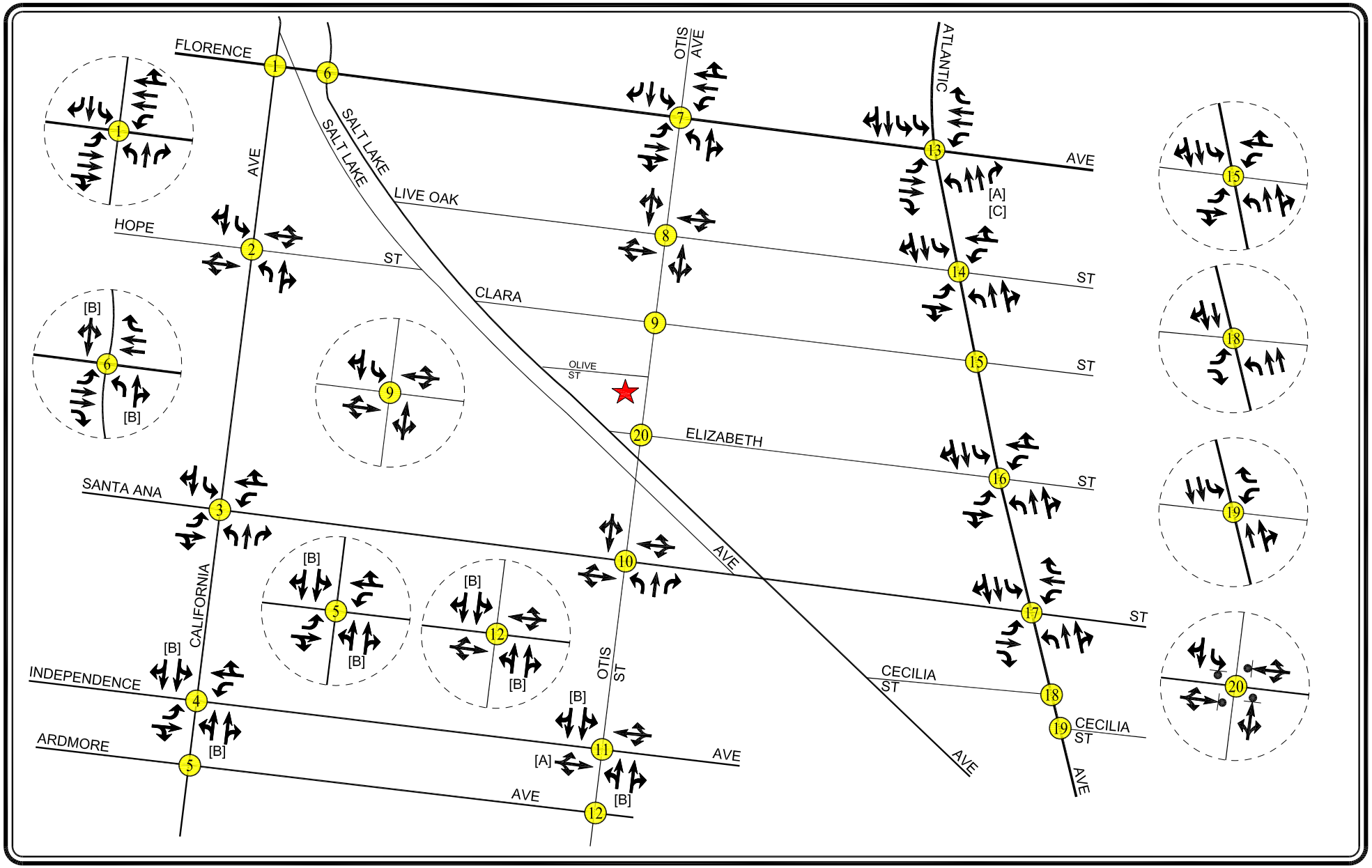
Nineteen of the 20 study intersections selected for analysis are presently controlled by traffic signals. The Otis Avenue / Elizabeth Street intersection is currently under the control of stop signs. The existing lane configurations at the study intersections are displayed in ***Figure 4–1***.

4.3 Roadway Descriptions

A brief description of the roadways in the Project vicinity is provided in the following paragraphs.

California Avenue is a north-south oriented roadway located west of the Project Site. Within the Project study area, California Avenue is designated as a Collector Roadway by the City of Bell, as a Local Street by the City of Huntington Park, and as a Secondary Arterial by the City of South Gate. North of Santa Ana Street, one through travel lane is provided in each direction on California Avenue within the Project study area. South of Santa Ana Street, two through travel lanes are provided in each direction on California Avenue. Separate exclusive left-turn lanes are provided in each direction on California Avenue at the Florence Avenue, Hope Street, and Santa Ana Street intersections. North of Florence Avenue, California Avenue becomes Salt Lake Avenue. California Avenue is posted for a speed limit of 35 miles per hour within the Project study area.

Salt Lake Avenue is a north-south oriented roadway located west of the Project Site. Within the Project study area, Salt Lake Avenue is designated as a Collector Roadway by the City of Bell, as a Collector Street by the City of Cudahy, and as a Collector Roadway by the City of Huntington Park. One through travel lane is provided in each direction on Salt Lake Avenue



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- PROJECT SITE
- STUDY INTERSECTION
- STOP SIGN
- [A] NO RIGHT-TURN ON RED
- [B] SPLIT PHASING
- [C] RIGHT-TURN OVERLAP

LINSCOTT, LAW & GREENSPAN, engineers

FIGURE 4-1
EXISTING LANE CONFIGURATIONS

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Salt Lake Avenue at major intersections. North of Florence Avenue, Salt Lake Avenue becomes California Avenue. North of Florence Avenue, Salt Lake Avenue is posted for a speed limit of 25 miles per hour within the Project study area. South of Florence Avenue, Salt Lake Avenue is posted for a speed limit of 35 miles per hour within the Project study area.

Otis Avenue is a north-south oriented roadway that borders the Project Site to the east. Within the Project study area, Otis Avenue is designated as a Collector Roadway by the City of Bell, as a Collector Street by the City of Cudahy, and as a Local Street by the City of Huntington Park. One through travel lane is provided in each direction on Otis Avenue within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Otis Avenue at the Florence Avenue intersection, and separate exclusive left-turn lanes are provided in the southbound direction on Otis Avenue at the Clara Street and Elizabeth Street intersections. South of Santa Ana Street, Otis Avenue becomes Otis Street. North of Florence Avenue, Otis Avenue is posted for a speed limit of 30 miles per hour within the Project study area. South of Florence Avenue, Otis Avenue is posted for a speed limit of 25 miles per hour within the Project study area.

Otis Street is a north-south oriented roadway located east of the Project Site. Within the Project study area, Otis Street is designated as a Collector Street by the City of South Gate. Two through travel lanes are provided in each direction on Otis Street within the Project study area. North of Santa Ana Street, Otis Street becomes Otis Avenue. Otis Street is posted for a speed limit of 30 miles per hour within the Project study area.

Atlantic Avenue is a north-south oriented roadway located east of the Project Site. Within the Project study area, Atlantic Avenue is designated as an Arterial Roadway by the City of Bell, as a Major Highway by the City of Cudahy, and as a Primary Arterial by the City of South Gate. Two through travel lanes are provided in each direction on Atlantic Avenue within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Atlantic Avenue at major intersections. Atlantic Avenue is posted for a speed limit of 35 miles per hour within the Project study area.

Florence Avenue is an east-west oriented roadway located north of the Project Site. Within the Project study area, Florence Avenue is designated as an Arterial Roadway by the City of Bell and as a Major Arterial by the City of Huntington Park. Two through travel lanes are provided in each direction on Florence Avenue within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Florence Avenue at major intersections. Florence Avenue is posted for a speed limit of 35 miles per hour within the Project study area.

Live Oak Street is an east-west oriented roadway located north of the Project Site. Within the Project study area, Live Oak Street is designated as a Local Street by the City of Cudahy and as a Local Street by the City of Huntington Park. One through travel lane is provided in each direction on Live Oak Street within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Live Oak Street at the Atlantic Avenue intersection. Live Oak Street is posted for a speed limit of 25 miles per hour within the Project study area.

Hope Street is an east-west oriented roadway located north of the Project Site. Within the Project study area, Hope Street is designated as a Local Street by the City of Huntington Park. One through travel lane is provided in each direction on Hope Street within the Project study area. Hope Street is posted for a speed limit of 25 miles per hour within the Project study area.

Clara Street is an east-west oriented roadway located north of the Project Site. Within the Project study area, Clara Street is designated as a Collector Street by the City of Cudahy. One through travel lane is provided in each direction on Clara Street within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Clara Street at the Atlantic Avenue intersection. West of Atlantic Avenue, Clara Street is posted for a speed limit of 30 miles per hour within the Project study area. East of Atlantic Avenue, Clara Street is posted for a speed limit of 25 miles per hour within the Project study area.

Olive Street is an east-west oriented roadway that borders the Project Site to the north. Within the Project study area, Olive Street is designated as a Local Street by the City of Cudahy and as a Local Street by the City of Huntington Park. One through travel lane is provided in each direction on Olive Street within the Project study area. Olive Street is posted for a speed limit of 25 miles per hour within the Project study area.

Elizabeth Street is an east-west oriented roadway located south of the Project Site. Within the Project study area, Elizabeth Street is designated as a Collector Street by the City of Cudahy. One through travel lane is provided in each direction on Elizabeth Street within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Elizabeth Street at the Atlantic Avenue intersection. Elizabeth Street is posted for a speed limit of 25 miles per hour within the Project study area.

Santa Ana Street is an east-west oriented roadway located south of the Project Site. Within the Project study area, Santa Ana Street is designated as a Collector Street by the City of Cudahy and as a Collector Street by the City of South Gate. One through travel lane is provided in each direction on Santa Ana Street within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Santa Ana Street at the California Avenue and Atlantic Avenue intersections. West of Atlantic Avenue, Santa Ana Street is posted for a speed limit of 30 miles per hour within the Project study area. East of Atlantic Avenue, Santa Ana Street is posted for a speed limit of 25 miles per hour within the Project study area.

Cecilia Street is an east-west oriented roadway located south of the Project Site. Within the Project study area, Cecilia Street is designated as a Local Street by the City of Cudahy. One through travel lane is provided in each direction on Cecilia Street within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Cecilia Street at the Atlantic Avenue intersection. Cecilia Street is posted for a speed limit of 25 miles per hour within the Project study area.

Independence Avenue is an east-west oriented roadway located south of the Project Site. Within the Project study area, Independence Avenue is designated as a Collector Street by the City of South Gate. One through travel lane is provided in each direction on Independence Avenue

within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Independence Avenue at the California Avenue intersection. West of Otis Street, Independence Avenue is posted for a speed limit of 35 miles per hour within the Project study area. There is no speed limit posted on Independence Avenue east of Otis Street within the Project study area, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code.

Ardmore Avenue is an east-west oriented roadway located south of the Project Site. Within the Project study area, Ardmore Avenue is designated as a Collector Street by the City of South Gate. One through travel lane is provided in each direction on Ardmore Avenue within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Ardmore Avenue at the California Avenue intersection. Ardmore Avenue terminates at the Otis Street intersection. West of Otis Street, Ardmore Avenue is posted for a speed limit of 35 miles per hour within the Project study area.

4.4 Public Transit Services

Public transit service within the Project study area is currently provided by the Los Angeles County Metropolitan Transit Authority (Metro), the City of Cudahy Transit (Cudahy Area Rapid Transit), the City of Bell Transit (La Campana), and the City of Huntington Park Transit (Huntington Park Express). A summary of the existing transit service, including the transit route, destinations and peak hour headways is presented in ***Table 4–1***. The existing public transit routes in the Project site vicinity are illustrated in ***Figure 4–2***.

It is noted that the Union Pacific Railroad tracks run through the Project study area. However, upon visiting the Project study area, it was observed that train operations were infrequent.

Table 4-1
EXISTING PUBLIC TRANSIT ROUTES [1]

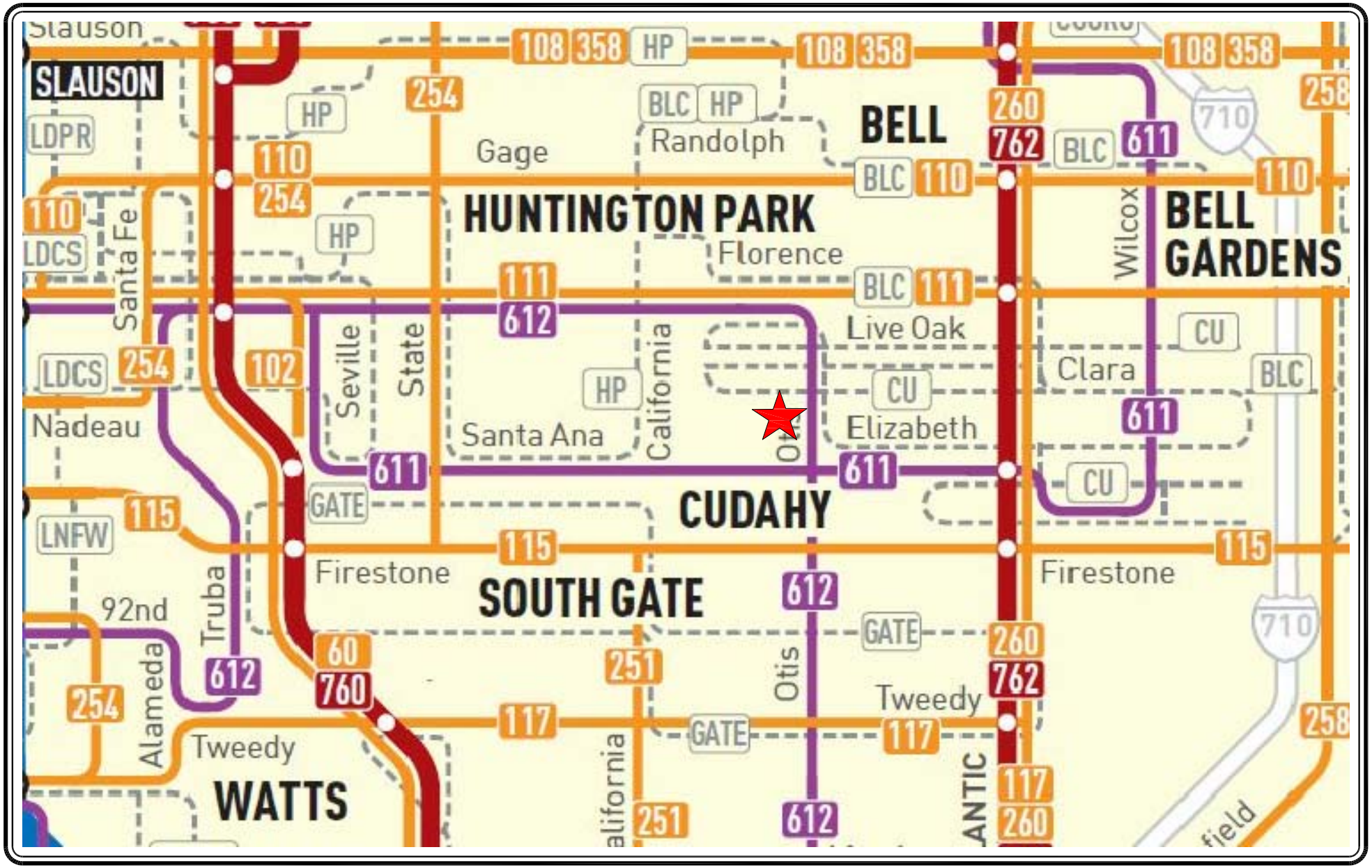
10-Dec-19

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES/TRAINS DURING PEAK HOUR		
			DIR	AM	PM
Metro 111	Norwalk Station to LAX City Bus Center (via Florence Avenue)	Florence Avenue	EB WB	5 5	6 5
Metro 260	Altadena to Artesia Station (via Fair Oaks Avenue and Atlantic Avenue)	Atlantic Avenue	NB SB	5 4	3 5
Metro 611	Cudahy to Bell (via Santa Ana Street, Leonis Boulevard and Wilcox Avenue)	Santa Ana Street	CW CCW	1 1	1 2
Metro 612	Roundtrip from Willowbrook/Rosa Parks Station (via Wilmington Avenue, Florence Avenue, Otis Street and Imperial Highway)	Florence Avenue, Otis Street	CW CCW	1 1	1 1
Metro Rapid 762	Pasadena to Artesia Station (via Fair Oaks Avenue and Atlantic Avenue)	Atlantic Avenue	NB SB	2 3	2 2
Cudahy Area Rapid Transit	Roundtrip from Cudahy City Hall (via Santa Ana Street, Atlantic Avenue, Live Oak Street, and Otis Avenue)	Atlantic Avenue, Otis Avenue	CW CCW	0 2	0 1
La Campana	Roundtrip from Bell Civic Center (via Gage Avenue, Walker Avenue, Florence Avenue and California Avenue)	Atlantic Avenue, Florence Avenue	CW CCW	2 0	2 0

Table 4-1 (Continued)
EXISTING PUBLIC TRANSIT ROUTES [1]

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES/TRAINS DURING PEAK HOUR		
			DIR	AM	PM
Huntington Park Express	Roundtrip from Huntington Park City Hall (via Saturn Avenue, Santa Fe Avenue, Slauson Avenue, and California Avenue)	California Avenue	CW CCW	3 0	2 0
			Total	**35**	**33**

[1] Sources: Los Angeles County Metropolitan Transportation Authority (Metro) website, 2019.
City of Cudahy Transit website, 2019.
City of Bell (La Campana) Transit website, 2019.
City of Huntington Park Transit website, 2019.
CW = Clockwise
CCW = Counterclockwise



MAP SOURCE: METROPOLITAN TRANSPORTATION AUTHORITY

★ PROJECT SITE

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FIGURE 4-2
EXISTING PUBLIC TRANSIT ROUTES

LINSCOTT, LAW & GREENSPAN, engineers

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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5.0 TRAFFIC COUNTS

Manual traffic counts of vehicular turning movements were conducted on Wednesday, October 16, 2019 at 19 of the 20 study intersections during the weekday morning and afternoon commuter periods to determine the peak hour traffic volumes. The manual traffic counts of vehicular turning movements for the Otis Avenue / Elizabeth Street intersection were conducted on Thursday, November 7, 2019. The manual traffic counts at the 20 study intersections were conducted from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM to determine the respective peak commuter hours.

The weekday AM and PM peak period manual counts of vehicle movements at the study intersections are summarized in ***Table 5–1***. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are shown in ***Figures 5–1*** and ***5-2,*** respectively. Summary data worksheets of the manual traffic counts at the study intersections are contained in ***Appendix A***.

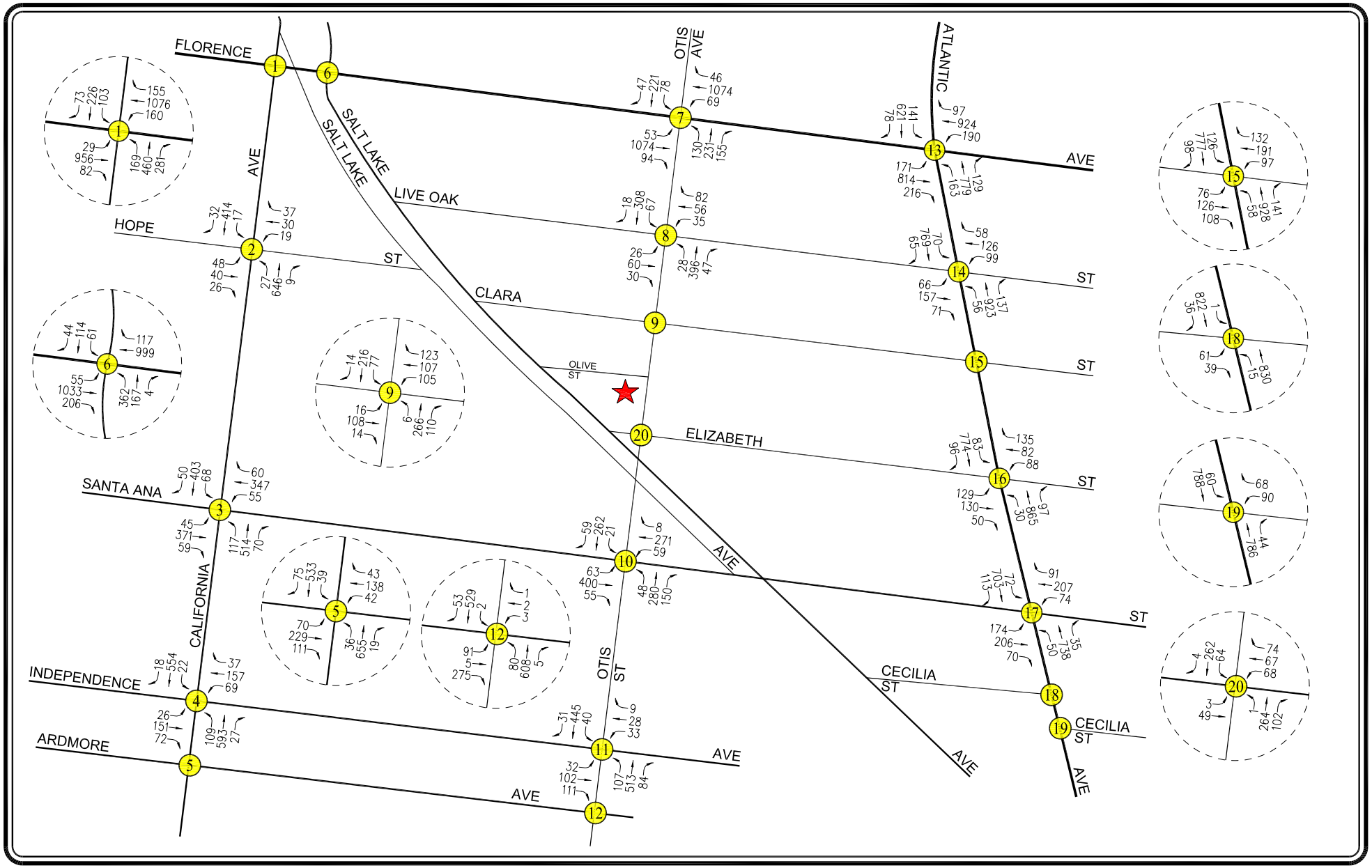
Table 5-1
EXISTING TRAFFIC VOLUMES [1]

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR BEGAN	AM PEAK HOUR VOLUME	PM PEAK HOUR BEGAN	PM PEAK HOUR VOLUME
1	Salt Lake Avenue-California Avenue / Florence Avenue	10/16/2019	NB	7:15	910	5:00	607
			SB		402		602
			EB		1,067		1,263
			WB		1,391		1,085
2	California Avenue / Hope Street	10/16/2019	NB	7:00	682	5:00	494
			SB		463		639
			EB		114		64
			WB		86		42
3	California Avenue / Santa Ana Street	10/16/2019	NB	7:00	701	5:00	612
			SB		521		640
			EB		475		585
			WB		462		430
4	California Avenue / Independence Avenue	10/16/2019	NB	7:00	729	5:00	595
			SB		594		593
			EB		249		201
			WB		263		181
5	California Avenue / Ardmore Avenue	10/16/2019	NB	7:15	710	5:00	607
			SB		647		635
			EB		410		326
			WB		223		133
6	California Avenue - Salt Lake Avenue / Florence Avenue	10/16/2019	NB	7:00	533	4:45	310
			SB		219		288
			EB		1,294		1,409
			WB		1,116		852
7	Otis Avenue / Florence Avenue	10/16/2019	NB	7:00	516	5:00	355
			SB		346		392
			EB		1,221		1,108
			WB		1,189		953
8	Otis Avenue / Live Oak Street	10/16/2019	NB	7:00	471	5:00	357
			SB		393		397
			EB		116		88
			WB		173		124
9	Otis Avenue / Clara Street	10/16/2019	NB	7:00	382	5:00	379
			SB		307		374
			EB		138		132
			WB		335		264
10	Otis Avenue - Otis Street / Santa Ana Street	10/16/2019	NB	7:00	478	4:00	437
			SB		342		457
			EB		518		517
			WB		338		448
11	Otis Street / Independence Avenue	10/16/2019	NB	7:15	704	4:45	644
			SB		516		552
			EB		245		137
			WB		70		126
12	Otis Street / Ardmore Avenue	10/16/2019	NB	7:00	693	4:30	637
			SB		584		622
			EB		371		328
			WB		6		7

Table 5-1 (Continued)
EXISTING TRAFFIC VOLUMES [1]

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR BEGAN	AM PEAK HOUR VOLUME	PM PEAK HOUR BEGAN	PM PEAK HOUR VOLUME
13	Atlantic Avenue / Florence Avenue	10/16/2019	NB	7:15	1,071	4:00	826
			SB		840		960
			EB		1,201		1,086
			WB		1,211		1,039
14	Atlantic Avenue / Live Oak Street	10/16/2019	NB	7:15	1,116	5:00	809
			SB		904		991
			EB		294		210
			WB		283		282
15	Atlantic Avenue / Clara Street	10/16/2019	NB	7:15	1,127	5:00	897
			SB		1,001		1,067
			EB		310		329
			WB		420		394
16	Atlantic Avenue / Elizabeth Street	10/16/2019	NB	7:15	992	5:00	825
			SB		953		1,037
			EB		309		276
			WB		305		228
17	Atlantic Avenue / Santa Ana Street	10/16/2019	NB	7:15	823	4:30	814
			SB		888		950
			EB		450		414
			WB		372		303
18	Atlantic Avenue / N. Cecilia Street	10/16/2019	NB	7:30	845	5:00	809
			SB		859		872
			EB		100		58
			WB		0		2
19	Atlantic Avenue / S. Cecilia Street	10/16/2019	NB	7:15	830	4:45	794
			SB		848		877
			EB		0		0
			WB		158		120
20	Otis Avenue / Elizabeth Street	11/07/2019	NB	7:15	367	4:00	394
			SB		330		375
			EB		52		66
			WB		209		190

[1] National Data & Surveying Services



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★ PROJECT SITE
(X) STUDY INTERSECTION

FIGURE 5-1
EXISTING TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR
7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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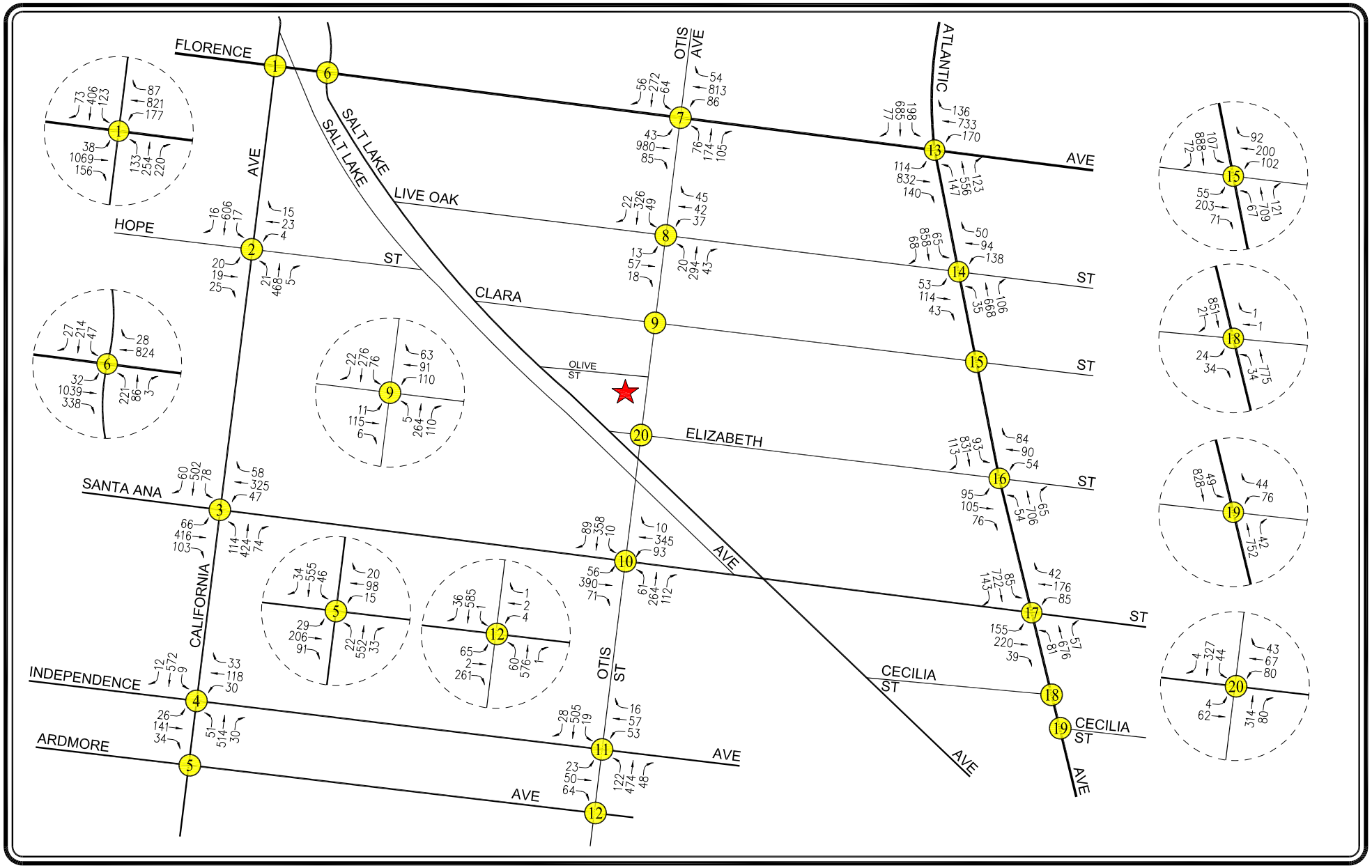

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Ⓧ STUDY INTERSECTION

FIGURE 5-2
EXISTING TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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6.0 CUMULATIVE DEVELOPMENT PROJECTS

The forecast of future pre-Project conditions was prepared in accordance to procedures outlined in Section 15130 of the CEQA Guidelines. Specifically, the CEQA Guidelines provide two options for developing the future traffic volume forecast:

> "(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or
>
> (B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency."

Accordingly, the traffic analysis provides a highly conservative estimate of future pre-Project traffic volumes as it incorporates both the "A" and "B" options outlined in CEQA Guidelines for purposes of developing the forecast.

6.1 Related Projects

A forecast of on-street traffic conditions prior to occupancy of the proposed Project was prepared by incorporating the potential trips associated with other known development projects (related projects) in the area. With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development. The related projects research was based on information on file at the City of Cudahy Community Development Department, the City of Bell Community Development Department, the City of Huntington Park Community Development Department, the City of South Gate Community Development Department, and the County of Los Angeles Department of Regional Planning. The list of related projects in the Project site area is presented in ***Table 6–1***. The location of the related projects is shown in ***Figure 6–1***.

Traffic volumes expected to be generated by the related projects were calculated using rates provided in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*[3]. The related projects' respective traffic generation for the weekday AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in *Table 6–1*. The distribution of the related projects traffic volumes to the study intersections during the weekday AM and PM peak hours are displayed in ***Figures 6–2*** and ***6–3***, respectively.

[3] Institute of Transportation Engineers *Trip Generation Manual*, 10th Edition, Washington, D.C., 2017.

Table 6-1
RELATED PROJECTS LIST AND TRIP GENERATION [1]

12-Dec-19

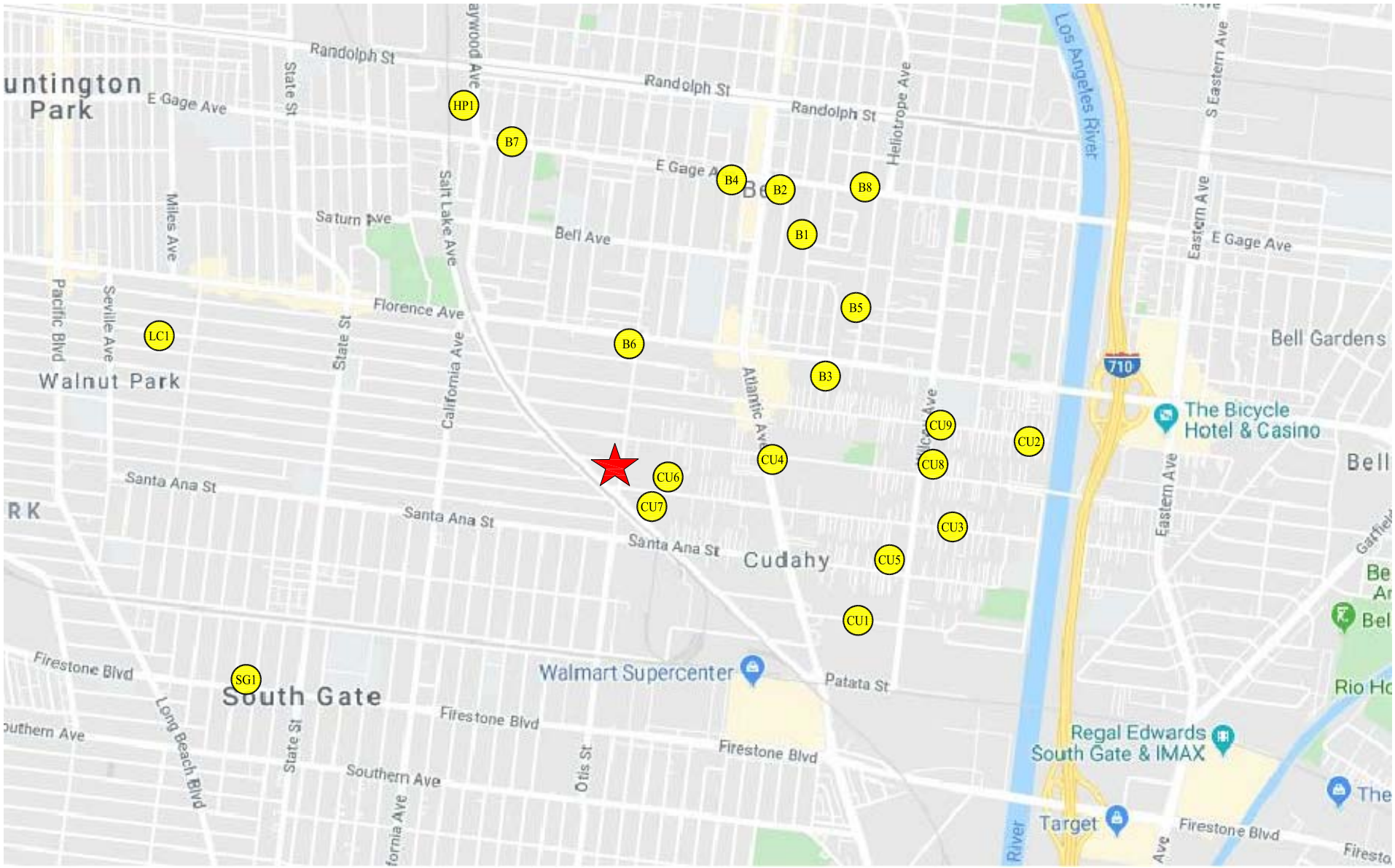
MAP NO.	PROJECT NAME/ PROJECT NUMBER	PROJECT STATUS	ADDRESS/ LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
				LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
				City of Cudahy									
CU1	4855 Cecilia Street Manufacturing Project	Proposed	4855 Cecilia Street	Manufacturing	3,200 GSF	[3]	13	2	0	2	1	1	2
CU2	5252 Live Oak Steet Residential Project	Approved	5252 Live Oak Street	Condominiums Single-Family Homes	19 DU (4) DU	[4] [5]	139 (38)	2 (1)	7 (2)	9 (3)	7 (3)	4 (1)	11 (4)
CU3	5111 Elizabeth Street Residential Project	Approved	5111 Elizabeth Street	Condominiums Single-Family Home	6 DU (1) DU	[4] [5]	44 (9)	1 0	2 (1)	3 (1)	2 (1)	1 0	3 (1)
CU4	7700 Atlantic Avenue Project	Proposed	7700 Atlantic Avenue	Car Wash	2,080 GSF	[6]	100	2	2	4	4	4	8
CU5	4935-4937 Santa Ana Street Residential Project	Proposed	4935-4937 Santa Ana Street	Apartments Single-Family Homes	6 DU (3) DU	[4] [5]	44 (28)	1 (1)	2 (1)	3 (2)	2 (2)	1 (1)	3 (3)
CU6	4302-4312 Elizabeth Street Residential Project	Proposed	4302-4312 Elizabeth Street	Apartments Single-Family Homes	48 DU (12) DU	[4] [5]	351 (113)	5 (2)	17 (7)	22 (9)	17 (8)	10 (4)	27 (12)
CU7	4254 Elizabeth Street Residential Project	Proposed	4254 Elizabeth Street	Condominiums Single-Family Homes	6 DU (2) DU	[4] [5]	44 (19)	1 0	2 (1)	3 (1)	2 (1)	1 (1)	3 (2)
CU8	5017 Clara Street Residential Project	Proposed	5017 Clara Street	Apartments Single-Family Home	8 DU (1) DU	[4] [5]	59 (9)	1 0	3 (1)	4 (1)	3 (1)	1 0	4 (1)
CU9	5037 Live Oak Street Residential Project	Proposed	5037 Live Oak Street	Apartments Single-Family Homes	20 DU (2) DU	[4] [5]	146 (19)	2 0	7 (1)	9 (1)	7 (1)	4 (1)	11 (2)
				City of Bell									
B1	6619 King Avenue Residential Project	Proposed	6619 King Avenue	Apartments	7 DU	[4]	51	1	2	3	3	1	4
B2	Aldi Supermarket and Commercial Center	Proposed	6400 Atlantic Avenue	Supermarket Retail	18,557 GSF 7,577 GSF	[7]	999	38	26	64	54	52	106
B3	4704 Florence Avenue Residential Project	Approved	4704 Florence Avenue	Apartments	14 DU	[4]	102	1	5	6	5	3	8
B4	4410 Gage Avenue Café	Proposed	4410 Gage Avenue	Café	2,938 GSF	[8]	331	16	13	29	18	11	29
B5	6913 Vinevale Avenue Residential Project	Proposed	6913 Vinevale Avenue	Apartments Single-Family Home	5 DU (1) DU	[4] [5]	37 (9)	0 0	2 (1)	2 (1)	2 (1)	1 0	3 (1)
B6	4148 Florence Avenue Mixed-Use Project	Under Construction	4148 Florence Avenue	Fast-Food Restaurant Retail Restaurant	2,485 GSF 1,883 GSF (5,284) GSF	[9] [10] [8]	1,170 71 (596)	51 1 (29)	49 1 (24)	100 2 (53)	42 3 (32)	39 4 (20)	81 7 (52)

Table 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION [1]

12-Dec-19

MAP NO.	PROJECT NAME/ PROJECT NUMBER	PROJECT STATUS	ADDRESS/ LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
				LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
B7	3613 Gage Avenue Mixed-Use Project	Proposed	3613 Gage Avenue	Retail Office	1,872 GSF 1,200 GSF	[10] [11]	71 12	1 1	1 0	2 1	3 0	4 1	7 1
B8	4737 Gage Avenue Retail Project	Proposed	4737 Gage Avenue	Retail	2,350 GSF	[10]	89	1	1	2	4	5	9
City of Huntington Park													
HP1	6241 Maywood Avenue Storage Facility Project	Proposed	6241 Maywood Avenue	Self-Storage Facility	157,696 GSF	[12]	238	10	6	16	13	14	27
City of South Gate													
SG1	3125 Firestone Boulevard Commercial Project	Proposed	3125 Firestone Boulevard	Commercial	23,353 GSF	[10]	882	14	8	22	43	46	89
County of Los Angeles													
LC1	R2015-01262	Proposed	2814 Live Oak Street	Single-Family Home Single-Family Home	1 DU (1) DU	[5] [5]	9 (9)	0 0	1 (1)	1 (1)	1 (1)	0 0	1 (1)
TOTAL							4,153	119	117	236	185	180	365

[1] Source: City of Cudahy Community Development Department, City of Bell Community Development Department, City of Huntington Park Community Development Department, City of South Gate Community Development Department, and Los Angeles County Department of Regional Planning related projects lists. Trip generation for the related projects are based on the ITE "Trip Generation Manual", 10th Edition, 2017 (as referenced in the Project Data Source column), unless otherwise noted.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 140 (Manufacturing) trip generation average rates.
[4] ITE Land Use Code 220 (Multifamily Housing [Low-Rise] trip generation average rates.
[5] ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates.
[6] Source: SANDAG "(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region", 2002
SANDAG Land Use (Self-Serve Car Wash) trip generation estimated rates.
[7] Source: Traffic Impact Study Aldi Market at Atlantic Avenue and Gage Avenue Bell, California, prepared by KOA Corporation, March 2016.
[8] ITE Land Use Code 932 High-Turnover [Sit-Down] Restaurant) trip generation average rates.
[9] ITE Land Use Code 934 (Fast-Food Restaurant with Drive-Through Window) trip generation average rates.
[10] ITE Land Use Code 820 (Shopping Center) trip generation average rates.
[11] ITE Land Use Code 710 (General Office Building) trip generation average rates.
[12] ITE Land Use Code 151 (Mini-Warehouse) trip generation average rates.



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MAP SOURCE: GOOGLE MAPS

PROJECT SITE

XX RELATED PROJECT

FIGURE 6-1
LOCATION OF RELATED PROJECTS

LINSCOTT, LAW & GREENSPAN, engineers

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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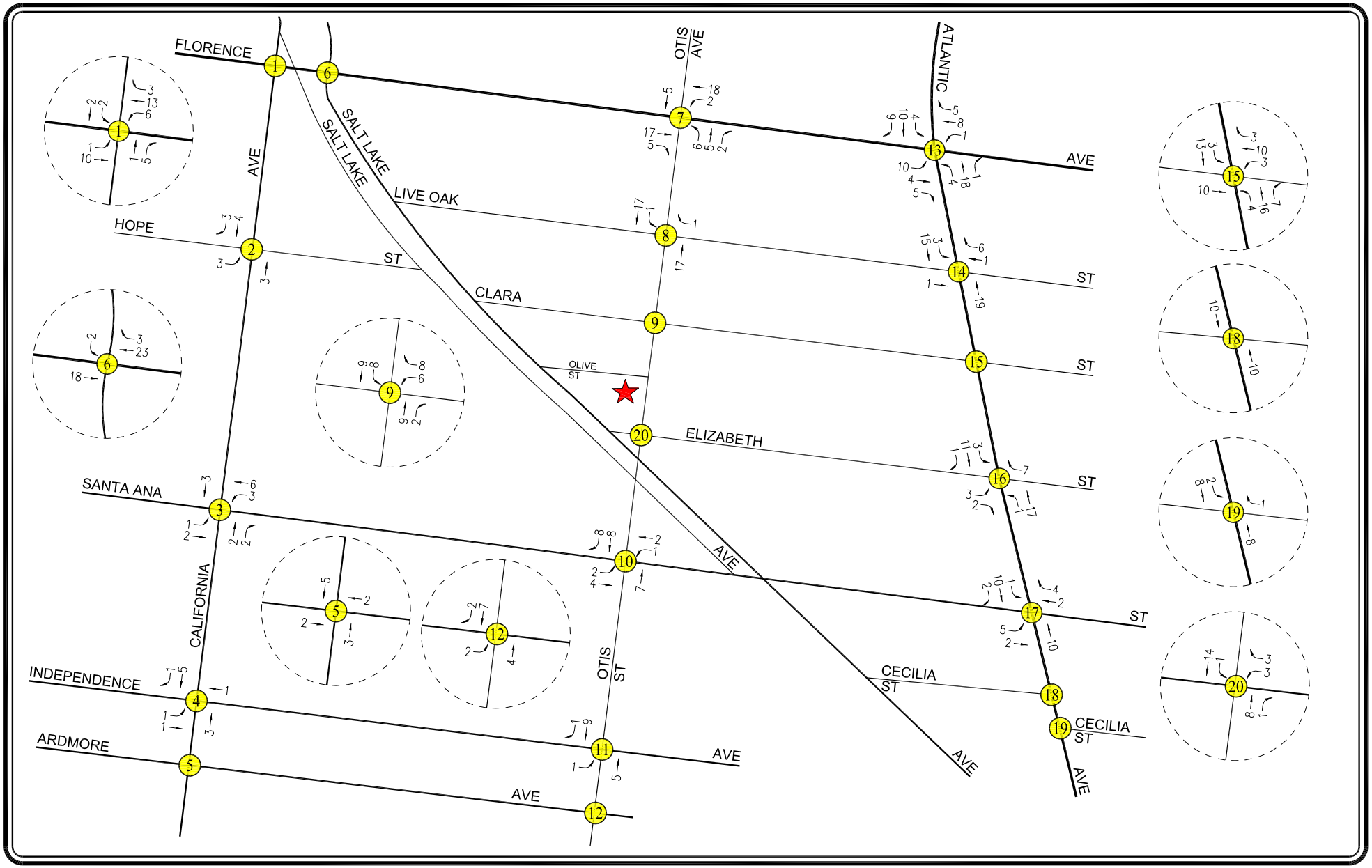

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★ PROJECT SITE

Ⓧ STUDY INTERSECTION

FIGURE 6-2
RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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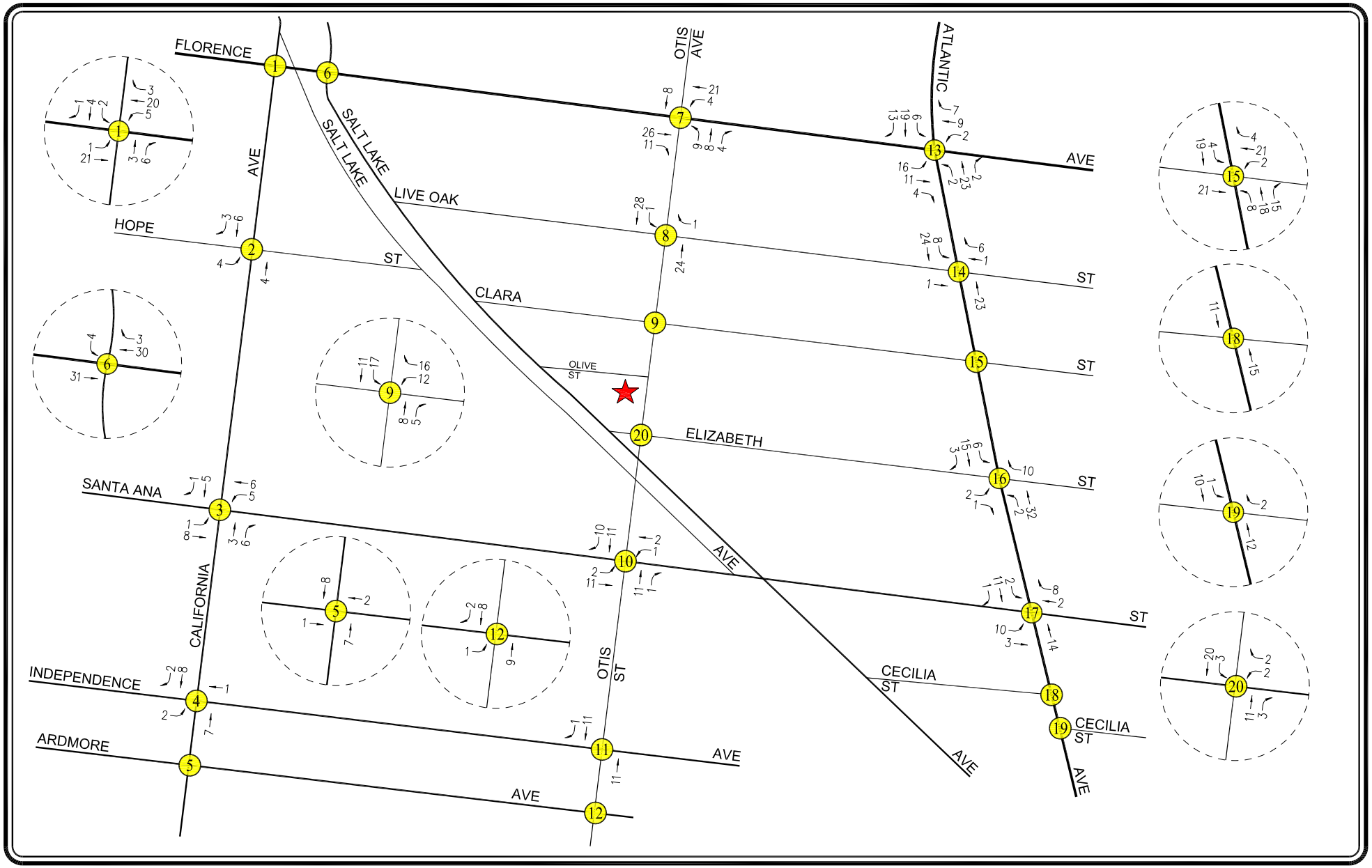

PROJECT SITE
STUDY INTERSECTION

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FIGURE 6-3
RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR
7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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6.2 Ambient Traffic Growth Factor

In order to account for unknown related projects not included in this analysis, the existing traffic volumes were increased at an annual rate of 1.0 percent (1.0%) per year to the year 2021 (i.e., the anticipated year of Project build-out). The ambient growth factor was based on general traffic growth factors provided in the *2010 Congestion Management Program for Los Angeles County* ("CMP manual") and determined in consultation with City staff. It is noted that based on review of the general traffic growth factors provided in the CMP manual for the Project study area (i.e., RSA 21, Vernon), it is anticipated that the existing traffic volumes are expected to increase at an annual rate of approximately 0.79% per year between the years 2015 and 2025. Thus, application of an annual growth factor of 1.0% annual growth provides a conservative, worst case forecast of future traffic volumes in the area as it substantially exceeds the annual traffic growth rate published in the CMP manual. Further, it is noted that the CMP manual's traffic growth rate is intended to anticipate future traffic generated by development projects in the Project vicinity. Thus, the inclusion in this traffic analysis of both a forecast of traffic generated by known related projects plus the use of an ambient growth traffic factor based on CMP traffic model data results in a conservative estimate of future traffic volumes at the study intersections.

7.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound Project traffic volumes. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the proposed Project is isolated by comparing operational (i.e., Levels of Service) conditions at the selected key intersections using existing and expected future traffic volumes without and with forecast Project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the Project's impacts identified.

7.1 Project Traffic Generation

Traffic volumes expected to be generated by the proposed Project during the weekday AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the ITE *Trip Generation Manual*. The following trip generation rates were used to forecast the traffic volumes expected to be generated by the Project:

- Elementary School: ITE Land Use Code 520 (Elementary School) trip generation average rates were used to forecast the traffic volumes expected to be generated by elementary school component of the Project.

- Middle School: ITE Land Use Code 522 (Middle School/Junior High School) trip generation average rates were used to forecast the traffic volumes expected to be generated by the middle school component of the Project.

In addition to the trip generation forecasts for the proposed Project (which are essentially an estimate of the number of vehicles that could be expected to enter and exit the Project Site access points), an adjustment was made to the trip generation forecast based on the Project Site's existing land uses. The existing land uses to be removed are an auto repair shop providing 3,600 square feet of floor area and an industrial site providing 30,265 square feet of floor area. ITE Land Use Code 943 (Automobile Parts and Service Center) and ITE Land Use Code 110

(General Light Industrial) trip generation average rates were used to estimate the trip reduction related to the removal of the existing use from the Project Site.

As presented in ***Table 7–1***, the proposed Project is expected to generate 647 net new vehicle trips (342 inbound trips and 305 outbound trips) during the AM peak hour. During the PM peak hour, the proposed Project is expected to generate 156 net new vehicle trips (84 inbound trips and 72 outbound trips). Over a 24-hour period, the proposed Project is forecast to generate 1,943 daily trips ends (approximately 972 inbound trips and 971 outbound trips) during a typical weekday.

7.2 Project Traffic Distribution and Assignment

Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- The site's proximity to major traffic corridors (i.e., California Avenue, Atlantic Avenue, Florence Avenue, I-710 Freeway, etc.);
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals;
- Existing intersection traffic volumes;
- Ingress/egress availability at the Project Site assuming the site access and circulation scheme described in Section 3.0;
- The location of existing and proposed parking areas;
- Nearby population and employment centers as well as adjacent residential neighborhoods;
- Input from City staff.

The general, directional traffic distribution patterns for the proposed Project are presented in ***Figure 7–1.*** The forecast net new weekday AM and PM peak hour Project traffic volumes at the study intersections associated with the proposed Project are presented in ***Figures 7–2*** and ***7–3***, respectively. The traffic volume assignments presented in *Figures 7–2* and *7–3* reflect the traffic distribution characteristics shown in *Figure 7–1* and the Project traffic generation forecast presented in *Table 7–1*.

Table 7-1
PROJECT TRIP GENERATION [1]

27-Aug-19

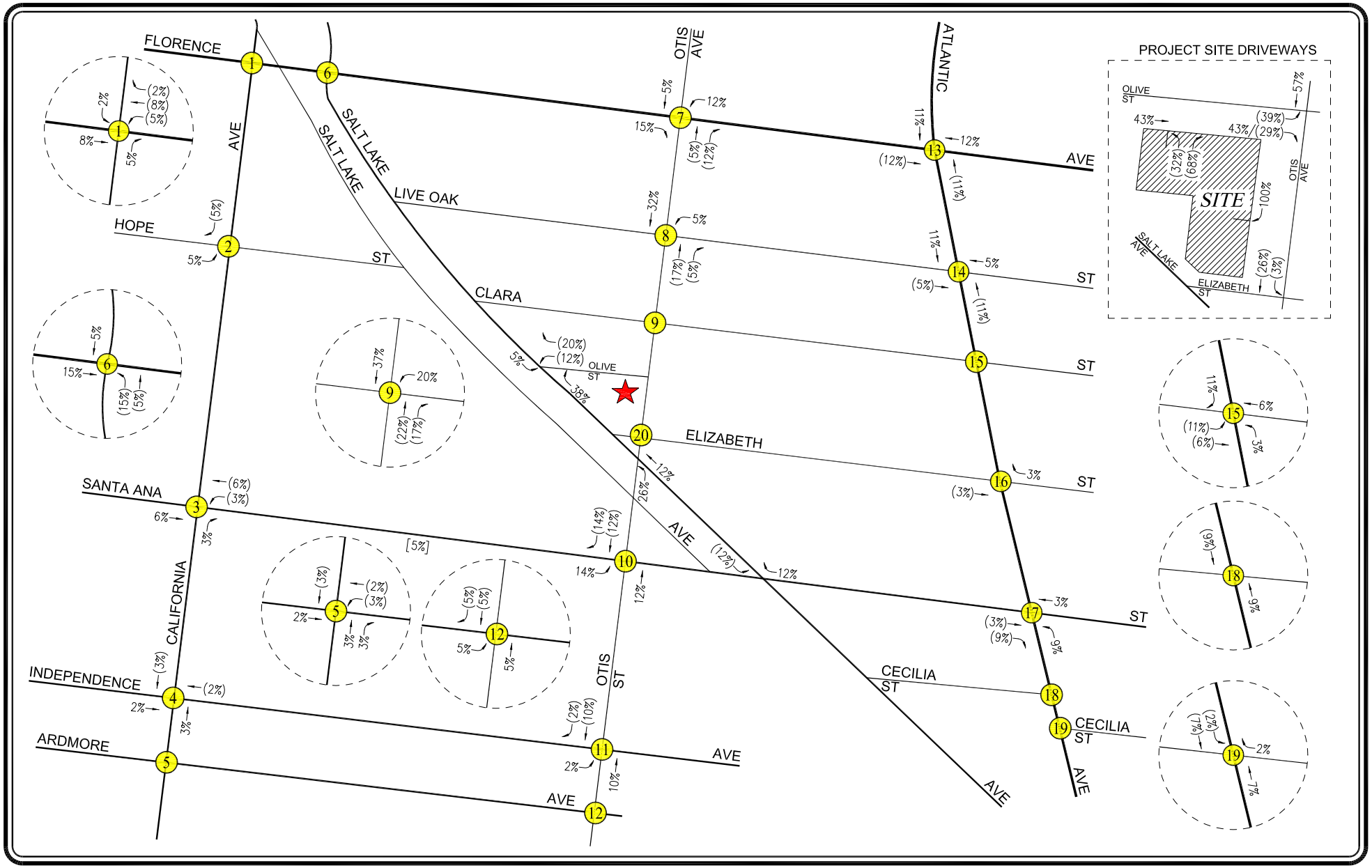
LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Project								
Charter Elementary School [3]	575 Students	1,087	208	177	385	47	51	98
Charter Middle School [4]	500 Students	1,065	157	133	290	42	43	85
Subtotal		2,152	365	310	675	89	94	183
Subtotal Project Driveway Trips		**2,152**	**365**	**310**	**675**	**89**	**94**	**183**
Existing Site								
Auto Repair Shop [5]	(3,600) GSF	(59)	(5)	(2)	(7)	(3)	(5)	(8)
Light Industrial [6]	(30,265) GSF	(150)	(18)	(3)	(21)	(2)	(17)	(19)
Subtotal		(209)	(23)	(5)	(28)	(5)	(22)	(27)
Subtotal Existing Driveway Trips		**(209)**	**(23)**	**(5)**	**(28)**	**(5)**	**(22)**	**(27)**
NET INCREASE DRIVEWAY TRIPS		**1,943**	**342**	**305**	**647**	**84**	**72**	**156**

[1] Source: ITE "Trip Generation Manual", 10th Edition, 2017.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 520 (Elementary School) trip generation average rates per number of students.
- Daily Trip Rate: 1.89 trips/student; 50% inbound and 50% outbound
- AM Peak Hour Trip Rate: 0.67 trips/student; 54% inbound/46% outbound
- PM Peak Hour Trip Rate: 0.17 trips/student; 48% inbound/52% outbound

[4] ITE Land Use Code 522 (Middle School/Junior High School) trip generation average rates per number of students.
- Daily Trip Rate: 2.13 trips/student; 50% inbound and 50% outbound
- AM Peak Hour Trip Rate: 0.58 trips/student; 54% inbound/46% outbound
- PM Peak Hour Trip Rate: 0.17 trips/student; 49% inbound/51% outbound

[5] ITE Land Use Code 943 (Automobile Parts and Service Center) trip generation average rates.
- Daily Trip Rate: 16.28 trips/1,000 SF of floor area; 50% inbound and 50% outbound
- AM Peak Hour Trip Rate: 1.96 trips/1,000 SF of floor area; 73% inbound/27% outbound
- PM Peak Hour Trip Rate: 2.26 trips/1,000 SF of floor area; 40% inbound/60% outbound

[6] ITE Land Use Code 110 (General Light Industrial) trip generation average rates.
- Daily Trip Rate: 4.96 trips/1,000 SF of floor area; 50% inbound and 50% outbound
- AM Peak Hour Trip Rate: 0.70 trips/1,000 SF of floor area; 88% inbound/12% outbound
- PM Peak Hour Trip Rate: 0.63 trips/1,000 SF of floor area; 13% inbound/87% outbound



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★ PROJECT SITE
Ⓧ STUDY INTERSECTION
= INBOUND PERCENTAGES
(##) = OUTBOUND PERCENTAGES
[##] = INTERNAL TRAFFIC PERCENTAGES

FIGURE 7-1
PROJECT TRIP DISTRIBUTION

LINSCOTT, LAW & GREENSPAN, engineers

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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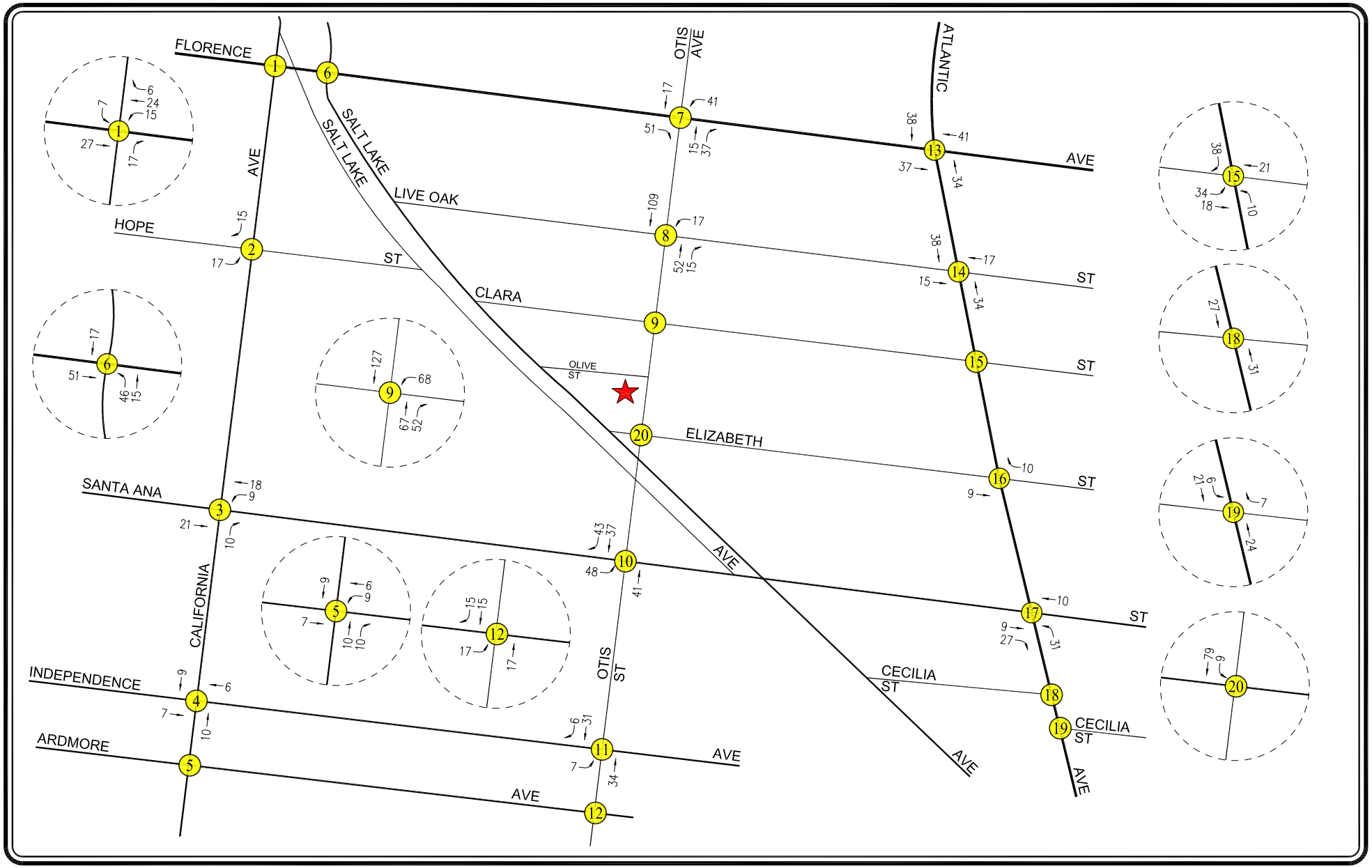

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NOT TO SCALE

★ PROJECT SITE
Ⓧ STUDY INTERSECTION

FIGURE 7-2
NET NEW PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR
7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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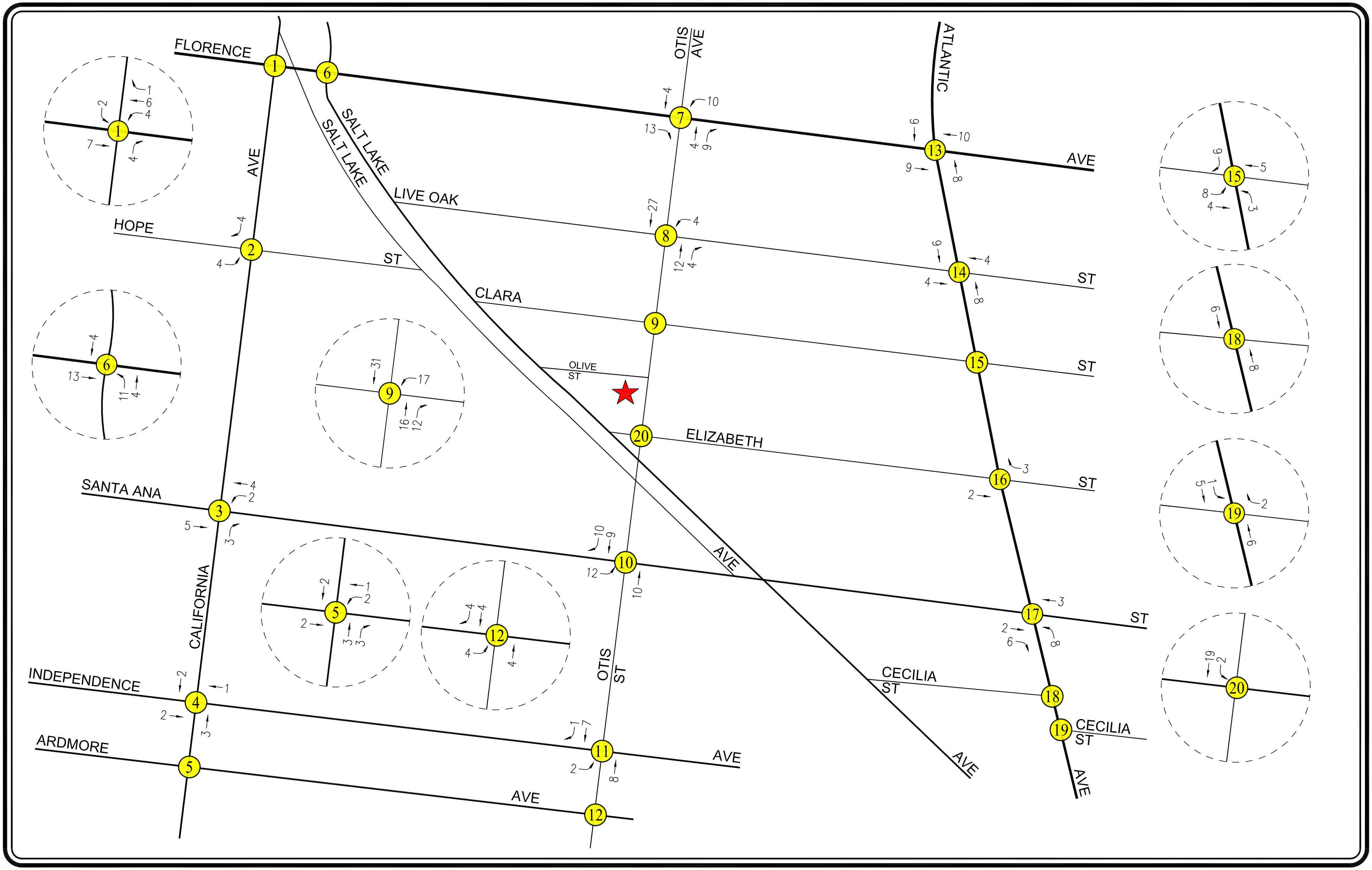

FIGURE 7-3
NET NEW PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR
7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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8.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

Operations at the 20 study intersections located within the City of Cudahy and/or the City of Bell, the City of Huntington Park, and the City of South Gate were evaluated using the Highway Capacity Manual (HCM 2010) method of analysis based on direction from the City of Cudahy. Specifically, the HCM 2010 methodology estimates the average control delay for each of the subject movements and determines the LOS for each constrained movement. The overall intersection average control delay is subsequently assigned a LOS value to describe intersection operations.

The Levels of Service under the HCM 2010 methodology for both signalized and all-way stop controlled (AWSC) study intersections vary from LOS A (free flow) to LOS F (jammed condition). A description of the HCM 2010 method and corresponding LOS for the Cities of Cudahy, Bell, Huntington Park, and South Gate are provided in ***Appendix B, C, D,*** and ***E***, respectively.

8.1 Impact Criteria and Thresholds

The relative impact of the added Project traffic volumes to be generated by the proposed Project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the study intersections, without and with the proposed Project. The previously discussed capacity analysis procedures were utilized to evaluate the future delay relationships and service level characteristics at each study intersection.

8.1.1 *City of Cudahy Impact Criteria and Thresholds*

The significance of the potential impacts of Project-generated traffic at all 20 study intersections was identified in consultation with City staff. Accordingly, the impact is considered significant if the Project-related increase in delay equals or exceeds the thresholds presented in ***Tables 8–1*** and ***8-2*** for signalized and unsignalized intersections, respectively.

Table 8-1
CITY OF CUDAHY
SIGNALIZED INTERSECTION IMPACT THRESHOLD CRITERIA

Level of Service	Project Increase in Delay Commercial Corridor Intersection	Project Increase in Delay Signalized Intersection
D	12 seconds	8 seconds
E	8 seconds	8 seconds
F	8 seconds	5 seconds

Table 8-2 CITY OF CUDAHY UNSIGNALIZED INTERSECTION IMPACT THRESHOLD CRITERIA	
Level of Service	**Project Increase in Delay** **Stop-Controlled Intersection**
D	5 seconds
E	5 seconds
F	5 seconds

As required by the City, mitigation of Project traffic impacts are required whenever traffic generated by the proposed development causes an increase of the analyzed intersection delay by an amount equal to or greater than the values shown above.

8.2 Traffic Impact Analysis Scenarios

LOS calculations have been prepared for the following scenarios for the 20 study intersections:

(a) Existing (2019) conditions.

(b) Condition (a) with completion and occupancy of the Project.

(c) Condition (b) with implementation of Project mitigation measures where necessary.

(d) Condition (a) plus one percent (1.0%) annual ambient traffic growth through year 2021 and with completion and occupancy of the related projects (i.e., future cumulative baseline)

(e) Condition (d) with completion and occupancy of the Project.

(f) Condition (e) with implementation of Project mitigation measures where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the study intersections.

9.0 CITY OF CUDAHY TRAFFIC ANALYSIS

The traffic impact analysis prepared for the ten study intersections located within the City of Cudahy using the HCM 2010 methodology and application of the significant traffic impact criteria as consulted with the City is summarized in ***Table 9–1.*** The HCM 2010 data worksheets for the analyzed intersections are contained in *Appendix B.*

9.1 Existing Conditions

9.1.1 *Existing Conditions*

As indicated in column [1] of *Table 9–1*, nine of the ten study intersections located within the City of Cudahy are presently operating at LOS C or better during the weekday AM and PM peak hours under existing conditions. The following intersection is presently operating at LOS D or worse during the peak hours shown below under existing conditions:

- Int. No. 13: Atlantic Avenue / Florence Avenue — AM Peak Hour: Delay = 40.4 sec., LOS D; PM Peak Hour: Delay = 37.3 sec., LOS D

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in *Figures 5–1* and *5–2*, respectively.

9.1.2 *Existing with Project Conditions*

As shown in column [2] of *Table 9–1,* application of the threshold criteria to the "Existing with Project" scenario indicates that the Project is not expected to create significant impacts at any of the ten study intersections located within the City of Cudahy. Incremental, but not significant, impacts are noted at the study intersections. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Existing with Project" conditions. The "Existing with Project" traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in ***Figures 9–1*** and ***9–2***, respectively.

9.2 Future Conditions

9.2.1 *Future Cumulative Baseline Conditions*

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the completion and occupancy of the related projects, as well as the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The delay values at all of the study intersections are incrementally increased with the addition of ambient traffic and traffic generated by the related projects listed in *Table 6–1*.

As presented in column [3] of *Table 9–1*, nine of the ten study intersections located within the City of Cudahy are expected to operate at LOS C or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic and related project traffic under the future cumulative baseline conditions. The following study intersection is expected to operate at LOS D during the peak hours shown below under future cumulative baseline conditions:

Table 9-1
SUMMARY OF DELAY VALUES
AND LEVELS OF SERVICE [A]
AM AND PM PEAK HOURS
CITY OF CUDAHY INTERSECTIONS

13-Dec-19

NO.	INTERSECTION	INTERSECTION TYPE	PEAK HOUR	[1] YEAR 2019 EXISTING DELAY [B]	LOS [C]	[2] YEAR 2019 EXISTING PLUS PROPOSED PROJECT DELAY	LOS	CHANGE DELAY [(2)-(1)]	SIGNIF. IMPACT [D]	[3] YEAR 2021 FUTURE DELAY [B]	LOS [C]	[4] YEAR 2021 FUTURE PLUS PROPOSED PROJECT DELAY	LOS	CHANGE DELAY [(4)-(3)]	SIGNIF. IMPACT [D]
8	Otis Avenue / Live Oak Street	Signalized	AM	12.5	B	12.3	B	-0.2	NO	12.5	B	12.3	B	-0.2	NO
			PM	10.9	B	10.8	B	-0.1	NO	10.7	B	10.6	B	-0.1	NO
9	Otis Avenue / Clara Street	Signalized	AM	19.5	B	22.9	C	3.4	NO	20.1	C	25.6	C	5.5	NO
			PM	16.2	B	16.5	B	0.3	NO	17.2	B	17.6	B	0.4	NO
13	Atlantic Avenue / Florence Avenue	Commercial Corridor	AM	40.4	D	42.5	D	2.1	NO	43.9	D	46.5	D	2.6	NO
			PM	37.3	D	37.7	D	0.4	NO	40.8	D	41.2	D	0.4	NO
14	Atlantic Avenue / Live Oak Street	Commercial Corridor	AM	19.8	B	20.4	C	0.6	NO	20.3	C	20.9	C	0.6	NO
			PM	17.9	B	18.1	B	0.2	NO	18.4	B	18.6	B	0.2	NO
15	Atlantic Avenue / Clara Street	Commercial Corridor	AM	26.6	C	28.6	C	2.0	NO	29.0	C	30.6	C	1.6	NO
			PM	23.2	C	23.5	C	0.3	NO	26.2	C	26.5	C	0.3	NO
16	Atlantic Avenue / Elizabeth Street	Commercial Corridor	AM	20.4	C	20.8	C	0.4	NO	21.5	C	22.0	C	0.5	NO
			PM	18.6	B	18.7	B	0.1	NO	19.4	B	19.5	B	0.1	NO
17	Atlantic Avenue / Santa Ana Street	Commercial Corridor	AM	21.4	C	22.8	C	1.4	NO	21.9	C	23.2	C	1.3	NO
			PM	21.2	C	21.5	C	0.3	NO	22.1	C	22.6	C	0.5	NO
18	Atlantic Avenue / N. Cecilia Street	Commercial Corridor	AM	5.5	A	5.5	A	0.0	NO	5.5	A	5.5	A	0.0	NO
			PM	5.4	A	5.4	A	0.0	NO	5.4	A	5.4	A	0.0	NO
19	Atlantic Avenue / S. Cecilia Street	Commercial Corridor	AM	7.1	A	7.2	A	0.1	NO	7.2	A	7.3	A	0.1	NO
			PM	6.0	A	6.0	A	0.0	NO	6.1	A	6.1	A	0.0	NO
20	Otis Avenue / Elizabeth Street	All-Way Stop-Controlled	AM	13.8	B	15.7	C	1.9	NO	14.8	B	17.2	C	2.4	NO
			PM	16.2	C	16.9	C	0.7	NO	18.4	C	19.3	C	0.9	NO

[A] Intersection analysis based on the Highway Capacity Manual 2010 operational analysis methodologies, per the City of Cudahy.

[B] Control delay reported in seconds per vehicle.

[C] Signalized Intersection Levels of Service were based on the following criteria:

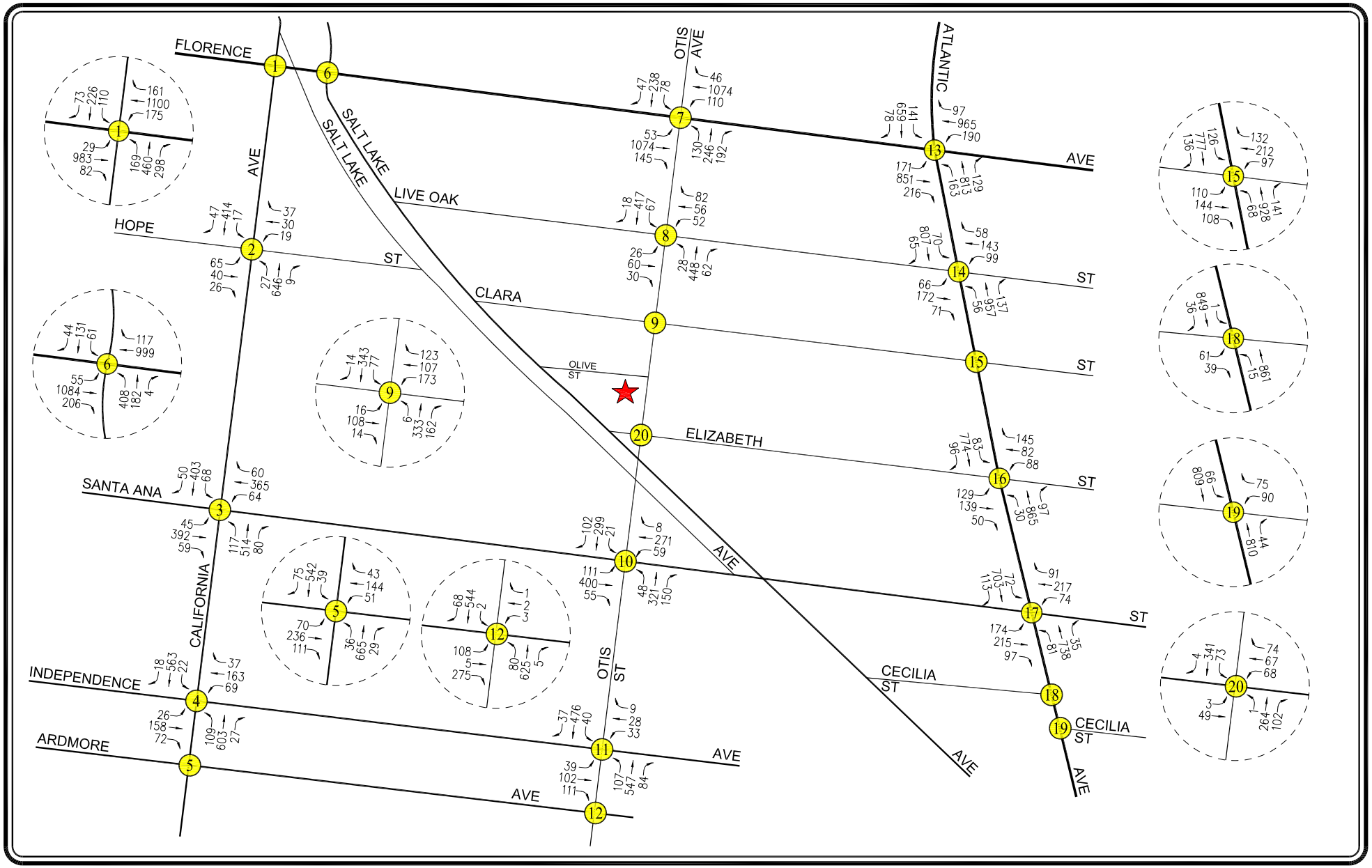
Control Delay (s/veh)	LOS
<= 10	A
> 10-20	B
> 20-35	C
> 35-55	D
> 55-80	E
> 80	F

Unsignalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F

[D] A transportation impact on an intersection shall be deemed significant in accordance with the following criteria:

	Project Related Increase in Delay		
LOS	Commercial Corridor	Signalized	Stop-Controlled
D	12 seconds	8 seconds	5 seconds
E	8 seconds	5 seconds	5 seconds
F	8 seconds	5 seconds	5 seconds



NOT TO SCALE

★ PROJECT SITE
Ⓧ STUDY INTERSECTION

FIGURE 9-1
EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR
7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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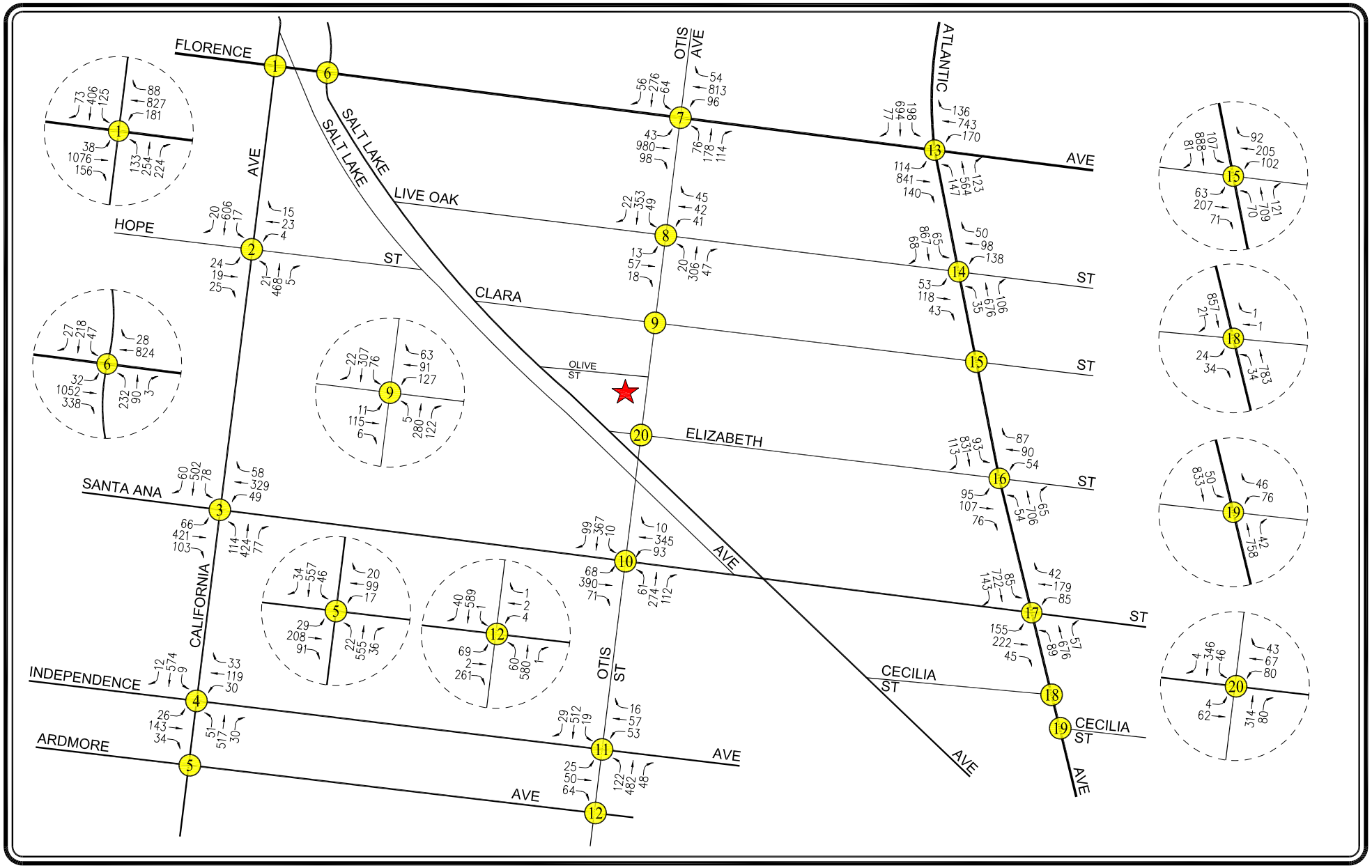

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★ PROJECT SITE

Ⓧ STUDY INTERSECTION

FIGURE 9-2
EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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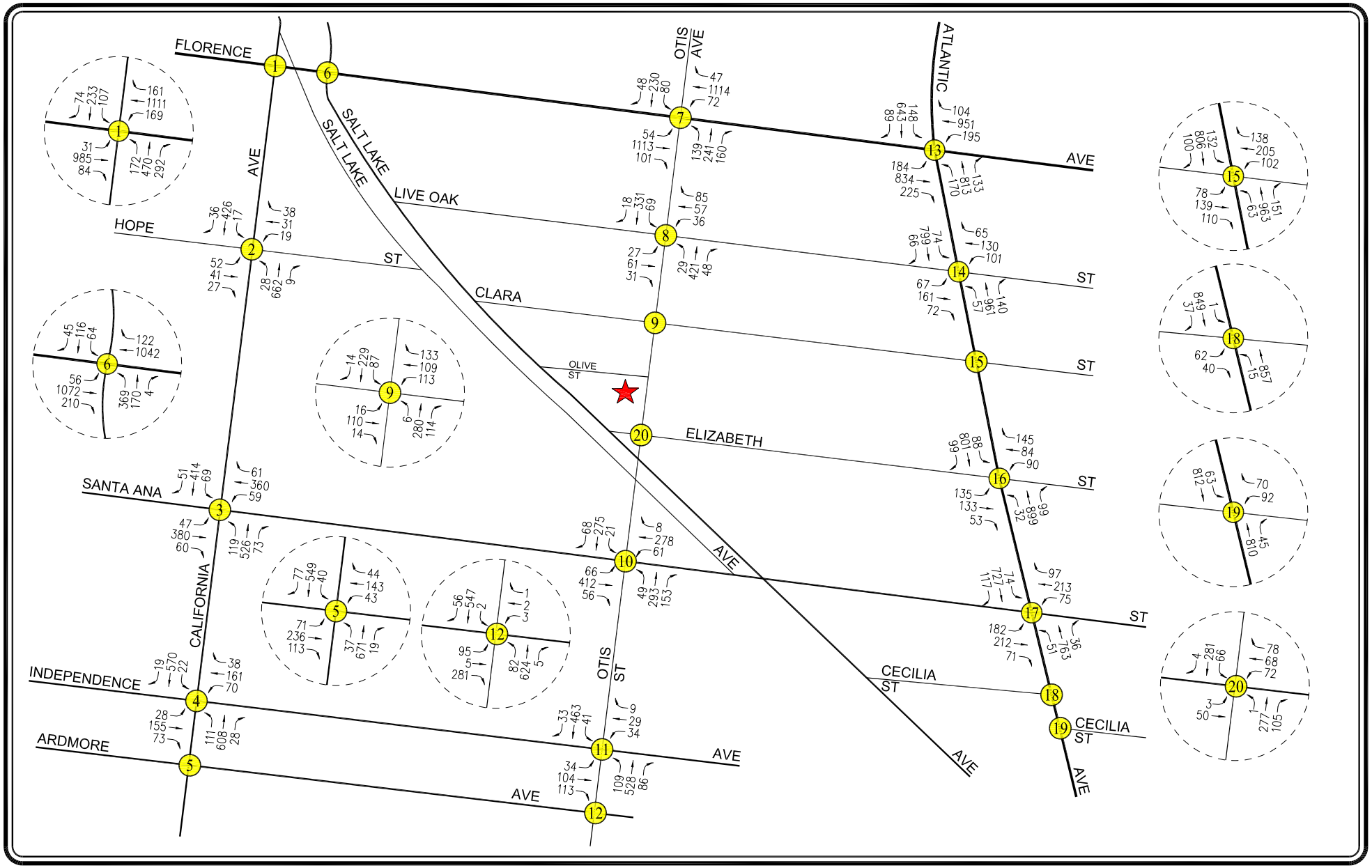
- Int. No. 13: Atlantic Avenue / Florence Avenue — AM Peak Hour: Delay = 43.9 sec., LOS D; PM Peak Hour: Delay = 40.8 sec., LOS D

The future cumulative baseline (existing, ambient growth and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in ***Figures 9–3*** and ***9–4***, respectively.

