County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

DATE: January 30, 2025

TO: Department of Public Works and Planning, Attn: Steven E. White, Director
Department of Public Works and Planning, Attn: Bernard Jimenez, Planning and Resource Management Officer
Development Services and Capital Projects, Attn: William M. Kettler, Deputy Director of Planning
Development Services and Capital Projects, Attn: Chris Motta, Division Manager
Development Services and Capital Projects, Attn: Tawanda Mtunga, Principal Planner, Current Planning Unit
Development Services and Capital Projects, Attn: James Anders, Principal Planner, Development Engineering Unit
Development Services and Capital Projects, Current/Environmental Planning, Attn: David Randall, Senior Planner
Development Services and Capital Projects, Policy Planning, Attn: Mohammed Khorsand, Senior Planner
Development Services and Capital Projects, Zoning & Permit Review, Attn: Daniel Gutierrez, Senior Planner
Development Services and Capital Projects, Building and Safety/Plan Check, Attn: Mike Granat, Chief Building Inspector/ Arnulfo Valdivia, Supervising Building Inspector
Development Services and Capital Projects, Development Engineering, Attn: Laurie Kennedy, Office Assistant III
Water and Natural Resources Division, Attn: Augustine Ramirez, Division Manager/Roy Jimenez, Senior Planner
Water and Natural Resources Division, Transportation Planning, Attn: Hector Luna, Senior Planner/ Brody Hines/Darren Findley
Design Division, Attn: Mohammad Alimi, Division Manager; Erin Haagenson, Principal Staff Analyst
Resources Division, Attn: Daniel Amann, Division Manger
Road Maintenance and Operations Division, Attn: Wendy Nakagawa, Supervising Engineer
Department of Public Health, Environmental Health Division, Attn: Deep Sidhu, Supervising Environmental Health Specialist; Kevin Tsuda, Environmental Health Specialist;
Agricultural Commissioner, Attn: Melissa Cregan
California Department of Fish and Wildlife, Attn: R4CEQA@wildlife.ca.gov
U.S. Fish and Wildlife Service, Attn: Patricia Cole/ Matthew Nelson
Sheriff's Office, Attn: Assistant Sheriff Ryan Hushaw, Lt. David Pugliese, Lt. Ryan Gilbert, Lt. Kathy Curtice, Lt. Adam Maldonado
Fresno County Fire Protection District, Attn: FKU. Prevention-Planning@fire.ca.gov
California Highway Patrol, Attn: Captain Austin Matulonis/Sergeant Miguel Andrade
Pacific Gas and Electric, Centralized Review Team, Attn: PGEPlanReview@pge.com
CALTRANS, Attn: David Padilla, Division Chief/Nicholas Isla, Transportation Planner
Department of Conservation, Geologic Energy Management Division, Attn: CalGEMInland@conservation.gov

San Joaquin Valley Unified Air Pollution Control District (PIC-CEQA Division), Attn: PIC Supervisor
CA Regional Water Quality Control Board, Attn: centralvalleyfresno@waterboards.ca.gov
State Water Resources Control Board, Division of Drinking Water, Attn: Cinthia Reyes
Westlands Water District(and Westside Subbasin GSA), Attn: Allison Febbo, General Manager/ Jose Gutierrez, Assistant General Manager

FROM: Jeremy Shaw, Planner
Development Services and Capital Projects Division

SUBJECT: Unclassified Conditional Use Permit Application No. 3815 and Initial Study No. 8656

APPLICANT: Daniel Barnes

DUE DATE: **February 12, 2025**

The Department of Public Works and Planning, Development Services and Capital Projects Division is reviewing the subject application proposing to allow an Interstate Freeway Interchange Commercial development, comprised of a 3,900 square-foot Convenience Store with a six position MPD fueling canopy; and a separate 6,800 square-foot convenience store with a six position MPD fueling canopy, and 1,691 square-feet dedicated to fast-food services. Both proposed convenience stores will include the sale of beer and wine. The proposed project will be developed on a 2.82-acre parcel within the AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) Zone District and within the I-5/ Lassen Avenue commercial interchange area.

The subject parcel is located on the West side of Lassen Avenue (SR 269) approximately 780 feet north of its intersection with Interstate 5 (085-130-23S)(SUP DIST. 4).

The Department is also reviewing for environmental effects, as mandated by the California Environmental Quality Act (CEQA) and for conformity with plans and policies of the County. An Environmental Impact Report (EIR) is being prepared to determine the likely environmental impacts associated with the project. If you would like to receive that notice, please reach out to me and we will include you in the routing for the formal EIR Scoping Process.

Based upon this review, a determination will be made regarding conditions to be imposed on the project, including necessary on-site and off-site improvements.

We must have your comments by **February 12, 2025.** Any comments received after this date may not be used.

If you do not have comments, please provide a "NO COMMENT" response to our office by the above deadline (e-mail is acceptable; see email address below).

Please address any correspondence or questions related to environmental and/or policy/design issues to me, Jeremy Shaw, Planner, Development Services and Capital Projects Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559) 600-4207, or email jshaw@fresnocountyca.gov

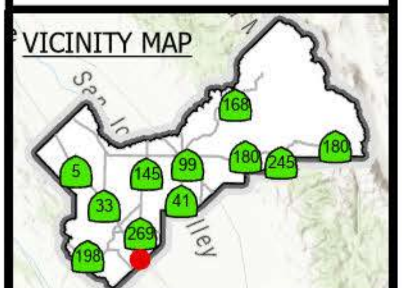
JS
GG:\4360Devs&Pln\PROJSEC\PROJDOCS\CUP\3800-3899\3815 Freeway Commercial\Routing\CUP 3815 Routing Ltr.doc

Activity Code (Internal Review): 2384

Enclosures

Legend

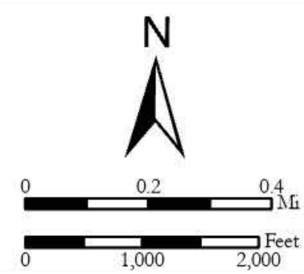
Subject Property



LOCATION MAP

CUP3815 | **2024**

Prepared by : County of Fresno, Department of Public Works and Planning, Development Services Division
Person Prepared by : mdo
On Date : 12/30/2024



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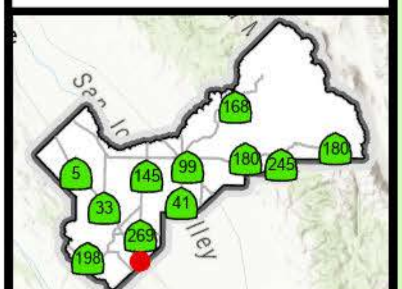
Legend

Subject Property

AE40



Existing Zoning Map

CUP3815
STR 26- 21S / 17E

2024

Prepared by : County of Fresno, Department of Public Works and Planning, Development Services Division
Person Prepared by : mdo
On Date : 12/30/2024

N

0 0.2 0.4 Mi

0 1,000 2,000 Feet

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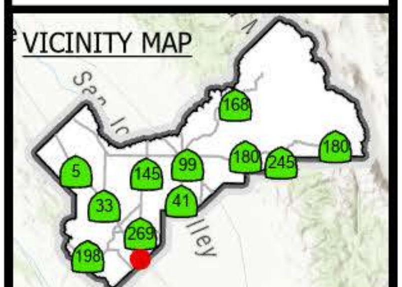
LEGEND:

Subject Property

LEGEND
GRZ - GRAZING
FC - FIELD CROP
C - COMMERCIAL
FC - FIELD CROP
V - VACANT



Existing Land Use Map

CUP3815	2024

Prepared by : County of Fresno, Department of Public Works and Planning, Development Services Division
Person Prepared by : mdo
On Date : 12/30/2024

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0 0.2 0.4 Mi

0 1,000 2,000 Feet

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P.O Box 3820
Turlock, CA 95381
(209) 634-4832

November 14th, 2024

Fresno County Department of Public Works and Planning
2220 Tulare St, Sixth Floor
Fresno, CA 93721

Subject: Operational Statement
Project: Huron Gas Station
Fresno County Project #: TBD
RMK Project #: RMK-0046
APN: 085-130-23S
Pre-Application Review No.: 20-110582

Operational Statement

1. Nature of the operation--what do you propose to do?
   a. The proposed project is developing a currently vacant parcel. The proposed development will include a 3,960 SF Convenience Store with a proposed 6 MPD fueling Canopy. The development will include a separate 6,800 SF Convenience Store with a proposed 6 MPD Fueling Canopy. 1,691 SF of the 6,800 SF Convenience Store will be used as fast-food restaurant(s). None of the proposed restaurants are including a drive thru. Both convenience stores are requesting the off sale of beer and wine.
2. Operational time limits
   a. All businesses will be open 24 hours a day, 7 days a week.
3. Number of customers or visitors
   a. The estimated number of visitors for the combined uses would be between 500 to 1,200 customers per day.
4. Number of employees
   a. The estimated number of employees is estimated to be 102. The total number of employees on a given shift is estimated to be 17. With 357 estimated 8 hour shifts. The breakdown per buildings is as follows: Use / Total Number of 8 Hr Shifts per Week / Total Number of Estimated Employees
      i. C-Store (A) / 63 / 18
      ii. C-Store (B) / 84 / 24
      iii. QSR 1 (B) / 42 / 12
      iv. QSR 2 (B) / 84 / 24
      v. QSR 3 (B) / 84 / 24
5. Service and delivery vehicles
   a. The convenience stores and fueling will require daily deliveries for fuel and weekly deliveries for inventory
6. Access to the site
   a. All parcels are accessible by the fronting State Route 269 (Lassen Avenue), as seen on the proposed site plan.
7. Number of parking spaces for employees, customers, and service/delivery vehicles
   a. The proposed development is providing 67 parking for employees, customers, and deliveries. All proposed parking will be on newly constructed pavement. A detailed parking analysis can be found on sheet C1.0.
8. Are any goods to be sold on-site? If so, are these goods grown or produced on-site or at some other location?

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   a. The site will sell goods that will be produced at other locations and shipped onsite. The goods will consist of typical merchandise, foods, vehicle parts that would be sold at a convenience store, fast food restaurant.
9. What equipment is used?
   a. There is no significant equipment proposed.
10. What supplies or materials are used and how are they stored?
    a. Any materials needed for the proposed buildings will be stored in the designated storage areas shown on the floor plan.
11. Does the use cause an unsightly appearance?
    a. The existing site is in conformance with the surrounding uses. There is an existing fueling station located on the South Side of I-5 along SR 269. The project will not add any unsightly presence that would disturb the surrounding properties. To reduce dust all parking and traffic will be routed through paved surfaces.
12. List any solid or liquid wastes to be produced.
    a. Each of the (2) proposed buildings will require a wastewater supply for raw sewage services. The proposed site plan will use an onsite leach field to dispose of liquid wastes.
       i. The estimated wastewater discharge to the septic field is = 6,300 gpd using the Fresno County OWTS requirements.
    b. Solid wastes are to be captured and disposed of in the proposed trash enclosures. Trash Enclosure solid waste will be hauled to the nearest landfill and recycling center.
13. Estimated volume of water to be used (gallons per day)
    a. Each of the (2) proposed buildings will require a domestic water supply. The proposed development will require an onsite well.
    b. The total estimated domestic water use is assumed to be equal to the wastewater discharge of = 6,300 gpd
14. Describe any proposed advertising including size, appearance, and placement?
    a. A future sign program will be submittal and processed for the project. Fuel price signs and a monument sign will be placed fronting SR-269.
15. Will existing buildings be used or will new buildings be constructed?
    a. All proposed buildings will be new constructed buildings. There will be no existing buildings reused for the development.
16. Explain which buildings or what portion of buildings will be used in the operation
    a. The 6,800 SF Building will reserve 1,691 SF for future restaurant(s). The remaining space will be used for a Convenience Store. The convenience store will have typical facilities including public restrooms. The 3,960 SF building will be uses entirely as a convenience store. Both buildings will include the off-sale off beer and wine.
17. Will any outdoor lighting or an outdoor sound amplification system be used?
    a. The site will be appropriately lighted using onsite parking lot lights.
18. Landscaping or fencing proposed?
    a. Landscape plans will be produced during the construction document phase of the project. The current site plan contains a fenced park area.
19. Any other information that will provide a clear understanding of the project or operation.
    a. For a more detailed description of the site plan and proposed buildings uses refer to the provided plans for the development.
20. Identify all Owners, Officers and/or Board Members for each application submitted; this may be accomplished by submitting a cover letter in addition to the information provided on the signed application forms.
    a. The property is owned by Sandeep Chauhan. The property is being developed by Sandeep and her husband Daljinder Chauhan.

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Sincerely,

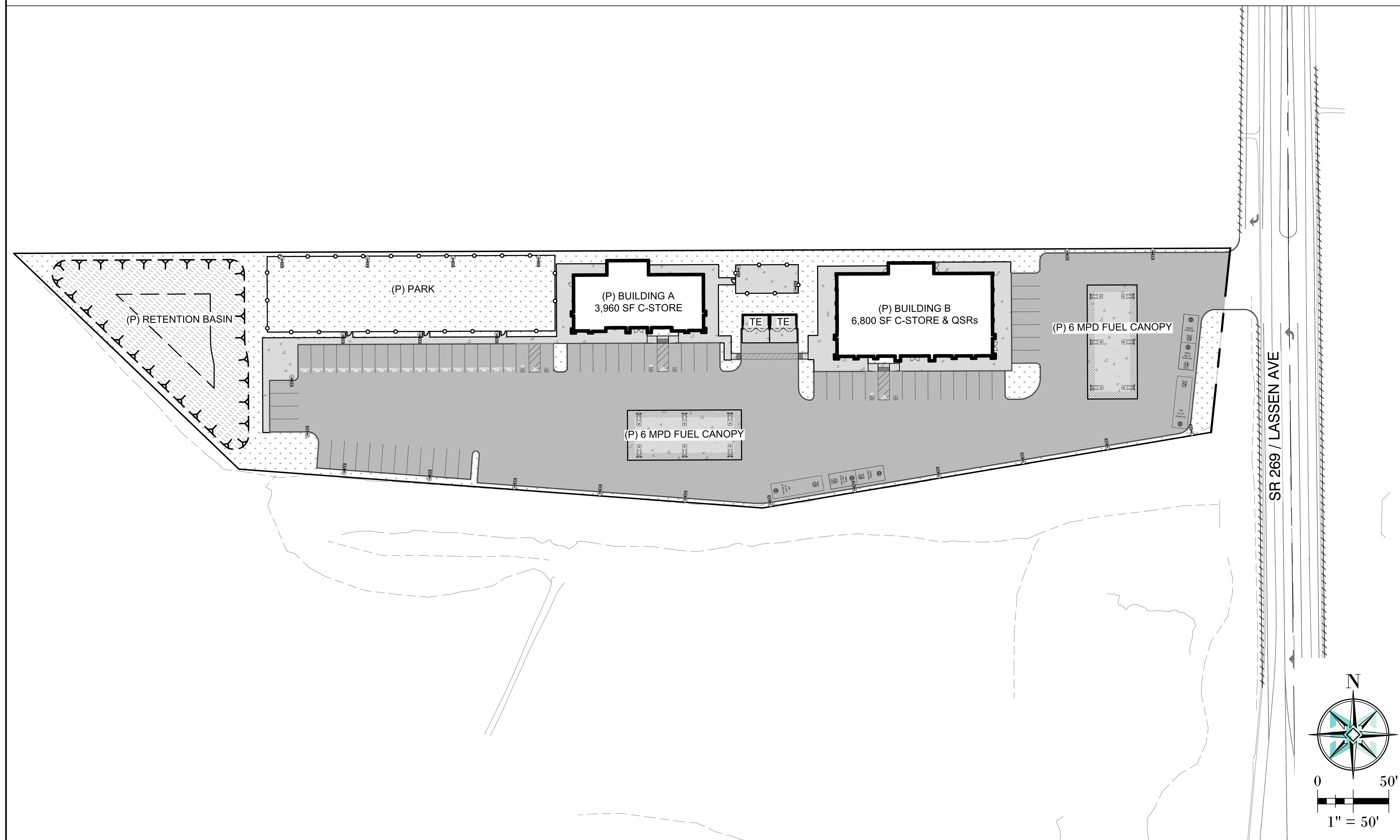
Daniel Barnes, PE
Project Manager

CUP FOR:
HURON I-5 GAS STATION

LEGEND

	EXISTING	PROPOSED
CENTERLINE		
SECTION LINE		
RIGHT OF WAY	(EX) ROW	(P) ROW
PROPERTY LINE	(EX) LL	(P) LL
EASEMENT		
CHAIN LINK FENCE		
WOOD FENCE		
WIRE FENCE		
MASONRY WALL		
RETAINING WALL		
DRAINAGE SWALE	N/A	
GRADE BREAK		
RIDGE		
SAWCUT	N/A	
EDGE OF PAVEMENT		
ASPHALT DIKE		
CURB, GUTTER, & SIDEWALK		
TRUNCATED DOMES	N/A	
INLINE CURB RAMP		
CURB RAMP (TYPES VARY)		
WATER		X"W
SANITARY SEWER		X"SS
STORM DRAIN		XX"SD
FORCE MAIN		XX"FM
UTILITY STUB		
GAS		N/A
ELECTRICAL		N/A
TELECOMMUNICATION		N/A
POWER POLE & OVERHEAD UTILITY		N/A
STREET LIGHT W/ ARM		
POST TOP LIGHT		
PARKING LOT LIGHT		
ELECTRICAL BOX		
BENCHMARK		
MONUMENT		
WHEEL STOP		
BOLLARD		
TREE		
MONUMENT SIGN		
CONTOURS		

SITE PLAN



ABBREVIATION LIST

@	AT	(F)	FUTURE	RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE
AB	AGGREGATE BASE	FDC	FIRE DEPARTMENT CONNECTION	ROW/RW	RIGHT-OF-WAY
AC	ASPHALT CONCRETE	FG	FINISH GRADE	RPA	REDUCED PRESSURE BACKFLOW ASSEMBLY
ADA	AMERICAN DISABILITIES ACT	FH	FIRE HYDRANT	RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
AHJ	AUTHORITY HAVING JURISDICTION	FL	FLOW LINE	RWL	RAIN WATER LEADER
BC	BEGINNING OF CURVE	FL-LP	PROJECT FLOWLINE LOWPOINT ELEV.	R-BW	RETAINING BOTTOM OF WALL
BND	BOUNDARY	FS	FIRE SERVICE	R-TW	RETAINING TOP OF WALL
BVC	BEGIN VERTICAL CURVE	G	GROUND	S	SLOPE
BW	BOTTOM WALL	GB	GRADE BREAK	SD	STORM DRAIN
C&G	CURB AND GUTTER	GI	GREASE INTERCEPTOR	SL	SECTION LINE
CB	CATCH BASIN	GW	GREASE WASTE	SNS	STREET NAME SIGN
CI	CURB INLET	HGL	HYDRAULIC GRADE LINE	SOI	SAND OIL INTERCEPTOR
CIP	CAST IN PLACE PIPE	HP	HIGH POINT	STA	STATION
CL	CENTER LINE	INV	INVERT	STD	STANDARD
CO	CLEAN OUT	IRR	IRRIGATION	SW / S/W	SIDEWALK
CONC	CONCRETE	LF	LINEAL FEET OR LINEAR FEET	SS	SANITARY SEWER
CR	CURB RETURN	LL	LOT LINE	TB	THRUST BLOCK
CRN	ROAD CROWN	LP	LOW POINT	TC	TOP OF CURB
DCA	DOUBLE CHECK ASSEMBLY	MAX	MAXIMUM	TC-F	TOP OF CURB FLUSH
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	MH	MAINTENANCE HOLE	TEMP	TEMPORARY
DI	DROP INLET	MIN	MINIMUM	THRU	THROUGH
DIA / Ø	DIAMETER	MS4	MUNICIPAL SEPARATE STORM SEWER SYSTEM	TI	TRAFFIC INDEX
DIP	DUCTILE IRON PIPE	NTS	NOT TO SCALE	TR	TRANSITION
DO	DRIVE OVER	O.A.E	OR APPROVED EQUAL	TW	TOP OF WALL
DW	DOMESTIC WATER	O.C.	ON CENTER	TYP.	TYPICAL
DWY	DRIVEWAY	(P)	PROPOSED	U.N.O.	UNLESS NOTED OTHERWISE
EA	EACH	P	PAVEMENT	V	6" VERTICAL CURB
EASE	EASEMENT	PIV	POST INDICATOR VALVE	VM	4" VERTICAL CURB (MODIFIED)
EC	END OF CURVE	PL	PROPERTY LINE	W	WATER
EG	EXISTING GROUND	PP	POWER POLE	WS	WATER SERVICE
ELEV	ELEVATION	PRC	POINT OF REVERSE CURVATURE	±	PLUS OR MINUS (NOT EXACT)
EP	EDGE OF PAVEMENT	PT	POINT		
EV	ELECTRIC VEHICLE	PUE	PUBLIC UTILITY EASEMENT		
EVA	EMERGENCY VEHICLE ACCESS	PVC	POLYVINYL CHLORIDE PIPE		
EVC	END OF VERTICAL CURVE	R	RADIUS		
E.W.	EACH WAY	RCP	REINFORCED CONCRETE PIPE		
EX, (EX), EXIST	EXISTING				

PROJECT TEAM

PROJECT MANAGER
RMK Design, Inc.
5 East Main St (Suite B)
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(209) 634-4832
Daniel Barnes
Dbarnes@RMKdesign.net

CIVIL ENGINEER
Barnes Engineering, Inc.
4634 Whisper Pl
Turlock, CA 95382
(209) 765-4222
Daniel Barnes
Dbarnes@BarnesEng.com

ARCHITECT
FREELINE ARCHITECTURE
(661) 203-8050
Jeromy Stevens
jeromy@freelinearch.com

SHEET INDEX

VICINITY MAP

PROJECT INFORMATION

PROPOSED DESCRIPTION

THE PROPOSED PROJECT IS TO CONSTRUCT 2 COMMERCIAL GAS STATIONS ON A CURRENTLY VACANT LOT. THE PROJECT WILL INCLUDE IMPROVEMENTS ON SR 269 TO ALLOW FOR FULL ACCESS OF THE MAIN DRIVEWAY. THE SITE WILL INCLUDE TWO 6 MPD FUEL CANOPIES. BUILDING A WILL INCLUDE 3,960 SF C-STORE. BUILDING B WILL BE 6,800 SF BUILDING. BUILDING B WILL CONTAIN A 5,109 SF C-STORE, AND (3) QUICK SERVE RESTAURANTS TOTALING THE REMAINING 1,691 SF.