9.2.2 *Future Cumulative with Project Conditions*

The "Future Cumulative with Project" conditions were forecast based on the addition of traffic generated by the Project plus completion and occupancy of related projects. As shown in column [4] of *Table 9–1*, application of the threshold criteria to the "Future Cumulative with Project" scenario indicates that the proposed Project is not expected to create significant impacts at any of the ten study intersections located within the City of Cudahy. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Future Cumulative with Project" conditions. The "Future Cumulative with Project" (existing, ambient growth, related projects, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in ***Figures 9–5*** and ***9–6***, respectively.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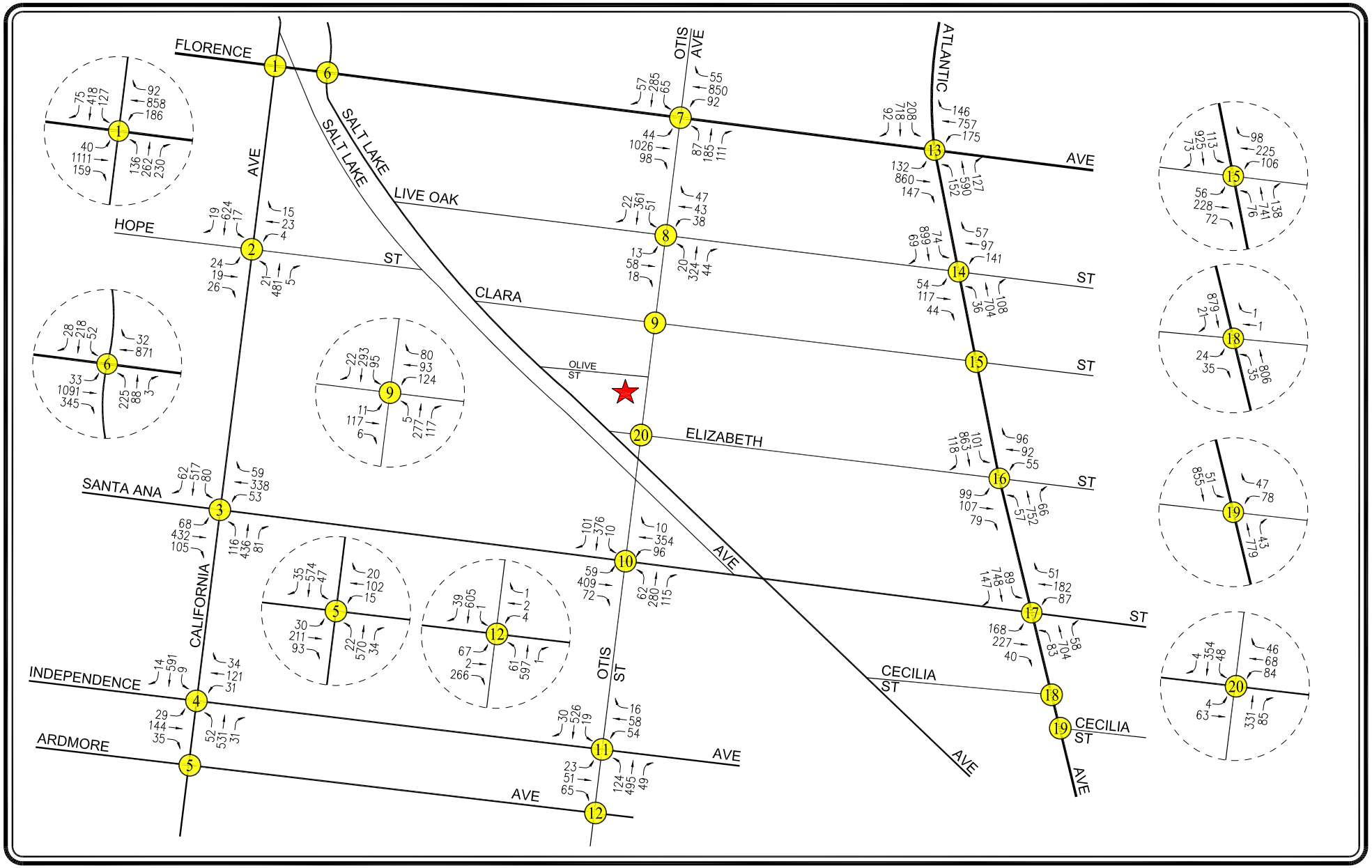

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★ PROJECT SITE
(X) STUDY INTERSECTION

FIGURE 9-4
FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR
7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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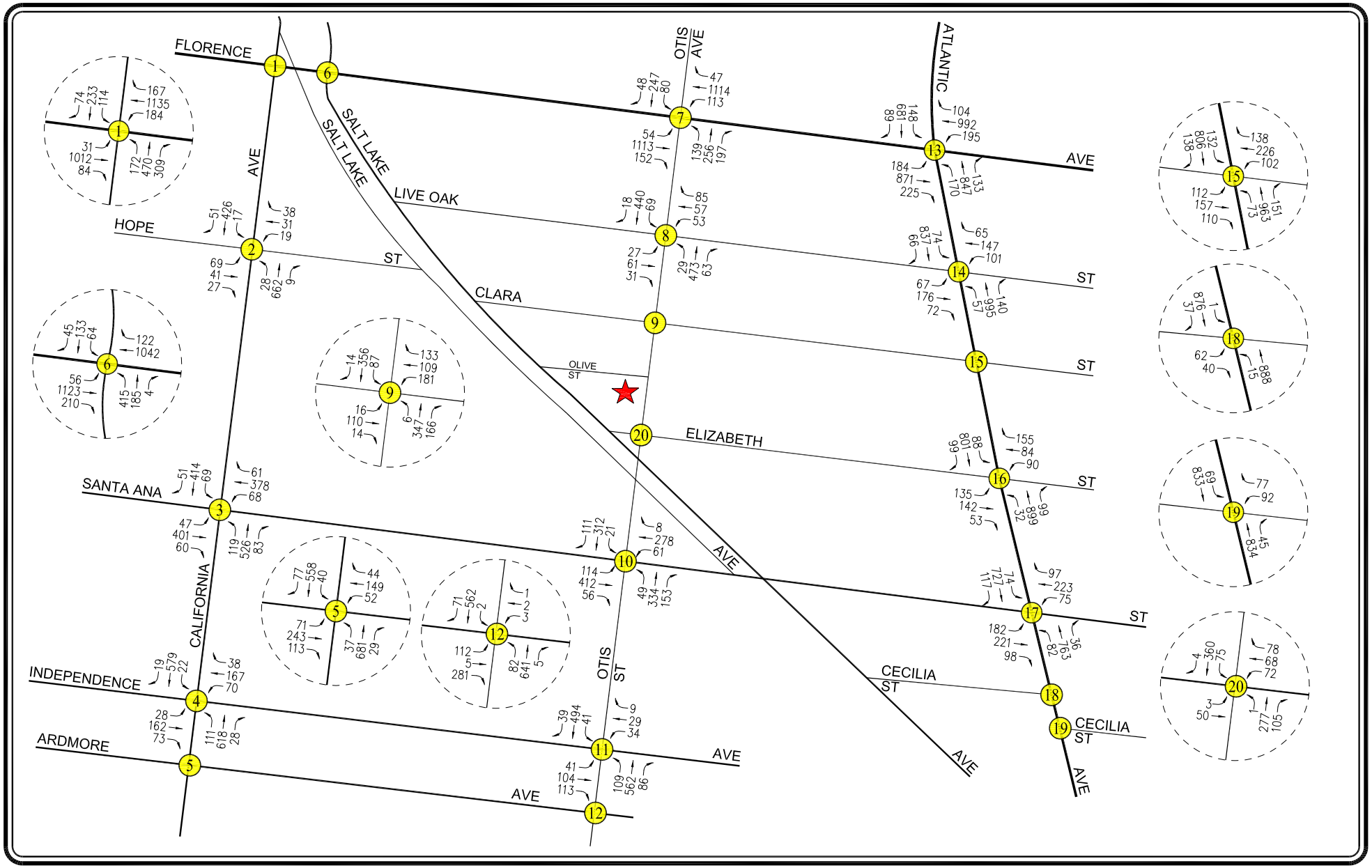

NOT TO SCALE

PROJECT SITE

STUDY INTERSECTION

FIGURE 9-5
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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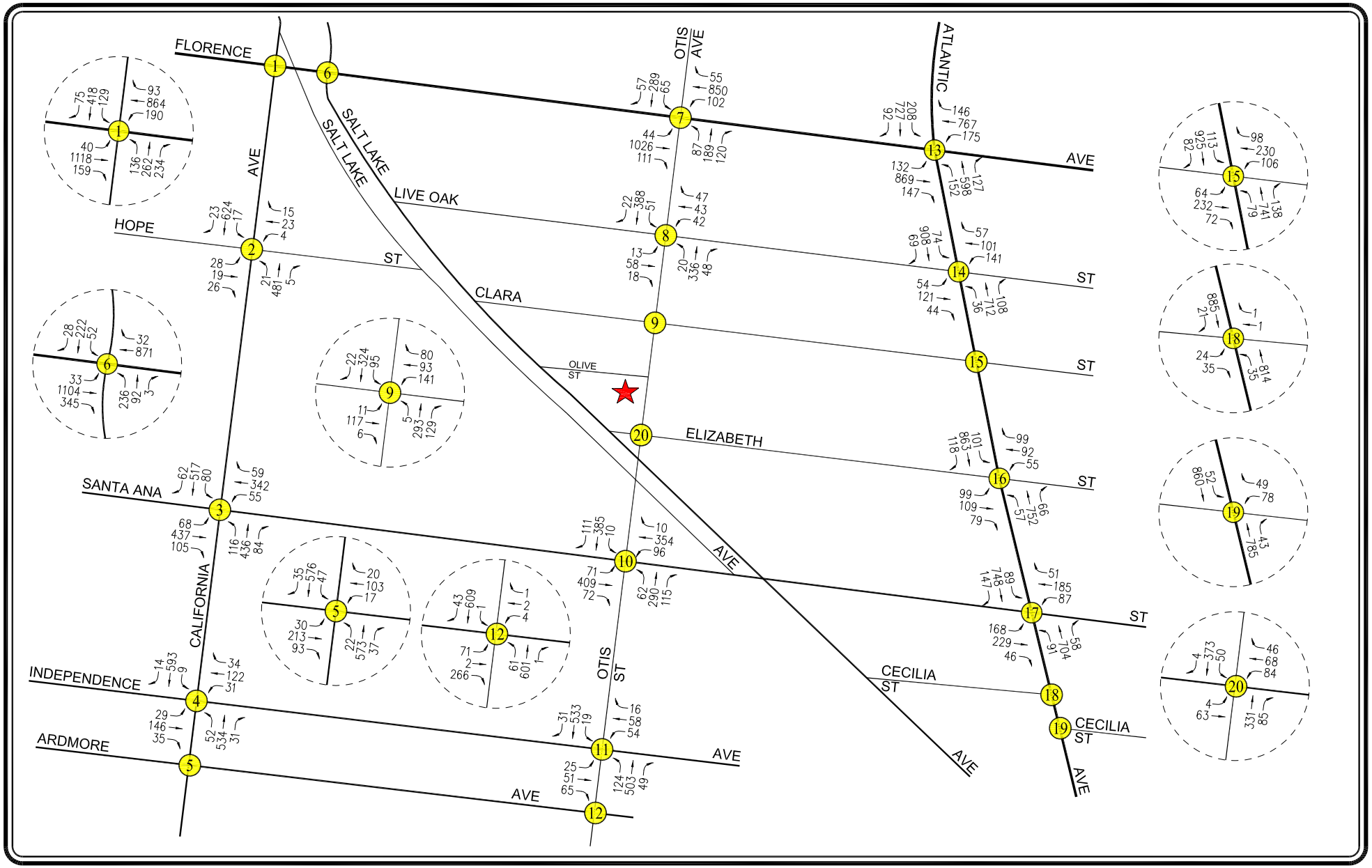

PROJECT SITE

STUDY INTERSECTION

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NOT TO SCALE

FIGURE 9-6
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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10.0 CITY OF BELL TRAFFIC ANALYSIS

The traffic impact analysis prepared for the three study intersections located within the City of Bell using the HCM 2010 methodology and application of the significant traffic impact criteria as consulted with the City of Cudahy is summarized in ***Table 10–1.*** The HCM 2010 data worksheets for the analyzed intersections are contained in *Appendix C*.

10.1 Existing Conditions

10.1.1 *Existing Conditions*

As indicated in column [1] of *Table 10–1*, two of the three study intersections located within the City of Los Angeles are presently operating at LOS C or better during the weekday AM and PM peak hours under existing conditions. The following intersection is presently operating at LOS D or worse during the peak hours shown below under existing conditions:

- Int. No. 13: Atlantic Avenue / Florence Avenue — AM Peak Hour: Delay = 40.4 sec., LOS D; PM Peak Hour: Delay = 37.3 sec., LOS D

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5–1* and *5–2*, respectively.

10.1.2 *Existing with Project Conditions*

As shown in column [2] of *Table 10–1*, application of the City's threshold criteria to the "Existing with Project" scenario indicates that the Project is not expected to create significant impacts at any of the three study intersections located within the City of Bell. Incremental, but not significant, impacts are noted at the study intersections. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Existing with Project" conditions. The "Existing with Project" traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9–1* and *9–2*, respectively.

10.2 Future Conditions

10.2.1 *Future Cumulative Baseline Conditions*

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the completion and occupancy of the related projects, as well as the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The delay values at all of the study intersections are incrementally increased with the addition of ambient traffic and traffic generated by the related projects listed in *Table 6–1*.

As presented in column [3] of *Table 10–1*, two of the three study intersections located within the City of Bell are expected to operate at LOS C or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic and related project traffic under the future cumulative baseline conditions. The following study intersection is expected to operate at LOS D during the peak hour shown below under future cumulative baseline conditions:

Table 10-1
SUMMARY OF DELAY VALUES
AND LEVELS OF SERVICE [A]
AM AND PM PEAK HOURS
CITY OF BELL INTERSECTIONS

16-Dec-19

NO.	INTERSECTION	INTERSECTION TYPE	PEAK HOUR	[1] YEAR 2019 EXISTING DELAY [B]	[1] YEAR 2019 EXISTING LOS [C]	[2] YEAR 2019 EXISTING PLUS PROPOSED PROJECT DELAY	[2] YEAR 2019 EXISTING PLUS PROPOSED PROJECT LOS	[2] CHANGE DELAY [(2)-(1)]	[2] SIGNIF. IMPACT [D]	[3] YEAR 2021 FUTURE DELAY [B]	[3] YEAR 2021 FUTURE LOS [C]	[4] YEAR 2021 FUTURE PLUS PROPOSED PROJECT DELAY	[4] YEAR 2021 FUTURE PLUS PROPOSED PROJECT LOS	[4] CHANGE DELAY [(4)-(3)]	[4] SIGNIF. IMPACT [D]
6	California Avenue - Salt Lake Avenue / Florence Avenue	Commercial Corridor	AM	27.5	C	33.3	C	5.8	NO	28.7	C	34.6	C	5.9	NO
			PM	22.9	C	23.7	C	0.8	NO	23.8	C	24.6	C	0.8	NO
7	Otis Avenue / Florence Avenue	Commercial Corridor	AM	25.7	C	30.7	C	5.0	NO	27.2	C	32.4	C	5.2	NO
			PM	21.1	C	21.8	C	0.7	NO	22.2	C	22.9	C	0.7	NO
13	Atlantic Avenue / Florence Avenue	Commercial Corridor	AM	40.4	D	42.5	D	2.1	NO	43.9	D	46.5	D	2.6	NO
			PM	37.3	D	37.7	D	0.4	NO	40.8	D	41.2	D	0.4	NO

[A] Intersection analysis based on the Highway Capacity Manual 2010 operational analysis methodologies, per the City of Cudahy.
[B] Control delay reported in seconds per vehicle.
[C] Signalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-20	B
> 20-35	C
> 35-55	D
> 55-80	E
> 80	F

Unsignalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F

[D] A transportation impact on an intersection shall be deemed significant in accordance with the following criteria:

Project Related Increase in Delay

LOS	Commercial Corridor	Signalized	Stop-Controlled
D	12 seconds	8 seconds	5 seconds
E	8 seconds	5 seconds	5 seconds
F	8 seconds	5 seconds	5 seconds

- Int. No. 13: Atlantic Avenue / Florence Avenue — AM Peak Hour: Delay = 43.9 sec., LOS D; PM Peak Hour: Delay = 40.8 sec., LOS D

The future cumulative baseline (existing, ambient growth and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in *Figures 9–3* and *9–4*, respectively.

10.2.2 *Future Cumulative with Project Conditions*

The "Future Cumulative with Project" conditions were forecast based on the addition of traffic generated by the Project plus completion and occupancy of related projects. As shown in column [4] of *Table 10–1*, application of the City's threshold criteria to the "Future Cumulative with Project" scenario indicates that the proposed Project is not expected to create significant impacts at any of the three study intersections located within the City of Bell. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Future Cumulative with Project" conditions. The "Future Cumulative with Project" (existing, ambient growth, related projects, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9–5* and *9–6*, respectively.

11.0 CITY OF HUNTINGTON PARK TRAFFIC ANALYSIS

The traffic impact analysis prepared for the five study intersections located within the City of Huntington Park using the HCM 2010 methodology and application of the significant traffic impact criteria as consulted with the City of Cudahy is summarized in ***Table 11–1.*** The HCM 2010 data worksheets for the analyzed intersections are contained in *Appendix D*.

11.1 Existing Conditions

11.1.1 *Existing Conditions*

As indicated in column [1] of *Table 11–1*, three of the five study intersections located within the City of Huntington Park are presently operating at LOS C or better during the weekday AM and PM peak hours under existing conditions. The following intersections are presently operating at LOS D or worse during the peak hours shown below under existing conditions:

- Int. No. 1: Salt Lake Avenue – California Avenue / Florence Avenue — AM Peak Hour: Delay = 37.7 sec., LOS D; PM Peak Hour: Delay = 36.1 sec., LOS D
- Int. No. 3: California Avenue / Santa Ana Street — PM Peak Hour: Delay = 37.2 sec., LOS D

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5–1* and *5–2*, respectively.

11.1.2 *Existing with Project Conditions*

As shown in column [2] of *Table 11–1,* application of the City's threshold criteria to the "Existing with Project" scenario indicates that the Project is not expected to create significant impacts at any of the five study intersections located within the City of Huntington Park. Incremental, but not significant, impacts are noted at the study intersections. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Existing with Project" conditions. The "Existing with Project" traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9–1* and *9–2*, respectively.

11.2 Future Conditions

11.2.1 *Future Cumulative Baseline Conditions*

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the completion and occupancy of the related projects, as well as the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The delay values at all of the study intersections are incrementally increased with the addition of ambient traffic and traffic generated by the related projects listed in *Table 6–1*.

Table 11-1
SUMMARY OF DELAY VALUES
AND LEVELS OF SERVICE [A]
AM AND PM PEAK HOURS
CITY OF HUNTINGTON PARK INTERSECTIONS

16-Dec-19

NO.	INTERSECTION	INTERSECTION TYPE	PEAK HOUR	[1] YEAR 2019 EXISTING DELAY [B]	[1] LOS [C]	[2] YEAR 2019 EXISTING PLUS PROPOSED PROJECT DELAY	[2] LOS	[2] CHANGE DELAY [(2)-(1)]	[2] SIGNIF. IMPACT [D]	[3] YEAR 2021 FUTURE DELAY [B]	[3] LOS [C]	[4] YEAR 2021 FUTURE PLUS PROPOSED PROJECT DELAY	[4] LOS	[4] CHANGE DELAY [(4)-(3)]	[4] SIGNIF. IMPACT [D]
1	Salt Lake Avenue - California Avenue / Florence Avenue	Commercial Corridor	AM	37.7	D	39.4	D	1.7	NO	39.5	D	41.4	D	1.9	NO
			PM	36.1	D	36.5	D	0.4	NO	37.9	D	38.4	D	0.5	NO
2	California Avenue / Hope Street	Signalized	AM	8.9	A	9.5	A	0.6	NO	9.1	A	9.7	A	0.6	NO
			PM	5.9	A	6.0	A	0.1	NO	6.0	A	6.2	A	0.2	NO
3	California Avenue / Santa Ana Street	Signalized	AM	25.6	C	28.6	C	3.0	NO	27.1	C	30.9	C	3.8	NO
			PM	37.2	D	38.3	D	1.1	NO	41.1	D	42.3	D	1.2	NO
6	California Avenue - Salt Lake Avenue / Florence Avenue	Commercial Corridor	AM	27.5	C	33.3	C	5.8	NO	28.7	C	34.6	C	5.9	NO
			PM	22.9	C	23.7	C	0.8	NO	23.8	C	24.6	C	0.8	NO
10	Otis Avenue - Otis Street / Santa Ana Street	Signalized	AM	20.0	C	21.4	C	1.4	NO	20.3	C	21.9	C	1.6	NO
			PM	21.1	C	21.8	C	0.7	NO	22.3	C	23.2	C	0.9	NO

[A] Intersection analysis based on the Highway Capacity Manual 2010 operational analysis methodologies, per the City of Cudahy.
[B] Control delay reported in seconds per vehicle.
[C] Signalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-20	B
> 20-35	C
> 35-55	D
> 55-80	E
> 80	F

Unsignalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F

[D] A transportation impact on an intersection shall be deemed significant in accordance with the following criteria:

	Project Related Increase in Delay		
LOS	Commercial Corridor	Signalized	Stop-Controlled
D	12 seconds	8 seconds	5 seconds
E	8 seconds	5 seconds	5 seconds
F	8 seconds	5 seconds	5 seconds

As presented in column [3] of *Table 11–1*, three of the five study intersections located within the City of Huntington Park are expected to operate at LOS C or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic and related project traffic under the future cumulative baseline conditions. The following study intersections are expected to operate at LOS D during the peak hour shown below under future cumulative baseline conditions:

- Int. No. 1: Salt Lake Avenue – California Avenue / Florence Avenue — AM Peak Hour: Delay = 39.5 sec., LOS D; PM Peak Hour: Delay = 37.9 sec., LOS D
- Int. No. 3: California Avenue / Santa Ana Street — PM Peak Hour: Delay = 41.1 sec., LOS D

The future cumulative baseline (existing, ambient growth and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in *Figures 9–3* and *9–4*, respectively.

11.2.2 *Future Cumulative with Project Conditions*

The "Future Cumulative with Project" conditions were forecast based on the addition of traffic generated by the Project plus completion and occupancy of related projects. As shown in column [4] of *Table 11–1*, application of the City's threshold criteria to the "Future Cumulative with Project" scenario indicates that the proposed Project is not expected to create significant impacts at any of the five study intersections located within the City of Huntington Park. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Future Cumulative with Project" conditions. The "Future Cumulative with Project" (existing, ambient growth, related projects, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9–5* and *9–6*, respectively.

12.0 CITY OF SOUTH GATE TRAFFIC ANALYSIS

The traffic impact analysis prepared for the six study intersections located within the City of South Gate using the HCM 2010 methodology and application of the significant traffic impact criteria as consulted with the City of Cudahy is summarized in ***Table 12–1.*** The HCM 2010 data worksheets for the analyzed intersections are contained in *Appendix E*.

12.1 Existing Conditions

12.1.1 *Existing Conditions*

As indicated in column [1] of *Table 12–1*, five of the six study intersections located within the City of South Gate are presently operating at LOS C or better during the weekday AM and PM peak hours under existing conditions. The following intersection is presently operating at LOS D or worse during the peak hours shown below under existing conditions:

- Int. No. 3: California Avenue / Santa Ana Street — PM Peak Hour: Delay = 37.2 sec., LOS D

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5–1* and *5–2*, respectively.

12.1.2 *Existing with Project Conditions*

As shown in column [2] of *Table 12–1*, application of the City's threshold criteria to the "Existing with Project" scenario indicates that the Project is not expected to create significant impacts at any of the six study intersections located within the City South Gate. Incremental, but not significant, impacts are noted at the study intersections. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Existing with Project" conditions. The "Existing with Project" traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9–1* and *9–2*, respectively.

12.2 Future Conditions

12.2.1 *Future Cumulative Baseline Conditions*

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the completion and occupancy of the related projects, as well as the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The delay values at all of the study intersections are incrementally increased with the addition of ambient traffic and traffic generated by the related projects listed in *Table 6–1*.

As presented in column [3] of *Table 12–1*, five of the six study intersections located within the City of South Gate are expected to operate at LOS C or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic and related project traffic under the future cumulative baseline conditions. The following study intersection is expected to operate at LOS D during the peak hour shown below under future cumulative baseline conditions:

Table 12-1
SUMMARY OF DELAY VALUES
AND LEVELS OF SERVICE [A]
AM AND PM PEAK HOURS
CITY OF SOUTH GATE INTERSECTIONS

13-Dec-19

NO.	INTERSECTION	INTERSECTION TYPE	PEAK HOUR	[1] YEAR 2019 EXISTING DELAY [B]	[1] YEAR 2019 EXISTING LOS [C]	[2] YEAR 2019 EXISTING PLUS PROPOSED PROJECT DELAY	[2] YEAR 2019 EXISTING PLUS PROPOSED PROJECT LOS	[2] CHANGE DELAY [(2)-(1)]	[2] SIGNIF. IMPACT [D]	[3] YEAR 2021 FUTURE DELAY [B]	[3] YEAR 2021 FUTURE LOS [C]	[4] YEAR 2021 FUTURE PLUS PROPOSED PROJECT DELAY	[4] YEAR 2021 FUTURE PLUS PROPOSED PROJECT LOS	[4] CHANGE DELAY [(4)-(3)]	[4] SIGNIF. IMPACT [D]
3	California Avenue / Santa Ana Street	Signalized	AM	25.6	C	28.6	C	3.0	NO	27.1	C	30.9	C	3.8	NO
			PM	37.2	D	38.3	D	1.1	NO	41.1	D	42.3	D	1.2	NO
4	California Avenue / Independence Avenue	Signalized	AM	32.9	C	33.0	C	0.1	NO	33.2	C	33.3	C	0.1	NO
			PM	31.5	C	31.5	C	0.0	NO	31.7	C	31.7	C	0.0	NO
5	California Avenue / Ardmore Avenue	Signalized	AM	32.0	C	32.3	C	0.3	NO	32.4	C	32.8	C	0.4	NO
			PM	31.9	C	31.9	C	0.0	NO	32.3	C	32.3	C	0.0	NO
10	Otis Avenue - Otis Street / Santa Ana Street	Signalized	AM	20.0	C	21.4	C	1.4	NO	20.3	C	21.9	C	1.6	NO
			PM	21.1	C	21.8	C	0.7	NO	22.3	C	23.2	C	0.9	NO
11	Otis Street / Independence Avenue	Signalized	AM	31.8	C	31.8	C	0.0	NO	31.8	C	31.9	C	0.1	NO
			PM	33.3	C	33.4	C	0.1	NO	33.6	C	33.7	C	0.1	NO
12	Otis Street / Ardmore Avenue	Signalized	AM	32.9	C	33.5	C	0.6	NO	33.2	C	34.0	C	0.8	NO
			PM	33.2	C	33.3	C	0.1	NO	33.5	C	33.7	C	0.2	NO

[A] Intersection analysis based on the Highway Capacity Manual 2010 operational analysis methodologies, per the City of Cudahy.
[B] Control delay reported in seconds per vehicle.
[C] Signalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-20	B
> 20-35	C
> 35-55	D
> 55-80	E
> 80	F

Unsignalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F

[D] A transportation impact on an intersection shall be deemed significant in accordance with the following criteria:

	Project Related Increase in Delay		
LOS	Commercial Corridor	Signalized	Stop-Controlled
D	12 seconds	8 seconds	5 seconds
E	8 seconds	5 seconds	5 seconds
F	8 seconds	5 seconds	5 seconds

- Int. No. 3: California Avenue / Santa Ana Street — PM Peak Hour: Delay = 41.1 sec., LOS D

The future cumulative baseline (existing, ambient growth and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in *Figures 9–3* and *9–4*, respectively.

12.2.2 *Future Cumulative with Project Conditions*

The "Future Cumulative with Project" conditions were forecast based on the addition of traffic generated by the Project plus completion and occupancy of related projects. As shown in column [4] of *Table 12–1*, application of the City's threshold criteria to the "Future Cumulative with Project" scenario indicates that the proposed Project is not expected to create significant impacts at any of the six study intersections located within the City of South Gate. Therefore, no mitigation measures are required or recommended with respect to these intersections under the "Future Cumulative with Project" conditions. The "Future Cumulative with Project" (existing, ambient growth, related projects, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 9–5* and *9–6*, respectively.

13.0 CONGESTION MANAGEMENT PROGRAM TRAFFIC IMPACT ASSESSMENT

The Congestion Management Program (CMP) is a state-mandated program that was enacted by the California State Legislature with the passage of Proposition 111 in 1990. The program is intended to address the impact of local growth on the regional transportation system.

As required by the 2010 Congestion Management Program for Los Angeles County, a Traffic Impact Assessment (TIA) has been prepared to determine the potential impacts on designated monitoring locations on the CMP highway system. The analysis has been prepared in accordance with procedures outlined in the *2010 Congestion Management Program for Los Angeles County*, County of Los Angeles Metropolitan Transportation Authority, 2010.

According to Section D.9.1 (Appendix D, page D-6) of the 2010 CMP manual, the criteria for determining a significant transportation impact is listed below:

> "A significant transportation impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C $\geq$ 0.02), causing or worsening LOS F (V/C > 1.00)."

The CMP impact criteria apply for analysis of both intersection and freeway monitoring locations.

13.1 Intersections

The following CMP intersection monitoring locations in the Project vicinity have been identified:

- CMP Station — Intersection

CMP Station	Intersection
No. 17	Old Rivers School Road / Firestone Boulevard
No. 23	Alameda Street / Slauson Avenue
No. 143	Alameda Street / Firestone Boulevard
No. 144	Atlantic Avenue / Firestone Boulevard

The CMP TIA guidelines require that intersection monitoring locations must be examined if the proposed Project will add 50 or more trips during either the AM or PM weekday peak hours. As shown in *Figure 7–2* and *Figure 7–3*, the proposed Project would not add 50 or more trips during the AM or PM peak hours at any of the CMP monitoring locations. Therefore, no further review of potential impacts to intersection monitoring locations that are part of the CMP highway system is required.

13.2 Freeways

The following CMP freeway monitoring locations have been identified in the Project vicinity:

CMP Station	Location
No. 1080	I-710 Freeway north of I-105 Freeway, north of Firestone Boulevard

The CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed Project will add 150 or more trips (in either direction) during either the AM or PM weekday peak periods. The proposed Project will not add 150 or more trips (in either direction) during either the AM or PM weekday peak hours to the CMP freeway monitoring locations which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. Therefore, no further review of potential impacts to freeway monitoring locations that are part of the CMP highway system is required.

13.3 Transit Impact Review

As required by the *2010 Congestion Management Program for Los Angeles County*, a review has been made of the potential impacts of the Project on transit service. As discussed in Subsection 4.4 herein, existing transit service is provided in the vicinity of the proposed Project.

The Project trip generation, as shown in *Table 7–1*, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 3.5 percent of the total person trips) to estimate transit trip generation. Pursuant to the CMP guidelines, the proposed Project is forecast to generate demand for 32 transit trips during the AM peak hour and eight transit trips during the PM peak hour. The calculations are as follows:

- AM Peak Hour = $647 \times 1.4 \times 0.035 = 32$ Transit Trips
- PM Peak Hour = $156 \times 1.4 \times 0.035 = 8$ Transit Trips

As shown in *Table 4–1*, eight transit lines and routes are provided adjacent to or in close proximity to the Project Site. As outlined in *Table 4–1*, under the "No. of Buses/Trains During Peak Hour" column, these eight public transit lines provide services for an average of (i.e., average of the directional number of buses/trains during the peak hours) generally 35 buses/trains during the AM peak hour and roughly 33 buses/trains during the PM peak hour. Therefore, based on the above calculated AM and PM peak hour trips, this would correspond to an insignificant number of additional Project-generated transit trips per bus/train. It is anticipated that the existing transit service in the Project area will adequately accommodate the increase of Project-generated transit trips.

14.0 VEHICLE MILES TRAVELED ASSESSMENT

14.1 Introduction

VMT is defined as a measurement of miles traveled by vehicles within a specified region and for a specified time period. VMT is a measure of the use and efficiency of the transportation network. VMT's are calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (round-trip) travel and is often estimated for a typical weekday for the purposes of measuring transportation impacts.

In September 2013, the Governor's Office signed Senate Bill 743 (SB 743)[4], starting a process that fundamentally changes the way transportation impact analysis is conducted under the California Environmental Quality Act. SB 743 requires jurisdictions within California to utilize VMT for purposes of evaluating the potential transportation impacts related to development projects in CEQA documents. VMT will replace the prior roadway capacity-based Level of Service type of analysis previously used by many jurisdictions in evaluating the effects of traffic related to a development project. The justification for this paradigm shift is that LOS impacts lead to improvements that increase roadway capacity and therefore induce more traffic and greenhouse gas emissions.

Under SB 743, local jurisdictions are required to adopt a methodology and thresholds of significance related to VMT by July 2020. Based on discussions with the City of Cudahy, it is noted that the City has not yet adopted a methodology or thresholds of significance related to VMT. Therefore, this VMT assessment is presented for informational purposes.

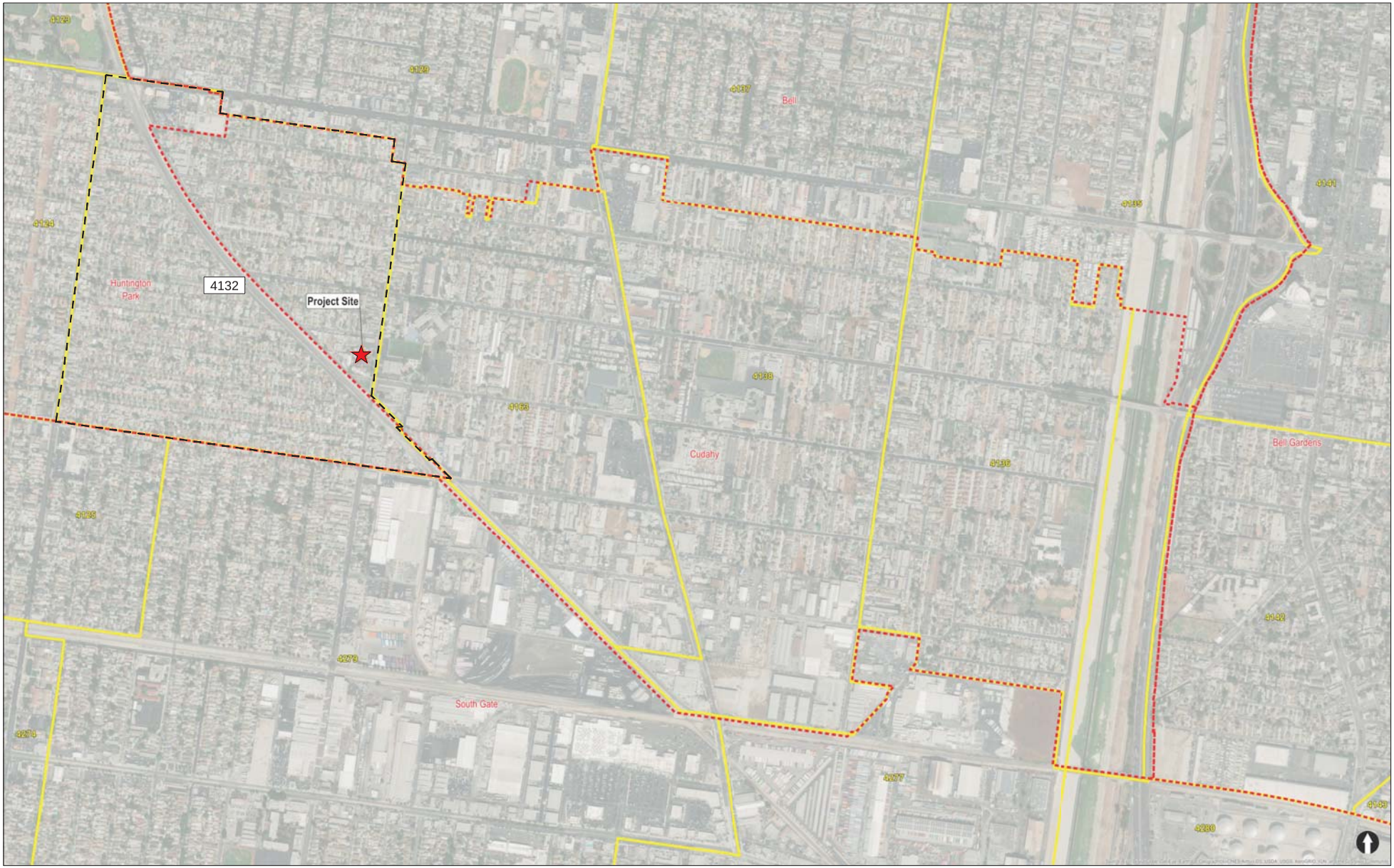
14.2 Project VMT

Available census and VMT data provided by Caltrans[5] was utilized for purposes of preparing this VMT assessment. Based on the Caltrans census and VMT data, the Project Site is within the Caltrans VMT Traffic Analysis Zone (TAZ) 4132. ***Figure 14-1*** presents the Caltrans VMT TAZ Map that shows the location of the Project Site within TAZ 4132. Details for the Caltrans VMT TAZ 4132 are shown below:

- VMT = 16,691
- Employees = 464
- Project VMT Per Employee = 35.97 (16,691/464)

As shown above, the existing per Employee VMT for the TAZ that the Project is located within is 35.97 miles per Employee.

[4] http://opr.ca.gov/ceqa/updates/sb-743/
[5] https://dot.ca.gov/programs/transportation-planning/multi-modal-system-planning/statewide-modeling/sb-743-vmt-impact-assessment



NOT TO SCALE

MAP SOURCE: CALTRANS
PROJECT SITE
CITY BOUNDARY
TAZ 4132 BOUNDARY

FIGURE 14-1
CALTRANS VMT TAZ MAP

LINSCOTT, LAW & GREENSPAN, engineers

7801-7835 OTIS AVENUE CHARTER SCHOOL PROJECT

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15.0 CONCLUSIONS

This traffic impact analysis has been prepared to evaluate the potential impacts to the local street system due to the proposed charter school project located at 7801-7835 Otis Avenue in the City of Cudahy. Twenty intersections were identified and analyzed in order to determine changes in operations following construction and occupancy of the proposed Project. Application of the impact threshold criteria consulted with the City of Cudahy indicate that none of the 20 study intersections would be significantly impacted by the forecast Project traffic. Incremental, but not significant, impacts are noted at the 20 study intersections evaluated in this analysis. As no significant impacts are expected due to the proposed Project, no traffic mitigation measures are required or recommended for the study intersections.

A VMT assessment has been prepared in accordance with SB 743 for informational purposes. Based on available census and VMT data provided by Caltrans, the Project VMT is determined to be 35.97 miles per Employee.

APPENDIX A

MANUAL TRAFFIC COUNT DATA

Prepared by National Data & Surveying Services

California Ave/Salt Lake Ave & Florence Ave

Peak Hour Turning Movement Count

ID: 19-05618-001
City: Huntington Park

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

California Ave/Salt Lake Ave — SOUTHBOUND

AM	73	226	103	0	644	AM
NOON	0	0	0	0	0	NOON
PM	73	406	123	0	379	PM
	1	1	1	0		

Florence Ave — EASTBOUND

AM	NOON	PM	
1318	0	1027	
0	0	0	0
29	0	38	1
956	0	1069	3
82	0	156	0

Florence Ave — WESTBOUND

	PM	NOON	AM
0.5	87	0	155
2.5	821	0	1076
1	177	0	160
0	0	0	0
	1412	0	1340

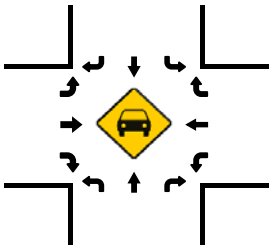
California Ave/Salt Lake Ave — NORTHBOUND

	0	1	1	1		
PM	739	0	133	254	220	PM
NOON	0	0	0	0	0	NOON
AM	468	0	169	460	281	AM

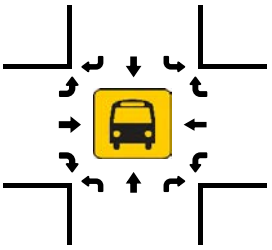
CONTROL: Signalized

	AM	NOON	PM
TEV	3770	0	3557
PHF	0.94		0.98

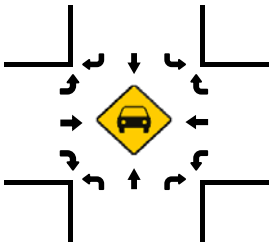
Total Vehicles (AM)



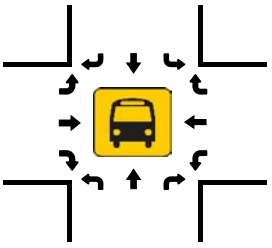
Total Vehicles (AM)



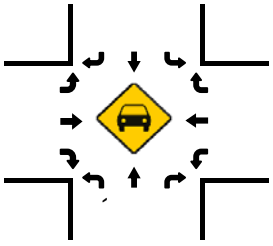
Total Vehicles (NOON)



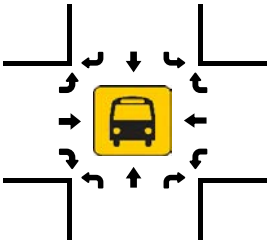
Total Vehicles (NOON)



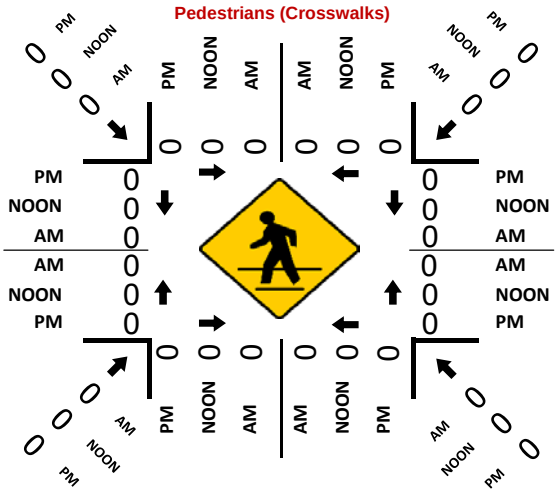
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave/Salt Lake Ave & Florence Ave
City: Huntington Park
Control: Signalized

Project ID: 19-05618-001
Date: 10/16/2019

Total

NS/EW Streets:	California Ave/Salt Lake Ave				California Ave/Salt Lake Ave				Florence Ave				Florence Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	3	0	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	42	106	55	0	24	57	14	0	4	187	16	0	26	261	37	0	829
7:15 AM	42	107	78	0	19	58	15	0	6	243	13	0	34	275	45	0	935
7:30 AM	42	133	70	0	25	63	25	0	14	225	28	0	45	248	47	0	965
7:45 AM	42	108	82	0	28	55	16	0	3	273	21	0	43	295	36	0	1002
8:00 AM	43	112	51	0	31	50	17	0	6	215	20	0	38	258	27	0	868
8:15 AM	35	91	69	0	25	50	13	0	6	208	19	0	28	238	32	0	814
8:30 AM	29	73	60	0	21	66	14	0	6	187	19	0	31	198	30	0	734
8:45 AM	28	58	37	0	16	54	14	0	8	186	23	0	27	223	30	0	704
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	303	788	502	0	189	453	128	0	53	1724	159	0	272	1996	284	0	6851
APPROACH %'s :	19.02%	49.47%	31.51%	0.00%	24.55%	58.83%	16.62%	0.00%	2.74%	89.05%	8.21%	0.00%	10.66%	78.21%	11.13%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	169	460	281	0	103	226	73	0	29	956	82	0	160	1076	155	0	3770
PEAK HR FACTOR :	0.983	0.865	0.857	0.000	0.831	0.897	0.730	0.000	0.518	0.875	0.732	0.000	0.889	0.912	0.824	0.000	0.941
	0.929				0.889				0.898				0.930				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	3	0	0	1	2.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	29	57	59	0	31	105	22	0	9	257	30	0	36	204	22	0	861
4:15 PM	27	54	46	0	32	102	18	0	9	274	41	0	35	185	21	0	844
4:30 PM	32	57	51	0	32	98	15	0	6	268	38	0	37	203	31	0	868
4:45 PM	26	52	50	0	28	86	17	0	4	270	35	0	44	190	19	0	821
5:00 PM	33	63	54	0	31	109	14	0	11	271	47	0	45	207	22	0	907
5:15 PM	30	61	44	0	25	94	22	0	10	272	40	0	45	220	17	0	880
5:30 PM	37	68	64	0	36	97	19	0	3	277	28	0	34	196	24	0	883
5:45 PM	33	62	58	0	31	106	18	0	14	249	41	0	53	198	24	0	887
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	247	474	426	0	246	797	145	0	66	2138	300	0	329	1603	180	0	6951
APPROACH %'s :	21.53%	41.33%	37.14%	0.00%	20.71%	67.09%	12.21%	0.00%	2.64%	85.38%	11.98%	0.00%	15.58%	75.90%	8.52%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	133	254	220	0	123	406	73	0	38	1069	156	0	177	821	87	0	3557
PEAK HR FACTOR :	0.899	0.934	0.859	0.000	0.854	0.931	0.830	0.000	0.679	0.965	0.830	0.000	0.835	0.933	0.906	0.000	0.980
	0.898				0.971				0.960				0.962				

Prepared by National Data & Surveying Services

California Ave & Hope St

Peak Hour Turning Movement Count

ID: 19-05618-002
City: Huntington Park

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

California Ave — SOUTHBOUND

AM	32	414	17	0	731	AM
NOON	0	0	0	0	0	NOON
PM	16	606	17	0	503	PM

Hope St — EASTBOUND

AM	NOON	PM	
89	0	59	
0	0	0	0
48	0	20	0
40	0	19	1
26	0	25	0
AM	NOON	PM	

Hope St — WESTBOUND

	PM	NOON	AM
0	15	0	37
1	23	0	30
0	4	0	19
0	0	0	0
	41	0	66
	PM	NOON	AM

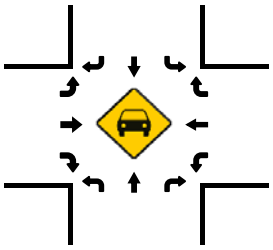
PM	636	1	20	468	5	PM
NOON	0	0	0	0	0	NOON
AM	459	0	27	646	9	AM

California Ave — NORTHBOUND

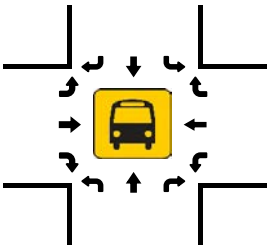
0	1	1	0	
0	1	1	0	

CONTROL			
Signalized			
TEV	1345 AM	0 NOON	1239 PM
PHF	0.83		0.95

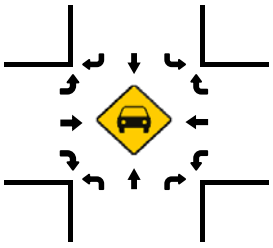
Total Vehicles (AM)



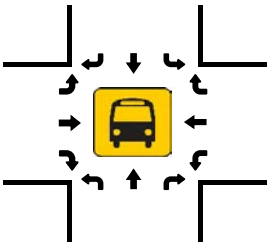
Total Vehicles (AM)



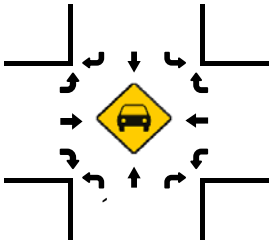
Total Vehicles (NOON)



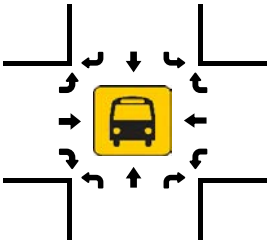
Total Vehicles (NOON)



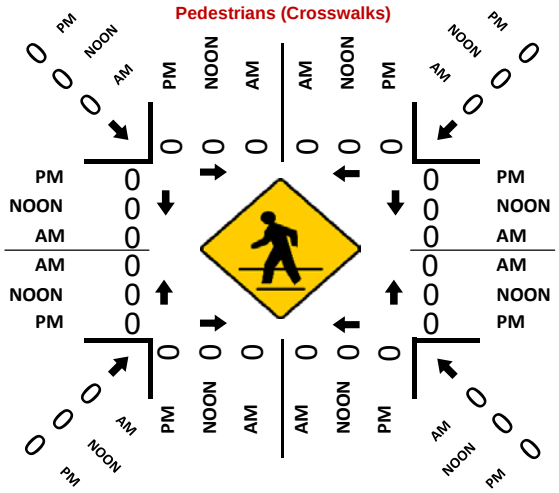
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & Hope St
City: Huntington Park
Control: Signalized

Project ID: 19-05618-002
Date: 10/16/2019

Total

NS/EW Streets:	California Ave				California Ave				Hope St				Hope St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	162	1	0	3	81	6	0	4	5	4	0	4	7	9	0	293
7:15 AM	7	165	2	0	3	94	6	0	7	8	2	0	6	8	10	0	318
7:30 AM	5	155	0	0	4	100	10	0	15	11	8	0	2	10	9	0	329
7:45 AM	8	164	6	0	7	139	10	0	22	16	12	0	7	5	9	0	405
8:00 AM	1	132	2	0	3	70	1	0	2	2	4	0	1	1	2	0	221
8:15 AM	3	102	3	0	5	86	2	0	4	3	2	0	2	1	1	0	214
8:30 AM	1	109	1	0	3	111	2	0	4	2	4	0	4	2	4	0	247
8:45 AM	3	116	3	0	2	85	3	0	2	3	3	0	3	5	3	0	231
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	1105	18	0	30	766	40	0	60	50	39	0	29	39	47	0	2258
APPROACH %'s :	3.02%	95.42%	1.55%	0.00%	3.59%	91.63%	4.78%	0.00%	40.27%	33.56%	26.17%	0.00%	25.22%	33.91%	40.87%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	27	646	9	0	17	414	32	0	48	40	26	0	19	30	37	0	1345
PEAK HR FACTOR :	0.844	0.979	0.375	0.000	0.607	0.745	0.800	0.000	0.545	0.625	0.542	0.000	0.679	0.750	0.925	0.000	0.830
	0.958				0.742				0.570				0.896				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	109	2	1	2	124	4	0	7	2	6	0	0	7	4	0	273
4:15 PM	4	92	2	0	4	136	4	0	11	3	11	0	5	4	2	0	278
4:30 PM	3	107	1	0	3	126	5	0	7	3	11	0	3	5	4	0	278
4:45 PM	3	115	1	0	4	135	4	0	7	6	6	0	0	4	1	0	286
5:00 PM	3	107	2	1	5	154	4	0	4	2	3	0	0	6	3	0	294
5:15 PM	1	115	1	0	4	151	4	0	4	4	3	0	0	6	3	0	296
5:30 PM	9	123	1	0	4	143	3	0	11	10	8	0	1	9	3	0	325
5:45 PM	7	123	1	0	4	158	5	0	1	3	11	0	3	2	6	0	324
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	891	11	2	30	1127	33	0	52	33	59	0	12	43	26	0	2354
APPROACH %'s :	3.73%	94.89%	1.17%	0.21%	2.52%	94.71%	2.77%	0.00%	36.11%	22.92%	40.97%	0.00%	14.81%	53.09%	32.10%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	20	468	5	1	17	606	16	0	20	19	25	0	4	23	15	0	1239
PEAK HR FACTOR :	0.556	0.951	0.625	0.250	0.850	0.959	0.800	0.000	0.455	0.475	0.568	0.000	0.333	0.639	0.625	0.000	0.953
	0.929				0.957				0.552				0.808				

Prepared by National Data & Surveying Services

California Ave & Santa Ana St

Peak Hour Turning Movement Count

ID: 19-05618-003
City: South Gate

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

California Ave — SOUTHBOUND

AM	50	403	68	0	619	AM
NOON	0	0	0	0	0	NOON
PM	60	502	78	0	548	PM

Santa Ana St — EASTBOUND

AM	NOON	PM	
514	0	499	
0	0	0	0
45	0	66	1
371	0	416	1
59	0	103	0
AM	NOON	PM	

Santa Ana St — WESTBOUND

PM	NOON	AM	
58	0	60	0
325	0	347	1
47	0	55	1
0	0	0	0
568	0	509	
PM	NOON	AM	

California Ave — NORTHBOUND

PM	652	0	114	424	74	PM
NOON	0	0	0	0	0	NOON
AM	517	0	117	514	70	AM

CONTROL			
Signalized			
TEV	2159	0	2267
	AM	NOON	PM
PHF	0.97		0.97

Total Vehicles (AM)

Total Vehicles (NOON)

Total Vehicles (PM)

Pedestrians (Crosswalks)

National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & Santa Ana St
City: South Gate
Control: Signalized

Project ID: 19-05618-003
Date: 10/16/2019

Total

NS/EW Streets:	California Ave				California Ave				Santa Ana St				Santa Ana St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	37	114	18	0	18	92	5	0	11	107	12	0	7	85	5	0	511
7:15 AM	35	132	11	0	12	100	12	0	8	89	16	0	14	98	17	0	544
7:30 AM	23	124	24	0	24	103	17	0	18	75	17	0	20	84	21	0	550
7:45 AM	22	144	17	0	14	108	16	0	8	100	14	0	14	80	17	0	554
8:00 AM	26	130	16	0	18	66	18	0	18	81	10	0	16	75	7	0	481
8:15 AM	22	90	13	0	11	85	11	0	11	77	13	0	12	62	7	0	414
8:30 AM	20	95	15	0	17	77	13	0	11	65	13	0	13	60	6	0	405
8:45 AM	18	74	13	0	9	64	14	0	8	69	12	0	8	60	10	0	359
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	203	903	127	0	123	695	106	0	93	663	107	0	104	604	90	0	3818
APPROACH %'s :	16.46%	73.24%	10.30%	0.00%	13.31%	75.22%	11.47%	0.00%	10.78%	76.83%	12.40%	0.00%	13.03%	75.69%	11.28%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	117	514	70	0	68	403	50	0	45	371	59	0	55	347	60	0	2159
PEAK HR FACTOR :	0.791	0.892	0.729	0.000	0.708	0.933	0.735	0.000	0.625	0.867	0.868	0.000	0.688	0.885	0.714	0.000	0.974
	0.958				0.905				0.913				0.895				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	26	102	20	0	14	110	11	0	14	89	23	0	10	90	8	0	517
4:15 PM	15	94	13	0	17	88	12	0	10	108	24	0	15	93	7	0	496
4:30 PM	24	105	19	0	14	120	12	0	7	93	24	0	13	88	14	0	533
4:45 PM	33	107	19	0	17	109	11	0	16	106	33	0	12	99	5	0	567
5:00 PM	32	99	21	0	17	125	20	0	15	99	28	0	15	78	12	0	561
5:15 PM	31	107	13	0	27	123	12	0	19	118	21	0	12	88	14	0	585
5:30 PM	29	110	17	0	17	123	13	0	17	85	20	0	7	82	14	0	534
5:45 PM	22	108	23	0	17	131	15	0	15	114	34	0	13	77	18	0	587
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	212	832	145	0	140	929	106	0	113	812	207	0	97	695	92	0	4380
APPROACH %'s :	17.83%	69.97%	12.20%	0.00%	11.91%	79.06%	9.02%	0.00%	9.98%	71.73%	18.29%	0.00%	10.97%	78.62%	10.41%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	114	424	74	0	78	502	60	0	66	416	103	0	47	325	58	0	2267
PEAK HR FACTOR :	0.891	0.964	0.804	0.000	0.722	0.958	0.750	0.000	0.868	0.881	0.757	0.000	0.783	0.923	0.806	0.000	0.966
	0.981				0.982				0.897				0.943				

Prepared by National Data & Surveying Services

California Ave & Independence Ave

Peak Hour Turning Movement Count

ID: 19-05618-004
City: South Gate

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (California Ave)

AM	18	554	22	0	656	AM
NOON	0	0	0	0	0	NOON
PM	12	572	9	0	573	PM
	0	2	0	0		

EASTBOUND (Independence Ave)

AM	NOON	PM	
284	0	181	
0	0	0	0
26	0	26	1
151	0	141	0.5
72	0	34	0.5
AM	NOON	PM	

WESTBOUND (Independence Ave)

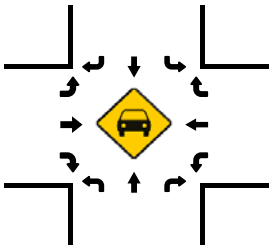
PM	NOON	AM	
33	0	37	0.5
118	0	157	0.5
30	0	69	1
0	0	0	0
180	0	200	
PM	NOON	AM	

NORTHBOUND (California Ave)

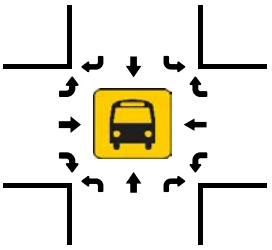
PM	636	0	51	514	30	PM
NOON	0	0	0	0	0	NOON
AM	695	0	109	593	27	AM
		0	0	2	0	

CONTROL			
Signalized			
TEV	1835 AM	0 NOON	1570 PM
PHF	0.90		0.96

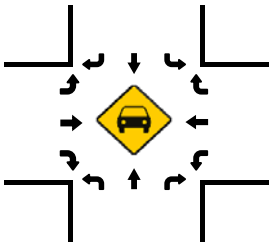
Total Vehicles (AM)



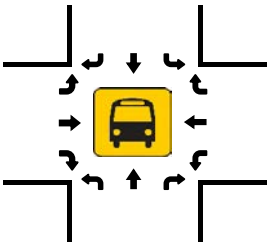
Total Vehicles (AM)



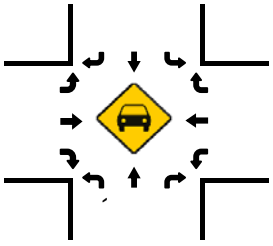
Total Vehicles (NOON)



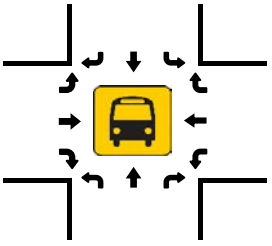
Total Vehicles (NOON)



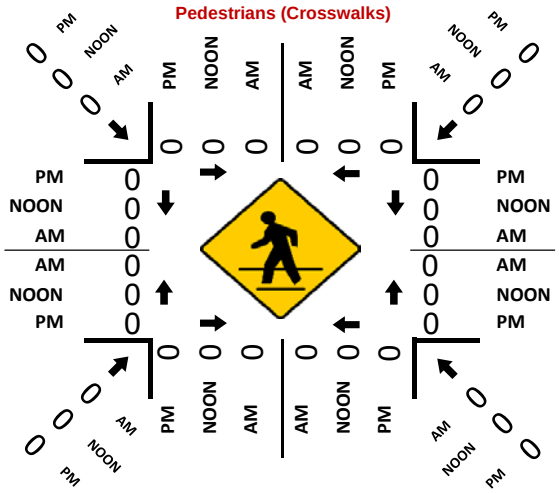
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & Independence Ave
City: South Gate
Control: Signalized

Project ID: 19-05618-004
Date: 10/16/2019

Total

NS/EW Streets:	California Ave				California Ave				Independence Ave				Independence Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	1	0.5	0.5	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	137	6	0	4	131	5	0	3	32	10	0	10	36	12	0	399
7:15 AM	37	140	8	0	8	117	3	0	9	41	13	0	15	39	11	0	441
7:30 AM	38	170	8	0	6	148	6	0	2	31	24	0	16	50	11	0	510
7:45 AM	21	146	5	0	4	158	4	0	12	47	25	0	28	32	3	0	485
8:00 AM	18	159	13	0	0	89	4	0	5	29	7	0	9	25	11	0	369
8:15 AM	8	122	11	0	2	109	1	0	4	20	7	0	11	18	8	0	321
8:30 AM	9	90	5	0	2	92	4	0	4	20	4	0	8	18	4	0	260
8:45 AM	12	94	4	0	1	91	5	0	2	14	7	0	5	16	7	0	258
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	156	1058	60	0	27	935	32	0	41	234	97	0	102	234	67	0	3043
APPROACH %'s :	12.24%	83.05%	4.71%	0.00%	2.72%	94.06%	3.22%	0.00%	11.02%	62.90%	26.08%	0.00%	25.31%	58.06%	16.63%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	109	593	27	0	22	554	18	0	26	151	72	0	69	157	37	0	1835
PEAK HR FACTOR :	0.717	0.872	0.844	0.000	0.688	0.877	0.750	0.000	0.542	0.803	0.720	0.000	0.616	0.785	0.771	0.000	0.900
	0.844				0.895				0.741				0.854				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	1	0.5	0.5	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	121	6	0	0	134	1	0	8	20	3	0	5	24	4	0	337
4:15 PM	15	113	13	0	3	119	8	0	6	36	8	0	5	30	13	0	369
4:30 PM	10	129	5	0	5	122	3	0	7	40	6	0	5	23	7	0	362
4:45 PM	11	141	3	0	3	138	3	0	0	21	8	0	6	24	3	0	361
5:00 PM	13	127	10	0	3	150	7	0	8	32	7	0	7	37	9	0	410
5:15 PM	15	140	10	0	2	133	2	0	4	28	7	0	8	24	11	0	384
5:30 PM	14	141	5	0	3	135	2	0	8	31	11	0	6	31	6	0	393
5:45 PM	9	106	5	0	1	154	1	0	6	50	9	0	9	26	7	0	383
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	98	1018	57	0	20	1085	27	0	47	258	59	0	51	219	60	0	2999
APPROACH %'s :	8.35%	86.79%	4.86%	0.00%	1.77%	95.85%	2.39%	0.00%	12.91%	70.88%	16.21%	0.00%	15.45%	66.36%	18.18%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	51	514	30	0	9	572	12	0	26	141	34	0	30	118	33	0	1570
PEAK HR FACTOR :	0.850	0.911	0.750	0.000	0.750	0.929	0.429	0.000	0.813	0.705	0.773	0.000	0.833	0.797	0.750	0.000	0.957
	0.902				0.927				0.773				0.854				

Prepared by National Data & Surveying Services

California Ave & Ardmore Ave

Peak Hour Turning Movement Count

ID: 19-05618-005
City: South Gate

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

California Ave — SOUTHBOUND

AM	75	533	39	0	768	AM
NOON	0	0	0	0	0	NOON
PM	34	555	46	0	601	PM
	0	2	0	0		

Ardmore Ave — EASTBOUND

AM	NOON	PM	
249	0	154	
0	0	0	0
70	0	29	1
229	0	206	0.5
111	0	91	0.5
AM	NOON	PM	

Ardmore Ave — WESTBOUND

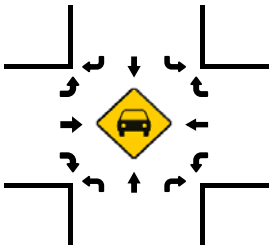
PM	NOON	AM	
20	0	43	0.5
98	0	138	0.5
15	0	42	1
0	0	0	0
285	0	287	
PM	NOON	AM	

California Ave — NORTHBOUND

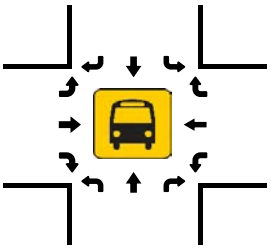
PM	661	0	22	552	33	PM
NOON	0	0	0	0	0	NOON
AM	686	0	36	655	19	AM
		0	0	2	0	

CONTROL			
Signalized			
TEV	1990	0	1701
	AM	NOON	PM
PHF	0.90		0.96

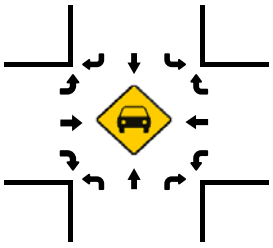
Total Vehicles (AM)



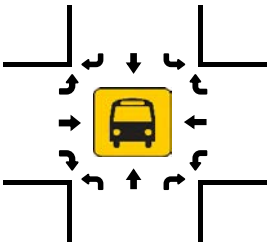
Total Vehicles (AM)



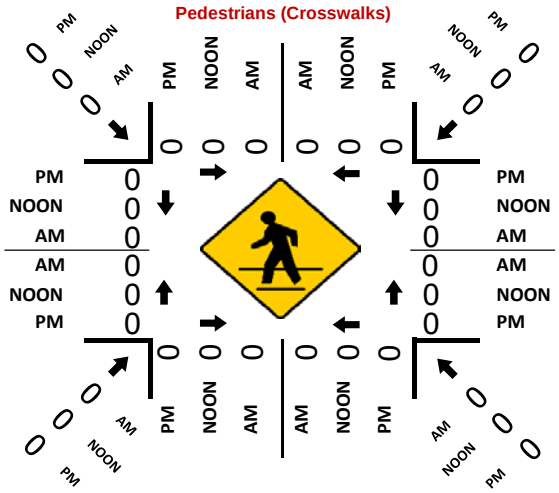
Total Vehicles (NOON)



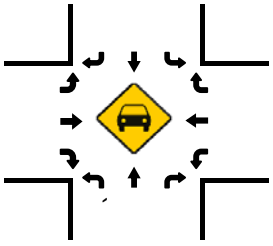
Total Vehicles (NOON)



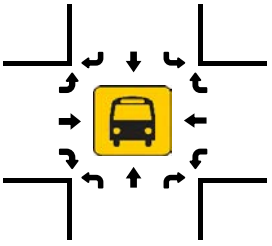
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & Ardmore Ave
City: South Gate
Control: Signalized

Project ID: 19-05618-005
Date: 10/16/2019

Total

NS/EW Streets:	California Ave				California Ave				Ardmore Ave				Ardmore Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	1	0.5	0.5	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	144	2	0	13	127	14	0	9	51	13	0	7	22	3	0	409
7:15 AM	7	172	5	0	9	122	11	0	6	77	26	0	4	31	7	0	477
7:30 AM	14	174	8	0	17	152	20	0	23	48	21	0	11	39	15	0	542
7:45 AM	10	141	5	0	8	171	31	0	24	51	40	0	19	44	11	0	555
8:00 AM	5	168	1	0	5	88	13	0	17	53	24	0	8	24	10	0	416
8:15 AM	5	124	4	0	8	110	8	0	5	26	13	0	5	19	5	0	332
8:30 AM	8	93	3	0	4	93	7	0	9	32	16	0	4	21	4	0	294
8:45 AM	6	100	5	0	7	87	9	0	6	27	6	0	1	13	4	0	271
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	59	1116	33	0	71	950	113	0	99	365	159	0	59	213	59	0	3296
APPROACH %'s :	4.88%	92.38%	2.73%	0.00%	6.26%	83.77%	9.96%	0.00%	15.89%	58.59%	25.52%	0.00%	17.82%	64.35%	17.82%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	36	655	19	0	39	533	75	0	70	229	111	0	42	138	43	0	1990
PEAK HR FACTOR :	0.643	0.941	0.594	0.000	0.574	0.779	0.605	0.000	0.729	0.744	0.694	0.000	0.553	0.784	0.717	0.000	0.896
	0.906				0.770				0.891				0.753				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	1	0.5	0.5	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	118	12	0	9	126	5	0	8	38	21	0	0	15	6	0	364
4:15 PM	5	138	5	0	7	120	7	0	6	50	19	0	7	20	5	0	389
4:30 PM	4	128	7	0	8	113	8	0	9	52	23	0	6	18	5	0	381
4:45 PM	3	144	10	0	11	137	9	0	6	54	17	0	5	12	3	0	411
5:00 PM	4	134	9	0	6	149	8	0	14	41	20	0	4	27	4	0	420
5:15 PM	4	159	7	0	10	130	5	0	5	64	28	0	2	29	2	0	445
5:30 PM	7	145	10	0	17	132	9	0	6	49	13	0	7	21	8	0	424
5:45 PM	7	114	7	0	13	144	12	0	4	52	30	0	2	21	6	0	412
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	40	1080	67	0	81	1051	63	0	58	400	171	0	33	163	39	0	3246
APPROACH %'s :	3.37%	90.99%	5.64%	0.00%	6.78%	87.95%	5.27%	0.00%	9.22%	63.59%	27.19%	0.00%	14.04%	69.36%	16.60%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	22	552	33	0	46	555	34	0	29	206	91	0	15	98	20	0	1701
PEAK HR FACTOR :	0.786	0.868	0.825	0.000	0.676	0.931	0.708	0.000	0.518	0.805	0.758	0.000	0.536	0.845	0.625	0.000	0.956
	0.893				0.939				0.840				0.924				

Prepared by National Data & Surveying Services

California Ave/Salt Lake Ave & Florence Ave

Peak Hour Turning Movement Count

ID: 19-05618-006
City: Huntington Park

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

California Ave/Salt Lake Ave — SOUTHBOUND

AM	44	114	61	0	338	AM
NOON	0	0	0	0	0	NOON
PM	27	214	47	0	146	PM
	0	1	0	0		

Florence Ave — EASTBOUND

AM	NOON	PM		
1406	0	1072		
1	0	0	0	
54	0	32	1	
1033	0	1039	2.5	
206	0	338	0.5	
AM	NOON	PM		

Florence Ave — WESTBOUND

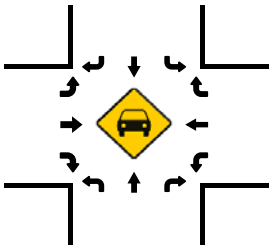
PM	NOON	AM	
28	0	117	1
824	0	999	2
0	0	0	0
0	0	0	0
1089	0	1098	
PM	NOON	AM	

California Ave/Salt Lake Ave — NORTHBOUND

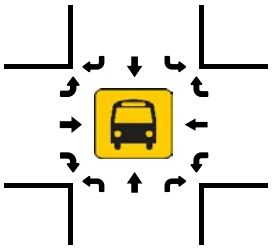
PM	552	0	221	86	3	PM
NOON	0	0	0	0	0	NOON
AM	320	0	362	167	4	AM
		0	1	1	0	

CONTROL			
Signalized			
TEV	3162 AM	0 NOON	2859 PM
PHF	0.93		0.99

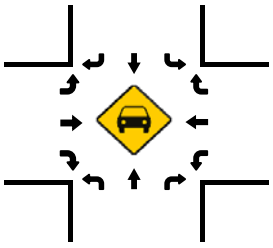
Total Vehicles (AM)



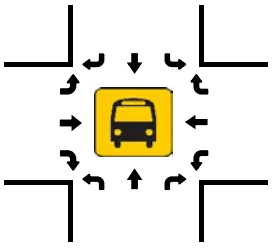
Total Vehicles (AM)



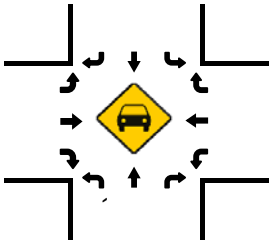
Total Vehicles (NOON)



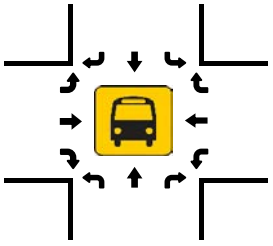
Total Vehicles (NOON)



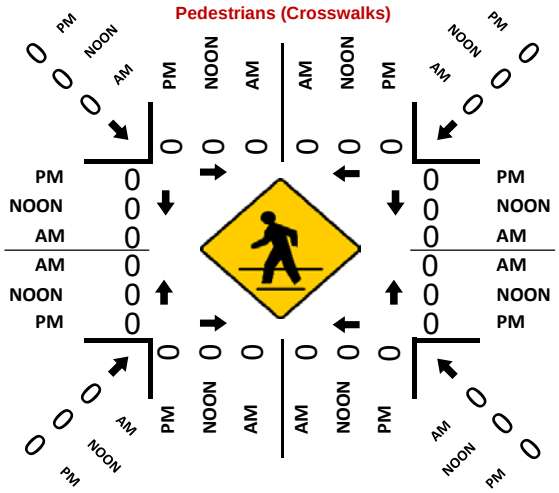
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave/Salt Lake Ave & Florence Ave
City: Huntington Park
Control: Signalized

Project ID: 19-05618-006
Date: 10/16/2019

Total

NS/EW Streets:	California Ave/Salt Lake Ave				California Ave/Salt Lake Ave				Florence Ave				Florence Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	0	0	1	2.5	0.5	0	0	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	97	32	1	0	14	13	9	0	11	221	45	0	0	256	26	0	725
7:15 AM	79	54	2	0	24	38	11	0	15	250	53	1	0	233	29	0	789
7:30 AM	98	54	1	0	9	37	8	0	11	281	54	0	0	269	32	0	854
7:45 AM	88	27	0	0	14	26	16	0	17	281	54	0	0	241	30	0	794
8:00 AM	88	29	0	0	9	18	7	0	13	226	55	0	0	251	15	0	711
8:15 AM	75	18	2	0	13	22	8	0	10	201	54	0	0	194	10	0	607
8:30 AM	66	17	4	0	8	21	7	0	7	227	46	1	0	202	7	0	613
8:45 AM	62	13	1	0	5	9	8	0	5	167	30	0	0	192	7	0	499
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	653	244	11	0	96	184	74	0	89	1854	391	2	0	1838	156	0	5592
APPROACH %'s :	71.92%	26.87%	1.21%	0.00%	27.12%	51.98%	20.90%	0.00%	3.81%	79.37%	16.74%	0.09%	0.00%	92.18%	7.82%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	362	167	4	0	61	114	44	0	54	1033	206	1	0	999	117	0	3162
PEAK HR FACTOR :	0.923	0.773	0.500	0.000	0.635	0.750	0.688	0.000	0.794	0.919	0.954	0.250	0.000	0.928	0.914	0.000	0.926
	0.871				0.750				0.919				0.927				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	0	0	1	2.5	0.5	0	0	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	46	24	1	0	17	51	10	0	5	265	69	0	0	199	10	0	697
4:15 PM	55	18	1	0	10	34	6	0	7	248	98	0	0	181	17	0	675
4:30 PM	65	23	0	0	13	37	9	0	4	260	78	0	0	189	9	0	687
4:45 PM	54	19	1	0	10	49	6	0	10	257	94	0	0	203	5	0	708
5:00 PM	58	23	0	0	14	54	7	0	10	254	76	0	0	204	8	0	708
5:15 PM	51	18	0	0	13	51	8	0	9	256	80	0	0	227	8	0	721
5:30 PM	58	26	2	0	10	60	6	0	3	272	88	0	0	190	7	0	722
5:45 PM	55	18	0	0	12	55	12	0	7	258	67	0	0	212	9	0	705
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	442	169	5	0	99	391	64	0	55	2070	650	0	0	1605	73	0	5623
APPROACH %'s :	71.75%	27.44%	0.81%	0.00%	17.87%	70.58%	11.55%	0.00%	1.98%	74.59%	23.42%	0.00%	0.00%	95.65%	4.35%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	221	86	3	0	47	214	27	0	32	1039	338	0	0	824	28	0	2859
PEAK HR FACTOR :	0.953	0.827	0.375	0.000	0.839	0.892	0.844	0.000	0.800	0.955	0.899	0.000	0.000	0.907	0.875	0.000	0.990
	0.901				0.947				0.970				0.906				

Prepared by National Data & Surveying Services

Otis Ave & Florence Ave

Peak Hour Turning Movement Count

ID: 19-05618-007
City: Bell

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Otis Ave — SOUTHBOUND

AM	47	221	78	0	330	AM
NOON	0	0	0	0	0	NOON
PM	56	272	64	0	271	PM

Florence Ave — EASTBOUND

AM	NOON	PM	
1251	0	945	
0	0	0	0
53	0	43	1
1074	0	980	2
94	0	85	0
AM	NOON	PM	

Florence Ave — WESTBOUND

PM	NOON	AM	
54	0	46	0
813	0	1074	2
86	0	69	1
0	0	0	0
1149	0	1307	
PM	NOON	AM	

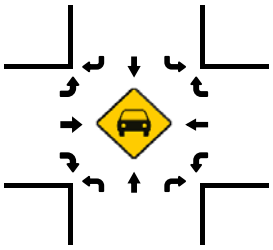
Otis Ave — NORTHBOUND

PM	443	0	76	174	105	PM
NOON	0	0	0	0	0	NOON
AM	384	0	130	231	155	AM

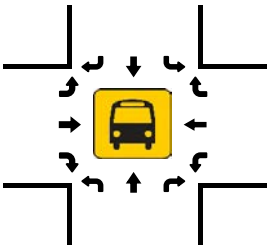
Turning movements (left, through, right, U-turn): 1 1 1 0 | 0 1 1 0

CONTROL			
Signalized			
TEV	3272	0	2808
	AM	NOON	PM
PHF	0.90		0.98

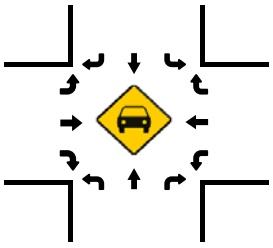
Total Vehicles (AM)



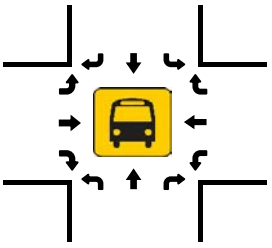
Total Vehicles (AM)



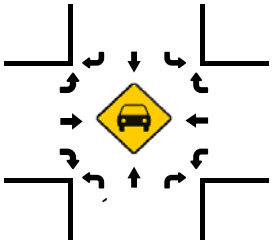
Total Vehicles (NOON)



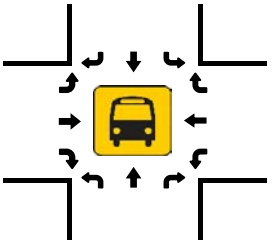
Total Vehicles (NOON)



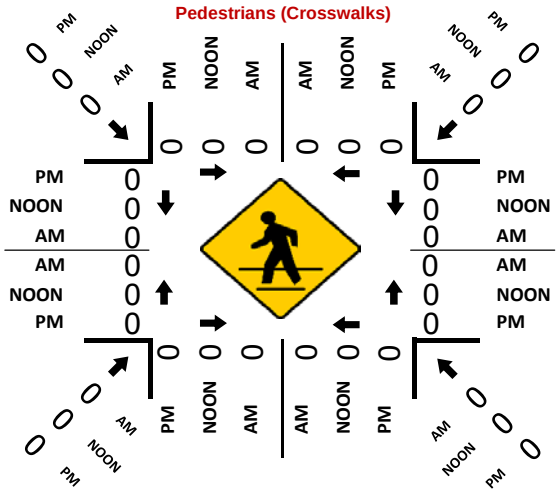
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Florence Ave
City: Bell
Control: Signalized

Project ID: 19-05618-007
Date: 10/16/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Florence Ave				Florence Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	39	58	43	0	24	31	10	0	5	200	17	0	18	243	9	0	697
7:15 AM	35	54	37	0	20	43	12	0	19	303	24	0	19	329	16	0	911
7:30 AM	28	62	35	0	21	79	10	0	11	264	21	0	12	264	15	0	822
7:45 AM	28	57	40	0	13	68	15	0	18	307	32	0	20	238	6	0	842
8:00 AM	20	51	30	0	15	51	12	0	12	217	11	0	14	208	16	0	657
8:15 AM	14	41	21	0	18	31	8	0	10	215	13	0	5	223	7	0	606
8:30 AM	14	28	26	0	19	29	4	0	5	206	11	0	15	185	10	0	552
8:45 AM	12	29	20	0	9	26	5	0	7	177	12	0	13	231	6	0	547
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	190	380	252	0	139	358	76	0	87	1889	141	0	116	1921	85	0	5634
APPROACH %'s :	23.11%	46.23%	30.66%	0.00%	24.26%	62.48%	13.26%	0.00%	4.11%	89.23%	6.66%	0.00%	5.47%	90.53%	4.01%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	130	231	155	0	78	221	47	0	53	1074	94	0	69	1074	46	0	3272
PEAK HR FACTOR :	0.833	0.931	0.901	0.000	0.813	0.699	0.783	0.000	0.697	0.875	0.734	0.000	0.863	0.816	0.719	0.000	0.898
	0.921				0.786				0.855				0.817				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	38	19	0	13	68	13	0	11	257	25	0	23	216	12	0	710
4:15 PM	17	45	19	0	13	62	8	0	7	234	21	0	23	189	10	0	648
4:30 PM	15	51	14	0	24	72	7	0	7	252	21	0	16	220	15	0	714
4:45 PM	13	48	17	0	18	69	13	0	9	238	18	0	21	203	17	0	684
5:00 PM	17	45	22	0	20	75	11	0	13	239	26	0	17	218	13	0	716
5:15 PM	19	47	28	0	22	63	17	0	8	242	12	0	17	185	16	0	676
5:30 PM	13	41	20	0	11	62	14	0	11	255	24	0	23	210	14	0	698
5:45 PM	27	41	35	0	11	72	14	0	11	244	23	0	29	200	11	0	718
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	136	356	174	0	132	543	97	0	77	1961	170	0	169	1641	108	0	5564
APPROACH %'s :	20.42%	53.45%	26.13%	0.00%	17.10%	70.34%	12.56%	0.00%	3.49%	88.81%	7.70%	0.00%	8.81%	85.56%	5.63%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	76	174	105	0	64	272	56	0	43	980	85	0	86	813	54	0	2808
PEAK HR FACTOR :	0.704	0.926	0.750	0.000	0.727	0.907	0.824	0.000	0.827	0.961	0.817	0.000	0.741	0.932	0.844	0.000	0.978
	0.862				0.925				0.955				0.961				

Prepared by National Data & Surveying Services

Otis Ave & Live Oak St

Peak Hour Turning Movement Count

ID: 19-05618-008
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Otis Ave)

AM	18	308	67	0	504	AM
NOON	0	0	0	0	0	NOON
PM	22	326	49	0	352	PM
	0	1	0	0		

EASTBOUND (Live Oak St)

AM	NOON	PM	
102	0	84	
0	0	0	0
26	0	13	0
60	0	57	1
30	0	18	0
AM	NOON	PM	

WESTBOUND (Live Oak St)

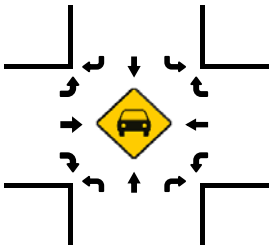
	PM	NOON	AM
0	45	0	82
1	42	0	56
0	37	0	35
0	0	0	0
	149	0	174
	PM	NOON	AM

NORTHBOUND (Otis Ave)

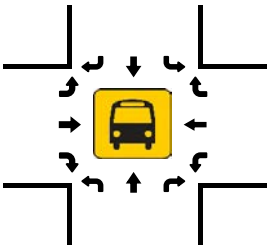
PM	381	0	20	294	43	PM
NOON	0	0	0	0	0	NOON
AM	373	0	28	396	47	AM
		0	0	1	0	

CONTROL			
Signalized			
TEV	1153	0	966
	AM	NOON	PM
PHF	0.84		0.90

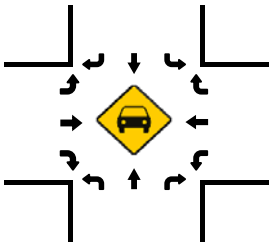
Total Vehicles (AM)



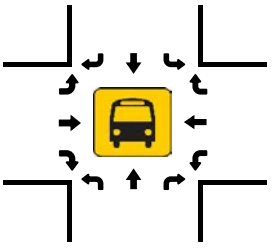
Total Vehicles (AM)



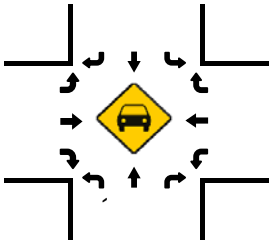
Total Vehicles (NOON)



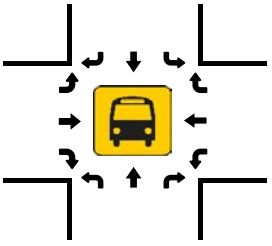
Total Vehicles (NOON)



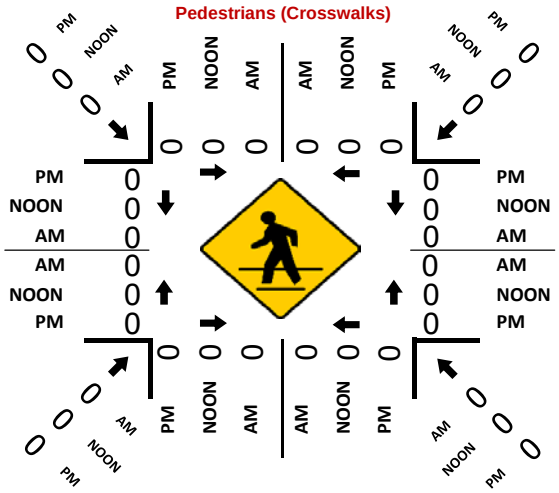
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Live Oak St
City: Cudahy
Control: Signalized

Project ID: 19-05618-008
Date: 10/16/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Live Oak St				Live Oak St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	103	13	0	8	56	4	0	7	4	5	0	4	12	12	0	234
7:15 AM	7	110	10	0	17	62	4	0	8	13	6	0	6	10	13	0	266
7:30 AM	6	82	11	0	19	97	5	0	5	21	11	0	13	16	25	0	311
7:45 AM	9	101	13	0	23	93	5	0	6	22	8	0	12	18	32	0	342
8:00 AM	6	70	14	0	10	58	4	0	1	12	7	0	10	12	11	0	215
8:15 AM	2	64	9	0	6	39	1	0	1	7	6	0	8	8	12	0	163
8:30 AM	3	49	6	0	2	55	1	0	2	9	3	0	3	12	1	0	146
8:45 AM	2	55	10	0	3	45	1	0	6	9	3	0	7	6	3	0	150
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	634	86	0	88	505	25	0	36	97	49	0	63	94	109	0	1827
APPROACH %'s :	5.39%	83.31%	11.30%	0.00%	14.24%	81.72%	4.05%	0.00%	19.78%	53.30%	26.92%	0.00%	23.68%	35.34%	40.98%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	28	396	47	0	67	308	18	0	26	60	30	0	35	56	82	0	1153
PEAK HR FACTOR :	0.778	0.900	0.904	0.000	0.728	0.794	0.900	0.000	0.813	0.682	0.682	0.000	0.673	0.778	0.641	0.000	0.843
	0.927				0.812				0.784				0.698				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	60	16	0	8	94	3	0	0	16	8	0	13	10	10	0	242
4:15 PM	4	68	10	0	8	80	4	0	2	13	1	0	8	9	9	0	216
4:30 PM	8	70	14	0	11	76	9	0	2	13	5	0	6	8	10	0	232
4:45 PM	5	57	15	0	5	81	2	0	1	15	5	0	6	13	15	0	220
5:00 PM	4	68	7	0	10	96	3	0	5	12	5	0	8	11	13	0	242
5:15 PM	5	84	10	0	10	71	4	0	0	12	4	0	9	11	4	0	224
5:30 PM	9	61	17	0	14	79	8	0	4	9	7	0	8	7	10	0	233
5:45 PM	2	81	9	0	15	80	7	0	4	24	2	0	12	13	18	0	267
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	549	98	0	81	657	40	0	18	114	37	0	70	82	89	0	1876
APPROACH %'s :	5.96%	79.80%	14.24%	0.00%	10.41%	84.45%	5.14%	0.00%	10.65%	67.46%	21.89%	0.00%	29.05%	34.02%	36.93%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	20	294	43	0	49	326	22	0	13	57	18	0	37	42	45	0	966
PEAK HR FACTOR :	0.556	0.875	0.632	0.000	0.817	0.849	0.688	0.000	0.650	0.594	0.643	0.000	0.771	0.808	0.625	0.000	0.904
	0.902				0.911				0.733				0.721				

Prepared by National Data & Surveying Services

Otis Ave & Clara St

Peak Hour Turning Movement Count

ID: 19-05618-009
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Otis Ave)

AM	14	216	77	0	405	AM
NOON	0	0	0	0	0	NOON
PM	22	276	76	0	338	PM
	0	1	1	0		

EASTBOUND (Clara St)

AM	NOON	PM	
127	0	118	
0	0	0	0
16	0	11	0
108	0	115	1
14	0	6	0
AM	NOON	PM	

WESTBOUND (Clara St)

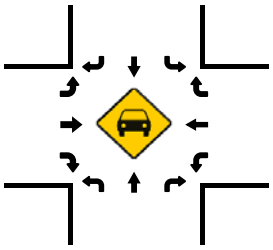
	PM	NOON	AM
0	63	0	123
1	91	0	107
0	110	0	105
0	0	0	0
	301	0	295
	PM	NOON	AM

NORTHBOUND (Otis Ave)

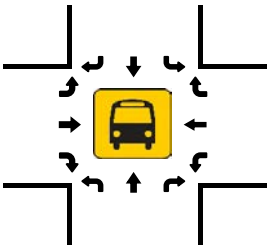
PM	392	0	5	264	110	PM
NOON	0	0	0	0	0	NOON
AM	335	0	6	266	110	AM
		0	0	1	0	

CONTROL			
Signalized			
TEV	1162	0	1149
	AM	NOON	PM
PHF	0.82		0.95

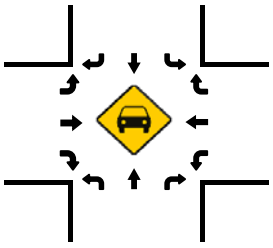
Total Vehicles (AM)



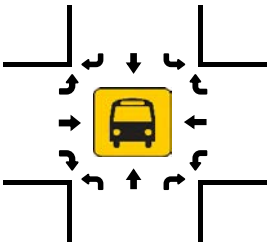
Total Vehicles (AM)



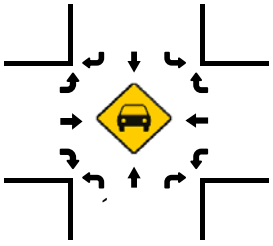
Total Vehicles (NOON)



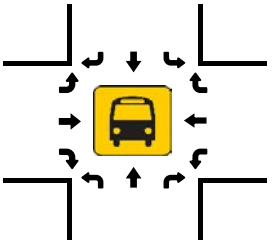
Total Vehicles (NOON)



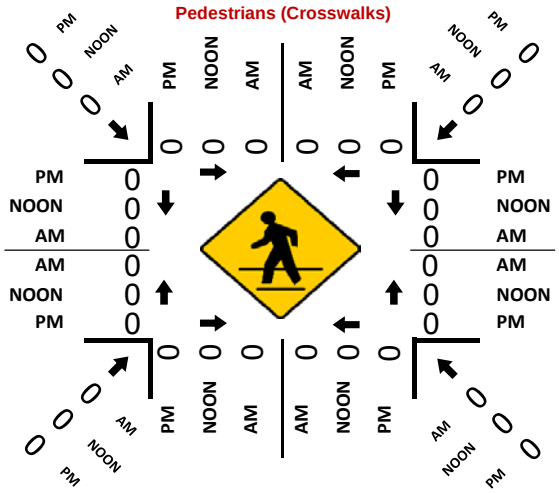
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Clara St
City: Cudahy
Control: Signalized

Project ID: 19-05618-009
Date: 10/16/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Clara St				Clara St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	80	21	0	16	40	1	0	3	21	1	0	15	19	24	0	245
7:15 AM	1	76	30	0	13	47	3	0	4	22	5	0	22	17	24	0	264
7:30 AM	0	45	35	0	26	53	8	0	3	35	5	0	28	30	29	0	297
7:45 AM	1	65	24	0	22	76	2	0	6	30	3	0	40	41	46	0	356
8:00 AM	0	63	15	0	9	61	3	0	0	20	5	0	18	26	16	0	236
8:15 AM	0	60	21	0	4	50	0	0	2	16	1	0	17	24	13	0	208
8:30 AM	1	40	17	0	11	48	3	0	2	14	1	0	16	21	5	0	179
8:45 AM	0	54	19	0	8	46	2	0	3	5	1	0	20	18	13	0	189
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	483	182	0	109	421	22	0	23	163	22	0	176	196	170	0	1974
APPROACH %'s :	1.04%	71.88%	27.08%	0.00%	19.75%	76.27%	3.99%	0.00%	11.06%	78.37%	10.58%	0.00%	32.47%	36.16%	31.37%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	6	266	110	0	77	216	14	0	16	108	14	0	105	107	123	0	1162
PEAK HR FACTOR :	0.375	0.831	0.786	0.000	0.740	0.711	0.438	0.000	0.667	0.771	0.700	0.000	0.656	0.652	0.668	0.000	0.816
	0.893				0.768				0.802				0.659				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	67	21	0	24	65	4	0	1	28	2	0	22	21	12	0	269
4:15 PM	0	53	13	0	11	71	2	0	1	28	0	0	28	21	20	0	248
4:30 PM	2	74	27	0	13	60	3	0	1	18	3	0	28	14	18	0	261
4:45 PM	1	58	17	0	12	72	1	0	1	25	2	0	21	17	18	0	245
5:00 PM	0	59	31	0	15	78	8	0	1	24	3	0	23	21	9	0	272
5:15 PM	3	69	23	0	21	66	7	0	4	32	2	0	26	15	11	0	279
5:30 PM	0	67	23	0	20	65	3	0	3	36	0	0	31	26	21	0	295
5:45 PM	2	69	33	0	20	67	4	0	3	23	1	0	30	29	22	0	303
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	516	188	0	136	544	32	0	15	214	13	0	209	164	131	0	2172
APPROACH %'s :	1.40%	72.27%	26.33%	0.00%	19.10%	76.40%	4.49%	0.00%	6.20%	88.43%	5.37%	0.00%	41.47%	32.54%	25.99%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	5	264	110	0	76	276	22	0	11	115	6	0	110	91	63	0	1149
PEAK HR FACTOR :	0.417	0.957	0.833	0.000	0.905	0.885	0.688	0.000	0.688	0.799	0.500	0.000	0.887	0.784	0.716	0.000	0.948
	0.911				0.926				0.846				0.815				

Prepared by National Data & Surveying Services

Otis Ave & Santa Ana St

Peak Hour Turning Movement Count

ID: 19-05618-010
City: Huntington Park

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Otis Ave — SOUTHBOUND

AM	59	262	21	0	351	AM
NOON	0	0	0	0	0	NOON
PM	89	358	10	0	330	PM
	0	1	0	0		

Santa Ana St — EASTBOUND

AM	NOON	PM	
378	0	495	
0	0	0	0
63	0	56	0
400	0	390	1
55	0	71	0
AM	NOON	PM	

Santa Ana St — WESTBOUND

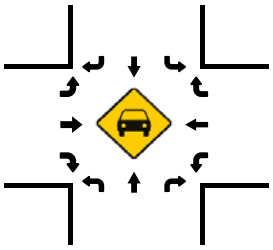
	PM	NOON	AM
0	10	0	8
1	345	0	271
0	93	0	59
0	0	0	0
	512	0	571
	PM	NOON	AM

Otis Ave — NORTHBOUND

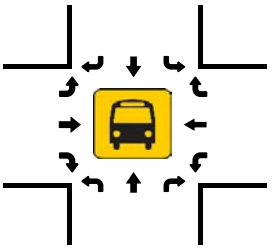
PM	522	0	61	264	112	PM
NOON	0	0	0	0	0	NOON
AM	376	0	48	280	150	AM
		0	1	1	1	

CONTROL			
Signalized			
TEV	1676	0	1859
	AM	NOON	PM
PHF	0.90		0.90

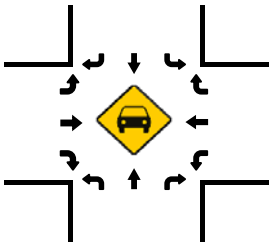
Total Vehicles (AM)



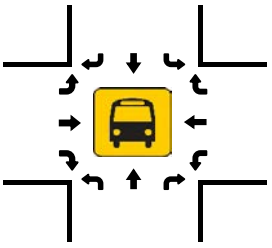
Total Vehicles (AM)



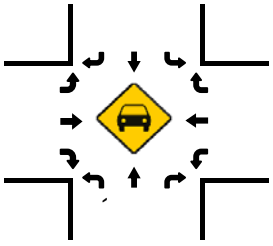
Total Vehicles (NOON)



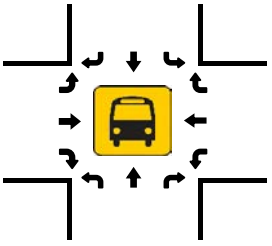
Total Vehicles (NOON)



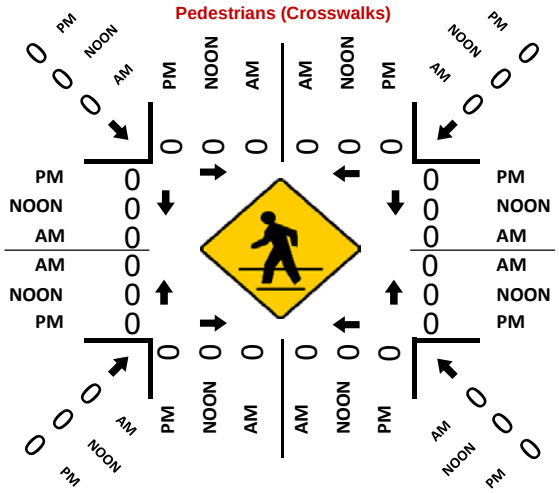
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Santa Ana St
City: Huntington Park
Control: Signalized

Project ID: 19-05618-010
Date: 10/16/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Santa Ana St				Santa Ana St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	66	43	0	7	75	13	0	17	115	11	0	13	90	2	0	463
7:15 AM	19	82	46	0	2	72	23	0	24	92	16	0	17	69	1	0	463
7:30 AM	11	69	39	0	6	69	11	0	9	100	21	0	16	59	1	0	411
7:45 AM	7	63	22	0	6	46	12	0	13	93	7	0	13	53	4	0	339
8:00 AM	14	62	23	0	4	58	19	0	10	78	9	0	10	52	5	0	344
8:15 AM	15	59	26	0	4	53	20	0	17	75	15	0	8	54	3	0	349
8:30 AM	9	42	17	0	2	54	21	0	13	62	11	0	12	50	2	0	295
8:45 AM	13	45	19	0	1	40	14	0	10	80	10	0	8	49	2	0	291
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	99	488	235	0	32	467	133	0	113	695	100	0	97	476	20	0	2955
APPROACH %'s :	12.04%	59.37%	28.59%	0.00%	5.06%	73.89%	21.04%	0.00%	12.44%	76.54%	11.01%	0.00%	16.36%	80.27%	3.37%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	48	280	150	0	21	262	59	0	63	400	55	0	59	271	8	0	1676
PEAK HR FACTOR :	0.632	0.854	0.815	0.000	0.750	0.873	0.641	0.000	0.656	0.870	0.655	0.000	0.868	0.753	0.500	0.000	0.905
	0.813				0.881				0.906				0.805				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	65	36	0	1	88	27	0	13	91	12	0	17	89	1	0	460
4:15 PM	16	51	25	0	2	73	25	0	14	94	17	0	30	88	4	0	439
4:30 PM	13	77	34	0	4	97	16	0	15	109	27	0	24	97	2	0	515
4:45 PM	12	71	17	0	3	100	21	0	14	96	15	0	22	71	3	0	445
5:00 PM	18	60	32	0	4	76	20	0	19	89	14	0	13	89	1	0	435
5:15 PM	19	62	34	0	3	73	20	0	22	97	13	0	11	101	3	0	458
5:30 PM	23	66	26	0	1	93	22	0	12	103	18	0	10	113	4	0	491
5:45 PM	19	71	39	0	2	80	15	0	23	103	15	0	22	83	0	0	472
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	140	523	243	0	20	680	166	0	132	782	131	0	149	731	18	0	3715
APPROACH %'s :	15.45%	57.73%	26.82%	0.00%	2.31%	78.52%	19.17%	0.00%	12.63%	74.83%	12.54%	0.00%	16.59%	81.40%	2.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	61	264	112	0	10	358	89	0	56	390	71	0	93	345	10	0	1859
PEAK HR FACTOR :	0.763	0.857	0.778	0.000	0.625	0.895	0.824	0.000	0.933	0.894	0.657	0.000	0.775	0.889	0.625	0.000	0.902
	0.881				0.921				0.856				0.911				

Prepared by National Data & Surveying Services

Otis Ave & Independence Ave

Peak Hour Turning Movement Count

ID: 19-05618-011
City: South Gate

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Otis Ave — SOUTHBOUND

AM	31	445	40	0	554	AM
NOON	0	0	0	0	0	NOON
PM	28	505	19	0	512	PM
	0	2	0	0		

Independence Ave — EASTBOUND

AM	NOON	PM	
166	0	208	
0	0	1	0
32	0	22	0
102	0	50	1
111	0	64	0

Independence Ave — WESTBOUND

	PM	NOON	AM
0	16	0	9
1	57	0	28
0	53	0	33
0	0	0	0
	117	0	226

CONTROL

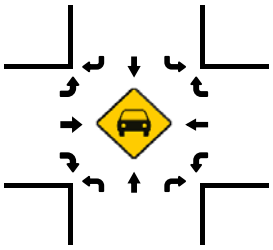
Signalized

	AM	NOON	PM
TEV	1535	0	1459
PHF	0.97		0.97

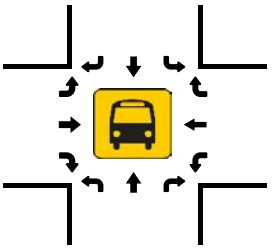
Otis Ave — NORTHBOUND

PM	622	0	122	474	48	PM
NOON	0	0	0	0	0	NOON
AM	589	0	107	513	84	AM
		0	0	2	0	

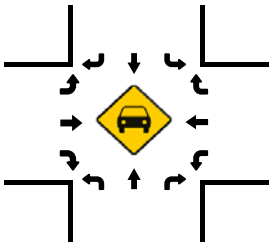
Total Vehicles (AM)



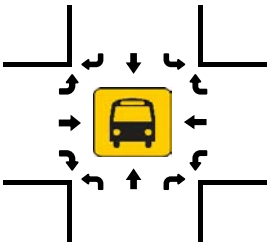
Total Vehicles (AM)



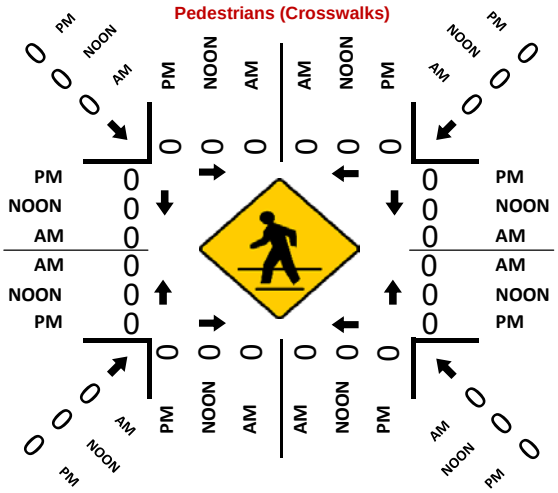
Total Vehicles (NOON)



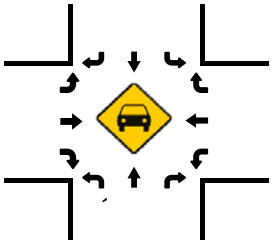
Total Vehicles (NOON)



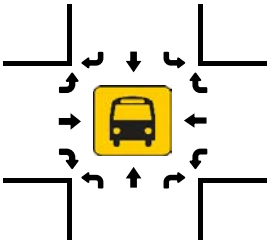
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Independence Ave
City: South Gate
Control: Signalized

Project ID: 19-05618-011
Date: 10/16/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Independence Ave				Independence Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	28	117	10	0	11	103	6	0	5	21	32	0	5	8	1	0	347
7:15 AM	30	136	14	0	10	114	7	0	6	36	29	0	10	5	0	0	397
7:30 AM	35	122	32	0	16	102	10	0	8	27	27	0	7	9	2	0	397
7:45 AM	22	128	22	0	12	112	8	0	11	23	32	0	11	6	4	0	391
8:00 AM	20	127	16	0	2	117	6	0	7	16	23	0	5	8	3	0	350
8:15 AM	24	82	6	0	7	78	8	0	7	11	17	0	11	4	2	0	257
8:30 AM	10	89	4	0	1	72	5	0	7	15	14	0	9	5	0	0	231
8:45 AM	18	81	15	0	1	88	7	0	4	10	5	0	9	7	3	0	248
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	187	882	119	0	60	786	57	0	55	159	179	0	67	52	15	0	2618
APPROACH %'s :	15.74%	74.24%	10.02%	0.00%	6.64%	87.04%	6.31%	0.00%	13.99%	40.46%	45.55%	0.00%	50.00%	38.81%	11.19%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	107	513	84	0	40	445	31	0	32	102	111	0	33	28	9	0	1535
PEAK HR FACTOR :	0.764	0.943	0.656	0.000	0.625	0.951	0.775	0.000	0.727	0.708	0.867	0.000	0.750	0.778	0.563	0.000	0.967
	0.931				0.977				0.863				0.833				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	32	108	7	0	2	112	8	0	4	6	11	0	11	10	4	0	315
4:15 PM	39	102	6	0	3	104	4	0	10	16	16	0	16	10	1	0	327
4:30 PM	25	133	9	0	4	122	3	0	3	12	20	0	11	13	2	0	357
4:45 PM	22	113	21	0	4	135	6	0	5	8	13	1	17	19	7	0	371
5:00 PM	37	127	12	0	2	114	6	0	9	17	15	0	17	17	2	0	375
5:15 PM	27	114	5	0	8	135	9	0	3	13	12	0	11	10	3	0	350
5:30 PM	36	120	10	0	5	121	7	0	5	12	24	0	8	11	4	0	363
5:45 PM	31	112	9	0	2	109	7	0	9	17	22	0	11	14	1	0	344
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	249	929	79	0	30	952	50	0	48	101	133	1	102	104	24	0	2802
APPROACH %'s :	19.81%	73.91%	6.28%	0.00%	2.91%	92.25%	4.84%	0.00%	16.96%	35.69%	47.00%	0.35%	44.35%	45.22%	10.43%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	122	474	48	0	19	505	28	0	22	50	64	1	53	57	16	0	1459
PEAK HR FACTOR :	0.824	0.933	0.571	0.000	0.594	0.935	0.778	0.000	0.611	0.735	0.667	0.250	0.779	0.750	0.571	0.000	0.973
	0.915				0.908				0.835				0.733				

Prepared by National Data & Surveying Services

Otis Ave & Ardmore Ave

Peak Hour Turning Movement Count

ID: 19-05618-012
City: South Gate

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Otis Ave)

AM	53	529	2	0	700	AM
NOON	0	0	0	0	0	NOON
PM	36	585	1	0	642	PM
	0	2	0	0		

EASTBOUND (Ardmore Ave)

AM	NOON	PM	
135	0	98	
0	0	0	0
91	0	65	0
5	0	2	1
275	0	261	0
AM	NOON	PM	

WESTBOUND (Ardmore Ave)

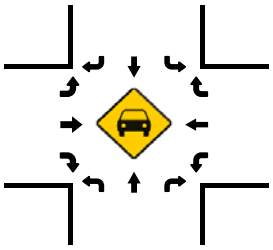
	PM	NOON	AM
0	1	0	1
0	2	0	2
0	4	0	3
0	0	0	0
	4	0	12
	PM	NOON	AM

NORTHBOUND (Otis Ave)

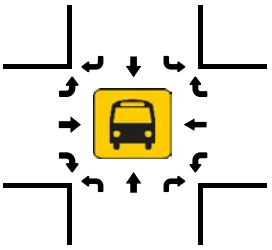
PM	850	0	60	576	1	PM
NOON	0	0	0	0	0	NOON
AM	807	0	80	608	5	AM
		0	0	2	0	

CONTROL			
Signalized			
TEV	1654	0	1594
	AM	NOON	PM
PHF	0.91		0.99

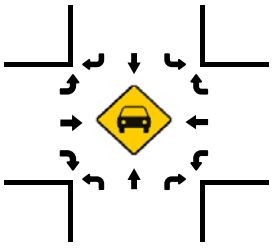
Total Vehicles (AM)



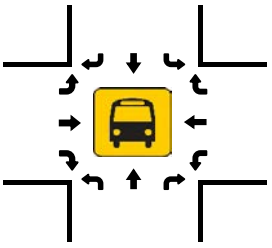
Total Vehicles (AM)



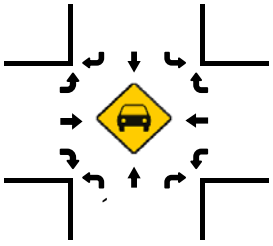
Total Vehicles (NOON)



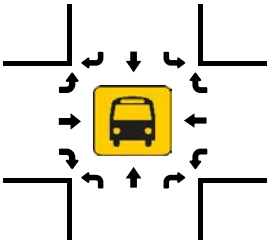
Total Vehicles (NOON)



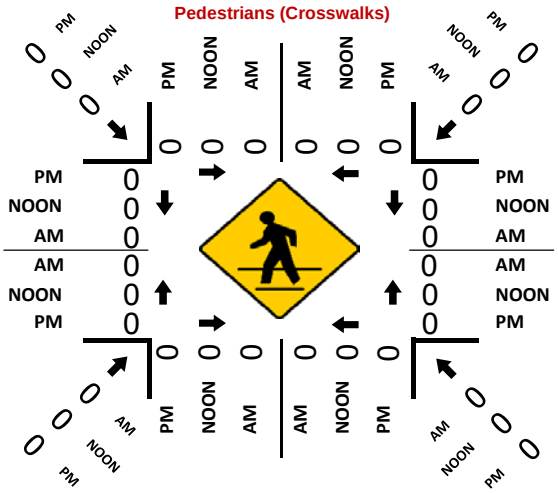
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Ardmore Ave
City: South Gate
Control: Signalized

Project ID: 19-05618-012
Date: 10/16/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Ardmore Ave				Ardmore Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	142	0	0	0	132	8	0	14	0	72	0	0	0	0	0	381
7:15 AM	28	155	2	0	0	147	8	0	24	2	88	0	0	0	0	0	454
7:30 AM	23	156	2	0	1	120	13	0	31	2	59	0	2	1	0	0	410
7:45 AM	16	155	1	0	1	130	24	0	22	1	56	0	1	1	1	0	409
8:00 AM	14	135	2	0	0	137	8	0	23	0	58	0	0	0	1	0	378
8:15 AM	15	97	1	0	1	101	4	0	15	0	26	0	0	0	0	0	260
8:30 AM	12	95	2	0	0	86	8	0	14	0	41	0	1	1	0	0	260
8:45 AM	7	98	1	0	0	97	6	0	10	2	36	0	0	1	0	0	258
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	128	1033	11	0	3	950	79	0	153	7	436	0	4	4	2	0	2810
APPROACH %'s :	10.92%	88.14%	0.94%	0.00%	0.29%	92.05%	7.66%	0.00%	25.67%	1.17%	73.15%	0.00%	40.00%	40.00%	20.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	80	608	5	0	2	529	53	0	91	5	275	0	3	2	1	0	1654
PEAK HR FACTOR :	0.714	0.974	0.625	0.000	0.500	0.900	0.552	0.000	0.734	0.625	0.781	0.000	0.375	0.500	0.250	0.000	0.911
	0.936				0.942				0.814				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	137	2	0	1	125	8	0	8	1	46	0	1	1	2	0	341
4:15 PM	12	139	0	0	0	129	7	0	14	0	51	0	3	2	0	0	357
4:30 PM	16	141	1	0	0	146	5	0	20	0	66	0	0	0	0	0	395
4:45 PM	10	135	0	0	1	159	7	0	17	1	68	0	4	0	0	0	402
5:00 PM	20	162	0	0	0	137	10	0	18	0	51	0	0	1	0	0	399
5:15 PM	14	138	0	0	0	143	14	0	10	1	76	0	0	1	1	0	398
5:30 PM	10	146	1	0	1	142	7	0	15	1	67	0	0	0	2	0	392
5:45 PM	9	144	1	0	0	138	7	0	8	0	67	0	2	0	0	0	376
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	100	1142	5	0	3	1119	65	0	110	4	492	0	10	5	5	0	3060
APPROACH %'s :	8.02%	91.58%	0.40%	0.00%	0.25%	94.27%	5.48%	0.00%	18.15%	0.66%	81.19%	0.00%	50.00%	25.00%	25.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	60	576	1	0	1	585	36	0	65	2	261	0	4	2	1	0	1594
PEAK HR FACTOR :	0.750	0.889	0.250	0.000	0.250	0.920	0.643	0.000	0.813	0.500	0.859	0.000	0.250	0.500	0.250	0.000	0.991
	0.875				0.931				0.943				0.438				

Prepared by National Data & Surveying Services

Atlantic Ave & E Florence Ave

Peak Hour Turning Movement Count

ID: 19-05618-013
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Atlantic Ave — SOUTHBOUND

AM	78	621	138	3	1050	AM
NOON	0	0	0	0	0	NOON
PM	77	685	189	9	815	PM
	0	2	2	0		

E Florence Ave — EASTBOUND

AM	NOON	PM	
1162	0	954	
0	0	0	0
171	0	114	1
814	0	832	2
216	0	140	1
AM	NOON	PM	

E Florence Ave — WESTBOUND

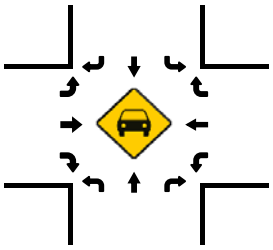
	PM	NOON	AM
1	136	0	97
2	733	0	924
1	170	0	190
0	0	0	0
	1144	0	1081
	PM	NOON	AM

Atlantic Ave — NORTHBOUND

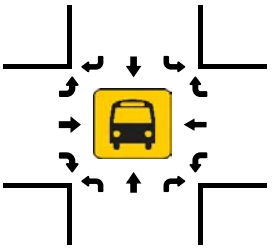
PM	998	3	144	556	123	PM
NOON	0	0	0	0	0	NOON
AM	1030	3	160	779	129	AM
		0	1	2	1	

CONTROL			
Signalized			
TEV	4323	0	3911
	AM	NOON	PM
PHF	0.95		0.97

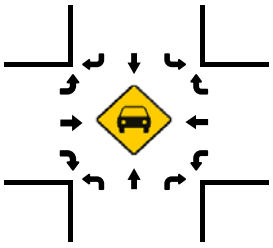
Total Vehicles (AM)



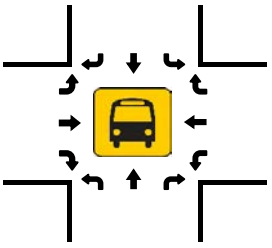
Total Vehicles (AM)



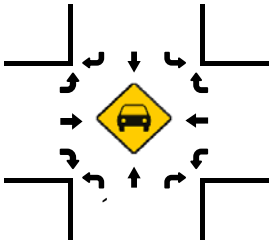
Total Vehicles (NOON)



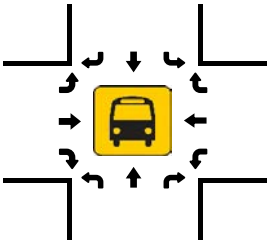
Total Vehicles (NOON)



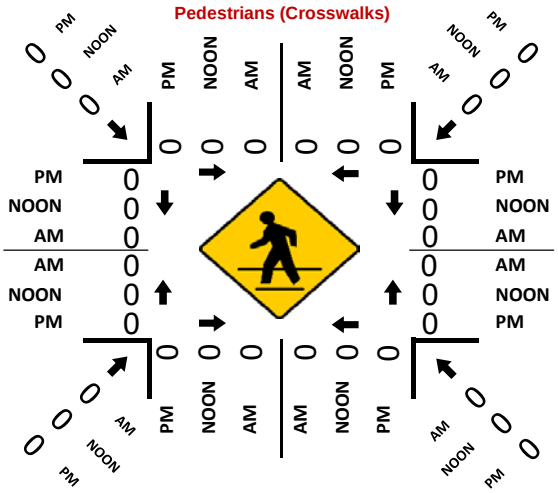
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & E Florence Ave
City: Cudahy
Control: Signalized

Project ID: 19-05618-013
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				E Florence Ave				E Florence Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	49	185	28	0	35	91	15	0	45	188	27	0	33	243	18	0	957
7:15 AM	61	217	20	1	38	140	19	1	45	203	47	0	33	280	27	0	1132
7:30 AM	22	204	32	1	36	164	20	0	45	202	64	0	54	239	30	0	1113
7:45 AM	50	194	42	0	30	151	16	2	44	224	64	0	49	195	19	0	1080
8:00 AM	27	164	35	1	34	166	23	0	37	185	41	0	54	210	21	0	998
8:15 AM	34	129	16	0	37	155	15	0	29	171	28	0	46	192	22	0	874
8:30 AM	24	106	20	0	37	117	19	1	35	187	32	0	56	169	20	0	823
8:45 AM	32	146	25	0	33	109	24	1	20	152	23	0	39	196	32	0	832
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	299	1345	218	3	280	1093	151	5	300	1512	326	0	364	1724	189	0	7809
APPROACH %'s :	16.03%	72.12%	11.69%	0.16%	18.31%	71.48%	9.88%	0.33%	14.03%	70.72%	15.25%	0.00%	15.99%	75.71%	8.30%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	160	779	129	3	138	621	78	3	171	814	216	0	190	924	97	0	4323
PEAK HR FACTOR :	0.656	0.897	0.768	0.750	0.908	0.935	0.848	0.375	0.950	0.908	0.844	0.000	0.880	0.825	0.808	0.000	0.955
	0.895				0.942				0.904				0.890				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	31	131	31	1	39	175	16	0	29	193	42	0	43	183	39	0	953
4:15 PM	37	132	33	0	46	177	18	1	30	207	28	0	37	175	34	0	955
4:30 PM	34	161	32	1	36	182	22	5	27	211	27	0	47	180	38	0	1003
4:45 PM	42	132	27	1	68	151	21	3	28	221	43	0	43	195	25	0	1000
5:00 PM	31	139	28	1	39	186	21	0	21	201	39	0	38	162	32	0	938
5:15 PM	29	115	20	0	48	171	15	1	33	200	33	0	48	183	42	0	938
5:30 PM	45	146	20	0	22	201	16	1	42	199	34	0	50	172	26	0	974
5:45 PM	29	141	37	1	52	185	19	1	29	219	35	0	42	200	31	0	1021
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	278	1097	228	5	350	1428	148	12	239	1651	281	0	348	1450	267	0	7782
APPROACH %'s :	17.29%	68.22%	14.18%	0.31%	18.06%	73.68%	7.64%	0.62%	11.01%	76.05%	12.94%	0.00%	16.85%	70.22%	12.93%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	144	556	123	3	189	685	77	9	114	832	140	0	170	733	136	0	3911
PEAK HR FACTOR :	0.857	0.863	0.932	0.750	0.695	0.941	0.875	0.450	0.950	0.941	0.814	0.000	0.904	0.940	0.872	0.000	0.975
	0.906				0.980				0.930				0.980				

Prepared by National Data & Surveying Services

Atlantic Ave & Live Oak St

Peak Hour Turning Movement Count

ID: 19-05618-014
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Atlantic Ave)

AM	65	769	70	0	1047	AM
NOON	0	0	0	0	0	NOON
PM	68	858	65	0	771	PM

EASTBOUND (Live Oak St)

AM	NOON	PM	
247	0	197	
0	0	0	0
66	0	53	1
157	0	114	1
71	0	43	0
AM	NOON	PM	

WESTBOUND (Live Oak St)

	PM	NOON	AM
0	50	0	58
1	94	0	126
1	138	0	99
0	0	0	0
	285	0	364
	PM	NOON	AM

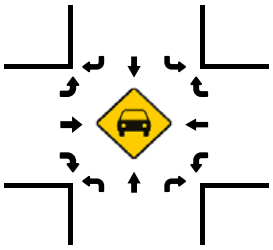
NORTHBOUND (Atlantic Ave)

PM	1039	0	35	668	106	PM
NOON	0	0	0	0	0	NOON
AM	939	0	56	923	137	AM

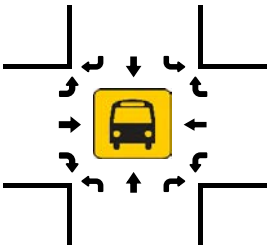
Turning movements (red): 0 2 1 0 | 0 1 2 0

CONTROL			
Signalized			
TEV	2597 AM	0 NOON	2292 PM
PHF	0.89		0.93

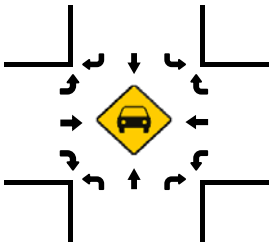
Total Vehicles (AM)



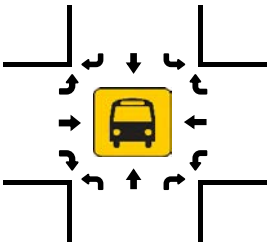
Total Vehicles (AM)



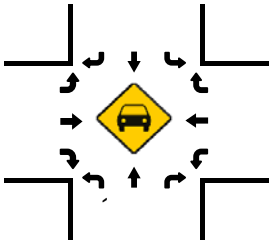
Total Vehicles (NOON)



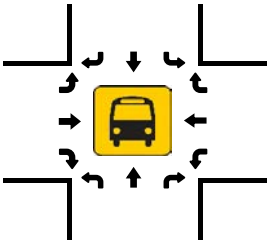
Total Vehicles (NOON)



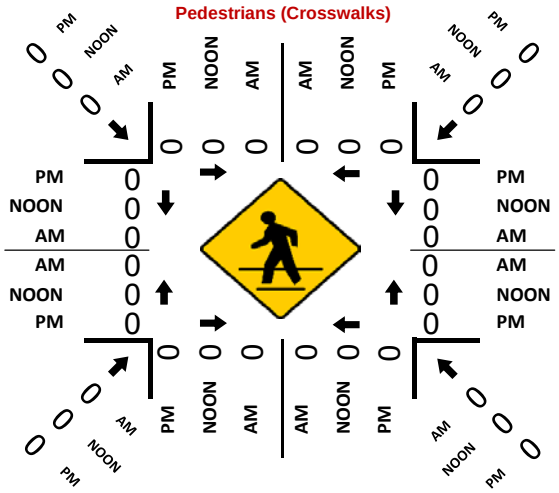
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & Live Oak St
City: Cudahy
Control: Signalized

Project ID: 19-05618-014
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				Live Oak St				Live Oak St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	269	25	0	8	132	5	0	7	19	7	0	11	16	26	0	531
7:15 AM	4	240	28	0	12	154	12	0	11	33	15	0	20	21	21	0	571
7:30 AM	20	247	37	0	20	218	17	0	16	43	26	0	28	39	16	0	727
7:45 AM	22	241	37	0	28	177	26	0	19	48	19	0	24	41	8	0	690
8:00 AM	10	195	35	0	10	220	10	0	20	33	11	0	27	25	13	0	609
8:15 AM	8	156	28	0	10	198	7	0	8	29	9	0	19	21	9	0	502
8:30 AM	3	150	17	0	4	183	5	0	6	15	7	0	21	12	7	0	430
8:45 AM	3	165	18	0	5	146	6	0	14	11	6	0	18	16	13	0	421
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	76	1663	225	0	97	1428	88	0	101	231	100	0	168	191	113	0	4481
APPROACH %'s :	3.87%	84.67%	11.46%	0.00%	6.01%	88.53%	5.46%	0.00%	23.38%	53.47%	23.15%	0.00%	35.59%	40.47%	23.94%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	56	923	137	0	70	769	65	0	66	157	71	0	99	126	58	0	2597
PEAK HR FACTOR :	0.636	0.934	0.926	0.000	0.625	0.874	0.625	0.000	0.825	0.818	0.683	0.000	0.884	0.768	0.690	0.000	0.893
	0.918				0.886				0.855				0.852				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	7	163	20	0	19	205	14	0	16	35	9	0	31	17	9	0	545
4:15 PM	9	189	16	0	8	222	8	0	10	34	9	0	38	24	11	0	578
4:30 PM	7	197	28	0	14	194	19	0	13	25	9	0	34	22	12	0	574
4:45 PM	4	164	30	0	13	205	11	0	16	37	7	0	37	22	8	0	554
5:00 PM	15	159	21	0	21	203	19	0	5	21	9	0	23	16	14	0	526
5:15 PM	9	146	28	0	13	206	12	0	16	25	8	0	40	26	8	0	537
5:30 PM	7	189	30	0	15	235	16	0	8	32	8	0	34	19	20	0	613
5:45 PM	4	174	27	0	16	214	21	0	24	36	18	0	41	33	8	0	616
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	62	1381	200	0	119	1684	120	0	108	245	77	0	278	179	90	0	4543
APPROACH %'s :	3.77%	84.05%	12.17%	0.00%	6.19%	87.57%	6.24%	0.00%	25.12%	56.98%	17.91%	0.00%	50.82%	32.72%	16.45%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	35	668	106	0	65	858	68	0	53	114	43	0	138	94	50	0	2292
PEAK HR FACTOR :	0.583	0.884	0.883	0.000	0.774	0.913	0.810	0.000	0.552	0.792	0.597	0.000	0.841	0.712	0.625	0.000	0.930
	0.895				0.931				0.673				0.860				

Prepared by National Data & Surveying Services

Atlantic Ave & Clara St

Peak Hour Turning Movement Count

ID: 19-05618-015
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Atlantic Ave)

AM	98	777	126	0	1136	AM
NOON	0	0	0	0	0	NOON
PM	72	888	105	2	858	PM
	0	2	1	0		

EASTBOUND (Clara St)

AM	NOON	PM	
345	0	337	
0	0	0	0
76	0	55	1
126	0	203	1
108	0	71	0
AM	NOON	PM	

WESTBOUND (Clara St)

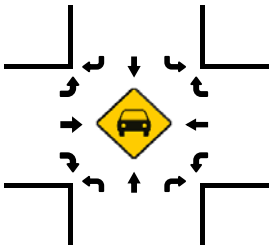
	PM	NOON	AM
0	92	0	132
1	200	0	191
1	102	0	97
0	0	0	0
	429	0	393
	PM	NOON	AM

NORTHBOUND (Atlantic Ave)

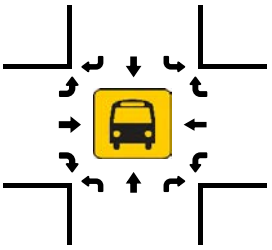
PM	1063	2	65	709	121	PM
NOON	0	0	0	0	0	NOON
AM	984	2	56	928	141	AM
		0	1	2	0	

CONTROL			
Signalized			
TEV	2858	0	2687
	AM	NOON	PM
PHF	0.91		0.95

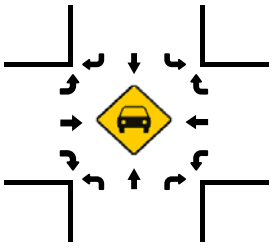
Total Vehicles (AM)



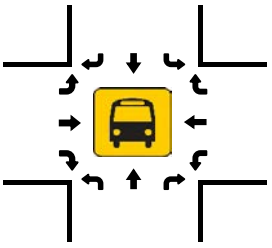
Total Vehicles (AM)



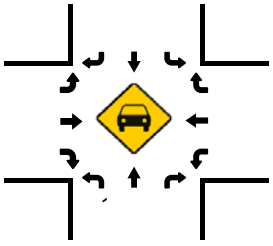
Total Vehicles (NOON)



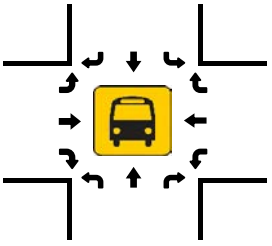
Total Vehicles (NOON)



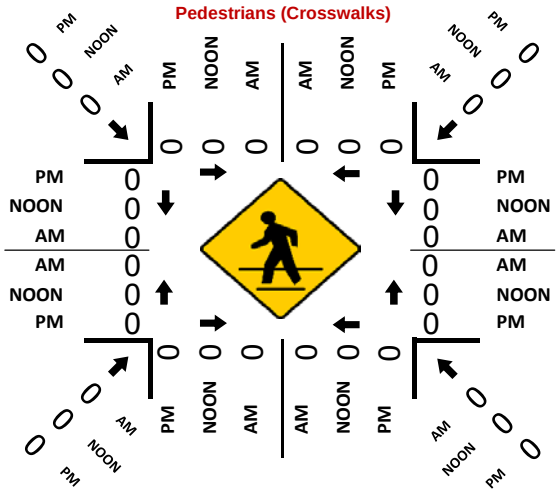
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & Clara St
City: Cudahy
Control: Signalized

Project ID: 19-05618-015
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				Clara St				Clara St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	247	19	0	18	124	8	0	13	41	18	0	23	42	33	0	590
7:15 AM	11	223	19	1	38	148	22	0	15	38	15	0	23	53	42	0	648
7:30 AM	21	256	37	0	29	221	47	0	21	21	46	0	20	42	27	0	788
7:45 AM	15	241	40	1	35	185	17	0	25	28	26	0	25	57	37	0	732
8:00 AM	9	208	45	0	24	223	12	0	15	39	21	0	29	39	26	0	690
8:15 AM	9	185	12	1	14	207	6	0	8	41	12	0	26	46	24	0	591
8:30 AM	11	141	17	0	6	191	9	0	8	29	14	0	15	31	13	0	485
8:45 AM	10	169	14	0	14	142	9	0	6	21	6	0	28	38	18	0	475
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	90	1670	203	3	178	1441	130	0	111	258	158	0	189	348	220	0	4999
APPROACH %'s :	4.58%	84.94%	10.33%	0.15%	10.18%	82.39%	7.43%	0.00%	21.06%	48.96%	29.98%	0.00%	24.97%	45.97%	29.06%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	56	928	141	2	126	777	98	0	76	126	108	0	97	191	132	0	2858
PEAK HR FACTOR :	0.667	0.906	0.783	0.500	0.829	0.871	0.521	0.000	0.760	0.808	0.587	0.000	0.836	0.838	0.786	0.000	0.907
	0.897				0.843				0.881				0.882				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	7	200	6	0	10	220	10	0	8	35	9	0	22	18	19	0	564
4:15 PM	9	188	8	1	10	212	12	0	10	38	11	0	24	22	23	0	568
4:30 PM	10	195	12	0	18	210	15	0	14	42	14	0	25	35	28	0	618
4:45 PM	15	174	20	1	22	206	14	0	10	49	16	0	21	55	22	0	625
5:00 PM	20	179	31	0	32	211	16	0	12	47	16	0	25	47	20	0	656
5:15 PM	18	161	38	1	17	208	14	0	16	58	17	0	29	46	23	0	646
5:30 PM	17	174	26	1	34	225	26	1	12	45	20	0	26	46	28	0	681
5:45 PM	10	195	26	0	22	244	16	1	15	53	18	0	22	61	21	0	704
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	106	1466	167	4	165	1736	123	2	97	367	121	0	194	330	184	0	5062
APPROACH %'s :	6.08%	84.11%	9.58%	0.23%	8.14%	85.69%	6.07%	0.10%	16.58%	62.74%	20.68%	0.00%	27.40%	46.61%	25.99%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	65	709	121	2	105	888	72	2	55	203	71	0	102	200	92	0	2687
PEAK HR FACTOR :	0.813	0.909	0.796	0.500	0.772	0.910	0.692	0.500	0.859	0.875	0.888	0.000	0.879	0.820	0.821	0.000	0.954
	0.971				0.933				0.904				0.947				

Prepared by National Data & Surveying Services

Atlantic Ave & Elizabeth St

Peak Hour Turning Movement Count

ID: 19-05618-016
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Atlantic Ave — SOUTHBOUND

AM	96	774	83	0	1129	AM
NOON	0	0	0	0	0	NOON
PM	113	831	91	2	887	PM
	0	2	1	0		

Elizabeth St — EASTBOUND

AM	NOON	PM		
208	0	255		
0	0	0	0	
129	0	95	1	
130	0	105	0.5	
50	0	76	0.5	
AM	NOON	PM		

Elizabeth St — WESTBOUND

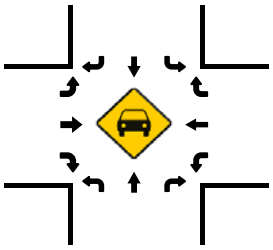
		PM	NOON	AM
0.5		84	0	135
0.5		90	0	82
1		54	0	88
0		0	0	0
		261	0	310
		PM	NOON	AM

Atlantic Ave — NORTHBOUND

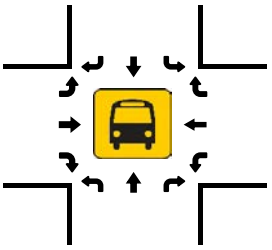
PM	963	2	52	706	65	PM
NOON	0	0	0	0	0	NOON
AM	912	0	30	865	97	AM
		0	1	2	0	

CONTROL			
Signalized			
TEV	2559 AM	0 NOON	2366 PM
PHF	0.92		0.94

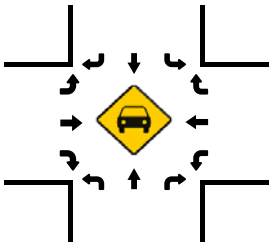
Total Vehicles (AM)



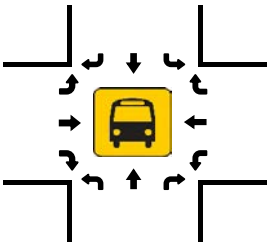
Total Vehicles (AM)



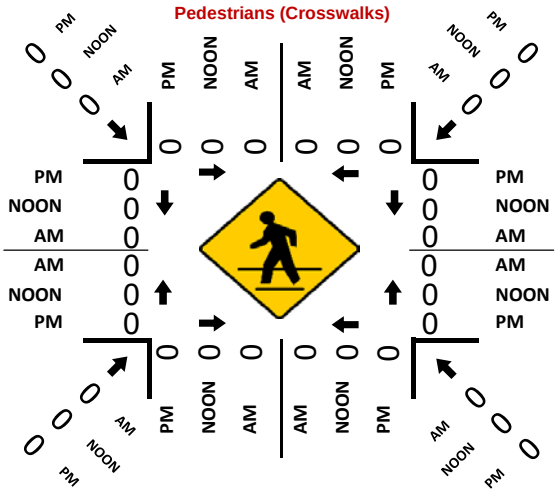
Total Vehicles (NOON)



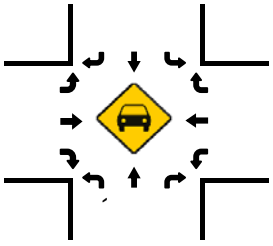
Total Vehicles (NOON)



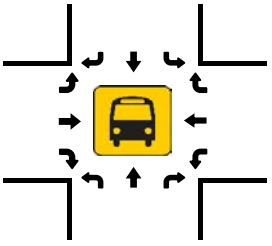
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & Elizabeth St
City: Cudahy
Control: Signalized

Project ID: 19-05618-016
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				Elizabeth St				Elizabeth St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	0.5	0.5	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	224	14	0	8	137	14	0	37	24	13	0	11	12	15	0	512
7:15 AM	4	229	8	0	13	172	17	0	28	23	12	0	12	12	18	0	548
7:30 AM	7	222	35	0	23	216	33	0	41	41	11	0	15	24	26	0	694
7:45 AM	10	220	41	0	30	170	26	0	36	44	19	0	25	21	46	0	688
8:00 AM	9	194	13	0	17	216	20	0	24	22	8	0	36	25	45	0	629
8:15 AM	4	180	11	0	18	203	27	1	18	19	7	0	18	10	20	0	536
8:30 AM	5	143	6	0	13	175	12	0	13	8	10	0	15	18	9	0	427
8:45 AM	15	172	10	0	12	125	17	0	18	15	8	0	13	10	18	0	433
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	57	1584	138	0	134	1414	166	1	215	196	88	0	145	132	197	0	4467
APPROACH %'s :	3.20%	89.04%	7.76%	0.00%	7.81%	82.45%	9.68%	0.06%	43.09%	39.28%	17.64%	0.00%	30.59%	27.85%	41.56%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	30	865	97	0	83	774	96	0	129	130	50	0	88	82	135	0	2559
PEAK HR FACTOR :	0.750	0.944	0.591	0.000	0.692	0.896	0.727	0.000	0.787	0.739	0.658	0.000	0.611	0.820	0.734	0.000	0.922
	0.915				0.876				0.780				0.719				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	0.5	0.5	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	179	15	0	16	202	37	0	28	35	12	0	17	14	23	0	586
4:15 PM	14	167	6	0	24	205	27	0	28	16	7	0	15	29	20	0	558
4:30 PM	13	193	14	0	19	211	28	0	23	23	12	0	14	21	19	0	590
4:45 PM	8	167	16	0	23	194	19	0	25	36	11	0	14	19	12	0	544
5:00 PM	13	196	14	2	24	212	25	1	29	25	29	0	18	19	20	0	627
5:15 PM	10	155	11	0	20	197	24	0	24	22	19	0	7	18	17	0	524
5:30 PM	11	198	25	0	27	226	31	1	15	30	16	0	8	23	16	0	627
5:45 PM	18	157	15	0	20	196	33	0	27	28	12	0	21	30	31	0	588
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	95	1412	116	2	173	1643	224	2	199	215	118	0	114	173	158	0	4644
APPROACH %'s :	5.85%	86.89%	7.14%	0.12%	8.47%	80.46%	10.97%	0.10%	37.41%	40.41%	22.18%	0.00%	25.62%	38.88%	35.51%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	52	706	65	2	91	831	113	2	95	105	76	0	54	90	84	0	2366
PEAK HR FACTOR :	0.722	0.891	0.650	0.250	0.843	0.919	0.856	0.500	0.819	0.875	0.655	0.000	0.643	0.750	0.677	0.000	0.943
	0.881				0.910				0.831				0.695				

Prepared by National Data & Surveying Services

Atlantic Ave & Santa Ana St

Peak Hour Turning Movement Count

ID: 19-05618-017
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Atlantic Ave)

AM	113	703	72	0	1003	AM
NOON	0	0	0	0	0	NOON
PM	143	722	83	2	875	PM
	0	2	1	0		

EASTBOUND (Santa Ana St)

AM	NOON	PM		
368	0	395		
0	0	0	0	
174	0	155	1	
206	0	220	1	
70	0	39	1	
AM	NOON	PM		

WESTBOUND (Santa Ana St)

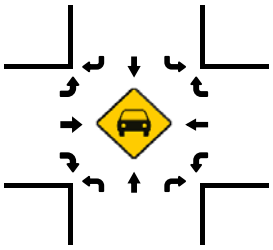
PM	NOON	AM		
42	0	91	1	
176	0	207	1	
85	0	74	1	
0	0	0	0	
360	0	313		
PM	NOON	AM		

NORTHBOUND (Atlantic Ave)

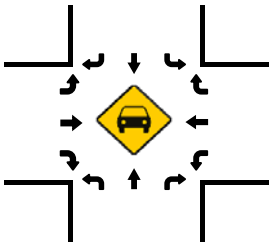
PM	851	5	76	676	57	PM
NOON	0	0	0	0	0	NOON
AM	849	2	48	738	35	AM
		0	1	2	0	

CONTROL			
Signalized			
TEV	2533	0	2481
	AM	NOON	PM
PHF	0.94		0.95

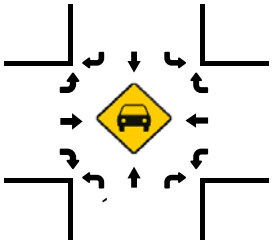
Total Vehicles (AM)



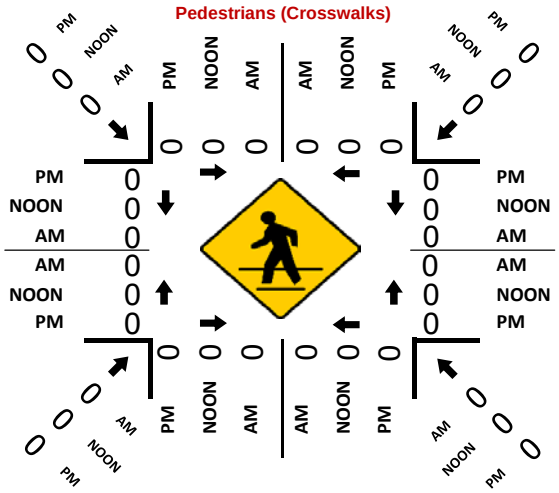
Total Vehicles (NOON)



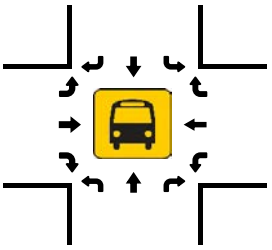
Total Vehicles (PM)



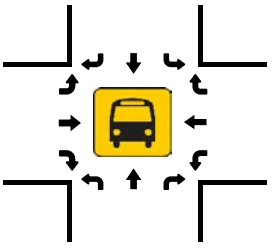
Pedestrians (Crosswalks)



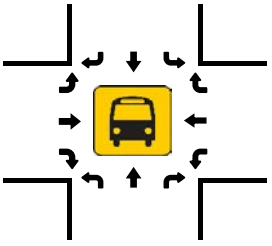
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & Santa Ana St
City: Cudahy
Control: Signalized

Project ID: 19-05618-017
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				Santa Ana St				Santa Ana St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	166	4	0	8	139	15	0	38	43	17	0	14	46	24	0	527
7:15 AM	11	179	4	1	7	150	28	0	35	50	23	0	26	57	24	0	595
7:30 AM	6	194	8	0	19	194	28	0	53	58	19	0	11	53	29	0	672
7:45 AM	15	201	10	1	21	170	27	0	42	57	11	0	21	59	24	0	659
8:00 AM	16	164	13	0	25	189	30	0	44	41	17	0	16	38	14	0	607
8:15 AM	11	165	8	1	11	182	26	0	34	40	18	0	10	30	9	0	545
8:30 AM	15	128	7	2	7	151	21	0	35	33	15	0	10	40	7	0	471
8:45 AM	11	138	6	1	14	129	19	0	38	37	17	0	9	35	17	0	471
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	98	1335	60	6	112	1304	194	0	319	359	137	0	117	358	148	0	4547
APPROACH %'s :	6.54%	89.06%	4.00%	0.40%	6.96%	80.99%	12.05%	0.00%	39.14%	44.05%	16.81%	0.00%	18.78%	57.46%	23.76%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	48	738	35	2	72	703	113	0	174	206	70	0	74	207	91	0	2533
PEAK HR FACTOR :	0.750	0.918	0.673	0.500	0.720	0.906	0.942	0.000	0.821	0.888	0.761	0.000	0.712	0.877	0.784	0.000	0.942
	0.906				0.910				0.865				0.869				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	151	14	0	22	164	33	0	38	51	14	0	19	55	10	0	582
4:15 PM	27	144	11	1	26	170	35	1	32	64	11	0	20	42	9	0	593
4:30 PM	21	191	8	1	21	181	36	1	41	48	11	0	14	39	11	0	624
4:45 PM	14	161	13	2	19	173	37	0	36	55	5	0	21	47	13	0	596
5:00 PM	18	166	20	1	25	192	35	1	41	49	15	0	30	50	12	0	655
5:15 PM	23	158	16	1	18	176	35	0	37	68	8	0	20	40	6	0	606
5:30 PM	15	171	19	2	21	177	26	0	38	42	10	0	16	42	17	0	596
5:45 PM	18	159	11	1	15	200	34	0	38	55	8	0	20	37	11	0	607
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	147	1301	112	9	167	1433	271	3	301	432	82	0	160	352	89	0	4859
APPROACH %'s :	9.37%	82.92%	7.14%	0.57%	8.91%	76.47%	14.46%	0.16%	36.93%	53.01%	10.06%	0.00%	26.62%	58.57%	14.81%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	76	676	57	5	83	722	143	2	155	220	39	0	85	176	42	0	2481
PEAK HR FACTOR :	0.826	0.885	0.713	0.625	0.830	0.940	0.966	0.500	0.945	0.809	0.650	0.000	0.708	0.880	0.808	0.000	0.947
	0.921				0.939				0.916				0.823				

Prepared by National Data & Surveying Services

Atlantic Ave & N Cecelia St

Peak Hour Turning Movement Count

ID: 19-05618-018
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Atlantic Ave)

AM	36	822	0	1	892	AM
NOON	0	0	0	0	0	NOON
PM	21	851	0	0	800	PM
	0	2	0	0		

EASTBOUND (N Cecelia St)

AM	NOON	PM	
51	0	55	
0	0	0	0
61	0	24	1
0	0	0	1
39	0	34	0

WESTBOUND (N Cecelia St)

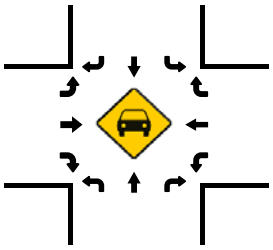
	PM	NOON	AM
0	1	0	0
0	1	0	0
0	0	0	0
0	0	0	0
	0	0	0

NORTHBOUND (Atlantic Ave)

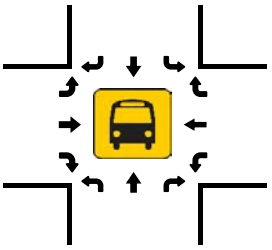
PM	886	1	33	775	0	PM
NOON	0	0	0	0	0	NOON
AM	861	0	15	830	0	AM
		0	1	2	0	

CONTROL			
Signalized			
TEV	1804	0	1741
	AM	NOON	PM
PHF	0.94		0.97

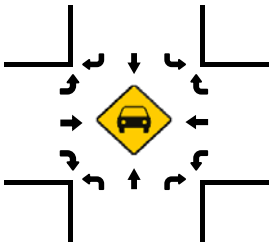
Total Vehicles (AM)



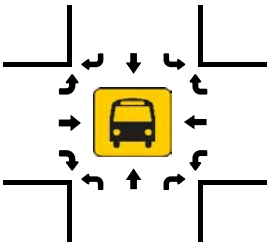
Total Vehicles (AM)



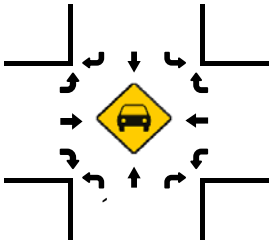
Total Vehicles (NOON)



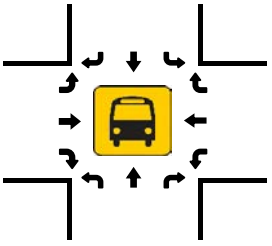
Total Vehicles (NOON)



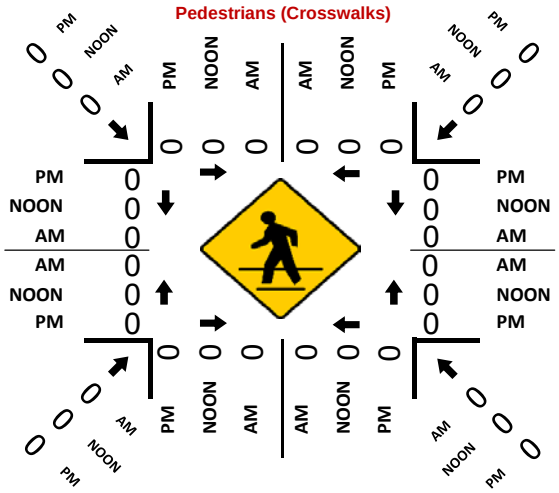
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & N Cecelia St
City: Cudahy
Control: Signalized

Project ID: 19-05618-018
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				N Cecelia St				N Cecelia St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	210	0	0	0	166	8	0	5	0	3	0	0	0	0	0	401
7:15 AM	8	189	0	0	0	168	5	0	10	0	15	0	0	0	0	0	395
7:30 AM	1	210	0	0	0	224	8	1	16	0	18	0	0	0	0	0	478
7:45 AM	6	227	0	0	0	189	14	0	24	0	8	0	0	0	0	0	468
8:00 AM	5	197	0	0	0	208	8	0	11	0	5	0	0	0	0	0	434
8:15 AM	3	196	0	0	0	201	6	0	10	0	8	0	0	0	0	0	424
8:30 AM	3	163	0	0	0	190	2	0	6	0	6	0	0	0	0	0	370
8:45 AM	1	151	0	0	0	145	5	1	6	0	4	0	0	0	1	0	314
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	36	1543	0	0	0	1491	56	2	88	0	67	0	0	0	1	0	3284
APPROACH %'s :	2.28%	97.72%	0.00%	0.00%	0.00%	96.26%	3.62%	0.13%	56.77%	0.00%	43.23%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	15	830	0	0	0	822	36	1	61	0	39	0	0	0	0	0	1804
PEAK HR FACTOR :	0.625	0.914	0.000	0.000	0.000	0.917	0.643	0.250	0.635	0.000	0.542	0.000	0.000	0.000	0.000	0.000	0.944
	0.907				0.922				0.735								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	162	0	0	0	183	7	0	9	0	5	0	0	0	0	0	374
4:15 PM	5	193	0	0	0	210	9	0	6	0	6	0	0	0	0	0	429
4:30 PM	2	191	0	0	0	188	6	1	7	0	13	0	0	0	0	0	408
4:45 PM	16	175	0	1	0	199	7	0	10	0	6	0	0	0	0	0	414
5:00 PM	9	202	0	0	0	216	4	0	3	0	13	0	0	0	0	0	447
5:15 PM	10	185	0	0	0	222	4	0	8	0	7	0	0	0	0	0	436
5:30 PM	5	204	0	0	0	201	6	0	6	0	7	0	0	1	1	0	431
5:45 PM	9	184	0	1	0	212	7	0	7	0	7	0	0	0	0	0	427
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	64	1496	0	2	0	1631	50	1	56	0	64	0	0	1	1	0	3366
APPROACH %'s :	4.10%	95.77%	0.00%	0.13%	0.00%	96.97%	2.97%	0.06%	46.67%	0.00%	53.33%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	33	775	0	1	0	851	21	0	24	0	34	0	0	1	1	0	1741
PEAK HR FACTOR :	0.825	0.950	0.000	0.250	0.000	0.958	0.750	0.000	0.750	0.000	0.654	0.000	0.000	0.250	0.250	0.000	0.974
	0.959				0.965				0.906				0.250				

Prepared by National Data & Surveying Services

Atlantic Ave & S Cecelia St

Peak Hour Turning Movement Count

ID: 19-05618-019
City: Cudahy

Day: Wednesday
Date: 10/16/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Atlantic Ave — SOUTHBOUND

AM	0	788	56	4	858	AM
NOON	0	0	0	0	0	NOON
PM	0	828	48	1	797	PM

S Cecelia St — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

S Cecelia St — WESTBOUND

PM	NOON	AM	
44	0	68	0
0	0	0	1
76	0	90	1
0	0	0	0
90	0	100	
PM	NOON	AM	

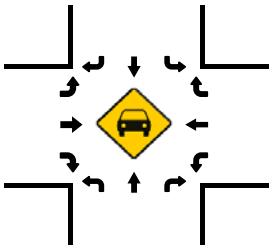
Atlantic Ave — NORTHBOUND

PM	904	0	0	752	42	PM
NOON	0	0	0	0	0	NOON
AM	878	0	0	786	44	AM

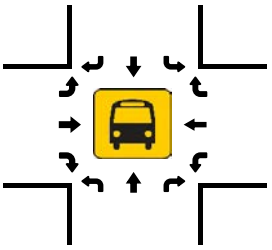
	0	2	1	0
	0	0	2	0

CONTROL			
Signalized			
TEV	1836	0	1791
	AM	NOON	PM
PHF	0.98		0.95

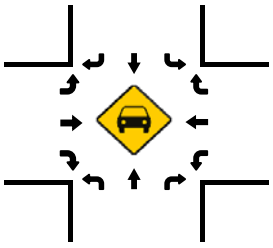
Total Vehicles (AM)



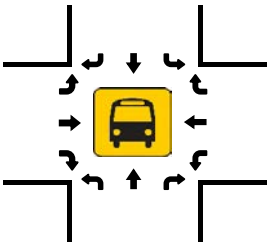
Total Vehicles (AM)



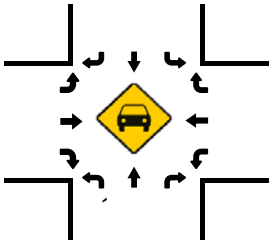
Total Vehicles (NOON)



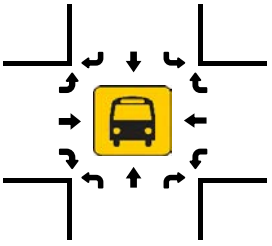
Total Vehicles (NOON)



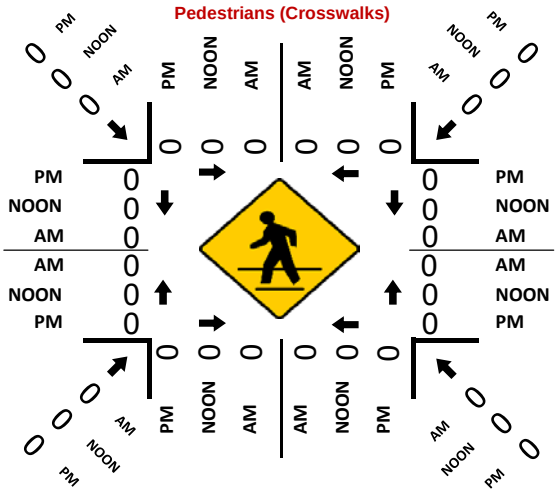
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & S Cecelia St
City: Cudahy
Control: Signalized

Project ID: 19-05618-019
Date: 10/16/2019

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				S Cecelia St				S Cecelia St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0	0	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	186	6	0	8	154	0	1	0	0	0	0	16	0	17	0	388
7:15 AM	0	188	6	0	12	194	0	1	0	0	0	0	26	0	15	0	442
7:30 AM	0	187	9	0	14	216	0	0	0	0	0	0	21	0	13	0	460
7:45 AM	0	221	13	0	20	167	0	2	0	0	0	0	21	0	26	0	470
8:00 AM	0	190	16	0	10	211	0	1	0	0	0	0	22	0	14	0	464
8:15 AM	0	171	18	0	13	190	0	1	0	0	0	0	19	0	17	0	429
8:30 AM	0	158	11	0	13	174	0	1	0	0	0	0	15	0	9	0	381
8:45 AM	0	146	7	0	9	145	0	0	0	0	0	0	16	0	9	0	332
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1447	86	0	99	1451	0	7	0	0	0	0	156	0	120	0	3366
APPROACH %'s :	0.00%	94.39%	5.61%	0.00%	6.36%	93.19%	0.00%	0.45%					56.52%	0.00%	43.48%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	786	44	0	56	788	0	4	0	0	0	0	90	0	68	0	1836
PEAK HR FACTOR :	0.000	0.889	0.688	0.000	0.700	0.912	0.000	0.500	0.000	0.000	0.000	0.000	0.865	0.000	0.654	0.000	0.977
	0.887				0.922								0.840				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0	0	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	175	10	0	6	191	0	0	0	0	0	0	23	0	14	0	419
4:15 PM	0	174	8	0	13	188	0	2	0	0	0	0	16	0	8	0	409
4:30 PM	0	185	10	0	10	202	0	2	0	0	0	0	15	0	13	0	437
4:45 PM	0	194	14	0	14	185	0	0	0	0	0	0	21	0	7	0	435
5:00 PM	0	173	9	0	12	241	0	0	0	0	0	0	19	0	18	0	472
5:15 PM	0	188	11	0	14	195	0	1	0	0	0	0	20	0	15	0	444
5:30 PM	0	197	8	0	8	207	0	0	0	0	0	0	16	0	4	0	440
5:45 PM	0	173	9	0	9	201	0	1	0	0	0	0	21	0	8	0	422
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1459	79	0	86	1610	0	6	0	0	0	0	151	0	87	0	3478
APPROACH %'s :	0.00%	94.86%	5.14%	0.00%	5.05%	94.59%	0.00%	0.35%					63.45%	0.00%	36.55%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	752	42	0	48	828	0	1	0	0	0	0	76	0	44	0	1791
PEAK HR FACTOR :	0.000	0.954	0.750	0.000	0.857	0.859	0.000	0.250	0.000	0.000	0.000	0.000	0.905	0.000	0.611	0.000	0.949
	0.954				0.867								0.811				

Prepared by National Data & Surveying Services

Otis Ave & Elizabeth St

Peak Hour Turning Movement Count

ID: 19-05682-001
City: Cudahy

Day: Thursday
Date: 11/07/2019

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Otis Ave — SOUTHBOUND

AM	4	262	64	0	341	AM
NOON	0	0	0	0	0	NOON
PM	4	327	44	0	361	PM

Elizabeth St — EASTBOUND

AM	NOON	PM	
72	0	71	
0	0	0	0
3	0	4	0
49	0	62	1
0	0	0	0
AM	NOON	PM	

Elizabeth St — WESTBOUND

	PM	NOON	AM
0	43	0	74
1	67	0	67
0	80	0	68
0	0	0	0
	186	0	215
	PM	NOON	AM

Otis Ave — NORTHBOUND

PM	407	0	0	314	80	PM
NOON	0	0	0	0	0	NOON
AM	330	0	1	264	102	AM

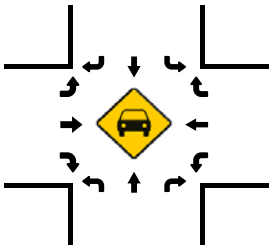
0	1	1	0	
0	0	1	0	

CONTROL

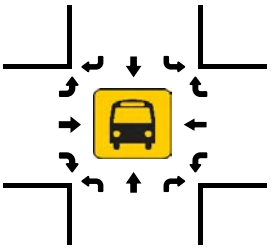
4-Way Stop

TEV	958	0	1025
	AM	NOON	PM
PHF	0.87		0.95

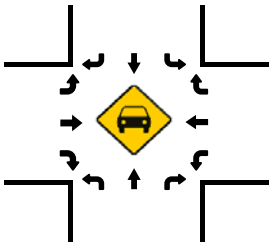
Total Vehicles (AM)



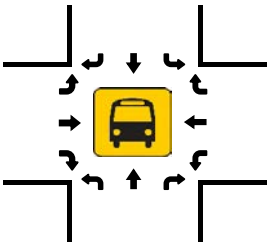
Total Vehicles (AM)



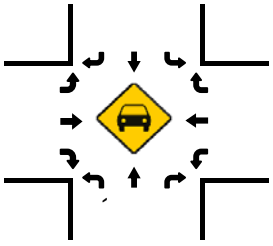
Total Vehicles (NOON)



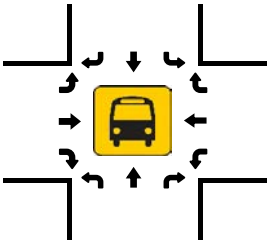
Total Vehicles (NOON)



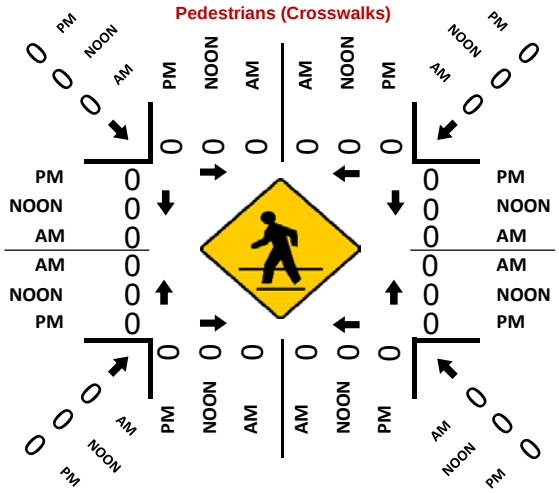
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Otis Ave & Elizabeth St
City: Cudahy
Control: 4-Way Stop

Project ID: 19-05682-001
Date: 11/7/2019

Total

NS/EW Streets:	Otis Ave				Otis Ave				Elizabeth St				Elizabeth St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	84	11	0	17	47	1	0	0	5	0	0	14	16	14	0	209
7:15 AM	0	83	26	0	13	66	0	0	1	8	0	0	21	31	25	0	274
7:30 AM	0	56	32	0	20	59	1	0	1	14	0	0	26	13	26	0	248
7:45 AM	0	60	22	0	20	71	3	0	1	11	0	0	8	12	11	0	219
8:00 AM	1	65	22	0	11	66	0	0	0	16	0	0	13	11	12	0	217
8:15 AM	0	65	23	0	15	55	1	0	0	8	0	0	13	9	4	0	193
8:30 AM	0	58	22	0	8	50	0	0	0	8	0	0	15	10	8	0	179
8:45 AM	0	63	20	0	9	51	1	0	0	8	0	0	15	8	11	0	186
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	534	178	0	113	465	7	0	3	78	0	0	125	110	111	0	1725
APPROACH %'s :	0.14%	74.89%	24.96%	0.00%	19.32%	79.49%	1.20%	0.00%	3.70%	96.30%	0.00%	0.00%	36.13%	31.79%	32.08%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	264	102	0	64	262	4	0	3	49	0	0	68	67	74	0	958
PEAK HR FACTOR :	0.250	0.795	0.797	0.000	0.800	0.923	0.333	0.000	0.750	0.766	0.000	0.000	0.654	0.540	0.712	0.000	0.874
	0.842				0.878				0.813				0.679				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	80	18	0	10	87	1	0	1	17	0	0	18	18	11	0	261
4:15 PM	0	78	22	0	8	84	0	0	0	18	0	0	23	20	12	0	265
4:30 PM	0	87	20	0	12	83	3	0	1	14	0	0	19	17	13	0	269
4:45 PM	0	69	20	0	14	73	0	0	2	13	0	0	20	12	7	0	230
5:00 PM	0	82	18	0	15	66	0	0	0	17	0	0	20	16	16	0	250
5:15 PM	0	89	17	0	8	68	0	0	0	17	0	0	23	14	13	0	249
5:30 PM	0	84	23	0	18	72	0	0	0	18	0	0	13	7	8	0	243
5:45 PM	0	72	17	0	13	72	0	0	0	22	0	0	12	15	12	0	235
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	641	155	0	98	605	4	0	4	136	0	0	148	119	92	0	2002
APPROACH %'s :	0.00%	80.53%	19.47%	0.00%	13.86%	85.57%	0.57%	0.00%	2.86%	97.14%	0.00%	0.00%	41.23%	33.15%	25.63%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	314	80	0	44	327	4	0	4	62	0	0	80	67	43	0	1025
PEAK HR FACTOR :	0.000	0.902	0.909	0.000	0.786	0.940	0.333	0.000	0.500	0.861	0.000	0.000	0.870	0.838	0.827	0.000	0.953
	0.921				0.957				0.917				0.864				

APPENDIX B

HCM AND LEVELS OF SERVICE EXPLANATION
HCM DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS
CITY OF CUDAHY

LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for unsignalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incidents, control, traffic, or geometric delay. Only the portion of total delay attributed to the traffic control measures, either traffic signals or stop signs, is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for unsignalized intersections are stated in terms of the average control delay per vehicle. The level of service is determined by the computed or measured control delay and is defined for each minor movement. Average control delay for any particular minor movement is a function of the service time for the approach and the degree of utilization. (Level of service is not defined for the intersection as a whole for two-way stop controlled intersections.)

Level of Service Criteria for TWSC/AWSC Intersections

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle.

LOS B describes operations with control delay greater than 10 and up to 15 seconds per vehicle.

LOS C describes operations with control delay greater than 15 and up to 25 seconds per vehicle.

LOS D describes operations with control delay greater than 25 and up to 35 seconds per vehicle.

LOS E describes operations with control delay greater than 35 and up to 50 seconds per vehicle.

LOS F describes operations with control delay in excess of 50 seconds per vehicle. For two-way stop controlled intersections, LOS F exists when there are insufficient gaps of suitable size to allow side-street demand to safely cross through a major-street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches.