EXISTING CONDITIONS

DESCRIPTION	
SITE ADDRESS	I-5 & SR-269
CITY / STATE / ZIP	HURON, CA 93234
APN	085-130-23S
EXISTING NO. PARCELS	1
EXISTING ACREAGE	2.82
FEMA FLOOD ZONE	ZONE A (SPECIAL FLOOD HAZARD)
REGIONAL PLAN	COALINGA
SPECIFIC PLAN	INTERCHANGE IMPACT AREA
EXISTING ZONING	AE-40
CURRENT USE	VACANT
PRE-APP ID	20-110582

PROPOSED AREAS

PARCEL ID	AREA (ACRES)	ZONING
PARCEL 1	2.82	P-D PLANNED DEVELOPMENT

PARKING

PARKING STALL REQUIREMENT ANALYSIS PER MUNICIPAL CODE

USE	REQUIREMENT / UNIT	# UNITS	# REQ. SPACES
BUILDING A (RETAIL)	1 SPACES / 225 SF	3,960	18
BUILDING B (RETAIL)	1 SPACES / 225 SF	5,109	23
BUILDING B (RESTAURANT)	1 SPACES / 100 SF	1,691	17

PARKING STALL SUMMARY

DESCRIPTION	CODE	# REQ. SPACES	# PROVIDED SPACES
TOTAL PARKING SPACES	MUNI (SEE ABOVE)	58	67
ACCESSIBLE PARKING SPACES	CBC 11B-208.2	3	6
VAN ACCESSIBLE PARKING SPACES	CBC11B-208.2.4	1	3
EV-CAPABLE SPACES	CGBC 5.106.5.3.3	13	17
EVCS SPACES	CGBC 5.106.5.3.3	3	3
EVCS VAN SPACES	CBC 11B-228.3.2.1	1	1

SITE AREAS

DESCRIPTION	AREA (SF)	PERCENTAGE
TOTAL	122,908	100.0%
BUILDING	11,000	8.9%
LANDSCAPE	38,300	31.2%
HARDSCAPE	73,608	59.9%

BARNES ENGINEERING, INC
PHONE #: (209) 765-4222

REGISTERED PROFESSIONAL ENGINEER
DANIEL A. BARNES
No. C94094
CIVIL
STATE OF CALIFORNIA

RMK DESIGN INC.
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1801 LANDER AVENUE
TURLOCK, CALIFORNIA, 95380
TELEPHONE #: 209.634.4832 • FAX #: 209.633.2209

REVISIONS

NO.	DESCRIPTION	DATE	APP'D

CONTACT 811 BEFORE YOU DIG
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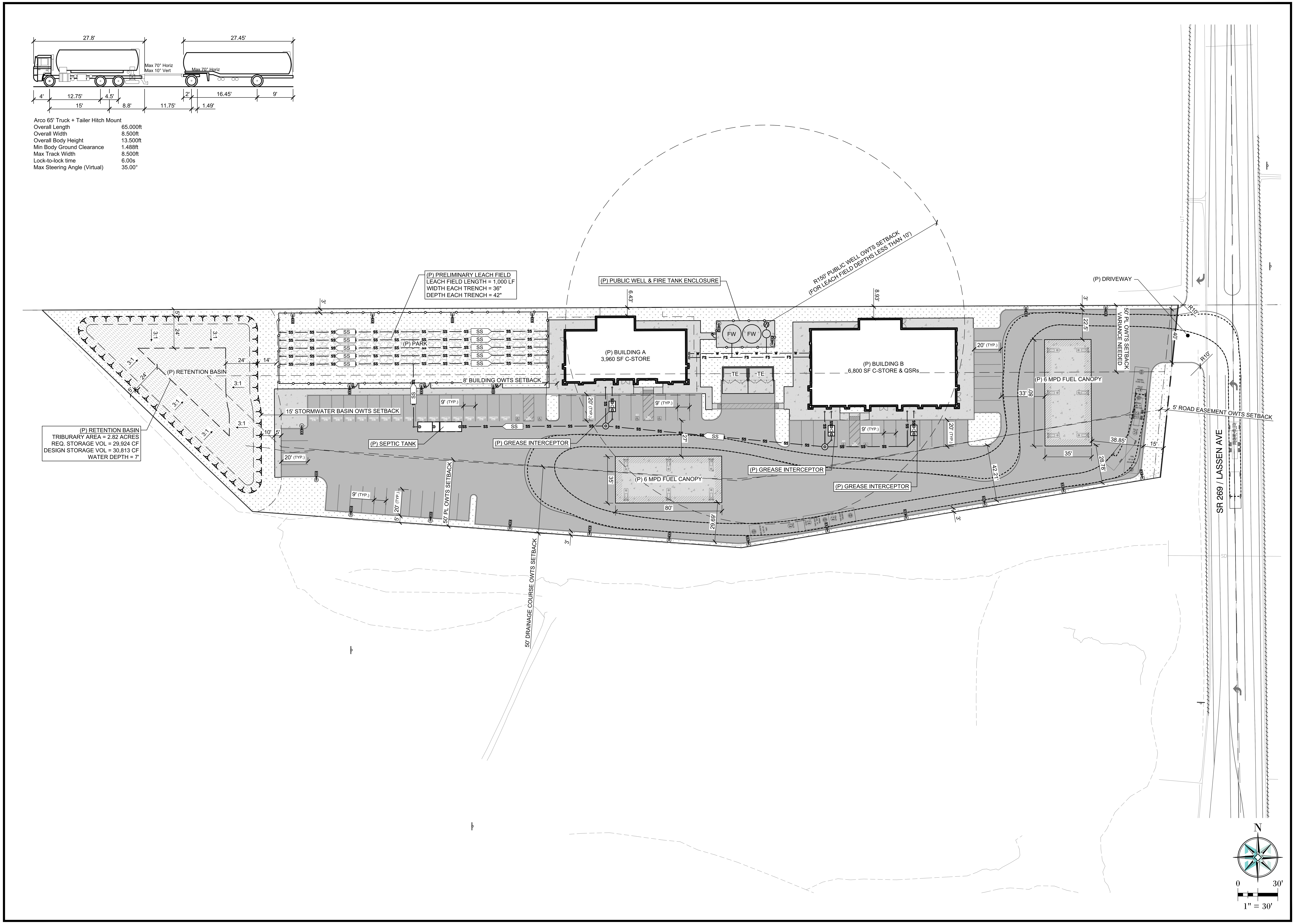
1.800.227.2600

COVER SHEET
HURON I-5 GAS STATION
HURON, CA
I-5 & SR-269

JOB #: RMK-0046
DATE: 6/11/2024
SCALE: AS SHOWN
DRAWN BY: DB
CHECKED BY: DB

SHEET NUMBER
C1.0
OF C3.0



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CIVIL SITE PLAN

HURON I-5 GAS STATION

HURON, CA

I-5 & SR-269

JOB #: RMK-0046
DATE: 6/11/2024
SCALE: AS SHOWN
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SHEET NUMBER
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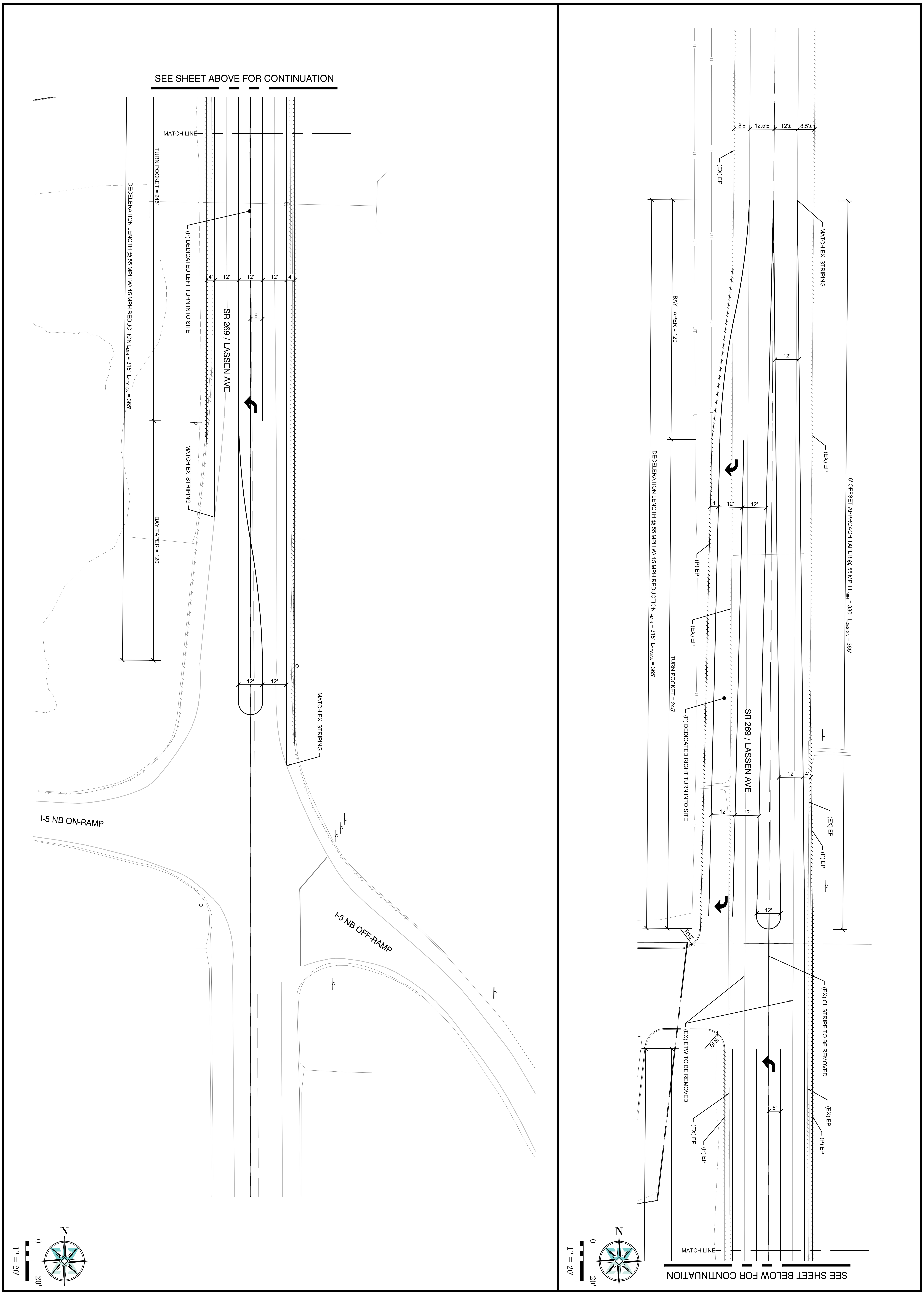
OF C3.0



SHEET NUMBER

C2.1

OF C3.0

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SR-269 IMPROVEMENTS

HURON I-5 GAS STATION

I-5 & SR-269 HURON, CA

1.800.227.2600

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REVISIONS

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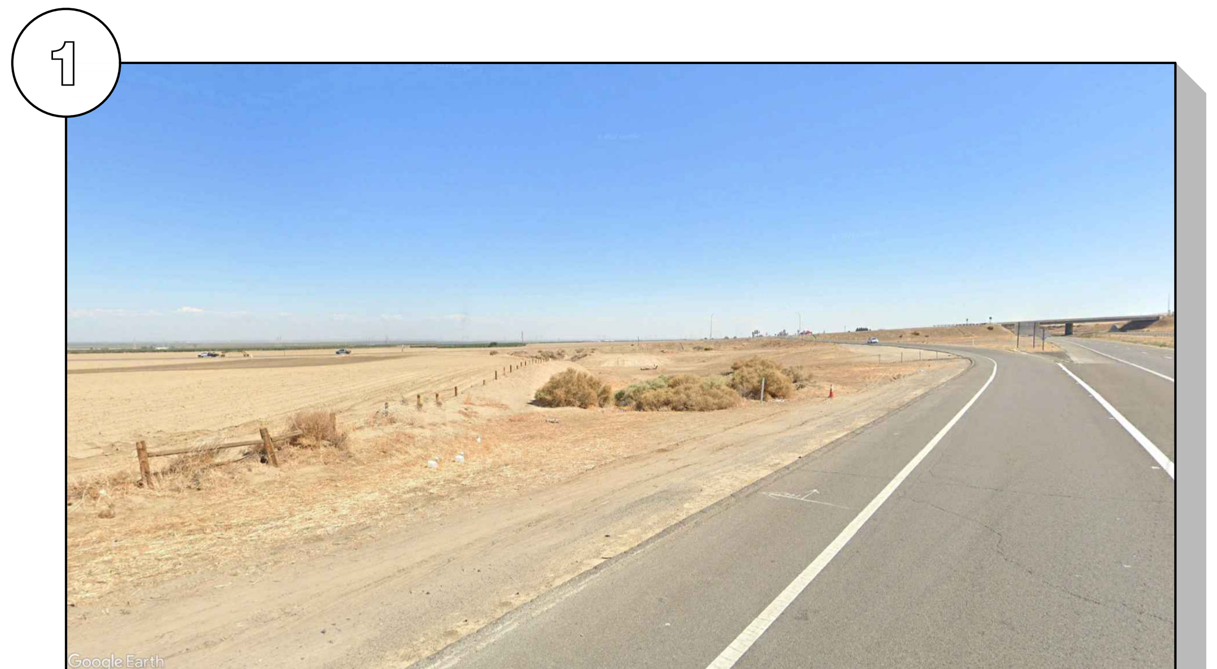
REGISTERED PROFESSIONAL ENGINEER · DANIEL A. BARNES · No. C94094 · CIVIL · STATE OF CALIFORNIA

BARNES ENGINEERING, INC
PHONE #: (209) 765-4222

VICINITY & KEY MAP

SITE PHOTOGRAPHS

1



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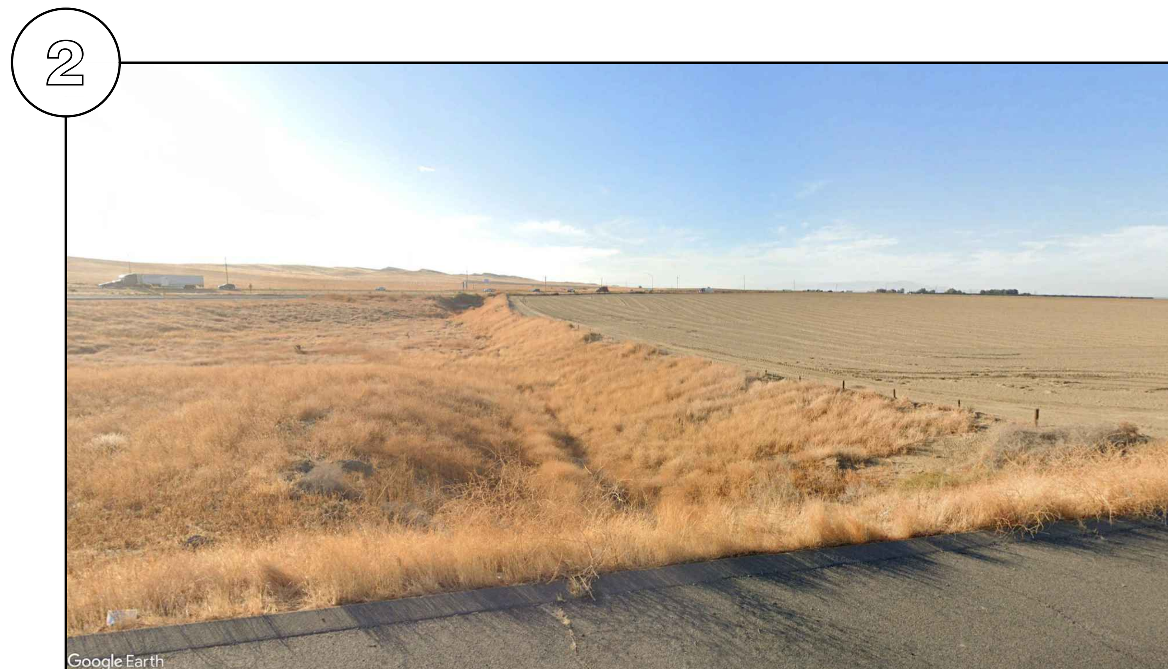

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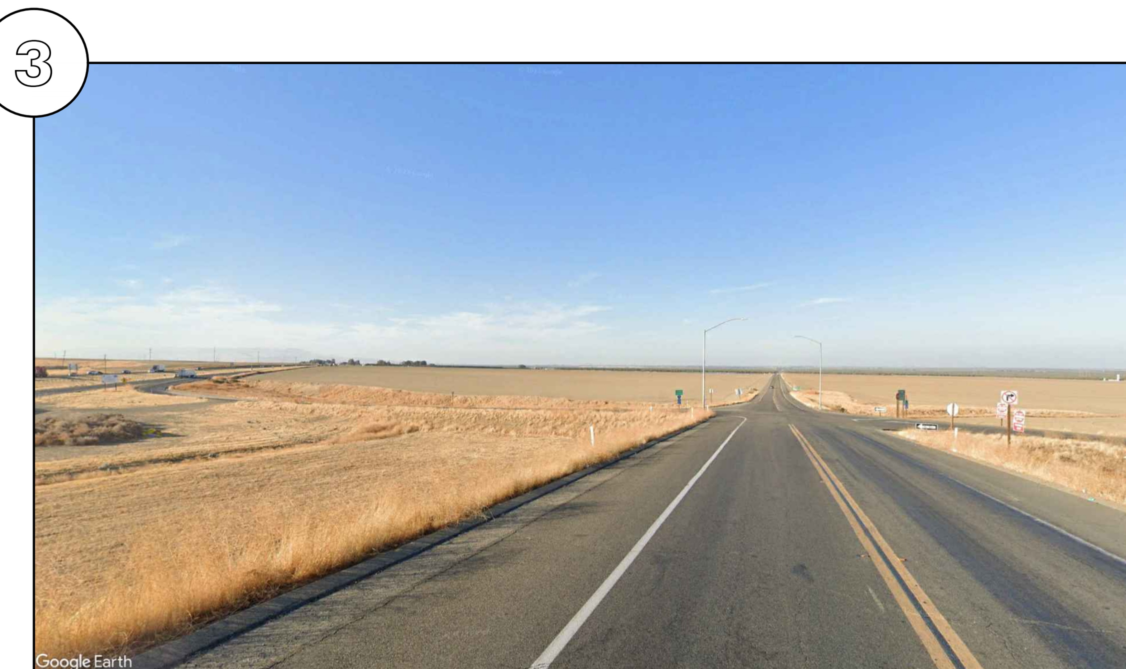