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for traffic signals are stated in terms of the average control delay per vehicle. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

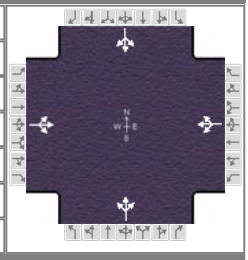
LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high *v/c* ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

HCS7 Signalized Intersection Results Summary

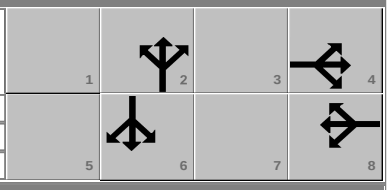
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	26	60	30	35	56	82	28	396	47	67	308	18

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	68.7	12.3	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		16.8		16.8		73.2		73.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.9		11.7				
Green Extension Time (g_e), s		0.6		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		126			188			512			427	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1728			1680			1816			1641	
Queue Service Time (g_s), s		0.0			3.8			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		5.9			9.7			8.0			6.2	
Green Ratio (*g/C*)		0.14			0.14			0.76			0.76	
Capacity (*c*), veh/h		284			277			1429			1300	
Volume-to-Capacity Ratio (*X*)		0.443			0.679			0.358			0.329	
Back of Queue (*Q*), ft/ln (95 th percentile)		117			183.8			115.6			91.6	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.7			7.4			4.6			3.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		36.1			37.7			3.5			3.2	
Incremental Delay (d_2), s/veh		0.4			1.1			0.7			0.7	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		36.5			38.8			4.2			3.9	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	36.5	D		38.8	D		4.2	A		3.9	A	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.61	B	1.61	B
Bicycle LOS Score / LOS	0.70	A	0.80	A	1.33	A	1.19	A

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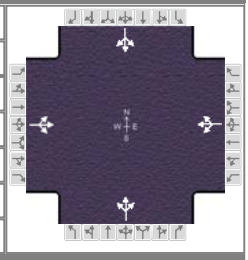
HCS7 Signalized Intersection Results Summary

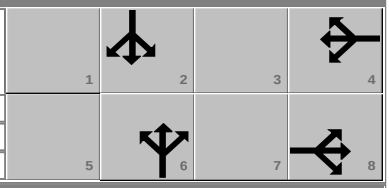
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #8	File Name	08PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	13	57	18	37	42	45	20	294	43	49	326	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	71.6	9.4	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		13.9		13.9		76.1		76.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.5		9.0				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		96			135			388			432	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1790			1659			1810			1740	
Queue Service Time (g_s), s		0.0			2.6			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		4.5			7.0			4.8			5.5	
Green Ratio (*g/C*)		0.10			0.10			0.80			0.80	
Capacity (*c*), veh/h		232			225			1483			1430	
Volume-to-Capacity Ratio (*X*)		0.412			0.599			0.262			0.302	
Back of Queue (*Q*), ft/ln (95 th percentile)		88.9			129.9			51.6			59.9	
Back of Queue (*Q*), veh/ln (95 th percentile)		3.6			5.2			2.1			2.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		38.1			39.2			2.4			2.4	
Incremental Delay (d_2), s/veh		0.4			1.0			0.4			0.5	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		38.5			40.1			2.8			3.0	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	38.5	D		40.1	D		2.8	A		3.0	A	
Intersection Delay, s/veh / LOS	10.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.72	B	1.72	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.65	A	0.71	A	1.13	A	1.20	A

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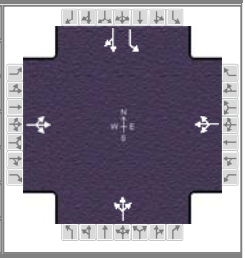
HCS7 Signalized Intersection Results Summary

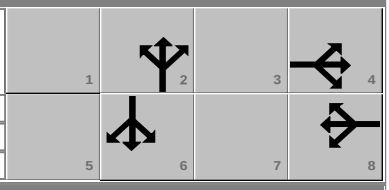
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #9	File Name	09AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	16	108	14	105	107	123	6	266	110	77	216	14

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	58.6	22.4	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		26.9		26.9		63.1		63.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.9		21.9				
Green Extension Time (g_e), s		1.1		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.87				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		150			364			415		84	250	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1798			1596			1802		992	1879	
Queue Service Time (g_s), s		0.0			14.0			0.0		3.8	4.8	
Cycle Queue Clearance Time (g_c), s		5.9			19.9			9.4		13.1	4.8	
Green Ratio (*g/C*)		0.25			0.25			0.65		0.65	0.65	
Capacity (*c*), veh/h		492			450			1213		623	1223	
Volume-to-Capacity Ratio (*X*)		0.305			0.809			0.342		0.134	0.204	
Back of Queue (*Q*), ft/ln (95 th percentile)		117.4			333.1			159.1		39.1	84.5	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.7			13.3			6.4		1.6	3.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		27.6			32.7			7.1		10.1	6.3	
Incremental Delay (d_2), s/veh		0.1			7.7			0.8		0.4	0.4	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		27.7			40.3			7.9		10.5	6.7	
Level of Service (LOS)		C			D			A		B	A	
Approach Delay, s/veh / LOS	27.7	C		40.3	D		7.9	A		7.7	A	
Intersection Delay, s/veh / LOS	19.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.93	B	1.64	B	1.64	B
Bicycle LOS Score / LOS	0.74	A	1.09	A	1.17	A	1.04	A

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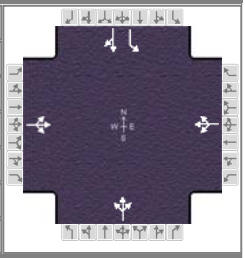
HCS7 Signalized Intersection Results Summary

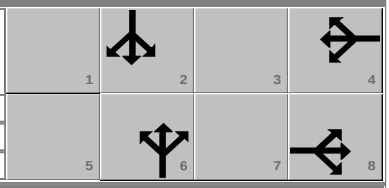
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #9	File Name	09PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	11	115	6	110	91	63	5	264	110	76	276	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	62.4	18.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		23.1		23.1		66.9		66.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.9		18.0				
Green Extension Time (g_e), s		0.9		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.08				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		143			287			412		83	324	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1854			1560			1801		994	1875	
Queue Service Time (g_s), s		0.0			10.1			0.0		3.2	5.8	
Cycle Queue Clearance Time (g_c), s		5.9			16.0			8.2		11.4	5.8	
Green Ratio (*g/C*)		0.21			0.21			0.69		0.69	0.69	
Capacity (*c*), veh/h		427			380			1289		679	1299	
Volume-to-Capacity Ratio (*X*)		0.336			0.756			0.320		0.122	0.249	
Back of Queue (*Q*), ft/ln (95 th percentile)		119.3			262.2			131		32.6	95.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.8			10.5			5.2		1.3	3.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		30.6			34.5			5.5		7.8	5.1	
Incremental Delay (d_2), s/veh		0.2			3.2			0.7		0.4	0.5	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		30.8			37.7			6.2		8.1	5.6	
Level of Service (LOS)		C			D			A		A	A	
Approach Delay, s/veh / LOS	30.8	C		37.7	D		6.2	A		6.1	A	
Intersection Delay, s/veh / LOS	16.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.93	B	1.63	B	1.63	B
Bicycle LOS Score / LOS	0.72	A	0.96	A	1.17	A	1.16	A

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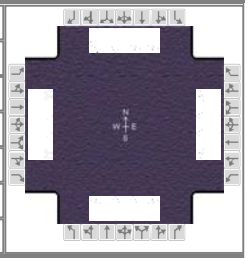
HCS7 Signalized Intersection Results Summary

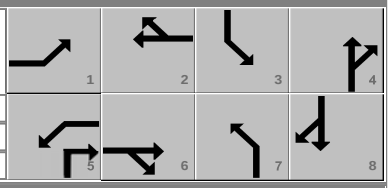
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 25, 2019	Area Type	Other
Jurisdiction	City of Bell/City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	171	814	216	190	924	97	163	779	129	141	621	78

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	11.0	0.6	30.5	5.9	2.6	21.5
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	15.5	35.0	16.0	35.6	13.0	28.6	10.4	26.0
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.0		12.1		10.5	22.1	5.8	19.6
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.9	0.1	1.9
Phase Call Probability	0.99		0.99		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	0.84	1.00	0.85

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	186	885	235	207	1004	105	177	847	140	153	387	373
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1825
Queue Service Time (g_s), s	9.0	19.3	10.2	10.1	22.7	4.1	8.5	20.1	5.2	3.8	17.5	17.6
Cycle Queue Clearance Time (g_c), s	9.0	19.3	10.2	10.1	22.7	4.1	8.5	20.1	5.2	3.8	17.5	17.6
Green Ratio (*g/C*)	0.12	0.34	0.34	0.13	0.35	0.35	0.09	0.27	0.40	0.07	0.24	0.24
Capacity (*c*), veh/h	220	1226	546	232	1249	556	171	969	637	229	453	436
Volume-to-Capacity Ratio (*X*)	0.844	0.722	0.430	0.891	0.804	0.190	1.037	0.874	0.220	0.669	0.854	0.856
Back of Queue (*Q*), ft/ln (95 th percentile)	224.1	331.5	182.6	262.4	385.5	72.5	301.5	360.2	83.2	74.9	355	346.5
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	13.3	7.3	10.5	15.4	2.9	12.1	14.4	3.3	3.0	14.2	13.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.7	26.0	23.0	38.6	26.7	20.6	40.8	31.5	18.0	41.1	32.8	32.8
Incremental Delay (d_2), s/veh	21.5	3.7	2.5	31.2	5.6	0.8	78.8	7.3	0.1	1.3	11.7	12.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	60.2	29.7	25.5	69.8	32.3	21.4	119.6	38.8	18.1	42.4	44.5	45.1
Level of Service (LOS)	E	C	C	E	C	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	33.3	C		37.3	D		48.6	D		44.4	D	
Intersection Delay, s/veh / LOS	40.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.56	B	1.57	B	1.45	A	1.24	A

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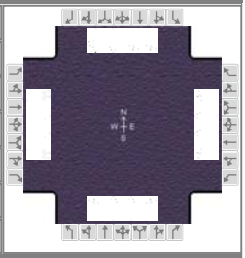
HCS7 Signalized Intersection Results Summary

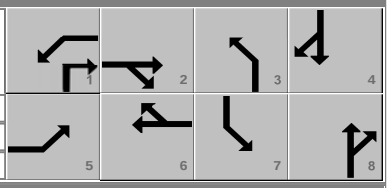
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 25, 2019	Area Type	Other
Jurisdiction	City of Bell/City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	114	832	140	170	733	136	147	556	123	198	685	77

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.7	2.9	30.5	7.4	1.1	22.4
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	12.2	35.0	15.1	37.9	13.0	28.0	11.9	26.9
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	8.0		11.0		9.9	15.3	7.4	21.3
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.1	1.1
Phase Call Probability	0.95		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.26	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	124	904	152	185	797	148	160	604	134	215	421	407
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1832
Queue Service Time (g_s), s	6.0	19.8	6.2	9.0	16.0	5.7	7.9	13.3	5.1	5.4	19.3	19.3
Cycle Queue Clearance Time (g_c), s	6.0	19.8	6.2	9.0	16.0	5.7	7.9	13.3	5.1	5.4	19.3	19.3
Green Ratio (*g/C*)	0.09	0.34	0.34	0.12	0.37	0.37	0.09	0.26	0.38	0.08	0.25	0.25
Capacity (*c*), veh/h	155	1226	546	214	1343	598	171	943	610	289	472	455
Volume-to-Capacity Ratio (*X*)	0.798	0.738	0.279	0.865	0.593	0.247	0.935	0.641	0.219	0.744	0.892	0.893
Back of Queue (*Q*), ft/ln (95 th percentile)	136.4	340.2	109.9	235.2	277	99.4	242.8	240.7	81.9	113.2	402.3	392.9
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	13.6	4.4	9.4	11.1	4.0	9.7	9.6	3.3	4.5	16.1	15.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	40.4	26.2	21.7	39.0	22.8	19.6	40.5	29.5	18.9	40.4	32.7	32.7
Incremental Delay (d_2), s/veh	9.4	4.0	1.3	27.8	1.9	1.0	49.5	1.0	0.1	6.1	16.9	17.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.8	30.2	23.0	66.8	24.8	20.6	90.0	30.5	19.0	46.4	49.6	50.2
Level of Service (LOS)	D	C	C	E	C	C	F	C	B	D	D	D
Approach Delay, s/veh / LOS	31.3	C		31.1	C		39.4	D		49.2	D	
Intersection Delay, s/veh / LOS	37.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.46	A	1.42	A	1.23	A	1.35	A

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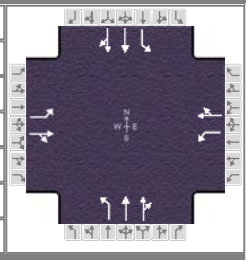
HCS7 Signalized Intersection Results Summary

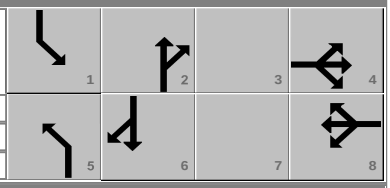
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 25, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #14	File Name	14AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	157	71	99	126	58	56	923	137	70	769	65

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.7	0.4	49.6	21.8	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		26.3		26.3	9.2	54.1	9.6	54.5
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		15.4		21.0	5.0		5.7	
Green Extension Time (g_e), s		1.2		0.8	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.78		0.85	
Max Out Probability		0.05		0.61	0.03		0.13	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	72	248		108	200		61	589	563	76	460	447
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1201	1799		1150	1798		1810	1900	1814	1810	1900	1847
Queue Service Time (g_s), s	4.9	10.9		8.2	8.5		3.0	18.1	18.2	3.7	12.8	12.8
Cycle Queue Clearance Time (g_c), s	13.4	10.9		19.0	8.5		3.0	18.1	18.2	3.7	12.8	12.8
Green Ratio (*g/C*)	0.24	0.24		0.24	0.24		0.05	0.55	0.55	0.06	0.56	0.56
Capacity (*c*), veh/h	257	435		219	435		94	1048	1000	103	1056	1027
Volume-to-Capacity Ratio (*X*)	0.279	0.569		0.490	0.460		0.645	0.562	0.563	0.741	0.435	0.435
Back of Queue (*Q*), ft/ln (95 th percentile)	64.7	207.6		104.8	166.5		61.6	301.6	291.8	78.1	224.2	219.7
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	8.3		4.2	6.7		2.5	12.1	11.7	3.1	9.0	8.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	34.8	30.0		38.3	29.1		41.8	13.1	13.1	41.8	11.7	11.7
Incremental Delay (d_2), s/veh	0.2	0.4		0.6	0.3		2.7	2.2	2.3	3.9	1.3	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	35.0	30.4		39.0	29.4		44.6	15.3	15.4	45.7	13.0	13.0
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.5	C		32.7	C		16.8	B		15.6	B	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.01	A	1.00	A	1.49	A	1.30	A

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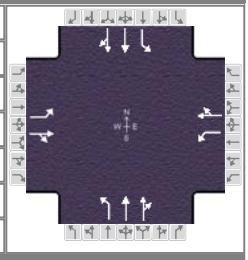
HCS7 Signalized Intersection Results Summary

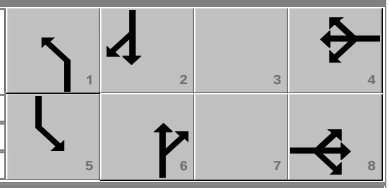
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 25, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #14	File Name	14PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	53	114	43	138	94	50	35	668	106	65	858	68

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.7	1.3	51.0	20.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.0		25.0	8.2	55.5	9.5	56.8
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		12.3		19.8	3.9		5.5	
Green Extension Time (g_e), s		1.1		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.61		0.83	
Max Out Probability		0.01		0.30	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	58	171		150	157		38	431	410	71	510	497
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1250	1811		1234	1788		1810	1900	1809	1810	1900	1850
Queue Service Time (g_s), s	3.7	7.2		10.6	6.7		1.9	11.4	11.4	3.5	13.8	13.8
Cycle Queue Clearance Time (g_c), s	10.3	7.2		17.8	6.7		1.9	11.4	11.4	3.5	13.8	13.8
Green Ratio (*g/C*)	0.23	0.23		0.23	0.23		0.04	0.57	0.57	0.06	0.58	0.58
Capacity (*c*), veh/h	273	413		263	408		74	1077	1025	100	1104	1075
Volume-to-Capacity Ratio (*X*)	0.211	0.413		0.571	0.384		0.514	0.400	0.400	0.706	0.462	0.462
Back of Queue (*Q*), ft/ln (95 th percentile)	50.7	142.3		145.5	129.5		38.4	203.9	196.9	72.2	236	231.4
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	5.7		5.8	5.2		1.5	8.2	7.9	2.9	9.4	9.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	33.7	29.6		37.2	29.4		42.3	10.9	10.9	41.8	10.8	10.8
Incremental Delay (d_2), s/veh	0.1	0.2		0.7	0.2		2.0	1.1	1.2	3.4	1.4	1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	33.9	29.9		37.9	29.6		44.3	12.0	12.1	45.2	12.2	12.2
Level of Service (LOS)	C	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	30.9	C		33.7	C		13.5	B		14.4	B	
Intersection Delay, s/veh / LOS	17.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.86	A	0.99	A	1.21	A	1.38	A

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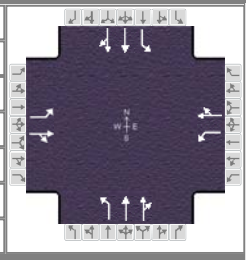
HCS7 Signalized Intersection Results Summary

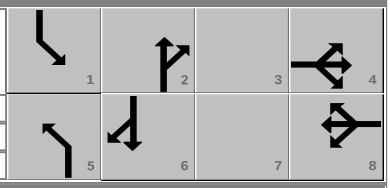
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 26, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #15	File Name	15AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	126	108	97	191	132	58	928	141	126	777	98

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.8	2.1	44.5	25.1	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		29.6		29.6	9.3	49.0	11.4	51.1
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		25.0		20.7	5.1		8.8	
Green Extension Time (g_e), s		0.2		1.1	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.79		0.97	
Max Out Probability		1.00		0.61	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	83	254		105	351		63	594	568	137	485	466
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1046	1754		1143	1770		1810	1900	1812	1810	1900	1825
Queue Service Time (g_s), s	6.9	11.0		7.7	16.1		3.1	20.7	20.8	6.8	14.9	14.9
Cycle Queue Clearance Time (g_c), s	23.0	11.0		18.7	16.1		3.1	20.7	20.8	6.8	14.9	14.9
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.05	0.49	0.49	0.08	0.52	0.52
Capacity (*c*), veh/h	186	490		259	494		96	940	896	138	984	945
Volume-to-Capacity Ratio (*X*)	0.445	0.519		0.406	0.711		0.659	0.632	0.633	0.993	0.493	0.493
Back of Queue (*Q*), ft/ln (95 th percentile)	80.5	201.4		97.4	291.8		63.9	350.6	338.9	243.6	260.5	252.9
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	8.1		3.9	11.7		2.6	14.0	13.6	9.7	10.4	10.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.5	27.3		35.2	29.2		41.8	16.7	16.7	41.5	14.0	14.0
Incremental Delay (d_2), s/veh	0.6	0.4		0.4	3.9		2.9	3.2	3.4	74.0	1.8	1.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.1	27.8		35.6	33.1		44.7	20.0	20.1	115.5	15.8	15.9
Level of Service (LOS)	D	C		D	C		D	B	C	F	B	B
Approach Delay, s/veh / LOS	30.8	C		33.7	C		21.3	C		28.4	C	
Intersection Delay, s/veh / LOS	26.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	1.04	A	1.24	A	1.50	A	1.39	A

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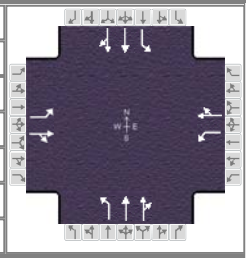
HCS7 Signalized Intersection Results Summary

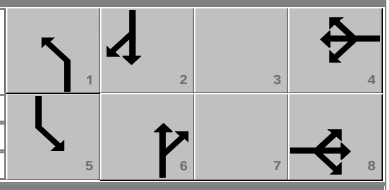
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 26, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #15	File Name	15PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	203	71	102	200	92	67	709	121	107	888	72

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.0	2.2	45.0	24.2	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.7		28.7	9.5	49.5	11.8	51.8
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		20.8		23.7	5.6		7.7	
Green Extension Time (g_e), s		1.0		0.5	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.84		0.95	
Max Out Probability		0.60		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	60	298		111	317		73	463	439	116	529	515
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1079	1815		1099	1798		1810	1900	1803	1810	1900	1849
Queue Service Time (g_s), s	4.7	12.9		8.8	14.1		3.6	14.5	14.5	5.7	16.5	16.5
Cycle Queue Clearance Time (g_c), s	18.8	12.9		21.7	14.1		3.6	14.5	14.5	5.7	16.5	16.5
Green Ratio (*g/C*)	0.27	0.27		0.27	0.27		0.06	0.50	0.50	0.70	0.53	0.53
Capacity (*c*), veh/h	201	488		218	484		101	951	902	146	998	971
Volume-to-Capacity Ratio (*X*)	0.297	0.610		0.509	0.656		0.720	0.487	0.487	0.796	0.530	0.530
Back of Queue (*Q*), ft/ln (95 th percentile)	55.7	238.8		108.3	260.5		74.4	257.3	247.5	149	282.7	277.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.2	9.6		4.3	10.4		3.0	10.3	9.9	6.0	11.3	11.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.5	28.8		38.3	29.2		41.8	14.9	14.9	40.6	14.1	14.1
Incremental Delay (d_2), s/veh	0.3	1.3		0.7	2.1		3.6	1.8	1.9	20.7	2.0	2.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	37.8	30.1		38.9	31.4		45.4	16.6	16.7	61.3	16.1	16.1
Level of Service (LOS)	D	C		D	C		D	B	B	E	B	B
Approach Delay, s/veh / LOS	31.4	C		33.3	C		18.8	B		20.6	C	
Intersection Delay, s/veh / LOS	23.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.08	A	1.19	A	1.29	A	1.44	A

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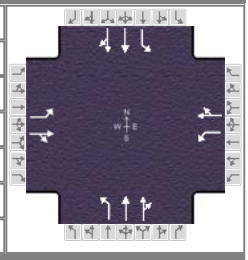
HCS7 Signalized Intersection Results Summary

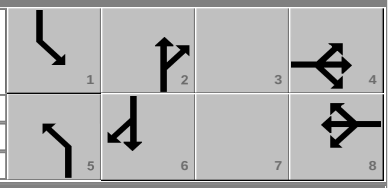
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 26, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #16	File Name	16AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	129	130	50	88	82	135	30	865	97	83	774	96

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.3	2.4	47.1	23.7	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.2		28.2	7.8	51.6	10.3	54.0
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.5		3.5	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		23.2		16.4	3.6		6.4	
Green Extension Time (g_e), s		0.5		1.2	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.56		0.90	
Max Out Probability		1.00		0.09	0.05		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	140	196		96	236		33	532	513	90	482	463
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1163	1810		1206	1709		1810	1900	1832	1810	1900	1826
Queue Service Time (g_s), s	10.6	8.0		6.4	10.6		1.6	16.7	16.7	4.4	13.8	13.8
Cycle Queue Clearance Time (g_c), s	21.2	8.0		14.4	10.6		1.6	16.7	16.7	4.4	13.8	13.8
Green Ratio (*g/C*)	0.26	0.26		0.26	0.26		0.04	0.52	0.52	0.68	0.55	0.55
Capacity (*c*), veh/h	249	476		290	449		67	994	958	116	1045	1004
Volume-to-Capacity Ratio (*X*)	0.564	0.411		0.330	0.525		0.485	0.536	0.536	0.778	0.461	0.462
Back of Queue (*Q*), ft/ln (95 th percentile)	137.4	156.8		84.9	194.5		33	286.5	278.9	97.8	240.1	233.6
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	6.3		3.4	7.8		1.3	11.5	11.2	3.9	9.6	9.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.4	27.4		33.4	28.4		42.5	14.2	14.2	41.5	12.2	12.2
Incremental Delay (d_2), s/veh	1.0	0.2		0.2	0.4		2.0	2.1	2.1	7.6	1.5	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.4	27.6		33.6	28.7		44.5	16.3	16.4	49.1	13.7	13.7
Level of Service (LOS)	D	C		C	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	32.1	C		30.1	C		17.2	B		16.8	B	
Intersection Delay, s/veh / LOS	20.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.04	A	1.03	A	1.38	A	1.34	A

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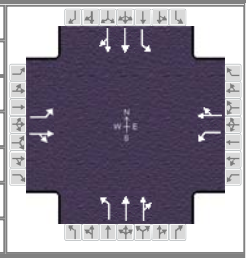
HCS7 Signalized Intersection Results Summary

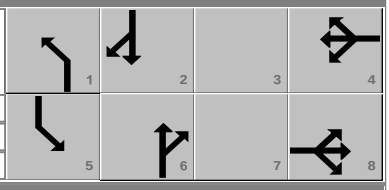
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 26, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #16	File Name	16PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	95	105	76	54	90	84	54	706	65	93	831	113

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.6	1.8	51.2	18.9	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		23.4		23.4	9.1	55.7	11.0	57.5
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		18.0		14.9	4.9		6.9	
Green Extension Time (g_e), s		0.9		1.0	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.77		0.92	
Max Out Probability		0.13		0.03	0.00		0.02	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	103	197		59	189		59	425	413	101	524	502
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1766		1205	1748		1810	1900	1843	1810	1900	1820
Queue Service Time (g_s), s	7.4	8.9		4.1	8.6		2.9	11.2	11.2	4.9	14.1	14.1
Cycle Queue Clearance Time (g_c), s	16.0	8.9		12.9	8.6		2.9	11.2	11.2	4.9	14.1	14.1
Green Ratio (*g/C*)	0.21	0.21		0.21	0.21		0.05	0.57	0.57	0.07	0.59	0.59
Capacity (*c*), veh/h	219	370		214	366		93	1081	1048	130	1119	1072
Volume-to-Capacity Ratio (*X*)	0.472	0.531		0.274	0.516		0.632	0.394	0.394	0.779	0.468	0.468
Back of Queue (*Q*), ft/ln (95 th percentile)	100.6	172.5		55	165		59.3	200.5	196.2	102.9	237.7	230.3
Back of Queue (*Q*), veh/ln (95 th percentile)	4.0	6.9		2.2	6.6		2.4	8.0	7.8	4.1	9.5	9.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.6	31.6		37.4	31.5		41.9	10.8	10.8	41.1	10.5	10.5
Incremental Delay (d_2), s/veh	0.6	0.4		0.3	0.4		2.6	1.1	1.1	3.8	1.4	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.2	32.1		37.6	31.9		44.5	11.9	11.9	44.9	11.9	12.0
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	34.5	C		33.3	C		14.0	B		14.9	B	
Intersection Delay, s/veh / LOS	18.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.98	A	0.90	A	1.23	A	1.42	A

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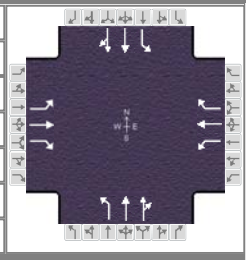
HCS7 Signalized Intersection Results Summary

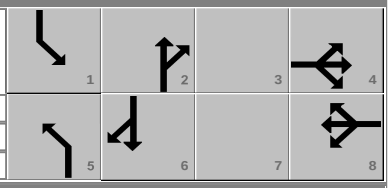
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 26, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #17	File Name	17AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	174	206	70	74	207	91	50	738	35	72	703	113

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.5	0.7	46.3	25.1	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		29.6		29.6	9.0	50.8	9.7	51.5
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		24.9		16.1	4.6		5.8	
Green Extension Time (g_e), s		0.2		1.6	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.74		0.86	
Max Out Probability		1.00		0.13	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	189	224	76	80	225	99	54	423	417	78	454	433
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1174	1900	1610	1175	1900	1610	1810	1900	1869	1810	1900	1808
Queue Service Time (g_s), s	14.1	8.7	3.2	5.4	8.7	4.2	2.6	12.5	12.5	3.8	13.5	13.5
Cycle Queue Clearance Time (g_c), s	22.9	8.7	3.2	14.1	8.7	4.2	2.6	12.5	12.5	3.8	13.5	13.5
Green Ratio (*g/C*)	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.51	0.51	0.06	0.52	0.52
Capacity (*c*), veh/h	293	529	449	294	529	449	90	977	961	104	991	943
Volume-to-Capacity Ratio (*X*)	0.645	0.423	0.170	0.273	0.425	0.220	0.606	0.434	0.434	0.756	0.458	0.459
Back of Queue (*Q*), ft/ln (95 th percentile)	190.7	174.3	54.8	69.8	178	73.3	54.8	227.2	224.6	87.8	240.7	232.1
Back of Queue (*Q*), veh/ln (95 th percentile)	7.6	7.0	2.2	2.8	7.1	2.9	2.2	9.1	9.0	3.5	9.6	9.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	35.9	26.5	24.6	32.3	26.6	24.9	41.9	13.7	13.7	41.8	13.5	13.5
Incremental Delay (d_2), s/veh	3.5	0.2	0.1	0.2	0.2	0.1	2.4	1.4	1.4	9.6	1.5	1.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.5	26.7	24.6	32.5	26.8	25.0	44.4	15.1	15.1	51.4	15.1	15.1
Level of Service (LOS)	D	C	C	C	C	C	D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.3	C		27.5	C		16.9	B		18.0	B	
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.29	A	1.15	A	1.23	A	1.28	A

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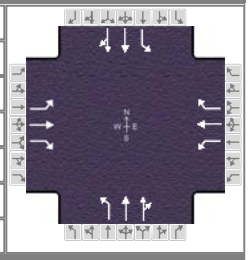
HCS7 Signalized Intersection Results Summary

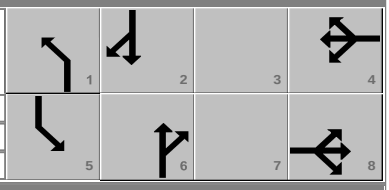
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 26, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2019	Analysis Period	1> 16:30
Intersection	Interesction #17	File Name	17PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	155	220	39	85	176	42	81	676	57	85	722	143

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.6	0.3	48.1	22.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		27.0		27.0	10.1	52.6	10.4	52.9
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		21.7		18.4	6.3		6.5	
Green Extension Time (g_e), s		0.8		1.2	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.89		0.90	
Max Out Probability		0.82		0.23	0.93		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	168	239	42	92	191	46	88	404	393	92	484	456
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1211	1900	1610	1159	1900	1610	1810	1900	1848	1810	1900	1790
Queue Service Time (g_s), s	12.1	9.7	1.8	6.7	7.6	2.0	4.3	11.3	11.3	4.5	14.2	14.2
Cycle Queue Clearance Time (g_c), s	19.7	9.7	1.8	16.4	7.6	2.0	4.3	11.3	11.3	4.5	14.2	14.2
Green Ratio (*g/C*)	0.25	0.25	0.25	0.25	0.25	0.25	0.56	0.53	0.53	0.68	0.54	0.54
Capacity (*c*), veh/h	281	475	403	245	475	403	113	1015	987	119	1021	962
Volume-to-Capacity Ratio (*X*)	0.599	0.503	0.105	0.377	0.403	0.113	0.776	0.398	0.398	0.778	0.474	0.474
Back of Queue (*Q*), ft/ln (95 th percentile)	162.3	195.2	31.2	85.9	155	34.1	90.6	206.9	202.8	94.8	248.7	238
Back of Queue (*Q*), veh/ln (95 th percentile)	6.5	7.8	1.2	3.4	6.2	1.4	3.6	8.3	8.1	3.8	9.9	9.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	36.3	28.9	26.0	36.0	28.1	26.0	41.6	12.4	12.4	41.4	12.9	12.9
Incremental Delay (d_2), s/veh	1.2	0.3	0.0	0.4	0.2	0.0	4.2	1.2	1.2	4.1	1.6	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	37.5	29.3	26.0	36.3	28.3	26.1	45.8	13.6	13.6	45.5	14.5	14.6
Level of Service (LOS)	D	C	C	D	C	C	D	B	B	D	B	B
Approach Delay, s/veh / LOS	32.0	C		30.3	C		16.8	B		17.3	B	
Intersection Delay, s/veh / LOS	21.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.23	A	1.03	A	1.22	A	1.34	A

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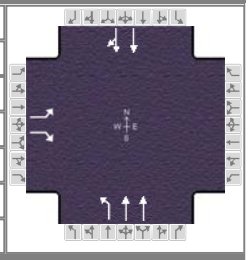
HCS7 Signalized Intersection Results Summary

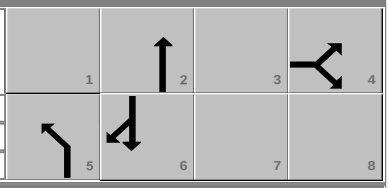
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 27, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2019	Analysis Period	1> 7:30
Intersection	Interesction #18	File Name	18AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61		39				15	830			823	36

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.0	68.5	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			6.5	79.5		73.0
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.2			2.8			
Green Extension Time (g_e), s		0.2			0.0	0.0		0.0
Phase Call Probability		1.00			0.33			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	66		42				16	902			470	463
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1872
Queue Service Time (g_s), s	3.2		2.3				0.8	5.0			15.0	7.1
Cycle Queue Clearance Time (g_c), s	3.2		2.3				0.8	5.0			15.0	7.1
Green Ratio (*g/C*)	0.07		0.07				0.31	0.83			0.76	0.76
Capacity (*c*), veh/h	121		107				40	3015			1446	1424
Volume-to-Capacity Ratio (*X*)	0.550		0.395				0.404	0.299			0.325	0.325
Back of Queue (*Q*), ft/ln (95 th percentile)	66.2		41.6				17	33.6			92	90.8
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6		1.7				0.7	1.3			3.7	3.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	40.7		40.3				43.4	1.7			3.4	3.4
Incremental Delay (d_2), s/veh	1.4		0.9				2.4	0.3			0.6	0.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	42.1		41.1				45.8	1.9			4.0	4.0
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	41.7	D		0.0			2.7	A		4.0	A	
Intersection Delay, s/veh / LOS	5.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.25	A	1.26	A

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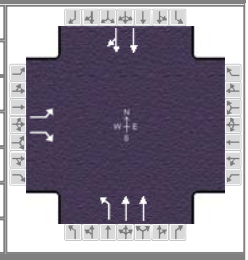
HCS7 Signalized Intersection Results Summary

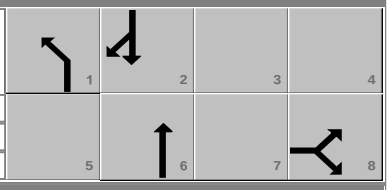
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 27, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #18	File Name	18PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	24		34				34	776			851	21

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	66.9	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6		2
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			8.1	79.5		71.4
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		4.0			3.8			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		1.00			0.60			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	26		37				37	843			476	472
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1884
Queue Service Time (g_s), s	1.2		2.0				1.8	4.6			15.2	7.7
Cycle Queue Clearance Time (g_c), s	1.2		2.0				1.8	4.6			15.2	7.7
Green Ratio (*g/C*)	0.07		0.07				0.66	0.83			0.74	0.74
Capacity (*c*), veh/h	121		107				73	3015			1412	1400
Volume-to-Capacity Ratio (*X*)	0.216		0.344				0.508	0.280			0.337	0.337
Back of Queue (*Q*), ft/ln (95 th percentile)	25.1		36.1				37.3	30.7			106.6	105.8
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0		1.4				1.5	1.2			4.3	4.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	39.8		40.1				42.3	1.6			4.0	4.0
Incremental Delay (d_2), s/veh	0.3		0.7				2.0	0.2			0.6	0.7
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	40.1		40.8				44.3	1.9			4.6	4.6
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	40.5	D		0.0			3.6	A		4.6	A	
Intersection Delay, s/veh / LOS	5.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.21	A	1.27	A

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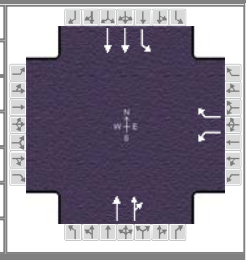
HCS7 Signalized Intersection Results Summary

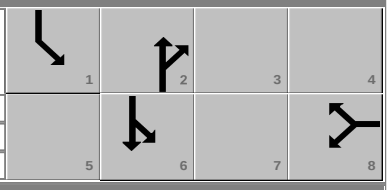
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 27, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #19	File Name	19AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				90		68		786	44	60	788	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.8	64.6	7.1	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				11.6		69.1	9.3	78.4
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.4		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.7			2.7	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.80	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				98		74		455	447	65	857	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1864	1810	1809	
Queue Service Time (g_s), s				4.7		4.0		14.3	8.0	0.7	5.0	
Cycle Queue Clearance Time (g_c), s				4.7		4.0		14.3	8.0	0.7	5.0	
Green Ratio (*g/C*)				0.08		0.08		0.72	0.72	0.79	0.82	
Capacity (*c*), veh/h				142		126		1364	1338	528	2972	
Volume-to-Capacity Ratio (*X*)				0.690		0.586		0.334	0.334	0.124	0.288	
Back of Queue (*Q*), ft/ln (95 th percentile)				98.7		73.5		117.1	115.1	6.3	38.8	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.9		2.9		4.7	4.6	0.3	1.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.4		40.1		4.7	4.7	3.6	1.9	
Incremental Delay (d_2), s/veh				2.2		1.6		0.7	0.7	0.0	0.2	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.6		41.7		5.4	5.4	3.7	2.1	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.2		D	5.4		A	2.2		A
Intersection Delay, s/veh / LOS	7.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.85	B	0.61	A
Bicycle LOS Score / LOS				F	1.23	A	1.25	A

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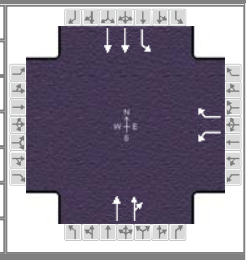
HCS7 Signalized Intersection Results Summary

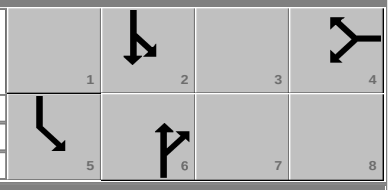
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 27, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Interesction #19	File Name	19PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				76		44		752	42	49	828	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.4	65.9	6.2	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				10.7		70.4	8.9	79.3
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.0			2.5	
Green Extension Time (g_e), s				0.2		0.0	0.1	0.0
Phase Call Probability				1.00			0.74	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				83		48		436	427	53	900	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1864	1810	1809	
Queue Service Time (g_s), s				4.0		2.6		13.5	7.2	0.5	5.0	
Cycle Queue Clearance Time (g_c), s				4.0		2.6		13.5	7.2	0.5	5.0	
Green Ratio (*g/C*)				0.07		0.07		0.73	0.73	0.80	0.83	
Capacity (*c*), veh/h				125		111		1390	1364	547	3005	
Volume-to-Capacity Ratio (*X*)				0.659		0.429		0.313	0.313	0.097	0.299	
Back of Queue (*Q*), ft/ln (95 th percentile)				83.7		47		101.7	100	4.5	35.2	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.3		1.9		4.1	4.0	0.2	1.4	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.8		40.2		4.2	4.2	3.3	1.7	
Incremental Delay (d_2), s/veh				2.2		1.0		0.6	0.6	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				43.0		41.1		4.8	4.8	3.3	2.0	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.4		D	4.8		A	2.0		A
Intersection Delay, s/veh / LOS	6.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.84	B	0.61	A
Bicycle LOS Score / LOS				F	1.20	A	1.27	A

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HCS7 All-Way Stop Control Report

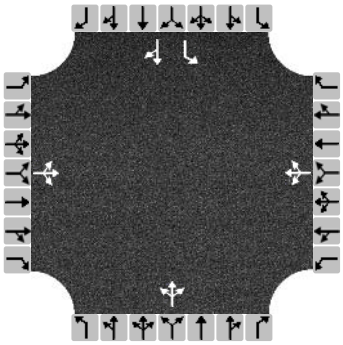
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/3/2019
Analysis Year	2019
Analysis Time Period (hrs)	0.25
Time Analyzed	Existing - AM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	3	49	0	68	67	74	1	264	102	64	262	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	57			227			399			70	289	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.050			0.202			0.355			0.062	0.257	
Final Departure Headway, hd (s)	6.48			5.88			5.32			6.45	5.93	
Final Degree of Utilization, x	0.102			0.371			0.590			0.125	0.476	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	4.48			3.88			3.32			4.15	3.63	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	57			227			399			70	289	
Capacity	556			612			676			558	607	
95% Queue Length, Q_{95} (veh)	0.3			1.7			3.9			0.4	2.6	
Control Delay (s/veh)	10.2			12.3			15.7			10.1	13.9	
Level of Service, LOS	B			B			C			B	B	
Approach Delay (s/veh)	10.2			12.3			15.7			13.2		
Approach LOS	B			B			C			B		
Intersection Delay, s/veh | LOS	13.8						B					

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HCS7 All-Way Stop Control Report

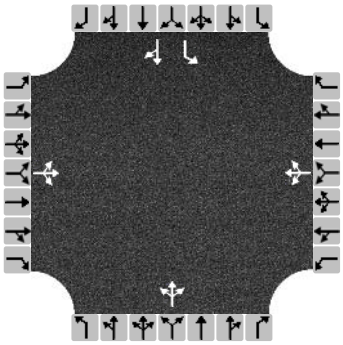
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/3/2019
Analysis Year	2019
Analysis Time Period (hrs)	0.25
Time Analyzed	Existing - PM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	4	62	0	80	67	43	0	314	80	44	327	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	72			207			428			48	360	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.064			0.184			0.381			0.043	0.320	
Final Departure Headway, hd (s)	6.76			6.29			5.51			6.55	6.04	
Final Degree of Utilization, x	0.135			0.361			0.656			0.087	0.603	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	4.76			4.29			3.51			4.25	3.74	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	72			207			428			48	360	
Capacity	532			572			653			549	596	
95% Queue Length, Q_{95} (veh)	0.5			1.6			4.9			0.3	4.0	
Control Delay (s/veh)	10.8			12.8			18.4			9.9	17.5	
Level of Service, LOS	B			B			C			A	C	
Approach Delay (s/veh)	10.8			12.8			18.4			16.6		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh | LOS	16.2						C					

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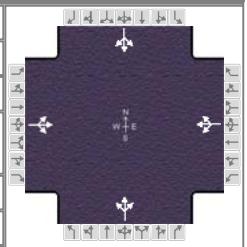
HCS7 Signalized Intersection Results Summary

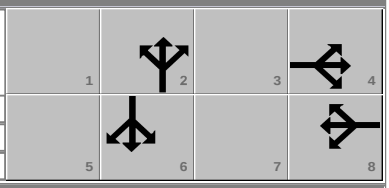
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	26	60	30	52	56	82	28	448	62	67	417	18

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	67.5	13.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		18.0		18.0		72.0		72.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		7.8		12.9				
Green Extension Time (g_e), s		0.7		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		126			207			585			546	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1727			1646			1810			1680	
Queue Service Time (g_s), s		0.0			5.1			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		5.8			10.9			10.3			9.1	
Green Ratio (*g/C*)		0.15			0.15			0.75			0.75	
Capacity (*c*), veh/h		308			297			1400			1306	
Volume-to-Capacity Ratio (*X*)		0.410			0.695			0.418			0.418	
Back of Queue (*Q*), ft/ln (95 th percentile)		114.7			198.6			153.5			139.6	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.6			7.9			6.1			5.6	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		35.0			37.0			4.1			3.9	
Incremental Delay (d_2), s/veh		0.3			1.1			0.9			1.0	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		35.3			38.1			5.0			4.9	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	35.3	D		38.1	D		5.0	A		4.9	A	
Intersection Delay, s/veh / LOS	12.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.61	B	1.61	B
Bicycle LOS Score / LOS	0.70	A	0.83	A	1.45	A	1.39	A

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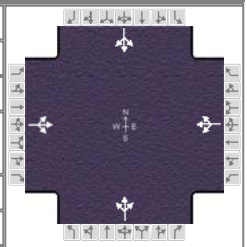
HCS7 Signalized Intersection Results Summary

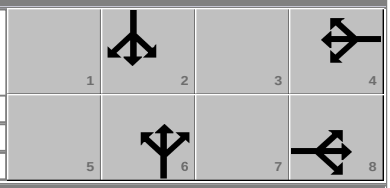
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	13	57	18	41	42	45	20	306	47	49	353	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	71.3	9.7	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		14.2		14.2		75.8		75.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.4		9.3				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		96			139			405			461	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1791			1648			1809			1748	
Queue Service Time (g_s), s		0.0			2.9			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		4.4			7.3			5.2			6.1	
Green Ratio (*g/C*)		0.11			0.11			0.79			0.79	
Capacity (*c*), veh/h		238			230			1476			1430	
Volume-to-Capacity Ratio (*X*)		0.401			0.605			0.275			0.322	
Back of Queue (*Q*), ft/ln (95 th percentile)		88.5			133.9			56.7			67.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		3.5			5.4			2.3			2.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		37.8			39.0			2.5			2.6	
Incremental Delay (d_2), s/veh		0.4			1.0			0.5			0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		38.2			40.0			2.9			3.2	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	38.2	D		40.0	D		2.9	A		3.2	A	
Intersection Delay, s/veh / LOS	10.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.72	B	1.72	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.65	A	0.72	A	1.16	A	1.25	A

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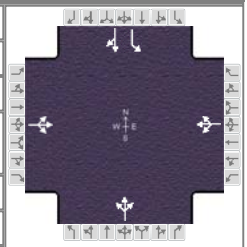
HCS7 Signalized Intersection Results Summary

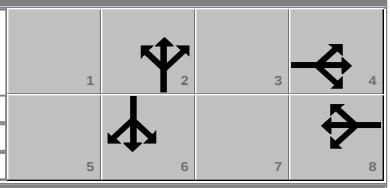
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #9	File Name	09AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	16	108	14	173	107	123	6	333	162	77	343	14

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.6		27.5				
Green Extension Time (g_e), s		1.3		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		150			438			545		84	388	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1776			1523			1791		881	1887	
Queue Service Time (g_s), s		0.0			19.9			0.0		5.2	8.9	
Cycle Queue Clearance Time (g_c), s		5.6			25.5			15.0		20.2	8.9	
Green Ratio (*g/C*)		0.28			0.28			0.62		0.62	0.62	
Capacity (*c*), veh/h		548			489			1145		476	1163	
Volume-to-Capacity Ratio (*X*)		0.274			0.896			0.476		0.176	0.334	
Back of Queue (*Q*), ft/ln (95 th percentile)		110.9			437.7			245.5		51	163.1	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.4			17.5			9.8		2.0	6.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		25.1			32.3			9.5		15.1	8.3	
Incremental Delay (d_2), s/veh		0.1			18.4			1.4		0.8	0.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		25.2			50.7			10.9		15.9	9.1	
Level of Service (LOS)		C			D			B		B	A	
Approach Delay, s/veh / LOS	25.2	C		50.7	D		10.9	B		10.3	B	
Intersection Delay, s/veh / LOS	22.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.92	B	1.65	B	1.65	B
Bicycle LOS Score / LOS	0.74	A	1.21	A	1.39	A	1.27	A

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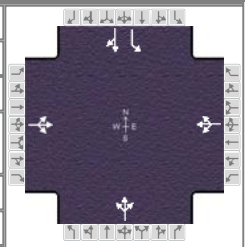
HCS7 Signalized Intersection Results Summary

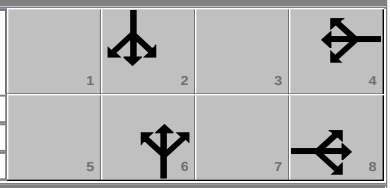
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #9	File Name	09PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	11	115	6	127	91	63	5	280	122	76	307	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	61.1	19.9	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		24.4		24.4		65.6		65.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.8		19.3				
Green Extension Time (g_e), s		0.9		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.18				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		143			305			442		83	358	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1854			1536			1798		967	1877	
Queue Service Time (g_s), s		0.0			11.6			0.0		3.6	6.8	
Cycle Queue Clearance Time (g_c), s		5.8			17.3			9.4		13.0	6.8	
Green Ratio (*g/C*)		0.22			0.22			0.68		0.68	0.68	
Capacity (*c*), veh/h		454			398			1261		635	1274	
Volume-to-Capacity Ratio (*X*)		0.316			0.767			0.351		0.130	0.281	
Back of Queue (*Q*), ft/ln (95 th percentile)		116.7			279.1			154.2		35.8	115.6	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.7			11.2			6.2		1.4	4.6	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		29.5			33.9			6.2		8.9	5.7	
Incremental Delay (d_2), s/veh		0.1			4.3			0.8		0.4	0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		29.7			38.2			6.9		9.3	6.3	
Level of Service (LOS)		C			D			A		A	A	
Approach Delay, s/veh / LOS	29.7	C		38.2	D		6.9	A		6.9	A	
Intersection Delay, s/veh / LOS	16.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.93	B	1.63	B	1.63	B
Bicycle LOS Score / LOS	0.72	A	0.99	A	1.22	A	1.21	A

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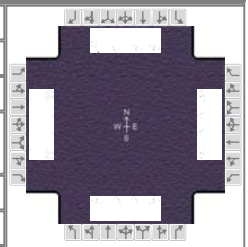
HCS7 Signalized Intersection Results Summary

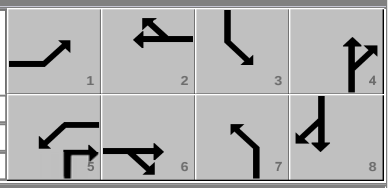
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	171	851	216	190	965	97	163	813	129	141	659	78

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.9	30.5	5.9	2.6	22.1	0.0
Yellow	3.5	3.5	3.5	0.0	3.5	0.0
Red	1.0	1.0	1.0	0.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	15.4	35.0	15.4	35.0	13.0	29.3	10.4	26.6
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.1		12.2		10.5	23.1	5.8	20.6
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.6	0.1	1.6
Phase Call Probability	0.99		0.99		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	186	925	235	207	1049	105	177	884	140	153	408	393
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1829
Queue Service Time (g_s), s	9.1	20.4	10.2	10.2	24.3	4.2	8.5	21.1	5.2	3.8	18.6	18.6
Cycle Queue Clearance Time (g_c), s	9.1	20.4	10.2	10.2	24.3	4.2	8.5	21.1	5.2	3.8	18.6	18.6
Green Ratio (*g/C*)	0.12	0.34	0.34	0.12	0.34	0.34	0.09	0.28	0.40	0.07	0.25	0.25
Capacity (*c*), veh/h	218	1226	546	218	1226	546	171	996	637	229	468	450
Volume-to-Capacity Ratio (*X*)	0.852	0.754	0.430	0.947	0.856	0.193	1.037	0.887	0.220	0.669	0.872	0.873
Back of Queue (*Q*), ft/ln (95 th percentile)	231.3	350	182.6	288.8	418.1	73.3	301.5	378.6	83.2	74.9	380.5	371.2
Back of Queue (*Q*), veh/ln (95 th percentile)	9.3	14.0	7.3	11.6	16.7	2.9	12.1	15.1	3.3	3.0	15.2	14.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.8	26.4	23.0	39.3	27.7	21.0	40.8	31.3	18.0	41.1	32.6	32.6
Incremental Delay (d_2), s/veh	25.1	4.3	2.5	45.6	7.8	0.8	78.8	8.6	0.1	1.3	14.2	14.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.9	30.8	25.5	84.9	35.5	21.8	119.6	39.9	18.1	42.4	46.8	47.4
Level of Service (LOS)	E	C	C	F	D	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	34.4	C		41.9	D		49.1	D		46.3	D	
Intersection Delay, s/veh / LOS	42.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.60	B	1.61	B	1.48	A	1.27	A

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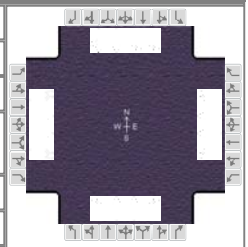
HCS7 Signalized Intersection Results Summary

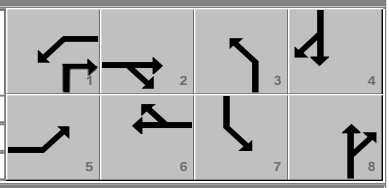
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	114	841	140	170	743	136	147	564	123	198	694	77

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.7	2.8	30.5	7.4	1.1	22.5
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	12.2	35.0	15.0	37.8	13.0	28.1	11.9	27.0
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	8.0		11.0		9.9	15.5	7.4	21.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.1	1.0
Phase Call Probability	0.95		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.28	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	124	914	152	185	808	148	160	613	134	215	426	412
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1833
Queue Service Time (g_s), s	6.0	20.1	6.2	9.0	16.3	5.7	7.9	13.5	5.1	5.4	19.5	19.5
Cycle Queue Clearance Time (g_c), s	6.0	20.1	6.2	9.0	16.3	5.7	7.9	13.5	5.1	5.4	19.5	19.5
Green Ratio (*g/C*)	0.09	0.34	0.34	0.12	0.37	0.37	0.09	0.26	0.38	0.08	0.25	0.25
Capacity (*c*), veh/h	155	1226	546	211	1337	595	171	949	610	289	476	459
Volume-to-Capacity Ratio (*X*)	0.798	0.746	0.279	0.877	0.604	0.248	0.935	0.646	0.219	0.744	0.897	0.897
Back of Queue (*Q*), ft/ln (95 th percentile)	137.6	345.1	109.9	240	282.2	100	242.8	243.4	81.9	113.2	408.5	399.3
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	13.8	4.4	9.6	11.3	4.0	9.7	9.7	3.3	4.5	16.3	16.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	40.4	26.3	21.7	39.1	23.0	19.7	40.5	29.5	18.9	40.4	32.6	32.6
Incremental Delay (d_2), s/veh	10.0	4.2	1.3	30.5	2.0	1.0	49.5	1.0	0.1	6.1	17.7	18.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	50.4	30.5	23.0	69.6	25.1	20.7	90.0	30.5	19.0	46.4	50.3	50.9
Level of Service (LOS)	D	C	C	E	C	C	F	C	B	D	D	D
Approach Delay, s/veh / LOS	31.6	C		31.7	C		39.3	D		49.7	D	
Intersection Delay, s/veh / LOS	37.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.47	A	1.43	A	1.24	A	1.36	A

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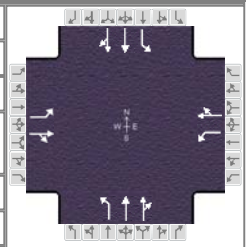
HCS7 Signalized Intersection Results Summary

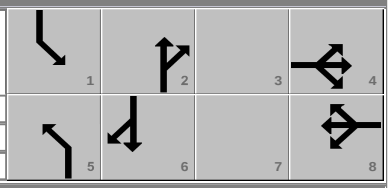
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #14	File Name	14AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	172	71	99	143	58	56	957	137	70	807	65

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.7	0.4	48.9	22.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		27.0		27.0	9.2	53.4	9.6	53.8
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		16.2		21.8	5.0		5.7	
Green Extension Time (g_e), s		1.2		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.78		0.85	
Max Out Probability		0.08		0.89	0.11		0.40	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	72	264		108	218		61	607	582	76	480	468
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1181	1805		1133	1806		1810	1900	1816	1810	1900	1850
Queue Service Time (g_s), s	5.0	11.6		8.3	9.3		3.0	19.3	19.4	3.7	13.8	13.8
Cycle Queue Clearance Time (g_c), s	14.2	11.6		19.8	9.3		3.0	19.3	19.4	3.7	13.8	13.8
Green Ratio (*g/C*)	0.25	0.25		0.25	0.25		0.05	0.54	0.54	0.06	0.55	0.55
Capacity (*c*), veh/h	254	452		218	452		94	1032	986	103	1041	1013
Volume-to-Capacity Ratio (*X*)	0.282	0.585		0.493	0.483		0.645	0.589	0.590	0.741	0.462	0.462
Back of Queue (*Q*), ft/ln (95 th percentile)	64.8	218.5		104.9	181.4		61.6	320.1	310.7	78.1	240.7	236
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	8.7		4.2	7.3		2.5	12.8	12.4	3.1	9.6	9.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	34.8	29.6		38.3	28.8		41.8	13.8	13.8	41.8	12.3	12.3
Incremental Delay (d_2), s/veh	0.2	0.6		0.6	0.3		2.7	2.5	2.6	3.9	1.5	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	35.1	30.3		39.0	29.1		44.6	16.3	16.4	45.7	13.8	13.8
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.3	C		32.3	C		17.7	B		16.2	B	
Intersection Delay, s/veh / LOS	20.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.04	A	1.03	A	1.52	B	1.33	A

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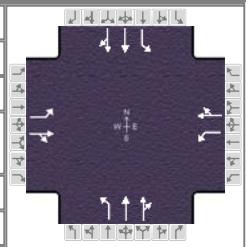
HCS7 Signalized Intersection Results Summary

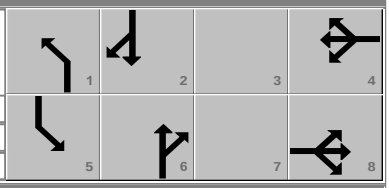
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #14	File Name	14PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	53	118	43	138	98	50	35	676	106	65	867	68

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.7	1.3	50.8	20.7	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.2		25.2	8.2	55.3	9.5	56.6
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		12.5		20.0	3.9		5.5	
Green Extension Time (g_e), s		1.1		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.61		0.83	
Max Out Probability		0.01		0.34	0.00		0.02	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	58	175		150	161		38	435	415	71	515	502
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1245	1813		1229	1791		1810	1900	1810	1810	1900	1851
Queue Service Time (g_s), s	3.7	7.4		10.7	6.8		1.9	11.6	11.7	3.5	14.1	14.1
Cycle Queue Clearance Time (g_c), s	10.5	7.4		18.0	6.8		1.9	11.6	11.7	3.5	14.1	14.1
Green Ratio (*g/C*)	0.23	0.23		0.23	0.23		0.04	0.56	0.56	0.06	0.58	0.58
Capacity (*c*), veh/h	273	418		263	413		74	1072	1021	100	1100	1071
Volume-to-Capacity Ratio (*X*)	0.211	0.419		0.571	0.390		0.514	0.406	0.406	0.706	0.468	0.468
Back of Queue (*Q*), ft/ln (95 th percentile)	50.7	145.7		145.6	132.9		38.4	207.8	200.7	72.2	239.9	235.3
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	5.8		5.8	5.3		1.5	8.3	8.0	2.9	9.6	9.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	33.7	29.5		37.2	29.3		42.3	11.1	11.1	41.8	11.0	11.0
Incremental Delay (d_2), s/veh	0.1	0.2		0.7	0.2		2.0	1.1	1.2	3.4	1.4	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	33.8	29.8		37.9	29.5		44.3	12.2	12.3	45.2	12.4	12.4
Level of Service (LOS)	C	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	30.8	C		33.6	C		13.6	B		14.5	B	
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.87	A	1.00	A	1.22	A	1.38	A

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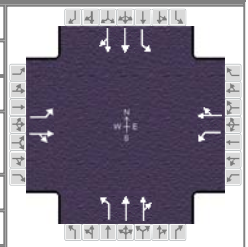
HCS7 Signalized Intersection Results Summary

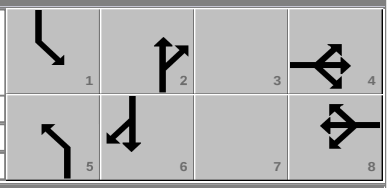
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #15	File Name	15AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	144	108	97	212	132	68	928	141	126	777	136

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.1	1.4	44.5	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	9.6	49.0	11.0	50.4
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		27.5		21.8	5.6		8.5	
Green Extension Time (g_e), s		0.0		1.0	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.84		0.97	
Max Out Probability		1.00		0.91	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	120	274		105	374		74	594	568	137	509	483
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1025	1764		1123	1777		1810	1900	1812	1810	1900	1801
Queue Service Time (g_s), s	8.3	11.9		7.9	17.2		3.6	20.7	20.8	6.5	16.1	16.1
Cycle Queue Clearance Time (g_c), s	25.5	11.9		19.8	17.2		3.6	20.7	20.8	6.5	16.1	16.1
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.06	0.49	0.49	0.07	0.51	0.51
Capacity (*c*), veh/h	175	500		250	504		102	939	896	131	970	919
Volume-to-Capacity Ratio (*X*)	0.685	0.548		0.421	0.743		0.727	0.633	0.634	1.048	0.525	0.525
Back of Queue (*Q*), ft/ln (95 th percentile)	138.1	215.7		98.4	314.2		82.3	350.6	339	260.1	280.3	269.4
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	8.6		3.9	12.6		3.3	14.0	13.6	10.4	11.2	10.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	41.7	27.4		35.7	29.3		41.8	16.7	16.7	41.8	14.7	14.7
Incremental Delay (d_2), s/veh	8.8	0.7		0.4	5.2		8.8	3.2	3.4	92.1	2.0	2.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	50.5	28.1		36.2	34.5		50.6	20.0	20.2	133.9	16.8	16.9
Level of Service (LOS)	D	C		D	C		D	B	C	F	B	B
Approach Delay, s/veh / LOS	34.9	C		34.8	C		21.9	C		31.0	C	
Intersection Delay, s/veh / LOS	28.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	1.14	A	1.28	A	1.51	B	1.42	A

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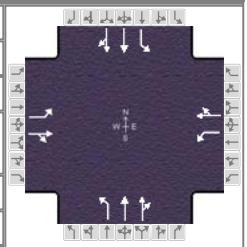
HCS7 Signalized Intersection Results Summary

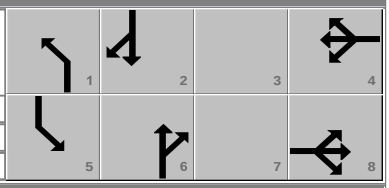
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #15	File Name	15PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	63	207	71	102	205	92	70	709	121	107	888	81

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.1	2.2	44.8	24.4	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.9		28.9	9.6	49.3	11.8	51.5
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		21.8		24.0	5.7		7.7	
Green Extension Time (g_e), s		0.9		0.4	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.85		0.95	
Max Out Probability		0.88		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	68	302		111	323		76	463	439	116	535	519
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1074	1816		1094	1800		1810	1900	1803	1810	1900	1844
Queue Service Time (g_s), s	5.4	13.1		8.9	14.3		3.7	14.5	14.5	5.7	16.8	16.8
Cycle Queue Clearance Time (g_c), s	19.8	13.1		22.0	14.3		3.7	14.5	14.5	5.7	16.8	16.8
Green Ratio (*g/C*)	0.27	0.27		0.27	0.27		0.06	0.50	0.50	0.08	0.52	0.52
Capacity (*c*), veh/h	200	492		217	488		103	947	898	146	992	963
Volume-to-Capacity Ratio (*X*)	0.343	0.614		0.510	0.662		0.741	0.489	0.489	0.796	0.539	0.539
Back of Queue (*Q*), ft/ln (95 th percentile)	64.5	242.2		108.3	265		78.1	258.7	248.9	150.9	288.1	281.7
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	9.7		4.3	10.6		3.1	10.3	10.0	6.0	11.5	11.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.9	28.7		38.3	29.1		41.8	15.0	15.0	40.6	14.3	14.3
Incremental Delay (d_2), s/veh	0.4	1.4		0.7	2.3		3.9	1.8	1.9	21.7	2.1	2.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.3	30.1		39.0	31.5		45.7	16.8	16.9	62.4	16.4	16.4
Level of Service (LOS)	D	C		D	C		D	B	B	E	B	B
Approach Delay, s/veh / LOS	31.6	C		33.4	C		19.1	B		21.0	C	
Intersection Delay, s/veh / LOS	23.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.10	A	1.20	A	1.29	A	1.45	A

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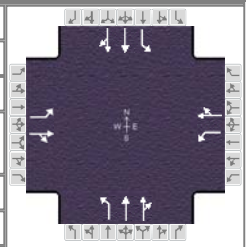
HCS7 Signalized Intersection Results Summary

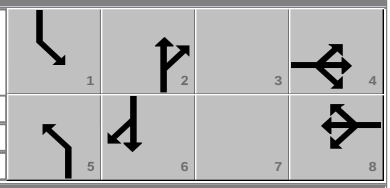
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #16	File Name	16AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	129	139	50	88	82	145	30	865	97	83	774	96

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.3	2.4	46.5	24.2	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.7		28.7	7.8	51.0	10.3	53.5
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.5		3.5	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		23.8		16.8	3.6		6.4	
Green Extension Time (g_e), s		0.4		1.3	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.56		0.90	
Max Out Probability		1.00		0.12	0.13		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	140	205		96	247		33	532	513	90	482	463
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1151	1814		1195	1704		1810	1900	1832	1810	1900	1826
Queue Service Time (g_s), s	10.7	8.4		6.5	11.1		1.6	16.9	16.9	4.4	14.0	14.0
Cycle Queue Clearance Time (g_c), s	21.8	8.4		14.8	11.1		1.6	16.9	16.9	4.4	14.0	14.0
Green Ratio (*g/C*)	0.27	0.27		0.27	0.27		0.04	0.52	0.52	0.06	0.54	0.54
Capacity (*c*), veh/h	247	488		290	458		67	983	948	116	1034	993
Volume-to-Capacity Ratio (*X*)	0.567	0.421		0.330	0.539		0.485	0.542	0.542	0.779	0.467	0.467
Back of Queue (*Q*), ft/ln (95 th percentile)	138.5	164.1		84.9	201.8		33	290.3	282.6	102.3	243.5	236.5
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	6.6		3.4	8.1		1.3	11.6	11.3	4.1	9.7	9.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.4	27.1		33.2	28.1		42.5	14.6	14.6	41.5	12.5	12.5
Incremental Delay (d_2), s/veh	1.3	0.2		0.2	0.5		2.0	2.1	2.2	10.8	1.5	1.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.8	27.3		33.5	28.6		44.5	16.7	16.8	52.3	14.1	14.1
Level of Service (LOS)	D	C		C	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	32.0	C		30.0	C		17.6	B		17.4	B	
Intersection Delay, s/veh / LOS	20.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.06	A	1.05	A	1.38	A	1.34	A

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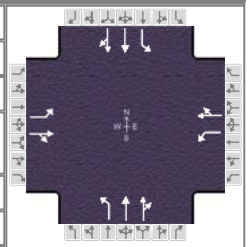
HCS7 Signalized Intersection Results Summary

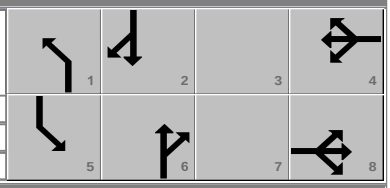
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #16	File Name	16PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	95	107	76	54	90	87	54	706	65	93	831	113

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.6	1.8	51.0	19.0	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		23.5		23.5	9.1	55.5	10.9	57.3
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		18.2		15.0	4.9		6.9	
Green Extension Time (g_e), s		0.9		1.0	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.77		0.92	
Max Out Probability		0.14		0.03	0.00		0.02	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	103	199		59	192		59	425	413	101	524	502
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1210	1768		1202	1746		1810	1900	1843	1810	1900	1820
Queue Service Time (g_s), s	7.4	9.0		4.1	8.8		2.9	11.2	11.3	4.9	14.2	14.2
Cycle Queue Clearance Time (g_c), s	16.2	9.0		13.0	8.8		2.9	11.2	11.3	4.9	14.2	14.2
Green Ratio (*g/C*)	0.21	0.21		0.21	0.21		0.05	0.57	0.57	0.07	0.59	0.59
Capacity (*c*), veh/h	219	374		215	369		93	1077	1045	130	1116	1068
Volume-to-Capacity Ratio (*X*)	0.472	0.532		0.273	0.521		0.632	0.395	0.395	0.780	0.470	0.470
Back of Queue (*Q*), ft/ln (95 th percentile)	100.5	173.9		54.9	167.9		59.3	201.3	197.1	102.9	239.3	231.9
Back of Queue (*Q*), veh/ln (95 th percentile)	4.0	7.0		2.2	6.7		2.4	8.1	7.9	4.1	9.6	9.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.6	31.5		37.3	31.4		41.9	10.9	10.9	41.1	10.6	10.6
Incremental Delay (d_2), s/veh	0.6	0.4		0.3	0.4		2.6	1.1	1.1	3.8	1.4	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.2	32.0		37.5	31.9		44.5	12.0	12.0	44.9	12.0	12.1
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	34.4	C		33.2	C		14.1	B		15.0	B	
Intersection Delay, s/veh / LOS	18.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.99	A	0.90	A	1.23	A	1.42	A

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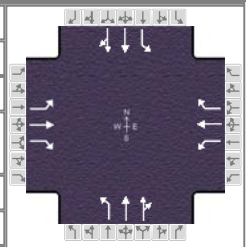
HCS7 Signalized Intersection Results Summary

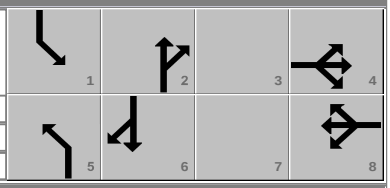
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #17	File Name	17AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	174	215	97	74	217	91	81	738	35	72	703	113

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.2	0.5	45.4	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	10.1	50.4	9.7	49.9
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		25.5		16.5	6.3		5.8	
Green Extension Time (g_e), s		0.0		1.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.89		0.86	
Max Out Probability		1.00		0.16	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	189	234	105	80	236	99	88	423	417	78	454	433
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1163	1900	1610	1165	1900	1610	1810	1900	1869	1810	1900	1808
Queue Service Time (g_s), s	14.3	9.0	4.5	5.5	9.1	4.2	4.3	12.7	12.7	3.8	14.0	14.0
Cycle Queue Clearance Time (g_c), s	23.5	9.0	4.5	14.5	9.1	4.2	4.3	12.7	12.7	3.8	14.0	14.0
Green Ratio (*g/C*)	0.28	0.28	0.28	0.28	0.28	0.28	0.06	0.51	0.51	0.06	0.50	0.50
Capacity (*c*), veh/h	291	538	456	293	538	456	113	968	953	104	959	912
Volume-to-Capacity Ratio (*X*)	0.650	0.435	0.231	0.275	0.439	0.217	0.779	0.437	0.437	0.756	0.474	0.474
Back of Queue (*Q*), ft/ln (95 th percentile)	192.1	181.9	76.7	69.8	186.3	72.7	111	229.4	226.7	91.4	250.1	241.1
Back of Queue (*Q*), veh/ln (95 th percentile)	7.7	7.3	3.1	2.8	7.5	2.9	4.4	9.2	9.1	3.7	10.0	9.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	36.0	26.4	24.8	32.3	26.4	24.6	41.6	13.9	13.9	41.8	14.5	14.5
Incremental Delay (d_2), s/veh	4.0	0.2	0.1	0.2	0.2	0.1	18.7	1.4	1.5	12.4	1.7	1.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.0	26.6	24.8	32.5	26.6	24.7	60.3	15.4	15.4	54.2	16.2	16.3
Level of Service (LOS)	D	C	C	C	C	C	E	B	B	D	B	B
Approach Delay, s/veh / LOS	31.0	C		27.3	C		19.6	B		19.3	B	
Intersection Delay, s/veh / LOS	22.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.36	A	1.17	A	1.25	A	1.28	A

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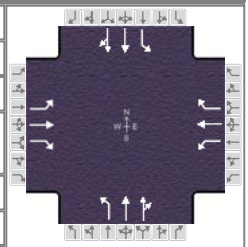
HCS7 Signalized Intersection Results Summary

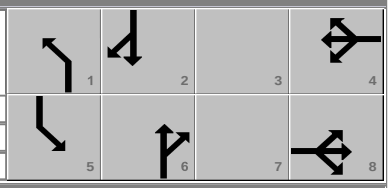
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2019	Analysis Period	1> 16:30
Intersection	Interesction #17	File Name	17PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	155	222	45	85	179	42	89	676	57	85	722	143

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.9	0.3	47.7	22.7	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		27.2		27.2	10.7	52.4	10.4	52.2
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		21.8		18.5	6.7		6.5	
Green Extension Time (g_e), s		0.8		1.2	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.91		0.90	
Max Out Probability		0.88		0.24	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	168	241	49	92	195	46	97	404	393	92	484	456
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1207	1900	1610	1157	1900	1610	1810	1900	1848	1810	1900	1790
Queue Service Time (g_s), s	12.2	9.8	2.1	6.7	7.7	2.0	4.7	11.4	11.4	4.5	14.5	14.5
Cycle Queue Clearance Time (g_c), s	19.8	9.8	2.1	16.5	7.7	2.0	4.7	11.4	11.4	4.5	14.5	14.5
Green Ratio (*g/C*)	0.25	0.25	0.25	0.25	0.25	0.25	0.07	0.53	0.53	0.07	0.53	0.53
Capacity (*c*), veh/h	281	478	406	246	478	406	124	1012	984	119	1006	948
Volume-to-Capacity Ratio (*X*)	0.599	0.504	0.121	0.376	0.407	0.113	0.781	0.399	0.399	0.778	0.481	0.481
Back of Queue (*Q*), ft/ln (95 th percentile)	162.5	196.4	36.1	85.9	157.6	34.1	101.2	207.3	203.3	94.8	253.1	242.3
Back of Queue (*Q*), veh/ln (95 th percentile)	6.5	7.9	1.4	3.4	6.3	1.4	4.0	8.3	8.1	3.8	10.1	9.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	36.3	28.9	26.0	35.9	28.1	25.9	41.3	12.5	12.5	41.4	13.4	13.4
Incremental Delay (d_2), s/veh	1.2	0.3	0.0	0.4	0.2	0.0	5.4	1.2	1.2	4.1	1.6	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	37.6	29.2	26.0	36.3	28.3	26.0	46.6	13.7	13.7	45.5	15.0	15.1
Level of Service (LOS)	D	C	C	D	C	C	D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.9	C		30.2	C		17.3	B		17.8	B	
Intersection Delay, s/veh / LOS	21.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.24	A	1.04	A	1.22	A	1.34	A

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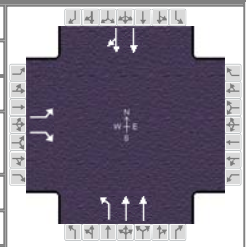
HCS7 Signalized Intersection Results Summary

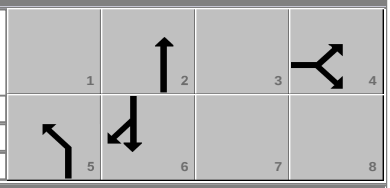
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2019	Analysis Period	1> 7:30
Intersection	Interesction #18	File Name	18AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61		39				15	861			850	36

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.0	68.5	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			6.5	79.5		73.0
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.2			2.8			
Green Extension Time (g_e), s		0.2			0.0	0.0		0.0
Phase Call Probability		1.00			0.33			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	66		42				16	936			485	478
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1872
Queue Service Time (g_s), s	3.2		2.3				0.8	5.2			15.6	7.4
Cycle Queue Clearance Time (g_c), s	3.2		2.3				0.8	5.2			15.6	7.4
Green Ratio (*g/C*)	0.07		0.07				0.02	0.83			0.76	0.76
Capacity (*c*), veh/h	121		107				40	3015			1446	1425
Volume-to-Capacity Ratio (*X*)	0.550		0.395				0.404	0.310			0.335	0.335
Back of Queue (*Q*), ft/ln (95 th percentile)	66.2		41.6				17	35.5			95.6	94.4
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6		1.7				0.7	1.4			3.8	3.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	40.7		40.3				43.4	1.7			3.5	3.5
Incremental Delay (d_2), s/veh	1.4		0.9				2.4	0.3			0.6	0.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	42.1		41.1				45.8	2.0			4.1	4.1
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	41.7	D		0.0			2.7	A		4.1	A	
Intersection Delay, s/veh / LOS	5.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.27	A	1.28	A

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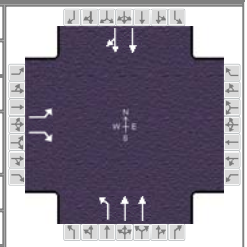
HCS7 Signalized Intersection Results Summary

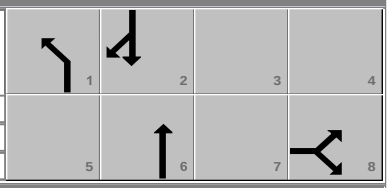
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #18	File Name	18PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	24		34				34	784			857	21

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	66.9	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6		2
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			8.1	79.5		71.4
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		4.0			3.8			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		1.00			0.60			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	26		37				37	852			479	475
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1884
Queue Service Time (g_s), s	1.2		2.0				1.8	4.6			15.3	7.8
Cycle Queue Clearance Time (g_c), s	1.2		2.0				1.8	4.6			15.3	7.8
Green Ratio (*g/C*)	0.07		0.07				0.04	0.83			0.74	0.74
Capacity (*c*), veh/h	121		107				73	3015			1412	1400
Volume-to-Capacity Ratio (*X*)	0.216		0.344				0.508	0.283			0.339	0.339
Back of Queue (*Q*), ft/ln (95 th percentile)	25.1		36.1				37.3	31.6			107.4	106.6
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0		1.4				1.5	1.3			4.3	4.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	39.8		40.1				42.3	1.6			4.0	4.0
Incremental Delay (d_2), s/veh	0.3		0.7				2.0	0.2			0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	40.1		40.8				44.3	1.9			4.6	4.6
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	40.5	D		0.0			3.6	A		4.6	A	
Intersection Delay, s/veh / LOS	5.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.22	A	1.27	A

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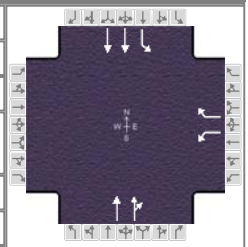
HCS7 Signalized Intersection Results Summary

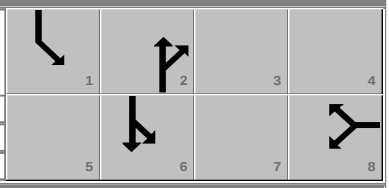
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Interesction #19	File Name	19AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				90		75		810	44	66	809	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.0	64.4	7.1	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				11.6		68.9	9.5	78.4
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.4		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.7			2.8	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.83	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				98		82		468	460	72	879	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1865	1810	1809	
Queue Service Time (g_s), s				4.7		4.4		14.9	8.4	0.8	5.2	
Cycle Queue Clearance Time (g_c), s				4.7		4.4		14.9	8.4	0.8	5.2	
Green Ratio (*g/C*)				0.08		0.08		0.72	0.72	0.79	0.82	
Capacity (*c*), veh/h				142		127		1360	1335	518	2972	
Volume-to-Capacity Ratio (*X*)				0.688		0.644		0.344	0.344	0.139	0.296	
Back of Queue (*Q*), ft/ln (95 th percentile)				98.7		81.9		123.6	121.6	6.9	39.9	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.9		3.3		4.9	4.9	0.3	1.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.4		40.2		4.8	4.8	3.8	1.9	
Incremental Delay (d_2), s/veh				2.2		2.0		0.7	0.7	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.6		42.3		5.5	5.5	3.8	2.2	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.5		D	5.5		A	2.3		A
Intersection Delay, s/veh / LOS	7.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.85	B	0.61	A
Bicycle LOS Score / LOS				F	1.25	A	1.27	A

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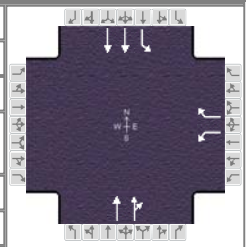
HCS7 Signalized Intersection Results Summary

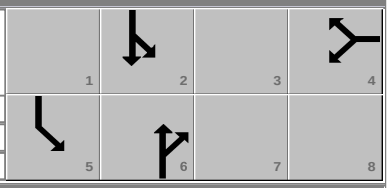
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Interesction #19	File Name	19PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				76		46		758	42	50	833	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.5	65.8	6.2	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				10.7		70.3	9.0	79.3
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.0			2.5	
Green Extension Time (g_e), s				0.2		0.0	0.1	0.0
Phase Call Probability				1.00			0.74	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				83		50		439	431	54	905	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1864	1810	1809	
Queue Service Time (g_s), s				4.0		2.7		13.7	7.3	0.5	5.1	
Cycle Queue Clearance Time (g_c), s				4.0		2.7		13.7	7.3	0.5	5.1	
Green Ratio (*g/C*)				0.07		0.07		0.73	0.73	0.80	0.83	
Capacity (*c*), veh/h				125		112		1389	1363	544	3005	
Volume-to-Capacity Ratio (*X*)				0.659		0.448		0.316	0.316	0.100	0.301	
Back of Queue (*Q*), ft/ln (95 th percentile)				83.7		49.2		103.1	101.4	4.6	35.4	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.3		2.0		4.1	4.1	0.2	1.4	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.8		40.2		4.2	4.2	3.3	1.7	
Incremental Delay (d_2), s/veh				2.2		1.0		0.6	0.6	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				43.0		41.3		4.8	4.8	3.3	2.0	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.4		D	4.8		A	2.1		A
Intersection Delay, s/veh / LOS	6.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.84	B	0.61	A
Bicycle LOS Score / LOS				F	1.20	A	1.28	A

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HCS7 All-Way Stop Control Report

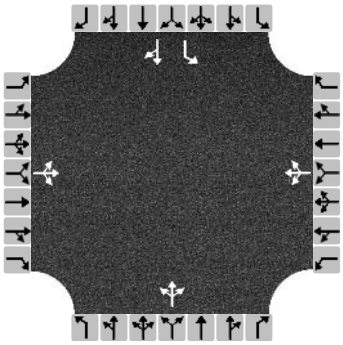
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/5/2019
Analysis Year	2019
Analysis Time Period (hrs)	0.25
Time Analyzed	Existing with Project- AM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	3	49	0	68	67	74	1	264	102	73	341	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	57			227			399			79	375	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.050			0.202			0.355			0.071	0.333	
Final Departure Headway, hd (s)	6.80			6.14			5.51			6.51	6.00	
Final Degree of Utilization, x	0.107			0.387			0.611			0.144	0.625	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	4.80			4.14			3.51			4.21	3.70	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	57			227			399			79	375	
Capacity	529			586			653			553	600	
95% Queue Length, Q_{95} (veh)	0.4			1.8			4.2			0.5	4.3	
Control Delay (s/veh)	10.6			13.0			16.8			10.3	18.2	
Level of Service, LOS	B			B			C			B	C	
Approach Delay (s/veh)	10.6			13.0			16.8			16.8		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh | LOS	15.7						C					

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HCS7 All-Way Stop Control Report

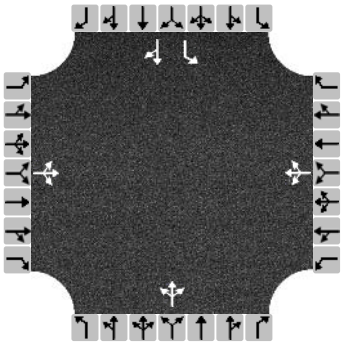
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/5/2019
Analysis Year	2019
Analysis Time Period (hrs)	0.25
Time Analyzed	Existing with Project- PM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	4	62	0	80	67	43	0	314	80	46	346	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	72			207			428			50	380	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.064			0.184			0.381			0.044	0.338	
Final Departure Headway, hd (s)	6.84			6.36			5.56			6.57	6.05	
Final Degree of Utilization, x	0.136			0.365			0.662			0.091	0.640	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	4.84			4.36			3.56			4.27	3.75	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	72			207			428			50	380	
Capacity	526			566			647			548	595	
95% Queue Length, Q_{95} (veh)	0.5			1.7			5.0			0.3	4.6	
Control Delay (s/veh)	10.9			13.0			18.8			9.9	18.9	
Level of Service, LOS	B			B			C			A	C	
Approach Delay (s/veh)	10.9			13.0			18.8			17.8		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh | LOS	16.9						C					

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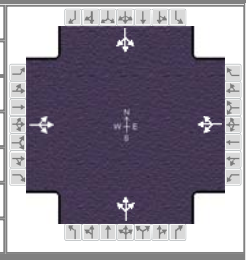
HCS7 Signalized Intersection Results Summary

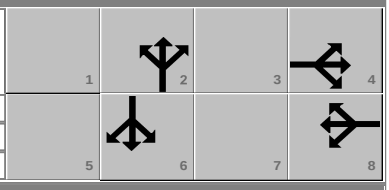
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	27	61	31	36	57	85	29	421	48	69	331	18

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	68.4	12.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		17.1		17.1		72.9		72.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		8.1		12.0				
Green Extension Time (g_e), s		0.6		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		129			193			541			454	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1724			1679			1816			1640	
Queue Service Time (g_s), s		0.0			3.9			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		6.1			10.0			8.8			6.8	
Green Ratio (*g/C*)		0.14			0.14			0.76			0.76	
Capacity (*c*), veh/h		290			283			1423			1293	
Volume-to-Capacity Ratio (*X*)		0.446			0.685			0.380			0.351	
Back of Queue (*Q*), ft/ln (95 th percentile)		119.6			188.9			127.4			101.9	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.8			7.6			5.1			4.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		35.9			37.5			3.6			3.4	
Incremental Delay (d_2), s/veh		0.4			1.1			0.8			0.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		36.3			38.6			4.4			4.2	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	36.3	D		38.6	D		4.4	A		4.2	A	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.61	B	1.61	B
Bicycle LOS Score / LOS	0.70	A	0.81	A	1.38	A	1.24	A

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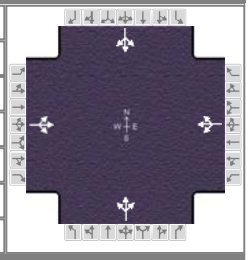
HCS7 Signalized Intersection Results Summary

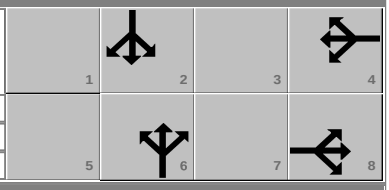
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	13	58	18	38	43	47	20	324	44	51	361	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	71.4	9.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		14.1		14.1		75.9		75.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.5		9.3				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		97			139			422			472	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1791			1658			1815			1741	
Queue Service Time (g_s), s		0.0			2.8			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		4.5			7.3			5.5			6.2	
Green Ratio (*g/C*)		0.11			0.11			0.79			0.79	
Capacity (*c*), veh/h		237			229			1482			1426	
Volume-to-Capacity Ratio (*X*)		0.407			0.607			0.285			0.331	
Back of Queue (*Q*), ft/ln (95 th percentile)		89.5			133.7			59.5			70.1	
Back of Queue (*Q*), veh/ln (95 th percentile)		3.6			5.3			2.4			2.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		37.9			39.0			2.5			2.6	
Incremental Delay (d_2), s/veh		0.4			1.0			0.5			0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		38.3			40.0			3.0			3.2	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	38.3	D		40.0	D		3.0	A		3.2	A	
Intersection Delay, s/veh / LOS	10.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.72	B	1.72	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.65	A	0.72	A	1.18	A	1.27	A

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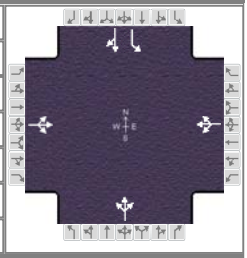
HCS7 Signalized Intersection Results Summary

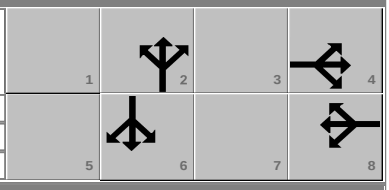
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #9	File Name	09AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	16	110	14	113	109	133	6	280	114	87	229	14

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	57.4	23.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		28.1		28.1		61.9		61.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.9		23.2				
Green Extension Time (g_e), s		1.2		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		152			386			435		95	264	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1789			1588			1803		975	1880	
Queue Service Time (g_s), s		0.0			15.4			0.0		4.6	5.3	
Cycle Queue Clearance Time (g_c), s		5.9			21.2			10.3		14.9	5.3	
Green Ratio (*g/C*)		0.26			0.26			0.64		0.64	0.64	
Capacity (*c*), veh/h		514			469			1190		590	1199	
Volume-to-Capacity Ratio (*X*)		0.296			0.822			0.365		0.160	0.220	
Back of Queue (*Q*), ft/ln (95 th percentile)		116.6			354.7			178.1		47.9	94.8	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.7			14.2			7.1		1.9	3.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		26.7			32.1			7.8		11.3	6.9	
Incremental Delay (d_2), s/veh		0.1			9.1			0.9		0.6	0.4	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		26.8			41.3			8.7		11.9	7.3	
Level of Service (LOS)		C			D			A		B	A	
Approach Delay, s/veh / LOS	26.8	C		41.3	D		8.7	A		8.5	A	
Intersection Delay, s/veh / LOS	20.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.93	B	1.64	B	1.64	B
Bicycle LOS Score / LOS	0.74	A	1.12	A	1.20	A	1.08	A

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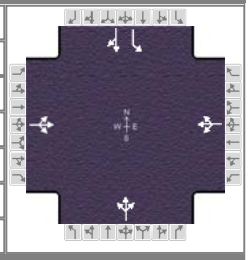
HCS7 Signalized Intersection Results Summary

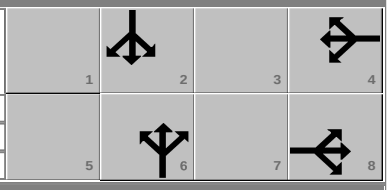
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #9	File Name	09PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	11	117	6	124	93	80	5	277	117	95	293	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	60.2	20.8	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		25.3		25.3		64.7		64.7
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.8		20.2				
Green Extension Time (g_e), s		1.0		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.31				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		146			323			434		103	342	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1854			1548			1800		975	1876	
Queue Service Time (g_s), s		0.0			12.4			0.0		4.6	6.6	
Cycle Queue Clearance Time (g_c), s		5.8			18.2			9.4		14.1	6.6	
Green Ratio (*g/C*)		0.23			0.23			0.67		0.67	0.67	
Capacity (*c*), veh/h		471			414			1246		630	1256	
Volume-to-Capacity Ratio (*X*)		0.309			0.780			0.348		0.164	0.273	
Back of Queue (*Q*), ft/ln (95 th percentile)		117			295.1			155.6		47.1	114.1	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.7			11.8			6.2		1.9	4.6	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		28.9			33.5			6.5		9.5	6.0	
Incremental Delay (d_2), s/veh		0.1			5.3			0.8		0.6	0.5	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		29.0			38.8			7.2		10.1	6.6	
Level of Service (LOS)		C			D			A		B	A	
Approach Delay, s/veh / LOS	29.0	C		38.8	D		7.2	A		7.4	A	
Intersection Delay, s/veh / LOS	17.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.93	B	1.64	B	1.64	B
Bicycle LOS Score / LOS	0.73	A	1.02	A	1.20	A	1.22	A

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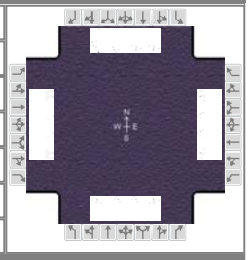
HCS7 Signalized Intersection Results Summary

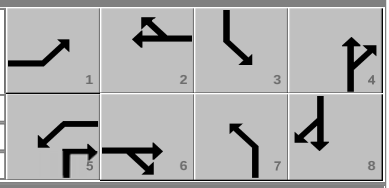
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	184	834	225	195	951	104	170	813	133	148	643	89

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	30.5	6.0	2.5	22.2	0.0
Yellow	3.5	3.5	3.5	0.0	3.5	0.0
Red	1.0	1.0	1.0	0.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	15.3	35.0	15.3	35.0	13.0	29.2	10.5	26.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.8		12.5		10.5	23.1	6.0	20.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.6	0.1	1.6
Phase Call Probability	0.99		1.00		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	200	907	245	212	1034	113	185	884	145	161	406	389
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1819
Queue Service Time (g_s), s	9.8	19.9	10.7	10.5	23.8	4.5	8.5	21.1	5.4	4.0	18.4	18.5
Cycle Queue Clearance Time (g_c), s	9.8	19.9	10.7	10.5	23.8	4.5	8.5	21.1	5.4	4.0	18.4	18.5
Green Ratio (*g/C*)	0.12	0.34	0.34	0.12	0.34	0.34	0.09	0.27	0.39	0.07	0.25	0.25
Capacity (*c*), veh/h	218	1226	546	218	1226	546	171	992	635	234	468	448
Volume-to-Capacity Ratio (*X*)	0.918	0.739	0.448	0.973	0.843	0.207	1.081	0.891	0.228	0.687	0.868	0.869
Back of Queue (*Q*), ft/ln (95 th percentile)	269.6	341.8	191.4	307.5	409.1	79.2	327.2	380.8	86.2	78.7	377	366.6
Back of Queue (*Q*), veh/ln (95 th percentile)	10.8	13.7	7.7	12.3	16.4	3.2	13.1	15.2	3.4	3.1	15.1	14.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.1	26.2	23.2	39.4	27.5	21.2	40.8	31.4	18.1	41.1	32.5	32.5
Incremental Delay (d_2), s/veh	38.6	4.0	2.7	53.0	7.2	0.9	92.2	9.0	0.1	1.3	13.7	14.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	77.7	30.3	25.8	92.4	34.7	22.0	132.9	40.4	18.2	42.4	46.2	46.9
Level of Service (LOS)	E	C	C	F	C	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	36.5	D		42.7	D		51.8	D		45.8	D	
Intersection Delay, s/veh / LOS	43.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.60	B	1.61	B	1.49	A	1.28	A

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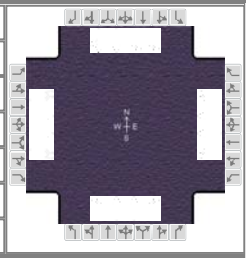
HCS7 Signalized Intersection Results Summary

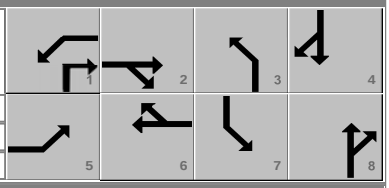
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	132	860	147	175	757	146	152	590	127	208	718	92

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.8	1.1	30.5	7.7	0.8	23.2
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	13.3	35.0	14.3	36.1	13.0	28.5	12.2	27.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	9.0		11.4		10.2	16.2	7.7	22.7
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.5
Phase Call Probability	0.97		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.36	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	143	935	160	190	823	159	165	641	138	226	449	431
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1824
Queue Service Time (g_s), s	7.0	20.7	6.6	9.4	17.2	6.4	8.2	14.2	5.3	5.7	20.7	20.7
Cycle Queue Clearance Time (g_c), s	7.0	20.7	6.6	9.4	17.2	6.4	8.2	14.2	5.3	5.7	20.7	20.7
Green Ratio (*g/C*)	0.10	0.34	0.34	0.11	0.35	0.35	0.09	0.27	0.38	0.09	0.26	0.26
Capacity (*c*), veh/h	176	1226	546	198	1269	565	171	964	605	300	489	469
Volume-to-Capacity Ratio (*X*)	0.814	0.762	0.293	0.961	0.648	0.281	0.967	0.665	0.228	0.754	0.919	0.919
Back of Queue (*Q*), ft/ln (95 th percentile)	176.5	355.1	116.1	281.9	298.1	112.5	261.3	254.5	85.3	120.8	442.9	431
Back of Queue (*Q*), veh/ln (95 th percentile)	7.1	14.2	4.6	11.3	11.9	4.5	10.5	10.2	3.4	4.8	17.7	17.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.8	26.5	21.8	39.9	24.5	21.0	40.6	29.4	19.2	40.2	32.5	32.5
Incremental Delay (d_2), s/veh	18.2	4.5	1.4	52.3	2.6	1.2	58.5	1.4	0.1	7.1	21.6	22.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.0	31.0	23.2	92.2	27.1	22.3	99.1	30.8	19.3	47.4	54.1	54.8
Level of Service (LOS)	E	C	C	F	C	C	F	C	B	D	D	D
Approach Delay, s/veh / LOS	33.2	C		37.0	D		41.1	D		53.0	D	
Intersection Delay, s/veh / LOS	40.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.51	B	1.45	A	1.27	A	1.40	A

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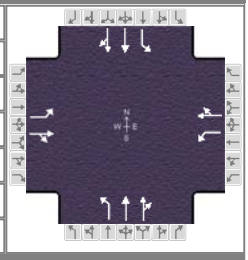
HCS7 Signalized Intersection Results Summary

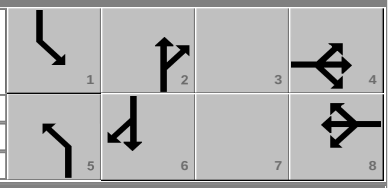
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #14	File Name	14AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67	161	72	101	130	65	57	961	140	74	799	66

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.7	0.5	49.1	22.2	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		26.7		26.7	9.2	53.6	9.7	54.1
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		16.1		21.4	5.0		5.9	
Green Extension Time (g_e), s		1.2		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.79		0.87	
Max Out Probability		0.07		0.75	0.07		0.33	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	73	253		110	212		62	611	585	80	477	464
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1188	1800		1144	1792		1810	1900	1815	1810	1900	1849
Queue Service Time (g_s), s	5.0	11.1		8.4	9.1		3.0	19.4	19.5	3.9	13.5	13.5
Cycle Queue Clearance Time (g_c), s	14.1	11.1		19.4	9.1		3.0	19.4	19.5	3.9	13.5	13.5
Green Ratio (*g/C*)	0.25	0.25		0.25	0.25		0.05	0.55	0.55	0.06	0.55	0.55
Capacity (*c*), veh/h	253	443		221	442		95	1037	991	104	1047	1019
Volume-to-Capacity Ratio (*X*)	0.288	0.571		0.497	0.480		0.652	0.589	0.591	0.770	0.455	0.455
Back of Queue (*Q*), ft/ln (95 th percentile)	65.9	210.6		107	176.8		62.7	320.1	310.6	83.3	235.8	231.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	8.4		4.3	7.1		2.5	12.8	12.4	3.3	9.4	9.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	35.0	29.7		38.3	29.0		41.8	13.7	13.7	41.8	12.1	12.1
Incremental Delay (d_2), s/veh	0.2	0.4		0.6	0.3		2.8	2.5	2.6	4.4	1.4	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	35.2	30.2		38.9	29.3		44.6	16.1	16.3	46.2	13.5	13.6
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.3	C		32.6	C		17.6	B		16.1	B	
Intersection Delay, s/veh / LOS	20.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.03	A	1.02	A	1.53	B	1.33	A

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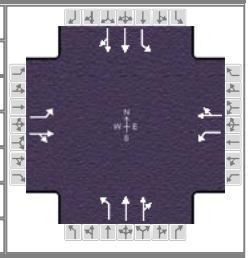
HCS7 Signalized Intersection Results Summary

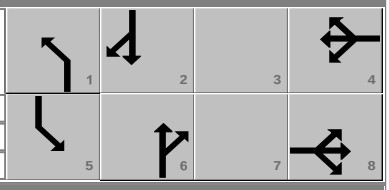
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #14	File Name	14PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	54	117	44	141	97	57	36	704	108	74	899	69

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.7	1.5	50.4	21.0	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.5		25.5	8.2	54.9	9.7	56.3
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		12.9		20.2	3.9		5.9	
Green Extension Time (g_e), s		1.1		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.62		0.87	
Max Out Probability		0.01		0.39	0.00		0.06	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	59	175		153	167		39	452	431	80	533	519
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1237	1811		1229	1781		1810	1900	1811	1810	1900	1852
Queue Service Time (g_s), s	3.8	7.4		10.9	7.2		1.9	12.4	12.4	3.9	14.9	14.9
Cycle Queue Clearance Time (g_c), s	10.9	7.4		18.2	7.2		1.9	12.4	12.4	3.9	14.9	14.9
Green Ratio (*g/C*)	0.23	0.23		0.23	0.23		0.04	0.56	0.56	0.06	0.58	0.58
Capacity (*c*), veh/h	270	422		266	415		75	1063	1013	104	1094	1066
Volume-to-Capacity Ratio (*X*)	0.217	0.415		0.577	0.404		0.520	0.425	0.425	0.770	0.487	0.487
Back of Queue (*Q*), ft/ln (95 th percentile)	51.8	145.2		148.6	138.5		39.5	218.3	210.9	83.3	251.2	246.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	5.8		5.9	5.5		1.6	8.7	8.4	3.3	10.0	9.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	33.8	29.3		37.0	29.2		42.2	11.5	11.5	41.8	11.3	11.3
Incremental Delay (d_2), s/veh	0.1	0.2		0.7	0.2		2.1	1.2	1.3	4.4	1.6	1.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	34.0	29.6		37.8	29.5		44.3	12.7	12.8	46.2	12.8	12.9
Level of Service (LOS)	C	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	30.7	C		33.4	C		14.1	B		15.2	B	
Intersection Delay, s/veh / LOS	18.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.87	A	1.02	A	1.25	A	1.42	A

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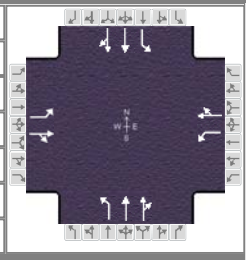
HCS7 Signalized Intersection Results Summary

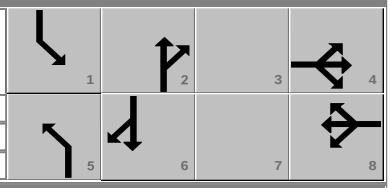
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #15	File Name	15AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	78	139	110	102	205	138	63	963	151	132	806	100

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.9	1.6	44.5	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	9.4	49.0	11.0	50.6
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		26.6		22.0	5.3		8.5	
Green Extension Time (g_e), s		0.0		0.9	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.82		0.97	
Max Out Probability		1.00		0.99	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	85	271		111	373		68	619	592	143	502	483
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1026	1760		1126	1772		1810	1900	1810	1810	1900	1826
Queue Service Time (g_s), s	7.4	11.7		8.3	17.2		3.3	22.0	22.1	6.5	15.8	15.8
Cycle Queue Clearance Time (g_c), s	24.6	11.7		20.0	17.2		3.3	22.0	22.1	6.5	15.8	15.8
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.05	0.49	0.49	0.07	0.51	0.51
Capacity (*c*), veh/h	175	499		252	502		99	939	895	131	973	935
Volume-to-Capacity Ratio (*X*)	0.485	0.543		0.439	0.743		0.693	0.659	0.661	1.097	0.516	0.516
Back of Queue (*Q*), ft/ln (95 th percentile)	84	213.4		103.8	313.9		71.8	370.8	359.1	282.9	274.8	266.8
Back of Queue (*Q*), veh/ln (95 th percentile)	3.4	8.5		4.2	12.6		2.9	14.8	14.4	11.3	11.0	10.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	40.4	27.3		35.8	29.3		41.8	17.1	17.1	41.7	14.6	14.6
Incremental Delay (d_2), s/veh	0.8	0.7		0.4	5.2		4.9	3.6	3.8	107.2	2.0	2.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	41.2	28.0		36.2	34.5		46.7	20.7	20.9	149.0	16.5	16.6
Level of Service (LOS)	D	C		D	C		D	C	C	F	B	B
Approach Delay, s/veh / LOS	31.1	C		34.9	C		22.2	C		33.4	C	
Intersection Delay, s/veh / LOS	29.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	1.07	A	1.29	A	1.54	B	1.42	A

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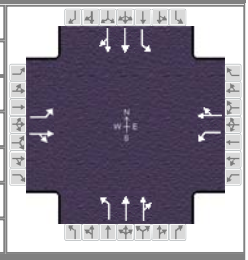
HCS7 Signalized Intersection Results Summary

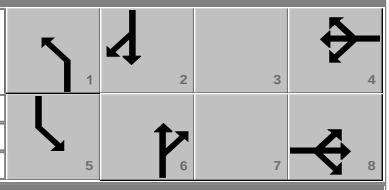
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #15	File Name	15PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	228	72	106	225	98	76	741	138	113	925	73

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.3	1.2	44.5	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	9.8	49.0	11.0	50.2
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		22.6		25.5	6.1		8.1	
Green Extension Time (g_e), s		0.8		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.87		0.95	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	61	326		115	351		83	491	464	123	549	535
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1046	1821		1070	1802		1810	1900	1796	1810	1900	1851
Queue Service Time (g_s), s	4.9	14.1		9.5	15.6		4.1	15.9	15.9	6.1	18.0	18.0
Cycle Queue Clearance Time (g_c), s	20.6	14.1		23.5	15.6		4.1	15.9	15.9	6.1	18.0	18.0
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.06	0.49	0.49	0.07	0.51	0.51
Capacity (*c*), veh/h	195	516		216	510		106	939	888	131	965	940
Volume-to-Capacity Ratio (*X*)	0.312	0.632		0.533	0.688		0.777	0.523	0.523	0.940	0.569	0.570
Back of Queue (*Q*), ft/ln (95 th percentile)	57.2	258.8		115	287.4		101.4	278.9	267.5	210.1	307.9	302
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	10.4		4.6	11.5		4.1	11.2	10.7	8.4	12.3	12.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.9	28.2		38.4	28.7		41.8	15.5	15.5	41.6	15.3	15.3
Incremental Delay (d_2), s/veh	0.3	1.9		1.3	3.2		16.4	2.1	2.2	59.6	2.4	2.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.2	30.1		39.8	31.9		58.2	17.6	17.7	101.2	17.8	17.8
Level of Service (LOS)	D	C		D	C		E	B	B	F	B	B
Approach Delay, s/veh / LOS	31.3	C		33.9	C		20.9	C		26.3	C	
Intersection Delay, s/veh / LOS	26.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	1.13	A	1.26	A	1.34	A	1.48	A

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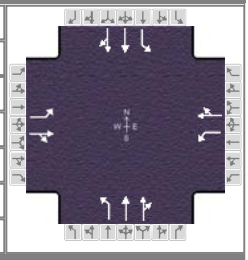
HCS7 Signalized Intersection Results Summary

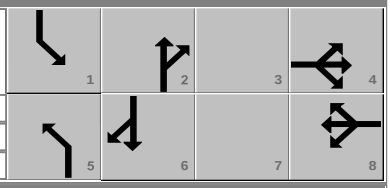
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #16	File Name	16AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	135	133	53	90	84	145	32	899	99	88	801	99

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	2.6	45.8	24.6	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		29.1		29.1	8.0	50.3	10.6	52.9
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.5		3.5	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		24.4		16.8	3.7		6.7	
Green Extension Time (g_e), s		0.3		1.3	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.58		0.91	
Max Out Probability		1.00		0.12	0.37		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	147	202		98	249		35	552	533	96	499	479
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1149	1807		1199	1706		1810	1900	1833	1810	1900	1826
Queue Service Time (g_s), s	11.2	8.2		6.5	11.2		1.7	18.1	18.1	4.7	14.8	14.8
Cycle Queue Clearance Time (g_c), s	22.4	8.2		14.8	11.2		1.7	18.1	18.1	4.7	14.8	14.8
Green Ratio (*g/C*)	0.27	0.27		0.27	0.27		0.04	0.51	0.51	0.07	0.54	0.54
Capacity (*c*), veh/h	252	495		299	467		70	966	933	122	1021	982
Volume-to-Capacity Ratio (*X*)	0.582	0.409		0.328	0.533		0.496	0.571	0.571	0.783	0.488	0.488
Back of Queue (*Q*), ft/ln (95 th percentile)	146.7	160		86	202.1		35.2	309.6	301.6	116.2	257	249.6
Back of Queue (*Q*), veh/ln (95 th percentile)	5.9	6.4		3.4	8.1		1.4	12.4	12.1	4.6	10.3	10.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.3	26.7		32.8	27.8		42.4	15.3	15.3	41.3	13.1	13.1
Incremental Delay (d_2), s/veh	1.8	0.2		0.2	0.5		2.0	2.4	2.5	15.9	1.7	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.1	26.9		33.0	28.3		44.4	17.8	17.9	57.2	14.7	14.8
Level of Service (LOS)	D	C		C	C		D	B	B	E	B	B
Approach Delay, s/veh / LOS	32.1	C		29.6	C		18.6	B		18.5	B	
Intersection Delay, s/veh / LOS	21.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.06	A	1.06	A	1.41	A	1.37	A

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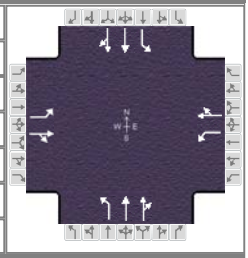
HCS7 Signalized Intersection Results Summary

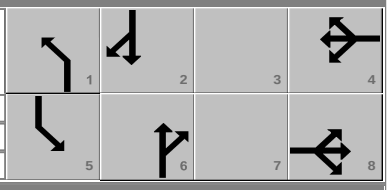
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #16	File Name	16PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	99	107	79	55	92	96	57	752	66	101	863	118

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.7	2.2	49.6	20.0	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		24.5		24.5	9.2	54.1	11.4	56.3
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		19.1		15.2	5.0		7.4	
Green Extension Time (g_e), s		0.9		1.1	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.79		0.94	
Max Out Probability		0.24		0.04	0.00		0.13	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	108	202		60	204		62	451	438	110	545	522
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1196	1765		1199	1740		1810	1900	1846	1810	1900	1819
Queue Service Time (g_s), s	7.8	9.1		4.1	9.3		3.0	12.6	12.6	5.4	15.3	15.3
Cycle Queue Clearance Time (g_c), s	17.1	9.1		13.2	9.3		3.0	12.6	12.6	5.4	15.3	15.3
Green Ratio (*g/C*)	0.22	0.22		0.22	0.22		0.05	0.55	0.55	0.08	0.58	0.58
Capacity (*c*), veh/h	222	391		226	386		95	1047	1017	140	1094	1048
Volume-to-Capacity Ratio (*X*)	0.485	0.517		0.265	0.530		0.652	0.431	0.431	0.786	0.498	0.498
Back of Queue (*Q*), ft/ln (95 th percentile)	104.7	174.5		55.3	177		62.7	222.2	217.6	111.4	257.4	249.4
Back of Queue (*Q*), veh/ln (95 th percentile)	4.2	7.0		2.2	7.1		2.5	8.9	8.7	4.5	10.3	10.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.4	30.8		36.5	30.9		41.8	11.9	11.9	40.8	11.4	11.4
Incremental Delay (d_2), s/veh	0.6	0.4		0.2	0.4		2.8	1.3	1.3	3.7	1.6	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.0	31.2		36.8	31.3		44.6	13.2	13.2	44.5	13.0	13.0
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	33.9	C		32.5	C		15.2	B		15.9	B	
Intersection Delay, s/veh / LOS	19.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.88	B
Bicycle LOS Score / LOS	1.00	A	0.92	A	1.27	A	1.46	A

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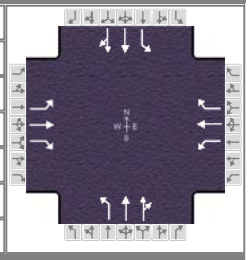
HCS7 Signalized Intersection Results Summary

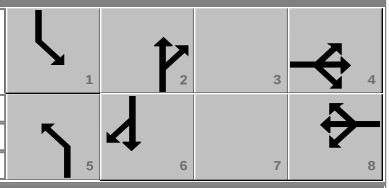
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #17	File Name	17AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	182	212	71	75	213	97	51	763	36	74	727	117

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.5	0.7	45.8	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	9.0	50.3	9.7	51.0
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		25.9		16.4	4.7		5.9	
Green Extension Time (g_e), s		0.0		1.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.75		0.87	
Max Out Probability		1.00		0.15	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	198	230	77	82	232	105	55	438	431	80	470	447
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1167	1900	1610	1168	1900	1610	1810	1900	1869	1810	1900	1807
Queue Service Time (g_s), s	15.0	8.9	3.2	5.5	9.0	4.5	2.7	13.2	13.2	3.9	14.3	14.3
Cycle Queue Clearance Time (g_c), s	23.9	8.9	3.2	14.4	9.0	4.5	2.7	13.2	13.2	3.9	14.3	14.3
Green Ratio (*g/C*)	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.51	0.51	0.06	0.52	0.52
Capacity (*c*), veh/h	295	538	456	295	538	456	90	967	951	104	982	934
Volume-to-Capacity Ratio (*X*)	0.671	0.428	0.169	0.276	0.430	0.231	0.613	0.453	0.453	0.770	0.479	0.479
Back of Queue (*Q*), ft/ln (95 th percentile)	201.6	178.5	55.2	70.6	182.2	77.9	56	237.5	234.7	96.8	252.4	243.3
Back of Queue (*Q*), veh/ln (95 th percentile)	8.1	7.1	2.2	2.8	7.3	3.1	2.2	9.5	9.4	3.9	10.1	9.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	36.1	26.3	24.3	32.2	26.3	24.7	41.9	14.1	14.1	41.8	14.0	14.0
Incremental Delay (d_2), s/veh	4.8	0.2	0.1	0.2	0.2	0.1	2.5	1.5	1.6	14.8	1.7	1.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.9	26.5	24.3	32.4	26.5	24.8	44.4	15.6	15.7	56.6	15.6	15.7
Level of Service (LOS)	D	C	C	C	C	C	D	B	B	E	B	B
Approach Delay, s/veh / LOS	31.8	C		27.2	C		17.4	B		19.0	B	
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.32	A	1.18	A	1.25	A	1.31	A

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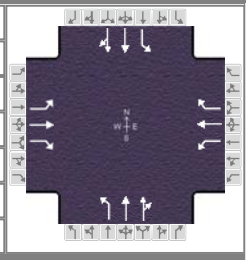
HCS7 Signalized Intersection Results Summary

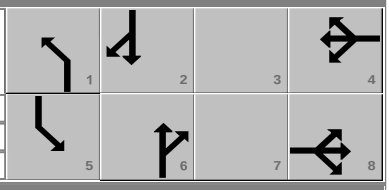
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2021	Analysis Period	1> 16:30
Intersection	Interesction #17	File Name	17PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	168	227	40	87	182	51	83	704	58	89	748	147

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.8	0.4	46.7	23.6	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.1		28.1	10.3	51.2	10.7	51.6
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		23.0		18.7	6.4		6.7	
Green Extension Time (g_e), s		0.7		1.3	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.90		0.91	
Max Out Probability		1.00		0.28	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	183	247	43	95	198	55	90	420	409	97	501	472
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1204	1900	1610	1151	1900	1610	1810	1900	1849	1810	1900	1791
Queue Service Time (g_s), s	13.3	9.9	1.8	6.8	7.7	2.4	4.4	12.3	12.3	4.7	15.3	15.3
Cycle Queue Clearance Time (g_c), s	21.0	9.9	1.8	16.7	7.7	2.4	4.4	12.3	12.3	4.7	15.3	15.3
Green Ratio (*g/C*)	0.26	0.26	0.26	0.26	0.26	0.26	0.06	0.52	0.52	0.07	0.52	0.52
Capacity (*c*), veh/h	293	499	423	255	499	423	116	986	960	124	995	938
Volume-to-Capacity Ratio (*X*)	0.624	0.495	0.103	0.370	0.397	0.131	0.778	0.425	0.426	0.782	0.503	0.503
Back of Queue (*Q*), ft/ln (95 th percentile)	179.2	197.6	31.4	86.9	158	40.9	97.5	222.5	218.2	108.8	266.5	255.1
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	7.9	1.3	3.5	6.3	1.6	3.9	8.9	8.7	4.4	10.7	10.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	35.9	28.1	25.2	35.2	27.3	25.4	41.5	13.4	13.4	41.3	13.9	13.9
Incremental Delay (d_2), s/veh	2.2	0.3	0.0	0.3	0.2	0.1	7.4	1.3	1.4	10.3	1.8	1.9
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.1	28.4	25.2	35.6	27.5	25.4	48.9	14.7	14.7	51.5	15.7	15.8
Level of Service (LOS)	D	C	C	D	C	C	D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.9	C		29.4	C		18.1	B		19.0	B	
Intersection Delay, s/veh / LOS	22.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.27	A	1.06	A	1.25	A	1.37	A

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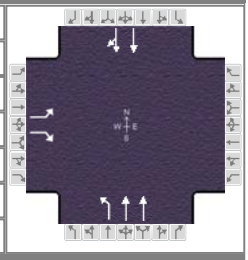
HCS7 Signalized Intersection Results Summary

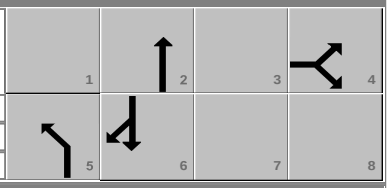
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2021	Analysis Period	1> 7:30
Intersection	Interesction #18	File Name	18AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	62		40				15	857			850	37

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.0	68.5	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			6.5	79.5		73.0
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.2			2.8			
Green Extension Time (g_e), s		0.2			0.0	0.0		0.0
Phase Call Probability		1.00			0.33			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	67		43				16	932			486	478
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1872
Queue Service Time (g_s), s	3.2		2.3				0.8	5.2			15.6	7.4
Cycle Queue Clearance Time (g_c), s	3.2		2.3				0.8	5.2			15.6	7.4
Green Ratio (*g/C*)	0.07		0.07				0.02	0.83			0.76	0.76
Capacity (*c*), veh/h	121		107				40	3015			1446	1424
Volume-to-Capacity Ratio (*X*)	0.559		0.405				0.404	0.309			0.336	0.336
Back of Queue (*Q*), ft/ln (95 th percentile)	67.3		42.7				17	35.3			95.7	94.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.7		1.7				0.7	1.4			3.8	3.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	40.7		40.3				43.4	1.7			3.5	3.5
Incremental Delay (d_2), s/veh	1.5		0.9				2.4	0.3			0.6	0.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	42.2		41.2				45.8	2.0			4.1	4.1
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	41.8	D		0.0			2.7	A		4.1	A	
Intersection Delay, s/veh / LOS	5.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.27	A	1.28	A

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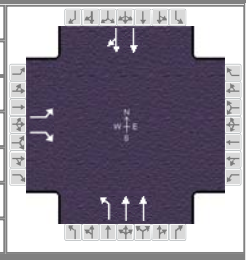
HCS7 Signalized Intersection Results Summary

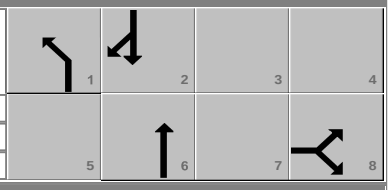
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #18	File Name	18PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	24		35				35	807			879	21

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.7	66.8	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6		2
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			8.2	79.5		71.3
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		4.0			3.9			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		1.00			0.61			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	26		38				38	877			491	487
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1884
Queue Service Time (g_s), s	1.2		2.0				1.9	4.8			15.9	8.1
Cycle Queue Clearance Time (g_c), s	1.2		2.0				1.9	4.8			15.9	8.1
Green Ratio (*g/C*)	0.07		0.07				0.04	0.83			0.74	0.74
Capacity (*c*), veh/h	121		107				74	3015			1411	1399
Volume-to-Capacity Ratio (*X*)	0.216		0.354				0.514	0.291			0.348	0.348
Back of Queue (*Q*), ft/ln (95 th percentile)	25.1		37.2				38.4	32.6			110.8	110
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0		1.5				1.5	1.3			4.4	4.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	39.8		40.1				42.3	1.7			4.0	4.0
Incremental Delay (d_2), s/veh	0.3		0.7				2.0	0.2			0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	40.1		40.9				44.3	1.9			4.7	4.7
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	40.6	D		0.0			3.7	A		4.7	A	
Intersection Delay, s/veh / LOS	5.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.24	A	1.29	A

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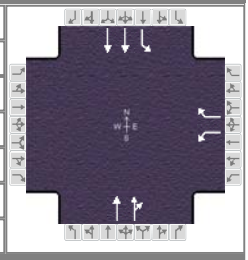
HCS7 Signalized Intersection Results Summary

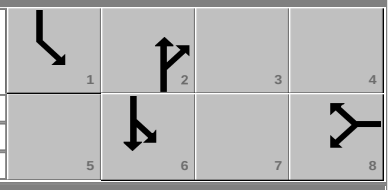
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #19	File Name	19AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				92		70		810	45	63	812	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.9	64.4	7.2	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				11.7		68.9	9.4	78.3
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.4		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.8			2.7	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.82	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				100		76		469	460	68	883	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1864	1810	1809	
Queue Service Time (g_s), s				4.8		4.1		14.9	8.4	0.7	5.2	
Cycle Queue Clearance Time (g_c), s				4.8		4.1		14.9	8.4	0.7	5.2	
Green Ratio (*g/C*)				0.08		0.08		0.72	0.72	0.79	0.82	
Capacity (*c*), veh/h				144		128		1360	1334	515	2968	
Volume-to-Capacity Ratio (*X*)				0.694		0.593		0.345	0.345	0.133	0.297	
Back of Queue (*Q*), ft/ln (95 th percentile)				100.9		75.7		123.8	121.7	6.7	41.2	
Back of Queue (*Q*), veh/ln (95 th percentile)				4.0		3.0		5.0	4.9	0.3	1.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.3		40.0		4.8	4.8	3.8	1.9	
Incremental Delay (d_2), s/veh				2.2		1.6		0.7	0.7	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.6		41.6		5.5	5.5	3.8	2.2	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.2		D	5.5		A	2.3		A
Intersection Delay, s/veh / LOS	7.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.85	B	0.61	A
Bicycle LOS Score / LOS				F	1.25	A	1.27	A

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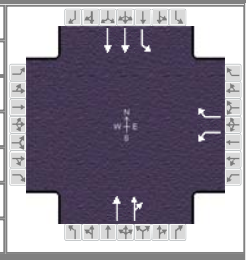
HCS7 Signalized Intersection Results Summary

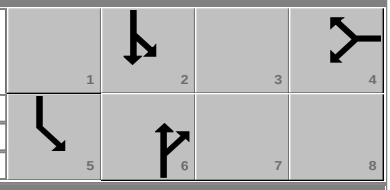
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Interesction #19	File Name	19PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				78		47		779	43	51	855	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.5	65.7	6.3	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				10.8		70.2	9.0	79.2
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.1			2.6	
Green Extension Time (g_e), s				0.2		0.0	0.1	0.0
Phase Call Probability				1.00			0.75	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				85		51		451	443	55	929	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1865	1810	1809	
Queue Service Time (g_s), s				4.1		2.7		14.1	7.6	0.6	5.3	
Cycle Queue Clearance Time (g_c), s				4.1		2.7		14.1	7.6	0.6	5.3	
Green Ratio (*g/C*)				0.07		0.07		0.73	0.73	0.80	0.83	
Capacity (*c*), veh/h				128		114		1386	1360	532	3001	
Volume-to-Capacity Ratio (*X*)				0.664		0.450		0.325	0.325	0.104	0.310	
Back of Queue (*Q*), ft/ln (95 th percentile)				85.9		50.3		108.3	106.5	4.9	37.6	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.4		2.0		4.3	4.3	0.2	1.5	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.8		40.1		4.3	4.3	3.4	1.8	
Incremental Delay (d_2), s/veh				2.2		1.0		0.6	0.6	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				43.0		41.2		4.9	5.0	3.4	2.0	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.3		D	4.9		A	2.1		A
Intersection Delay, s/veh / LOS	6.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.85	B	0.61	A
Bicycle LOS Score / LOS				F	1.22	A	1.30	A

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HCS7 All-Way Stop Control Report

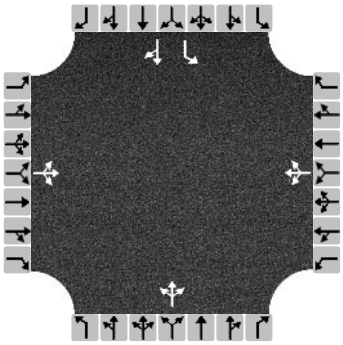
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/13/2019
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	Future - AM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	3	50	0	72	68	78	1	277	105	66	281	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	58			237			416			72	310	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.051			0.211			0.370			0.064	0.275	
Final Departure Headway, hd (s)	6.67			6.01			5.43			6.55	6.03	
Final Degree of Utilization, x	0.107			0.396			0.628			0.131	0.519	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	4.67			4.01			3.43			4.25	3.73	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	58			237			416			72	310	
Capacity	540			599			663			550	597	
95% Queue Length, Q_{95} (veh)	0.4			1.9			4.4			0.4	3.0	
Control Delay (s/veh)	10.5			12.9			17.1			10.2	15.1	
Level of Service, LOS	B			B			C			B	C	
Approach Delay (s/veh)	10.5			12.9			17.1			14.1		
Approach LOS	B			B			C			B		
Intersection Delay, s/veh | LOS	14.8						B					

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HCS7 All-Way Stop Control Report

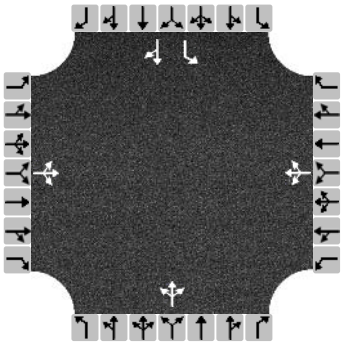
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/13/2019
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	Future - PM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	4	63	0	84	68	46	0	331	85	48	354	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	73			215			452			52	389	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.065			0.191			0.402			0.046	0.346	
Final Departure Headway, hd (s)	7.02			6.49			5.66			6.68	6.17	
Final Degree of Utilization, x	0.142			0.388			0.710			0.097	0.667	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	5.02			4.49			3.66			4.38	3.87	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	73			215			452			52	389	
Capacity	513			555			637			539	584	
95% Queue Length, Q_{95} (veh)	0.5			1.8			5.9			0.3	5.0	
Control Delay (s/veh)	11.2			13.5			21.3			10.1	20.3	
Level of Service, LOS	B			B			C			B	C	
Approach Delay (s/veh)	11.2			13.5			21.3			19.1		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh | LOS	18.4						C					

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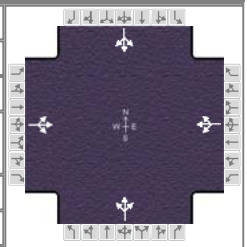
HCS7 Signalized Intersection Results Summary

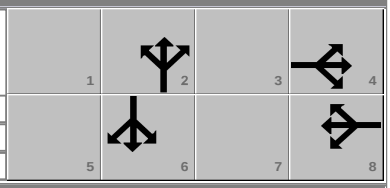
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project- AM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	27	61	31	53	57	85	29	473	63	69	440	18

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	67.2	13.8	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		18.3		18.3		71.7		71.7
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		7.9		13.2				
Green Extension Time (g_e), s		0.7		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		129			212			614			573	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1717			1645			1810			1676	
Queue Service Time (g_s), s		0.0			5.2			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		5.9			11.2			11.2			9.9	
Green Ratio (*g/C*)		0.15			0.15			0.75			0.75	
Capacity (*c*), veh/h		312			303			1394			1297	
Volume-to-Capacity Ratio (*X*)		0.415			0.700			0.441			0.442	
Back of Queue (*Q*), ft/ln (95 th percentile)		117.4			202.4			168.1			153	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.7			8.1			6.7			6.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		34.8			36.9			4.3			4.1	
Incremental Delay (d_2), s/veh		0.3			1.1			1.0			1.1	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		35.1			38.0			5.3			5.2	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	35.1	D		38.0	D		5.3	A		5.2	A	
Intersection Delay, s/veh / LOS	12.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.61	B	1.61	B
Bicycle LOS Score / LOS	0.70	A	0.84	A	1.50	B	1.43	A

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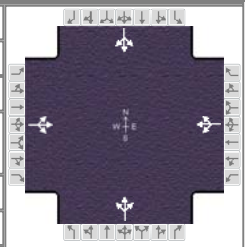
HCS7 Signalized Intersection Results Summary

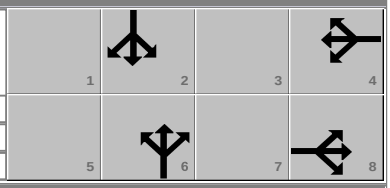
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Live Oak	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #8	File Name	08PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	13	58	18	42	43	47	20	336	48	51	388	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	71.1	9.9	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		14.4		14.4		75.6		75.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (MAH), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		6.5		9.5				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h		97			143			439			501	
Adjusted Saturation Flow Rate (s), veh/h/ln		1792			1647			1814			1748	
Queue Service Time (g_s), s		0.0			3.1			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		4.5			7.5			5.8			6.9	
Green Ratio (g/C)		0.11			0.11			0.79			0.79	
Capacity (c), veh/h		243			234			1475			1425	
Volume-to-Capacity Ratio (X)		0.398			0.613			0.298			0.352	
Back of Queue (Q), ft/ln (95 th percentile)		89.1			137.9			65.5			78.6	
Back of Queue (Q), veh/ln (95 th percentile)		3.6			5.5			2.6			3.1	
Queue Storage Ratio (RQ) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		37.6			38.9			2.6			2.7	
Incremental Delay (d_2), s/veh		0.4			1.0			0.5			0.7	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (d), s/veh		38.0			39.9			3.1			3.4	
Level of Service (LOS)		D			D			A			A	
Approach Delay, s/veh / LOS	38.0	D		39.9	D		3.1	A		3.4	A	
Intersection Delay, s/veh / LOS	10.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.72	B	1.72	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.65	A	0.72	A	1.21	A	1.31	A

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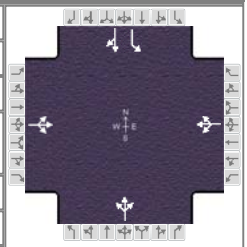
HCS7 Signalized Intersection Results Summary

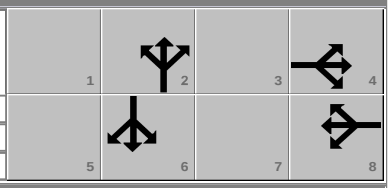
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #9	File Name	09AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	16	110	14	181	109	133	6	347	166	87	356	14

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		7.7		27.5				
Green Extension Time (g_e), s		1.4		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		152			460			564		95	402	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1779			1520			1792		865	1887	
Queue Service Time (g_s), s		0.0			19.8			0.0		6.2	9.3	
Cycle Queue Clearance Time (g_c), s		5.7			25.5			15.8		22.0	9.3	
Green Ratio (*g/C*)		0.28			0.28			0.62		0.62	0.62	
Capacity (*c*), veh/h		549			488			1145		462	1164	
Volume-to-Capacity Ratio (*X*)		0.277			0.943			0.493		0.205	0.346	
Back of Queue (*Q*), ft/ln (95 th percentile)		112.9			492.8			255.6		59.7	170.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.5			19.7			10.2		2.4	6.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		25.2			32.9			9.6		15.8	8.4	
Incremental Delay (d_2), s/veh		0.1			26.7			1.5		1.0	0.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		25.3			59.6			11.2		16.8	9.2	
Level of Service (LOS)		C			E			B		B	A	
Approach Delay, s/veh / LOS	25.3	C		59.6	E		11.2	B		10.7	B	
Intersection Delay, s/veh / LOS	25.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.92	B	1.65	B	1.65	B
Bicycle LOS Score / LOS	0.74	A	1.25	A	1.42	A	1.31	A

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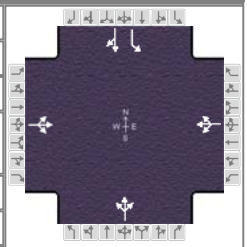
HCS7 Signalized Intersection Results Summary

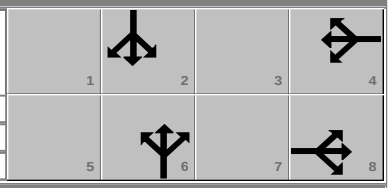
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Clara	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #9	File Name	09PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	11	117	6	141	93	80	5	293	129	95	324	22

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	59.0	22.0	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		8.0		6.0
Phase Duration, s		26.5		26.5		63.5		63.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.7		21.5				
Green Extension Time (g_e), s		1.0		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.69				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		146			341			464		103	376	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1854			1527			1798		948	1879	
Queue Service Time (g_s), s		0.0			13.8			0.0		5.1	7.8	
Cycle Queue Clearance Time (g_c), s		5.7			19.5			10.8		15.9	7.8	
Green Ratio (*g/C*)		0.24			0.24			0.66		0.66	0.66	
Capacity (*c*), veh/h		497			432			1219		588	1231	
Volume-to-Capacity Ratio (*X*)		0.293			0.791			0.381		0.176	0.305	
Back of Queue (*Q*), ft/ln (95 th percentile)		114.4			312.5			181.5		51.4	135.9	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.6			12.5			7.3		2.1	5.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		27.8			32.9			7.2		10.9	6.7	
Incremental Delay (d_2), s/veh		0.1			6.5			0.9		0.7	0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh		28.0			39.4			8.1		11.5	7.3	
Level of Service (LOS)		C			D			A		B	A	
Approach Delay, s/veh / LOS	28.0	C		39.4	D		8.1	A		8.2	A	
Intersection Delay, s/veh / LOS	17.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.70	B	1.93	B	1.64	B	1.64	B
Bicycle LOS Score / LOS	0.73	A	1.05	A	1.25	A	1.28	A

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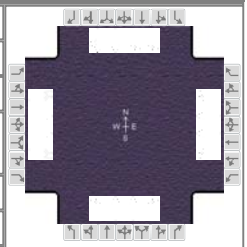
HCS7 Signalized Intersection Results Summary

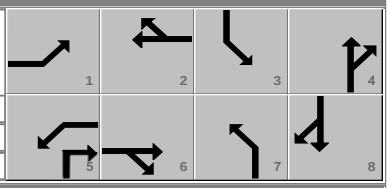
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	184	871	225	195	992	104	170	847	133	148	681	89

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.3	30.5	6.0	2.5	22.7	0.0
Yellow	3.5	3.5	3.5	0.0	3.5	0.0
Red	1.0	1.0	1.0	0.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	14.8	35.0	14.8	35.0	13.0	29.7	10.5	27.2
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.9		12.3		10.5	24.1	6.0	21.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.1	0.1	1.2
Phase Call Probability	0.99		1.00		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	200	947	245	212	1078	113	185	921	145	161	427	410
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1823
Queue Service Time (g_s), s	9.9	21.1	10.7	10.3	25.3	4.5	8.5	22.1	5.4	4.0	19.5	19.5
Cycle Queue Clearance Time (g_c), s	9.9	21.1	10.7	10.3	25.3	4.5	8.5	22.1	5.4	4.0	19.5	19.5
Green Ratio (*g/C*)	0.11	0.34	0.34	0.11	0.34	0.34	0.09	0.28	0.39	0.07	0.25	0.25
Capacity (*c*), veh/h	206	1226	546	206	1226	546	171	1014	635	234	480	460
Volume-to-Capacity Ratio (*X*)	0.969	0.772	0.448	1.027	0.880	0.207	1.081	0.908	0.228	0.687	0.890	0.890
Back of Queue (*Q*), ft/ln (95 th percentile)	294.5	361.4	191.4	333.8	438.3	79.2	327.2	401.7	86.2	78.7	405.3	394.3
Back of Queue (*Q*), veh/ln (95 th percentile)	11.8	14.5	7.7	13.4	17.5	3.2	13.1	16.1	3.4	3.1	16.2	15.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.7	26.6	23.2	39.9	28.0	21.2	40.8	31.3	18.1	41.1	32.4	32.4
Incremental Delay (d_2), s/veh	53.3	4.8	2.7	69.8	9.2	0.9	92.2	10.8	0.1	1.3	16.8	17.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	93.0	31.4	25.8	109.7	37.2	22.0	132.9	42.1	18.2	42.4	49.2	49.9
Level of Service (LOS)	F	C	C	F	D	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	39.3	D		46.9	D		52.7	D		48.4	D	
Intersection Delay, s/veh / LOS	46.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.64	B	1.65	B	1.52	B	1.31	A

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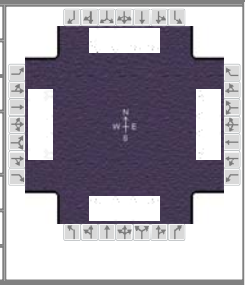
HCS7 Signalized Intersection Results Summary

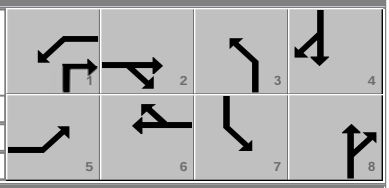
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	132	869	147	175	767	146	152	598	127	208	727	92

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.8	1.0	30.5	7.7	0.8	23.3
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	13.3	35.0	14.2	36.0	13.0	28.6	12.2	27.8
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	9.0		11.4		10.2	16.4	7.7	23.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.3
Phase Call Probability	0.97		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.39	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	143	945	160	190	834	159	165	650	138	226	454	436
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1825
Queue Service Time (g_s), s	7.0	21.0	6.6	9.4	17.5	6.4	8.2	14.4	5.3	5.7	21.0	21.0
Cycle Queue Clearance Time (g_c), s	7.0	21.0	6.6	9.4	17.5	6.4	8.2	14.4	5.3	5.7	21.0	21.0
Green Ratio (*g/C*)	0.10	0.34	0.34	0.11	0.35	0.35	0.09	0.27	0.38	0.09	0.26	0.26
Capacity (*c*), veh/h	176	1226	546	195	1265	563	171	969	605	300	491	472
Volume-to-Capacity Ratio (*X*)	0.814	0.770	0.293	0.973	0.659	0.282	0.967	0.671	0.228	0.754	0.924	0.924
Back of Queue (*Q*), ft/ln (95 th percentile)	177.6	360.6	116.3	287.6	302.9	112.7	261.3	257.9	85.3	120.8	451.1	439
Back of Queue (*Q*), veh/ln (95 th percentile)	7.1	14.4	4.7	11.5	12.1	4.5	10.5	10.3	3.4	4.8	18.0	17.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.8	26.6	21.8	40.0	24.7	21.1	40.6	29.4	19.2	40.2	32.5	32.5
Incremental Delay (d_2), s/veh	18.7	4.7	1.4	56.1	2.7	1.3	58.5	1.4	0.1	7.1	22.6	23.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.5	31.3	23.2	96.1	27.4	22.4	99.1	30.9	19.3	47.4	55.1	55.8
Level of Service (LOS)	E	C	C	F	C	C	F	C	B	D	E	E
Approach Delay, s/veh / LOS	33.4	C		37.8	D		41.0	D		53.8	D	
Intersection Delay, s/veh / LOS	41.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.52	B	1.46	A	1.27	A	1.41	A

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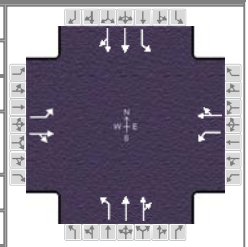
HCS7 Signalized Intersection Results Summary

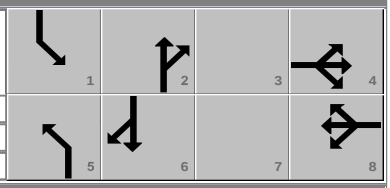
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #14	File Name	14AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67	176	72	101	147	65	57	995	140	74	837	66

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.7	0.5	48.4	22.9	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		27.4		27.4	9.2	52.9	9.7	53.4
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		16.9		22.3	5.0		5.9	
Green Extension Time (g_e), s		1.2		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.79		0.87	
Max Out Probability		0.11		1.00	0.23		0.97	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	73	270		110	230		62	630	604	80	497	484
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1168	1806		1127	1801		1810	1900	1818	1810	1900	1851
Queue Service Time (g_s), s	5.1	11.8		8.5	9.8		3.0	20.6	20.7	3.9	14.6	14.6
Cycle Queue Clearance Time (g_c), s	14.9	11.8		20.3	9.8		3.0	20.6	20.7	3.9	14.6	14.6
Green Ratio (*g/C*)	0.25	0.25		0.25	0.25		0.05	0.54	0.54	0.06	0.54	0.54
Capacity (*c*), veh/h	250	460		220	458		95	1022	977	104	1032	1005
Volume-to-Capacity Ratio (*X*)	0.291	0.586		0.499	0.503		0.652	0.616	0.618	0.770	0.482	0.482
Back of Queue (*Q*), ft/ln (95 th percentile)	66.1	221.7		107.1	191.1		62.7	340.5	330.4	83.3	252.7	247.9
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	8.9		4.3	7.6		2.5	13.6	13.2	3.3	10.1	9.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	35.0	29.4		38.3	28.7		41.8	14.4	14.4	41.8	12.7	12.7
Incremental Delay (d_2), s/veh	0.2	0.7		0.7	0.3		2.8	2.8	2.9	4.4	1.6	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	35.3	30.1		38.9	29.0		44.6	17.2	17.3	46.2	14.3	14.4
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.2	C		32.2	C		18.6	B		16.8	B	
Intersection Delay, s/veh / LOS	20.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.05	A	1.05	A	1.56	B	1.36	A

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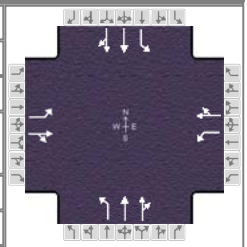
HCS7 Signalized Intersection Results Summary

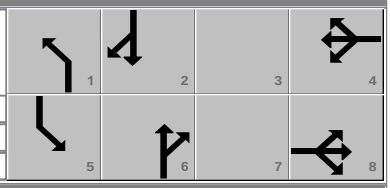
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / Live Oak	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #14	File Name	14PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	54	121	44	141	101	57	36	712	108	74	908	69

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.7	1.5	50.1	21.2	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.7		25.7	8.2	54.6	9.7	56.1
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		13.1		20.5	3.9		5.9	
Green Extension Time (g_e), s		1.1		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.62		0.87	
Max Out Probability		0.01		0.44	0.00		0.08	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	59	179		153	172		39	456	435	80	538	524
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1232	1813		1224	1784		1810	1900	1812	1810	1900	1852
Queue Service Time (g_s), s	3.8	7.6		10.9	7.3		1.9	12.6	12.6	3.9	15.2	15.2
Cycle Queue Clearance Time (g_c), s	11.1	7.6		18.5	7.3		1.9	12.6	12.6	3.9	15.2	15.2
Green Ratio (*g/C*)	0.24	0.24		0.24	0.24		0.04	0.56	0.56	0.06	0.57	0.57
Capacity (*c*), veh/h	270	426		266	420		75	1058	1009	104	1089	1062
Volume-to-Capacity Ratio (*X*)	0.217	0.421		0.577	0.409		0.520	0.431	0.431	0.770	0.494	0.494
Back of Queue (*Q*), ft/ln (95 th percentile)	51.8	148.8		148.6	142.1		39.5	221.9	214.4	83.3	255.7	251
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	6.0		5.9	5.7		1.6	8.9	8.6	3.3	10.2	10.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	33.8	29.2		37.0	29.1		42.2	11.6	11.6	41.8	11.4	11.4
Incremental Delay (d_2), s/veh	0.1	0.2		0.7	0.2		2.1	1.3	1.3	4.4	1.6	1.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	34.0	29.5		37.8	29.4		44.3	12.9	13.0	46.2	13.0	13.1
Level of Service (LOS)	C	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	30.6	C		33.3	C		14.2	B		15.4	B	
Intersection Delay, s/veh / LOS	18.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.88	A	1.02	A	1.26	A	1.43	A

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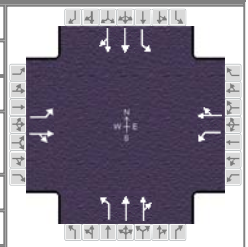
HCS7 Signalized Intersection Results Summary

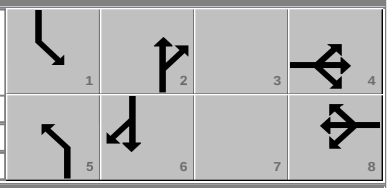
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #15	File Name	15AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	112	157	110	102	226	138	73	963	151	132	806	138

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.2	1.3	44.5	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	9.7	49.0	11.0	50.3
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.5		3.5	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		27.5		23.3	5.9		8.5	
Green Extension Time (g_e), s		0.0		0.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.86		0.97	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	122	290		111	396		79	619	592	143	527	500
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1004	1769		1106	1779		1810	1900	1810	1810	1900	1803
Queue Service Time (g_s), s	7.0	12.7		8.6	18.5		3.9	22.0	22.1	6.5	16.9	16.9
Cycle Queue Clearance Time (g_c), s	25.5	12.7		21.3	18.5		3.9	22.0	22.1	6.5	16.9	16.9
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.06	0.49	0.49	0.07	0.51	0.51
Capacity (*c*), veh/h	159	501		238	504		104	939	895	131	967	918
Volume-to-Capacity Ratio (*X*)	0.767	0.579		0.466	0.785		0.763	0.659	0.661	1.098	0.544	0.544
Back of Queue (*Q*), ft/ln (95 th percentile)	157.1	229.3		105.7	341.2		94.1	369.7	358	283	292	280.8
Back of Queue (*Q*), veh/ln (95 th percentile)	6.3	9.2		4.2	13.6		3.8	14.8	14.3	11.3	11.7	11.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.7	27.6		36.8	29.7		41.8	17.1	17.1	41.8	15.0	15.0
Incremental Delay (d_2), s/veh	18.2	1.1		0.5	7.3		13.7	3.6	3.8	107.4	2.2	2.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	61.0	28.8		37.3	37.1		55.5	20.7	20.9	149.1	17.2	17.3
Level of Service (LOS)	E	C		D	D		E	C	C	F	B	B
Approach Delay, s/veh / LOS	38.3	D		37.1	D		22.9	C		33.4	C	
Intersection Delay, s/veh / LOS	30.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	1.17	A	1.32	A	1.55	B	1.45	A

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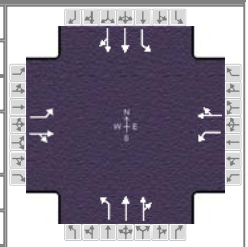
HCS7 Signalized Intersection Results Summary

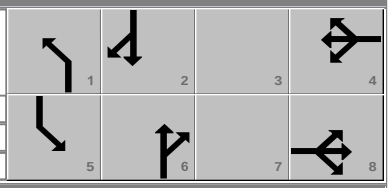
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / Clara	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #15	File Name	15PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	64	232	72	106	230	98	79	741	138	113	925	82

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.5	1.0	44.5	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	10.0	49.0	11.0	50.0
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		23.7		25.8	6.2		8.1	
Green Extension Time (g_e), s		0.6		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.88		0.95	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	70	330		115	357		86	491	464	123	555	539
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1041	1822		1066	1803		1810	1900	1796	1810	1900	1845
Queue Service Time (g_s), s	5.8	14.3		9.5	15.9		4.2	15.9	15.9	6.1	18.4	18.4
Cycle Queue Clearance Time (g_c), s	21.7	14.3		23.8	15.9		4.2	15.9	15.9	6.1	18.4	18.4
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.06	0.49	0.49	0.07	0.51	0.51
Capacity (*c*), veh/h	191	516		213	511		110	939	888	131	961	933
Volume-to-Capacity Ratio (*X*)	0.364	0.640		0.541	0.698		0.778	0.523	0.523	0.940	0.578	0.578
Back of Queue (*Q*), ft/ln (95 th percentile)	66.2	262.8		115.7	292.8		107.4	278.9	267.5	210.2	313.5	306.8
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	10.5		4.6	11.7		4.3	11.2	10.7	8.4	12.5	12.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.5	28.2		38.7	28.8		41.7	15.5	15.5	41.6	15.5	15.5
Incremental Delay (d_2), s/veh	0.4	2.1		1.5	3.5		17.9	2.1	2.2	59.7	2.5	2.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.9	30.3		40.2	32.3		59.6	17.6	17.7	101.2	18.1	18.1
Level of Service (LOS)	D	C		D	C		E	B	B	F	B	B
Approach Delay, s/veh / LOS	31.8	C		34.3	C		21.1	C		26.5	C	
Intersection Delay, s/veh / LOS	26.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	1.15	A	1.27	A	1.35	A	1.49	A

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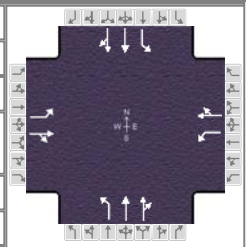
HCS7 Signalized Intersection Results Summary

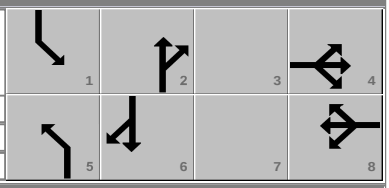
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #16	File Name	16AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	135	142	53	90	84	155	32	899	99	88	801	99

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	2.6	45.3	25.1	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		29.6		29.6	8.0	49.8	10.6	52.4
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.5		3.5	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		25.0		17.2	3.7		6.7	
Green Extension Time (g_e), s		0.1		1.3	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.58		0.91	
Max Out Probability		1.00		0.15	0.93		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	147	212		98	260		35	552	533	96	499	479
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1137	1811		1188	1701		1810	1900	1833	1810	1900	1826
Queue Service Time (g_s), s	11.3	8.6		6.6	11.7		1.7	18.3	18.3	4.7	15.0	15.0
Cycle Queue Clearance Time (g_c), s	23.0	8.6		15.2	11.7		1.7	18.3	18.3	4.7	15.0	15.0
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.04	0.50	0.50	0.07	0.53	0.53
Capacity (*c*), veh/h	250	506		299	475		70	956	922	122	1011	971
Volume-to-Capacity Ratio (*X*)	0.587	0.419		0.328	0.547		0.496	0.577	0.578	0.783	0.494	0.494
Back of Queue (*Q*), ft/ln (95 th percentile)	148	167.2		86	209.7		35.2	313.6	305.5	121.4	260.5	253
Back of Queue (*Q*), veh/ln (95 th percentile)	5.9	6.7		3.4	8.4		1.4	12.5	12.2	4.9	10.4	10.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.4	26.5		32.7	27.6		42.4	15.7	15.7	41.3	13.4	13.4
Incremental Delay (d_2), s/veh	2.2	0.2		0.2	0.7		2.0	2.5	2.6	19.4	1.7	1.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.6	26.7		32.9	28.3		44.4	18.2	18.3	60.7	15.1	15.2
Level of Service (LOS)	D	C		C	C		D	B	B	E	B	B
Approach Delay, s/veh / LOS	32.0	C		29.5	C		19.1	B		19.2	B	
Intersection Delay, s/veh / LOS	22.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.08	A	1.08	A	1.41	A	1.37	A

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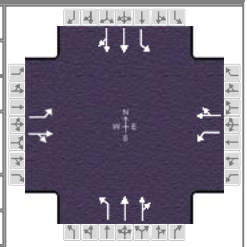
HCS7 Signalized Intersection Results Summary

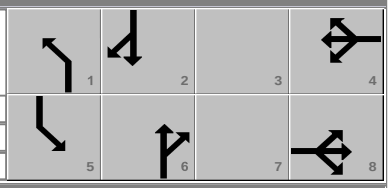
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / Elizabeth	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #16	File Name	16PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	99	109	79	55	92	99	57	752	66	101	863	118

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.7	2.2	49.4	20.1	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		6.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		24.6		24.6	9.2	53.9	11.4	56.1
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		19.3		15.2	5.0		7.4	
Green Extension Time (g_e), s		0.9		1.1	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.79		0.94	
Max Out Probability		0.26		0.04	0.00		0.17	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	108	204		60	208		62	451	438	110	545	522
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1193	1766		1196	1738		1810	1900	1846	1810	1900	1819
Queue Service Time (g_s), s	7.9	9.1		4.2	9.5		3.0	12.6	12.6	5.4	15.4	15.4
Cycle Queue Clearance Time (g_c), s	17.3	9.1		13.2	9.5		3.0	12.6	12.6	5.4	15.4	15.4
Green Ratio (*g/C*)	0.22	0.22		0.22	0.22		0.05	0.55	0.55	0.08	0.57	0.57
Capacity (*c*), veh/h	222	395		227	389		95	1043	1014	140	1090	1044
Volume-to-Capacity Ratio (*X*)	0.485	0.517		0.264	0.534		0.652	0.432	0.432	0.786	0.500	0.500
Back of Queue (*Q*), ft/ln (95 th percentile)	104.7	175.9		55.2	179.6		62.7	223.5	218.9	111.4	259	251
Back of Queue (*Q*), veh/ln (95 th percentile)	4.2	7.0		2.2	7.2		2.5	8.9	8.8	4.5	10.4	10.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.4	30.7		36.5	30.8		41.8	12.0	12.0	40.8	11.5	11.5
Incremental Delay (d_2), s/veh	0.6	0.4		0.2	0.4		2.8	1.3	1.3	3.7	1.6	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.0	31.1		36.7	31.2		44.6	13.3	13.3	44.5	13.1	13.2
Level of Service (LOS)	D	C		D	C		D	B	B	D	B	B
Approach Delay, s/veh / LOS	33.8	C		32.4	C		15.4	B		16.1	B	
Intersection Delay, s/veh / LOS	19.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.89	B	1.88	B
Bicycle LOS Score / LOS	1.00	A	0.93	A	1.27	A	1.46	A

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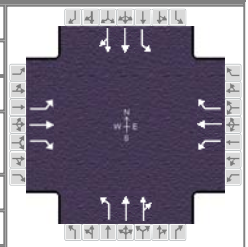
HCS7 Signalized Intersection Results Summary

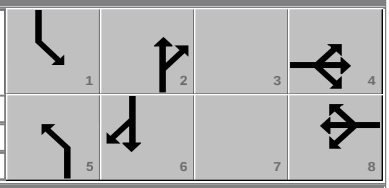
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #17	File Name	17AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	182	221	98	75	223	97	82	763	36	74	727	117

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.2	0.5	45.3	25.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	10.2	50.3	9.7	49.8
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		26.7		16.9	6.4		5.9	
Green Extension Time (g_e), s		0.0		1.7	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.89		0.87	
Max Out Probability		1.00		0.20	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	198	240	107	82	242	105	89	438	431	80	470	447
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1156	1900	1610	1158	1900	1610	1810	1900	1869	1810	1900	1807
Queue Service Time (g_s), s	15.3	9.3	4.6	5.6	9.4	4.5	4.4	13.2	13.2	3.9	14.7	14.7
Cycle Queue Clearance Time (g_c), s	24.7	9.3	4.6	14.9	9.4	4.5	4.4	13.2	13.2	3.9	14.7	14.7
Green Ratio (*g/C*)	0.28	0.28	0.28	0.28	0.28	0.28	0.06	0.51	0.51	0.06	0.50	0.50
Capacity (*c*), veh/h	286	538	456	288	538	456	114	967	951	104	957	910
Volume-to-Capacity Ratio (*X*)	0.691	0.446	0.233	0.283	0.450	0.231	0.780	0.453	0.453	0.770	0.491	0.491
Back of Queue (*Q*), ft/ln (95 th percentile)	205.6	187.3	77.6	71.1	191.4	77.9	113.4	237.5	234.7	96.8	260.1	250.7
Back of Queue (*Q*), veh/ln (95 th percentile)	8.2	7.5	3.1	2.8	7.7	3.1	4.5	9.5	9.4	3.9	10.4	10.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	36.6	26.5	24.7	32.6	26.5	24.7	41.5	14.1	14.1	41.8	14.7	14.7
Incremental Delay (d_2), s/veh	5.8	0.2	0.1	0.2	0.2	0.1	19.4	1.5	1.6	14.8	1.8	1.9
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	42.5	26.7	24.8	32.8	26.7	24.8	60.9	15.6	15.7	56.6	16.5	16.6
Level of Service (LOS)	D	C	C	C	C	C	E	B	B	E	B	B
Approach Delay, s/veh / LOS	32.1	C		27.4	C		19.9	B		19.8	B	
Intersection Delay, s/veh / LOS	23.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.39	A	1.20	A	1.28	A	1.31	A

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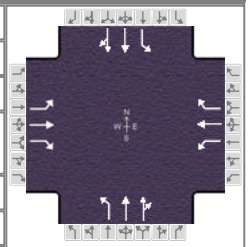
HCS7 Signalized Intersection Results Summary

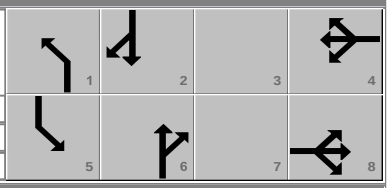
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / Santa Ana	Analysis Year	2021	Analysis Period	1> 16:30
Intersection	Interesction #17	File Name	17PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	168	229	46	87	185	51	91	704	58	89	748	147

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	0.1	46.5	23.8	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.3		28.3	10.8	51.1	10.7	51.0
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		23.1		18.8	6.8		6.7	
Green Extension Time (g_e), s		0.6		1.3	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.92		0.91	
Max Out Probability		1.00		0.29	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	183	249	50	95	201	55	99	420	409	97	501	472
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1200	1900	1610	1149	1900	1610	1810	1900	1849	1810	1900	1791
Queue Service Time (g_s), s	13.3	10.0	2.1	6.8	7.8	2.4	4.8	12.3	12.3	4.7	15.6	15.6
Cycle Queue Clearance Time (g_c), s	21.1	10.0	2.1	16.8	7.8	2.4	4.8	12.3	12.3	4.7	15.6	15.6
Green Ratio (*g/C*)	0.26	0.26	0.26	0.26	0.26	0.26	0.07	0.52	0.52	0.07	0.52	0.52
Capacity (*c*), veh/h	292	502	425	256	502	425	126	983	957	124	981	924
Volume-to-Capacity Ratio (*X*)	0.625	0.496	0.118	0.369	0.401	0.130	0.783	0.427	0.427	0.782	0.511	0.511
Back of Queue (*Q*), ft/ln (95 th percentile)	179.7	199	36.2	86.9	160.6	40.9	113.7	223.4	219	110	271.1	259.5
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	8.0	1.4	3.5	6.4	1.6	4.5	8.9	8.8	4.4	10.8	10.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	36.0	28.0	25.2	35.2	27.3	25.2	41.2	13.4	13.4	41.3	14.3	14.3
Incremental Delay (d_2), s/veh	2.3	0.3	0.0	0.3	0.2	0.1	11.9	1.4	1.4	11.1	1.9	2.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.2	28.3	25.2	35.5	27.5	25.3	53.1	14.8	14.8	52.3	16.2	16.3
Level of Service (LOS)	D	C	C	D	C	C	D	B	B	D	B	B
Approach Delay, s/veh / LOS	31.8	C		29.3	C		18.9	B		19.5	B	
Intersection Delay, s/veh / LOS	22.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	2.08	B	2.08	B
Bicycle LOS Score / LOS	1.28	A	1.07	A	1.25	A	1.37	A

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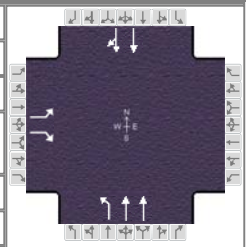
HCS7 Signalized Intersection Results Summary

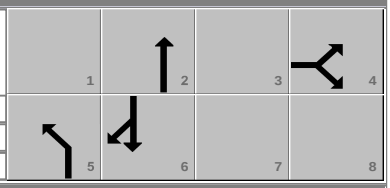
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2021	Analysis Period	1> 7:30
Intersection	Interesction #18	File Name	18AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	62		40				15	888			877	37

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.0	68.5	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			6.5	79.5		73.0
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.2			2.8			
Green Extension Time (g_e), s		0.2			0.0	0.0		0.0
Phase Call Probability		1.00			0.33			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	67		43				16	965			500	493
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1873
Queue Service Time (g_s), s	3.2		2.3				0.8	5.5			16.3	7.7
Cycle Queue Clearance Time (g_c), s	3.2		2.3				0.8	5.5			16.3	7.7
Green Ratio (*g/C*)	0.07		0.07				0.02	0.83			0.76	0.76
Capacity (*c*), veh/h	121		107				40	3015			1446	1425
Volume-to-Capacity Ratio (*X*)	0.559		0.405				0.404	0.320			0.346	0.346
Back of Queue (*Q*), ft/ln (95 th percentile)	67.3		42.7				17	37.3			100.1	98.8
Back of Queue (*Q*), veh/ln (95 th percentile)	2.7		1.7				0.7	1.5			4.0	4.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	40.7		40.3				43.4	1.7			3.5	3.5
Incremental Delay (d_2), s/veh	1.5		0.9				2.4	0.3			0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	42.2		41.2				45.8	2.0			4.1	4.2
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	41.8	D		0.0			2.7	A		4.2	A	
Intersection Delay, s/veh / LOS	5.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.30	A	1.31	A

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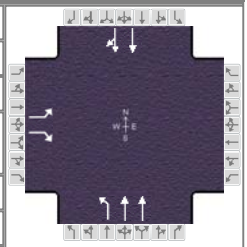
HCS7 Signalized Intersection Results Summary

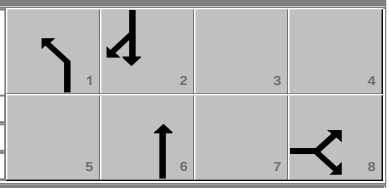
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / N. Cecilia	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #18	File Name	18PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	24		35				35	815			885	21

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.7	66.8	6.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8			1	6		2
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		10.5			8.2	79.5		71.3
Change Period, ($Y+R_c$), s		4.5			4.5	4.5		4.5
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		4.0			3.9			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		1.00			0.61			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3		18				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	26		38				38	886			494	490
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810		1610				1810	1809			1900	1884
Queue Service Time (g_s), s	1.2		2.0				1.9	4.9			16.0	8.2
Cycle Queue Clearance Time (g_c), s	1.2		2.0				1.9	4.9			16.0	8.2
Green Ratio (*g/C*)	0.07		0.07				0.04	0.83			0.74	0.74
Capacity (*c*), veh/h	121		107				74	3015			1411	1399
Volume-to-Capacity Ratio (*X*)	0.216		0.354				0.514	0.294			0.351	0.351
Back of Queue (*Q*), ft/ln (95 th percentile)	25.1		37.2				38.4	32.9			112.2	111.4
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0		1.5				1.5	1.3			4.5	4.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	39.8		40.1				42.3	1.7			4.0	4.0
Incremental Delay (d_2), s/veh	0.3		0.7				2.0	0.2			0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	40.1		40.9				44.3	1.9			4.7	4.7
Level of Service (LOS)	D		D				D	A			A	A
Approach Delay, s/veh / LOS	40.6	D		0.0			3.7	A		4.7	A	
Intersection Delay, s/veh / LOS	5.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.15	B	0.61	A	1.84	B
Bicycle LOS Score / LOS		F			1.25	A	1.30	A

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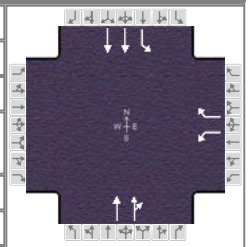
HCS7 Signalized Intersection Results Summary

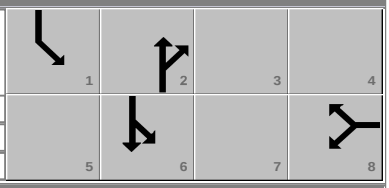
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Interesction #19	File Name	19AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				92		77		834	45	69	833	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.1	64.2	7.2	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				11.7		68.7	9.6	78.3
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.4		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.8			2.8	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.85	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				100		84		482	473	75	905	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1865	1810	1809	
Queue Service Time (g_s), s				4.8		4.5		15.5	8.8	0.8	5.4	
Cycle Queue Clearance Time (g_c), s				4.8		4.5		15.5	8.8	0.8	5.4	
Green Ratio (*g/C*)				0.08		0.08		0.71	0.71	0.79	0.82	
Capacity (*c*), veh/h				144		129		1356	1331	506	2967	
Volume-to-Capacity Ratio (*X*)				0.692		0.651		0.356	0.356	0.148	0.305	
Back of Queue (*Q*), ft/ln (95 th percentile)				100.9		84.1		129.9	127.8	7.5	42.3	
Back of Queue (*Q*), veh/ln (95 th percentile)				4.0		3.4		5.2	5.1	0.3	1.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.3		40.2		4.9	4.9	4.0	1.9	
Incremental Delay (d_2), s/veh				2.2		2.1		0.7	0.7	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.5		42.3		5.7	5.7	4.0	2.2	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.4		D	5.7		A	2.3		A
Intersection Delay, s/veh / LOS	7.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.85	B	0.61	A
Bicycle LOS Score / LOS				F	1.28	A	1.30	A

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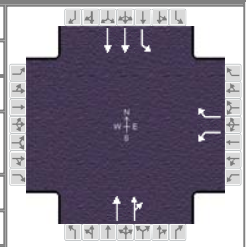
HCS7 Signalized Intersection Results Summary

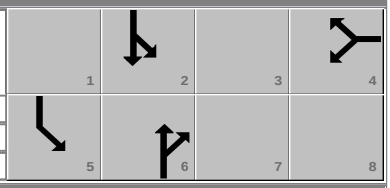
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / S. Cecilia	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Interesction #19	File Name	19PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				78		49		785	43	52	860	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.5	65.6	6.4	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				10.9		70.1	9.0	79.1
Change Period, ($Y+R_c$), s				4.5		4.5	4.5	4.5
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s				6.1			2.6	
Green Extension Time (g_e), s				0.2		0.0	0.1	0.0
Phase Call Probability				1.00			0.76	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				85		53		454	446	57	935	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1900	1865	1810	1809	
Queue Service Time (g_s), s				4.1		2.9		14.3	7.7	0.6	5.3	
Cycle Queue Clearance Time (g_c), s				4.1		2.9		14.3	7.7	0.6	5.3	
Green Ratio (*g/C*)				0.07		0.07		0.73	0.73	0.80	0.83	
Capacity (*c*), veh/h				128		114		1385	1359	530	3000	
Volume-to-Capacity Ratio (*X*)				0.664		0.469		0.328	0.328	0.107	0.312	
Back of Queue (*Q*), ft/ln (95 th percentile)				85.9		52.5		109.2	107.4	4.9	37.8	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.4		2.1		4.4	4.3	0.2	1.5	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				40.8		40.2		4.3	4.3	3.4	1.8	
Incremental Delay (d_2), s/veh				2.2		1.1		0.6	0.6	0.0	0.3	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				43.0		41.3		5.0	5.0	3.5	2.0	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			42.3		D	5.0		A	2.1		A
Intersection Delay, s/veh / LOS	6.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	1.85	B	0.61	A
Bicycle LOS Score / LOS				F	1.23	A	1.31	A

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HCS7 All-Way Stop Control Report

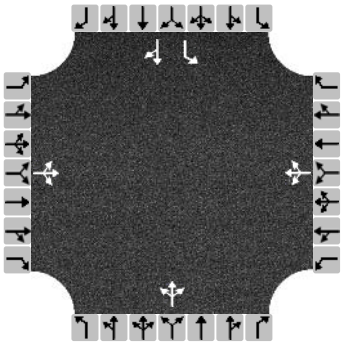
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/13/2019
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	Future with Project - AM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	3	50	0	72	68	78	1	277	105	75	360	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	58			237			416			82	396	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.051			0.211			0.370			0.072	0.352	
Final Departure Headway, hd (s)	7.00			6.28			5.63			6.62	6.11	
Final Degree of Utilization, x	0.112			0.413			0.651			0.150	0.671	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	5.00			4.28			3.63			4.32	3.81	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	58			237			416			82	396	
Capacity	514			574			640			544	590	
95% Queue Length, Q_{95} (veh)	0.4			2.0			4.8			0.5	5.1	
Control Delay (s/veh)	10.9			13.6			18.5			10.5	20.4	
Level of Service, LOS	B			B			C			B	C	
Approach Delay (s/veh)	10.9			13.6			18.5			18.7		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh | LOS	17.2						C					

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HCS7 All-Way Stop Control Report

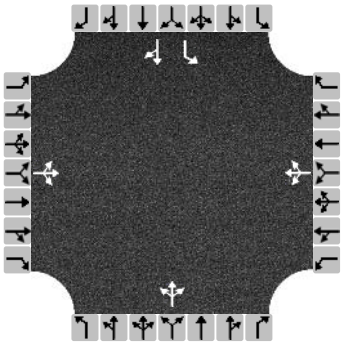
General Information

Analyst	AS
Agency/Co.	LLG Engineers
Date Performed	12/13/2019
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	Future with Project - PM
Project Description	7801-7835 Otis Avenue Charter School

Site Information

Intersection	Intersection #20
Jurisdiction	City of Cudahy
East/West Street	Elizabeth Street
North/South Street	Otis Avenue
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	4	63	0	84	68	46	0	331	85	50	373	4
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			L	TR	
Flow Rate, v (veh/h)	73			215			452			54	410	
Percent Heavy Vehicles	2			2			2			2	2	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20	3.20	
Initial Degree of Utilization, x	0.065			0.191			0.402			0.048	0.364	
Final Departure Headway, hd (s)	7.10			6.56			5.71			6.70	6.18	
Final Degree of Utilization, x	0.144			0.392			0.717			0.101	0.704	
Move-Up Time, m (s)	2.0			2.0			2.0			2.3	2.3	
Service Time, ts (s)	5.10			4.56			3.71			4.40	3.88	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	73			215			452			54	410	
Capacity	507			549			631			537	582	
95% Queue Length, Q_{95} (veh)	0.5			1.9			6.0			0.3	5.7	
Control Delay (s/veh)	11.3			13.7			21.8			10.2	22.3	
Level of Service, LOS	B			B			C			B	C	
Approach Delay (s/veh)	11.3			13.7			21.8			20.8		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh | LOS	19.3						C					

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APPENDIX C

HCM AND LEVELS OF SERVICE EXPLANATION
HCM DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS
CITY OF BELL

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for traffic signals are stated in terms of the average control delay per vehicle. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

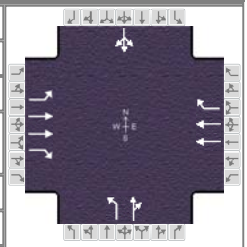
LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high *v/c* ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

HCS7 Signalized Intersection Results Summary

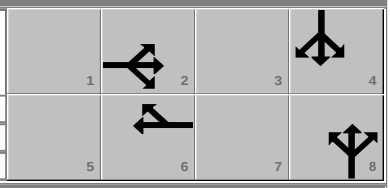
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	1033	206		999	117	362	167	4	61	114	44

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	42.2	13.8	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		46.7		46.7		25.0		18.3
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.3
Queue Clearance Time (g_s), s						21.3		13.5
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.04

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	60	1123	224		1086	127	393	186			238	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	528	1809	1610		1809	1610	1810	1892			1809	
Queue Service Time (g_s), s	8.7	21.5	7.7		20.5	4.1	19.3	7.6			11.5	
Cycle Queue Clearance Time (g_c), s	29.2	21.5	7.7		20.5	4.1	19.3	7.6			11.5	
Green Ratio (*g/C*)	0.47	0.47	0.47		0.47	0.47	0.23	0.23			0.15	
Capacity (*c*), veh/h	207	1695	755		1695	755	412	431			278	
Volume-to-Capacity Ratio (*X*)	0.289	0.662	0.297		0.640	0.169	0.955	0.431			0.857	
Back of Queue (*Q*), ft/ln (95 th percentile)	57.2	341	128.7		327	67.8	444.6	155.6			239.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	13.6	5.1		13.1	2.7	17.8	6.2			9.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	29.3	18.4	14.8		18.2	13.8	34.3	29.8			37.1	
Incremental Delay (d_2), s/veh	3.5	2.1	1.0		1.9	0.5	32.5	0.3			7.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	32.7	20.5	15.8		20.0	14.3	66.8	30.0			44.8	
Level of Service (LOS)	C	C	B		C	B	E	C			D	
Approach Delay, s/veh / LOS	20.2	C		19.4	B		55.0	D		44.8	D	
Intersection Delay, s/veh / LOS	27.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.65	B	1.49	A	1.44	A	0.88	A

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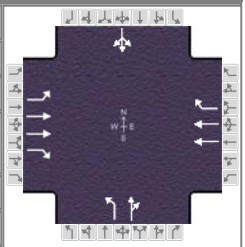
HCS7 Signalized Intersection Results Summary

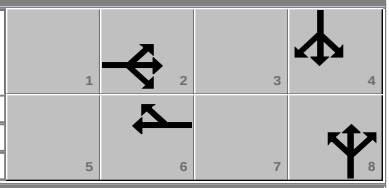
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	32	1039	338		824	28	221	86	3	47	214	27

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	45.4	17.1	14.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		49.9		49.9		18.5		21.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						13.6		16.8
Green Extension Time (g_e), s		0.0		0.0		0.4		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						0.07		0.69

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	35	1129	367		896	30	240	97			313	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	631	1809	1610		1809	1610	1810	1889			1854	
Queue Service Time (g_s), s	3.5	20.3	13.2		14.7	0.9	11.6	4.1			14.8	
Cycle Queue Clearance Time (g_c), s	18.1	20.3	13.2		14.7	0.9	11.6	4.1			14.8	
Green Ratio (*g/C*)	0.50	0.50	0.50		0.50	0.50	0.16	0.16			0.19	
Capacity (*c*), veh/h	295	1824	812		1824	812	282	295			352	
Volume-to-Capacity Ratio (*X*)	0.118	0.619	0.453		0.491	0.037	0.850	0.328			0.890	
Back of Queue (*Q*), ft/ln (95 th percentile)	25.2	317.3	211.2		242.9	13.8	240.4	85.4			323.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	12.7	8.4		9.7	0.6	9.6	3.4			12.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	20.7	16.1	14.3		14.7	11.3	37.0	33.8			35.6	
Incremental Delay (d_2), s/veh	0.8	1.6	1.8		0.9	0.1	7.6	0.2			16.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	21.5	17.7	16.2		15.6	11.4	44.5	34.0			51.9	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	17.4	B		15.5	B		41.5	D		51.9	D	
Intersection Delay, s/veh / LOS	22.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.75	B	1.25	A	1.04	A	1.00	A