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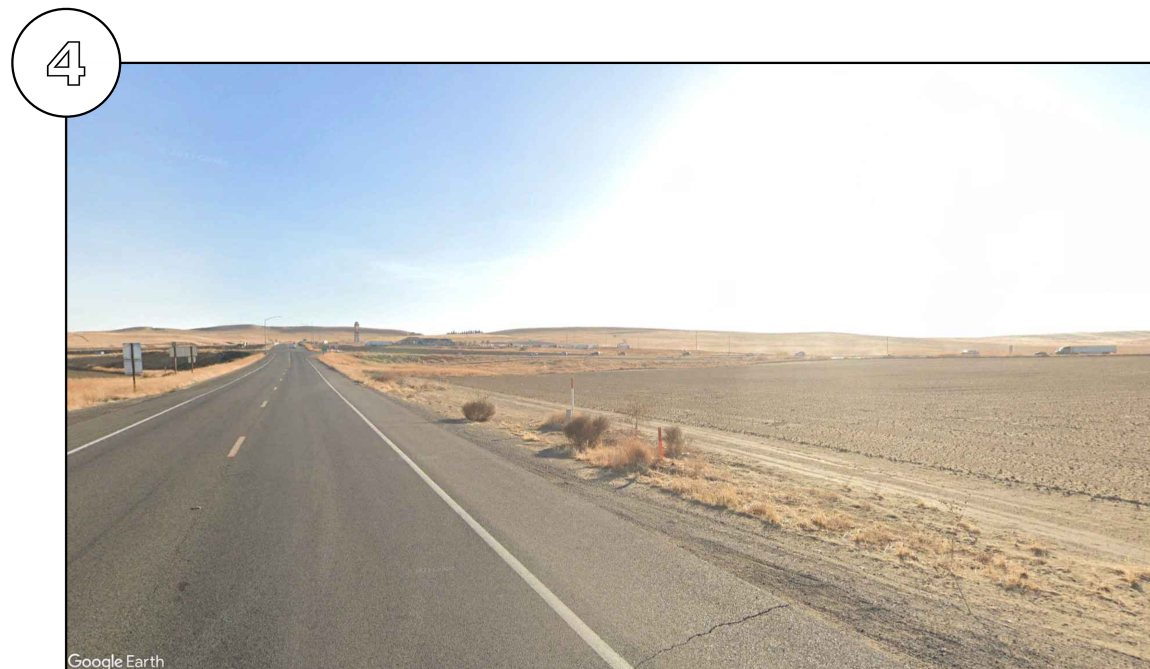

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SITE PHOTOGRAPHS

HURON I-5 GAS STATION

I-5 & SR-269

HURON, CA

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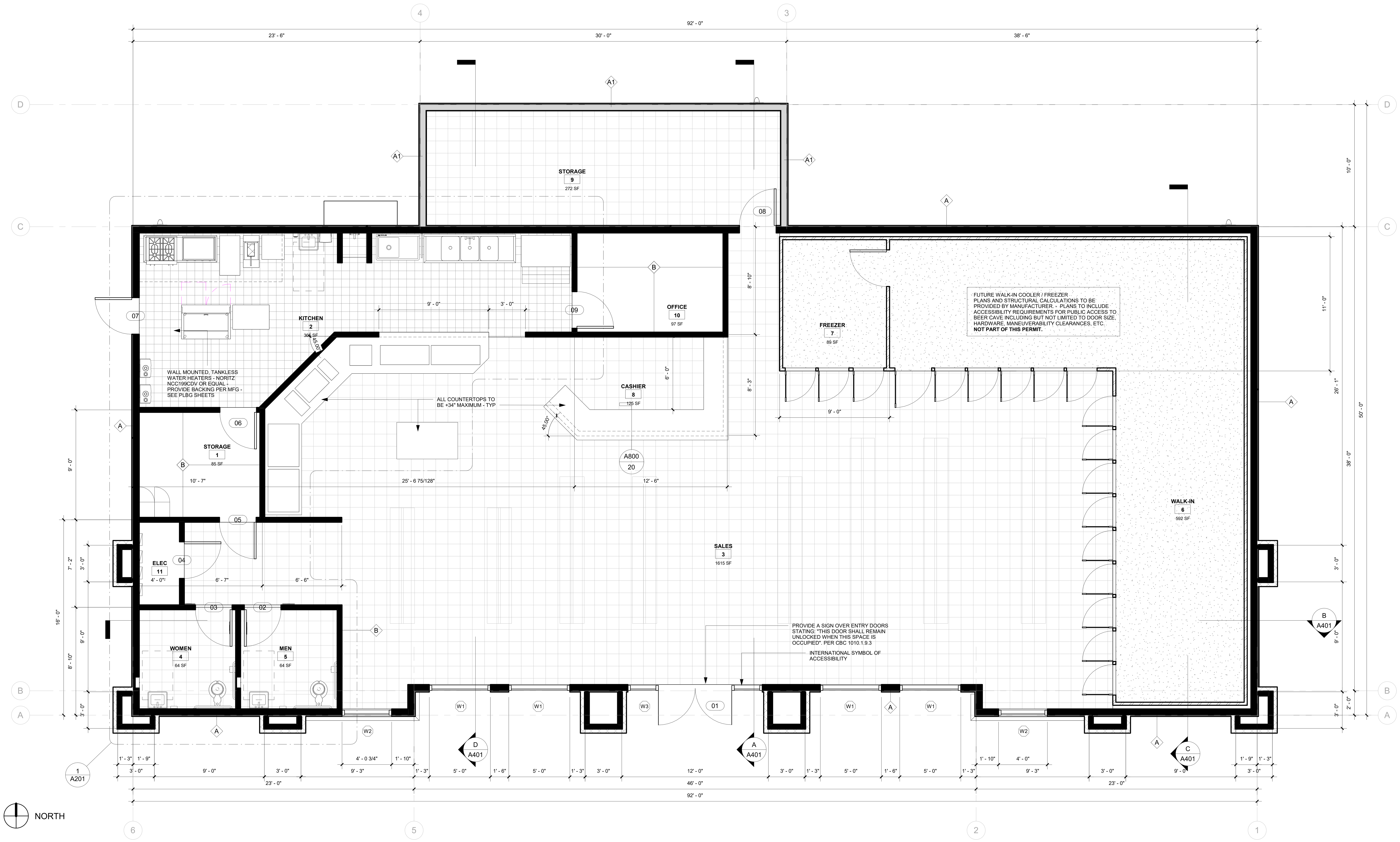

1 FLOOR PLAN
1/4" = 1'-0"

FLOOR PLAN NOTES
1. REFER TO SHEET A201 FOR ACCESSORY SCHEDULES.
101 DOOR KEY
1i WALL KEY
1t WINDOW KEY
K01 EQUIPMENT KEY

WALL TYPES	
A	**EXTERIOR - NON RATED** 2x6 WOOD STUDS AT 16" OC WITH R-19 BATT INSULATION. 5/8" GYP BOARD AT INTERIOR SIDE AND 7/8" CEMENT STUCCO SYSTEM AT EXTERIOR.
A1	**EXTERIOR - 1 HOUR FIRE RATED** 2x6 WOOD STUDS AT 16" OC WITH R-19 BATT INSULATION. 5/8" GYP BOARD AT INTERIOR SIDE AND 7/8" CEMENT STUCCO SYSTEM AT EXTERIOR.
B	**INTERIOR - NON RATED (STC 40)** 2x4 WOOD STUDS AT 16" OC WITH R-13 BATT INSULATION. 5/8" GYP BOARD AT BOTH SIDES. MAX 10'-0" HEIGHT
C	**INTERIOR - NON RATED (STC 40)** 2x6 WOOD STUDS AT 16" OC WITH R-19 BATT INSULATION. 5/8" GYP BOARD AT BOTH SIDES. MAX 10'-0" HEIGHT

freeLine
ARCHITECTURE
814 18th Street Bakersfield, Ca. 93301 phone: 661-633-9667

C-Store Building A
Enter address here

Revision:
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Project Number
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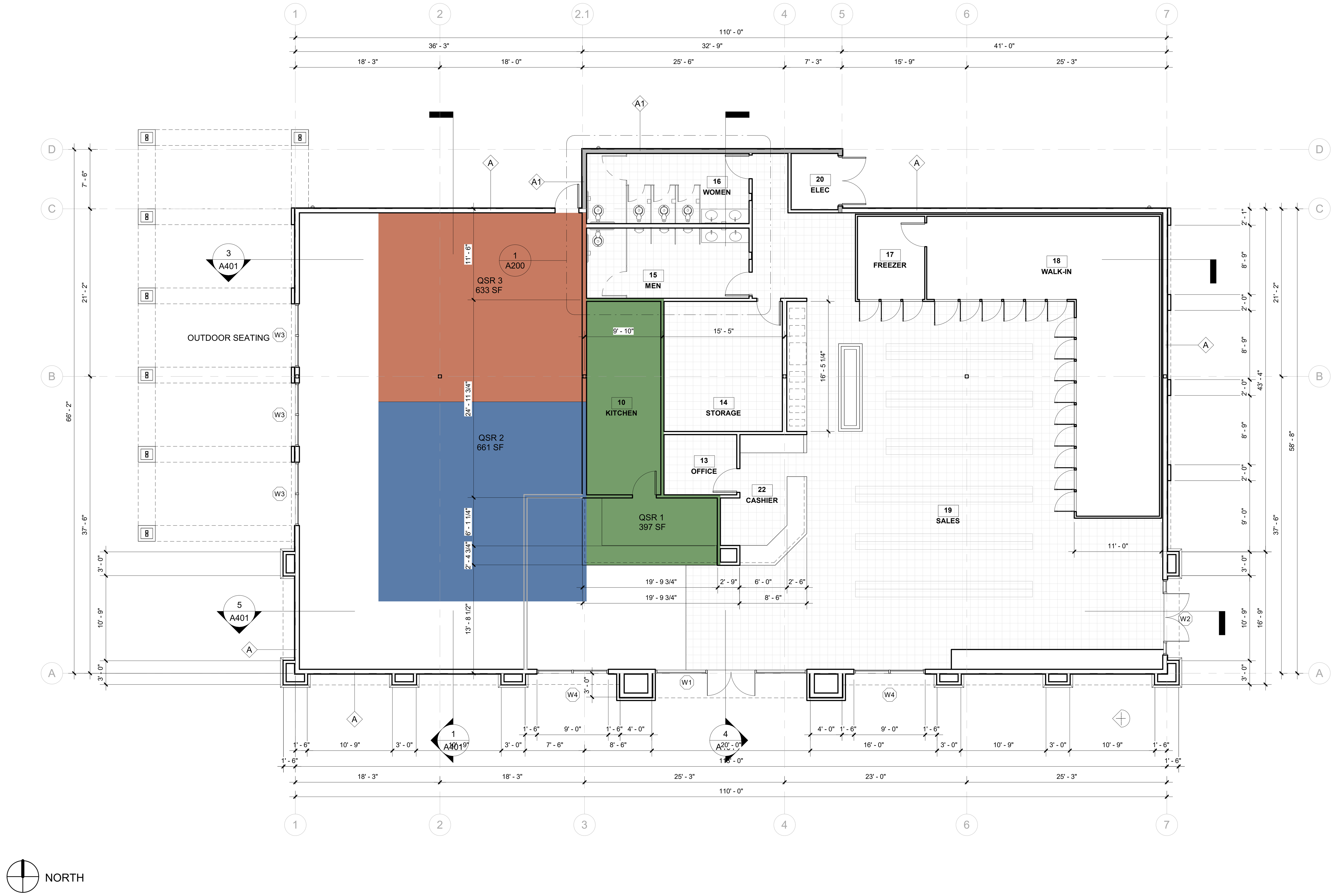
FLOOR PLAN

A200



1 FLOOR PLAN
1/8" = 1'-0"

FLOOR PLAN NOTES

1. REFER TO SHEET A201 FOR ACCESSORY SCHEDULES.

101 DOOR KEY

1i WALL KEY

1t WINDOW KEY

WALL TYPES

EXTERIOR - NON RATED

A — 2x6 WOOD STUDS AT 16" OC WITH R-19 BATT INSULATION. 5/8" GYP BOARD AT INTERIOR SIDE AND 7/8" CEMENT STUCCO SYSTEM AT EXTERIOR.

INTERIOR - NON RATED (STC 40)

B — 2x4 WOOD STUDS AT 16" OC WITH R-13 BATT INSULATION. 5/8" GYP BOARD AT BOTH SIDES. MAX 10'-0" HEIGHT

INTERIOR - NON RATED (STC 40)

C — 2x6 WOOD STUDS AT 16" OC WITH R-19 BATT INSULATION. 5/8" GYP BOARD AT BOTH SIDES. MAX 10'-0" HEIGHT

INTERIOR - 1 HR FIRE RATED (STC 54)

D — 2x6 WOOD STUDS AT 16" OC WITH R-19 BATT INSULATION. 5/8" GYP BOARD AT BOTH SIDES. MAX 10'-0" HEIGHT

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Chevron Convenience Store Building B

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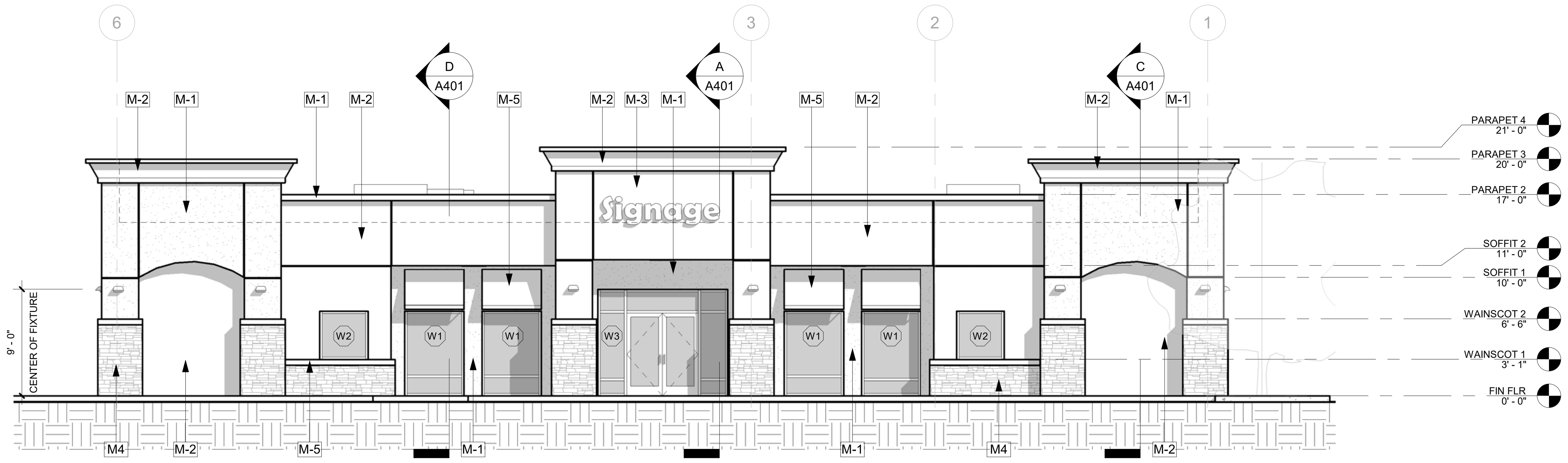
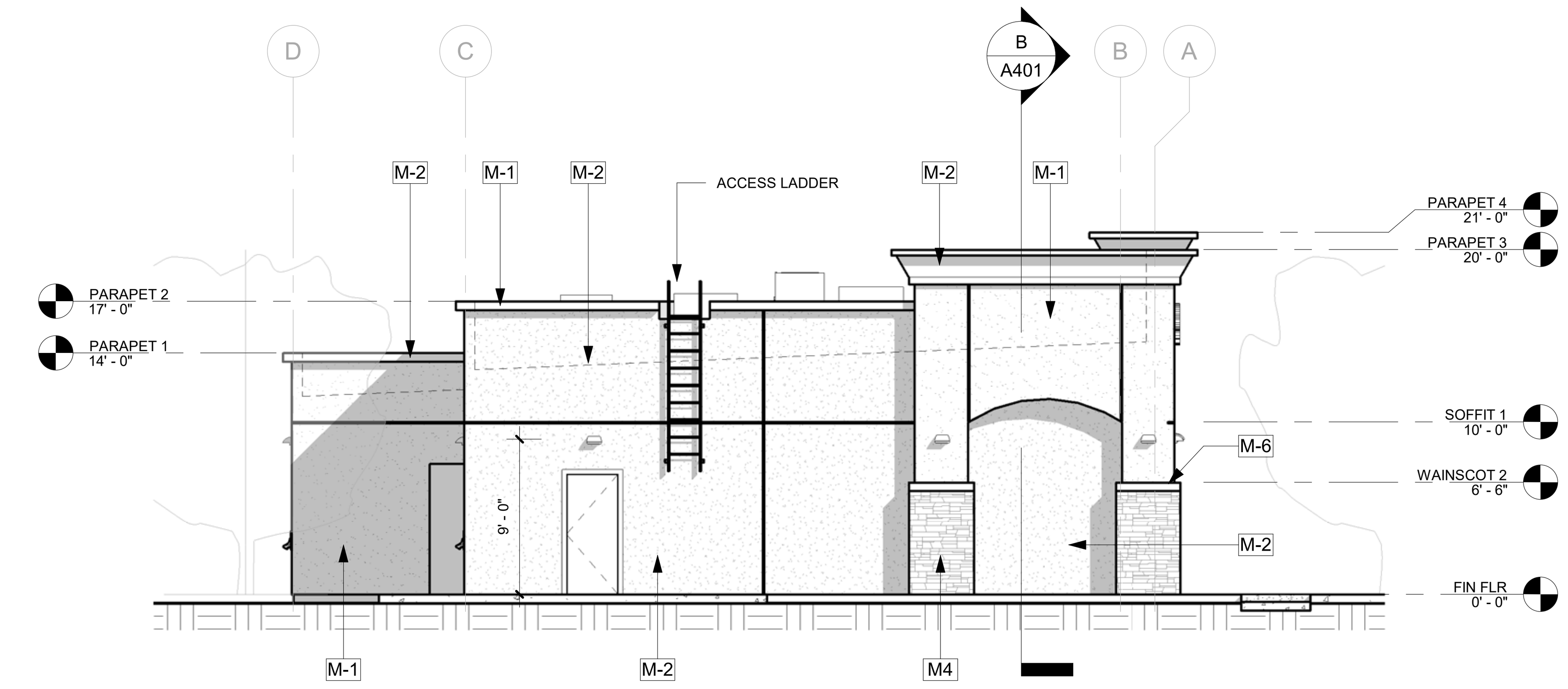
FLOOR PLAN