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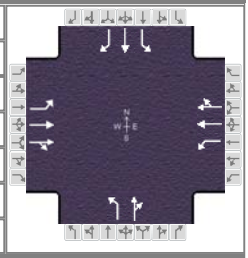
HCS7 Signalized Intersection Results Summary

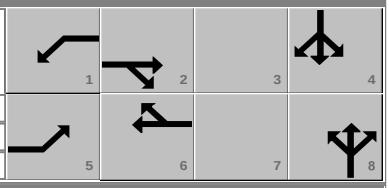
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #7	File Name	07AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	53	1074	94	69	1074	46	130	231	155	78	221	47

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.6	0.5	42.3	29.1	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	9.1	46.8	9.6	47.3		33.6		33.6
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g_s), s	4.8		5.7			20.9		28.4
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.8		0.7
Phase Call Probability	0.76		0.85			1.00		1.00
Max Out Probability	0.99		1.00			0.14		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	58	643	626	75	613	604	141	420		85	240	51
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1846	1810	1900	1872	1158	1772		982	1900	1610
Queue Service Time (g_s), s	2.8	24.4	24.5	3.7	22.4	22.5	9.7	18.9		7.5	8.8	2.0
Cycle Queue Clearance Time (g_c), s	2.8	24.4	24.5	3.7	22.4	22.5	18.5	18.9		26.4	8.8	2.0
Green Ratio (*g/C*)	0.05	0.47	0.47	0.06	0.48	0.48	0.32	0.32		0.32	0.32	0.32
Capacity (*c*), veh/h	92	894	869	102	905	892	341	572		191	614	520
Volume-to-Capacity Ratio (*X*)	0.626	0.719	0.721	0.734	0.677	0.678	0.415	0.733		0.444	0.392	0.098
Back of Queue (*Q*), ft/ln (95 th percentile)	58.2	413.3	406.2	76.9	381.6	377.8	122.3	330		82	175	33.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	16.5	16.2	3.1	15.3	15.1	4.9	13.2		3.3	7.0	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	41.9	19.1	19.1	41.8	18.2	18.2	30.8	27.0		38.7	23.6	21.3
Incremental Delay (d_2), s/veh	2.6	5.0	5.1	3.8	4.1	4.1	0.3	3.7		0.6	0.2	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.5	24.0	24.2	45.6	22.3	22.4	31.1	30.8		39.4	23.8	21.3
Level of Service (LOS)	D	C	C	D	C	C	C	C		D	C	C
Approach Delay, s/veh / LOS	25.0	C		23.7	C		30.8	C		27.0	C	
Intersection Delay, s/veh / LOS	25.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	2.09	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.58	B	1.55	B	1.41	A	1.11	A

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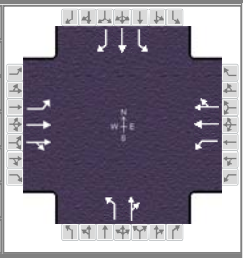
HCS7 Signalized Intersection Results Summary

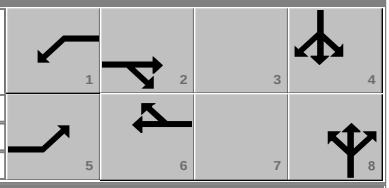
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #7	File Name	07PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	980	85	86	813	54	76	174	105	64	272	56

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.1	1.9	47.8	22.7	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	8.6	52.3	10.5	54.2		27.2		27.2
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g_s), s	4.3		6.6			20.8		21.2
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		1.5		1.5
Phase Call Probability	0.69		0.90			1.00		1.00
Max Out Probability	0.00		0.00			0.09		0.11

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	47	587	571	93	476	466	83	303		70	296	61
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1846	1810	1900	1858	1101	1779		1093	1900	1610
Queue Service Time (g_s), s	2.3	18.9	18.9	4.6	13.5	13.5	6.5	13.8		5.5	12.4	2.6
Cycle Queue Clearance Time (g_c), s	2.3	18.9	18.9	4.6	13.5	13.5	18.8	13.8		19.2	12.4	2.6
Green Ratio (*g/C*)	0.05	0.53	0.53	0.07	0.55	0.55	0.25	0.25		0.25	0.25	0.25
Capacity (*c*), veh/h	83	1009	981	121	1049	1025	207	449		189	479	406
Volume-to-Capacity Ratio (*X*)	0.562	0.581	0.582	0.774	0.454	0.454	0.399	0.676		0.368	0.617	0.150
Back of Queue (*Q*), ft/ln (95 th percentile)	47	315.6	309.2	95.6	235.8	231.9	79.4	248.8		66.7	237.3	45.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	12.6	12.4	3.8	9.4	9.3	3.2	10.0		2.7	9.5	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.0	14.3	14.3	41.3	12.1	12.1	38.1	30.3		38.9	29.8	26.2
Incremental Delay (d_2), s/veh	2.2	2.4	2.5	4.0	1.4	1.5	0.5	0.7		0.4	0.5	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	16.8	16.8	45.3	13.5	13.5	38.5	31.1		39.4	30.3	26.2
Level of Service (LOS)	D	B	B	D	B	B	D	C		D	C	C
Approach Delay, s/veh / LOS	17.9	B		16.4	B		32.6	C		31.2	C	
Intersection Delay, s/veh / LOS	21.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	2.08	B	2.29	B	2.29	B
Bicycle LOS Score / LOS	1.48	A	1.34	A	1.12	A	1.19	A

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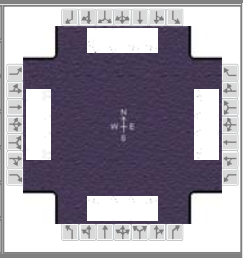
HCS7 Signalized Intersection Results Summary

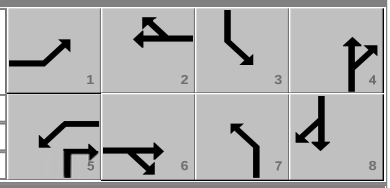
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 25, 2019	Area Type	Other
Jurisdiction	City of Bell/City of Cudahy	Time Period	Existing - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	171	814	216	190	924	97	163	779	129	141	621	78

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	11.0	0.6	30.5	5.9	2.6	21.5
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	15.5	35.0	16.0	35.6	13.0	28.6	10.4	26.0
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.0		12.1		10.5	22.1	5.8	19.6
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.9	0.1	1.9
Phase Call Probability	0.99		0.99		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	0.84	1.00	0.85

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	186	885	235	207	1004	105	177	847	140	153	387	373
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1825
Queue Service Time (g_s), s	9.0	19.3	10.2	10.1	22.7	4.1	8.5	20.1	5.2	3.8	17.5	17.6
Cycle Queue Clearance Time (g_c), s	9.0	19.3	10.2	10.1	22.7	4.1	8.5	20.1	5.2	3.8	17.5	17.6
Green Ratio (*g/C*)	0.12	0.34	0.34	0.13	0.35	0.35	0.09	0.27	0.40	0.07	0.24	0.24
Capacity (*c*), veh/h	220	1226	546	232	1249	556	171	969	637	229	453	436
Volume-to-Capacity Ratio (*X*)	0.844	0.722	0.430	0.891	0.804	0.190	1.037	0.874	0.220	0.669	0.854	0.856
Back of Queue (*Q*), ft/ln (95 th percentile)	224.1	331.5	182.6	262.4	385.5	72.5	301.5	360.2	83.2	74.9	355	346.5
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	13.3	7.3	10.5	15.4	2.9	12.1	14.4	3.3	3.0	14.2	13.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.7	26.0	23.0	38.6	26.7	20.6	40.8	31.5	18.0	41.1	32.8	32.8
Incremental Delay (d_2), s/veh	21.5	3.7	2.5	31.2	5.6	0.8	78.8	7.3	0.1	1.3	11.7	12.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	60.2	29.7	25.5	69.8	32.3	21.4	119.6	38.8	18.1	42.4	44.5	45.1
Level of Service (LOS)	E	C	C	E	C	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	33.3	C		37.3	D		48.6	D		44.4	D	
Intersection Delay, s/veh / LOS	40.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.56	B	1.57	B	1.45	A	1.24	A

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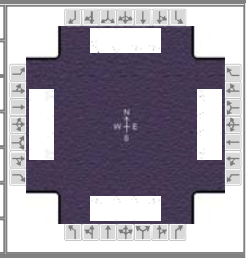
HCS7 Signalized Intersection Results Summary

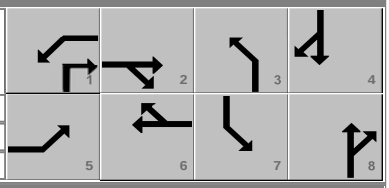
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 25, 2019	Area Type	Other
Jurisdiction	City of Bell/City of Cudahy	Time Period	Existing - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	114	832	140	170	733	136	147	556	123	198	685	77

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.7	2.9	30.5	7.4	1.1	22.4
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	12.2	35.0	15.1	37.9	13.0	28.0	11.9	26.9
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	8.0		11.0		9.9	15.3	7.4	21.3
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.1	1.1
Phase Call Probability	0.95		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.26	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	124	904	152	185	797	148	160	604	134	215	421	407
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1832
Queue Service Time (g_s), s	6.0	19.8	6.2	9.0	16.0	5.7	7.9	13.3	5.1	5.4	19.3	19.3
Cycle Queue Clearance Time (g_c), s	6.0	19.8	6.2	9.0	16.0	5.7	7.9	13.3	5.1	5.4	19.3	19.3
Green Ratio (*g/C*)	0.09	0.34	0.34	0.12	0.37	0.37	0.09	0.26	0.38	0.08	0.25	0.25
Capacity (*c*), veh/h	155	1226	546	214	1343	598	171	943	610	289	472	455
Volume-to-Capacity Ratio (*X*)	0.798	0.738	0.279	0.865	0.593	0.247	0.935	0.641	0.219	0.744	0.892	0.893
Back of Queue (*Q*), ft/ln (95 th percentile)	136.4	340.2	109.9	235.2	277	99.4	242.8	240.7	81.9	113.2	402.3	392.9
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	13.6	4.4	9.4	11.1	4.0	9.7	9.6	3.3	4.5	16.1	15.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	40.4	26.2	21.7	39.0	22.8	19.6	40.5	29.5	18.9	40.4	32.7	32.7
Incremental Delay (d_2), s/veh	9.4	4.0	1.3	27.8	1.9	1.0	49.5	1.0	0.1	6.1	16.9	17.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.8	30.2	23.0	66.8	24.8	20.6	90.0	30.5	19.0	46.4	49.6	50.2
Level of Service (LOS)	D	C	C	E	C	C	F	C	B	D	D	D
Approach Delay, s/veh / LOS	31.3	C		31.1	C		39.4	D		49.2	D	
Intersection Delay, s/veh / LOS	37.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.46	A	1.42	A	1.23	A	1.35	A

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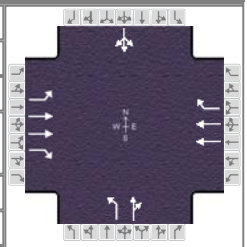
HCS7 Signalized Intersection Results Summary

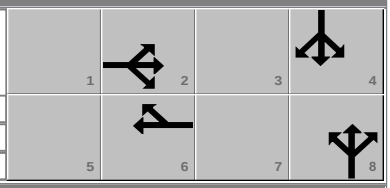
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	1084	206		999	117	408	182	4	61	131	44

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	41.3	14.7	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		45.8		45.8		25.0		19.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						22.5		14.4
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.09

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	60	1178	224		1086	127	443	202			257	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	528	1809	1610		1809	1610	1810	1893			1816	
Queue Service Time (g_s), s	8.9	23.5	7.9		20.9	4.2	20.5	8.3			12.4	
Cycle Queue Clearance Time (g_c), s	29.8	23.5	7.9		20.9	4.2	20.5	8.3			12.4	
Green Ratio (*g/C*)	0.46	0.46	0.46		0.46	0.46	0.23	0.23			0.16	
Capacity (*c*), veh/h	200	1661	739		1661	739	412	431			296	
Volume-to-Capacity Ratio (*X*)	0.299	0.709	0.303		0.654	0.172	1.076	0.469			0.866	
Back of Queue (*Q*), ft/ln (95 th percentile)	58.7	370.1	131.5		333.1	69.4	601.5	170.9			260.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	14.8	5.3		13.3	2.8	24.1	6.8			10.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	30.3	19.5	15.3		18.8	14.3	34.8	30.0			36.7	
Incremental Delay (d_2), s/veh	3.8	2.6	1.1		2.0	0.5	66.1	0.3			10.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	34.1	22.1	16.3		20.8	14.8	100.9	30.3			46.9	
Level of Service (LOS)	C	C	B		C	B	F	C			D	
Approach Delay, s/veh / LOS	21.7	C		20.2	C		78.8	E		46.9	D	
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.68	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.69	B	1.49	A	1.55	B	0.91	A

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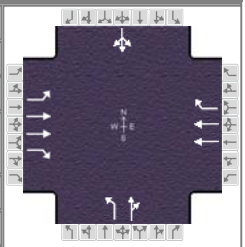
HCS7 Signalized Intersection Results Summary

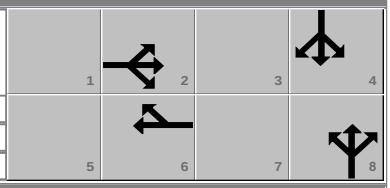
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	32	1052	338		824	28	232	90	3	47	218	27

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	44.6	17.3	14.6	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		49.1		49.1		19.1		21.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						14.2		17.0
Green Extension Time (g_e), s		0.0		0.0		0.4		0.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.11		0.81

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	35	1143	367		896	30	252	101			317	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	631	1809	1610		1809	1610	1810	1889			1854	
Queue Service Time (g_s), s	3.5	21.0	13.4		14.9	0.9	12.2	4.3			15.0	
Cycle Queue Clearance Time (g_c), s	18.5	21.0	13.4		14.9	0.9	12.2	4.3			15.0	
Green Ratio (*g/C*)	0.50	0.50	0.50		0.50	0.50	0.16	0.16			0.19	
Capacity (*c*), veh/h	288	1793	798		1793	798	294	307			356	
Volume-to-Capacity Ratio (*X*)	0.121	0.638	0.460		0.500	0.038	0.857	0.329			0.892	
Back of Queue (*Q*), ft/ln (95 th percentile)	25.7	328.1	214.8		247	14.1	253.9	88.7			328.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	13.1	8.6		9.9	0.6	10.2	3.5			13.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	21.4	16.7	14.8		15.2	11.7	36.7	33.3			35.5	
Incremental Delay (d_2), s/veh	0.9	1.7	1.9		1.0	0.1	9.2	0.2			16.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	22.3	18.5	16.7		16.2	11.8	45.9	33.6			52.3	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	18.2	B		16.1	B		42.3	D		52.3	D	
Intersection Delay, s/veh / LOS	23.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.76	B	1.25	A	1.07	A	1.01	A

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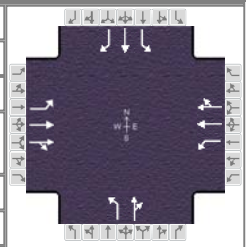
HCS7 Signalized Intersection Results Summary

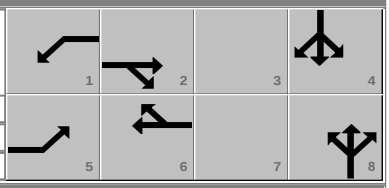
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #7	File Name	07AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	53	1074	145	110	1074	46	130	246	192	78	238	47

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.6	1.9	39.5	30.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	9.1	44.0	11.0	45.9		35.0		35.0
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g_s), s	4.8		7.9			24.0		32.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.7		0.0
Phase Call Probability	0.76		0.95			1.00		1.00
Max Out Probability	1.00		1.00			0.42		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	58	675	650	120	613	604	141	476		85	259	51
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1821	1810	1900	1872	1139	1761		933	1900	1610
Queue Service Time (g_s), s	2.8	27.8	28.1	5.9	23.1	23.2	9.8	22.0		8.2	9.4	1.9
Cycle Queue Clearance Time (g_c), s	2.8	27.8	28.1	5.9	23.1	23.2	19.1	22.0		30.2	9.4	1.9
Green Ratio (*g/C*)	0.05	0.44	0.44	0.07	0.46	0.46	0.34	0.34		0.34	0.34	0.34
Capacity (*c*), veh/h	92	834	799	131	874	862	347	597		168	644	546
Volume-to-Capacity Ratio (*X*)	0.626	0.809	0.814	0.914	0.701	0.702	0.407	0.798		0.506	0.402	0.094
Back of Queue (*Q*), ft/ln (95 th percentile)	58.2	484.7	473.7	198.6	396.3	392.3	120.8	386.2		85.1	185.2	32.6
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	19.4	18.9	7.9	15.9	15.7	4.8	15.4		3.4	7.4	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	41.9	22.0	22.0	41.5	19.4	19.4	30.1	27.0		40.6	22.8	20.3
Incremental Delay (d_2), s/veh	2.6	8.4	8.9	52.4	4.7	4.7	0.3	6.9		1.0	0.2	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.5	30.3	30.9	93.9	24.0	24.1	30.4	33.9		41.6	22.9	20.3
Level of Service (LOS)	D	C	C	F	C	C	C	C		D	C	C
Approach Delay, s/veh / LOS	31.2	C		30.3	C		33.1	C		26.6	C	
Intersection Delay, s/veh / LOS	30.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	2.09	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.63	B	1.59	B	1.51	B	1.14	A

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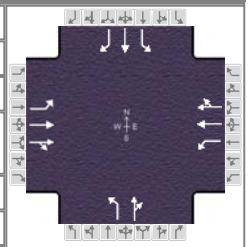
HCS7 Signalized Intersection Results Summary

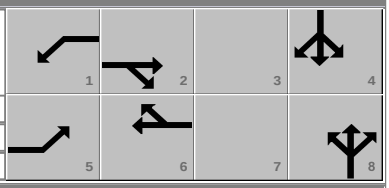
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #7	File Name	07PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	980	98	96	813	54	76	178	114	64	276	56

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.1	2.5	46.4	23.4	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	8.6	50.9	11.1	53.4		27.9		27.9
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g_s), s	4.3		7.1			20.8		22.0
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		1.5		1.5
Phase Call Probability	0.69		0.93			1.00		1.00
Max Out Probability	0.00		0.01			0.10		0.15

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	47	595	577	104	476	466	83	317		70	300	61
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1839	1810	1900	1858	1096	1775		1079	1900	1610
Queue Service Time (g_s), s	2.3	19.9	19.9	5.1	13.7	13.7	6.4	14.5		5.6	12.5	2.6
Cycle Queue Clearance Time (g_c), s	2.3	19.9	19.9	5.1	13.7	13.7	18.8	14.5		20.0	12.5	2.6
Green Ratio (*g/C*)	0.05	0.52	0.52	0.07	0.54	0.54	0.26	0.26		0.26	0.26	0.26
Capacity (*c*), veh/h	83	980	949	134	1033	1011	214	462		188	494	419
Volume-to-Capacity Ratio (*X*)	0.562	0.607	0.608	0.781	0.461	0.461	0.385	0.687		0.370	0.607	0.145
Back of Queue (*Q*), ft/ln (95 th percentile)	47	333.5	326.4	106.1	240.6	236.7	78.6	259.1		66.6	237.7	44.7
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	13.3	13.1	4.2	9.6	9.5	3.1	10.4		2.7	9.5	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.0	15.3	15.4	41.0	12.5	12.5	37.5	30.0		38.9	29.3	25.6
Incremental Delay (d_2), s/veh	2.2	2.8	2.9	3.7	1.5	1.5	0.4	1.1		0.4	0.5	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	18.1	18.2	44.7	14.0	14.0	37.9	31.1		39.4	29.7	25.7
Level of Service (LOS)	D	B	B	D	B	B	D	C		D	C	C
Approach Delay, s/veh / LOS	19.2	B		17.0	B		32.5	C		30.7	C	
Intersection Delay, s/veh / LOS	21.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	2.08	B	2.29	B	2.29	B
Bicycle LOS Score / LOS	1.49	A	1.35	A	1.15	A	1.20	A

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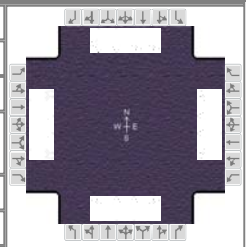
HCS7 Signalized Intersection Results Summary

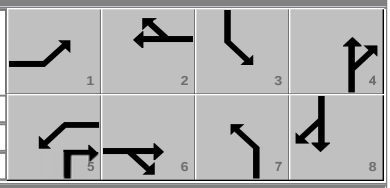
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Cudahy	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	171	851	216	190	965	97	163	813	129	141	659	78

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.9	30.5	5.9	2.6	22.1	0.0
Yellow	3.5	3.5	3.5	0.0	3.5	0.0
Red	1.0	1.0	1.0	0.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	15.4	35.0	15.4	35.0	13.0	29.3	10.4	26.6
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.1		12.2		10.5	23.1	5.8	20.6
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.6	0.1	1.6
Phase Call Probability	0.99		0.99		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	186	925	235	207	1049	105	177	884	140	153	408	393
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1829
Queue Service Time (g_s), s	9.1	20.4	10.2	10.2	24.3	4.2	8.5	21.1	5.2	3.8	18.6	18.6
Cycle Queue Clearance Time (g_c), s	9.1	20.4	10.2	10.2	24.3	4.2	8.5	21.1	5.2	3.8	18.6	18.6
Green Ratio (*g/C*)	0.12	0.34	0.34	0.12	0.34	0.34	0.09	0.28	0.40	0.07	0.25	0.25
Capacity (*c*), veh/h	218	1226	546	218	1226	546	171	996	637	229	468	450
Volume-to-Capacity Ratio (*X*)	0.852	0.754	0.430	0.947	0.856	0.193	1.037	0.887	0.220	0.669	0.872	0.873
Back of Queue (*Q*), ft/ln (95 th percentile)	231.3	350	182.6	288.8	418.1	73.3	301.5	378.6	83.2	74.9	380.5	371.2
Back of Queue (*Q*), veh/ln (95 th percentile)	9.3	14.0	7.3	11.6	16.7	2.9	12.1	15.1	3.3	3.0	15.2	14.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.8	26.4	23.0	39.3	27.7	21.0	40.8	31.3	18.0	41.1	32.6	32.6
Incremental Delay (d_2), s/veh	25.1	4.3	2.5	45.6	7.8	0.8	78.8	8.6	0.1	1.3	14.2	14.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.9	30.8	25.5	84.9	35.5	21.8	119.6	39.9	18.1	42.4	46.8	47.4
Level of Service (LOS)	E	C	C	F	D	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	34.4	C		41.9	D		49.1	D		46.3	D	
Intersection Delay, s/veh / LOS	42.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.60	B	1.61	B	1.48	A	1.27	A

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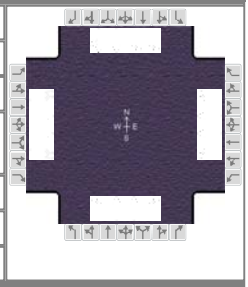
HCS7 Signalized Intersection Results Summary

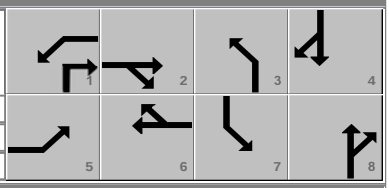
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 5, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Cudahy	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	114	841	140	170	743	136	147	564	123	198	694	77

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.7	2.8	30.5	7.4	1.1	22.5
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	12.2	35.0	15.0	37.8	13.0	28.1	11.9	27.0
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	8.0		11.0		9.9	15.5	7.4	21.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.1	1.0
Phase Call Probability	0.95		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.28	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	124	914	152	185	808	148	160	613	134	215	426	412
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1833
Queue Service Time (g_s), s	6.0	20.1	6.2	9.0	16.3	5.7	7.9	13.5	5.1	5.4	19.5	19.5
Cycle Queue Clearance Time (g_c), s	6.0	20.1	6.2	9.0	16.3	5.7	7.9	13.5	5.1	5.4	19.5	19.5
Green Ratio (*g/C*)	0.09	0.34	0.34	0.12	0.37	0.37	0.09	0.26	0.38	0.08	0.25	0.25
Capacity (*c*), veh/h	155	1226	546	211	1337	595	171	949	610	289	476	459
Volume-to-Capacity Ratio (*X*)	0.798	0.746	0.279	0.877	0.604	0.248	0.935	0.646	0.219	0.744	0.897	0.897
Back of Queue (*Q*), ft/ln (95 th percentile)	137.6	345.1	109.9	240	282.2	100	242.8	243.4	81.9	113.2	408.5	399.3
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	13.8	4.4	9.6	11.3	4.0	9.7	9.7	3.3	4.5	16.3	16.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	40.4	26.3	21.7	39.1	23.0	19.7	40.5	29.5	18.9	40.4	32.6	32.6
Incremental Delay (d_2), s/veh	10.0	4.2	1.3	30.5	2.0	1.0	49.5	1.0	0.1	6.1	17.7	18.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	50.4	30.5	23.0	69.6	25.1	20.7	90.0	30.5	19.0	46.4	50.3	50.9
Level of Service (LOS)	D	C	C	E	C	C	F	C	B	D	D	D
Approach Delay, s/veh / LOS	31.6	C		31.7	C		39.3	D		49.7	D	
Intersection Delay, s/veh / LOS	37.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.47	A	1.43	A	1.24	A	1.36	A

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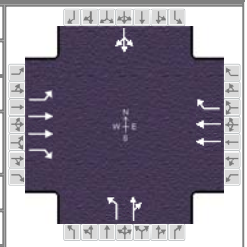
HCS7 Signalized Intersection Results Summary

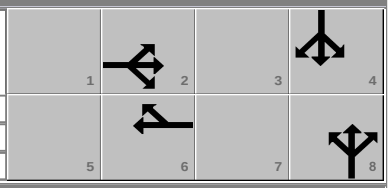
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	1072	210		1042	122	369	170	4	64	116	45

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	41.9	14.1	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		46.4		46.4		25.0		18.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.3
Queue Clearance Time (g_s), s						21.8		13.9
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.05

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	61	1165	228		1133	133	401	189			245	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	505	1809	1610		1809	1610	1810	1892			1809	
Queue Service Time (g_s), s	9.6	22.9	8.0		21.9	4.3	19.8	7.7			11.9	
Cycle Queue Clearance Time (g_c), s	31.6	22.9	8.0		21.9	4.3	19.8	7.7			11.9	
Green Ratio (*g/C*)	0.47	0.47	0.47		0.47	0.47	0.23	0.23			0.16	
Capacity (*c*), veh/h	192	1683	749		1683	749	412	431			284	
Volume-to-Capacity Ratio (*X*)	0.317	0.692	0.305		0.673	0.177	0.973	0.439			0.860	
Back of Queue (*Q*), ft/ln (95 th percentile)	61.2	359.9	132.8		347.1	71.6	466.8	158.6			246.7	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	14.4	5.3		13.9	2.9	18.7	6.3			9.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	31.0	19.0	15.0		18.7	14.0	34.5	29.8			37.0	
Incremental Delay (d_2), s/veh	4.3	2.4	1.1		2.2	0.5	37.0	0.3			8.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	35.3	21.4	16.1		20.9	14.5	71.5	30.1			45.6	
Level of Service (LOS)	D	C	B		C	B	E	C			D	
Approach Delay, s/veh / LOS	21.1	C		20.2	C		58.2	E		45.6	D	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.69	B	1.53	B	1.46	A	0.89	A

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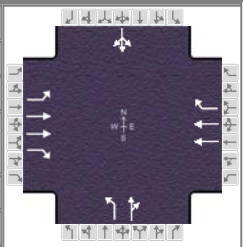
HCS7 Signalized Intersection Results Summary

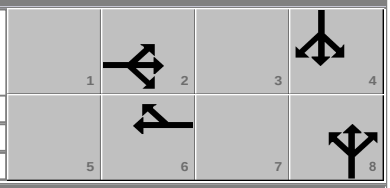
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	1091	345		871	32	225	88	3	52	218	28

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	44.7	17.6	14.3	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		49.2		49.2		18.8		22.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						13.8		17.3
Green Extension Time (g_e), s		0.0		0.0		0.4		0.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.08		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	36	1186	375		947	35	245	99			324	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	602	1809	1610		1809	1610	1810	1889			1853	
Queue Service Time (g_s), s	3.9	22.1	13.8		16.1	1.0	11.8	4.2			15.3	
Cycle Queue Clearance Time (g_c), s	20.0	22.1	13.8		16.1	1.0	11.8	4.2			15.3	
Green Ratio (*g/C*)	0.50	0.50	0.50		0.50	0.50	0.16	0.16			0.20	
Capacity (*c*), veh/h	271	1795	799		1795	799	287	299			362	
Volume-to-Capacity Ratio (*X*)	0.132	0.661	0.469		0.527	0.044	0.853	0.330			0.895	
Back of Queue (*Q*), ft/ln (95 th percentile)	27.4	343.1	219.2		262.6	16.2	245.3	87.2			336.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	13.7	8.8		10.5	0.6	9.8	3.5			13.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	22.3	17.0	14.9		15.5	11.7	36.8	33.6			35.3	
Incremental Delay (d_2), s/veh	1.0	1.9	2.0		1.1	0.1	8.2	0.2			17.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	23.3	18.9	16.9		16.6	11.8	45.0	33.9			53.0	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	18.5	B		16.4	B		41.8	D		53.0	D	
Intersection Delay, s/veh / LOS	23.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.80	B	1.30	A	1.05	A	1.02	A

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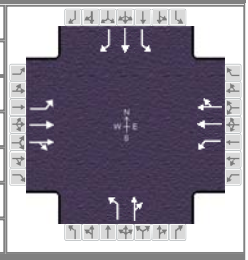
HCS7 Signalized Intersection Results Summary

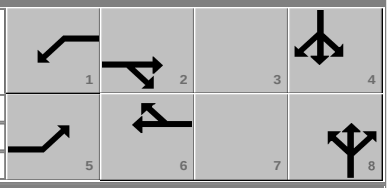
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #7	File Name	07AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	54	1113	101	72	1114	47	139	241	160	80	230	48

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.6	0.5	41.5	29.8	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	9.1	46.0	9.7	46.5		34.3		34.3
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g_s), s	4.9		5.8			21.6		29.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.9		0.4
Phase Call Probability	0.77		0.86			1.00		1.00
Max Out Probability	1.00		1.00			0.20		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	59	668	651	78	635	627	151	436		87	250	52
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1844	1810	1900	1873	1148	1773		968	1900	1610
Queue Service Time (g_s), s	2.9	26.3	26.5	3.8	24.1	24.1	10.5	19.6		7.9	9.1	2.0
Cycle Queue Clearance Time (g_c), s	2.9	26.3	26.5	3.8	24.1	24.1	19.6	19.6		27.5	9.1	2.0
Green Ratio (*g/C*)	0.05	0.46	0.46	0.06	0.47	0.47	0.33	0.33		0.33	0.33	0.33
Capacity (*c*), veh/h	93	876	851	104	888	875	344	588		190	630	534
Volume-to-Capacity Ratio (*X*)	0.632	0.763	0.765	0.756	0.715	0.716	0.439	0.742		0.458	0.397	0.098
Back of Queue (*Q*), ft/ln (95 th percentile)	59.3	448	440.7	85.6	409.4	406.1	131.2	341.6		84.3	180.3	33.7
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	17.9	17.6	3.4	16.4	16.2	5.2	13.7		3.4	7.2	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	41.9	20.1	20.2	41.8	19.2	19.2	30.7	26.7		38.8	23.2	20.8
Incremental Delay (d_2), s/veh	2.6	6.2	6.5	7.9	4.9	5.0	0.3	4.2		0.6	0.2	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.5	26.4	26.7	49.7	24.1	24.2	31.0	30.9		39.5	23.3	20.8
Level of Service (LOS)	D	C	C	D	C	C	C	C		D	C	C
Approach Delay, s/veh / LOS	27.3	C		25.6	C		30.9	C		26.6	C	
Intersection Delay, s/veh / LOS	27.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	2.09	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.62	B	1.59	B	1.46	A	1.13	A

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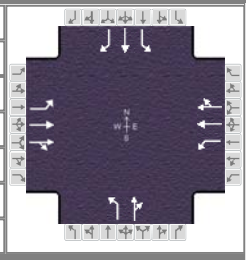
HCS7 Signalized Intersection Results Summary

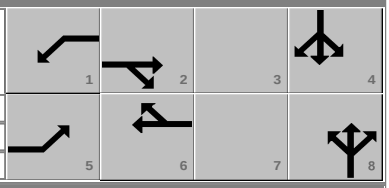
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #7	File Name	07PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	44	1026	98	92	850	55	87	185	111	65	285	57

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.2	2.2	46.3	23.8	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	8.7	50.8	10.9	53.0		28.3		28.3
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.3		3.3
Queue Clearance Time (g_s), s	4.3		6.9			22.3		22.2
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		1.5		1.5
Phase Call Probability	0.70		0.92			1.00		1.00
Max Out Probability	0.00		0.02			0.18		0.18

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	48	620	602	100	497	486	95	322		71	310	62
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1841	1810	1900	1859	1087	1780		1075	1900	1610
Queue Service Time (g_s), s	2.3	21.2	21.2	4.9	14.7	14.7	7.5	14.6		5.7	12.9	2.6
Cycle Queue Clearance Time (g_c), s	2.3	21.2	21.2	4.9	14.7	14.7	20.3	14.6		20.2	12.9	2.6
Green Ratio (*g/C*)	0.05	0.51	0.51	0.07	0.54	0.54	0.26	0.26		0.26	0.26	0.26
Capacity (*c*), veh/h	84	977	947	128	1023	1001	213	471		191	503	426
Volume-to-Capacity Ratio (*X*)	0.568	0.634	0.636	0.779	0.486	0.486	0.444	0.682		0.369	0.616	0.145
Back of Queue (*Q*), ft/ln (95 th percentile)	48.2	353.3	346.3	102	255.3	251.2	91.3	261		67.5	243.6	45.1
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	14.1	13.9	4.1	10.2	10.0	3.7	10.4		2.7	9.7	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.0	15.8	15.8	41.1	13.0	13.0	38.0	29.7		38.7	29.1	25.3
Incremental Delay (d_2), s/veh	2.2	3.1	3.3	3.8	1.7	1.7	0.5	1.2		0.4	0.5	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	18.9	19.0	44.9	14.6	14.7	38.5	30.8		39.2	29.5	25.4
Level of Service (LOS)	D	B	B	D	B	B	D	C		D	C	C
Approach Delay, s/veh / LOS	19.9	B		17.4	B		32.6	C		30.5	C	
Intersection Delay, s/veh / LOS	22.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	2.08	B	2.29	B	2.29	B
Bicycle LOS Score / LOS	1.53	B	1.38	A	1.17	A	1.22	A

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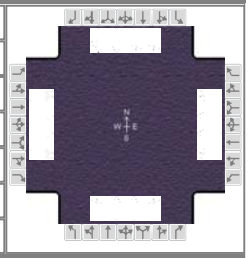
HCS7 Signalized Intersection Results Summary

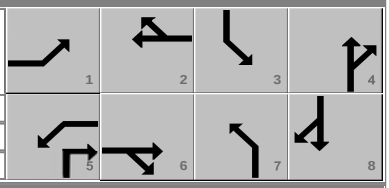
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell/City of Cudahy	Time Period	Future - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	184	834	225	195	951	104	170	813	133	148	643	89

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	30.5	6.0	2.5	22.2	0.0
Yellow	3.5	3.5	3.5	0.0	3.5	0.0
Red	1.0	1.0	1.0	0.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	15.3	35.0	15.3	35.0	13.0	29.2	10.5	26.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.8		12.5		10.5	23.1	6.0	20.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.6	0.1	1.6
Phase Call Probability	0.99		1.00		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	200	907	245	212	1034	113	185	884	145	161	406	389
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1819
Queue Service Time (g_s), s	9.8	19.9	10.7	10.5	23.8	4.5	8.5	21.1	5.4	4.0	18.4	18.5
Cycle Queue Clearance Time (g_c), s	9.8	19.9	10.7	10.5	23.8	4.5	8.5	21.1	5.4	4.0	18.4	18.5
Green Ratio (*g/C*)	0.12	0.34	0.34	0.12	0.34	0.34	0.09	0.27	0.39	0.07	0.25	0.25
Capacity (*c*), veh/h	218	1226	546	218	1226	546	171	992	635	234	468	448
Volume-to-Capacity Ratio (*X*)	0.918	0.739	0.448	0.973	0.843	0.207	1.081	0.891	0.228	0.687	0.868	0.869
Back of Queue (*Q*), ft/ln (95 th percentile)	269.6	341.8	191.4	307.5	409.1	79.2	327.2	380.8	86.2	78.7	377	366.6
Back of Queue (*Q*), veh/ln (95 th percentile)	10.8	13.7	7.7	12.3	16.4	3.2	13.1	15.2	3.4	3.1	15.1	14.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.1	26.2	23.2	39.4	27.5	21.2	40.8	31.4	18.1	41.1	32.5	32.5
Incremental Delay (d_2), s/veh	38.6	4.0	2.7	53.0	7.2	0.9	92.2	9.0	0.1	1.3	13.7	14.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	77.7	30.3	25.8	92.4	34.7	22.0	132.9	40.4	18.2	42.4	46.2	46.9
Level of Service (LOS)	E	C	C	F	C	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	36.5	D		42.7	D		51.8	D		45.8	D	
Intersection Delay, s/veh / LOS	43.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.60	B	1.61	B	1.49	A	1.28	A

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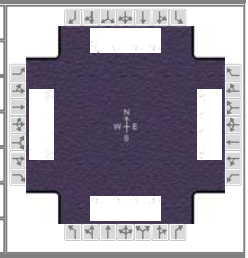
HCS7 Signalized Intersection Results Summary

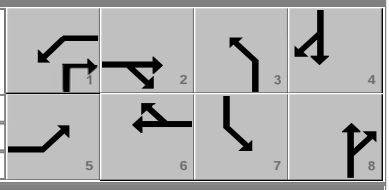
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell/City of Cudahy	Time Period	Future - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	132	860	147	175	757	146	152	590	127	208	718	92

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.8	1.1	30.5	7.7	0.8	23.2
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	13.3	35.0	14.3	36.1	13.0	28.5	12.2	27.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	9.0		11.4		10.2	16.2	7.7	22.7
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.5
Phase Call Probability	0.97		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.36	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	143	935	160	190	823	159	165	641	138	226	449	431
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1824
Queue Service Time (g_s), s	7.0	20.7	6.6	9.4	17.2	6.4	8.2	14.2	5.3	5.7	20.7	20.7
Cycle Queue Clearance Time (g_c), s	7.0	20.7	6.6	9.4	17.2	6.4	8.2	14.2	5.3	5.7	20.7	20.7
Green Ratio (*g/C*)	0.10	0.34	0.34	0.11	0.35	0.35	0.09	0.27	0.38	0.09	0.26	0.26
Capacity (*c*), veh/h	176	1226	546	198	1269	565	171	964	605	300	489	469
Volume-to-Capacity Ratio (*X*)	0.814	0.762	0.293	0.961	0.648	0.281	0.967	0.665	0.228	0.754	0.919	0.919
Back of Queue (*Q*), ft/ln (95 th percentile)	176.5	355.1	116.1	281.9	298.1	112.5	261.3	254.5	85.3	120.8	442.9	431
Back of Queue (*Q*), veh/ln (95 th percentile)	7.1	14.2	4.6	11.3	11.9	4.5	10.5	10.2	3.4	4.8	17.7	17.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.8	26.5	21.8	39.9	24.5	21.0	40.6	29.4	19.2	40.2	32.5	32.5
Incremental Delay (d_2), s/veh	18.2	4.5	1.4	52.3	2.6	1.2	58.5	1.4	0.1	7.1	21.6	22.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.0	31.0	23.2	92.2	27.1	22.3	99.1	30.8	19.3	47.4	54.1	54.8
Level of Service (LOS)	E	C	C	F	C	C	F	C	B	D	D	D
Approach Delay, s/veh / LOS	33.2	C		37.0	D		41.1	D		53.0	D	
Intersection Delay, s/veh / LOS	40.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.51	B	1.45	A	1.27	A	1.40	A

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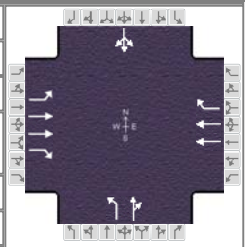
HCS7 Signalized Intersection Results Summary

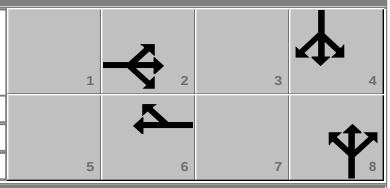
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	1123	210		1042	122	415	185	4	64	133	45

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	41.0	15.0	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		45.5		45.5		25.0		19.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						22.5		14.7
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.12

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	61	1221	228		1133	133	451	205			263	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	505	1809	1610		1809	1610	1810	1893			1815	
Queue Service Time (g_s), s	9.8	24.9	8.1		22.3	4.4	20.5	8.5			12.7	
Cycle Queue Clearance Time (g_c), s	32.1	24.9	8.1		22.3	4.4	20.5	8.5			12.7	
Green Ratio (*g/C*)	0.46	0.46	0.46		0.46	0.46	0.23	0.23			0.17	
Capacity (*c*), veh/h	185	1648	734		1648	734	412	431			302	
Volume-to-Capacity Ratio (*X*)	0.329	0.741	0.311		0.687	0.181	1.094	0.476			0.870	
Back of Queue (*Q*), ft/ln (95 th percentile)	62.9	390.9	135.7		354.1	73.1	629	173.9			267.9	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.5	15.6	5.4		14.2	2.9	25.2	7.0			10.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	32.1	20.1	15.5		19.4	14.5	34.8	30.1			36.6	
Incremental Delay (d_2), s/veh	4.7	3.0	1.1		2.4	0.5	72.3	0.3			11.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	36.9	23.2	16.6		21.8	15.1	107.0	30.4			47.6	
Level of Service (LOS)	D	C	B		C	B	F	C			D	
Approach Delay, s/veh / LOS	22.7	C		21.1	C		83.0	F		47.6	D	
Intersection Delay, s/veh / LOS	34.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.68	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.73	B	1.53	B	1.57	B	0.92	A

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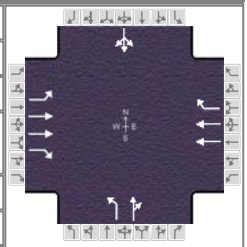
HCS7 Signalized Intersection Results Summary

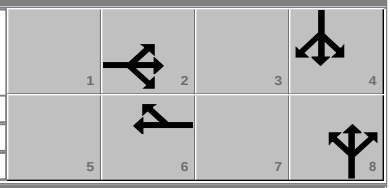
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	1104	345		871	32	236	92	3	52	222	28

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	43.9	17.8	14.8	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		48.4		48.4		19.3		22.3
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						14.4		17.5
Green Extension Time (g_e), s		0.0		0.0		0.4		0.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.13		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	36	1200	375		947	35	257	103			328	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	602	1809	1610		1809	1610	1810	1889			1853	
Queue Service Time (g_s), s	4.0	22.9	14.0		16.3	1.0	12.4	4.3			15.5	
Cycle Queue Clearance Time (g_c), s	20.3	22.9	14.0		16.3	1.0	12.4	4.3			15.5	
Green Ratio (*g/C*)	0.49	0.49	0.49		0.49	0.49	0.16	0.16			0.20	
Capacity (*c*), veh/h	264	1764	785		1764	785	298	312			366	
Volume-to-Capacity Ratio (*X*)	0.136	0.680	0.478		0.537	0.044	0.860	0.331			0.897	
Back of Queue (*Q*), ft/ln (95 th percentile)	28	355.7	223.6		267.7	16.6	258.9	90.3			341.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	14.2	8.9		10.7	0.7	10.4	3.6			13.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	23.1	17.7	15.4		16.0	12.1	36.6	33.2			35.2	
Incremental Delay (d_2), s/veh	1.1	2.1	2.1		1.2	0.1	9.8	0.2			18.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	24.1	19.8	17.5		17.2	12.2	46.3	33.4			53.4	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	19.4	B		17.0	B		42.6	D		53.4	D	
Intersection Delay, s/veh / LOS	24.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.82	B	1.30	A	1.08	A	1.03	A

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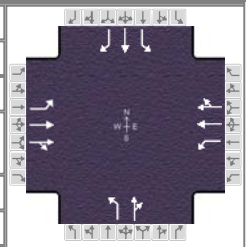
HCS7 Signalized Intersection Results Summary

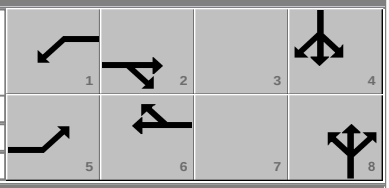
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #7	File Name	07AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	54	1113	152	113	1114	47	139	256	197	80	247	48

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.6	1.9	39.5	30.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	9.1	44.0	11.0	45.9		35.0		35.0
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g_s), s	4.9		8.1			25.1		32.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.6		0.0
Phase Call Probability	0.77		0.95			1.00		1.00
Max Out Probability	1.00		1.00			0.58		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	59	700	675	123	635	627	151	492		87	268	52
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1820	1810	1900	1873	1128	1762		919	1900	1610
Queue Service Time (g_s), s	2.9	29.4	29.8	6.1	24.4	24.5	10.7	23.1		7.4	9.8	2.0
Cycle Queue Clearance Time (g_c), s	2.9	29.4	29.8	6.1	24.4	24.5	20.5	23.1		30.5	9.8	2.0
Green Ratio (*g/C*)	0.05	0.44	0.44	0.07	0.46	0.46	0.34	0.34		0.34	0.34	0.34
Capacity (*c*), veh/h	93	834	799	131	874	861	340	597		156	644	546
Volume-to-Capacity Ratio (*X*)	0.632	0.839	0.845	0.940	0.727	0.728	0.445	0.825		0.558	0.417	0.096
Back of Queue (*Q*), ft/ln (95 th percentile)	59.3	515.8	506.8	210.1	417.5	413.6	131.6	408.3		91.7	192.3	33.3
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	20.6	20.3	8.4	16.7	16.5	5.3	16.3		3.7	7.7	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	41.9	22.4	22.5	41.6	19.7	19.7	30.8	27.3		41.8	22.9	20.3
Incremental Delay (d_2), s/veh	2.6	9.9	10.7	59.6	5.3	5.4	0.3	8.6		2.7	0.2	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.5	32.3	33.2	101.2	25.0	25.1	31.1	35.9		44.5	23.1	20.4
Level of Service (LOS)	D	C	C	F	C	C	C	D		D	C	C
Approach Delay, s/veh / LOS	33.2	C		31.8	C		34.8	C		27.3	C	
Intersection Delay, s/veh / LOS	32.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	2.09	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.67	B	1.63	B	1.55	B	1.16	A

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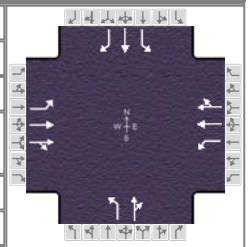
HCS7 Signalized Intersection Results Summary

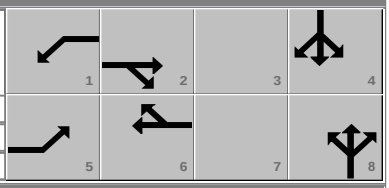
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Florence	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #7	File Name	07PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	44	1026	111	102	850	55	87	189	120	65	289	57

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.2	2.8	45.0	24.4	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		6.0		5.0
Phase Duration, s	8.7	49.5	11.5	52.4		28.9		28.9
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5		4.5		4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0		3.4		3.4
Queue Clearance Time (g_s), s	4.3		7.4			22.4		23.0
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		1.5		1.5
Phase Call Probability	0.70		0.94			1.00		1.00
Max Out Probability	0.00		0.07			0.20		0.24

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	48	628	608	111	497	486	95	336		71	314	62
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1834	1810	1900	1859	1082	1776		1061	1900	1610
Queue Service Time (g_s), s	2.3	22.2	22.3	5.4	14.9	14.9	7.5	15.3		5.8	13.0	2.6
Cycle Queue Clearance Time (g_c), s	2.3	22.2	22.3	5.4	14.9	14.9	20.4	15.3		21.0	13.0	2.6
Green Ratio (*g/C*)	0.05	0.50	0.50	0.08	0.53	0.53	0.27	0.27		0.27	0.27	0.27
Capacity (*c*), veh/h	84	951	918	141	1011	989	219	482		189	516	437
Volume-to-Capacity Ratio (*X*)	0.568	0.660	0.662	0.786	0.492	0.492	0.432	0.697		0.374	0.609	0.142
Back of Queue (*Q*), ft/ln (95 th percentile)	48.2	371.5	363.3	112.3	259.3	255.2	90.5	272		67.7	244.7	44.7
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	14.9	14.5	4.5	10.4	10.2	3.6	10.9		2.7	9.8	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.0	16.8	16.8	40.8	13.3	13.3	37.5	29.5		38.8	28.6	24.8
Incremental Delay (d_2), s/veh	2.2	3.6	3.7	3.6	1.7	1.7	0.5	1.6		0.5	0.4	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	20.4	20.5	44.4	15.1	15.1	38.0	31.0		39.3	29.0	24.9
Level of Service (LOS)	D	C	C	D	B	B	D	C		D	C	C
Approach Delay, s/veh / LOS	21.3	C		18.0	B		32.6	C		30.1	C	
Intersection Delay, s/veh / LOS	22.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	2.08	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.55	B	1.39	A	1.20	A	1.22	A

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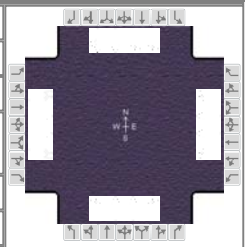
HCS7 Signalized Intersection Results Summary

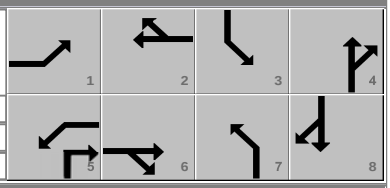
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Cudahy	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #13	File Name	13AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	184	871	225	195	992	104	170	847	133	148	681	89

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.3	30.5	6.0	2.5	22.7	0.0
Yellow	3.5	3.5	3.5	0.0	3.5	0.0
Red	1.0	1.0	1.0	0.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	14.8	35.0	14.8	35.0	13.0	29.7	10.5	27.2
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	11.9		12.3		10.5	24.1	6.0	21.5
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.1	0.1	1.2
Phase Call Probability	0.99		1.00		0.99	1.00	0.98	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	200	947	245	212	1078	113	185	921	145	161	427	410
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1823
Queue Service Time (g_s), s	9.9	21.1	10.7	10.3	25.3	4.5	8.5	22.1	5.4	4.0	19.5	19.5
Cycle Queue Clearance Time (g_c), s	9.9	21.1	10.7	10.3	25.3	4.5	8.5	22.1	5.4	4.0	19.5	19.5
Green Ratio (*g/C*)	0.11	0.34	0.34	0.11	0.34	0.34	0.09	0.28	0.39	0.07	0.25	0.25
Capacity (*c*), veh/h	206	1226	546	206	1226	546	171	1014	635	234	480	460
Volume-to-Capacity Ratio (*X*)	0.969	0.772	0.448	1.027	0.880	0.207	1.081	0.908	0.228	0.687	0.890	0.890
Back of Queue (*Q*), ft/ln (95 th percentile)	294.5	361.4	191.4	333.8	438.3	79.2	327.2	401.7	86.2	78.7	405.3	394.3
Back of Queue (*Q*), veh/ln (95 th percentile)	11.8	14.5	7.7	13.4	17.5	3.2	13.1	16.1	3.4	3.1	16.2	15.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.7	26.6	23.2	39.9	28.0	21.2	40.8	31.3	18.1	41.1	32.4	32.4
Incremental Delay (d_2), s/veh	53.3	4.8	2.7	69.8	9.2	0.9	92.2	10.8	0.1	1.3	16.8	17.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	93.0	31.4	25.8	109.7	37.2	22.0	132.9	42.1	18.2	42.4	49.2	49.9
Level of Service (LOS)	F	C	C	F	D	C	F	D	B	D	D	D
Approach Delay, s/veh / LOS	39.3	D		46.9	D		52.7	D		48.4	D	
Intersection Delay, s/veh / LOS	46.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.64	B	1.65	B	1.52	B	1.31	A

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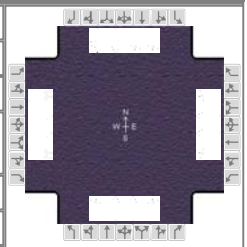
HCS7 Signalized Intersection Results Summary

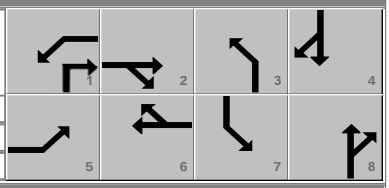
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Cudahy	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Atlantic / Florence	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #13	File Name	13PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	132	869	147	175	767	146	152	598	127	208	727	92

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.8	1.0	30.5	7.7	0.8	23.3
Yellow	3.5	0.0	3.5	3.5	0.0	3.5
Red	1.0	0.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	13.3	35.0	14.2	36.0	13.0	28.6	12.2	27.8
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	9.0		11.4		10.2	16.4	7.7	23.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.3
Phase Call Probability	0.97		0.99		0.98	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	0.39	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	143	945	160	190	834	159	165	650	138	226	454	436
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1809	1610	1810	1809	1610	1810	1809	1610	1757	1900	1825
Queue Service Time (g_s), s	7.0	21.0	6.6	9.4	17.5	6.4	8.2	14.4	5.3	5.7	21.0	21.0
Cycle Queue Clearance Time (g_c), s	7.0	21.0	6.6	9.4	17.5	6.4	8.2	14.4	5.3	5.7	21.0	21.0
Green Ratio (*g/C*)	0.10	0.34	0.34	0.11	0.35	0.35	0.09	0.27	0.38	0.09	0.26	0.26
Capacity (*c*), veh/h	176	1226	546	195	1265	563	171	969	605	300	491	472
Volume-to-Capacity Ratio (*X*)	0.814	0.770	0.293	0.973	0.659	0.282	0.967	0.671	0.228	0.754	0.924	0.924
Back of Queue (*Q*), ft/ln (95 th percentile)	177.6	360.6	116.3	287.6	302.9	112.7	261.3	257.9	85.3	120.8	451.1	439
Back of Queue (*Q*), veh/ln (95 th percentile)	7.1	14.4	4.7	11.5	12.1	4.5	10.5	10.3	3.4	4.8	18.0	17.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	39.8	26.6	21.8	40.0	24.7	21.1	40.6	29.4	19.2	40.2	32.5	32.5
Incremental Delay (d_2), s/veh	18.7	4.7	1.4	56.1	2.7	1.3	58.5	1.4	0.1	7.1	22.6	23.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.5	31.3	23.2	96.1	27.4	22.4	99.1	30.9	19.3	47.4	55.1	55.8
Level of Service (LOS)	E	C	C	F	C	C	F	C	B	D	E	E
Approach Delay, s/veh / LOS	33.4	C		37.8	D		41.0	D		53.8	D	
Intersection Delay, s/veh / LOS	41.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.43	B	2.44	B	2.44	B
Bicycle LOS Score / LOS	1.52	B	1.46	A	1.27	A	1.41	A

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APPENDIX D

HCM AND LEVELS OF SERVICE EXPLANATION
HCM DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS
CITY OF HUNTINGTON PARK

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for traffic signals are stated in terms of the average control delay per vehicle. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

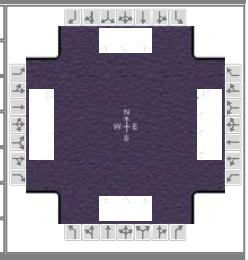
LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high *v/c* ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

HCS7 Signalized Intersection Results Summary

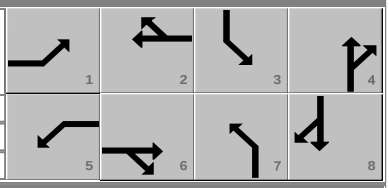
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing - AM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #1	File Name	01AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	956	82	160	1076	155	169	460	281	103	226	73

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	3.3	1.7	30.2	7.0	1.5	23.8
Yellow	3.5	3.5	3.5	3.5	0.0	3.5
Red	1.0	1.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	7.8	34.7	14.0	40.9	13.0	29.8	11.5	28.3
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	3.5		10.6		10.5	25.1	7.5	11.8
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.2
Phase Call Probability	0.55		0.99		0.99	1.00	0.94	1.00
Max Out Probability	0.00		1.00		1.00	1.00	1.00	0.05

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	32	762	366	174	912	426	184	500	305	112	246	79
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1820	1810	1900	1774	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	1.5	15.0	15.0	8.6	16.9	16.9	8.5	23.1	15.2	5.5	9.8	3.4
Cycle Queue Clearance Time (g_c), s	1.5	15.0	15.0	8.6	16.9	16.9	8.5	23.1	15.2	5.5	9.8	3.4
Green Ratio (*g/C*)	0.04	0.34	0.34	0.42	0.40	0.40	0.09	0.28	0.28	0.08	0.26	0.26
Capacity (*c*), veh/h	66	1275	611	191	1538	718	171	534	452	141	503	426
Volume-to-Capacity Ratio (*X*)	0.479	0.598	0.599	0.911	0.593	0.593	1.075	0.937	0.675	0.792	0.489	0.186
Back of Queue (*Q*), ft/ln (95 th percentile)	31.9	277.4	280.9	244.7	297.1	293.5	323.4	491.7	250.5	136.3	198.6	59.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3	11.1	11.2	9.8	11.9	11.7	12.9	19.7	10.0	5.5	7.9	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.5	24.9	24.9	39.8	21.0	21.0	40.8	31.6	28.7	40.8	28.0	25.6
Incremental Delay (d_2), s/veh	2.0	2.1	4.3	40.1	1.7	3.6	90.2	23.7	3.2	15.2	0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.5	26.9	29.2	80.0	22.7	24.6	130.9	55.3	31.9	56.0	28.2	25.7
Level of Service (LOS)	D	C	C	E	C	C	F	E	C	E	C	C
Approach Delay, s/veh / LOS	28.1	C		29.8	C		62.1	E		34.9	C	
Intersection Delay, s/veh / LOS	37.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.13	A	1.32	A	2.12	B	1.21	A

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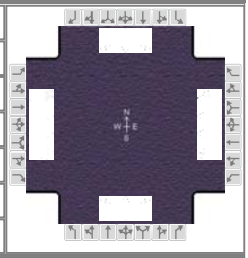
HCS7 Signalized Intersection Results Summary

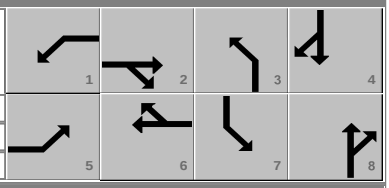
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing - PM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #1	File Name	01PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	38	1069	156	177	821	87	133	254	220	123	406	73

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	3.9	1.1	30.8	8.2	0.3	23.2
Yellow	3.5	3.5	3.5	3.5	0.0	3.5
Red	1.0	1.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	8.4	35.3	14.0	40.9	13.0	28.0	12.7	27.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	4.0		11.5		9.1	13.6	8.5	22.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.0
Phase Call Probability	0.64		0.99		0.97	1.00	0.96	1.00
Max Out Probability	0.02		1.00		1.00	0.06	1.00	0.97

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	41	908	424	192	668	319	145	276	239	134	441	79
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1772	1810	1900	1804	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	2.0	18.6	18.6	9.5	11.4	11.5	7.1	11.3	11.6	6.5	20.2	3.5
Cycle Queue Clearance Time (g_c), s	2.0	18.6	18.6	9.5	11.4	11.5	7.1	11.3	11.6	6.5	20.2	3.5
Green Ratio (g/C)	0.04	0.34	0.34	0.11	0.40	0.40	0.09	0.26	0.26	0.09	0.26	0.26
Capacity (c), veh/h	78	1301	607	191	1539	730	171	495	420	165	490	415
Volume-to-Capacity Ratio (X)	0.532	0.698	0.698	1.007	0.434	0.436	0.846	0.557	0.570	0.809	0.901	0.191
Back of Queue (Q), ft/ln (95 th percentile)	41.6	332.3	332.6	305.9	215.3	214.8	197.8	217.9	195.8	175.6	422.7	60
Back of Queue (Q), veh/ln (95 th percentile)	1.7	13.3	13.3	12.2	8.6	8.6	7.9	8.7	7.8	7.0	16.9	2.4
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.2	25.6	25.6	40.3	19.3	19.4	40.1	28.8	28.9	40.1	32.3	26.1
Incremental Delay (d_2), s/veh	2.1	3.1	6.5	67.0	0.9	1.9	29.2	0.5	0.7	22.0	16.4	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	44.3	28.7	32.1	107.3	20.2	21.2	69.3	29.2	29.6	62.1	48.7	26.2
Level of Service (LOS)	D	C	C	F	C	C	E	C	C	E	D	C
Approach Delay, s/veh / LOS	30.2	C		34.7	C		38.1	D		48.7	D	
Intersection Delay, s/veh / LOS	36.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.24	A	1.14	A	1.58	B	1.57	B

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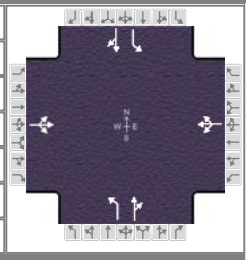
HCS7 Signalized Intersection Results Summary

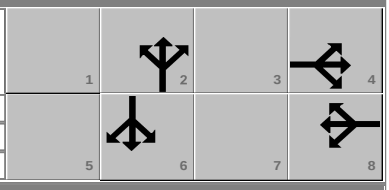
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing - AM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #2	File Name	02AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	48	40	26	19	30	37	27	646	9	17	414	32

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	72.0	9.0	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		13.5		13.5		76.5		76.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		8.6		6.6				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		124			93		29	712		18	485	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1622			1719		925	1895		750	1876	
Queue Service Time (g_s), s		2.1			0.0		0.8	10.8		0.7	6.3	
Cycle Queue Clearance Time (g_c), s		6.6			4.6		7.1	10.8		11.6	6.3	
Green Ratio (*g/C*)		0.10			0.10		0.80	0.80		0.80	0.80	
Capacity (*c*), veh/h		219			221		756	1516		589	1501	
Volume-to-Capacity Ratio (*X*)		0.566			0.423		0.039	0.470		0.031	0.323	
Back of Queue (*Q*), ft/ln (95 th percentile)		121.8			89.4		5.9	117.7		4.9	67.1	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.9			3.6		0.2	4.7		0.2	2.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		39.3			38.5		3.4	2.9		4.7	2.4	
Incremental Delay (d_2), s/veh		0.9			0.5		0.1	1.0		0.1	0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		40.2			39.0		3.5	3.9		4.8	3.0	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	40.2	D		39.0	D		3.9	A		3.1	A	
Intersection Delay, s/veh / LOS	8.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.69	A	0.64	A	1.71	B	1.32	A

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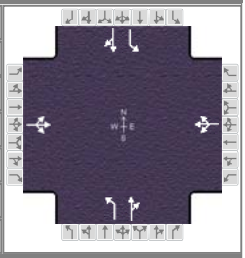
HCS7 Signalized Intersection Results Summary

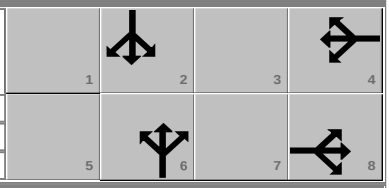
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing - PM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #2	File Name	02PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	19	25	4	23	15	21	468	5	17	606	16

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	75.0	6.0	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		10.5		10.5		79.5		79.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.6		4.2				
Green Extension Time (g_e), s		0.2		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		70			46		23	514		18	676	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1655			1768		775	1896		900	1891	
Queue Service Time (g_s), s		1.4			0.0		0.7	5.6		0.4	8.3	
Cycle Queue Clearance Time (g_c), s		3.6			2.2		9.1	5.6		6.0	8.3	
Green Ratio (*g/C*)		0.07			0.07		0.83	0.83		0.83	0.83	
Capacity (*c*), veh/h		163			162		654	1580		774	1576	
Volume-to-Capacity Ratio (*X*)		0.427			0.282		0.035	0.325		0.024	0.429	
Back of Queue (*Q*), ft/ln (95 th percentile)		68.7			44.3		4.4	44.9		2.7	67.6	
Back of Queue (*Q*), veh/ln (95 th percentile)		2.7			1.8		0.2	1.8		0.1	2.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		40.8			40.2		3.1	1.7		2.4	1.9	
Incremental Delay (d_2), s/veh		0.7			0.4		0.1	0.5		0.1	0.9	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		41.5			40.6		3.2	2.3		2.5	2.8	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	41.5	D		40.6	D		2.3	A		2.8	A	
Intersection Delay, s/veh / LOS	5.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.58	B	1.58	B
Bicycle LOS Score / LOS	0.60	A	0.56	A	1.37	A	1.63	B

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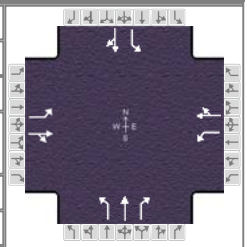
HCS7 Signalized Intersection Results Summary

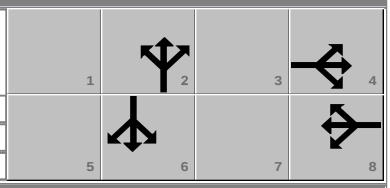
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	371	59	55	347	60	117	514	70	68	403	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		26.8		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	49	467		60	442		127	559	76	74	492	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	962	1854		940	1851		919	1900	1610	864	1863	
Queue Service Time (g_s), s	4.5	21.7		3.8	20.3		7.5	14.4	1.7	4.6	12.4	
Cycle Queue Clearance Time (g_c), s	24.8	21.7		25.5	20.3		19.9	14.4	1.7	18.9	12.4	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	136	525		119	524		520	1172	993	475	1149	
Volume-to-Capacity Ratio (*X*)	0.360	0.890		0.501	0.844		0.245	0.477	0.077	0.156	0.429	
Back of Queue (*Q*), ft/ln (95 th percentile)	48.9	435.8		61.3	391.6		73.1	236.2	25.1	42.2	206.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	17.4		2.5	15.7		2.9	9.4	1.0	1.7	8.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	42.0	30.9		43.8	30.4		14.2	9.4	6.9	14.5	9.0	
Incremental Delay (d_2), s/veh	0.6	16.5		1.2	11.4		1.1	1.4	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	42.6	47.4		45.0	41.7		15.3	10.8	7.1	15.2	10.2	
Level of Service (LOS)	D	D		D	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	47.0	D		42.1	D		11.1	B		10.8	B	
Intersection Delay, s/veh / LOS	25.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.34	A	1.32	A	1.74	B	1.42	A

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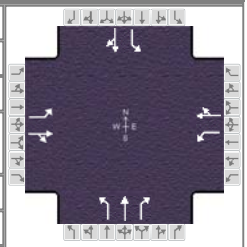
HCS7 Signalized Intersection Results Summary

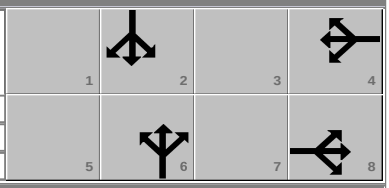
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	416	103	47	325	58	114	424	74	78	502	60

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	72	564		51	416		124	461	80	85	611	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	985	1834		860	1850		823	1900	1610	946	1864	
Queue Service Time (g_s), s	6.5	25.5		0.0	18.7		9.1	11.0	1.8	4.5	16.8	
Cycle Queue Clearance Time (g_c), s	25.3	25.5		25.5	18.7		25.9	11.0	1.8	15.5	16.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	154	520		80	524		434	1172	993	547	1150	
Volume-to-Capacity Ratio (*X*)	0.466	1.085		0.639	0.794		0.286	0.393	0.081	0.155	0.531	
Back of Queue (*Q*), ft/ln (95 th percentile)	72.1	724.9		63.1	353.8		82.2	191.3	26.7	44.1	266	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.9	29.0		2.5	14.2		3.3	7.7	1.1	1.8	10.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	41.5	32.2		45.0	29.8		17.2	8.7	7.0	12.7	9.8	
Incremental Delay (d_2), s/veh	0.8	64.6		12.4	7.6		1.6	1.0	0.2	0.6	1.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	42.3	96.8		57.4	37.4		18.9	9.7	7.1	13.3	11.6	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	90.7	F		39.6	D		11.1	B		11.8	B	
Intersection Delay, s/veh / LOS	37.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.54	B	1.26	A	1.59	B	1.64	B

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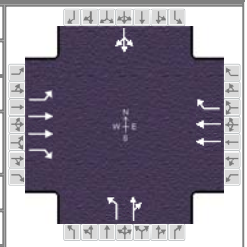
HCS7 Signalized Intersection Results Summary

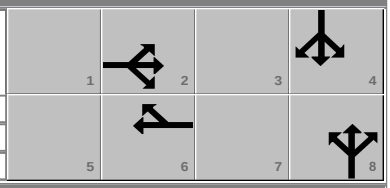
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	1033	206		999	117	362	167	4	61	114	44

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	42.2	13.8	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		46.7		46.7		25.0		18.3
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.3
Queue Clearance Time (g_s), s						21.3		13.5
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.04

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	60	1123	224		1086	127	393	186			238	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	528	1809	1610		1809	1610	1810	1892			1809	
Queue Service Time (g_s), s	8.7	21.5	7.7		20.5	4.1	19.3	7.6			11.5	
Cycle Queue Clearance Time (g_c), s	29.2	21.5	7.7		20.5	4.1	19.3	7.6			11.5	
Green Ratio (*g/C*)	0.47	0.47	0.47		0.47	0.47	0.23	0.23			0.15	
Capacity (*c*), veh/h	207	1695	755		1695	755	412	431			278	
Volume-to-Capacity Ratio (*X*)	0.289	0.662	0.297		0.640	0.169	0.955	0.431			0.857	
Back of Queue (*Q*), ft/ln (95 th percentile)	57.2	341	128.7		327	67.8	444.6	155.6			239.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	13.6	5.1		13.1	2.7	17.8	6.2			9.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	29.3	18.4	14.8		18.2	13.8	34.3	29.8			37.1	
Incremental Delay (d_2), s/veh	3.5	2.1	1.0		1.9	0.5	32.5	0.3			7.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	32.7	20.5	15.8		20.0	14.3	66.8	30.0			44.8	
Level of Service (LOS)	C	C	B		C	B	E	C			D	
Approach Delay, s/veh / LOS	20.2	C		19.4	B		55.0	D		44.8	D	
Intersection Delay, s/veh / LOS	27.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.65	B	1.49	A	1.44	A	0.88	A

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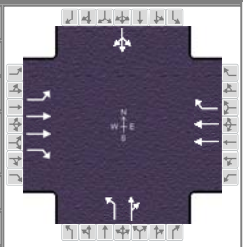
HCS7 Signalized Intersection Results Summary

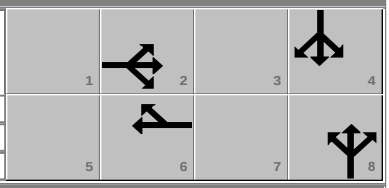
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	32	1039	338		824	28	221	86	3	47	214	27

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	45.4	17.1	14.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		49.9		49.9		18.5		21.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						13.6		16.8
Green Extension Time (g_e), s		0.0		0.0		0.4		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						0.07		0.69

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	35	1129	367		896	30	240	97			313	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	631	1809	1610		1809	1610	1810	1889			1854	
Queue Service Time (g_s), s	3.5	20.3	13.2		14.7	0.9	11.6	4.1			14.8	
Cycle Queue Clearance Time (g_c), s	18.1	20.3	13.2		14.7	0.9	11.6	4.1			14.8	
Green Ratio (*g/C*)	0.50	0.50	0.50		0.50	0.50	0.16	0.16			0.19	
Capacity (*c*), veh/h	295	1824	812		1824	812	282	295			352	
Volume-to-Capacity Ratio (*X*)	0.118	0.619	0.453		0.491	0.037	0.850	0.328			0.890	
Back of Queue (*Q*), ft/ln (95 th percentile)	25.2	317.3	211.2		242.9	13.8	240.4	85.4			323.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	12.7	8.4		9.7	0.6	9.6	3.4			12.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	20.7	16.1	14.3		14.7	11.3	37.0	33.8			35.6	
Incremental Delay (d_2), s/veh	0.8	1.6	1.8		0.9	0.1	7.6	0.2			16.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	21.5	17.7	16.2		15.6	11.4	44.5	34.0			51.9	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	17.4	B		15.5	B		41.5	D		51.9	D	
Intersection Delay, s/veh / LOS	22.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.75	B	1.25	A	1.04	A	1.00	A

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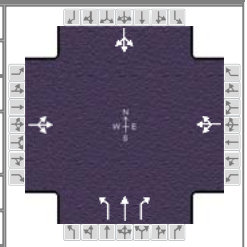
HCS7 Signalized Intersection Results Summary

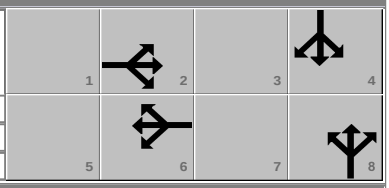
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	63	400	55	59	271	8	48	280	150	21	262	59

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	56.7	24.3	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		61.2		61.2		28.8		28.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						23.2		20.2
Green Extension Time (g_e), s		0.0		0.0		1.4		1.7
Phase Call Probability						1.00		1.00
Max Out Probability						0.24		0.08

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		563			367		52	304	163		372	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1751			1644		1048	1900	1610		1731	
Queue Service Time (g_s), s		0.3			0.0		4.3	12.6	7.4		6.1	
Cycle Queue Clearance Time (g_c), s		14.3			8.0		21.2	12.6	7.4		18.2	
Green Ratio (*g/C*)		0.63			0.63		0.27	0.27	0.27		0.27	
Capacity (*c*), veh/h		1152			1087		164	508	431		506	
Volume-to-Capacity Ratio (*X*)		0.489			0.338		0.318	0.599	0.378		0.735	
Back of Queue (*Q*), ft/ln (95 th percentile)		235.6			145.1		50.5	238.9	127		308.4	
Back of Queue (*Q*), veh/ln (95 th percentile)		9.4			5.8		2.0	9.6	5.1		12.3	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		8.7			7.5		40.1	28.7	26.9		30.6	
Incremental Delay (d_2), s/veh		1.5			0.8		0.4	0.4	0.2		2.4	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		10.2			8.4		40.5	29.2	27.1		32.9	
Level of Service (LOS)		B			A		D	C	C		C	
Approach Delay, s/veh / LOS	10.2	B		8.4	A		29.6	C		32.9	C	
Intersection Delay, s/veh / LOS	20.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.23	B	1.65	B	1.70	B	1.70	B
Bicycle LOS Score / LOS	1.42	A	1.09	A	1.34	A	1.10	A

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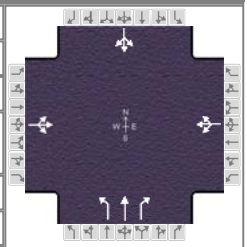
HCS7 Signalized Intersection Results Summary

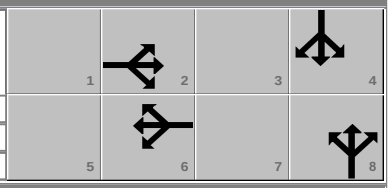
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	390	71	93	345	10	61	264	112	10	358	89

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						30.5		24.2
Green Extension Time (g_e), s		0.0		0.0		0.0		1.5
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.38

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		562			487		66	287	122		497	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1744			1579		924	1900	1610		1825	
Queue Service Time (g_s), s		1.0			0.0		6.3	10.6	4.9		3.3	
Cycle Queue Clearance Time (g_c), s		17.5			16.5		28.5	10.6	4.9		22.2	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1023			935		166	643	545		659	
Volume-to-Capacity Ratio (*X*)		0.549			0.521		0.400	0.446	0.223		0.754	
Back of Queue (*Q*), ft/ln (95 th percentile)		287.1			255.5		64.9	204.6	81.5		387.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		11.5			10.2		2.6	8.2	3.3		15.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.4			11.9		39.9	23.2	21.3		27.0	
Incremental Delay (d_2), s/veh		2.1			2.1		0.6	0.2	0.1		4.4	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		14.6			14.0		40.5	23.4	21.4		31.4	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	14.6	B		14.0	B		25.2	C		31.4	C	
Intersection Delay, s/veh / LOS	21.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.41	A	1.29	A	1.27	A	1.31	A

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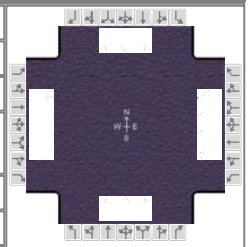
HCS7 Signalized Intersection Results Summary

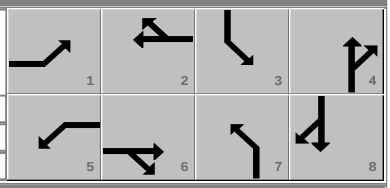
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #1	File Name	01AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	983	82	175	1100	161	169	460	298	110	226	73

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	3.3	1.7	29.8	7.5	1.0	24.2
Yellow	3.5	3.5	3.5	3.5	0.0	3.5
Red	1.0	1.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	7.8	34.3	14.0	40.5	13.0	29.8	12.0	28.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	3.5		11.5		10.5	25.1	7.8	11.8
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.3
Phase Call Probability	0.55		0.99		0.99	1.00	0.95	1.00
Max Out Probability	0.00		1.00		1.00	1.00	1.00	0.05

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	32	782	376	190	935	436	184	500	324	120	246	79
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1822	1810	1900	1772	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	1.5	15.6	15.6	9.5	17.6	17.6	8.5	23.1	16.3	5.8	9.8	3.4
Cycle Queue Clearance Time (g_c), s	1.5	15.6	15.6	9.5	17.6	17.6	8.5	23.1	16.3	5.8	9.8	3.4
Green Ratio (*g/C*)	0.04	0.33	0.33	0.11	0.40	0.40	0.09	0.28	0.28	0.08	0.27	0.27
Capacity (*c*), veh/h	66	1257	603	191	1520	709	171	534	452	150	512	434
Volume-to-Capacity Ratio (*X*)	0.479	0.622	0.623	0.996	0.615	0.615	1.075	0.937	0.716	0.797	0.480	0.183
Back of Queue (*Q*), ft/ln (95 th percentile)	31.9	287.3	291.7	299	308.5	305	323.4	491.6	270	149.9	197.3	58.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3	11.5	11.7	12.0	12.3	12.2	12.9	19.7	10.8	6.0	7.9	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.5	25.4	25.4	40.2	21.5	21.5	40.8	31.6	29.1	40.5	27.6	25.3
Incremental Delay (d_2), s/veh	2.0	2.3	4.8	63.8	1.9	4.0	90.2	23.7	4.5	17.7	0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.5	27.7	30.2	104.0	23.4	25.5	130.9	55.3	33.7	58.2	27.9	25.3
Level of Service (LOS)	D	C	C	F	C	C	F	E	C	E	C	C
Approach Delay, s/veh / LOS	28.9	C		33.8	C		62.1	E		35.6	D	
Intersection Delay, s/veh / LOS	39.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.14	A	1.35	A	2.15	B	1.22	A

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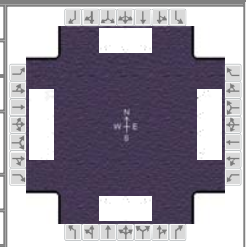
HCS7 Signalized Intersection Results Summary

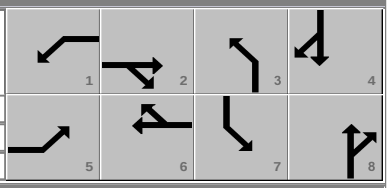
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #1	File Name	01PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	38	1076	156	181	827	88	133	254	224	125	406	73

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	3.9	1.1	30.8	8.3	0.2	23.2
Yellow	3.5	3.5	3.5	3.5	0.0	3.5
Red	1.0	1.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	8.4	35.3	14.0	40.9	13.0	27.9	12.8	27.7
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	4.0		11.5		9.1	13.9	8.6	22.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.0
Phase Call Probability	0.64		0.99		0.97	1.00	0.97	1.00
Max Out Probability	0.02		1.00		1.00	0.07	1.00	0.97

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	41	913	426	197	673	321	145	276	243	136	441	79
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1773	1810	1900	1803	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	2.0	18.7	18.7	9.5	11.5	11.6	7.1	11.3	11.9	6.6	20.2	3.5
Cycle Queue Clearance Time (g_c), s	2.0	18.7	18.7	9.5	11.5	11.6	7.1	11.3	11.9	6.6	20.2	3.5
Green Ratio (*g/C*)	0.04	0.34	0.34	0.11	0.40	0.40	0.09	0.26	0.26	0.09	0.26	0.26
Capacity (*c*), veh/h	78	1301	607	191	1539	730	171	493	418	168	490	415
Volume-to-Capacity Ratio (*X*)	0.532	0.702	0.702	1.030	0.438	0.440	0.846	0.560	0.583	0.810	0.901	0.191
Back of Queue (*Q*), ft/ln (95 th percentile)	41.6	334.5	335	319.4	217	216.2	197.8	218.2	199.9	179.6	422.6	60
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	13.4	13.4	12.8	8.7	8.6	7.9	8.7	8.0	7.2	16.9	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.2	25.6	25.6	40.3	19.4	19.4	40.1	28.9	29.1	40.1	32.3	26.1
Incremental Delay (d_2), s/veh	2.1	3.2	6.7	73.2	0.9	1.9	29.2	0.5	0.9	22.6	16.4	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	28.8	32.3	113.4	20.3	21.3	69.3	29.4	29.9	62.6	48.7	26.2
Level of Service (LOS)	D	C	C	F	C	C	E	C	C	E	D	C
Approach Delay, s/veh / LOS	30.3	C		35.9	D		38.3	D		48.8	D	
Intersection Delay, s/veh / LOS	36.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.25	A	1.14	A	1.58	B	1.57	B

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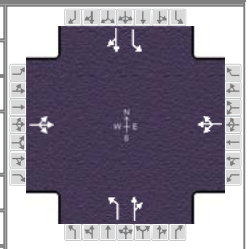
HCS7 Signalized Intersection Results Summary

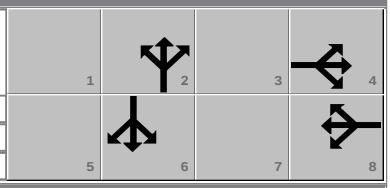
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #2	File Name	02AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	65	40	26	19	30	37	27	646	9	17	414	47

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	70.7	10.3	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		14.8		14.8		75.2		75.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		9.8		6.5				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		142			93		29	712		18	501	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1578			1723		911	1895		750	1866	
Queue Service Time (g_s), s		3.4			0.0		0.9	11.6		0.8	7.1	
Cycle Queue Clearance Time (g_c), s		7.8			4.5		8.0	11.6		12.4	7.1	
Green Ratio (*g/C*)		0.11			0.11		0.79	0.79		0.79	0.79	
Capacity (*c*), veh/h		240			245		725	1490		573	1467	
Volume-to-Capacity Ratio (*X*)		0.594			0.381		0.040	0.478		0.032	0.342	
Back of Queue (*Q*), ft/ln (95 th percentile)		139.7			87.7		6.7	135.3		5.4	80.6	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.6			3.5		0.3	5.4		0.2	3.2	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		38.7			37.3		4.0	3.3		5.4	2.8	
Incremental Delay (d_2), s/veh		0.9			0.4		0.1	1.1		0.1	0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		39.6			37.7		4.1	4.4		5.5	3.5	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	39.6	D		37.7	D		4.4	A		3.5	A	
Intersection Delay, s/veh / LOS	9.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.72	A	0.64	A	1.71	B	1.34	A

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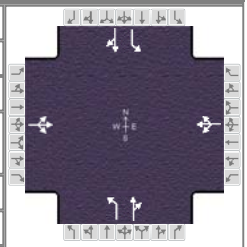
HCS7 Signalized Intersection Results Summary