A201



1 NORTH ELEVATION
1/8" = 1'-0"



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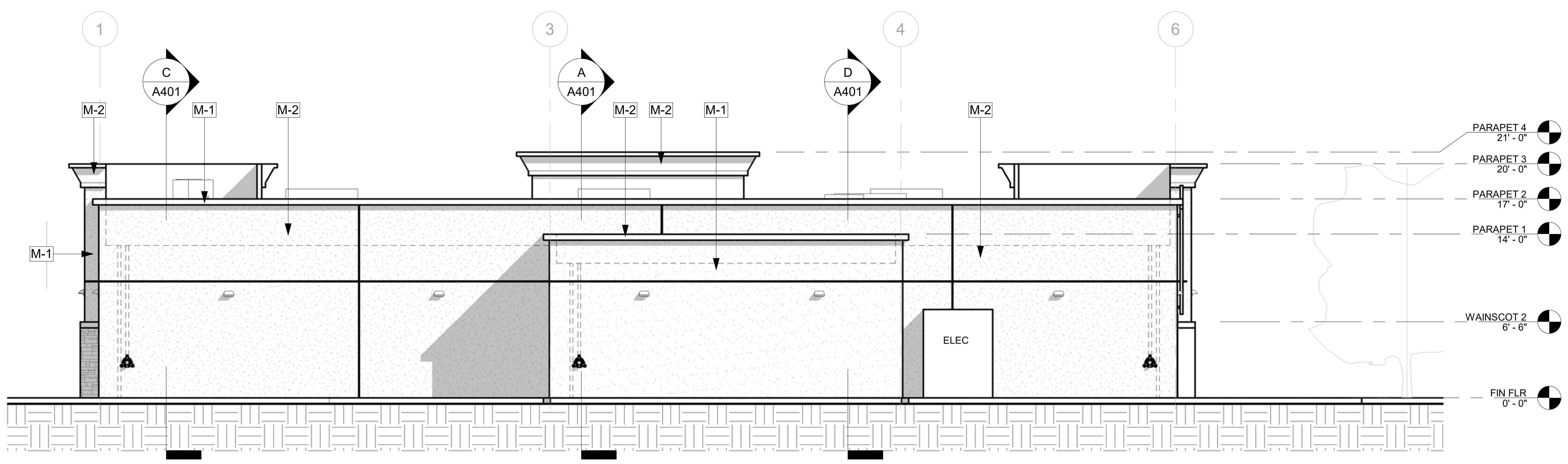

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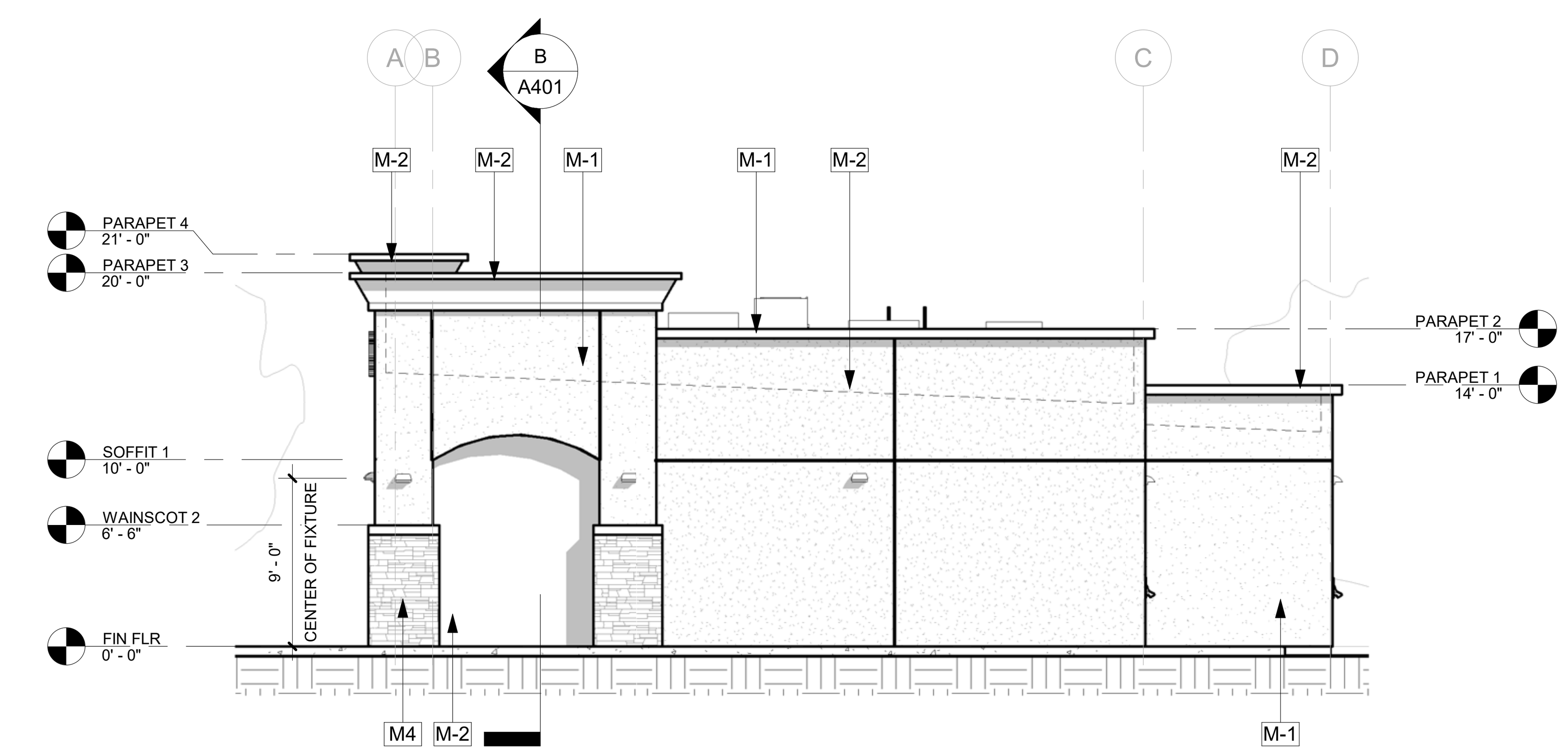

4 WEST ELEVATION
1/8" = 1'-0"

FINISH LEGEND

M-1	OMEGA PRODUCTS INTERNATIONAL 3 COAT STUCCO SYSTEM WITH OMEGAFLEX ACRYLIC FINISH COLOR - 9202 SNOW
M-2	OMEGA PRODUCTS INTERNATIONAL 3 COAT STUCCO SYSTEM WITH OMEGAFLEX ACRYLIC FINISH COLOR - 9225 CHINCHILLA
M-3	OMEGA PRODUCTS INTERNATIONAL 3 COAT STUCCO SYSTEM WITH OMEGAFLEX ACRYLIC FINISH COLOR - 404 BARN SWALLOW
M-4	STONE WAINSCOT CULTURED STONE VENEER PRO-FIT LEDGESTONE COLOR - MOJAVE ESR-1364
M-5	FABRIC AWNING WITH STEEL FRAME
M-6	PRE CAST CONCRETE SILL - NATURAL FINISH

NOTE:

OMEGA PRODUCTS INTERNATIONAL THREE-COAT STUCCO SYSTEM TO BE INSTALLED OVER SELF-FURRING LATH OVER (2) LAYERS MIN NO 15 ASPHALT NONPERFORATED FELT WITH OMEGAFLEX 100% ACRYLIC FINISH - SEE STANDARD DETAILS ON SHEET A800 - CONTRACTOR TO FOLLOW MANUFACTURERS PRODUCT INSTALLATION INSTRUCTIONS

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C-Store Building A
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Project Number
Author
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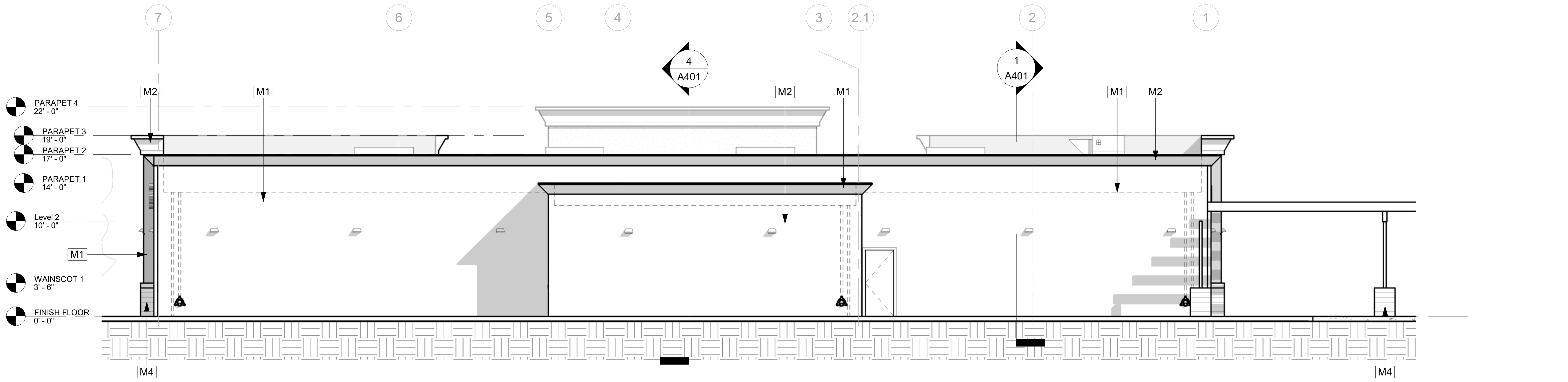
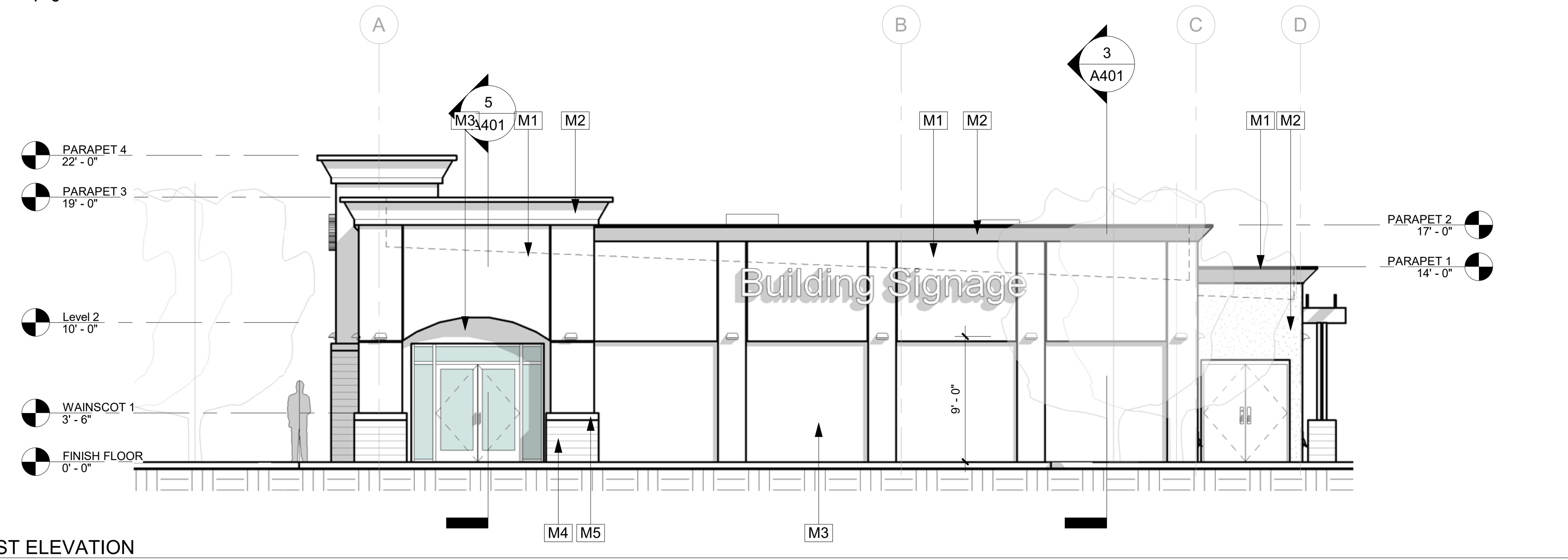
BUILDING ELEVATIONS

A400

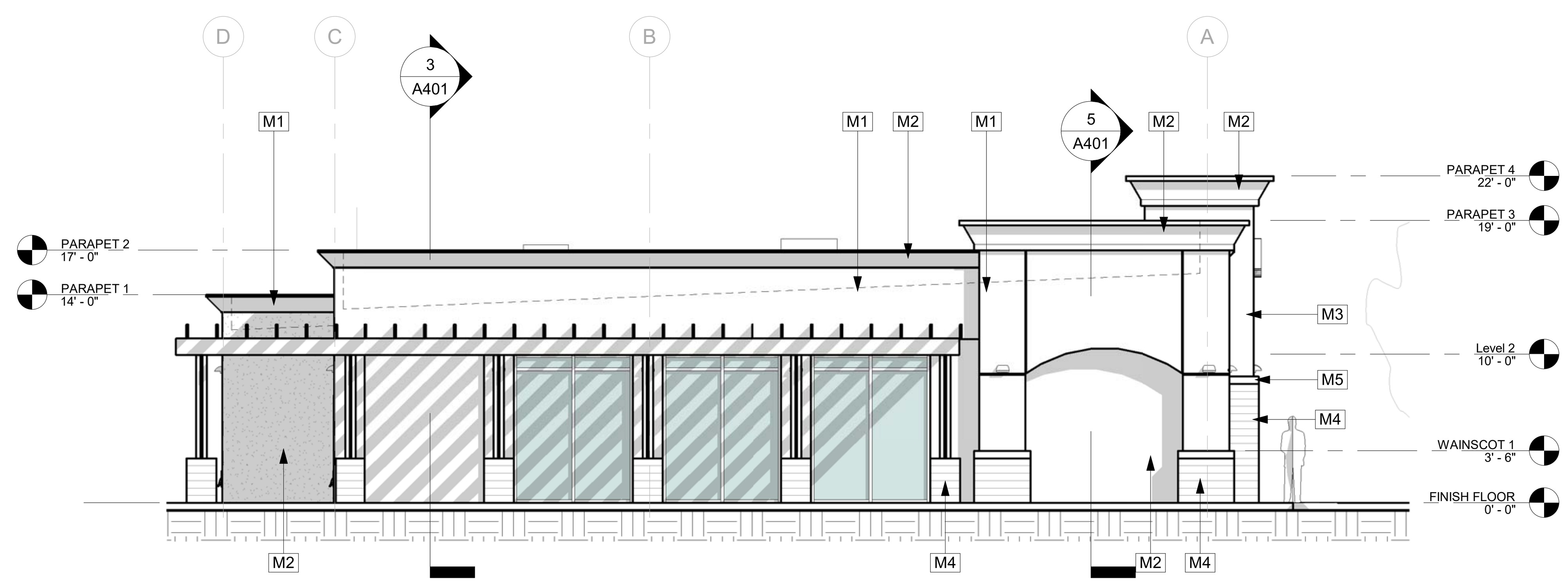


3 NORTH ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"

1 SOUTH ELEVATION
1/8" = 1'-0"



4 WEST ELEVATION
1/8" = 1'-0"

FINISH LEGEND

STUCCO:

M-1 OMEGA PRODUCTS INTERNATIONAL 3 COAT STUCCO SYSTEM WITH OMEGAFLEX ACRYLIC FINISH COLOR - 9202 SNOW

M-2 OMEGA PRODUCTS INTERNATIONAL 3 COAT STUCCO SYSTEM WITH OMEGAFLEX ACRYLIC FINISH COLOR - 9225 CHINCHILLA

M-3 OMEGA PRODUCTS INTERNATIONAL 3 COAT STUCCO SYSTEM WITH OMEGAFLEX ACRYLIC FINISH COLOR - 9218 SHADE TREE

SURFACES:

M-4 MEDITERRANEAN MOSAIC TILE

M-5 STONE WAINSCOT CULTURED STONE VENEER PRO-FIT LEDGESTONE COLOR - MOJAVE ESR-1364

M-6 STEEL FRAMED FABRIC AWNING

NOTE:

OMEGA PRODUCTS INTERNATIONAL THREE-COAT STUCCO SYSTEM TO BE INSTALLED OVER SELF-FURRING LATH OVER (2) LAYERS MIN NO 15 ASPHALT NONPERFORATED FELT WITH OMEGAFLEX 100% ACRYLIC FINISH - SEE STANDARD DETAILS ON SHEET A800 - CONTRACTOR TO FOLLOW MANUFACTURERS PRODUCT INSTALLATION INSTRUCTIONS

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Chevron Convenience Store Building B

Enter address here

Revision:
1
2

Project Number

Author

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BUILDING ELEVATIONS

A401

Traffic Impact Study

for

Gas Station with Convenience Store
At the Interchange of Interstate 5 and State Route 269,
Fresno, Fresno County, California

September 3rd, 2021

Project No. 21-930

Submitted by: ____

Matthew K. VoVilla, R.C.E. 43130 ***Date***

***LAV//Pinnacle* Engineering**
12418 Rosedale Highway, Suite A
Bakersfield, CA 93312
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Appendix "A" Exhibit and Figures (Continued):

APPENDIX "B" – Level of Service Calculations

APPENDIX "C" – Pass-By Survey

I. INTRODUCTION

This traffic impact study was prepared, as required by the California Department of Transportation (Caltrans), for two proposed gas station and convenience markets. At the time of this report, an application for a Zone Change and General Plan Amendment has been submitted to the County of Kern. As part of the environmental document to satisfy the California Environmental Quality Act (CEQA), various environmental studies, including this traffic impact study, has been required by the County of Kern.

A. Project Description

As mentioned, the Project is the construction of two gas stations, a 3,500 square foot convenience market, and a 6,500 square foot convenience market. Each gas station will have 12 automobile fueling locations, for a total of 24 fueling positions. The Project will ***not*** have the capacity to fuel trucks.

The Project site is currently vacant fallow ground, covered in native and non-native grasses. Previously, the site was used for agriculture.

B. Existing and Surrounding Land Use

The Project is located along State Route 269, also known as Lassen Ave, a north-south running road located approximately 10 miles northwest from Kettleman City in Fresno County. To the south, SR 269 intersects with Interstate 5, with ramps located approximately 500 ft and 1,300 ft away from the project entrance.

The surrounding area is mostly farmland. Approximately 1/3 of a mile south of the Project is a travel center, consisting of a convenience market, passenger fueling, and truck fueling. Approximately a mile southeast of the Project is a PG&E compressor station. There is no residential sites within the vicinity of the Project.

Figure 1 includes an aerial photo taken in 2021 showing the Project site and the surrounding area. Since 2021, there has been no further development in the vicinity of the Project.

II. EXISTING LOCAL STREET NETWORK

The following is a description of streets in the vicinity of the site, which may be impacted to some extent by the Project.

State Road 269: Also known as Lassen Ave, SR 269 is a two-lane road that runs north-south approximately 30 miles along the Fresno-Kings County line. The southern terminus of SR 269 is in Avenal, where it intersects with SR 33. The northern terminus is at SR 145 near Five Points.

Interstate 5: Interstate 5 is the main north-south freeway through central California and runs from the Mexican border through California, Oregon and Washington, to the Canadian Border.

Interstate 5 connects all major metropolitan areas in central California and is the most significant route along the west coast for transport of goods and travelers.

In the vicinity of the Project, I-5 is a four-lane freeway.

III. METHOD OF LEVEL OF SERVICE ANALYSIS & TRAFFIC ESTIMATES

A. General

Additional detailed descriptions of methods and "findings" are provided in the appropriate sections herein. However, as a preface to the following sections, a brief step-by-step description used for analysis in this report, as follows:

1. Existing conditions of the Project and surrounding area are surveyed, including traffic volumes, traffic patterns, laneage, and intersection control.

2. Project-generated traffic, based on the proposed land use, is estimated and distributed onto the existing street network. Traffic is also distributed onto future streets if appropriate.

3. Using growth rates based on historic growth rates of roadways in the vicinity of the Project, future Traffic Volumes are estimated for Year 2023 (Opening Day), and Year 2042. Existing traffic volumes are known from traffic counts (Step 1).

4. The estimated Project-generated traffic is added to existing traffic volumes, and to future traffic volumes (estimated as described in Item 3 above), to determine the total traffic upon completion of the Project.

5. Street segments and intersections are analyzed for "Level of Service" (LOS) for the various scenarios: A) Existing conditions with No Project; B) Existing Conditions with Project; C) Year 2023, or "Opening Day" with No Project; D) Year 2023, or "Opening Day" with Project; E) Year 2042 with No Project; F) Year 2042 with Project, and G) And as determined herein, Year 2042 with Project and any mitigation improvements necessary to restore or improve a LOS to a satisfactory condition. Year 2023 was considered an "opening day" scenario. This is discussed in further detail later in this report.

6. Mitigation or capacity/level of service improvements are determined for any of the above scenarios which result in an unacceptable "Level of Service" (LOS). Resultant or "after mitigation" LOS's are determined to validate the improvements. Any planned improvements funded by the Regional Transportation Impact Fee program are evaluated for adequacy under future traffic conditions. The Project's obligation for funding of any needed mitigation improvements that are not covered by the RTIF program is also determined. The Project's obligation to fund mitigation not covered in the RTIF program, in very simplified terms, is the ratio of Project-generated traffic to total estimate future year traffic volume, multiplied by the total cost of the specific improvement.

7. Vehicle Miles Traffic: The total daily Vehicle Miles Traveled (VMT) is calculated for Project generated trips. The methodology for estimating VMT is provided in Section V of this report.

Again, methodology, findings, and mitigation are discussed in further detail in the following sections.

B. Traffic Counts

Traffic counts were performed over the existing street network to determine existing intersection and roadway volumes, and traffic flow patterns. As discussed in the following section, future year traffic volumes are estimated by applying annual historic traffic growth rates for roadways in the vicinity of the Project.

Traffic counts were performed in March of 2021 during the morning and evening peak periods of weekdays, excluding Mondays, Fridays, holidays, and days preceding or following holidays. Weekdays before or after holidays or weekends are not representative of normal traffic patterns and thus are not counted or considered appropriate for analysis.

Counts were performed during the morning peak period between 6:30 A.M. and 8:30 A.M. as well as the evening peak period between 4:00 P.M. and 6:00 P.M. Often the peak period for various intersections and streets do not occur at identical times. In this study, conservatively, the highest one-hour volumes for each intersection or street segment within their respective peak periods were used for analysis in this report.

Figures 2 & 3, included in Appendix "A" of this study, show the peak hour volumes field counted during the morning and evening peak period, respectively. These figures also show the actual turning movements at all counted intersections. It should be noted that an adjustment factor of 1.05 has been applied to the specified traffic counts in order to account for reduced traffic due to Covid-19.

C. Future Year Traffic Volumes

Normally future traffic volumes are estimated by applying growth rates derived from the Freno Council of Governments (Kern COG) computer traffic model. (Fresno COG is an association of city and county governments created to address regional transportation issues. Fresno COG maintains a computer traffic model for Fresno County, which includes monitoring of demographic trends). Often growth rates derived from the Fresno COG model are very close to population growth from published census data, and historical traffic growth. However, since the latest data available was from 2018, historical traffic growth rates for SR 269 and I-5 were used in lieu of model data. These values were considered appropriate given interstate traffic is not necessarily tied to local population growth.

Table 1 herein derives an annual average growth rate based on historical annual traffic increases for Interstate 5 and State Route 269. The final annual growth rate used to extrapolate future traffic from existing volumes is an annual average which is weighted based on the respective historical volumes of I-5 and SR 58. Derivation of the average annual growth rates is shown herein in Table 1. Again, these rates were applied to existing traffic counts to yield future traffic volumes for Years 2023 and 2042.

Table 1: Projected Average Annual Growth Rates

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				Average Daily Volume by Year						
Item No.	Road Segment	From	To	Year	Average Daily Volume	Year	Average Daily Volume	Average Annual Growth Rate (%)	Factor: Year 2021 to Year 2023	Factor: Year 2021 to Year 2042
1.	SR 269	Plymouth Ave	Avenal Cutoff Road	2013	5,750	2019	5,450	-0.9%	0.9823	0.8216
2.	CA I-5	SR 269	Lassen Avenue	2013	35,750	2019	39,250	1.6%	1.0316	1.4084
							Weighted Average:	1.3%	1.0255	1.3032

Note

1) All calculations we obtained using Caltrans census data for years 2013 and 2019.
2) Fresno County's annual growth rate is 0.71% in the past year.
3) California's annual growth rate is 0.05% according to census data from July 1,2019-July 1,2020

Figure 6, included in Appendix A, shows the Year 2023 peak hour volumes and turning movements for intersections and roads within the Study scope. Similarly, Figure 7, also in Appendix A, shows the estimate peak hour volumes and turning movements for 2042.

D. Project Generated Traffic

Project generated vehicular trips were estimated using the *Institute of Transportation Engineers Trip Generation Manual*, 10th Edition, hereinafter referred to as the ITE Manual. The ITE Manual provides mathematical correlations between various land uses and trip generation. The ITE Manual provides average rates for each land use type. Some ITE land uses also include fitted curves for trip generation rates. Said ITE Manual provides relationships for trip generated based on the number of fueling sites or the floor area of the convenience market. Both analyses have been provided in Appendix A of this Study; however, trip generation based on floor area of the convenience market yield the larger traffic volume and thus was used for analysis in this Study.

As indicated, trip generation rates are provided by the ITE Manual; however, to avoid double-counting, reductions in those trips are permitted due to the phenomena of "Capture", "Pass-By" and "Diverted Link" trips. These phenomena are discussed in the following:

"Pass-By" trips are intermediate stops taken within the process of the primary trip, without diverting from the route of the primary trip. An example of a "Pass-By would be stopping for fuel during the work to home commute. The work to home commute is the primary trip, and the stop for gas is the "pass-by" trip, since it is not the primary purpose of the trip. Normally the stop at the market or fast-food restaurant would be tallied as two trips (arrival and departure trips). In this example, without an adjustment factor for "pass-by", three trips would be added to the local street network instead of 1 (for the primary commuting trip). Obviously, an over-estimation of Project impact to the local street network would result without a reduction for "pass-by". It should be noted again that a "pass-by" trip does not divert from the route of the primary trip. Diversions from the primary trips are defined as "diverted link" trips as described in the next paragraph.

"Diverted Link" trips are essentially "pass-by" trips, except the motorist must depart slightly from the primary route to reach an interim destination. An example of a "Diverted Link" trip as follows: As part of the primary trip from work to home, the motorist stops at a fast-food restaurant that requires leaving the primary route and impacting another road to reach said restaurant. In the case of the Project, a diverted link trip is created if a motorist departs from I-5 freeway to purchase fuel at the Project, then returns to I-5 to continue the primary trip. In these cases, "Diverted Link" trips do not add to the total freeway traffic, but do impact the freeway ramps and the side street (Comanche). Therefore, in this study, there were no deductions taken for diverted link trips for either Level of Service (LOS) analysis or estimation of Vehicle Miles Traveled (VMT).

"Capture": "Capture" can be described as trips that are made internally within the limits of a mixed-use project. An example of captured trips may include stopping for gas and fast food within the same commercial center. In this scenario, the stop at the gas station is two trips and the stop at the fast food is also considered two trips. Summing both stops within the same commercial center yields 4 trips, when the correct number of trips to apply to the local street network is two.

As with "pass-by", the deduction for "capture" helps offset double counting of on the local street network. In the case of this report, there were no deductions (for capture) were taken.

In accordance with Caltrans' ***Guide for the Preparation of Traffic Impact Studies***, trip generation calculations for the commercial components of the Project were reduced by 15% to account for the phenomenon of "Pass-By". Again, no other deductions were taken for the LOS analysis. However, calculation of VMT requires a more "site-specific" analysis of "pass-by" and "diverted-link" trips. This is discussed in detail in Section V of this report.

Again, since "diverted" link trips impact the freeway ramps, ramp intersections, and a short segment of SR 269, no deductions were taken for these phenomena.

Table 2 herein in the following, shows the Project trip generation rates and estimated trips used for the LOS analysis.

Table 2: Trip Generation for Gasoline/Service Station with Convenience Market at CA SR-269 and the CA I-5 Intersection in Fresno California

Date: 6/8/2021

Commercial - Land Uses				***24 Hour Trips***		***A.M. Peak Hour Trips***				***P.M. Peak Hour Trips***			
Item No.	**Proposed Land Use**	**ITE Code**	**Vehicle Fueling Positions**	**Trip Rate**	**Veh Trips (vpd)**	**Trip Rate**	**Veh Trips (vph)**	**Split In**	**Split Out**	**Trip Rate**	**Veh Trips (vph)**	**Split In**	**Split Out**
1	Gasoline/Service Station with Convenience Market	945	12.0	205.36	2,464	12.47	150	76	73	13.99	168	86	82
2	Gasoline/Service Station with Convenience Market	945	12.0	205.36	2,464	12.47	150	76	73	13.99	168	86	82
				Total:	4,929		150	76	73		168	86	82
				20% Reduction for "Pass-by" - All Land Uses:	(986)		(30)	(15)	(15)		(34)	(17)	(16)
				Vehicle Trip Total:	3,943		120	61	59		134	68	66

E. Trip Distribution and Assignment

Again, Project generated trips estimated as shown in Table 3 and were distributed onto the existing street network proportional to the existing traffic patterns.

Figure 4, included in Appendix "A" of this report, show the cumulative distribution of Project-generated traffic generated during the peak hour of the adjacent street network. It should be noted that since almost all trips to the Project are anticipated to be either "pass-bys" or "diverted link" trips, the peak hour for the proposed project is likely the same as that for the adjacent streets.

F. Trip Assimilation

Based on information provided by the Kern Council of Governments (Kern COG), the average work commute travel time for Kern County is 20 minutes. At an average speed of 33 miles per hour, this yields an average work-commute trip of 11 miles. Assuming a 50/50 split of work-commute trips less than and greater than 11 miles, an average trip assimilation rate of 8.33 percent per mile is derived. This rate of assimilation is likely conservative and accepted by various reviewing agencies; however, given the high percentage of "diverted link" trips anticipated from either Interstate 5 or State Route 269, there were no reductions taken in this analysis for assimilation.

IV. IMPACT OF PROJECT TRAFFIC

A. Level of Service (LOS)

Operational analysis of streets and intersections were performed using methods outlined in the *Transportation Research Board, National Research Council* *Highway Capacity Manual,* HCM, 2016.

Level of Service (LOS) is the generally accepted gauge for describing the quality of operation of either a road segment or street intersection. Other attributes of operational quality associated with each Level of Service are v/c - volume to capacity ratio, vehicle delay through an intersection, and reserve capacity of an intersection approach. For each type of street segment or intersection analysis, the Level of Service criteria varies slightly. Levels of Service for every type of roadway or intersection are described thoroughly in the *Highway Capacity Manual,* however, the brief descriptions have been provided in the following:

Table 3: Level of Service for Signalized Intersections

Level Of Service	Average Control Delay (seconds/vehicle)	General Description
A	≥ 10	Free Flow
B	10-20	Stable Flow (slight delay)
C	20-35	Stable Flow (acceptable delay)
D	35-55	Approaching Unstable Flow (tolerable delay)
E	55-80	Unstable Flow (intolerable delay)
F[1]	> 80	Forced Flow (congested and queues fail to clear)

Table 4: Level of Service for Unsignalized Intersections

Level Of Service	Average Control Delay (seconds/vehicle)	General Description
A	≥ 10	Free Flow
B	10-15	Stable Flow (slight delay)
C	15-25	Stable Flow (acceptable delay)
D	25-35	Approaching Unstable Flow (tolerable delay)
E	35-50	Unstable Flow (intolerable delay)
F[1]	> 50	Forced Flow (congested and queues fail to clear)

Note 1: When demand volume exceeds the capacity of the lane, extreme delays will be encountered. This condition usually warrants improvement to the intersection.

Table 5: Level of Service for Highways and Arterials

Level of Service	Description
A	Free flow conditions, unimpeded ability to maneuver and pass, very little delay, no platoons, highest average travel speeds.
B	Mostly free flow conditions; presence of other vehicles begins to be noticeable. Passing is required to maintain speeds, slightly less average travel speeds than Level of Service "A".
C	Traffic density clearly affects the ability to pass and maneuver within the stream. Speeds are reduced to about 50 mph on highways and to about 50% of the average on urban arterials.
D	Unstable flow. Speeds are reduced from 40% to 60% of normal. Passing demand is high although mostly impossible on 2-Lane Highways. Traffic disruptions usually cause extensive queues.
E	Very unstable flow at or near capacity. Passing and maneuvering virtually impossible. Extensive platooning on highways and queuing on arterials. Speeds range from 20 mph or less on arterials and 2-Lane Highways, and up to 50 mph on Multi-Lane Highways.
F	Forced or breakdown flow. Demand exceeds capacity. Vehicles experience short spurts of movement followed by stoppages. Intersection congestion, long queues and delays are common.

Table 6: Level of Service Criteria for Freeway Merge and Diverge Segments

Level of Service	Density (pc/mi/ln)	Comments
A	≤10	Unrestricted operations
B	>10-20	Merging and diverging maneuvers noticeable to drivers
C	>20-28	Influence area speeds begin to decline
D	>28-35	Influence area turbulence becomes intrusive
E	>35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp and freeway queues form

Note 1: Table 6 is Exhibit 13-2 from the Highway Capacity Manual 2010.

B. Traffic Impact Analysis

As discussed in Section III herein, Project-generated traffic was distributed onto the existing street network based on existing patterns. It should be noted that construction of the new gas station and convenience market was underway, and not open for business at the time traffic counts were performed for this study. Since the existing facility had been demolished for the Project, and was not generating traffic at the time of field traffic counts, it would be improper to take trip credits, or trip reductions for the existing gas station and market. Therefore, other than normal deductions for "pass-bys" and "capture", there were no other deductions to Project-generated traffic calculated as shown in Table 2 herein.

In accordance with Kern County criteria, any street segment or intersection, currently operating at or above a "C" Level of Service, must be analyzed if it receives 50 or more Project-generated peak hour trips. If the facility currently operates at a "D", "E" or "F", the analysis threshold drops to 40, 20 and 10 trips, respectively.

Level of Service calculations (LOS) are based on methods outlined in the ***Highway Capacity Manual, 2016***. Computer software from "McTrans Highway Capacity" package was used to facilitate extensive calculations.

In accordance with County of Kern and Caltrans' requirement, various traffic scenarios were analyzed to include present day traffic, and the addition of Project-generated traffic to existing (Year 2021) and future traffic (Year 2042). In addition, an "opening day" scenario for Year 2023 was analyzed. The following lists the various specific scenarios that were analyzed and provides a reference to the appropriate figures.

Existing Year 2021 A.M. Peak Hour without Project – (No Project Scenario). These volumes are actual traffic counts, as discussed in Section III, and are shown in Figure 2 herein.

Existing Year 2021 P.M Peak Hour without Project – (No Project Scenario). These volumes are actual traffic counts, as discussed in Section III, and are shown in Figure 3 herein.

Year 2021 A.M. Peak Hour Volumes with the addition of Project-Generated traffic. These volumes can be referenced in Figure 5A of this report.

Year 2021 P.M. Peak Hour Volumes with the addition of Project-Generated traffic. These volumes can be referenced in Figure 5B of this report.

Year 2023 "Opening Day" A.M Peak Hour without Project – (No Project Scenario). Derivation of these volumes is discussed in Section III and is shown in Figure 6A of this report.

Year 2023 "Opening Day" A.M. Peak Hour Volumes with the addition of Project-Generated traffic. These volumes can be referenced in Figure 7A of this report.

Year 2023 "Opening Day" P.M Peak Hour without Project – (No Project Scenario). Derivation of these volumes is discussed in Section III and is shown in Figure 6B of this report.

Year 2023 P.M. "Opening Day" Peak Hour Volumes with the addition of Project-Generated traffic. These volumes can be referenced in Figure 7B of this report.

Year 2042 A.M. Peak Hour Volumes without the addition of Project-Generated Traffic ("No Project" Scenario). Derivation of these volumes is discussed in Section III of this report, and can be referenced in Figure 8A herein.

Year 2042 A.M. Peak Hour Volumes plus Project-Generated Traffic. These volumes can be referenced in Figure 9A of this report.

Year 2042 P.M. Peak Hour Volumes without the addition of Project-Generated Traffic ("No Project" Scenario). Derivation of these volumes is discussed in Section III of this report, and can be referenced in Figure 8B herein.

Year 2042 P.M. Peak Hour Volumes plus Project-Generated Traffic. These volumes can be referenced in Figure 9B of this report.

Year 2042 P.M. Peak Hour Volumes plus Project-Generated Traffic – Evaluated under proposed mitigation improvements. In addition to the above scenarios, any facility needing mitigation was analyzed to determine the resultant Level of Service once proposed improvements were in-place.

The criteria to warrant mitigation is discussed in Section V of this report.

Summaries of the Level of Service calculations for the various scenarios described have been included in the following tables:

- Table 7 show the results of the intersection Level of Service calculations.

- Tables 8A and 8B show the results of Level of Service calculations for various street segments within the scope of this study.

- Tables 9A and 9B show the results of Level of Service calculations for the freeway ramps within the scope of this study.

TABLE 7: Intersection Level of Service (LOS) - Peak Hour

Date: 6/23/2021

Legend: **S = Signalized** **1W = One Way Stop Control** **4W = All Way Stop** **R = Roundabout**

No.	Intersection	Time Period	Control	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Comp LOS	Intersection Delay (sec/veh)	Peak Hour Warrant Met (Yes/No)
1)	SR 269 & I5 NB Ramps	Year 2021 A.M. Existing	1W	A	-	-	-	-	-	-	-	-	A	-	A	A	4.0	No
		Year 2021 A.M. with Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	3.4	No
		Year 2023 A.M. Existing	1W	A	-	-	-	-	-	-	-	-	A	-	A	A	4.0	No
		Year 2023 A.M. with Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	3.4	No
		Year 2042 A.M. without Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	4.2	No
		Year 2042 A.M. with Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	3.7	No
		Year 2021 P.M. Existing	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	5.9	No
		Year 2021 P.M. with Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	5.2	No
		Year 2023 P.M. Existing	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	6.0	No
		Year 2023 P.M. with Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	5.3	No
		Year 2042 P.M. without Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	6.3	No
		Year 2042 P.M. with Project	1W	A	-	-	-	-	-	-	-	-	B	-	A	A	5.9	No
2)	SR 269 & SB Ramps	Year 2021 A.M. Existing	1W	-	-	-	A	-	-	A	-	A	-	-	-	A	2.2	No
		Year 2021 A.M. with Project	1W	-	-	-	A	-	-	B	-	A	-	-	-	A	3.8	No
		Year 2023 A.M. Existing	1W	-	-	-	A	-	-	A	-	A	-	-	-	A	2.2	No
		Year 2023 A.M. with Project	1W	-	-	-	A	-	-	B	-	A	-	-	-	A	3.8	No
		Year 2042 A.M. without Project	1W	-	-	-	A	-	-	A	-	A	-	-	-	A	2.3	No
		Year 2042 A.M. with Project	1W	-	-	-	A	-	-	B	-	A	-	-	-	A	3.6	No
		Year 2021 P.M. Existing	1W	-	-	-	A	-	-	A	-	A	-	-	-	A	2.7	No
		Year 2021 P.M. with Project	1W	-	-	-	A	-	-	B	-	A	-	-	-	A	4.0	No
		Year 2023 P.M. Existing	1W	-	-	-	A	-	-	A	-	A	-	-	-	A	2.7	No
		Year 2023 P.M. with Project	1W	-	-	-	A	-	-	B	-	A	-	-	-	A	4.0	No
		Year 2042 P.M. without Project	1W	-	-	-	A	-	-	A	-	A	-	-	-	A	2.8	No
		Year 2042 P.M. with Project	1W	-	-	-	A	-	-	B	-	A	-	-	-	A	3.9	No

TABLE 7: Intersection Level of Service (LOS) - Peak Hour (cont.)