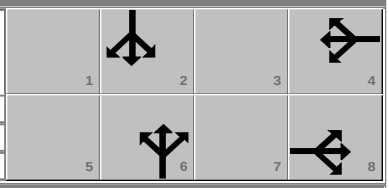
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #2	File Name	02PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	24	19	25	4	23	15	21	468	5	17	606	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	74.9	6.1	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		10.6		10.6		79.4		79.4
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.9		4.2				
Green Extension Time (g_e), s		0.2		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		74			46		23	514		18	680	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1640			1772		772	1896		900	1889	
Queue Service Time (g_s), s		1.7			0.0		0.7	5.6		0.4	8.5	
Cycle Queue Clearance Time (g_c), s		3.9			2.2		9.2	5.6		6.1	8.5	
Green Ratio (*g/C*)		0.07			0.07		0.83	0.83		0.83	0.83	
Capacity (*c*), veh/h		165			164		650	1579		773	1573	
Volume-to-Capacity Ratio (*X*)		0.448			0.279		0.035	0.326		0.024	0.433	
Back of Queue (*Q*), ft/ln (95 th percentile)		73.3			44.2		4.4	44.9		2.8	68.1	
Back of Queue (*Q*), veh/ln (95 th percentile)		2.9			1.8		0.2	1.8		0.1	2.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		40.9			40.1		3.2	1.7		2.4	2.0	
Incremental Delay (d_2), s/veh		0.7			0.3		0.1	0.5		0.1	0.9	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		41.6			40.5		3.3	2.3		2.5	2.8	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	41.6	D		40.5	D		2.3	A		2.8	A	
Intersection Delay, s/veh / LOS	6.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.58	B	1.58	B
Bicycle LOS Score / LOS	0.61	A	0.56	A	1.37	A	1.64	B

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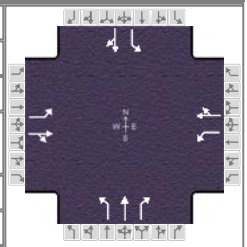
HCS7 Signalized Intersection Results Summary

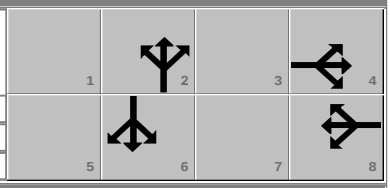
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	392	59	64	365	60	117	514	80	68	403	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	49	490		70	462		127	559	87	74	492	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	945	1856		921	1853		919	1900	1610	864	1863	
Queue Service Time (g_s), s	4.1	23.1		2.4	21.4		7.5	14.4	2.0	4.6	12.4	
Cycle Queue Clearance Time (g_c), s	25.5	23.1		25.5	21.4		19.9	14.4	2.0	18.9	12.4	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	123	526		104	525		520	1172	993	475	1149	
Volume-to-Capacity Ratio (*X*)	0.398	0.932		0.668	0.880		0.245	0.477	0.088	0.156	0.429	
Back of Queue (*Q*), ft/ln (95 th percentile)	49.8	485.5		85.4	425.4		73.1	236.2	28.9	42.2	206.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	19.4		3.4	17.0		2.9	9.4	1.2	1.7	8.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	43.2	31.4		44.6	30.8		14.2	9.4	7.0	14.5	9.0	
Incremental Delay (d_2), s/veh	0.8	23.3		12.5	15.3		1.1	1.4	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	44.0	54.7		57.1	46.1		15.3	10.8	7.2	15.2	10.2	
Level of Service (LOS)	D	D		E	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	53.7	D		47.5	D		11.1	B		10.8	B	
Intersection Delay, s/veh / LOS	28.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.38	A	1.36	A	1.76	B	1.42	A

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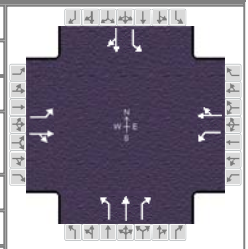
HCS7 Signalized Intersection Results Summary

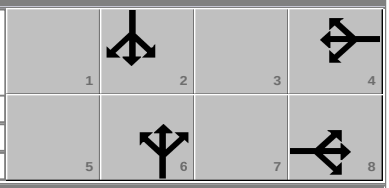
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	421	103	49	329	58	114	424	77	78	502	60

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	72	570		53	421		124	461	84	85	611	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	982	1835		856	1850		823	1900	1610	946	1864	
Queue Service Time (g_s), s	6.5	25.5		0.0	19.0		9.1	11.0	1.9	4.5	16.8	
Cycle Queue Clearance Time (g_c), s	25.5	25.5		25.5	19.0		25.9	11.0	1.9	15.5	16.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	151	520		80	524		434	1172	993	547	1150	
Volume-to-Capacity Ratio (*X*)	0.475	1.095		0.666	0.802		0.286	0.393	0.084	0.155	0.531	
Back of Queue (*Q*), ft/ln (95 th percentile)	72.3	744.6		68.6	359.6		82.2	190.9	27.7	44.1	264.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.9	29.8		2.7	14.4		3.3	7.6	1.1	1.8	10.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	41.8	32.3		45.0	29.9		17.2	8.7	7.0	12.7	9.8	
Incremental Delay (d_2), s/veh	0.9	68.0		15.6	8.1		1.6	1.0	0.2	0.6	1.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	42.6	100.3		60.6	38.0		18.9	9.7	7.1	13.3	11.6	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	93.8	F		40.6	D		11.1	B		11.8	B	
Intersection Delay, s/veh / LOS	38.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.55	B	1.27	A	1.59	B	1.64	B

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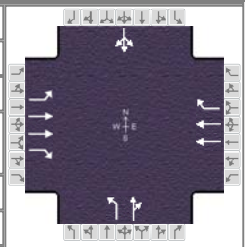
HCS7 Signalized Intersection Results Summary

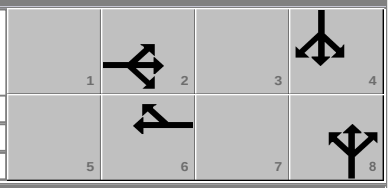
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	1084	206		999	117	408	182	4	61	131	44

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	41.3	14.7	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		45.8		45.8		25.0		19.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						22.5		14.4
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.09

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	60	1178	224		1086	127	443	202			257	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	528	1809	1610		1809	1610	1810	1893			1816	
Queue Service Time (g_s), s	8.9	23.5	7.9		20.9	4.2	20.5	8.3			12.4	
Cycle Queue Clearance Time (g_c), s	29.8	23.5	7.9		20.9	4.2	20.5	8.3			12.4	
Green Ratio (*g/C*)	0.46	0.46	0.46		0.46	0.46	0.23	0.23			0.16	
Capacity (*c*), veh/h	200	1661	739		1661	739	412	431			296	
Volume-to-Capacity Ratio (*X*)	0.299	0.709	0.303		0.654	0.172	1.076	0.469			0.866	
Back of Queue (*Q*), ft/ln (95 th percentile)	58.7	370.1	131.5		333.1	69.4	601.5	170.9			260.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	14.8	5.3		13.3	2.8	24.1	6.8			10.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	30.3	19.5	15.3		18.8	14.3	34.8	30.0			36.7	
Incremental Delay (d_2), s/veh	3.8	2.6	1.1		2.0	0.5	66.1	0.3			10.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	34.1	22.1	16.3		20.8	14.8	100.9	30.3			46.9	
Level of Service (LOS)	C	C	B		C	B	F	C			D	
Approach Delay, s/veh / LOS	21.7	C		20.2	C		78.8	E		46.9	D	
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.68	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.69	B	1.49	A	1.55	B	0.91	A

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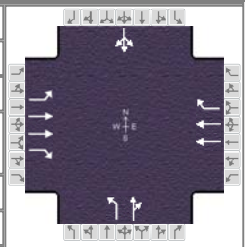
HCS7 Signalized Intersection Results Summary

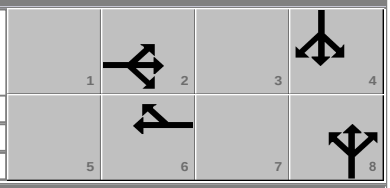
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	32	1052	338		824	28	232	90	3	47	218	27

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	44.6	17.3	14.6	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		49.1		49.1		19.1		21.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						14.2		17.0
Green Extension Time (g_e), s		0.0		0.0		0.4		0.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.11		0.81

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	35	1143	367		896	30	252	101			317	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	631	1809	1610		1809	1610	1810	1889			1854	
Queue Service Time (g_s), s	3.5	21.0	13.4		14.9	0.9	12.2	4.3			15.0	
Cycle Queue Clearance Time (g_c), s	18.5	21.0	13.4		14.9	0.9	12.2	4.3			15.0	
Green Ratio (*g/C*)	0.50	0.50	0.50		0.50	0.50	0.16	0.16			0.19	
Capacity (*c*), veh/h	288	1793	798		1793	798	294	307			356	
Volume-to-Capacity Ratio (*X*)	0.121	0.638	0.460		0.500	0.038	0.857	0.329			0.892	
Back of Queue (*Q*), ft/ln (95 th percentile)	25.7	328.1	214.8		247	14.1	253.9	88.7			328.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	13.1	8.6		9.9	0.6	10.2	3.5			13.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	21.4	16.7	14.8		15.2	11.7	36.7	33.3			35.5	
Incremental Delay (d_2), s/veh	0.9	1.7	1.9		1.0	0.1	9.2	0.2			16.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	22.3	18.5	16.7		16.2	11.8	45.9	33.6			52.3	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	18.2	B		16.1	B		42.3	D		52.3	D	
Intersection Delay, s/veh / LOS	23.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.76	B	1.25	A	1.07	A	1.01	A

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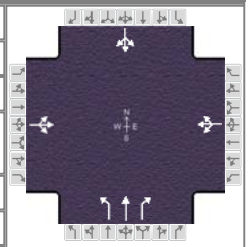
HCS7 Signalized Intersection Results Summary

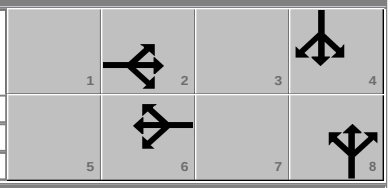
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	400	55	59	271	8	48	321	150	21	299	102

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	52.4	28.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		56.9		56.9		33.1		33.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						27.8		23.4
Green Extension Time (g_e), s		0.0		0.0		0.9		1.7
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.32

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		615			367		52	349	163		459	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1668			1625		968	1900	1610		1773	
Queue Service Time (g_s), s		11.8			0.0		4.7	13.8	6.9		7.6	
Cycle Queue Clearance Time (g_c), s		20.9			9.0		25.8	13.8	6.9		21.4	
Green Ratio (*g/C*)		0.58			0.58		0.32	0.32	0.32		0.32	
Capacity (*c*), veh/h		1021			995		159	601	509		603	
Volume-to-Capacity Ratio (*X*)		0.602			0.369		0.327	0.580	0.320		0.761	
Back of Queue (*Q*), ft/ln (95 th percentile)		311.9			172		50.7	256.6	116.8		368	
Back of Queue (*Q*), veh/ln (95 th percentile)		12.5			6.9		2.0	10.3	4.7		14.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		11.9			9.7		40.1	25.8	23.4		28.2	
Incremental Delay (d_2), s/veh		2.6			1.1		0.4	0.6	0.1		4.3	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		14.6			10.7		40.5	26.4	23.5		32.6	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	14.6	B		10.7	B		26.9	C		32.6	C	
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.65	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.50	B	1.09	A	1.42	A	1.24	A

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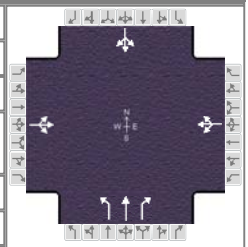
HCS7 Signalized Intersection Results Summary

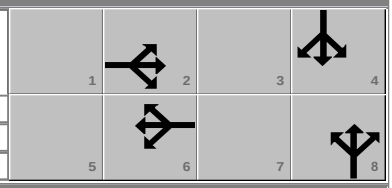
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	390	71	93	345	10	61	274	112	10	367	99

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						32.1		25.5
Green Extension Time (g_e), s		0.0		0.0		0.0		1.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.60

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		575			487		66	298	122		517	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1719			1570		907	1900	1610		1821	
Queue Service Time (g_s), s		1.7			0.0		6.5	11.1	4.9		4.6	
Cycle Queue Clearance Time (g_c), s		18.5			16.8		30.1	11.1	4.9		23.5	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1010			929		150	644	546		658	
Volume-to-Capacity Ratio (*X*)		0.569			0.524		0.441	0.463	0.223		0.786	
Back of Queue (*Q*), ft/ln (95 th percentile)		296.3			256.2		66.4	211.8	81.5		413.2	
Back of Queue (*Q*), veh/ln (95 th percentile)		11.9			10.2		2.7	8.5	3.3		16.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.6			12.0		41.3	23.3	21.3		27.4	
Incremental Delay (d_2), s/veh		2.3			2.1		0.8	0.2	0.1		5.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		14.9			14.1		42.1	23.5	21.4		33.2	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	14.9	B		14.1	B		25.5	C		33.2	C	
Intersection Delay, s/veh / LOS	21.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.44	A	1.29	A	1.29	A	1.34	A

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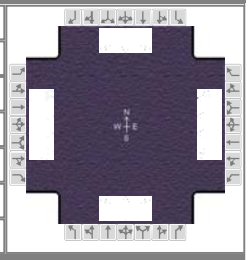
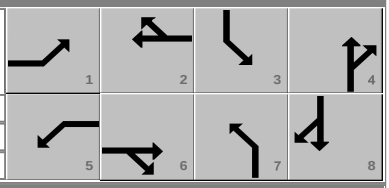
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future - AM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #1	File Name	01AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	31	985	84	169	1111	161	172	470	292	107	233	74

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	3.4	1.6	29.7	7.3	1.2	24.3
Yellow	3.5	3.5	3.5	3.5	0.0	3.5
Red	1.0	1.0	1.0	1.0	0.0	1.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	7.9	34.2	14.0	40.3	13.0	30.0	11.8	28.8
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	3.6		11.1		10.5	25.7	7.7	12.1
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3
Phase Call Probability	0.57		0.99		0.99	1.00	0.95	1.00
Max Out Probability	0.01		1.00		1.00	1.00	1.00	0.06

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	34	785	377	184	943	440	187	511	317	116	253	80
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1821	1810	1900	1773	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	1.6	15.7	15.7	9.1	17.9	17.9	8.5	23.7	15.8	5.7	10.1	3.5
Cycle Queue Clearance Time (g_c), s	1.6	15.7	15.7	9.1	17.9	17.9	8.5	23.7	15.8	5.7	10.1	3.5
Green Ratio (*g/C*)	0.04	0.33	0.33	0.11	0.40	0.40	0.09	0.28	0.28	0.08	0.27	0.27
Capacity (*c*), veh/h	69	1255	601	191	1512	705	171	538	456	146	513	434
Volume-to-Capacity Ratio (*X*)	0.491	0.626	0.627	0.962	0.624	0.624	1.094	0.949	0.696	0.795	0.494	0.185
Back of Queue (*Q*), ft/ln (95 th percentile)	34.1	288.4	293.1	276.1	312.3	309.1	335	511.8	261.6	144.2	202.9	59.7
Back of Queue (*Q*), veh/ln (95 th percentile)	1.4	11.5	11.7	11.0	12.5	12.4	13.4	20.5	10.5	5.8	8.1	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.4	25.4	25.5	40.1	21.7	21.7	40.8	31.6	28.8	40.6	27.7	25.3
Incremental Delay (d_2), s/veh	2.0	2.4	4.9	53.6	1.9	4.1	96.2	26.3	3.9	16.7	0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.4	27.8	30.3	93.6	23.6	25.8	136.9	57.9	32.6	57.3	28.0	25.3
Level of Service (LOS)	D	C	C	F	C	C	F	E	C	E	C	C
Approach Delay, s/veh / LOS	29.1	C		32.5	C		64.6	E		35.1	D	
Intersection Delay, s/veh / LOS	39.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.15	A	1.35	A	2.16	B	1.23	A

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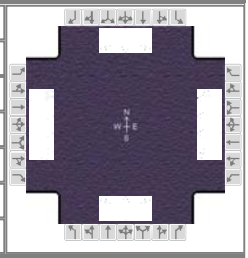
HCS7 Signalized Intersection Results Summary

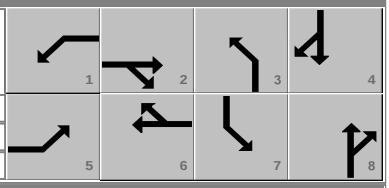
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future - PM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #1	File Name	01PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	1111	159	186	858	92	136	262	230	127	418	75

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	4.0	1.0	30.3	8.5	23.7	0.0
Yellow	3.5	3.5	3.5	3.5	3.5	0.0
Red	1.0	1.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	8.5	34.8	14.0	40.3	13.0	28.2	13.0	28.2
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	4.1		11.5		9.3	14.2	8.7	22.8
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.9
Phase Call Probability	0.66		0.99		0.98	1.00	0.97	1.00
Max Out Probability	0.02		1.00		1.00	0.08	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	43	941	439	202	699	333	148	285	250	138	454	82
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1774	1810	1900	1803	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	2.1	19.6	19.7	9.5	12.2	12.3	7.3	11.7	12.2	6.7	20.8	3.5
Cycle Queue Clearance Time (g_c), s	2.1	19.6	19.7	9.5	12.2	12.3	7.3	11.7	12.2	6.7	20.8	3.5
Green Ratio (*g/C*)	0.04	0.34	0.34	0.11	0.40	0.40	0.09	0.26	0.26	0.09	0.26	0.26
Capacity (*c*), veh/h	80	1279	597	191	1512	717	171	501	425	170	500	424
Volume-to-Capacity Ratio (*X*)	0.544	0.736	0.736	1.058	0.462	0.464	0.865	0.568	0.589	0.812	0.908	0.192
Back of Queue (*Q*), ft/ln (95 th percentile)	43.8	351.3	353.7	337.2	227.7	227.2	206.5	224	204.5	183.7	437.9	61.2
Back of Queue (*Q*), veh/ln (95 th percentile)	1.8	14.1	14.1	13.5	9.1	9.1	8.3	9.0	8.2	7.3	17.5	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.1	26.3	26.3	40.3	20.0	20.0	40.2	28.7	28.9	40.0	32.1	25.7
Incremental Delay (d_2), s/veh	2.1	3.8	7.9	81.4	1.0	2.2	32.9	0.6	1.0	23.2	17.7	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	30.1	34.2	121.7	21.0	22.2	73.1	29.3	29.9	63.2	49.8	25.8
Level of Service (LOS)	D	C	C	F	C	C	E	C	C	E	D	C
Approach Delay, s/veh / LOS	31.8	C		37.8	D		39.0	D		49.7	D	
Intersection Delay, s/veh / LOS	37.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.27	A	1.17	A	1.61	B	1.60	B

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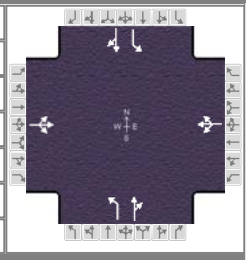
HCS7 Signalized Intersection Results Summary

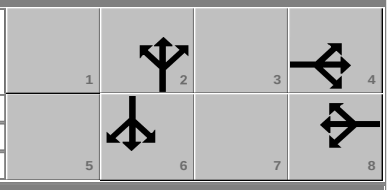
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future - AM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #2	File Name	02AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	52	41	27	19	31	38	28	662	9	17	426	36

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	71.6	9.4	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		13.9		13.9		76.1		76.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		9.0		6.6				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		130			96		30	729		18	502	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1613			1722		910	1895		738	1874	
Queue Service Time (g_s), s		2.4			0.0		0.9	11.5		0.8	6.7	
Cycle Queue Clearance Time (g_c), s		7.0			4.6		7.6	11.5		12.3	6.7	
Green Ratio (*g/C*)		0.10			0.10		0.80	0.80		0.80	0.80	
Capacity (*c*), veh/h		226			229		736	1508		572	1490	
Volume-to-Capacity Ratio (*X*)		0.577			0.418		0.041	0.484		0.032	0.337	
Back of Queue (*Q*), ft/ln (95 th percentile)		128.2			91		6.4	128.6		5.2	73.6	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.1			3.6		0.3	5.1		0.2	2.9	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		39.1			38.2		3.6	3.1		5.1	2.6	
Incremental Delay (d_2), s/veh		0.9			0.5		0.1	1.1		0.1	0.6	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		40.0			38.6		3.7	4.2		5.2	3.2	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	40.0	D		38.6	D		4.2	A		3.3	A	
Intersection Delay, s/veh / LOS	9.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.70	A	0.65	A	1.74	B	1.35	A

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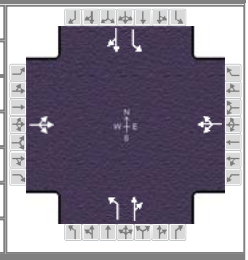
HCS7 Signalized Intersection Results Summary

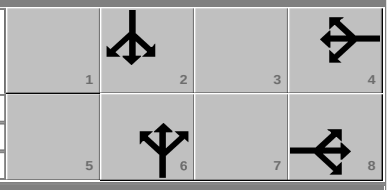
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future - PM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #2	File Name	02PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	24	19	26	4	23	15	21	481	5	17	624	19

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	74.9	6.1	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		10.6		10.6		79.4		79.4
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.9		4.2				
Green Extension Time (g_e), s		0.2		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		75			46		23	528		18	699	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1641			1772		759	1896		889	1890	
Queue Service Time (g_s), s		1.8			0.0		0.7	5.8		0.4	8.9	
Cycle Queue Clearance Time (g_c), s		3.9			2.2		9.7	5.8		6.3	8.9	
Green Ratio (*g/C*)		0.07			0.07		0.83	0.83		0.83	0.83	
Capacity (*c*), veh/h		166			165		636	1577		761	1572	
Volume-to-Capacity Ratio (*X*)		0.452			0.277		0.036	0.335		0.024	0.445	
Back of Queue (*Q*), ft/ln (95 th percentile)		74.3			44.2		4.6	47.6		2.9	73	
Back of Queue (*Q*), veh/ln (95 th percentile)		3.0			1.8		0.2	1.9		0.1	2.9	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		40.9			40.1		3.3	1.8		2.5	2.0	
Incremental Delay (d_2), s/veh		0.7			0.3		0.1	0.6		0.1	0.9	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		41.6			40.4		3.4	2.3		2.6	2.9	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	41.6	D		40.4	D		2.4	A		2.9	A	
Intersection Delay, s/veh / LOS	6.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.58	B	1.58	B
Bicycle LOS Score / LOS	0.61	A	0.56	A	1.40	A	1.67	B

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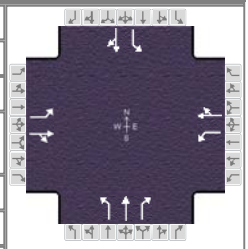
HCS7 Signalized Intersection Results Summary

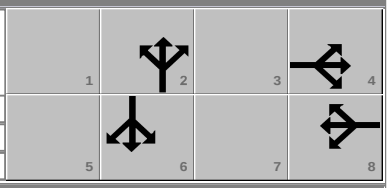
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	47	380	60	59	360	61	119	526	73	69	414	51

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	51	478		64	458		129	572	79	75	505	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	949	1854		931	1852		908	1900	1610	854	1863	
Queue Service Time (g_s), s	4.3	22.4		3.1	21.2		7.9	14.9	1.8	4.8	12.8	
Cycle Queue Clearance Time (g_c), s	25.5	22.4		25.5	21.2		20.7	14.9	1.8	19.6	12.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	126	525		112	525		510	1172	993	466	1149	
Volume-to-Capacity Ratio (*X*)	0.407	0.910		0.573	0.872		0.253	0.488	0.080	0.161	0.440	
Back of Queue (*Q*), ft/ln (95 th percentile)	52	458.6		70.1	417.7		75.8	242.5	26.3	43.5	212.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	18.3		2.8	16.7		3.0	9.7	1.1	1.7	8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	43.1	31.1		44.2	30.7		14.5	9.5	7.0	14.8	9.1	
Incremental Delay (d_2), s/veh	0.8	19.5		4.5	14.3		1.2	1.5	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	43.9	50.7		48.8	45.0		15.7	10.9	7.1	15.6	10.3	
Level of Service (LOS)	D	D		D	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	50.0	D		45.5	D		11.3	B		11.0	B	
Intersection Delay, s/veh / LOS	27.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.36	A	1.35	A	1.78	B	1.45	A

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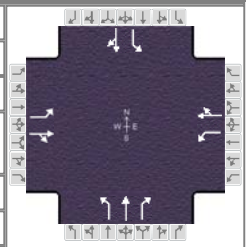
HCS7 Signalized Intersection Results Summary

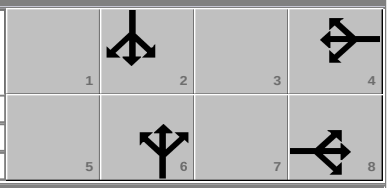
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	432	105	53	338	59	116	436	81	80	517	62

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	74	584		58	432		126	474	88	87	629	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	972	1835		844	1850		809	1900	1610	935	1864	
Queue Service Time (g_s), s	5.9	25.5		0.0	19.6		9.6	11.5	2.0	4.7	17.6	
Cycle Queue Clearance Time (g_c), s	25.5	25.5		25.5	19.6		27.2	11.5	2.0	16.2	17.6	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	144	520		80	524		421	1172	993	537	1150	
Volume-to-Capacity Ratio (*X*)	0.515	1.122		0.720	0.823		0.300	0.404	0.089	0.162	0.547	
Back of Queue (*Q*), ft/ln (95 th percentile)	76	798.8		80.9	374.9		85.8	196.7	29.3	46	274.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.0	32.0		3.2	15.0		3.4	7.9	1.2	1.8	11.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	42.5	32.3		45.0	30.1		17.9	8.8	7.0	12.9	10.0	
Incremental Delay (d_2), s/veh	1.4	77.6		23.6	9.6		1.8	1.0	0.2	0.6	1.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	43.9	109.9		68.6	39.7		19.7	9.8	7.2	13.6	11.9	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	102.4	F		43.2	D		11.3	B		12.1	B	
Intersection Delay, s/veh / LOS	41.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.57	B	1.29	A	1.62	B	1.67	B

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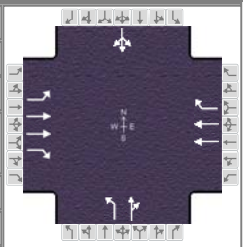
HCS7 Signalized Intersection Results Summary

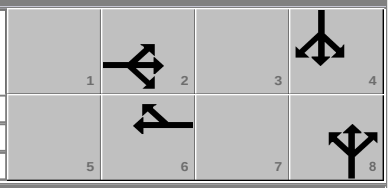
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	1072	210		1042	122	369	170	4	64	116	45

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	41.9	14.1	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		46.4		46.4		25.0		18.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.3
Queue Clearance Time (g_s), s						21.8		13.9
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.05

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	61	1165	228		1133	133	401	189			245	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	505	1809	1610		1809	1610	1810	1892			1809	
Queue Service Time (g_s), s	9.6	22.9	8.0		21.9	4.3	19.8	7.7			11.9	
Cycle Queue Clearance Time (g_c), s	31.6	22.9	8.0		21.9	4.3	19.8	7.7			11.9	
Green Ratio (*g/C*)	0.47	0.47	0.47		0.47	0.47	0.23	0.23			0.16	
Capacity (*c*), veh/h	192	1683	749		1683	749	412	431			284	
Volume-to-Capacity Ratio (*X*)	0.317	0.692	0.305		0.673	0.177	0.973	0.439			0.860	
Back of Queue (*Q*), ft/ln (95 th percentile)	61.2	359.9	132.8		347.1	71.6	466.8	158.6			246.7	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	14.4	5.3		13.9	2.9	18.7	6.3			9.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	31.0	19.0	15.0		18.7	14.0	34.5	29.8			37.0	
Incremental Delay (d_2), s/veh	4.3	2.4	1.1		2.2	0.5	37.0	0.3			8.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	35.3	21.4	16.1		20.9	14.5	71.5	30.1			45.6	
Level of Service (LOS)	D	C	B		C	B	E	C			D	
Approach Delay, s/veh / LOS	21.1	C		20.2	C		58.2	E		45.6	D	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.69	B	1.53	B	1.46	A	0.89	A

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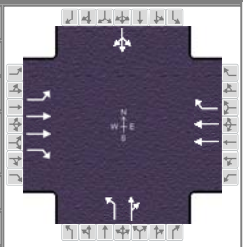
HCS7 Signalized Intersection Results Summary

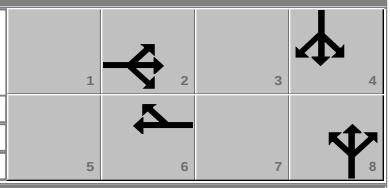
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	1091	345		871	32	225	88	3	52	218	28

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	44.7	17.6	14.3	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		49.2		49.2		18.8		22.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						13.8		17.3
Green Extension Time (g_e), s		0.0		0.0		0.4		0.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.08		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	36	1186	375		947	35	245	99			324	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	602	1809	1610		1809	1610	1810	1889			1853	
Queue Service Time (g_s), s	3.9	22.1	13.8		16.1	1.0	11.8	4.2			15.3	
Cycle Queue Clearance Time (g_c), s	20.0	22.1	13.8		16.1	1.0	11.8	4.2			15.3	
Green Ratio (*g/C*)	0.50	0.50	0.50		0.50	0.50	0.16	0.16			0.20	
Capacity (*c*), veh/h	271	1795	799		1795	799	287	299			362	
Volume-to-Capacity Ratio (*X*)	0.132	0.661	0.469		0.527	0.044	0.853	0.330			0.895	
Back of Queue (*Q*), ft/ln (95 th percentile)	27.4	343.1	219.2		262.6	16.2	245.3	87.2			336.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	13.7	8.8		10.5	0.6	9.8	3.5			13.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	22.3	17.0	14.9		15.5	11.7	36.8	33.6			35.3	
Incremental Delay (d_2), s/veh	1.0	1.9	2.0		1.1	0.1	8.2	0.2			17.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	23.3	18.9	16.9		16.6	11.8	45.0	33.9			53.0	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	18.5	B		16.4	B		41.8	D		53.0	D	
Intersection Delay, s/veh / LOS	23.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.80	B	1.30	A	1.05	A	1.02	A

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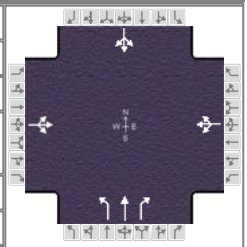
HCS7 Signalized Intersection Results Summary

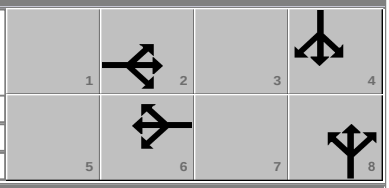
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	412	56	61	278	8	49	293	153	21	275	68

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.3	25.7	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		59.8		59.8		30.2		30.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						24.6		21.1
Green Extension Time (g_e), s		0.0		0.0		1.4		1.7
Phase Call Probability						1.00		1.00
Max Out Probability						0.41		0.13

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		580			377		53	318	166		396	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1748			1639		1026	1900	1610		1743	
Queue Service Time (g_s), s		2.0			0.0		4.5	13.0	7.4		6.4	
Cycle Queue Clearance Time (g_c), s		15.8			8.6		22.6	13.0	7.4		19.1	
Green Ratio (*g/C*)		0.61			0.61		0.29	0.29	0.29		0.29	
Capacity (*c*), veh/h		1125			1059		164	536	454		534	
Volume-to-Capacity Ratio (*X*)		0.516			0.356		0.325	0.594	0.366		0.741	
Back of Queue (*Q*), ft/ln (95 th percentile)		255.1			158.1		51.6	244.6	126.8		324.9	
Back of Queue (*Q*), veh/ln (95 th percentile)		10.2			6.3		2.1	9.8	5.1		13.0	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		9.5			8.2		40.0	27.9	25.9		29.8	
Incremental Delay (d_2), s/veh		1.7			0.9		0.4	0.4	0.2		2.9	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		11.2			9.1		40.4	28.2	26.0		32.7	
Level of Service (LOS)		B			A		D	C	C		C	
Approach Delay, s/veh / LOS	11.2	B		9.1	A		28.8	C		32.7	C	
Intersection Delay, s/veh / LOS	20.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.23	B	1.65	B	1.70	B	1.70	B
Bicycle LOS Score / LOS	1.45	A	1.11	A	1.38	A	1.14	A

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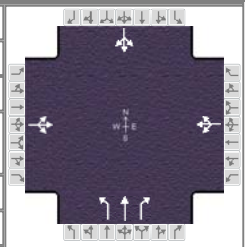
HCS7 Signalized Intersection Results Summary

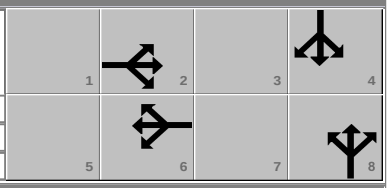
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	59	409	72	96	354	10	62	280	115	10	376	101

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						32.5		26.3
Green Extension Time (g_e), s		0.0		0.0		0.0		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.77

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		587			500		67	304	125		529	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1742			1555		897	1900	1610		1822	
Queue Service Time (g_s), s		0.8			0.0		6.2	11.3	5.0		5.4	
Cycle Queue Clearance Time (g_c), s		18.8			18.0		30.5	11.3	5.0		24.3	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1022			921		142	644	546		658	
Volume-to-Capacity Ratio (*X*)		0.575			0.543		0.475	0.473	0.229		0.804	
Back of Queue (*Q*), ft/ln (95 th percentile)		302.9			266.3		68.4	216	83.8		428.4	
Back of Queue (*Q*), veh/ln (95 th percentile)		12.1			10.7		2.7	8.6	3.4		17.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.7			12.2		42.2	23.4	21.3		27.7	
Incremental Delay (d_2), s/veh		2.4			2.3		0.9	0.2	0.1		6.7	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		15.1			14.5		43.1	23.6	21.4		34.4	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	15.1	B		14.5	B		25.7	C		34.4	C	
Intersection Delay, s/veh / LOS	22.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.46	A	1.31	A	1.31	A	1.36	A

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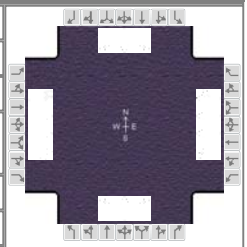
HCS7 Signalized Intersection Results Summary

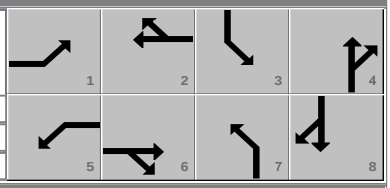
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future with Project- AM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #1	File Name	01AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	31	1012	84	184	1135	167	172	470	309	114	233	74

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	3.4	1.6	29.3	7.7	0.8	24.7
Yellow	3.5	3.5	3.5	3.5	0.0	3.5
Red	1.0	1.0	1.0	1.0	0.0	1.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	7.9	33.8	14.0	39.9	13.0	30.0	12.2	29.2
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	3.6		11.5		10.5	25.7	8.1	12.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3
Phase Call Probability	0.57		0.99		0.99	1.00	0.95	1.00
Max Out Probability	0.01		1.00		1.00	1.00	1.00	0.06

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	34	805	387	200	965	450	187	511	336	124	253	80
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1823	1810	1900	1771	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	1.6	16.3	16.3	9.5	18.6	18.6	8.5	23.7	17.0	6.1	10.0	3.4
Cycle Queue Clearance Time (g_c), s	1.6	16.3	16.3	9.5	18.6	18.6	8.5	23.7	17.0	6.1	10.0	3.4
Green Ratio (*g/C*)	0.04	0.33	0.33	0.11	0.39	0.39	0.09	0.28	0.28	0.09	0.27	0.27
Capacity (*c*), veh/h	69	1237	593	191	1494	697	171	538	456	155	521	442
Volume-to-Capacity Ratio (*X*)	0.491	0.650	0.651	1.047	0.646	0.646	1.094	0.949	0.736	0.801	0.486	0.182
Back of Queue (*Q*), ft/ln (95 th percentile)	34.1	299	304.5	329.9	324.5	321.6	335	511.8	282.4	157.8	201.6	59.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.4	12.0	12.2	13.2	13.0	12.9	13.4	20.5	11.3	6.3	8.1	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.4	26.0	26.0	40.3	22.2	22.2	40.8	31.6	29.2	40.4	27.3	24.9
Incremental Delay (d_2), s/veh	2.0	2.7	5.5	78.1	2.2	4.6	96.2	26.3	5.4	19.1	0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.4	28.6	31.5	118.3	24.4	26.8	136.9	57.9	34.6	59.5	27.6	25.0
Level of Service (LOS)	D	C	C	F	C	C	F	E	C	E	C	C
Approach Delay, s/veh / LOS	30.0	C		36.7	D		64.6	E		35.8	D	
Intersection Delay, s/veh / LOS	41.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.16	A	1.38	A	2.19	B	1.24	A

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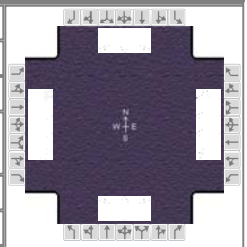
HCS7 Signalized Intersection Results Summary

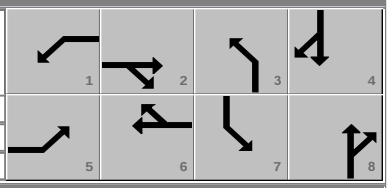
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Salt Lake - California / F…	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #1	File Name	01PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	1118	159	190	864	93	136	262	234	129	418	75

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	4.0	1.0	30.3	8.5	23.7	0.0
Yellow	3.5	3.5	3.5	3.5	3.5	0.0
Red	1.0	1.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	8.5	34.8	14.0	40.3	13.0	28.2	13.0	28.2
Change Period, ($Y+R_c$), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.1	0.0	3.1	0.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	4.1		11.5		9.3	14.4	8.8	22.8
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.9
Phase Call Probability	0.66		0.99		0.98	1.00	0.97	1.00
Max Out Probability	0.02		1.00		1.00	0.09	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	43	946	442	207	705	336	148	285	254	140	454	82
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1775	1810	1900	1802	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	2.1	19.8	19.8	9.5	12.3	12.4	7.3	11.7	12.4	6.8	20.8	3.5
Cycle Queue Clearance Time (g_c), s	2.1	19.8	19.8	9.5	12.3	12.4	7.3	11.7	12.4	6.8	20.8	3.5
Green Ratio (*g/C*)	0.04	0.34	0.34	0.11	0.40	0.40	0.09	0.26	0.26	0.09	0.26	0.26
Capacity (*c*), veh/h	80	1279	598	191	1512	717	171	500	424	171	500	424
Volume-to-Capacity Ratio (*X*)	0.544	0.740	0.740	1.081	0.466	0.468	0.865	0.569	0.600	0.820	0.908	0.192
Back of Queue (*Q*), ft/ln (95 th percentile)	43.8	354	356.7	352.2	229.4	228.9	206.5	224	208.4	189.2	437.9	61.2
Back of Queue (*Q*), veh/ln (95 th percentile)	1.8	14.2	14.3	14.1	9.2	9.2	8.3	9.0	8.3	7.6	17.5	2.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.1	26.4	26.4	40.3	20.0	20.0	40.2	28.7	29.0	40.0	32.1	25.7
Incremental Delay (d_2), s/veh	2.1	3.9	8.0	88.4	1.0	2.2	32.9	0.6	1.2	24.7	17.7	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	30.2	34.4	128.7	21.1	22.2	73.1	29.4	30.2	64.7	49.8	25.8
Level of Service (LOS)	D	C	C	F	C	C	E	C	C	E	D	C
Approach Delay, s/veh / LOS	31.9	C		39.2	D		39.1	D		50.0	D	
Intersection Delay, s/veh / LOS	38.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.27	B	2.58	C	2.58	C
Bicycle LOS Score / LOS	1.27	A	1.17	A	1.62	B	1.60	B

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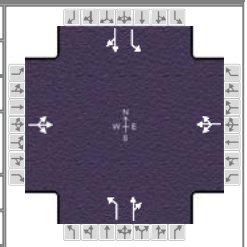
HCS7 Signalized Intersection Results Summary

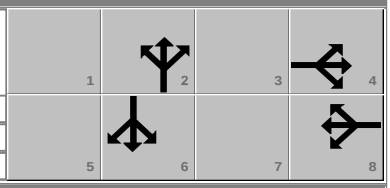
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #2	File Name	02AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	69	41	27	19	31	38	28	662	9	17	426	51

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	70.3	10.7	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		15.2		15.2		74.8		74.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		10.2		6.6				
Green Extension Time (g_e), s		0.4		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		149			96		30	729		18	518	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1572			1725		897	1895		738	1864	
Queue Service Time (g_s), s		3.7			0.0		1.0	12.3		0.8	7.6	
Cycle Queue Clearance Time (g_c), s		8.2			4.6		8.5	12.3		13.1	7.6	
Green Ratio (*g/C*)		0.12			0.12		0.78	0.78		0.78	0.78	
Capacity (*c*), veh/h		246			253		705	1481		555	1457	
Volume-to-Capacity Ratio (*X*)		0.604			0.378		0.043	0.492		0.033	0.356	
Back of Queue (*Q*), ft/ln (95 th percentile)		145.9			89.3		7.3	147.5		5.7	88.2	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.8			3.6		0.3	5.9		0.2	3.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		38.5			37.0		4.3	3.5		5.8	3.0	
Incremental Delay (d_2), s/veh		0.9			0.3		0.1	1.2		0.1	0.7	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		39.4			37.3		4.4	4.7		5.9	3.7	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	39.4	D		37.3	D		4.7	A		3.7	A	
Intersection Delay, s/veh / LOS	9.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.60	B	1.60	B
Bicycle LOS Score / LOS	0.73	A	0.65	A	1.74	B	1.37	A

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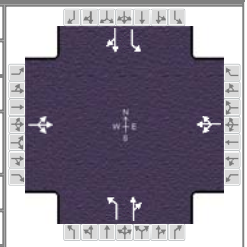
HCS7 Signalized Intersection Results Summary

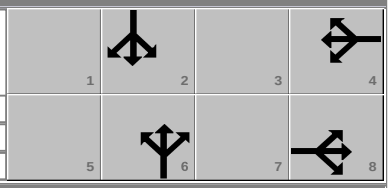
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California / Hope	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #2	File Name	02PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	28	19	26	4	23	15	21	481	5	17	624	23

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	74.6	6.4	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		8.0		8.0		6.0		6.0
Phase Duration, s		10.9		10.9		79.1		79.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		6.2		4.2				
Green Extension Time (g_e), s		0.2		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		79			46		23	528		18	703	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1627			1773		756	1896		889	1888	
Queue Service Time (g_s), s		2.0			0.0		0.8	6.0		0.5	9.2	
Cycle Queue Clearance Time (g_c), s		4.2			2.2		9.9	6.0		6.4	9.2	
Green Ratio (*g/C*)		0.07			0.07		0.83	0.83		0.83	0.83	
Capacity (*c*), veh/h		171			170		629	1572		758	1564	
Volume-to-Capacity Ratio (*X*)		0.463			0.268		0.036	0.336		0.024	0.450	
Back of Queue (*Q*), ft/ln (95 th percentile)		78.6			44		4.8	50.3		3	78.1	
Back of Queue (*Q*), veh/ln (95 th percentile)		3.1			1.8		0.2	2.0		0.1	3.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		40.7			39.8		3.5	1.8		2.6	2.1	
Incremental Delay (d_2), s/veh		0.7			0.3		0.1	0.6		0.1	0.9	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		41.4			40.1		3.6	2.4		2.7	3.0	
Level of Service (LOS)		D			D		A	A		A	A	
Approach Delay, s/veh / LOS	41.4	D		40.1	D		2.5	A		3.0	A	
Intersection Delay, s/veh / LOS	6.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.58	B	1.58	B
Bicycle LOS Score / LOS	0.62	A	0.56	A	1.40	A	1.68	B

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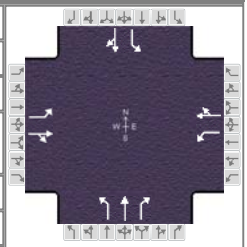
HCS7 Signalized Intersection Results Summary

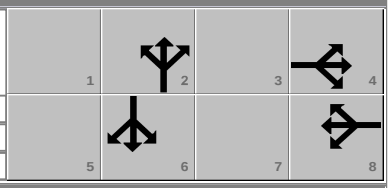
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	47	401	60	68	378	61	119	526	83	69	414	51

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	51	501		74	477		129	572	90	75	505	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	932	1857		911	1854		908	1900	1610	854	1863	
Queue Service Time (g_s), s	3.1	23.8		1.7	22.4		7.9	14.9	2.0	4.8	12.8	
Cycle Queue Clearance Time (g_c), s	25.5	23.8		25.5	22.4		20.7	14.9	2.0	19.6	12.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	113	526		97	525		510	1172	993	466	1149	
Volume-to-Capacity Ratio (*X*)	0.454	0.953		0.764	0.909		0.253	0.488	0.091	0.161	0.440	
Back of Queue (*Q*), ft/ln (95 th percentile)	52.3	513.3		106.3	456.3		75.8	242.5	30	43.5	212.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	20.5		4.3	18.3		3.0	9.7	1.2	1.7	8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	44.0	31.7		44.8	31.1		14.5	9.5	7.0	14.8	9.1	
Incremental Delay (d_2), s/veh	1.1	27.4		27.1	19.3		1.2	1.5	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	45.1	59.1		71.9	50.4		15.7	10.9	7.2	15.6	10.3	
Level of Service (LOS)	D	E		E	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	57.8	E		53.3	D		11.3	B		11.0	B	
Intersection Delay, s/veh / LOS	30.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.40	A	1.40	A	1.79	B	1.45	A

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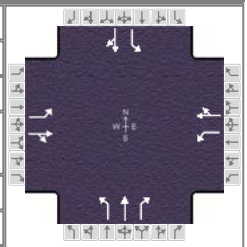
HCS7 Signalized Intersection Results Summary

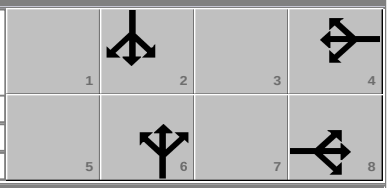
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	437	105	55	342	59	116	436	84	80	517	62

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	74	589		60	436		126	474	91	87	629	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	968	1836		840	1851		809	1900	1610	935	1864	
Queue Service Time (g_s), s	5.6	25.5		0.0	19.9		9.6	11.5	2.1	4.7	17.6	
Cycle Queue Clearance Time (g_c), s	25.5	25.5		25.5	19.9		27.2	11.5	2.1	16.2	17.6	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	141	520		80	524		421	1172	993	537	1150	
Volume-to-Capacity Ratio (*X*)	0.526	1.132		0.747	0.831		0.300	0.404	0.092	0.162	0.547	
Back of Queue (*Q*), ft/ln (95 th percentile)	76.6	819.9		87.9	381.4		85.8	196.7	30.5	46	274.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.1	32.8		3.5	15.3		3.4	7.9	1.2	1.8	11.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	42.7	32.3		45.0	30.2		17.9	8.8	7.0	12.9	10.0	
Incremental Delay (d_2), s/veh	1.8	81.3		28.5	10.3		1.8	1.0	0.2	0.6	1.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	44.5	113.6		73.5	40.5		19.7	9.8	7.2	13.6	11.9	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	105.9	F		44.5	D		11.3	B		12.1	B	
Intersection Delay, s/veh / LOS	42.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.58	B	1.31	A	1.63	B	1.67	B

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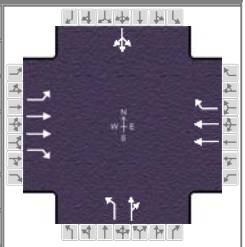
HCS7 Signalized Intersection Results Summary

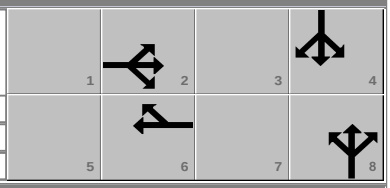
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #6	File Name	06AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	1123	210		1042	122	415	185	4	64	133	45

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	41.0	15.0	20.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		45.5		45.5		25.0		19.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						22.5		14.7
Green Extension Time (g_e), s		0.0		0.0		0.0		0.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.12

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	61	1221	228		1133	133	451	205			263	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	505	1809	1610		1809	1610	1810	1893			1815	
Queue Service Time (g_s), s	9.8	24.9	8.1		22.3	4.4	20.5	8.5			12.7	
Cycle Queue Clearance Time (g_c), s	32.1	24.9	8.1		22.3	4.4	20.5	8.5			12.7	
Green Ratio (*g/C*)	0.46	0.46	0.46		0.46	0.46	0.23	0.23			0.17	
Capacity (*c*), veh/h	185	1648	734		1648	734	412	431			302	
Volume-to-Capacity Ratio (*X*)	0.329	0.741	0.311		0.687	0.181	1.094	0.476			0.870	
Back of Queue (*Q*), ft/ln (95 th percentile)	62.9	390.9	135.7		354.1	73.1	629	173.9			267.9	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.5	15.6	5.4		14.2	2.9	25.2	7.0			10.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	32.1	20.1	15.5		19.4	14.5	34.8	30.1			36.6	
Incremental Delay (d_2), s/veh	4.7	3.0	1.1		2.4	0.5	72.3	0.3			11.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	36.9	23.2	16.6		21.8	15.1	107.0	30.4			47.6	
Level of Service (LOS)	D	C	B		C	B	F	C			D	
Approach Delay, s/veh / LOS	22.7	C		21.1	C		83.0	F		47.6	D	
Intersection Delay, s/veh / LOS	34.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.68	B	2.31	B	2.44	B
Bicycle LOS Score / LOS	1.73	B	1.53	B	1.57	B	0.92	A

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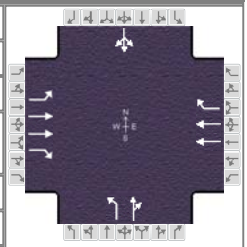
HCS7 Signalized Intersection Results Summary

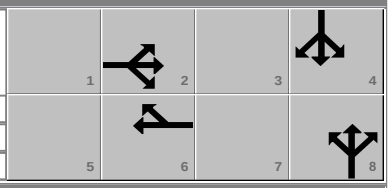
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Bell / City of Huntington Park	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California - Salt Lake / F…	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Intersection #6	File Name	06PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	1104	345		871	32	236	92	3	52	222	28

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	43.9	17.8	14.8	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		7.0		10.0		12.0
Phase Duration, s		48.4		48.4		19.3		22.3
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.2		3.2
Queue Clearance Time (g_s), s						14.4		17.5
Green Extension Time (g_e), s		0.0		0.0		0.4		0.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.13		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	36	1200	375		947	35	257	103			328	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	602	1809	1610		1809	1610	1810	1889			1853	
Queue Service Time (g_s), s	4.0	22.9	14.0		16.3	1.0	12.4	4.3			15.5	
Cycle Queue Clearance Time (g_c), s	20.3	22.9	14.0		16.3	1.0	12.4	4.3			15.5	
Green Ratio (*g/C*)	0.49	0.49	0.49		0.49	0.49	0.16	0.16			0.20	
Capacity (*c*), veh/h	264	1764	785		1764	785	298	312			366	
Volume-to-Capacity Ratio (*X*)	0.136	0.680	0.478		0.537	0.044	0.860	0.331			0.897	
Back of Queue (*Q*), ft/ln (95 th percentile)	28	355.7	223.6		267.7	16.6	258.9	90.3			341.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	14.2	8.9		10.7	0.7	10.4	3.6			13.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	23.1	17.7	15.4		16.0	12.1	36.6	33.2			35.2	
Incremental Delay (d_2), s/veh	1.1	2.1	2.1		1.2	0.1	9.8	0.2			18.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	24.1	19.8	17.5		17.2	12.2	46.3	33.4			53.4	
Level of Service (LOS)	C	B	B		B	B	D	C			D	
Approach Delay, s/veh / LOS	19.4	B		17.0	B		42.6	D		53.4	D	
Intersection Delay, s/veh / LOS	24.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	1.67	B	2.31	B	2.45	B
Bicycle LOS Score / LOS	1.82	B	1.30	A	1.08	A	1.03	A

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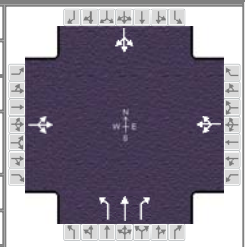
HCS7 Signalized Intersection Results Summary

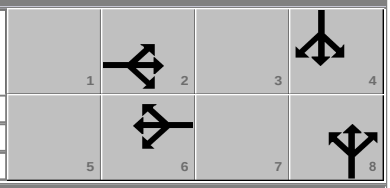
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	114	412	56	61	278	8	49	334	153	21	312	111

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	51.4	29.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.9		55.9		34.1		34.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						29.2		24.4
Green Extension Time (g_e), s		0.0		0.0		0.5		1.6
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.44

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		633			377		53	363	166		483	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1665			1602		947	1900	1610		1778	
Queue Service Time (g_s), s		13.0			0.0		4.9	14.3	7.0		8.1	
Cycle Queue Clearance Time (g_c), s		22.7			9.7		27.2	14.3	7.0		22.4	
Green Ratio (*g/C*)		0.57			0.57		0.33	0.33	0.33		0.33	
Capacity (*c*), veh/h		999			963		157	624	529		626	
Volume-to-Capacity Ratio (*X*)		0.633			0.392		0.339	0.581	0.314		0.771	
Back of Queue (*Q*), ft/ln (95 th percentile)		336.3			185.1		51.9	263	116.8		385.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		13.5			7.4		2.1	10.5	4.7		15.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.9			10.3		40.2	25.1	22.6		27.7	
Incremental Delay (d_2), s/veh		3.1			1.2		0.5	0.8	0.1		5.0	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		16.0			11.5		40.7	25.9	22.7		32.6	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	16.0	B		11.5	B		26.3	C		32.6	C	
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.53	B	1.11	A	1.45	A	1.28	A

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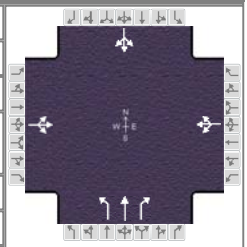
HCS7 Signalized Intersection Results Summary

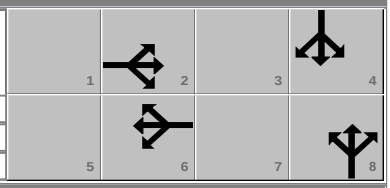
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	409	72	96	354	10	62	290	115	10	385	111

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						32.5		27.7
Green Extension Time (g_e), s		0.0		0.0		0.0		0.9
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		600			500		67	315	125		550	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1717			1544		880	1900	1610		1818	
Queue Service Time (g_s), s		1.6			0.0		4.8	11.8	5.0		6.9	
Cycle Queue Clearance Time (g_c), s		19.9			18.3		30.5	11.8	5.0		25.7	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1009			915		126	644	546		657	
Volume-to-Capacity Ratio (*X*)		0.595			0.547		0.533	0.490	0.229		0.837	
Back of Queue (*Q*), ft/ln (95 th percentile)		314.6			267.5		70.5	223.1	83.7		458.5	
Back of Queue (*Q*), veh/ln (95 th percentile)		12.6			10.7		2.8	8.9	3.3		18.3	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.9			12.2		43.4	23.6	21.3		28.1	
Incremental Delay (d_2), s/veh		2.6			2.3		2.3	0.2	0.1		8.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		15.5			14.6		45.6	23.8	21.4		37.0	
Level of Service (LOS)		B			B		D	C	C		D	
Approach Delay, s/veh / LOS	15.5	B		14.6	B		26.1	C		37.0	D	
Intersection Delay, s/veh / LOS	23.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.48	A	1.31	A	1.33	A	1.40	A

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APPENDIX E

HCM AND LEVELS OF SERVICE EXPLANATION
HCM DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS
CITY OF SOUTH GATE

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for traffic signals are stated in terms of the average control delay per vehicle. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

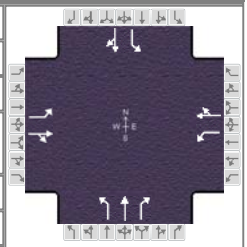
LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high *v/c* ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

HCS7 Signalized Intersection Results Summary

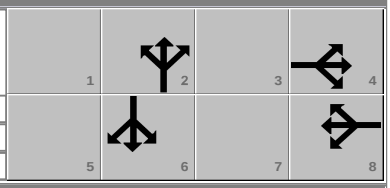
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	371	59	55	347	60	117	514	70	68	403	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		26.8		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	49	467		60	442		127	559	76	74	492	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	962	1854		940	1851		919	1900	1610	864	1863	
Queue Service Time (g_s), s	4.5	21.7		3.8	20.3		7.5	14.4	1.7	4.6	12.4	
Cycle Queue Clearance Time (g_c), s	24.8	21.7		25.5	20.3		19.9	14.4	1.7	18.9	12.4	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	136	525		119	524		520	1172	993	475	1149	
Volume-to-Capacity Ratio (*X*)	0.360	0.890		0.501	0.844		0.245	0.477	0.077	0.156	0.429	
Back of Queue (*Q*), ft/ln (95 th percentile)	48.9	435.8		61.3	391.6		73.1	236.2	25.1	42.2	206.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	17.4		2.5	15.7		2.9	9.4	1.0	1.7	8.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	42.0	30.9		43.8	30.4		14.2	9.4	6.9	14.5	9.0	
Incremental Delay (d_2), s/veh	0.6	16.5		1.2	11.4		1.1	1.4	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	42.6	47.4		45.0	41.7		15.3	10.8	7.1	15.2	10.2	
Level of Service (LOS)	D	D		D	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	47.0	D		42.1	D		11.1	B		10.8	B	
Intersection Delay, s/veh / LOS	25.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.34	A	1.32	A	1.74	B	1.42	A

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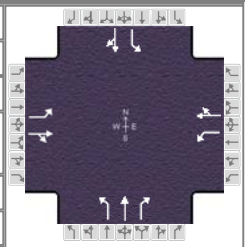
HCS7 Signalized Intersection Results Summary

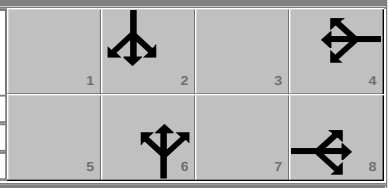
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	416	103	47	325	58	114	424	74	78	502	60

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	72	564		51	416		124	461	80	85	611	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	985	1834		860	1850		823	1900	1610	946	1864	
Queue Service Time (g_s), s	6.5	25.5		0.0	18.7		9.1	11.0	1.8	4.5	16.8	
Cycle Queue Clearance Time (g_c), s	25.3	25.5		25.5	18.7		25.9	11.0	1.8	15.5	16.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	154	520		80	524		434	1172	993	547	1150	
Volume-to-Capacity Ratio (*X*)	0.466	1.085		0.639	0.794		0.286	0.393	0.081	0.155	0.531	
Back of Queue (*Q*), ft/ln (95 th percentile)	72.1	724.9		63.1	353.8		82.2	191.3	26.7	44.1	266	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.9	29.0		2.5	14.2		3.3	7.7	1.1	1.8	10.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	41.5	32.2		45.0	29.8		17.2	8.7	7.0	12.7	9.8	
Incremental Delay (d_2), s/veh	0.8	64.6		12.4	7.6		1.6	1.0	0.2	0.6	1.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	42.3	96.8		57.4	37.4		18.9	9.7	7.1	13.3	11.6	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	90.7	F		39.6	D		11.1	B		11.8	B	
Intersection Delay, s/veh / LOS	37.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.54	B	1.26	A	1.59	B	1.64	B

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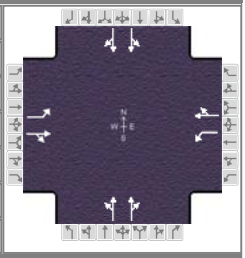
HCS7 Signalized Intersection Results Summary

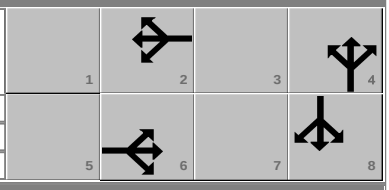
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #4	File Name	04AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	26	151	72	69	157	37	109	593	27	22	554	18

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.3	22.5	18.7	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		39.8		39.8		27.0		23.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						21.2		17.6
Green Extension Time (g_e), s		0.0		0.0		1.2		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.07		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	28	242		75	211		415		378	339		306
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1189	1796		1156	1837		1873		1874	1893		1878
Queue Service Time (g_s), s	1.5	8.5		4.4	7.1		19.2		17.0	15.6		13.9
Cycle Queue Clearance Time (g_c), s	8.6	8.5		12.9	7.1		19.2		17.0	15.6		13.9
Green Ratio (*g/C*)	0.39	0.39		0.39	0.39		0.25		0.25	0.21		0.21
Capacity (*c*), veh/h	453	705		424	721		467		467	394		391
Volume-to-Capacity Ratio (*X*)	0.062	0.344		0.177	0.292		0.888		0.808	0.862		0.785
Back of Queue (*Q*), ft/ln (95 th percentile)	19.8	163.8		56.9	138.7		365.5		313.3	288		259
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	6.6		2.3	5.5		14.6		12.5	11.5		10.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	21.7	19.2		23.7	18.8		32.6		31.7	34.4		33.7
Incremental Delay (d_2), s/veh	0.3	1.3		0.9	1.0		9.3		3.9	2.2		1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	22.0	20.5		24.6	19.8		41.9		35.7	36.6		35.1
Level of Service (LOS)	C	C		C	B		D		D	D		D
Approach Delay, s/veh / LOS	20.7	C		21.1	C		38.9	D		35.9	D	
Intersection Delay, s/veh / LOS	32.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.93	B	1.95	B
Bicycle LOS Score / LOS	0.93	A	0.96	A	1.14	A	1.02	A

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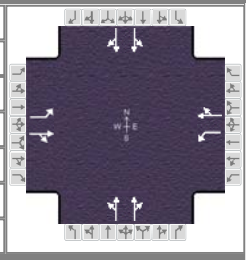
HCS7 Signalized Intersection Results Summary

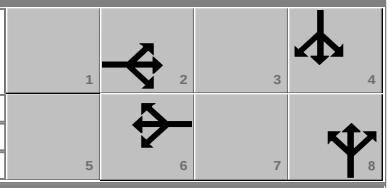
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #4	File Name	04PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	26	141	34	30	118	33	51	514	30	9	572	12

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	39.1	18.6	18.8	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		43.6		43.6		23.3		23.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						17.7		17.5
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	28	190		33	164		340		307	338		306
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1241	1836		1212	1828		1885		1864	1897		1886
Queue Service Time (g_s), s	1.3	5.9		1.6	5.0		15.7		14.0	15.5		13.9
Cycle Queue Clearance Time (g_c), s	6.3	5.9		7.5	5.0		15.7		14.0	15.5		13.9
Green Ratio (*g/C*)	0.43	0.43		0.43	0.43		0.21		0.21	0.21		0.21
Capacity (*c*), veh/h	550	797		527	794		395		390	391		389
Volume-to-Capacity Ratio (*X*)	0.051	0.239		0.062	0.207		0.862		0.785	0.865		0.787
Back of Queue (*Q*), ft/ln (95 th percentile)	17.4	112.6		20.6	95.5		288.6		259.1	292.5		259.2
Back of Queue (*Q*), veh/ln (95 th percentile)	0.7	4.5		0.8	3.8		11.5		10.4	11.7		10.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.8	16.1		18.4	15.8		34.3		33.7	34.5		33.8
Incremental Delay (d_2), s/veh	0.2	0.7		0.2	0.6		2.2		1.3	3.6		1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.0	16.8		18.6	16.4		36.5		35.0	38.1		35.2
Level of Service (LOS)	B	B		B	B		D		C	D		D
Approach Delay, s/veh / LOS	16.9	B		16.8	B		35.8	D		36.7	D	
Intersection Delay, s/veh / LOS	31.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	0.85	A	0.81	A	1.02	A	1.02	A

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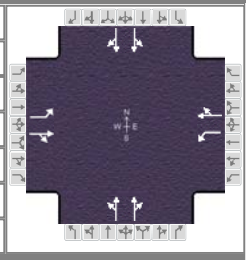
HCS7 Signalized Intersection Results Summary

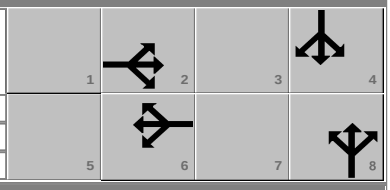
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #5	File Name	05AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	229	111	42	138	43	36	655	19	39	533	75

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.2	20.4	22.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		38.7		38.7		26.5		24.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g_s), s						20.5		19.2
Green Extension Time (g_e), s		0.0		0.0		1.4		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	76	370		46	197		405		367	374		329
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1205	1795		1029	1822		1891		1881	1889		1819
Queue Service Time (g_s), s	4.2	14.5		3.3	6.8		18.5		16.5	17.2		15.4
Cycle Queue Clearance Time (g_c), s	11.0	14.5		17.7	6.8		18.5		16.5	17.2		15.4
Green Ratio (*g/C*)	0.38	0.38		0.38	0.38		0.24		0.24	0.23		0.23
Capacity (*c*), veh/h	447	681		305	692		461		459	428		412
Volume-to-Capacity Ratio (*X*)	0.170	0.542		0.150	0.284		0.878		0.799	0.876		0.799
Back of Queue (*Q*), ft/ln (95 th percentile)	56.7	262.2		39.3	132.1		329.6		294.9	326.5		276.9
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	10.5		1.6	5.3		13.2		11.8	13.1		11.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	23.2	21.8		28.7	19.4		32.7		31.9	33.6		32.9
Incremental Delay (d_2), s/veh	0.8	3.1		1.0	1.0		2.2		1.2	6.3		2.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	24.1	24.9		29.8	20.4		34.9		33.2	39.9		35.3
Level of Service (LOS)	C	C		C	C		C		C	D		D
Approach Delay, s/veh / LOS	24.7	C		22.2	C		34.1	C		37.7	D	
Intersection Delay, s/veh / LOS	32.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.22	A	0.89	A	1.12	A	1.07	A

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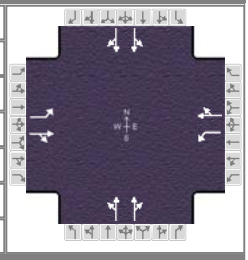
HCS7 Signalized Intersection Results Summary

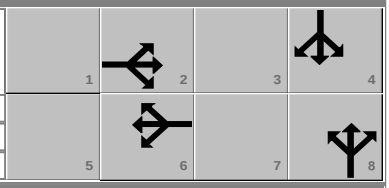
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 2, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #5	File Name	05PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	206	91	15	98	20	22	552	33	46	555	34

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	37.5	19.9	19.1	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		42.0		42.0		23.6		24.4
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g_s), s						18.0		18.7
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	32	323		16	128		348		312	363		327
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1282	1801		1074	1844		1893		1861	1887		1862
Queue Service Time (g_s), s	1.4	11.5		1.0	3.9		16.0		14.3	16.7		14.9
Cycle Queue Clearance Time (g_c), s	5.4	11.5		12.5	3.9		16.0		14.3	16.7		14.9
Green Ratio (*g/C*)	0.42	0.42		0.42	0.42		0.21		0.21	0.22		0.22
Capacity (*c*), veh/h	558	750		390	768		403		396	417		411
Volume-to-Capacity Ratio (*X*)	0.056	0.430		0.042	0.167		0.864		0.787	0.873		0.795
Back of Queue (*Q*), ft/ln (95 th percentile)	19.6	213.1		11.9	75.7		293.6		262.3	316.4		273.8
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	8.5		0.5	3.0		11.7		10.5	12.7		11.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.1	18.7		23.1	16.5		34.2		33.5	33.8		33.1
Incremental Delay (d_2), s/veh	0.2	1.8		0.2	0.5		2.2		1.3	5.6		1.9
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.3	20.5		23.3	16.9		36.4		34.8	39.4		35.0
Level of Service (LOS)	B	C		C	B		D		C	D		D
Approach Delay, s/veh / LOS	20.3	C		17.7	B		35.6	D		37.3	D	
Intersection Delay, s/veh / LOS	31.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.07	A	0.73	A	1.03	A	1.06	A

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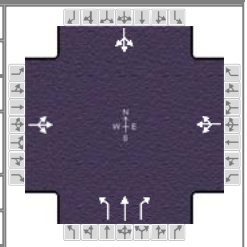
HCS7 Signalized Intersection Results Summary

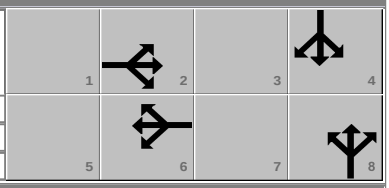
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	63	400	55	59	271	8	48	280	150	21	262	59

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	56.7	24.3	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		61.2		61.2		28.8		28.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						23.2		20.2
Green Extension Time (g_e), s		0.0		0.0		1.4		1.7
Phase Call Probability						1.00		1.00
Max Out Probability						0.24		0.08

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		563			367		52	304	163		372	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1751			1644		1048	1900	1610		1731	
Queue Service Time (g_s), s		0.3			0.0		4.3	12.6	7.4		6.1	
Cycle Queue Clearance Time (g_c), s		14.3			8.0		21.2	12.6	7.4		18.2	
Green Ratio (*g/C*)		0.63			0.63		0.27	0.27	0.27		0.27	
Capacity (*c*), veh/h		1152			1087		164	508	431		506	
Volume-to-Capacity Ratio (*X*)		0.489			0.338		0.318	0.599	0.378		0.735	
Back of Queue (*Q*), ft/ln (95 th percentile)		235.6			145.1		50.5	238.9	127		308.4	
Back of Queue (*Q*), veh/ln (95 th percentile)		9.4			5.8		2.0	9.6	5.1		12.3	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		8.7			7.5		40.1	28.7	26.9		30.6	
Incremental Delay (d_2), s/veh		1.5			0.8		0.4	0.4	0.2		2.4	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		10.2			8.4		40.5	29.2	27.1		32.9	
Level of Service (LOS)		B			A		D	C	C		C	
Approach Delay, s/veh / LOS	10.2	B		8.4	A		29.6	C		32.9	C	
Intersection Delay, s/veh / LOS	20.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.23	B	1.65	B	1.70	B	1.70	B
Bicycle LOS Score / LOS	1.42	A	1.09	A	1.34	A	1.10	A

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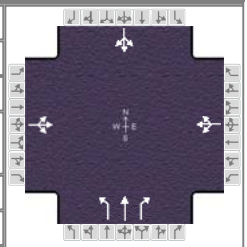
HCS7 Signalized Intersection Results Summary

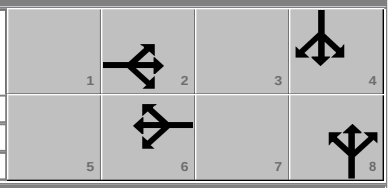
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	56	390	71	93	345	10	61	264	112	10	358	89

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						30.5		24.2
Green Extension Time (g_e), s		0.0		0.0		0.0		1.5
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.38

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		562			487		66	287	122		497	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1744			1579		924	1900	1610		1825	
Queue Service Time (g_s), s		1.0			0.0		6.3	10.6	4.9		3.3	
Cycle Queue Clearance Time (g_c), s		17.5			16.5		28.5	10.6	4.9		22.2	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1023			935		166	643	545		659	
Volume-to-Capacity Ratio (*X*)		0.549			0.521		0.400	0.446	0.223		0.754	
Back of Queue (*Q*), ft/ln (95 th percentile)		287.1			255.5		64.9	204.6	81.5		387.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		11.5			10.2		2.6	8.2	3.3		15.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.4			11.9		39.9	23.2	21.3		27.0	
Incremental Delay (d_2), s/veh		2.1			2.1		0.6	0.2	0.1		4.4	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		14.6			14.0		40.5	23.4	21.4		31.4	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	14.6	B		14.0	B		25.2	C		31.4	C	
Intersection Delay, s/veh / LOS	21.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.41	A	1.29	A	1.27	A	1.31	A

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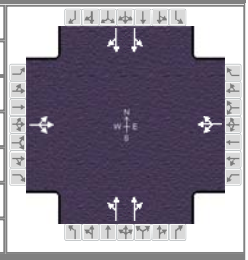
HCS7 Signalized Intersection Results Summary

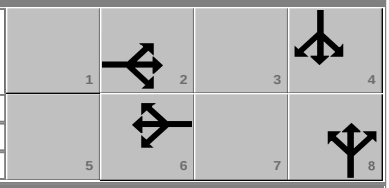
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #11	File Name	11AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	32	102	111	33	28	9	107	513	84	40	445	31

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	37.6	16.6	22.3	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		42.1		42.1		26.8		21.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						20.7		15.6
Green Extension Time (g_e), s		0.0		0.0		1.5		1.0
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		266			76		406		359	295		265
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1707			1449		1873		1817	1886		1858
Queue Service Time (g_s), s		0.0			0.0		18.7		16.7	13.6		12.2
Cycle Queue Clearance Time (g_c), s		9.4			2.2		18.7		16.7	13.6		12.2
Green Ratio (*g/C*)		0.42			0.42		0.25		0.25	0.18		0.18
Capacity (*c*), veh/h		758			664		464		450	348		343
Volume-to-Capacity Ratio (*X*)		0.351			0.115		0.876		0.798	0.848		0.774
Back of Queue (*Q*), ft/ln (95 th percentile)		173.9			45.4		333		292.8	261.7		235.5
Back of Queue (*Q*), veh/ln (95 th percentile)		7.0			1.8		13.3		11.7	10.5		9.4
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		18.0			15.9		32.5		31.7	35.5		34.9
Incremental Delay (d_2), s/veh		1.3			0.4		2.1		1.2	2.2		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		19.3			16.3		34.6		33.0	37.7		36.3
Level of Service (LOS)		B			B		C		C	D		D
Approach Delay, s/veh / LOS	19.3	B		16.3	B		33.9	C		37.1	D	
Intersection Delay, s/veh / LOS	31.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	0.93	A	0.61	A	1.12	A	0.95	A

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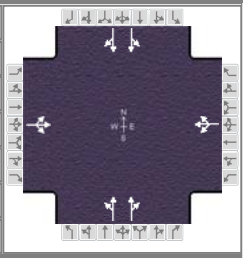
HCS7 Signalized Intersection Results Summary

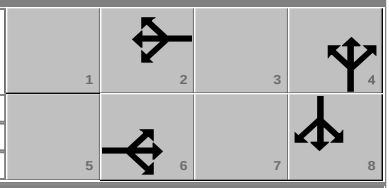
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Intersection #11	File Name	11PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	23	50	64	53	57	16	122	474	48	19	505	28

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	38.5	20.3	17.6	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		43.0		43.0		24.8		22.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						19.1		16.5
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.02		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h		149			137		368		332	316		284
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1673			1577		1866		1848	1894		1864
Queue Service Time (g_s), s		0.0			0.0		17.1		15.3	14.5		13.0
Cycle Queue Clearance Time (g_c), s		4.8			4.4		17.1		15.3	14.5		13.0
Green Ratio (*g/C*)		0.43			0.43		0.23		0.23	0.20		0.20
Capacity (*c*), veh/h		763			732		422		417	371		365
Volume-to-Capacity Ratio (*X*)		0.195			0.187		0.873		0.795	0.852		0.777
Back of Queue (*Q*), ft/ln (95 th percentile)		87.4			82.7		324.5		280.6	275.5		247.1
Back of Queue (*Q*), veh/ln (95 th percentile)		3.5			3.3		13.0		11.2	11.0		9.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		16.1			15.9		33.6		32.9	34.9		34.3
Incremental Delay (d_2), s/veh		0.6			0.6		6.1		2.2	2.2		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		16.7			16.5		39.7		35.1	37.1		35.7
Level of Service (LOS)		B			B		D		D	D		D
Approach Delay, s/veh / LOS	16.7	B		16.5	B		37.5	D		36.4	D	
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.71	B	1.73	B
Bicycle LOS Score / LOS	0.73	A	0.71	A	1.07	A	0.98	A

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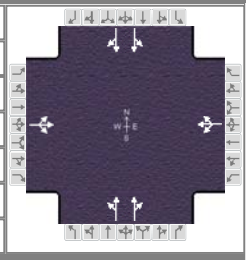
HCS7 Signalized Intersection Results Summary

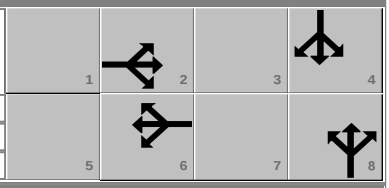
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - AM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #12	File Name	12AM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	5	275	3	2	1	80	608	5	2	529	53

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	36.4	18.5	21.6	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		40.9		40.9		26.1		23.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						20.1		17.4
Green Extension Time (g_e), s		0.0		0.0		1.5		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		403			7		393		360	337		298
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1585			1214		1879		1895	1899		1836
Queue Service Time (g_s), s		12.0			0.0		18.1		16.1	15.4		13.8
Cycle Queue Clearance Time (g_c), s		18.0			0.2		18.1		16.1	15.4		13.8
Green Ratio (*g/C*)		0.40			0.40		0.24		0.24	0.21		0.21
Capacity (*c*), veh/h		691			551		450		454	391		378
Volume-to-Capacity Ratio (*X*)		0.584			0.012		0.873		0.794	0.862		0.787
Back of Queue (*Q*), ft/ln (95 th percentile)		284			4		324.9		294.3	293.7		256.3
Back of Queue (*Q*), veh/ln (95 th percentile)		11.4			0.2		13.0		11.8	11.7		10.3
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		21.2			16.0		32.9		32.1	34.5		33.9
Incremental Delay (d_2), s/veh		3.6			0.0		2.1		1.2	3.4		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		24.8			16.0		35.0		33.4	37.9		35.3
Level of Service (LOS)		C			B		D		C	D		D
Approach Delay, s/veh / LOS	24.8	C		16.0	B		34.2	C		36.6	D	
Intersection Delay, s/veh / LOS	32.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.15	A	0.50	A	1.11	A	1.01	A

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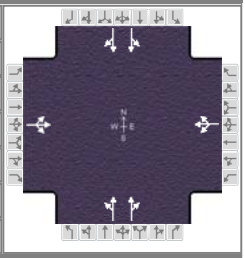
HCS7 Signalized Intersection Results Summary

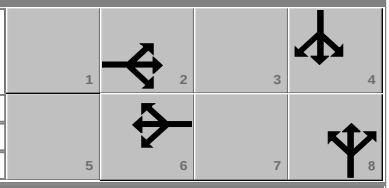
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Nov 22, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing - PM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2019	Analysis Period	1> 16:30
Intersection	Intersection #12	File Name	12PM - Existing.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	65	2	261	4	2	1	60	576	1	1	585	36

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	37.1	19.5	19.9	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		41.6		41.6		24.4		24.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						18.6		18.3
Green Extension Time (g_e), s		0.0		0.0		1.3		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		357			8		361		331	357		319
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1593			1203		1883		1899	1900		1859
Queue Service Time (g_s), s		7.0			0.0		16.6		14.8	16.3		14.6
Cycle Queue Clearance Time (g_c), s		14.9			0.2		16.6		14.8	16.3		14.6
Green Ratio (*g/C*)		0.41			0.41		0.22		0.22	0.22		0.22
Capacity (*c*), veh/h		704			558		417		421	412		403
Volume-to-Capacity Ratio (*X*)		0.507			0.014		0.866		0.787	0.868		0.792
Back of Queue (*Q*), ft/ln (95 th percentile)		243.6			4.6		304.8		276.9	313		270.3
Back of Queue (*Q*), veh/ln (95 th percentile)		9.7			0.2		12.2		11.1	12.5		10.8
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		19.9			15.6		33.7		33.0	34.0		33.3
Incremental Delay (d_2), s/veh		2.6			0.0		2.2		1.3	4.8		1.5
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		22.5			15.7		35.9		34.3	38.8		34.9
Level of Service (LOS)		C			B		D		C	D		C
Approach Delay, s/veh / LOS	22.5	C		15.7	B		35.1	D		37.0	D	
Intersection Delay, s/veh / LOS	33.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.08	A	0.50	A	1.06	A	1.05	A

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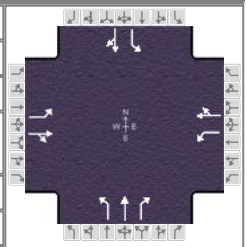
HCS7 Signalized Intersection Results Summary

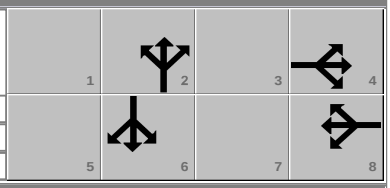
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	392	59	64	365	60	117	514	80	68	403	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	49	490		70	462		127	559	87	74	492	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	945	1856		921	1853		919	1900	1610	864	1863	
Queue Service Time (g_s), s	4.1	23.1		2.4	21.4		7.5	14.4	2.0	4.6	12.4	
Cycle Queue Clearance Time (g_c), s	25.5	23.1		25.5	21.4		19.9	14.4	2.0	18.9	12.4	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	123	526		104	525		520	1172	993	475	1149	
Volume-to-Capacity Ratio (*X*)	0.398	0.932		0.668	0.880		0.245	0.477	0.088	0.156	0.429	
Back of Queue (*Q*), ft/ln (95 th percentile)	49.8	485.5		85.4	425.4		73.1	236.2	28.9	42.2	206.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	19.4		3.4	17.0		2.9	9.4	1.2	1.7	8.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	43.2	31.4		44.6	30.8		14.2	9.4	7.0	14.5	9.0	
Incremental Delay (d_2), s/veh	0.8	23.3		12.5	15.3		1.1	1.4	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	44.0	54.7		57.1	46.1		15.3	10.8	7.2	15.2	10.2	
Level of Service (LOS)	D	D		E	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	53.7	D		47.5	D		11.1	B		10.8	B	
Intersection Delay, s/veh / LOS	28.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.38	A	1.36	A	1.76	B	1.42	A

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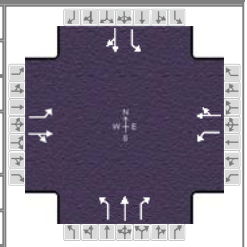
HCS7 Signalized Intersection Results Summary

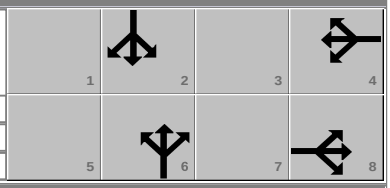
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	66	421	103	49	329	58	114	424	77	78	502	60

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (MAH), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	72	570		53	421		124	461	84	85	611	
Adjusted Saturation Flow Rate (s), veh/h/ln	982	1835		856	1850		823	1900	1610	946	1864	
Queue Service Time (g_s), s	6.5	25.5		0.0	19.0		9.1	11.0	1.9	4.5	16.8	
Cycle Queue Clearance Time (g_c), s	25.5	25.5		25.5	19.0		25.9	11.0	1.9	15.5	16.8	
Green Ratio (g/C)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (c), veh/h	151	520		80	524		434	1172	993	547	1150	
Volume-to-Capacity Ratio (X)	0.475	1.095		0.666	0.802		0.286	0.393	0.084	0.155	0.531	
Back of Queue (Q), ft/ln (95 th percentile)	72.3	744.6		68.6	359.6		82.2	190.9	27.7	44.1	264.8	
Back of Queue (Q), veh/ln (95 th percentile)	2.9	29.8		2.7	14.4		3.3	7.6	1.1	1.8	10.6	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	41.8	32.3		45.0	29.9		17.2	8.7	7.0	12.7	9.8	
Incremental Delay (d_2), s/veh	0.9	68.0		15.6	8.1		1.6	1.0	0.2	0.6	1.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	42.6	100.3		60.6	38.0		18.9	9.7	7.1	13.3	11.6	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	93.8	F		40.6	D		11.1	B		11.8	B	
Intersection Delay, s/veh / LOS	38.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.55	B	1.27	A	1.59	B	1.64	B

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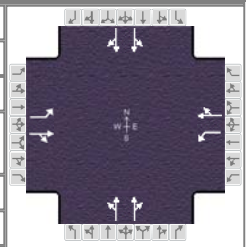
HCS7 Signalized Intersection Results Summary

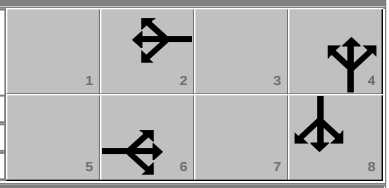
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #4	File Name	04AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	26	158	72	69	163	37	109	603	27	22	563	18

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.8	22.7	19.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		39.3		39.3		27.2		23.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						21.5		17.8
Green Extension Time (g_e), s		0.0		0.0		1.2		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.08		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	28	250		75	217		421		383	344		311
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1182	1799		1148	1839		1874		1874	1893		1879
Queue Service Time (g_s), s	1.5	8.9		4.5	7.4		19.5		17.3	15.8		14.1
Cycle Queue Clearance Time (g_c), s	8.9	8.9		13.4	7.4		19.5		17.3	15.8		14.1
Green Ratio (*g/C*)	0.39	0.39		0.39	0.39		0.25		0.25	0.21		0.21
Capacity (*c*), veh/h	440	696		410	712		473		473	399		396
Volume-to-Capacity Ratio (*X*)	0.064	0.359		0.183	0.306		0.889		0.809	0.863		0.786
Back of Queue (*Q*), ft/ln (95 th percentile)	20.1	172.2		58	145.2		370.8		316.9	291.5		261.8
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	6.9		2.3	5.8		14.8		12.7	11.7		10.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	22.3	19.6		24.4	19.2		32.4		31.6	34.3		33.6
Incremental Delay (d_2), s/veh	0.3	1.4		1.0	1.1		9.7		4.1	2.2		1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	22.6	21.1		25.4	20.3		42.1		35.7	36.5		34.9
Level of Service (LOS)	C	C		C	C		D		D	D		C
Approach Delay, s/veh / LOS	21.2	C		21.6	C		39.1	D		35.7	D	
Intersection Delay, s/veh / LOS	33.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.93	B	1.95	B
Bicycle LOS Score / LOS	0.95	A	0.97	A	1.15	A	1.03	A