Date: 6/23/2021

Legend: **S = Signalized** **1W = One Way Stop Control** **4W = All Way Stop** **R = Roundabout**

				Northbound			Southbound			Eastbound			Westbound					
No.	**Intersection**	**Time Period**	**Control**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Comp LOS**	**Intersection Delay (sec/veh)**	**Peak Hour Warrant Met (Yes/No)**
3)	SR 269 & Project Entrance	Year 2021 A.M. with Project	1W	A	-	-	-	-	-	-	A	-	-	-	-	A	7.9	N/A
		Year 2023 A.M. with Project	1W	A	-	-	-	-	-	-	A	-	-	-	-	A	7.9	N/A
		Year 2042 A.M. with Project	1W	A	-	-	-	-	-	-	A	-	-	-	-	A	7.9	N/A
		Year 2021 P.M. with Project	1W	A	-	-	-	-	-	-	A	-	-	-	-	A	7.9	N/A
		Year 2023 P.M. with Project	1W	A	-	-	-	-	-	-	A	-	-	-	-	A	7.9	N/A
		Year 2042 P.M. with Project	1W	A	-	-	-	-	-	-	A	-	-	-	-	A	7.9	N/A

TABLE 8a: Street Segment Level of Service for AM Peak Hour

Date: 6/23/2021

				Year 2021 Existing A.M. Traffic (Figure 2)		Year 2021 Existing A.M. Plus Project Traffic (Figure 6A)		Year 2023 Existing A.M. Without Project Traffic (Figure 7A)		Year 2023 Existing A.M. Plus Project Traffic (Figure 8A)		Year 2042 Existing A.M. Without Project Traffic (Figure 9A)		Year 2042 Existing A.M. Plus Project Traffic (Figure 10A)	
Item	**Street Segment**	**Limits**	**Existing Laneage - Both Directions**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**
1)	SR 269	I5 NB Ramps/Jayne Ave	2	42/60	A	102/118	B	43/62	A	103/120	B	54/78	A	114/136	B
2)	SR 269	I5 NB Ramps/I5 SB Ramps	2	100/81	A	130/112	B	103/83	A	133/114	B	130/105	B	160/136	B
3)	SR 269	I5 SB Ramps/Avenal Cutoff Rd.	2	83/72	A	85/74	A	86/74	A	88/76	A	108/93	A	110/95	A

TABLE 8b: Street Segment Level of Service for PM Peak Hour

Date: 6/23/2021

				Year 2021 Existing P.M. Traffic (Figure 3)		Year 2021 Existing P.M. Plus Project Traffic (Figure 6B)		Year 2023 Existing P.M. Without Project Traffic (Figure 7B)		Year 2023 Existing P.M. Plus Project Traffic (Figure 8B)		Year 2042 Existing P.M. Without Project Traffic (Figure 9B)		Year 2042 Existing P.M. Plus Project Traffic (Figure 10B)	
Item	**Street Segment**	**Limits**	**Existing Laneage - Both Directions**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**	**PH Vol (vph) (wb/eb) or (sb/nb)**	**Level of Service (LOS)**
1)	SR 269	I5 NB Ramps/Jayne Ave	2	154/67	B	221/132	B	159/69	B	226/134	B	200/87	B	267/152	C
2)	SR 269	I5 NB Ramps/I5 SB Ramps	2	131/135	B	164/169	B	135/139	B	168/173	B	171/175	B	204/209	B
3)	SR 269	I5 SB Ramps/Avenal Cutoff Rd.	2	129/102	A	130/103	B	133/105	B	134/106	B	168/133	B	169/134	B

TABLE 9a: Freeway Ramp Junction Levels of Service - AM Peak Hour

				A.M. Volumes			Mitigated Ramp (Note 3)	
Item	**Ramp Segment**	**Junction Type**	**Analysis Scenario**	**PH Vol (vph)**	**Density (pc/mi/ln)**	**Level of Service (LOS)**	**Density (pc/mi/ln)**	**Level of Service (LOS)**
1)	SR 269 & I-5 NB On-Ramp	Merge	2021	42	25.1	C	N/A	N/A
			2021 + Project	70	25.1	C	N/A	N/A
			2023	43	25.5	C	N/A	N/A
			2023 + Project	71	25.8	C	N/A	N/A
			2042	55	32.5	D	N/A	N/A
			2042 + Project	83	32.7	D	N/A	N/A
			2042 + Project + Mitigated	83	-	-	20.1	B
2)	SR 269 & I-5 NB Off-Ramp	Diverge	2021	43	27.3	C	N/A	N/A
			2021 + Project	72	27.3	C	N/A	N/A
			2023	44	27.8	C	N/A	N/A
			2023 + Project	73	27.8	C	N/A	N/A
			2042	56	35.4	E	N/A	N/A
			2042 + Project	85	35.4	E	N/A	N/A
			2042 + Project + Mitigated	85	-	-	19.8	B
3)	SR 269 & I-5 SB On-Ramp	Merge	2021	54	25.2	C	N/A	N/A
			2021 + Project	82	25.2	C	N/A	N/A
			2023	56	25.7	C	N/A	N/A
			2023 + Project	84	25.9	C	N/A	N/A
			2042	70	32.6	D	N/A	N/A
			2042 + Project	98	32.8	D	N/A	N/A
			2042 + Project + Mitigated	98	-	-	20.2	B
4)	SR 269 & I-5 SB Off-Ramp	Diverge	2021	25	27.3	C	N/A	N/A
			2021 + Project	54	27.3	C	N/A	N/A
			2023	26	27.8	C	N/A	N/A
			2023 + Project	55	27.8	C	N/A	N/A
			2042	33	35.4	E	N/A	N/A
			2042 + Project	62	35.4	E	N/A	N/A
			2042 + Project + Mitigated	62	-	-	19.8	B

TABLE 9b: Freeway Ramp Junction Levels of Service - PM Peak Hour

Item	Ramp Segment	Junction Type	Analysis Scenario	A.M. Volumes PH Vol (vph)	A.M. Volumes Density (pc/mi/ln)	A.M. Volumes Level of Service (LOS)	Mitigated Ramp (Note 3) Density (pc/mi/ln)	Mitigated Ramp (Note 3) Level of Service (LOS)
1)	SR 269 & I-5 NB On-Ramp	Merge	2021	78	25.4	C	N/A	N/A
			2021 + Project	110	25.6	C	N/A	N/A
			2023	80	25.9	C	N/A	N/A
			2023 + Project	112	26.1	C	N/A	N/A
			2042	101	32.8	D	N/A	N/A
			2042 + Project	133	33.1	D	N/A	N/A
			2042 + Project + Mitigated	133	-	-	20.4	B
2)	SR 269 & I-5 NB Off-Ramp	Diverge	2021	161	27.3	C	N/A	N/A
			2021 + Project	194	27.3	C	N/A	N/A
			2023	166	27.8	C	N/A	N/A
			2023 + Project	199	27.8	C	N/A	N/A
			2042	210	35.4	E	N/A	N/A
			2042 + Project	243	35.4	E	N/A	N/A
			2042 + Project + Mitigated	243	-	-	20.0	B
3)	SR 269 & I-5 SB On-Ramp	Merge	2021	48	25.1	C	N/A	N/A
			2021 + Project	80	25.4	C	N/A	N/A
			2023	49	25.6	C	N/A	N/A
			2023 + Project	81	25.9	C	N/A	N/A
			2042	63	32.5	D	N/A	N/A
			2042 + Project	95	32.8	D	N/A	N/A
			2042 + Project + Mitigated	95	-	-	20.2	B
4)	SR 269 & I-5 SB Off-Ramp	Diverge	2021	62	27.3	C	N/A	N/A
			2021 + Project	95	27.3	C	N/A	N/A
			2023	64	27.8	C	N/A	N/A
			2023 + Project	97	27.8	C	N/A	N/A
			2042	81	35.4	E	N/A	N/A
			2042 + Project	114	35.4	E	N/A	N/A
			2042 + Project + Mitigated	114	-	-	19.9	B

Notes (Table 9a & 9b):

1) For Item #1 and #4 the freeway volume is 2729 vph for Year 2021, 2782 vph for Year 2023, and 3551 vph for Year 2042. The freeway volume was extrapolated from Caltrans' 2019 Traffic Volumes on California State Highways.
2) For Item #2 and #3 the freeway volume is 2730 vph for Year 2021, 2783 vph for Year 2023, and 3551 vph for Year 2042. The freeway volume was extrapolated from Caltrans' 2019 Traffic Volumes on California State Highways.
3) Mitigation for all ramp segments include the addition of one ramp lane & one freeway lane. It should be noted that the mitigation is not funded by the RTIF Program.

C. Traffic Signal Warrant Analysis

Non-signalized intersections within a Project's vicinity are typically analyzed for satisfaction of the Peak Hour Volume Warrant as described in Section 9 of the Caltrans Traffic Manual and the **Manual of Uniform Traffic Control Devices**. A brief explanation of the intersection warrant analysis is provided as follows:

The Manual of Uniform Traffic Control Devices (MUTCD) prescribes "tests" which are conducted to determine the need for installation of a traffic signal. These "tests" are referred to as "warrants". The MUTCD list minimum signal "warrants", which have been adopted by the California Department of Transportation and most California agencies, including the City of Bakersfield and the County of Kern. These "warrants" consist of evaluation of various criteria that have been determined as critical for the installation of a signal. The warrant criterion has been derived empirically.

In actual practice, justification for signal installation is usually based on satisfaction of a number of warrants as well as poor Levels of Service for multiple movements. In keeping within the scope of this traffic study, non-signalized intersections were evaluated for signalization, including expansion of the intersection, based solely on satisfaction of the Peak Hour Signal Warrant described in The Manual of Uniform Traffic Control Devices (MUTCD).

As shown in Table 10 herein, no intersections satisfied the traffic signal warrant.

Table 10: Peak Hour Warrant Analysis

		Year 2020 Existing Volumes (Figure 3)			Year 2020 Existing Volumes Plus Project (Figure 5)			Year 2023 Volumes (Figures 6)		
No.	Existing Non-Signalized Intersection	Highest Minor Approach Volume (vph)	Total Major Approach Volume (vph)	Peak Hour Warrant Satisfied	Highest Minor Approach Volume (vph)	Total Major Approach Volume (vph)	Peak Hour Warrant Satisfied	Highest Minor Approach Volume (vph)	Total Major Approach Volume (vph)	Peak Hour Warrant Satisfied
1)	SR 269 and I-5 SB Ramps AM	25	153	No	54	185	No	26	177	No
	SR 269 and I-5 SB Ramps PM	62	182	No	95	216	No	64	187	No
2)	SR 269 and I-5 NB Ramps AM	43	141	No	72	230	No	44	145	No
	SR 269 and I-5 NB Ramps PM	161	202	No	194	301	No	166	208	No

Table 10: Peak Hour Warrant Analysis (cont.)

		Year 2023 Volumes Plus Project (Figure 7)			Year 2042 Volumes (Figures 8)			Year 2042 Volumes Plus Project (Figure 9)		
No.	Existing Non-Signalized Intersection	Highest Minor Approach Volume (vph)	Total Major Approach Volume (vph)	Peak Hour Warrant Satisfied	Highest Minor Approach Volume (vph)	Total Major Approach Volume (vph)	Peak Hour Warrant Satisfied	Highest Minor Approach Volume (vph)	Total Major Approach Volume (vph)	Peak Hour Warrant Satisfied
1)	SR 269 and I-5 SB Ramps AM	55	190	No	33	198	No	62	230	No
	SR 269 and I-5 SB Ramps PM	97	221	No	81	237	No	114	271	No
2)	SR 269 and I-5 NB Ramps AM	73	234	No	56	183	No	85	272	No
	SR 269 and I-5 NB Ramps PM	199	307	No	210	262	No	243	361	No

V. PROJECT VEHICLE MILES TRAVELED

A. Background

The California Legislature, through Senate Bill 746, Senate Bill 32, and Executive Order, have required the California Environmental Quality Act (CEQA) to consider the effects of a project on the surrounding transportation system, with Vehicle Miles Traveled (VMT) as an appropriate measure of impact. The specific goal is reduction of greenhouse gas emission by reducing reliance on individual vehicles, improving mass transit, and reduction in trip length via denser infill development.

Senate Bill 32 requires the State of California to reduce greenhouse gas emission to 40 percent below 1990 levels by Year 2030; and Executive Order requires reduction of greenhouse gas emission to 90 percent below 1990 levels by Year 2050.

The calculation of VMT of any project, simply put, is the number of project-generated trips multiplied by the travel length of each trip. Obviously, there is no completely precise method for determining VMT for any project prior to development and occupancy; however, the best available data must be used for estimating both project-generated trips and trip length.

B. Project Generated Trips and Trip Length for VMT Calculation

The phenomena of “Capture”, “Pass-by” and “Diverted Link” trips have been previously discussed. However; trip reductions taken for these phenomena for the purpose of Level of Service (LOS) analysis are typically under-represented. To ensure a conservative Level of Service analysis most agencies generally mandate maximum trip reduction rates for the combined effects of “Capture”, “Pass-by” and “Diverted-Link” trips, to around 15 percent. This provides a factor of safety for Level of Service Analysis and development of mitigation. Referencing Table 2 herein, a 15 percent reduction in trips were taken only to avoid double-counting of “pass-bys”. As part of the LOS analysis, there were no deductions taken for either “Capture” or “Diverted Link” trips. However, for fast food counters, gas stations, or convenient stores, it is difficult, if not impossible to find a traffic engineering publication that indicates the combined effect of “pass-by and “diverted-link” trips should be as low as 15 percent. As in one example, the *Institute of Transportation Engineers Trip Generation Manual* (ITE) indicates a PM peak hour “Pass-By” rate of 61 percent for convenience markets. Similarly, the ITE Manual indicates “pass-by” rates of 30 percent for shopping centers, 36 percent for supermarkets, and 50 to 80 percent for convenience stores with gas pumps. Again, these are only the rates of “pass-by” and do not include reductions for “capture” or “diverted link” trips.

Driveway Survey of Travel Center at 44779 Lassen Ave: To properly estimate Project Vehicle Miles Traveled (VMT), the rates of “pass-by” and “diverted link” trips, in addition to the “diverted link” trip origins (either I-5 or SR 269), and diverted trip travel length, must accurately represent the Project. This is especially true for a rural and isolated highway commercial project. To better determine these travel characteristics, a driveway survey was performed at the existing EZ Trip travel center located 1/3-mile south of the project. Although the travel center is south of I-5 and a distance away from the project, considering the lack of any other commercial facility in the vicinity, the trip characteristics should be nearly identical (to that of the Project). The drive survey was performed during the morning peak hour, and yielded the breakdown of traffic into "diverted link", "pass-by", and "primary" trips. As shown in Table 12, the breakdown of trips from the survey resulted in 20 percent as "pass-by", 80 percent as "diverted link", and 0 percent as primary trips. For purposes of calculating VMT, the driveway survey data was broken down between "diverted link" trips and "pass-by" trips, with an associated trip length as follows:

a) Trips originating from northbound I-5, stopping at the Project, and returning to I-5 northbound to continue on to the primary destination: "**Diverted link" trips. – 55.0%. Trip Length – 0.18 miles.**

b) Trips originating from southbound I-5, stopping at the Project, and returning to I-5 southbound to continue on to the primary destination: **"Diverted link" trips – 20.0%. Trip Length – 0.48 miles.**

c) Trips originating from SR 269, stopping at the Project, and returning to SR 269 to continue on to the primary destination: **"Pass-By" trip**. **– 20.0%.**

d) Trips originating from northbound I-5, stopping at the Project and continuing on to SR 269 north to the primary destination: **"Pass-By" trip**. **– 0.0%.**

e) Trips originating from northbound I-5, stopping at the Project and continuing on to SR 269 south to the primary destination: **"Diverted link" trips – 0.0%. Trip Length – 0.33 miles.**

f) Trips originating from southbound I-5, stopping at the Project and continuing on to SR 269 north to the primary destination: **"Pass-By" trip**. **– 5.0%.**

g) Trips originating from southbound I-5, stopping at the Project and continuing on to SR 269 south to the primary destination: **"Diverted link" trips – 0.0%. Trip Length – 0.48 miles.**

h) Trips originating from SR 269, stopping at the Project, and continuing on to northbound I-5 to primary destination: "**Pass-By" trip**. **– 0.0%.**

i) Trips originating from SR 269, stopping at the Project, and continuing on to southbound I-5 to primary destination: **"Pass-By" trip**. **– 0.0%.**

As shown in Table 12, Project generated trips were broken down using the same percentage shown in the above. This breakdown and associated trip lengths were used to calculate Project VMT.

Table 11: Total Vehicle Miles Traveled

Scenario	(Primary Trip) Arriving From	(Primary Trip) Departing To	Trip Type	Percentage of Trips (%)	Vehicle Trips	Distance (mi)	Daily Vehicle Miles Travelled	Annual Vehicle Miles Travelled
A	I-5 NB	I-5 NB	Diverted Link	55%	2,711	0.18	244.0	89,055
B	I-5 SB	I-5 SB	Diverted Link	20%	986	0.5	236.6	86,356
C	SR 269	SR 269	Pass-by	20%	986	N/A	N/A	N/A
D	I-5 NB	SR 269 NB	Pass-by	0%	0	N/A	N/A	N/A
E	I-5 NB	SR 269 SB	Diverted Link	0%	0	0.3	0.0	0
F	I-5 SB	SR 269 NB	Pass-by	5%	246	N/A	N/A	N/A
G	I-5 SB	SR 269 SB	Diverted Link	0%	0	0.48	0.0	0
H	SR 269	I-5 NB	Pass-by	0%	0	N/A	N/A	N/A
I	SR 269	I-5 SB	Pass-by	0%	0	N/A	N/A	N/A
			Total:	100%	4,929		**481**	**175,411**

Note:

Scenarios C, D, F, H, and I are "pass-by's" and therefore do not generate VMTs

VI. TRAFFIC MITIGATION

A. Requirements for Mitigation

Mitigation is normally considered necessary if a particular intersection or street segment, under any existing or future scenario, (with or without the addition of Project-generated traffic), is anticipated to function at a less than Level of Service (LOS) "C". Generally, the objective of traffic mitigation is to restore the Level of Service to a "C" or better.

B. Funding for Mitigation Improvements

A more complicated issue is funding for traffic mitigation improvements, and the Project's obligation or share of those costs. Prior to 1997, needed mitigation improvements were often attached as a *Conditions of Approval* to abutting or nearby land development projects. In theory, these land development projects were the cause of increased traffic and degraded Level of Service, and therefore were responsible for mitigation to restore a satisfactory LOS. In reality, these land development projects often only contributed the last increment of traffic, (or the proverbial last straw), to an existing Level of Service already on threshold of dropping below "C".

Attaching the entirety of mitigation costs rendered many projects economically infeasible and caused land developers to avoid sites that would trigger costly improvements, (such as bridge widening, canal culverts, grade separations, and even traffic signals). This contributed to "leap-frog" development and created a street system with many bottlenecks, since segments remained unimproved, un-widened, or un-signalized.

In 1997, the Metropolitan Bakersfield Transportation Impact Fee (TIF) program was greatly expanded to include and fund a comprehensive list of transportation improvements intended to restore and maintain an overall satisfactory LOS within the metropolitan Bakersfield area as well as some main corridors well beyond the City limits. A nexus study at that time calculated the cost of that comprehensive improvement list, and derived fees for all new development to fund said list. In theory, all new land development, to include residential homes and commercial sites, with payment of the RTIF, would fund engineering, right of way acquisition, and construction of traffic mitigation improvements identified by the RTIF program. Although new development was still burdened with the majority of the cost of constructing the RTIF improvement list, it was more palatable to land developers since the cost was spread equally to all projects. Since 1997, the RTIF program has been updated to account for inflation in construction costs.

Generally, the RTIF program funds road widening and intersection signalization for all main arterials, again with the intent of maintaining an overall satisfactory LOS. In addition, the RTIF also funds high-cost items such as bridges, canal culverts and grade separations.

Although the RTIF program is intended to be comprehensive, it is still the obligation of any TIS to substantiate that traffic impact from new developments is mitigated. This includes validating those improvements listed in the RTIF program are sufficient to improve affected facilities to a LOS of "C" or better. If the improvements listed on the RTIF program are insufficient, or incomplete, additional improvements must be identified by the TIS. This is the part of the scope of this study, and any development related TIS.

If RTIF funded improvements are proven sufficient to mitigate traffic for a specific project, then the Project's only obligation is to pay the Regional Transportation Impact Fee. However, a project must contribute funding for additional mitigation if the following conditions are met: 1) Project-generated traffic degrades the LOS to less than "C"; 2) The Project degrades any facility, already operating at less than "C", to a lower LOS; and 3) Improvements necessary to mitigate the facility are not included and funded by the RTIF program. In these cases, the Project must contribute its pro-rata share of the mitigation cost. The derivation of Project share is discussed in detail in the following section.