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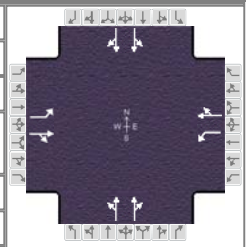
HCS7 Signalized Intersection Results Summary

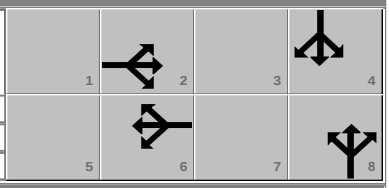
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #4	File Name	04PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	26	143	34	30	119	33	51	517	30	9	574	12

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	38.9	18.6	18.9	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		43.4		43.4		23.4		23.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						17.7		17.6
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	28	192		33	165		342		308	339		307
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1240	1837		1210	1829		1885		1864	1897		1886
Queue Service Time (g_s), s	1.3	6.0		1.6	5.1		15.7		14.1	15.6		13.9
Cycle Queue Clearance Time (g_c), s	6.4	6.0		7.6	5.1		15.7		14.1	15.6		13.9
Green Ratio (*g/C*)	0.43	0.43		0.43	0.43		0.21		0.21	0.21		0.21
Capacity (*c*), veh/h	547	795		523	791		396		392	393		390
Volume-to-Capacity Ratio (*X*)	0.052	0.242		0.062	0.209		0.862		0.786	0.865		0.788
Back of Queue (*Q*), ft/ln (95 th percentile)	17.5	114.2		20.7	96.4		289.5		259.8	293.6		259.8
Back of Queue (*Q*), veh/ln (95 th percentile)	0.7	4.6		0.8	3.9		11.6		10.4	11.7		10.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.9	16.2		18.6	15.9		34.3		33.6	34.5		33.8
Incremental Delay (d_2), s/veh	0.2	0.7		0.2	0.6		2.2		1.3	3.7		1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.1	16.9		18.8	16.5		36.5		34.9	38.1		35.2
Level of Service (LOS)	B	B		B	B		D		C	D		D
Approach Delay, s/veh / LOS	17.0	B		16.9	B		35.8	D		36.7	D	
Intersection Delay, s/veh / LOS	31.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	0.85	A	0.81	A	1.02	A	1.02	A

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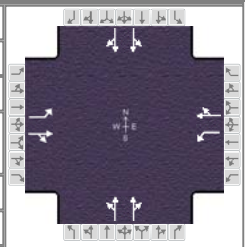
HCS7 Signalized Intersection Results Summary

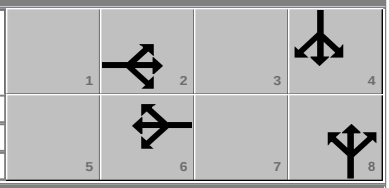
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #5	File Name	05AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	236	111	51	144	43	36	665	29	39	542	75

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.3	20.6	22.6	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		37.8		37.8		27.1		25.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g_s), s						21.1		19.4
Green Extension Time (g_e), s		0.0		0.0		1.5		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	76	377		55	203		417		376	380		334
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1198	1797		1022	1824		1891		1872	1889		1820
Queue Service Time (g_s), s	4.3	15.1		4.1	7.1		19.1		17.0	17.4		15.6
Cycle Queue Clearance Time (g_c), s	11.4	15.1		19.2	7.1		19.1		17.0	17.4		15.6
Green Ratio (*g/C*)	0.37	0.37		0.37	0.37		0.25		0.25	0.23		0.23
Capacity (*c*), veh/h	429	665		287	676		474		469	433		417
Volume-to-Capacity Ratio (*X*)	0.177	0.567		0.193	0.301		0.880		0.801	0.877		0.800
Back of Queue (*Q*), ft/ln (95 th percentile)	58.2	272.6		49.7	139.7		337		300.2	331.2		280.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	10.9		2.0	5.6		13.5		12.0	13.2		11.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	24.1	22.6		30.2	20.1		32.4		31.6	33.5		32.7
Incremental Delay (d_2), s/veh	0.9	3.5		1.5	1.1		2.2		1.2	6.6		2.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	25.0	26.1		31.7	21.2		34.6		32.8	40.1		35.4
Level of Service (LOS)	C	C		C	C		C		C	D		D
Approach Delay, s/veh / LOS	25.9	C		23.5	C		33.8	C		37.9	D	
Intersection Delay, s/veh / LOS	32.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.24	A	0.91	A	1.14	A	1.08	A

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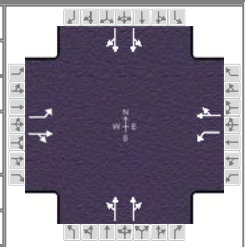
HCS7 Signalized Intersection Results Summary

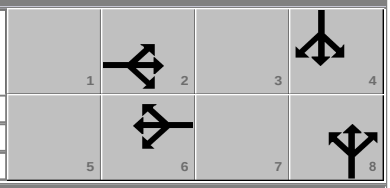
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2019	Analysis Period	1> 17:00
Intersection	Intersection #5	File Name	05PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	208	91	17	99	20	22	555	36	46	557	34

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	37.2	19.9	19.3	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		41.7		41.7		23.8		24.4
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						18.1		18.8
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	32	325		18	129		352		315	365		328
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1281	1801		1072	1844		1894		1858	1887		1862
Queue Service Time (g_s), s	1.4	11.6		1.1	4.0		16.1		14.4	16.8		15.0
Cycle Queue Clearance Time (g_c), s	5.4	11.6		12.7	4.0		16.1		14.4	16.8		15.0
Green Ratio (*g/C*)	0.41	0.41		0.41	0.41		0.21		0.21	0.22		0.22
Capacity (*c*), veh/h	553	746		385	763		407		399	418		412
Volume-to-Capacity Ratio (*X*)	0.057	0.436		0.048	0.169		0.865		0.788	0.873		0.795
Back of Queue (*Q*), ft/ln (95 th percentile)	19.8	215.3		13.6	76.9		295.8		263.9	317.5		274.3
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	8.6		0.5	3.1		11.8		10.6	12.7		11.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.3	18.9		23.4	16.6		34.1		33.4	33.8		33.1
Incremental Delay (d_2), s/veh	0.2	1.9		0.2	0.5		2.2		1.3	5.6		1.9
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.5	20.7		23.7	17.1		36.3		34.7	39.5		35.0
Level of Service (LOS)	B	C		C	B		D		C	D		D
Approach Delay, s/veh / LOS	20.5	C		17.9	B		35.5	D		37.4	D	
Intersection Delay, s/veh / LOS	31.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.08	A	0.73	A	1.04	A	1.06	A

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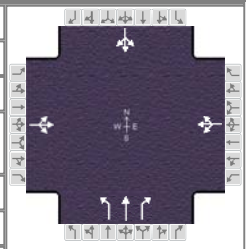
HCS7 Signalized Intersection Results Summary

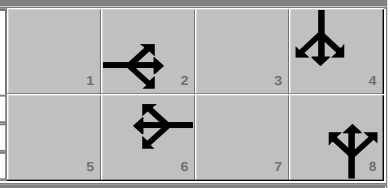
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	400	55	59	271	8	48	321	150	21	299	102

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	52.4	28.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		56.9		56.9		33.1		33.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						27.8		23.4
Green Extension Time (g_e), s		0.0		0.0		0.9		1.7
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.32

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		615			367		52	349	163		459	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1668			1625		968	1900	1610		1773	
Queue Service Time (g_s), s		11.8			0.0		4.7	13.8	6.9		7.6	
Cycle Queue Clearance Time (g_c), s		20.9			9.0		25.8	13.8	6.9		21.4	
Green Ratio (*g/C*)		0.58			0.58		0.32	0.32	0.32		0.32	
Capacity (*c*), veh/h		1021			995		159	601	509		603	
Volume-to-Capacity Ratio (*X*)		0.602			0.369		0.327	0.580	0.320		0.761	
Back of Queue (*Q*), ft/ln (95 th percentile)		311.9			172		50.7	256.6	116.8		368	
Back of Queue (*Q*), veh/ln (95 th percentile)		12.5			6.9		2.0	10.3	4.7		14.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		11.9			9.7		40.1	25.8	23.4		28.2	
Incremental Delay (d_2), s/veh		2.6			1.1		0.4	0.6	0.1		4.3	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		14.6			10.7		40.5	26.4	23.5		32.6	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	14.6	B		10.7	B		26.9	C		32.6	C	
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.65	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.50	B	1.09	A	1.42	A	1.24	A

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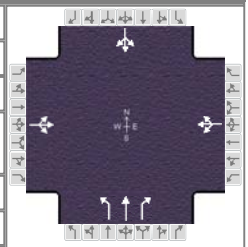
HCS7 Signalized Intersection Results Summary

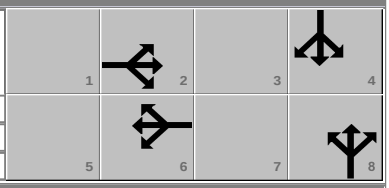
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2019	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	390	71	93	345	10	61	274	112	10	367	99

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						32.1		25.5
Green Extension Time (g_e), s		0.0		0.0		0.0		1.3
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.60

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		575			487		66	298	122		517	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1719			1570		907	1900	1610		1821	
Queue Service Time (g_s), s		1.7			0.0		6.5	11.1	4.9		4.6	
Cycle Queue Clearance Time (g_c), s		18.5			16.8		30.1	11.1	4.9		23.5	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1010			929		150	644	546		658	
Volume-to-Capacity Ratio (*X*)		0.569			0.524		0.441	0.463	0.223		0.786	
Back of Queue (*Q*), ft/ln (95 th percentile)		296.3			256.2		66.4	211.8	81.5		413.2	
Back of Queue (*Q*), veh/ln (95 th percentile)		11.9			10.2		2.7	8.5	3.3		16.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.6			12.0		41.3	23.3	21.3		27.4	
Incremental Delay (d_2), s/veh		2.3			2.1		0.8	0.2	0.1		5.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		14.9			14.1		42.1	23.5	21.4		33.2	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	14.9	B		14.1	B		25.5	C		33.2	C	
Intersection Delay, s/veh / LOS	21.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.44	A	1.29	A	1.29	A	1.34	A

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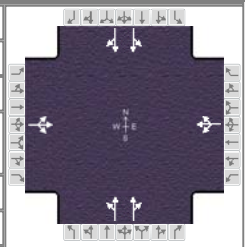
HCS7 Signalized Intersection Results Summary

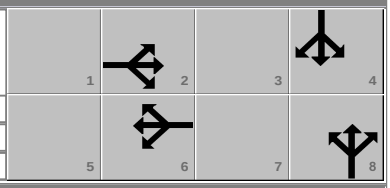
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2019	Analysis Period	1> 7:15
Intersection	Intersection #11	File Name	11AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	39	102	111	33	28	9	107	547	84	40	476	37

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.6	17.7	23.2	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		40.1		40.1		27.7		22.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						21.6		16.6
Green Extension Time (g_e), s		0.0		0.0		1.6		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		274			76		426		377	317		284
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1698			1437		1874		1821	1887		1853
Queue Service Time (g_s), s		0.0			0.0		19.6		17.4	14.6		13.1
Cycle Queue Clearance Time (g_c), s		10.0			2.4		19.6		17.4	14.6		13.1
Green Ratio (*g/C*)		0.40			0.40		0.26		0.26	0.20		0.20
Capacity (*c*), veh/h		718			627		484		470	370		364
Volume-to-Capacity Ratio (*X*)		0.382			0.121		0.880		0.801	0.856		0.781
Back of Queue (*Q*), ft/ln (95 th percentile)		188.8			47.5		344.9		302.9	276.6		247.6
Back of Queue (*Q*), veh/ln (95 th percentile)		7.6			1.9		13.8		12.1	11.1		9.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		19.5			17.1		32.0		31.2	34.9		34.3
Incremental Delay (d_2), s/veh		1.5			0.4		2.1		1.2	2.2		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		21.0			17.5		34.1		32.4	37.2		35.7
Level of Service (LOS)		C			B		C		C	D		D
Approach Delay, s/veh / LOS	21.0	C		17.5	B		33.3	C		36.5	D	
Intersection Delay, s/veh / LOS	31.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	0.94	A	0.61	A	1.15	A	0.98	A

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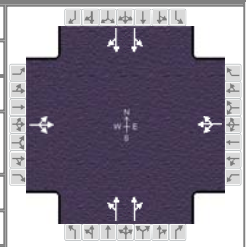
HCS7 Signalized Intersection Results Summary

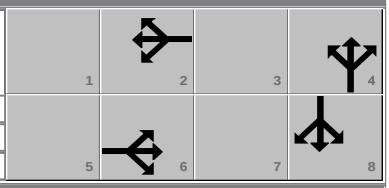
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2019	Analysis Period	1> 16:45
Intersection	Intersection #11	File Name	11PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	50	64	53	57	16	122	482	48	19	512	29

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	38.1	20.5	17.9	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		42.6		42.6		25.0		22.4
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						19.3		16.7
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.02		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h		151			137		373		336	321		288
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1667			1577		1867		1848	1894		1863
Queue Service Time (g_s), s		0.0			0.0		17.3		15.4	14.7		13.2
Cycle Queue Clearance Time (g_c), s		4.9			4.4		17.3		15.4	14.7		13.2
Green Ratio (*g/C*)		0.42			0.42		0.23		0.23	0.20		0.20
Capacity (*c*), veh/h		753			724		426		422	376		370
Volume-to-Capacity Ratio (*X*)		0.201			0.189		0.875		0.796	0.854		0.778
Back of Queue (*Q*), ft/ln (95 th percentile)		89.9			83.8		328.9		284.1	278.8		249.6
Back of Queue (*Q*), veh/ln (95 th percentile)		3.6			3.4		13.2		11.4	11.2		10.0
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		16.4			16.2		33.5		32.8	34.8		34.2
Incremental Delay (d_2), s/veh		0.6			0.6		6.5		2.4	2.2		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		17.0			16.8		39.9		35.2	37.0		35.5
Level of Service (LOS)		B			B		D		D	D		D
Approach Delay, s/veh / LOS	17.0	B		16.8	B		37.7	D		36.3	D	
Intersection Delay, s/veh / LOS	33.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.71	B	1.73	B
Bicycle LOS Score / LOS	0.74	A	0.71	A	1.07	A	0.99	A

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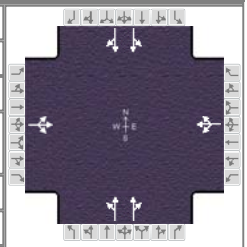
HCS7 Signalized Intersection Results Summary

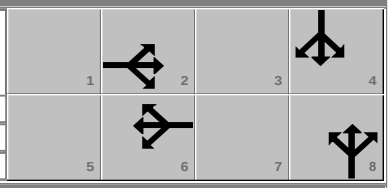
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - AM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2019	Analysis Period	1> 7:00
Intersection	Intersection #12	File Name	12AM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	108	5	275	3	2	1	80	625	5	2	544	68

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.1	19.4	22.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		39.6		39.6		26.5		23.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						20.5		18.3
Green Extension Time (g_e), s		0.0		0.0		1.5		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		422			7		403		369	356		312
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1576			1192		1880		1895	1899		1822
Queue Service Time (g_s), s		15.4			0.0		18.5		16.4	16.3		14.6
Cycle Queue Clearance Time (g_c), s		19.9			0.2		18.5		16.4	16.3		14.6
Green Ratio (*g/C*)		0.39			0.39		0.24		0.24	0.22		0.22
Capacity (*c*), veh/h		665			524		460		464	410		393
Volume-to-Capacity Ratio (*X*)		0.634			0.012		0.875		0.796	0.868		0.793
Back of Queue (*Q*), ft/ln (95 th percentile)		309.9			4.1		330.7		299.4	311		265.5
Back of Queue (*Q*), veh/ln (95 th percentile)		12.4			0.2		13.2		12.0	12.4		10.6
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		22.7			16.8		32.7		31.9	34.0		33.4
Incremental Delay (d_2), s/veh		4.6			0.0		2.1		1.2	4.7		1.5
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		27.3			16.9		34.8		33.1	38.8		34.9
Level of Service (LOS)		C			B		C		C	D		C
Approach Delay, s/veh / LOS	27.3	C		16.9	B		34.0	C		37.0	D	
Intersection Delay, s/veh / LOS	33.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.18	A	0.50	A	1.12	A	1.04	A

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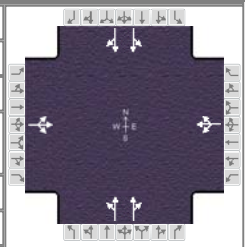
HCS7 Signalized Intersection Results Summary

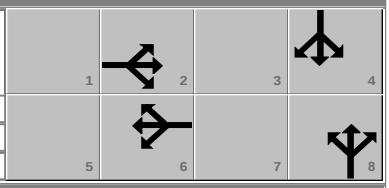
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 4, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Existing with Project - PM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2019	Analysis Period	1> 16:30
Intersection	Intersection #12	File Name	12PM - Existing with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	69	2	261	4	2	1	60	580	1	1	589	40

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	36.7	19.7	20.1	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		41.2		41.2		24.6		24.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						18.7		18.6
Green Extension Time (g_e), s		0.0		0.0		1.3		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		361			8		363		333	362		323
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1591			1197		1883		1899	1900		1855
Queue Service Time (g_s), s		7.8			0.0		16.7		14.9	16.6		14.8
Cycle Queue Clearance Time (g_c), s		15.3			0.2		16.7		14.9	16.6		14.8
Green Ratio (*g/C*)		0.41			0.41		0.22		0.22	0.22		0.22
Capacity (*c*), veh/h		697			551		420		423	417		407
Volume-to-Capacity Ratio (*X*)		0.518			0.014		0.866		0.788	0.870		0.793
Back of Queue (*Q*), ft/ln (95 th percentile)		248.5			4.6		306.3		277.9	317.4		273.4
Back of Queue (*Q*), veh/ln (95 th percentile)		9.9			0.2		12.3		11.1	12.7		10.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		20.2			15.8		33.7		33.0	33.9		33.2
Incremental Delay (d_2), s/veh		2.7			0.0		2.2		1.2	5.2		1.7
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		23.0			15.9		35.8		34.2	39.1		34.9
Level of Service (LOS)		C			B		D		C	D		C
Approach Delay, s/veh / LOS	23.0	C		15.9	B		35.1	D		37.1	D	
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.08	A	0.50	A	1.06	A	1.05	A

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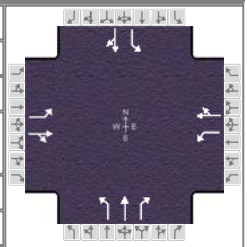
HCS7 Signalized Intersection Results Summary

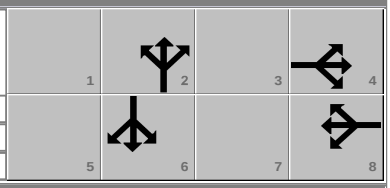
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	47	380	60	59	360	61	119	526	73	69	414	51

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	51	478		64	458		129	572	79	75	505	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	949	1854		931	1852		908	1900	1610	854	1863	
Queue Service Time (g_s), s	4.3	22.4		3.1	21.2		7.9	14.9	1.8	4.8	12.8	
Cycle Queue Clearance Time (g_c), s	25.5	22.4		25.5	21.2		20.7	14.9	1.8	19.6	12.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	126	525		112	525		510	1172	993	466	1149	
Volume-to-Capacity Ratio (*X*)	0.407	0.910		0.573	0.872		0.253	0.488	0.080	0.161	0.440	
Back of Queue (*Q*), ft/ln (95 th percentile)	52	458.6		70.1	417.7		75.8	242.5	26.3	43.5	212.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	18.3		2.8	16.7		3.0	9.7	1.1	1.7	8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	43.1	31.1		44.2	30.7		14.5	9.5	7.0	14.8	9.1	
Incremental Delay (d_2), s/veh	0.8	19.5		4.5	14.3		1.2	1.5	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	43.9	50.7		48.8	45.0		15.7	10.9	7.1	15.6	10.3	
Level of Service (LOS)	D	D		D	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	50.0	D		45.5	D		11.3	B		11.0	B	
Intersection Delay, s/veh / LOS	27.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.36	A	1.35	A	1.78	B	1.45	A

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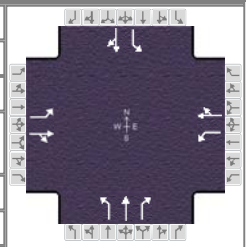
HCS7 Signalized Intersection Results Summary

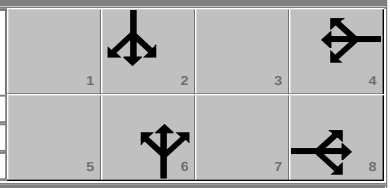
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	432	105	53	338	59	116	436	81	80	517	62

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	74	584		58	432		126	474	88	87	629	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	972	1835		844	1850		809	1900	1610	935	1864	
Queue Service Time (g_s), s	5.9	25.5		0.0	19.6		9.6	11.5	2.0	4.7	17.6	
Cycle Queue Clearance Time (g_c), s	25.5	25.5		25.5	19.6		27.2	11.5	2.0	16.2	17.6	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	144	520		80	524		421	1172	993	537	1150	
Volume-to-Capacity Ratio (*X*)	0.515	1.122		0.720	0.823		0.300	0.404	0.089	0.162	0.547	
Back of Queue (*Q*), ft/ln (95 th percentile)	76	798.8		80.9	374.9		85.8	196.7	29.3	46	274.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.0	32.0		3.2	15.0		3.4	7.9	1.2	1.8	11.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	42.5	32.3		45.0	30.1		17.9	8.8	7.0	12.9	10.0	
Incremental Delay (d_2), s/veh	1.4	77.6		23.6	9.6		1.8	1.0	0.2	0.6	1.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	43.9	109.9		68.6	39.7		19.7	9.8	7.2	13.6	11.9	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	102.4	F		43.2	D		11.3	B		12.1	B	
Intersection Delay, s/veh / LOS	41.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.57	B	1.29	A	1.62	B	1.67	B

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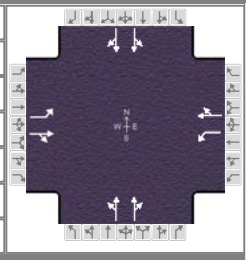
HCS7 Signalized Intersection Results Summary

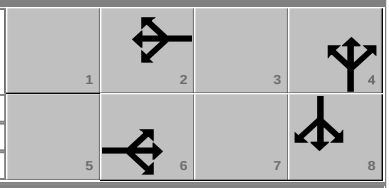
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #4	File Name	04AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	28	155	73	70	161	38	111	608	28	22	570	19

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.4	22.9	19.2	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		38.9		38.9		27.4		23.7
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						21.7		18.0
Green Extension Time (g_e), s		0.0		0.0		1.2		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.09		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	30	248		76	216		425		387	349		315
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1183	1796		1150	1837		1873		1873	1894		1878
Queue Service Time (g_s), s	1.7	8.9		4.6	7.4		19.7		17.5	16.0		14.3
Cycle Queue Clearance Time (g_c), s	9.1	8.9		13.5	7.4		19.7		17.5	16.0		14.3
Green Ratio (*g/C*)	0.38	0.38		0.38	0.38		0.25		0.25	0.21		0.21
Capacity (*c*), veh/h	434	686		406	702		477		477	404		400
Volume-to-Capacity Ratio (*X*)	0.070	0.361		0.188	0.308		0.890		0.810	0.865		0.787
Back of Queue (*Q*), ft/ln (95 th percentile)	21.9	172.5		59.5	146.3		375.3		320.4	294.3		264.5
Back of Queue (*Q*), veh/ln (95 th percentile)	0.9	6.9		2.4	5.9		15.0		12.8	11.8		10.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	22.7	19.9		24.8	19.5		32.3		31.5	34.2		33.5
Incremental Delay (d_2), s/veh	0.3	1.5		1.0	1.1		10.0		4.3	2.2		1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	23.0	21.4		25.8	20.6		42.3		35.8	36.4		34.8
Level of Service (LOS)	C	C		C	C		D		D	D		C
Approach Delay, s/veh / LOS	21.6	C		22.0	C		39.2	D		35.6	D	
Intersection Delay, s/veh / LOS	33.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.93	B	1.95	B
Bicycle LOS Score / LOS	0.95	A	0.97	A	1.16	A	1.04	A

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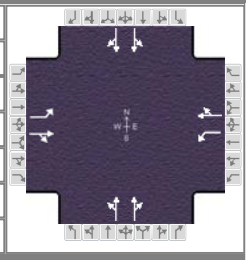
HCS7 Signalized Intersection Results Summary

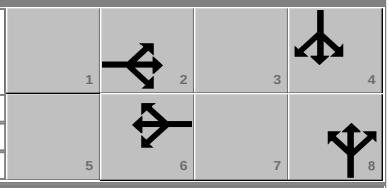
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #4	File Name	04PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	144	35	31	121	34	52	531	31	9	591	14

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	38.0	19.1	19.4	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		42.5		42.5		23.9		23.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						18.2		18.1
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	32	195		34	168		351		316	351		317
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1236	1835		1207	1828		1885		1864	1897		1884
Queue Service Time (g_s), s	1.5	6.2		1.7	5.3		16.2		14.4	16.1		14.3
Cycle Queue Clearance Time (g_c), s	6.8	6.2		7.8	5.3		16.2		14.4	16.1		14.3
Green Ratio (*g/C*)	0.42	0.42		0.42	0.42		0.22		0.22	0.21		0.21
Capacity (*c*), veh/h	529	774		506	771		406		402	404		401
Volume-to-Capacity Ratio (*X*)	0.060	0.251		0.067	0.218		0.865		0.788	0.868		0.791
Back of Queue (*Q*), ft/ln (95 th percentile)	20.1	118.7		22	101		295.8		265	303.9		265.7
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	4.7		0.9	4.0		11.8		10.6	12.2		10.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.7	16.8		19.4	16.6		34.0		33.4	34.2		33.5
Incremental Delay (d_2), s/veh	0.2	0.8		0.3	0.7		2.2		1.3	4.5		1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.9	17.6		19.6	17.2		36.2		34.7	38.7		34.9
Level of Service (LOS)	B	B		B	B		D		C	D		C
Approach Delay, s/veh / LOS	17.8	B		17.6	B		35.5	D		36.9	D	
Intersection Delay, s/veh / LOS	31.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	0.86	A	0.82	A	1.04	A	1.04	A

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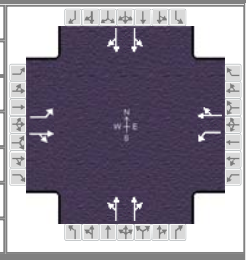
HCS7 Signalized Intersection Results Summary

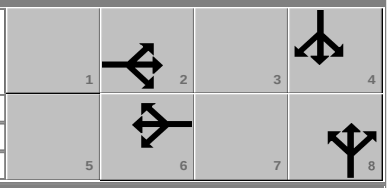
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #5	File Name	05AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	236	113	43	143	44	37	671	19	40	549	77

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.2	20.9	22.4	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		37.7		37.7		26.9		25.4
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g_s), s						21.0		19.7
Green Extension Time (g_e), s		0.0		0.0		1.4		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.03

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	77	379		47	203		415		376	385		338
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1198	1795		1019	1823		1891		1881	1889		1819
Queue Service Time (g_s), s	4.4	15.2		3.5	7.1		19.0		16.9	17.7		15.8
Cycle Queue Clearance Time (g_c), s	11.5	15.2		18.7	7.1		19.0		16.9	17.7		15.8
Green Ratio (*g/C*)	0.37	0.37		0.37	0.37		0.25		0.25	0.23		0.23
Capacity (*c*), veh/h	427	662		283	672		471		469	439		422
Volume-to-Capacity Ratio (*X*)	0.181	0.573		0.165	0.303		0.880		0.801	0.879		0.801
Back of Queue (*Q*), ft/ln (95 th percentile)	59.4	275.6		41.7	140.3		335.2		299.9	336.9		284.4
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	11.0		1.7	5.6		13.4		12.0	13.5		11.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	24.3	22.7		30.2	20.2		32.5		31.7	33.3		32.6
Incremental Delay (d_2), s/veh	0.9	3.6		1.3	1.2		2.2		1.2	7.0		2.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	25.2	26.3		31.5	21.3		34.7		32.9	40.4		35.4
Level of Service (LOS)	C	C		C	C		C		C	D		D
Approach Delay, s/veh / LOS	26.1	C		23.2	C		33.8	C		38.1	D	
Intersection Delay, s/veh / LOS	32.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.24	A	0.90	A	1.14	A	1.08	A

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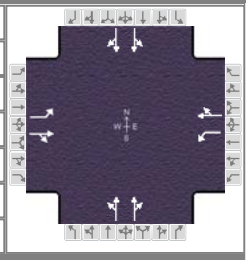
HCS7 Signalized Intersection Results Summary

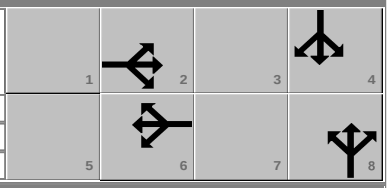
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #5	File Name	05PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	211	93	15	102	20	22	570	34	47	574	35

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	36.4	20.4	19.7	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		40.9		40.9		24.2		24.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g_s), s						18.4		19.3
Green Extension Time (g_e), s		0.0		0.0		1.2		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	33	330		16	133		359		322	376		338
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1277	1801		1066	1846		1894		1861	1887		1862
Queue Service Time (g_s), s	1.5	12.1		1.0	4.2		16.4		14.7	17.3		15.4
Cycle Queue Clearance Time (g_c), s	5.7	12.1		13.1	4.2		16.4		14.7	17.3		15.4
Green Ratio (*g/C*)	0.40	0.40		0.40	0.40		0.22		0.22	0.23		0.23
Capacity (*c*), veh/h	537	728		368	746		414		407	429		423
Volume-to-Capacity Ratio (*X*)	0.061	0.454		0.044	0.178		0.867		0.790	0.876		0.798
Back of Queue (*Q*), ft/ln (95 th percentile)	20.9	223		12.3	80.6		300.7		268.2	327.8		282.3
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	8.9		0.5	3.2		12.0		10.7	13.1		11.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	19.0	19.6		24.3	17.2		33.9		33.2	33.6		32.8
Incremental Delay (d_2), s/veh	0.2	2.0		0.2	0.5		2.2		1.3	6.4		2.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	19.2	21.6		24.6	17.7		36.1		34.5	40.0		35.2
Level of Service (LOS)	B	C		C	B		D		C	D		D
Approach Delay, s/veh / LOS	21.4	C		18.5	B		35.3	D		37.7	D	
Intersection Delay, s/veh / LOS	32.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.09	A	0.73	A	1.05	A	1.08	A

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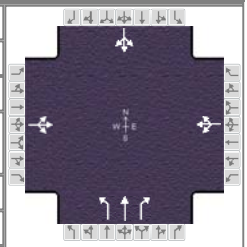
HCS7 Signalized Intersection Results Summary

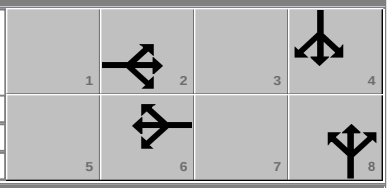
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	412	56	61	278	8	49	293	153	21	275	68

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.3	25.7	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		59.8		59.8		30.2		30.2
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						24.6		21.1
Green Extension Time (g_e), s		0.0		0.0		1.4		1.7
Phase Call Probability						1.00		1.00
Max Out Probability						0.41		0.13

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		580			377		53	318	166		396	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1748			1639		1026	1900	1610		1743	
Queue Service Time (g_s), s		2.0			0.0		4.5	13.0	7.4		6.4	
Cycle Queue Clearance Time (g_c), s		15.8			8.6		22.6	13.0	7.4		19.1	
Green Ratio (*g/C*)		0.61			0.61		0.29	0.29	0.29		0.29	
Capacity (*c*), veh/h		1125			1059		164	536	454		534	
Volume-to-Capacity Ratio (*X*)		0.516			0.356		0.325	0.594	0.366		0.741	
Back of Queue (*Q*), ft/ln (95 th percentile)		255.1			158.1		51.6	244.6	126.8		324.9	
Back of Queue (*Q*), veh/ln (95 th percentile)		10.2			6.3		2.1	9.8	5.1		13.0	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		9.5			8.2		40.0	27.9	25.9		29.8	
Incremental Delay (d_2), s/veh		1.7			0.9		0.4	0.4	0.2		2.9	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		11.2			9.1		40.4	28.2	26.0		32.7	
Level of Service (LOS)		B			A		D	C	C		C	
Approach Delay, s/veh / LOS	11.2	B		9.1	A		28.8	C		32.7	C	
Intersection Delay, s/veh / LOS	20.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.23	B	1.65	B	1.70	B	1.70	B
Bicycle LOS Score / LOS	1.45	A	1.11	A	1.38	A	1.14	A

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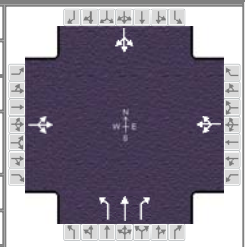
HCS7 Signalized Intersection Results Summary

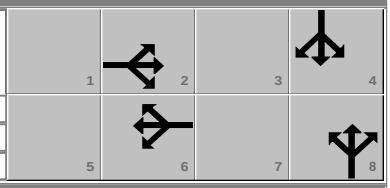
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	59	409	72	96	354	10	62	280	115	10	376	101

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						32.5		26.3
Green Extension Time (g_e), s		0.0		0.0		0.0		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.77

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		587			500		67	304	125		529	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1742			1555		897	1900	1610		1822	
Queue Service Time (g_s), s		0.8			0.0		6.2	11.3	5.0		5.4	
Cycle Queue Clearance Time (g_c), s		18.8			18.0		30.5	11.3	5.0		24.3	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1022			921		142	644	546		658	
Volume-to-Capacity Ratio (*X*)		0.575			0.543		0.475	0.473	0.229		0.804	
Back of Queue (*Q*), ft/ln (95 th percentile)		302.9			266.3		68.4	216	83.8		428.4	
Back of Queue (*Q*), veh/ln (95 th percentile)		12.1			10.7		2.7	8.6	3.4		17.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.7			12.2		42.2	23.4	21.3		27.7	
Incremental Delay (d_2), s/veh		2.4			2.3		0.9	0.2	0.1		6.7	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		15.1			14.5		43.1	23.6	21.4		34.4	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	15.1	B		14.5	B		25.7	C		34.4	C	
Intersection Delay, s/veh / LOS	22.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.46	A	1.31	A	1.31	A	1.36	A

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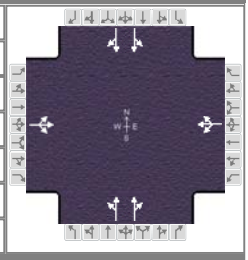
HCS7 Signalized Intersection Results Summary

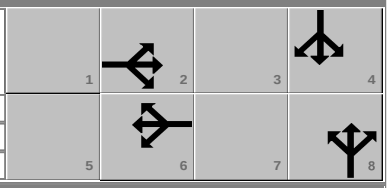
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #11	File Name	11AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	34	104	113	34	29	9	109	528	86	41	463	33

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	36.5	17.2	22.8	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		41.0		41.0		27.3		21.7
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						21.2		16.2
Green Extension Time (g_e), s		0.0		0.0		1.6		1.0
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		273			78		417		369	308		276
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1705			1436		1873		1817	1886		1857
Queue Service Time (g_s), s		0.0			0.0		19.2		17.1	14.2		12.7
Cycle Queue Clearance Time (g_c), s		9.8			2.4		19.2		17.1	14.2		12.7
Green Ratio (*g/C*)		0.41			0.41		0.25		0.25	0.19		0.19
Capacity (*c*), veh/h		736			641		475		461	361		355
Volume-to-Capacity Ratio (*X*)		0.371			0.122		0.878		0.800	0.853		0.778
Back of Queue (*Q*), ft/ln (95 th percentile)		184			48		339.7		298.1	270		242.4
Back of Queue (*Q*), veh/ln (95 th percentile)		7.4			1.9		13.6		11.9	10.8		9.7
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		18.8			16.6		32.2		31.4	35.2		34.6
Incremental Delay (d_2), s/veh		1.4			0.4		2.1		1.2	2.2		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		20.3			17.0		34.4		32.7	37.4		36.0
Level of Service (LOS)		C			B		C		C	D		D
Approach Delay, s/veh / LOS	20.3	C		17.0	B		33.6	C		36.7	D	
Intersection Delay, s/veh / LOS	31.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	0.94	A	0.62	A	1.14	A	0.97	A

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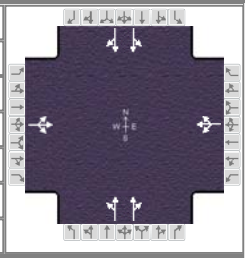
HCS7 Signalized Intersection Results Summary

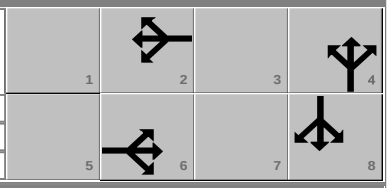
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Intersection #11	File Name	11PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	23	51	65	54	58	16	124	495	49	19	526	30

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	37.2	21.0	18.3	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		41.7		41.7		25.5		22.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						19.7		17.1
Green Extension Time (g_e), s		0.0		0.0		1.2		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.03		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h		151			139		382		344	329		296
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1675			1576		1867		1849	1894		1863
Queue Service Time (g_s), s		0.0			0.0		17.7		15.8	15.1		13.5
Cycle Queue Clearance Time (g_c), s		5.0			4.6		17.7		15.8	15.1		13.5
Green Ratio (*g/C*)		0.41			0.41		0.23		0.23	0.20		0.20
Capacity (*c*), veh/h		739			709		435		431	385		378
Volume-to-Capacity Ratio (*X*)		0.204			0.196		0.877		0.799	0.856		0.781
Back of Queue (*Q*), ft/ln (95 th percentile)		91.7			86.9		337.6		290.8	284.5		254.6
Back of Queue (*Q*), veh/ln (95 th percentile)		3.7			3.5		13.5		11.6	11.4		10.2
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		16.9			16.8		33.3		32.5	34.6		34.0
Incremental Delay (d_2), s/veh		0.6			0.6		7.1		2.8	2.2		1.3
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		17.6			17.4		40.3		35.3	36.8		35.3
Level of Service (LOS)		B			B		D		D	D		D
Approach Delay, s/veh / LOS	17.6	B		17.4	B		37.9	D		36.1	D	
Intersection Delay, s/veh / LOS	33.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.71	B	1.73	B
Bicycle LOS Score / LOS	0.74	A	0.72	A	1.09	A	1.00	A

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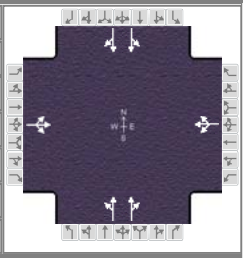
HCS7 Signalized Intersection Results Summary

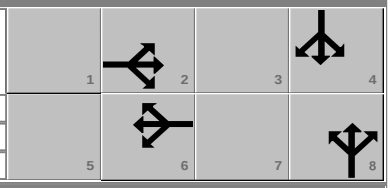
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - AM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #12	File Name	12AM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	95	5	281	3	2	1	82	624	5	2	547	56

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.3	19.1	22.1	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		39.8		39.8		26.6		23.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						20.6		18.0
Green Extension Time (g_e), s		0.0		0.0		1.5		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		414			7		403		370	349		308
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1583			1186		1879		1895	1899		1835
Queue Service Time (g_s), s		13.7			0.0		18.6		16.5	16.0		14.3
Cycle Queue Clearance Time (g_c), s		19.1			0.2		18.6		16.5	16.0		14.3
Green Ratio (*g/C*)		0.39			0.39		0.25		0.25	0.21		0.21
Capacity (*c*), veh/h		671			526		460		464	404		390
Volume-to-Capacity Ratio (*X*)		0.617			0.012		0.875		0.796	0.866		0.791
Back of Queue (*Q*), ft/ln (95 th percentile)		300.7			4.1		331.4		299.7	305.3		262.9
Back of Queue (*Q*), veh/ln (95 th percentile)		12.0			0.2		13.3		12.0	12.2		10.5
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		22.3			16.7		32.7		31.9	34.2		33.5
Incremental Delay (d_2), s/veh		4.2			0.0		2.1		1.2	4.3		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		26.5			16.7		34.8		33.1	38.5		34.9
Level of Service (LOS)		C			B		C		C	D		C
Approach Delay, s/veh / LOS	26.5	C		16.7	B		34.0	C		36.8	D	
Intersection Delay, s/veh / LOS	33.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.17	A	0.50	A	1.13	A	1.03	A

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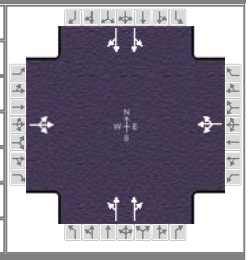
HCS7 Signalized Intersection Results Summary

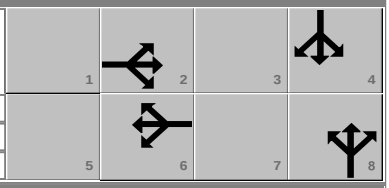
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future - PM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2021	Analysis Period	1> 16:30
Intersection	Intersection #12	File Name	12PM - Future.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67	2	266	4	2	1	61	597	1	1	605	39

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.8	20.1	20.6	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		40.3		40.3		25.1		24.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						19.2		18.9
Green Extension Time (g_e), s		0.0		0.0		1.4		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		364			8		374		343	371		330
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1593			1178		1883		1899	1900		1857
Queue Service Time (g_s), s		7.9			0.0		17.2		15.3	16.9		15.1
Cycle Queue Clearance Time (g_c), s		15.7			0.2		17.2		15.3	16.9		15.1
Green Ratio (*g/C*)		0.40			0.40		0.23		0.23	0.22		0.22
Capacity (*c*), veh/h		682			531		430		434	425		416
Volume-to-Capacity Ratio (*X*)		0.534			0.014		0.869		0.790	0.872		0.795
Back of Queue (*Q*), ft/ln (95 th percentile)		255.7			4.7		312.9		283.9	325.3		279.3
Back of Queue (*Q*), veh/ln (95 th percentile)		10.2			0.2		12.5		11.4	13.0		11.2
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		21.0			16.4		33.4		32.7	33.7		33.0
Incremental Delay (d_2), s/veh		3.0			0.0		2.1		1.2	5.8		2.1
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		24.0			16.4		35.6		33.9	39.5		35.1
Level of Service (LOS)		C			B		D		C	D		D
Approach Delay, s/veh / LOS	24.0	C		16.4	B		34.8	C		37.4	D	
Intersection Delay, s/veh / LOS	33.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.09	A	0.50	A	1.08	A	1.07	A

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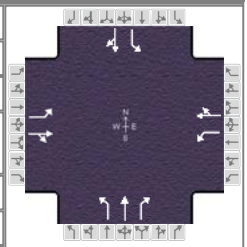
HCS7 Signalized Intersection Results Summary

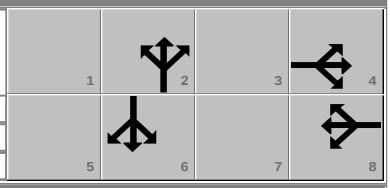
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Interesction #3	File Name	03AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	47	401	60	68	378	61	119	526	83	69	414	51

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	51	501		74	477		129	572	90	75	505	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	932	1857		911	1854		908	1900	1610	854	1863	
Queue Service Time (g_s), s	3.1	23.8		1.7	22.4		7.9	14.9	2.0	4.8	12.8	
Cycle Queue Clearance Time (g_c), s	25.5	23.8		25.5	22.4		20.7	14.9	2.0	19.6	12.8	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	113	526		97	525		510	1172	993	466	1149	
Volume-to-Capacity Ratio (*X*)	0.454	0.953		0.764	0.909		0.253	0.488	0.091	0.161	0.440	
Back of Queue (*Q*), ft/ln (95 th percentile)	52.3	513.3		106.3	456.3		75.8	242.5	30	43.5	212.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	20.5		4.3	18.3		3.0	9.7	1.2	1.7	8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	44.0	31.7		44.8	31.1		14.5	9.5	7.0	14.8	9.1	
Incremental Delay (d_2), s/veh	1.1	27.4		27.1	19.3		1.2	1.5	0.2	0.7	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	45.1	59.1		71.9	50.4		15.7	10.9	7.2	15.6	10.3	
Level of Service (LOS)	D	E		E	D		B	B	A	B	B	
Approach Delay, s/veh / LOS	57.8	E		53.3	D		11.3	B		11.0	B	
Intersection Delay, s/veh / LOS	30.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.40	A	1.40	A	1.79	B	1.45	A

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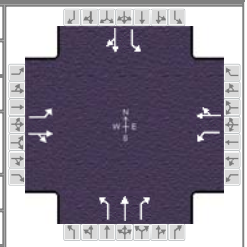
HCS7 Signalized Intersection Results Summary

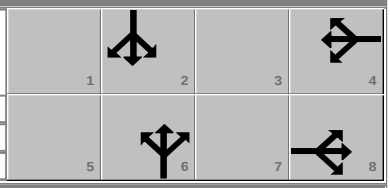
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California / Santa Ana	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Interesction #3	File Name	03PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	437	105	55	342	59	116	436	84	80	517	62

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	55.5	25.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6		2
Case Number		6.0		6.0		5.0		6.0
Phase Duration, s		30.0		30.0		60.0		60.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		27.5		27.5				
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	74	589		60	436		126	474	91	87	629	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	968	1836		840	1851		809	1900	1610	935	1864	
Queue Service Time (g_s), s	5.6	25.5		0.0	19.9		9.6	11.5	2.1	4.7	17.6	
Cycle Queue Clearance Time (g_c), s	25.5	25.5		25.5	19.9		27.2	11.5	2.1	16.2	17.6	
Green Ratio (*g/C*)	0.28	0.28		0.28	0.28		0.62	0.62	0.62	0.62	0.62	
Capacity (*c*), veh/h	141	520		80	524		421	1172	993	537	1150	
Volume-to-Capacity Ratio (*X*)	0.526	1.132		0.747	0.831		0.300	0.404	0.092	0.162	0.547	
Back of Queue (*Q*), ft/ln (95 th percentile)	76.6	819.9		87.9	381.4		85.8	196.7	30.5	46	274.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.1	32.8		3.5	15.3		3.4	7.9	1.2	1.8	11.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	42.7	32.3		45.0	30.2		17.9	8.8	7.0	12.9	10.0	
Incremental Delay (d_2), s/veh	1.8	81.3		28.5	10.3		1.8	1.0	0.2	0.6	1.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	44.5	113.6		73.5	40.5		19.7	9.8	7.2	13.6	11.9	
Level of Service (LOS)	D	F		E	D		B	A	A	B	B	
Approach Delay, s/veh / LOS	105.9	F		44.5	D		11.3	B		12.1	B	
Intersection Delay, s/veh / LOS	42.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	1.92	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.58	B	1.31	A	1.63	B	1.67	B

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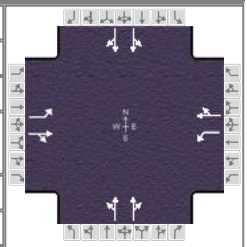
HCS7 Signalized Intersection Results Summary

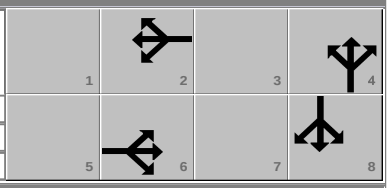
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #4	File Name	04AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	28	162	73	70	167	38	111	618	28	22	579	19

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.9	23.2	19.4	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		38.4		38.4		27.7		23.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						21.9		18.2
Green Extension Time (g_e), s		0.0		0.0		1.3		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.10		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	30	255		76	223		431		392	354		320
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1176	1799		1142	1839		1874		1874	1894		1878
Queue Service Time (g_s), s	1.7	9.3		4.7	7.7		19.9		17.7	16.2		14.5
Cycle Queue Clearance Time (g_c), s	9.4	9.3		14.0	7.7		19.9		17.7	16.2		14.5
Green Ratio (*g/C*)	0.38	0.38		0.38	0.38		0.26		0.26	0.22		0.22
Capacity (*c*), veh/h	421	677		392	692		483		483	409		406
Volume-to-Capacity Ratio (*X*)	0.072	0.377		0.194	0.322		0.892		0.812	0.866		0.789
Back of Queue (*Q*), ft/ln (95 th percentile)	22.3	180.9		60.7	153.3		381		324.7	297.5		267
Back of Queue (*Q*), veh/ln (95 th percentile)	0.9	7.2		2.4	6.1		15.2		13.0	11.9		10.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	23.3	20.4		25.5	19.9		32.2		31.4	34.0		33.3
Incremental Delay (d_2), s/veh	0.3	1.6		1.1	1.2		10.4		4.5	2.2		1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	23.6	22.0		26.6	21.1		42.6		35.9	36.2		34.7
Level of Service (LOS)	C	C		C	C		D		D	D		C
Approach Delay, s/veh / LOS	22.2	C		22.5	C		39.4	D		35.5	D	
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.93	B	1.95	B
Bicycle LOS Score / LOS	0.96	A	0.98	A	1.17	A	1.04	A

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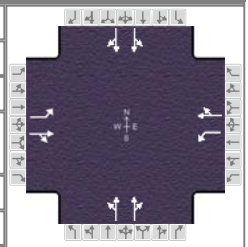
HCS7 Signalized Intersection Results Summary

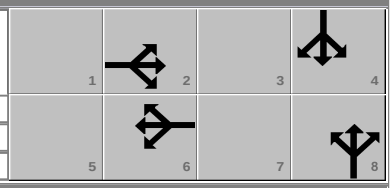
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California / Independence	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #4	File Name	04PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	146	35	31	122	34	52	534	31	9	593	14

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	37.8	19.2	19.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		42.3		42.3		24.0		23.7
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.0
Queue Clearance Time (g_s), s						18.2		18.1
Green Extension Time (g_e), s		0.0		0.0		1.2		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	32	197		34	170		353		318	352		318
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1235	1836		1205	1828		1885		1864	1897		1884
Queue Service Time (g_s), s	1.5	6.3		1.7	5.3		16.2		14.5	16.1		14.4
Cycle Queue Clearance Time (g_c), s	6.8	6.3		7.9	5.3		16.2		14.5	16.1		14.4
Green Ratio (*g/C*)	0.42	0.42		0.42	0.42		0.22		0.22	0.21		0.21
Capacity (*c*), veh/h	526	772		503	769		408		403	405		402
Volume-to-Capacity Ratio (*X*)	0.060	0.255		0.067	0.221		0.865		0.788	0.869		0.791
Back of Queue (*Q*), ft/ln (95 th percentile)	20.2	120.6		22.1	102		296.6		266	304.7		266.4
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	4.8		0.9	4.1		11.9		10.6	12.2		10.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.9	16.9		19.5	16.7		34.0		33.3	34.2		33.5
Incremental Delay (d_2), s/veh	0.2	0.8		0.3	0.7		2.2		1.3	4.5		1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	19.1	17.7		19.8	17.3		36.2		34.6	38.7		34.8
Level of Service (LOS)	B	B		B	B		D		C	D		C
Approach Delay, s/veh / LOS	17.9	B		17.7	B		35.5	D		36.9	D	
Intersection Delay, s/veh / LOS	31.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	0.86	A	0.82	A	1.04	A	1.04	A

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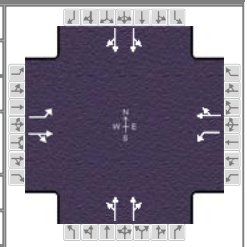
HCS7 Signalized Intersection Results Summary

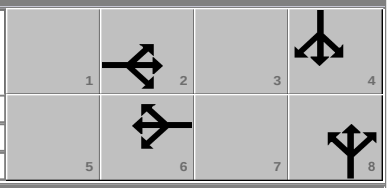
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #5	File Name	05AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	243	113	52	149	44	37	681	29	40	558	77

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	32.3	21.1	23.0	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		36.8		36.8		27.5		25.6
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.0		3.1
Queue Clearance Time (g_s), s						21.5		19.9
Green Extension Time (g_e), s		0.0		0.0		1.5		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.03

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	77	387		57	210		427		385	391		343
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1190	1797		1012	1825		1891		1872	1889		1820
Queue Service Time (g_s), s	4.5	15.8		4.3	7.5		19.5		17.3	17.9		16.0
Cycle Queue Clearance Time (g_c), s	12.0	15.8		20.2	7.5		19.5		17.3	17.9		16.0
Green Ratio (*g/C*)	0.36	0.36		0.36	0.36		0.26		0.26	0.23		0.23
Capacity (*c*), veh/h	409	646		266	656		484		479	444		428
Volume-to-Capacity Ratio (*X*)	0.189	0.599		0.213	0.320		0.883		0.803	0.880		0.803
Back of Queue (*Q*), ft/ln (95 th percentile)	60.9	286.6		52.6	148.2		344.6		305.2	341.6		288
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	11.5		2.1	5.9		13.8		12.2	13.7		11.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	25.2	23.5		31.8	20.9		32.2		31.4	33.2		32.5
Incremental Delay (d_2), s/veh	1.0	4.1		1.8	1.3		2.6		1.2	7.4		3.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	26.2	27.6		33.6	22.2		34.8		32.6	40.6		35.5
Level of Service (LOS)	C	C		C	C		C		C	D		D
Approach Delay, s/veh / LOS	27.4	C		24.6	C		33.8	C		38.2	D	
Intersection Delay, s/veh / LOS	32.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	2.11	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.25	A	0.93	A	1.16	A	1.09	A

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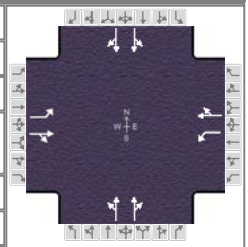
HCS7 Signalized Intersection Results Summary

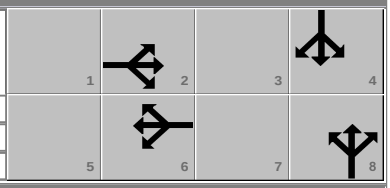
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	California / Ardmore	Analysis Year	2021	Analysis Period	1> 17:00
Intersection	Intersection #5	File Name	05PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	213	93	17	103	20	22	573	37	47	576	35

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	36.1	20.5	19.9	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		12.0		12.0
Phase Duration, s		40.6		40.6		24.4		25.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						18.6		19.3
Green Extension Time (g_e), s		0.0		0.0		1.3		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	33	333		18	134		363		324	377		339
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1276	1801		1064	1846		1894		1859	1887		1862
Queue Service Time (g_s), s	1.5	12.2		1.2	4.2		16.6		14.8	17.3		15.4
Cycle Queue Clearance Time (g_c), s	5.7	12.2		13.4	4.2		16.6		14.8	17.3		15.4
Green Ratio (*g/C*)	0.40	0.40		0.40	0.40		0.22		0.22	0.23		0.23
Capacity (*c*), veh/h	533	723		363	741		418		410	430		424
Volume-to-Capacity Ratio (*X*)	0.061	0.460		0.051	0.180		0.868		0.791	0.876		0.798
Back of Queue (*Q*), ft/ln (95 th percentile)	21.1	225.3		14.1	81.8		302.9		269.8	328.9		283.1
Back of Queue (*Q*), veh/ln (95 th percentile)	0.8	9.0		0.6	3.3		12.1		10.8	13.2		11.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	19.2	19.8		24.7	17.4		33.8		33.1	33.5		32.8
Incremental Delay (d_2), s/veh	0.2	2.1		0.3	0.5		2.2		1.3	6.5		2.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	19.4	21.9		24.9	17.9		36.0		34.4	40.0		35.2
Level of Service (LOS)	B	C		C	B		D		C	D		D
Approach Delay, s/veh / LOS	21.6	C		18.8	B		35.2	D		37.7	D	
Intersection Delay, s/veh / LOS	32.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.95	B	1.93	B
Bicycle LOS Score / LOS	1.09	A	0.74	A	1.05	A	1.08	A

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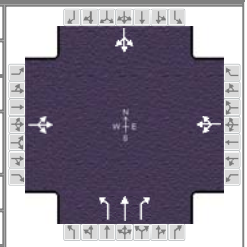
HCS7 Signalized Intersection Results Summary

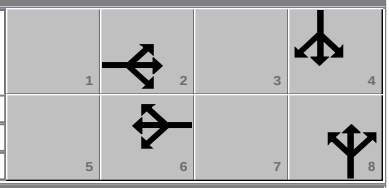
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #10	File Name	10AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	114	412	56	61	278	8	49	334	153	21	312	111

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	51.4	29.6	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.9		55.9		34.1		34.1
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						29.2		24.4
Green Extension Time (g_e), s		0.0		0.0		0.5		1.6
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		0.44

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		633			377		53	363	166		483	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1665			1602		947	1900	1610		1778	
Queue Service Time (g_s), s		13.0			0.0		4.9	14.3	7.0		8.1	
Cycle Queue Clearance Time (g_c), s		22.7			9.7		27.2	14.3	7.0		22.4	
Green Ratio (*g/C*)		0.57			0.57		0.33	0.33	0.33		0.33	
Capacity (*c*), veh/h		999			963		157	624	529		626	
Volume-to-Capacity Ratio (*X*)		0.633			0.392		0.339	0.581	0.314		0.771	
Back of Queue (*Q*), ft/ln (95 th percentile)		336.3			185.1		51.9	263	116.8		385.7	
Back of Queue (*Q*), veh/ln (95 th percentile)		13.5			7.4		2.1	10.5	4.7		15.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.9			10.3		40.2	25.1	22.6		27.7	
Incremental Delay (d_2), s/veh		3.1			1.2		0.5	0.8	0.1		5.0	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		16.0			11.5		40.7	25.9	22.7		32.6	
Level of Service (LOS)		B			B		D	C	C		C	
Approach Delay, s/veh / LOS	16.0	B		11.5	B		26.3	C		32.6	C	
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.53	B	1.11	A	1.45	A	1.28	A

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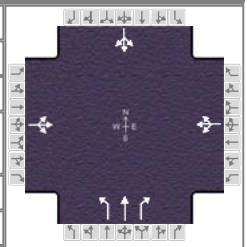
HCS7 Signalized Intersection Results Summary

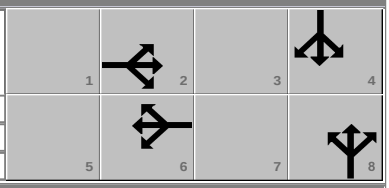
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of Huntington Park / City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Santa Ana	Analysis Year	2021	Analysis Period	1> 16:00
Intersection	Intersection #10	File Name	10PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	409	72	96	354	10	62	290	115	10	385	111

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	50.5	30.5	0.0	0.0	0.0	0.0
Yellow	3.5	3.5	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		5.0		8.0
Phase Duration, s		55.0		55.0		35.0		35.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.3		3.3
Queue Clearance Time (g_s), s						32.5		27.7
Green Extension Time (g_e), s		0.0		0.0		0.0		0.9
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		600			500		67	315	125		550	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1717			1544		880	1900	1610		1818	
Queue Service Time (g_s), s		1.6			0.0		4.8	11.8	5.0		6.9	
Cycle Queue Clearance Time (g_c), s		19.9			18.3		30.5	11.8	5.0		25.7	
Green Ratio (*g/C*)		0.56			0.56		0.34	0.34	0.34		0.34	
Capacity (*c*), veh/h		1009			915		126	644	546		657	
Volume-to-Capacity Ratio (*X*)		0.595			0.547		0.533	0.490	0.229		0.837	
Back of Queue (*Q*), ft/ln (95 th percentile)		314.6			267.5		70.5	223.1	83.7		458.5	
Back of Queue (*Q*), veh/ln (95 th percentile)		12.6			10.7		2.8	8.9	3.3		18.3	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh		12.9			12.2		43.4	23.6	21.3		28.1	
Incremental Delay (d_2), s/veh		2.6			2.3		2.3	0.2	0.1		8.8	
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0	0.0		0.0	
Control Delay (*d*), s/veh		15.5			14.6		45.6	23.8	21.4		37.0	
Level of Service (LOS)		B			B		D	C	C		D	
Approach Delay, s/veh / LOS	15.5	B		14.6	B		26.1	C		37.0	D	
Intersection Delay, s/veh / LOS	23.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.24	B	1.66	B	1.69	B	1.69	B
Bicycle LOS Score / LOS	1.48	A	1.31	A	1.33	A	1.40	A

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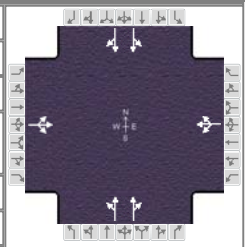
HCS7 Signalized Intersection Results Summary

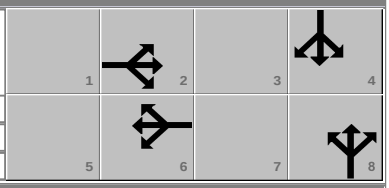
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2021	Analysis Period	1> 7:15
Intersection	Intersection #11	File Name	11AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	41	104	113	34	29	9	109	562	86	41	494	39

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.5	18.3	23.8	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		39.0		39.0		28.3		22.8
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						22.1		17.2
Green Extension Time (g_e), s		0.0		0.0		1.7		1.1
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		280			78		437		386	329		295
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1697			1422		1875		1821	1887		1852
Queue Service Time (g_s), s		0.5			0.0		20.1		17.8	15.2		13.6
Cycle Queue Clearance Time (g_c), s		10.5			2.5		20.1		17.8	15.2		13.6
Green Ratio (*g/C*)		0.38			0.38		0.26		0.26	0.20		0.20
Capacity (*c*), veh/h		696			604		495		481	383		376
Volume-to-Capacity Ratio (*X*)		0.403			0.130		0.882		0.803	0.860		0.785
Back of Queue (*Q*), ft/ln (95 th percentile)		197.7			50.3		351.8		308.4	287.1		254.4
Back of Queue (*Q*), veh/ln (95 th percentile)		7.9			2.0		14.1		12.3	11.5		10.2
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		20.4			17.9		31.8		30.9	34.6		34.0
Incremental Delay (d_2), s/veh		1.7			0.4		2.1		1.2	3.0		1.4
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		22.1			18.3		33.9		32.1	37.6		35.4
Level of Service (LOS)		C			B		C		C	D		D
Approach Delay, s/veh / LOS	22.1	C		18.3	B		33.1	C		36.6	D	
Intersection Delay, s/veh / LOS	31.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	0.95	A	0.62	A	1.17	A	1.00	A

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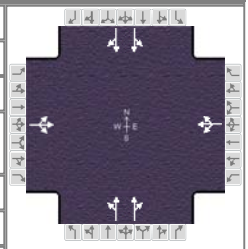
HCS7 Signalized Intersection Results Summary

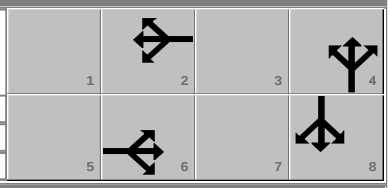
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Independence	Analysis Year	2021	Analysis Period	1> 16:45
Intersection	Intersection #11	File Name	11PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	51	65	54	58	16	124	503	49	19	533	31

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	36.8	21.2	18.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6		2		4		8
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		41.3		41.3		25.7		23.0
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						20.0		17.3
Green Extension Time (g_e), s		0.0		0.0		1.2		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.04		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h		153			139		386		348	334		300
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1669			1576		1867		1849	1894		1862
Queue Service Time (g_s), s		0.0			0.0		18.0		16.0	15.3		13.7
Cycle Queue Clearance Time (g_c), s		5.1			4.6		18.0		16.0	15.3		13.7
Green Ratio (*g/C*)		0.41			0.41		0.24		0.24	0.21		0.21
Capacity (*c*), veh/h		729			701		440		436	390		383
Volume-to-Capacity Ratio (*X*)		0.210			0.198		0.878		0.800	0.858		0.782
Back of Queue (*Q*), ft/ln (95 th percentile)		94.3			87.8		342.1		294	287.1		257.1
Back of Queue (*Q*), veh/ln (95 th percentile)		3.8			3.5		13.7		11.8	11.5		10.3
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		17.2			17.0		33.2		32.4	34.5		33.8
Incremental Delay (d_2), s/veh		0.7			0.6		7.4		2.9	2.2		1.3
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		17.9			17.7		40.5		35.3	36.6		35.2
Level of Service (LOS)		B			B		D		D	D		D
Approach Delay, s/veh / LOS	17.9	B		17.7	B		38.1	D		35.9	D	
Intersection Delay, s/veh / LOS	33.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.71	B	1.73	B
Bicycle LOS Score / LOS	0.74	A	0.72	A	1.09	A	1.01	A

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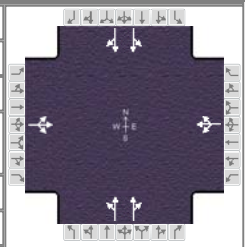
HCS7 Signalized Intersection Results Summary

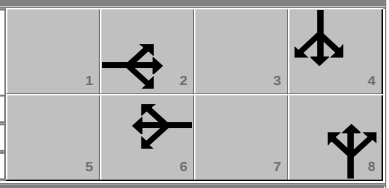
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - AM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2021	Analysis Period	1> 7:00
Intersection	Intersection #12	File Name	12AM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	112	5	281	3	2	1	82	641	5	2	562	71

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.0	20.0	22.5	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		38.5		38.5		27.0		24.5
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						21.0		18.8
Green Extension Time (g_e), s		0.0		0.0		1.5		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		433			7		413		379	368		322
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1575			1164		1880		1895	1899		1821
Queue Service Time (g_s), s		17.0			0.0		19.0		16.8	16.8		15.0
Cycle Queue Clearance Time (g_c), s		21.1			0.2		19.0		16.8	16.8		15.0
Green Ratio (*g/C*)		0.38			0.38		0.25		0.25	0.22		0.22
Capacity (*c*), veh/h		646			499		470		474	422		405
Volume-to-Capacity Ratio (*X*)		0.670			0.013		0.878		0.798	0.871		0.796
Back of Queue (*Q*), ft/ln (95 th percentile)		328.2			4.2		337.1		304.8	322.7		274
Back of Queue (*Q*), veh/ln (95 th percentile)		13.1			0.2		13.5		12.2	12.9		11.0
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		23.9			17.5		32.4		31.6	33.8		33.1
Incremental Delay (d_2), s/veh		5.5			0.0		2.1		1.2	5.6		2.0
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		29.3			17.6		34.5		32.8	39.3		35.1
Level of Service (LOS)		C			B		C		C	D		D
Approach Delay, s/veh / LOS	29.3	C		17.6	B		33.7	C		37.4	D	
Intersection Delay, s/veh / LOS	34.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.20	A	0.50	A	1.14	A	1.06	A

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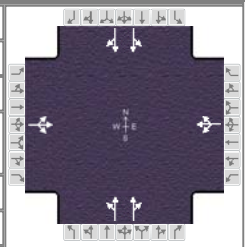
HCS7 Signalized Intersection Results Summary

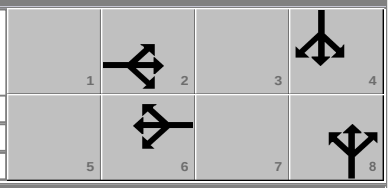
General Information				Intersection Information	
Agency	LLG Engineers			Duration, h	0.25
Analyst	AS	Analysis Date	Dec 13, 2019	Area Type	Other
Jurisdiction	City of South Gate	Time Period	Future with Project - PM	PHF	0.92
Urban Street	Otis / Ardmore	Analysis Year	2021	Analysis Period	1> 16:30
Intersection	Intersection #12	File Name	12PM - Future with Project.xus		
Project Description	7801-7835 Otis Avenue Charter School				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	2	266	4	2	1	61	601	1	1	609	43

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.5	20.4	20.7	0.0	0.0	0.0
Yellow	3.5	3.5	3.5	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		12.0		12.0
Phase Duration, s		40.0		40.0		25.2		24.9
Change Period, ($Y+R_c$), s		4.5		4.5		4.5		4.5
Max Allow Headway (*MAH*), s		0.0		0.0		3.1		3.1
Queue Clearance Time (g_s), s						19.3		19.2
Green Extension Time (g_e), s		0.0		0.0		1.4		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		368			8		376		345	376		334
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1591			1171		1883		1899	1900		1853
Queue Service Time (g_s), s		8.7			0.0		17.3		15.4	17.2		15.3
Cycle Queue Clearance Time (g_c), s		16.1			0.2		17.3		15.4	17.2		15.3
Green Ratio (*g/C*)		0.39			0.39		0.23		0.23	0.23		0.23
Capacity (*c*), veh/h		675			524		432		436	430		420
Volume-to-Capacity Ratio (*X*)		0.546			0.015		0.869		0.791	0.874		0.796
Back of Queue (*Q*), ft/ln (95 th percentile)		261.5			4.8		314.5		284.9	330.2		282.7
Back of Queue (*Q*), veh/ln (95 th percentile)		10.5			0.2		12.6		11.4	13.2		11.3
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh		21.3			16.6		33.4		32.6	33.6		32.9
Incremental Delay (d_2), s/veh		3.2			0.1		2.1		1.2	6.1		2.3
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh		24.5			16.6		35.5		33.9	39.7		35.1
Level of Service (LOS)		C			B		D		C	D		D
Approach Delay, s/veh / LOS	24.5	C		16.6	B		34.7	C		37.5	D	
Intersection Delay, s/veh / LOS	33.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	1.73	B	1.70	B
Bicycle LOS Score / LOS	1.10	A	0.50	A	1.08	A	1.07	A

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Attachment I

RESOLUTION NO. 20-15

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CUDAHY REVERSING THE PLANNING COMMISSION'S DECISION TO DENY DEVELOPMENT REVIEW PERMIT NO. 41-532 TO ALLOW THE CONSTRUCTION OF A CHARTER SCHOOL LOCATED AT 7801-7835 OTIS AVENUE. APPLICANT: ETMNY CORNEJO.

WHEREAS: The applicant, Etmny Cornejo, requests approval of a Development Review Permit to allow the design, site layout, and the construction of a charter school;

WHEREAS: The subject property is located at 7801-7835 Otis Avenue in an area that is designated by the Cudahy General Plan and by the Cudahy Zoning Map as Low Density Residential; and

WHEREAS: The subject property is approximately 95,832 square feet in area, and the LDR zone allows public elementary and secondary schools as a permitted use; and

WHEREAS: This matter was duly posted and set for a special public hearing by the Planning Commission on February 24, 2020 at 6:30pm consistent with the City of Cudahy's Zoning Ordinance procedures for Development Review Permits. At that meeting, the Planning Commission denied the applicant's request; and

WHEREAS: The applicant submitted a letter of appeal to the City Clerk's Office on March 4, 2020 and a subsequent appeal letter on May 21, 2020 appealing the Planning Commission's decision to deny the project and outlining the grounds of their appeal; and

WHEREAS: This matter was duly posted and set for a special public hearing by the City Council on June 2, 2020 at 6:30pm consistent with the City of Cudahy's Zoning Ordinance procedures for Development Review Permits and appeals to the City Council. At that time, the City Council motioned to table the item to a subsequent meeting and asked the applicant to consider having a workshop to solicit additional community input. In addition, the public hearing was open and limited comments to one minute.

WHEREAS: This matter was duly posted and set for a public hearing by the City Council on September 15, 2020 at 6:30pm consistent with the City of Cudahy's Zoning Ordinance procedures for Development Review Permits and appeals to the City Council.

NOW THEREFORE, the City Council of the City of Cudahy hereby resolves:

SECTION 1. In accordance with the provisions of the California Environmental Quality Act (CEQA), an environmental analysis has been completed for this case. As a result of that analysis, it has been determined that this case is exempt from the requirements of CEQA and no further environmental documentation will be required, pursuant to Article 18, Statutory Exemptions Section 15268, *Ministerial Projects*, of the California Environmental Quality Act.

SECTION 2. After considering the proposal on the basis for approval or denial of Development Review Permit 41.532 stated in Chapter 20 of the Cudahy Municipal Code, the City Council finds as follows:

DEVELOPMENT REVIEW PERMIT 41.532

A. The project is compatible with the City of Cudahy's General Plan because it proposes a coherent, incidental use to residential development in the Low-Density Residential General Plan designation and the Low-Density Residential zone.

B. The height, bulk, and other design features of the Project's structures are in proportion to the building site, and external features are balanced and unified so as to present a harmonious appearance. The proposed development's structure is one story in height, similar to or lower than other structures within the immediate neighborhood. There is sufficient area in the 20-foot front setback for ample and dense landscaping, presenting a harmonious appearance with nearby residences that also face the street. Accordingly, the project is consistent with the height, bulk, and other design features required by the City Zoning design guidelines and provides a unified and uniform appearance.

C. The project design contributes to the physical character of the community, relates harmoniously to existing and anticipated development in the vicinity, and is not monotonously repetitive in and of itself or in conjunction with neighboring uses and does not contribute to excessive variety among neighboring uses. The existing surrounding properties include single story and two-story single-family and multi-family residences as well as a city park. The proposed development includes one single-story charter school with associated recreational areas, landscaping, and parking, consistent with the height, bulk, and other design features found in the surrounding area. The proposed surface articulations, including trimmed windows, pop-out terraces etc., avoid monotonous repetition.

D. The site layout and the orientation and location of structures and their relationship to one another and to open spaces, parking areas, pedestrian walks, signs, illumination, and landscaping achieve safe, efficient, and harmonious development. The proposed site layout presents a balanced plan that relates to other structures along surrounding streets more so than the previous industrial land uses on the site. The development's orientation beyond the deep setback and the driveway helps to screen the building's mass from the public right of way and adjacent properties. There are areas available for visitor parking, landscaping, including the front setback, the rear setback, the private open space and common areas. The driveway permits good visibility along the length of the project interior and will have security lighting for safety.

E. The grading and site development show due regard for the qualities of the natural terrain and landscape and do not call for the indiscriminate destruction of trees, shrubs, and other natural features. The proposed development requires minor grading and removal of some existing shrubs. Previous structures on the site have already been demolished. Half of the lot is currently dirt and does not contain any trees. However, the rest of the site is urbanized, flat and there is little evidence of "natural" terrain. There are no "natural" features on the site. Moreover, the project would add new landscaping, including trees and shrubs, which would replace those that would be removed.

F. The design, lighting, and placement of signs are appropriately related to the structure and grounds and are in harmony with the general development of the site. The project will not have illuminated signage, with the exception for possible illuminated identifying address signs on the front elevation. That sign must meet CMC standards for property identification signs and the conditions of approval for the project, and thus would be in harmony with the general development of the site.

G. Mechanical equipment, machinery, trash, and other exterior service areas are screened or treated in a manner that is in harmony with the design of the structures and grounds. There are no proposed exterior mechanical equipment, machinery, or service areas except for the trash enclosures which are located behind decorative view obscuring doors to prevent stormwater runoff and to provide further screening and meets zoning code requirements for multi-family developments. Other mechanical equipment must comply with CMC design guidelines and Building Code standards, which require that all mechanical equipment, machinery, trash, and other exterior service areas be screened from public view.

H. The project shows proper consideration for adjacent residentially zoned or occupied property and does not adversely affect the character or value of such property. The proposed project would re-develop a former industrial site that lies between occupied single and multiple-family residences and a park. By introducing new, up-to-date construction with new landscaping, the project would improve the character of the adjacent properties and maintain or improve property value. The design is consistent with the City's General Plan and zoning designation, meets all development standards within the provisions of the Development Review Permit for the project, is compatible with the surrounding residential use, and will not adversely affect the value or quality of the neighborhood.

SECTION 3. Based upon the findings contained in this Resolution and on all other written and oral evidence in the record, the City Council hereby approves Development Review Permit No. 41-532, subject to the conditions of approval set forth below:

1. The applicant, its successors in interest, and assignees, shall indemnify, protect, defend (with legal counsel reasonably acceptable to the City), and hold harmless, the City, and any agency or instrumentality thereof, and its elected and appointed officials, officers, employees, and agents from and against all liabilities, claims, actions, causes of action, proceedings, suits, damages, judgments, liens, levies, and disbursements (collectively, "Claims") arising out of or in any way relating to this project, any discretionary approval granted by the City related to the development of the project, or the environmental review conducted under the California Environmental Quality Act, Public Resources Code section 21000 *et seq.*, ("CEQA") for the project. If the City Attorney is required to enforce any conditions of approval, the applicant shall pay for all costs of enforcement, including attorney's fees.

2. Subcontractors hired to improve the physical structures of the building shall obtain a contractor's business license from the City Business License Department and submit proof of workers' compensation insurance to the City Building Department, before the issuance of any permits.

3. All conditions shall be binding upon the applicants, their successors and assigns, shall run with the land, shall limit and control the issuance and validity of certificate of occupancy,

and shall restrict and limit the construction, location, and use and maintenance of all land and structures within the development.

4. The site shall be kept in a neat manner at all times and any landscaping shall be continuously maintained in a healthy and thriving condition.

5. Any changes in building textures, materials, and colors on the exterior walls are subject to planning approval. A developer is required to submit samples of all exterior materials for approval prior to the issuance of building permits.

6. Construction shall conform to the site plan on file with the Community Development Department and as approved by the Planning Commission.

7. The Developer shall verify in writing that there is sufficient water service for the proposed development. Also, the developer agrees to install any equipment, lines or other necessary improvement to ensure that there will be sufficient water service for the proposed development.

8. A complete set of plans including the sewer, drainage, grading, and erosion control plans, which accurately depict the location of the proposed structures, driveways, and all other elements of the development, shall be submitted as part of the plan check submittal.

9. The applicant shall comply with all conditions set forth by the Los Angeles County Fire Department for this application.

10. Anti-graffiti substances shall be used on both sides of the perimeter walls of the subject property.

11. Applicant shall remove graffiti within 24 hours of application. In the event graffiti is not removed within 24 hours, the applicant grants access and indemnifies the City to enter the property to abate graffiti according to CMC Sections 15.20.150 and 15.20.

12. Utility equipment including and not limited to electricity, cable, or telephone equipment must be placed underground. Each unit shall have separate sewer and water lines.

13. Pursuant to the National Pollutant Discharge Elimination System (NPDES) Permit requirements, and City of Cudahy Municipal Code Section 11-2: Storm Water and Urban Runoff Pollution Control all construction projects of less than 1 acre are required to meet a minimum of water quality protection (i.e., Owner's Certification of Compliance with Minimum Requirements Form and/or Wet Weather Control Plan).

14. As part of the plan check submittal, written verification from the local water authority that there is sufficient water service for the additional dwelling units, as well as fire suppression being provided without interruption to residences.

15. A Lighting Plan shall be submitted with construction drawings to Building & Safety for plan check.

16. Landscaping and irrigation plans, which provide for adequate landscaping shall be submitted to the Community Development Department for approval as part of plan check submittal. All types of plants selected, and required watering systems for such

landscaping, shall, to the extent possible, conserve water and shall be consistent with any water conservation ordinance enacted by the City.

17. All roof-mounted equipment shall be adequately and decoratively screened and shall not be visible from the street.

18. The locations of air-conditioning condensers shall be shown on the site plan and shall not be visible from the street.

19. All building materials and plants selected shall be comparable to the proposed development.

20. The developer shall obtain necessary permits to repair or improve any curb, gutter or sidewalk damaged due to the construction process.

21. The electrical transformer shall be adequately and decoratively screened from view. Dense landscaping shall be used as screening materials. The applicant shall provide the details with the set of building plans to illustrate this requirement.

22. The applicant shall include all general notes on the plans submitted for plan check as required. The floor plans and elevation drawings shall reflect the same information. The developer is required to check said plans for accuracy and make sure plans are drawn to scale and corrections are made as necessary prior to the issuance of permits.

23. The developer shall not deviate from any of the approved plans without prior approval from the Director of Community Development or the Planning Commission.

24. The developer shall submit a complete listing of all subcontractors used for the project. Each subcontractor shall obtain a contractor's business license from the City's Business License Department and submit proof of workers' compensation insurance to the City of Cudahy Building Department, before the issuance of any permits.

25. Contractors hired for the project must guarantee that safe and convenient school pedestrian routes are maintained. This would pertain to the arrival and dismissal times of each school day. Traffic controls (signs) shall be installed as needed to ensure safe routes to school. Construction vehicle trips scheduling shall be sequenced to minimize conflicts with pedestrians, school buses and cars.

26. The applicant shall comply with all conditions set forth by the Los Angeles Unified School District for this application.

27. Increased noise levels will be mitigated by the limitation of construction activities to not earlier than 7:00 A.M. and not later than 6:00 P.M. To reduce temporary construction noise contractors hired for the project shall implement BMPs such as providing advance notification of construction to surrounding land uses, ensuring that equipment is properly muffled, placement of noise sources away from residences, implementing noise attenuation measures, and generally conduct construction in compliance with City of Cudahy Municipal Code Article 23: Environmental Performance Standards.

28. All City Fees, i.e., plan check, building permit fees, school fees, Quimby fees, CC&R review, etc., shall be paid by the applicant prior to the submittal of the plans to the Building and Safety Department".

29. The applicant shall adhere to all requested mitigation measures provided by the Los Angeles Unified School District.

30. The applicant shall adhere to all requested mitigation measures provided by the Traffic Impact Study.

31. If new connections or (upgrades) to the sewer system are needed, developer to coordinate directly with Los Angeles County. If so, encroachment and excavation permit is required by the City of Cudahy. Contact Engineering Department for submittal requirements. Public Works Permits are issued only once a week (Tuesdays from 1 pm to 3 pm).

32. If new connections or (upgrades) to the water system are needed, developer to coordinate directly with private Mutual Water Company providing service in the project area. If so, encroachment and excavation permit is required by the City of Cudahy.

33. If driveways and/or sidewalks are to be modified, encroachment and excavation permit is required by the City of Cudahy, please contact Engineering Department for submittal requirements.

34. Improvements and/or reconstruction work within the public right of way (street, sidewalks, driveways, ADA ramps, etc.) must be per the Standard Plans & Specs for Public Works Construction, City of Cudahy Street Repair Guidelines, Caltrans, MUTCD and/or other applicable code.

35. Reconstruction of sidewalk/driveway project frontage shall be required for code compliance and/or construction activity. This shall include slurry seal application and traffic striping restoration.

36. Development improvements and improvements within the public right of way shall follow and implement NPDES/MS4 requirements as applicable.

37. Developer/ Contractor to implement Best Management Practices during construction phase. Developer to submit BMPs plan for City's approval.

38. Development improvements and improvements within the public right of way shall follow and implement the City's LID Policy and Resolution as applicable.

39. Improvements within the public right of way shall follow and implement the City's Greens Streets Policy and Resolution as applicable.

40. Improvements within the Public right of Way shall follow and implement the City's Complete Streets Policy and Resolution as applicable.

41. The applicant shall sign and notarize an Affidavit of Acceptance of Conditions, which acknowledges all of the conditions imposed herein and the applicant's acceptance of this Permit subject to those conditions.

42. The rights granted under DRP No. 41-532 may be modified or revoked by the Planning Commission should it be determined that the proposed uses or conditions under which the project is being operated or maintained is detrimental to the public health, welfare or materially harmful to property or improvements in the vicinity, if the property is operated or maintained to constitute a public nuisance or is a contributor to blight, or if the uses on the property are changed from the uses expressly approved herein.

43. The rights granted under DRP No. 41-532 shall expire within one (1) year of the date of approval by the Planning Commission unless proper building permits have been obtained or the applicant(s) applies for and is granted an extension of time. No extension of time will be considered unless the application for an extension is filed at least 30 days prior to the expiration. An extension will not be granted if conditions have changed in that the requisite findings for approval can no longer be made.

44. Prior to any occupancy permit being granted, or commencement of the approved use, these conditions shall be completed to the satisfaction of the City.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of Cudahy at its regular meeting on this 15th day of September 2020.

_____
Elizabeth Alcantar
Mayor

ATTEST:

_____
Richard Iglesias
Assistant City Clerk

CERTIFICATION

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:
CITY OF CUDAHY)

I, Richard Iglesias, Assistant City Clerk of the City of Cudahy, do hereby certify that the foregoing Resolution No. 20-15 was introduced and adopted at a regular meeting of the City Council of the City of Cudahy held on the 15th day of September 2020.

AYES:

NOES:

ABSENT:

ABSTAIN:

_____
Richard Iglesias
Assistant City Clerk