C. Project's Pro-Rata Share of Mitigation

Again, in a condition where degradation of a facility's LOS to less than "C" is directly attributable to the Project, and the RITF program does not fund specific improvements, the Project is obligated to pay its pro-rata share of needed mitigation. It is noted that in these cases, if a facility's LOS was a "C" or better prior to the addition of project-generated traffic, the required mitigation is to restore the LOS to a "C" or better. If the facilities existing LOS was a "D" or worse, mitigation is only required to restore the LOS to a pre-project condition.

Generally, the Project's pro-rata share of mitigation improvement cost is computed as the ratio of Project traffic to future traffic in the Year 2042. Year 2042 volume is considered as the "Base" volume plus Project-generated traffic. In other words, in the pro-rata share calculation, Project-generated traffic is the numerator and the total Year 2042 traffic volume is the denominator. There are a number of agency variations of this formula to determine Project share of mitigation.

D. Proposed Mitigation

As discussed in detail earlier in this report, a poor operational Level of Service for multiple movements, and satisfaction of the Peak Hour Warrant were considered justification for installation of a traffic signal or upgrading an existing signalized intersection (to full expansion in accordance with all local standards).

Degradation of the LOS of a street segment to less than "C", whether or not attributable to Project-traffic, was considered justification for mitigation. However, as discussed, the Project's obligation for funding mitigation is based on a number of factors, including the Project's pro-rata share of traffic, and the existing and future Level of Service without the addition of Project-generated traffic.

The actual proposed mitigation improvements are based on the estimated future year traffic, in this case, Year 2042.

It should be noted that in the analysis of an intersection, every through and turning movement is evaluated for its own Level of Service. However, the average estimated delay of all vehicles passing through the intersection is used to determine a composite, or average Level of Service. The composite level of service is used to determine if mitigation is required. In the following, the need for mitigation is discussed for every intersection and street segment within the scope of this study.

Intersections:

1. **Intersection of I-5 NB Ramps and SR 269:** At this intersection, the I-5 NB off ramp "approach" is stop-controlled. As shown in Table 7, this intersection, under any present or future traffic scenario, with or without the addition of Project-generated traffic, does not degrade to a Level of Service less than "A". In addition, the Peak Hour Signal Warrant is not satisfied under any present or future scenario.

   Therefore, no mitigation is recommended for this intersection.

2. **Intersection of I-5 SB Ramps and SR 269:** At this intersection, the I-5 SB off ramp "approach" is stop-controlled. As shown in Table 7, this intersection, under any present or future traffic scenario, with or without the addition of Project-generated traffic, does not degrade to a Level of Service less than "A". In addition, the Peak Hour Signal Warrant is not satisfied under any present or future scenario.

   Therefore, no mitigation is recommended for this intersection.

3. **Intersection of SR 269 and the Project Entrance:** At this intersection, the Project entrance is stop-controlled. As shown in Table 7, this intersection, under any present or future traffic scenario, with or without the addition of Project-generated traffic, does not degrade to a Level of Service less than "A". In addition, the Peak Hour Signal Warrant is not satisfied under any present or future scenario.

   Therefore, no mitigation is recommended for this intersection.

Street Segments:

1. **SR 269:** As shown in Table 8, SR 269, under any present or future traffic scenario, with or without the addition of Project-generated traffic, never dropped to a Level of Service less than "C".

   Therefore, no mitigation is recommended for this intersection.

Freeway Ramps:

1. As shown on Table 9, without the addition of Project-Generated traffic, the present-day Level of Service of all ramps calculated to a "C". Again, without the addition of Project-generated traffic, by the Year 2042 the LOS is anticipated to degrade to a "D" and "E" for the on and off-ramps respectively. In any present or future scenario, the addition of Project-generated traffic did not further degrade the LOS. Therefore, the Project should have no obligation to fund mitigation for freeway ramps.

However, under any present day or future scenario, the addition of one lane to freeway ramps and one lane to I-5 has been calculated to improve the LOS to a "B" or better.

VII. CONCLUSIONS & RECOMMENDATIONS

The analysis herein has shown that the addition of Project-generated traffic, in any present day or future scenario, does not cause any intersection, street segment, or freeway ramp to degrade to a LOS less than the existing condition. With the exception of the freeway ramps, the analysis indicated all intersections and street segment and intersection will function at a Level of Service above "C", with or without the Project through the Year 2042.

All freeway ramps, under present day traffic volumes function at a Level of Service "C". The addition of Project-generated traffic to present day and opening day traffic (Year 2022), does not degrade the LOS further. Estimated future year traffic, (Year 2042), without the addition of Project-generated traffic, will degrade all ramps to a Level of Service of "D" and "E" for the on and off-ramps respectively. The addition of Project-generated traffic to Year 2042 traffic does not degrade the Level of Service further. Mitigation, being one additional lane to the ramp and I-5, has been shown herein to improve the Level of Service in any future year scenario to a "B". Since degradation of ramp LOS is not attributable to the Project, there should be no obligation for funding additional traffic mitigation improvements.

The VMT analysis herein has also shown that the majority of trips are "diverted link" trips originating from the freeway. The balance of trips, with the exception of employees, are "pass-bys" adding no vehicle miles traveled. The "diverted link" trips have been estimated to yield 481 daily vehicle miles traveled. However, it can be argued that these VMT would be "used" at another fueling station, if the Project was not developed, and given the proximity of the fueling station to the freeway, fueling at another location could conceivably generated more VMT.

Finally, the calculations and "findings" of this report have shown that with implementation of mitigation currently funded by the Regional Transportation Impact Fee Program, the impact of the Project to its surrounding street network will be "less-than-significant".

Appendix “A”
Exhibits and Figures

FIGURE 1

PROJECT LOCATION AND EXISTING STREET NETWORK

LEGEND

- EXISTING FREEWAY
- EXISTING STREETS
- T EXISTING STOP SIGN
- 2U TWO LANE UNDIVIDED
- 4D FOUR LANE DIVIDED
- INTERSECTION STUDIED

NORTH

0 1/8 mi 1/4 mi

DATE: MARCH 2021

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FIGURE 2

YEAR 2021 EXISTING
A.M. PEAK HOUR VOLUMES
AND TURNING MOVEMENTS

LEGEND:

EXISTING FREEWAY

EXISTING STREETS

XX SEGMENT VOLUME – PEAK HOUR

INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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FIGURE 3

YEAR 2021 EXISTING
P.M. PEAK HOUR VOLUMES
AND TURNING MOVEMENTS

LEGEND:

EXISTING FREEWAY

EXISTING COLLECTOR STREET

XX SEGMENT VOLUME – PEAK HOUR

INTERSECTION TURNING MOVEMENTS

DATE: March 2021

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FIGURE 4A

A.M.PROJECT GENERATED TRAFFIC

LEGEND:

EXISTING FREEWAY

EXISTING ARTERIAL STREET

EXISTING COLLECTOR STREET

XX SEGMENT VOLUME – PEAK HOUR

INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

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FIGURE 4B

P.M. PROJECT GENERATED TRAFFIC

LEGEND:

EXISTING FREEWAY

EXISTING ARTERIAL STREET

EXISTING COLLECTOR STREET

XX SEGMENT VOLUME – PEAK HOUR

INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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FIGURE 5A

A.M.PROJECT GENERATED TRAFFIC WITH PASS-BY DEDUCTIONS ON SR-269

LEGEND:

EXISTING FREEWAY

EXISTING ARTERIAL STREET

EXISTING COLLECTOR STREET

XX SEGMENT VOLUME – PEAK HOUR

INTERSECTION TURNING MOVEMENTS

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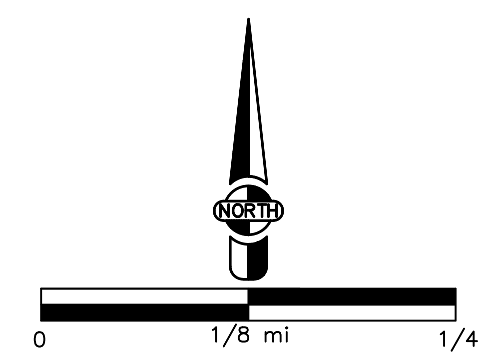
FIGURE 5B

P.M. PROJECT GENERATED TRAFFIC WITH PASS-BY DEDUCTIONS ON SR-269

LEGEND:

EXISTING FREEWAY
EXISTING ARTERIAL STREET
EXISTING COLLECTOR STREET
XX SEGMENT VOLUME – PEAK HOUR
INTERSECTION TURNING MOVEMENTS



DATE: March 2021

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FIGURE 6A

YEAR 2021 A.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS PLUS PROJECT GENERATED TRAFFIC

LEGEND:

- EXISTING FREEWAY
- EXISTING ARTERIAL STREET
- EXISTING COLLECTOR STREET
- XX SEGMENT VOLUME – PEAK HOUR
- INTERSECTION TURNING MOVEMENTS

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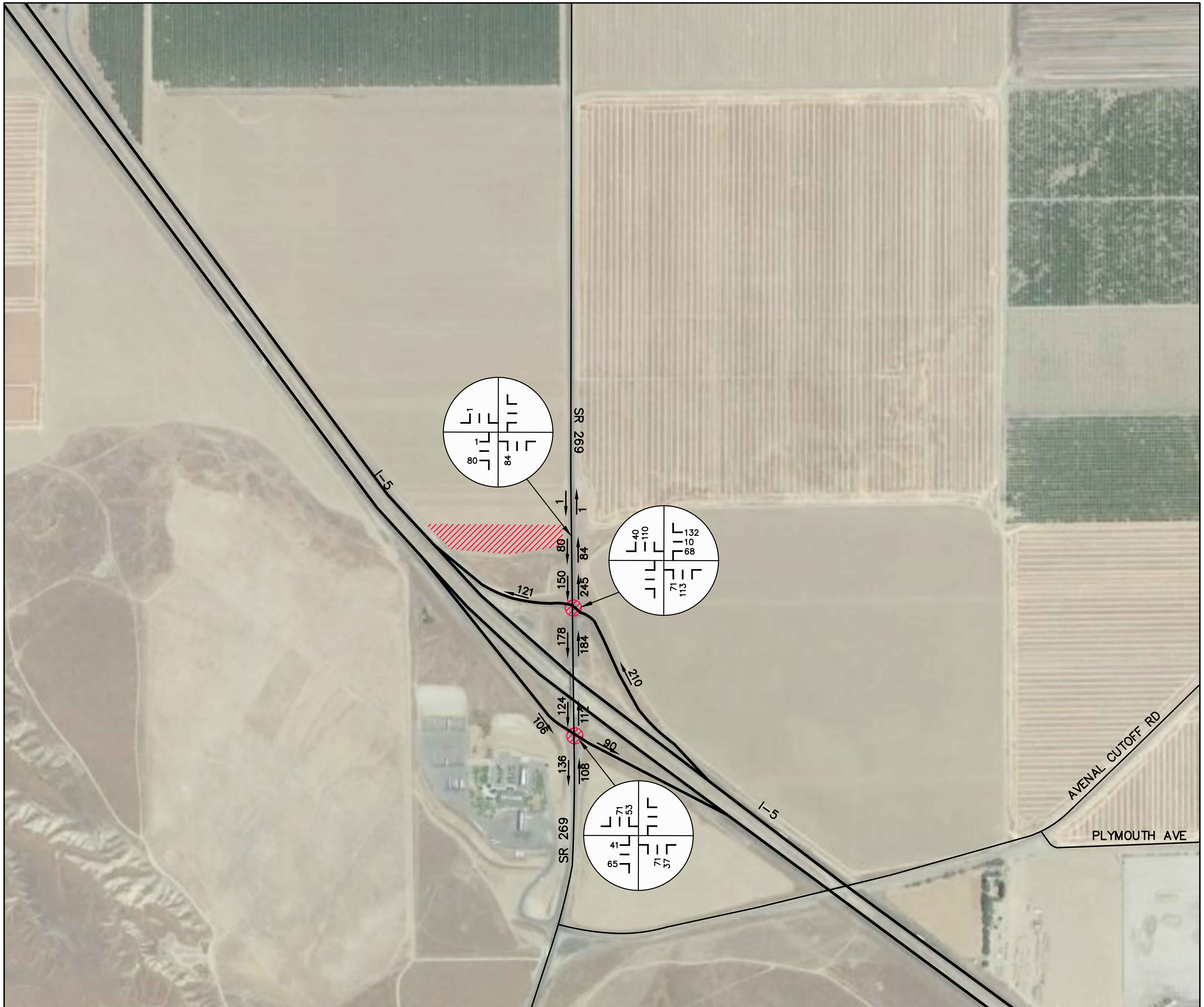

FIGURE 6B

YEAR 2021 P.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS PLUS PROJECT GENERATED TRAFFIC

LEGEND:

EXISTING FREEWAY
EXISTING ARTERIAL STREET
EXISTING COLLECTOR STREET
XX SEGMENT VOLUME – PEAK HOUR
INTERSECTION TURNING MOVEMENTS

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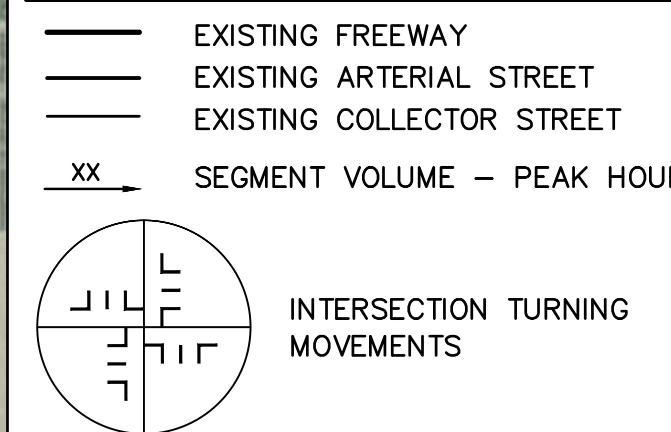
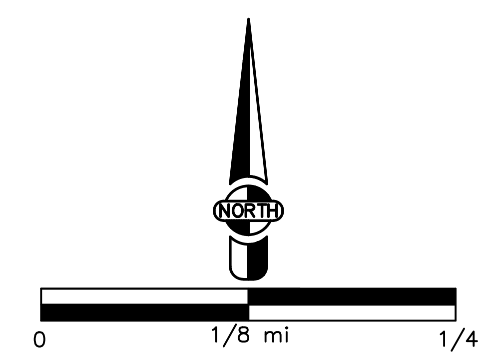
FIGURE 7A

YEAR 2023 EXISTING A.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS (OPENING DAY)

LEGEND:





DATE: March 2021

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FIGURE 7B

YEAR 2023 EXISTING P.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS (OPENING DAY)

LEGEND:

- EXISTING FREEWAY
- EXISTING ARTERIAL STREET
- EXISTING COLLECTOR STREET
- XX — SEGMENT VOLUME – PEAK HOUR
- INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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FIGURE 8A

YEAR 2023 A.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS PLUS PROJECT GENERATED TRAFFIC (OPENING DAY)

LEGEND:

- EXISTING FREEWAY
- EXISTING ARTERIAL STREET
- EXISTING COLLECTOR STREET
- XX SEGMENT VOLUME – PEAK HOUR
- INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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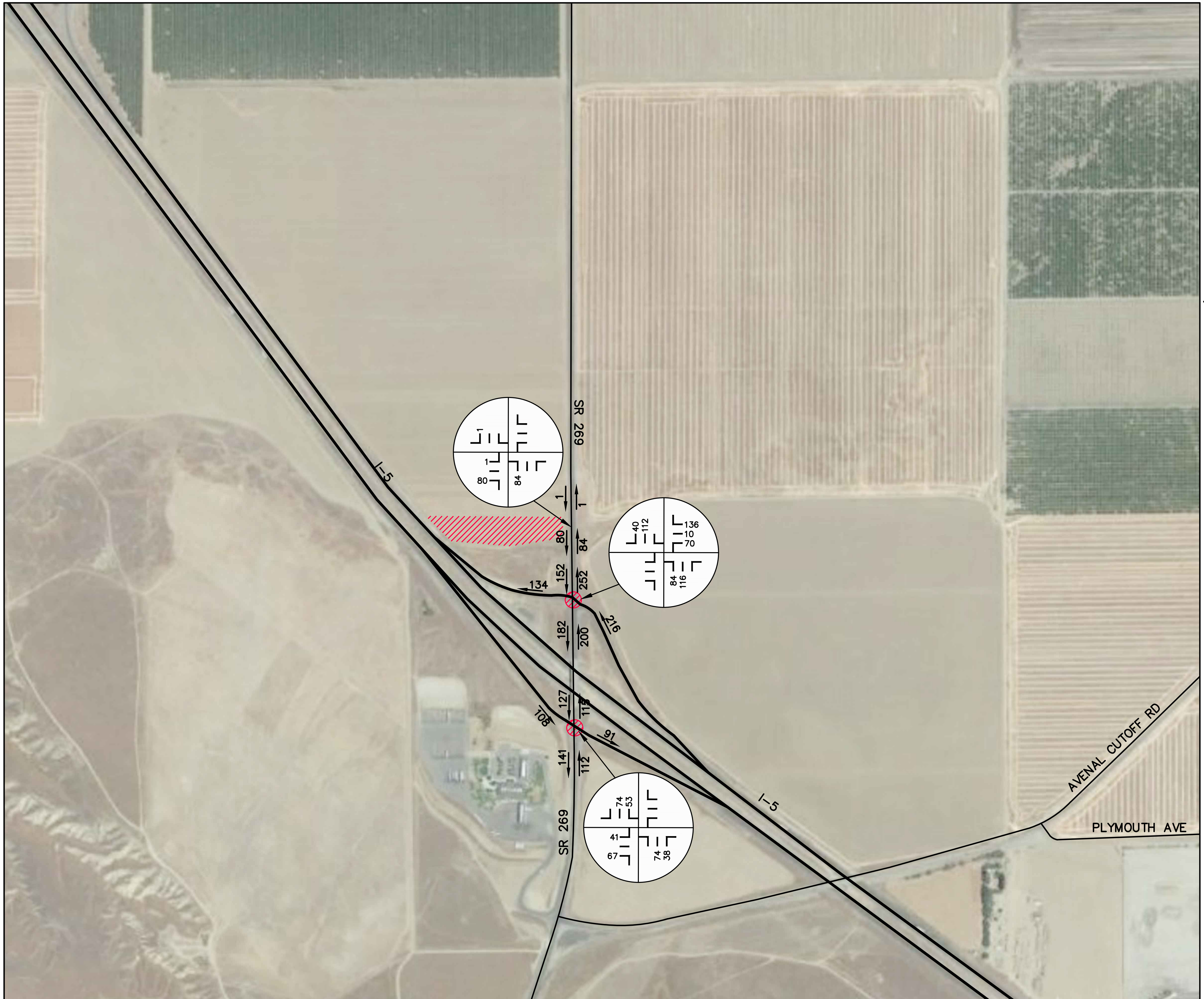
FIGURE 8B

YEAR 2023 P.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS PLUS PROJECT GENERATED TRAFFIC (OPENING DAY)



LEGEND:

EXISTING FREEWAY
EXISTING ARTERIAL STREET
EXISTING COLLECTOR STREET
SEGMENT VOLUME – PEAK HOUR
INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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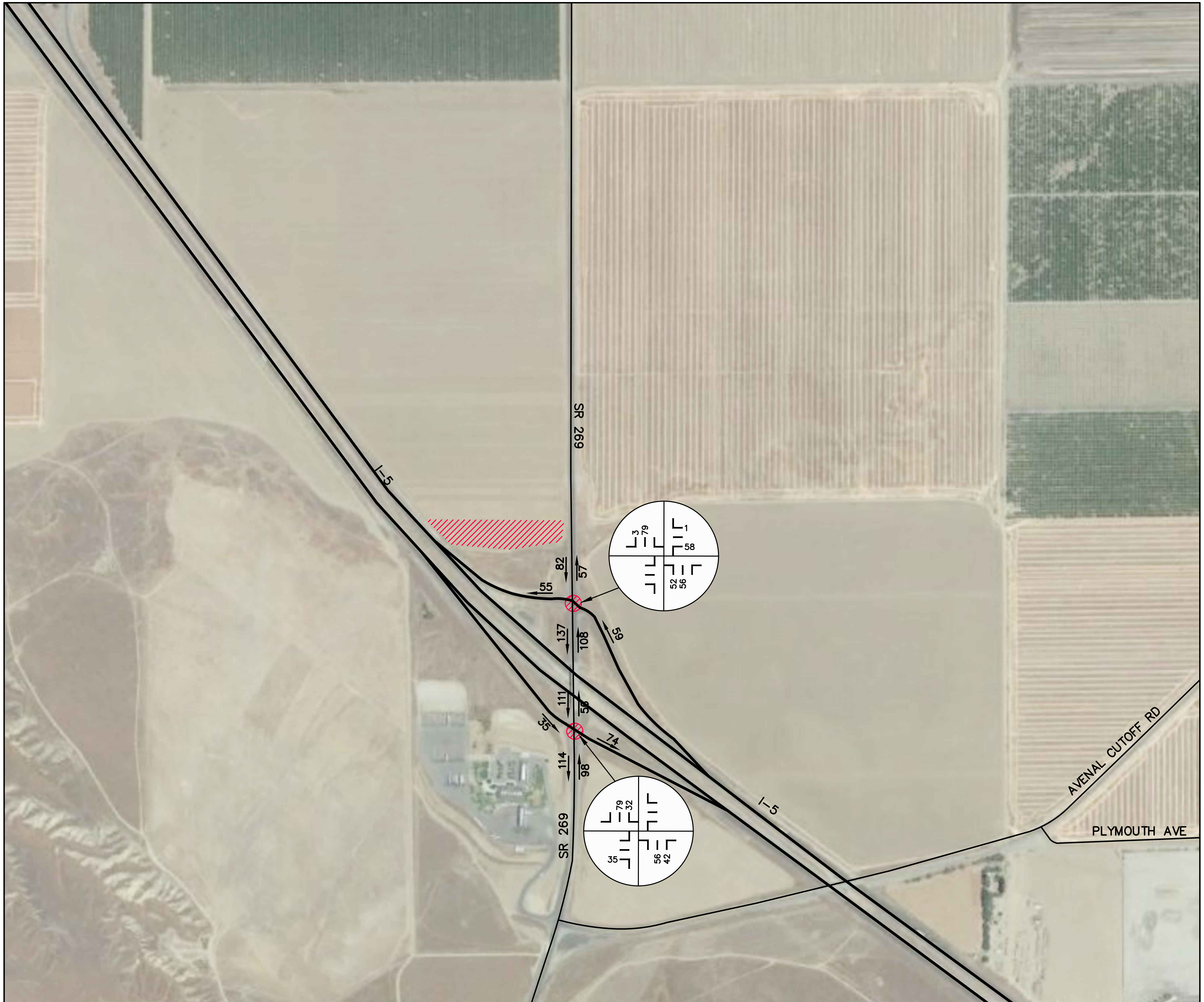
FIGURE 9A

YEAR 2042 EXISTING A.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS



LEGEND:

- EXISTING FREEWAY
- EXISTING ARTERIAL STREET
- EXISTING COLLECTOR STREET
- XX SEGMENT VOLUME – PEAK HOUR
- INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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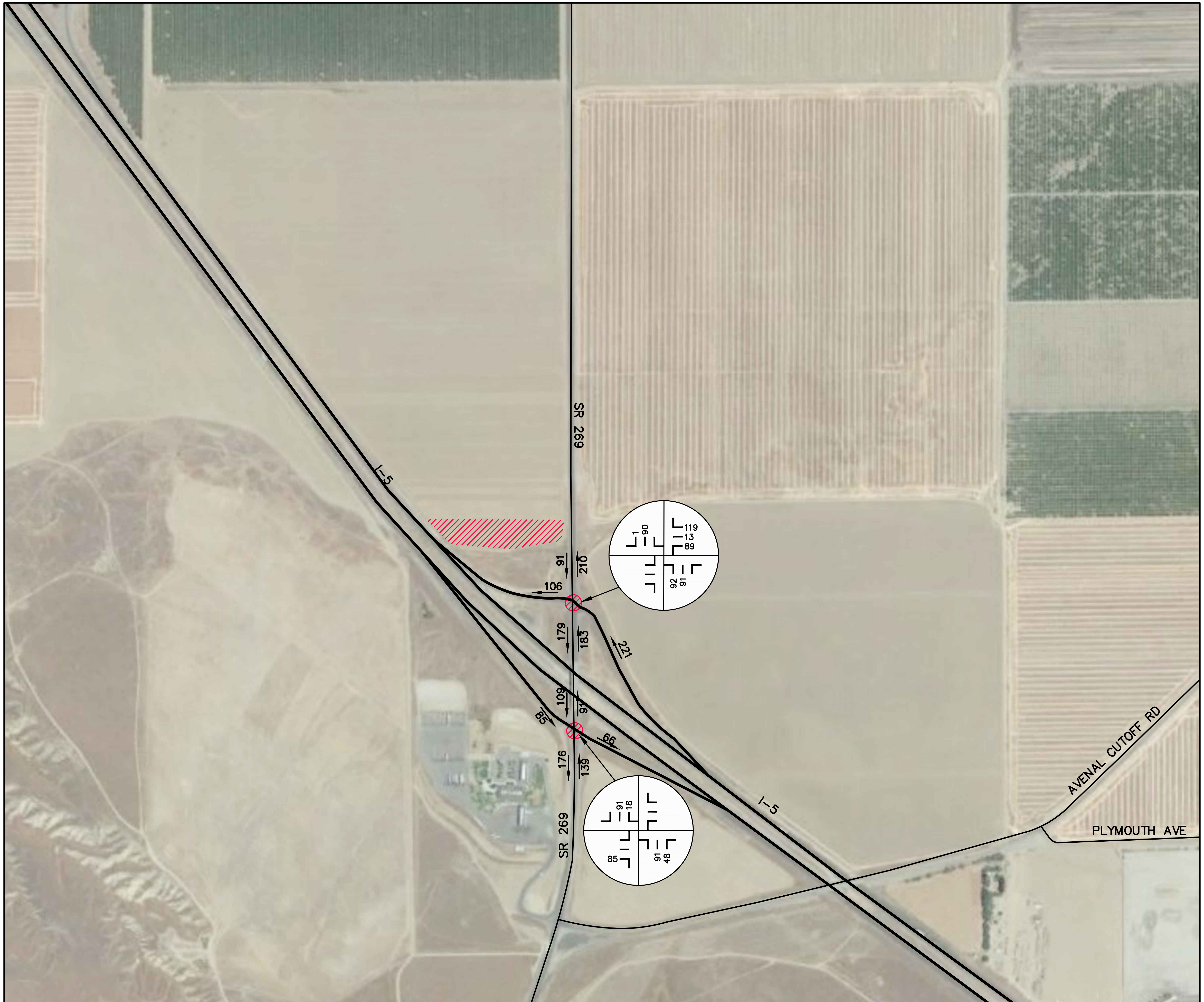
FIGURE 9B

YEAR 2042 EXISTING P.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS



LEGEND:

EXISTING FREEWAY

EXISTING ARTERIAL STREET

EXISTING COLLECTOR STREET

XX SEGMENT VOLUME – PEAK HOUR

INTERSECTION TURNING MOVEMENTS

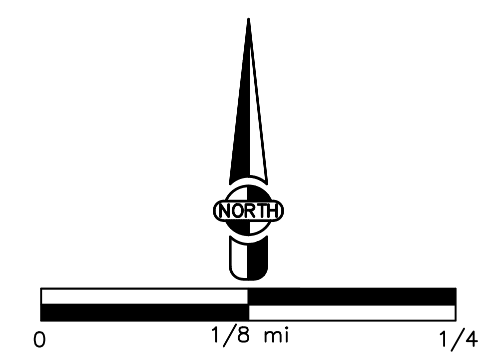


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FIGURE 10A

YEAR 2042 A.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS PLUS PROJECT GENERATED TRAFFIC

LEGEND:

EXISTING FREEWAY
EXISTING ARTERIAL STREET
EXISTING COLLECTOR STREET
XX SEGMENT VOLUME – PEAK HOUR
INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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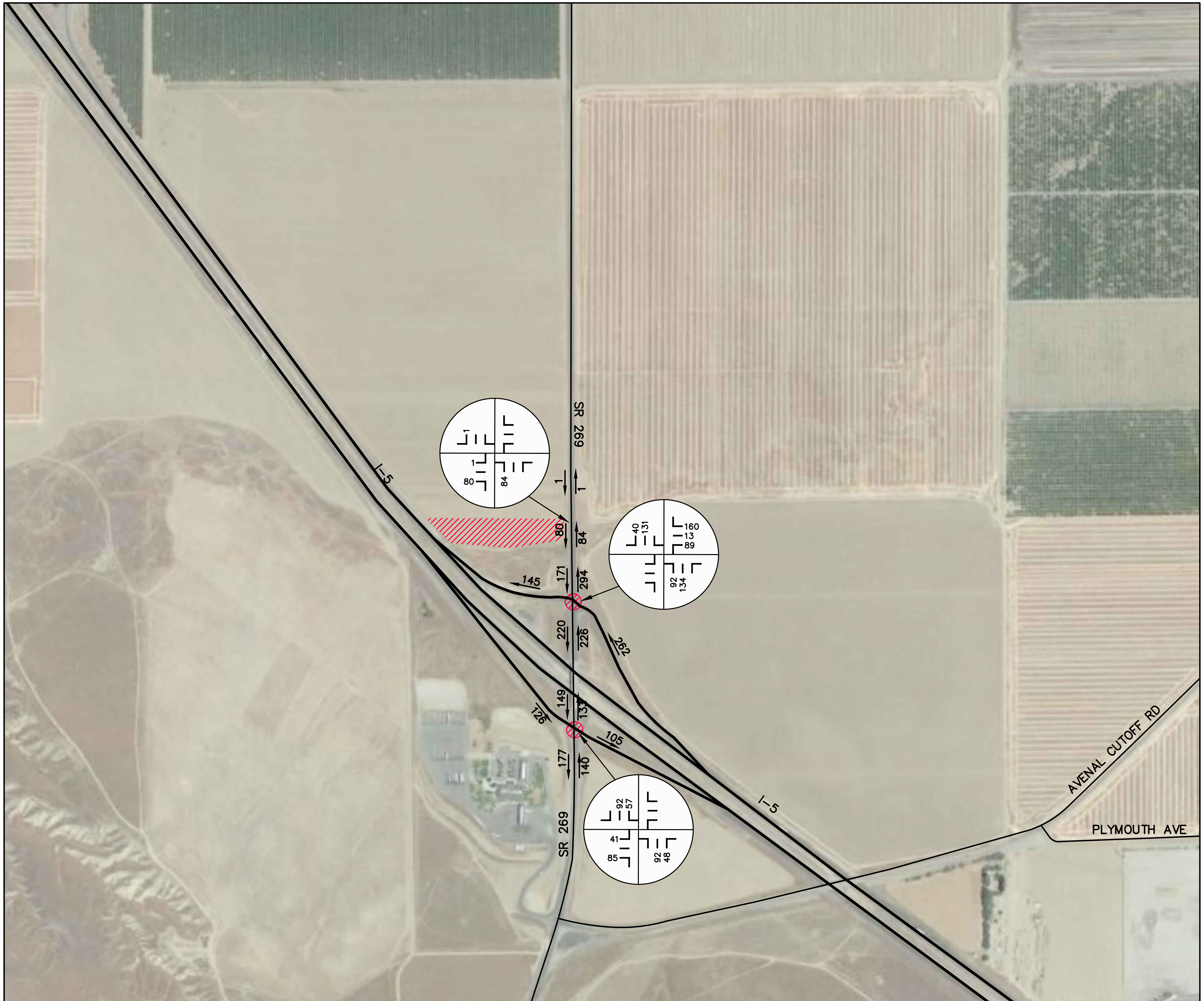
FIGURE 10B

YEAR 2042 P.M. PEAK HOUR VOLUMES AND TURNING MOVEMENTS PLUS PROJECT GENERATED TRAFFIC



LEGEND:

- EXISTING FREEWAY
- EXISTING ARTERIAL STREET
- EXISTING COLLECTOR STREET
- XX → SEGMENT VOLUME – PEAK HOUR
- INTERSECTION TURNING MOVEMENTS

NORTH

0 1/8 mi 1/4 mi

DATE: March 2021

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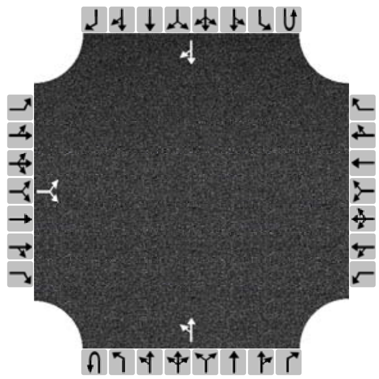
Appendix “B”
LOS Calculations

Intersections

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	269 & Project
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	Project Entrance
Analysis Year	2021	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	SR-269 & Project Entrance + Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		1		58						60	0				0	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

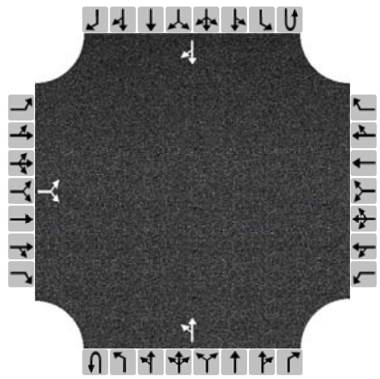
Flow Rate, v (veh/h)			67							68						
Capacity, c (veh/h)			1076							1613						
v/c Ratio			0.06							0.04						
95% Queue Length, Q_{95} (veh)			0.2							0.1						
Control Delay (s/veh)			8.6							7.3						
Level of Service, LOS			A							A						
Approach Delay (s/veh)	8.6								7.3							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information / Site Information

General Information		Site Information	
Analyst	DMBR	Intersection	269 & Project
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	Project Entrance
Analysis Year	2023	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	SR-269 & Project Entrance + Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		1		58						60	0				0	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Movement	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Movement	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)			67							68						
Capacity, c (veh/h)			1076							1613						
v/c Ratio			0.06							0.04						
95% Queue Length, Q_{95} (veh)			0.2							0.1						
Control Delay (s/veh)			8.6							7.3						
Level of Service, LOS			A							A						
Approach Delay (s/veh)	8.6								7.3							
Approach LOS	A															

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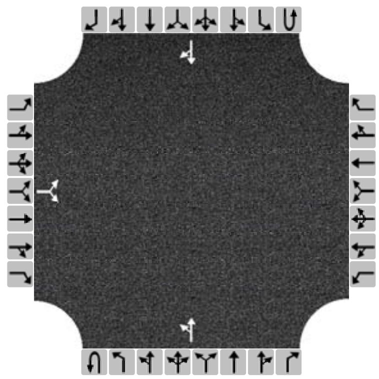
269 & Poject Entrance AM 2023+Project.xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	269 & Project
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	Project Entrance
Analysis Year	2042	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	SR-269 & Project Entrance + Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		1		58						60	0				0	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

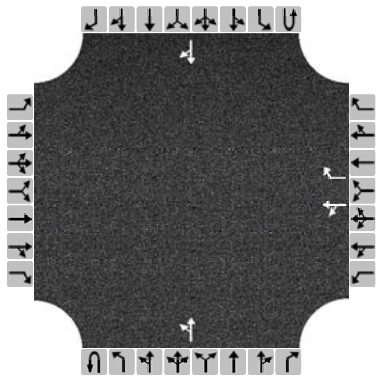
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			67							68						
Capacity, c (veh/h)			1076							1613						
v/c Ratio			0.06							0.04						
95% Queue Length, Q_{95} (veh)			0.2							0.1						
Control Delay (s/veh)			8.6							7.3						
Level of Service, LOS			A							A						
Approach Delay (s/veh)	8.6								7.3							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/29/2021	East/West Street	I5 NB Ramps
Analysis Year	2021	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						44	0	1		42	43				61	2
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

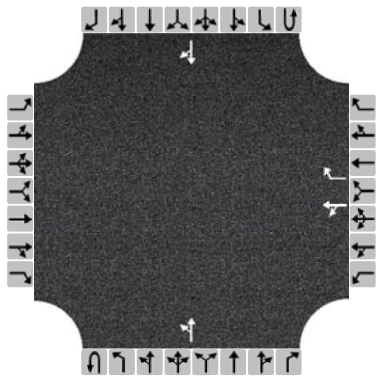
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						50		1		48						
Capacity, c (veh/h)						771		1016		1521						
v/c Ratio						0.06		0.00		0.03						
95% Queue Length, Q_{95} (veh)						0.2		0.0		0.1						
Control Delay (s/veh)						10.0		8.5		7.4						
Level of Service, LOS						A		A		A						
Approach Delay (s/veh)					10.0				3.8							
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 NB Ramps
Analysis Year	2021	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269 + PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						42	0	30		40	72				88	30
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

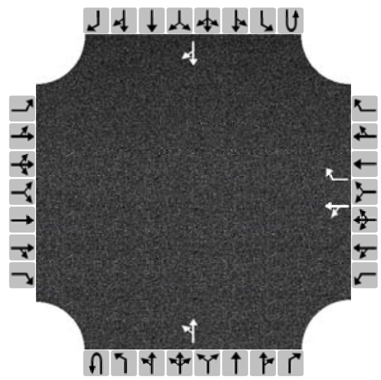
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						48		34		45						
Capacity, c (veh/h)						699		974		1443						
v/c Ratio						0.07		0.03		0.03						
95% Queue Length, Q_{95} (veh)						0.2		0.1		0.1						
Control Delay (s/veh)						10.5		8.8		7.6						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					9.8				2.8							
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 NB Ramps
Analysis Year	2023	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						43	0	1		41	42				60	2
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

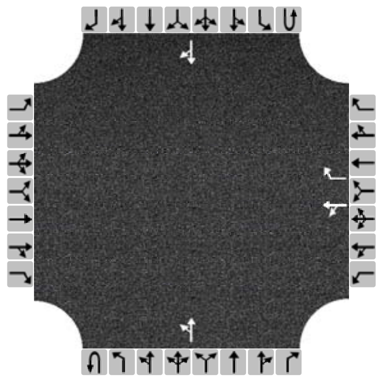
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						49		1		47						
Capacity, c (veh/h)						775		1017		1522						
v/c Ratio						0.06		0.00		0.03						
95% Queue Length, Q_{95} (veh)						0.2		0.0		0.1						
Control Delay (s/veh)						10.0		8.5		7.4						
Level of Service, LOS						A		A		A						
Approach Delay (s/veh)					9.9				3.8							
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 NB Ramps
Analysis Year	2023	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269 + PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						43	0	30		41	73				90	30
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

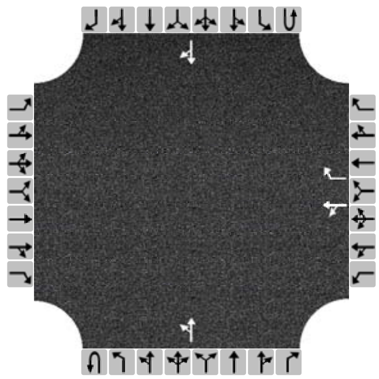
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						49		34		47						
Capacity, c (veh/h)						693		973		1440						
v/c Ratio						0.07		0.03		0.03						
95% Queue Length, Q_{95} (veh)						0.2		0.1		0.1						
Control Delay (s/veh)						10.6		8.8		7.6						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					9.9				2.9							
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 NB Ramps
Analysis Year	2042	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						55	0	1		52	53				75	3
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

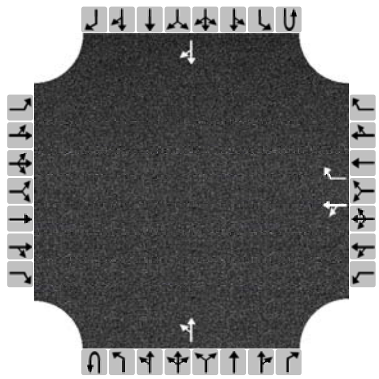
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)						62		1		59						
Capacity, c (veh/h)						722		1002		1500						
v/c Ratio						0.09		0.00		0.04						
95% Queue Length, Q_{95} (veh)						0.3		0.0		0.1						
Control Delay (s/veh)						10.5		8.6		7.5						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.4				3.9							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 NB Ramps
Analysis Year	2042	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						55	0	30		52	84				105	31
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

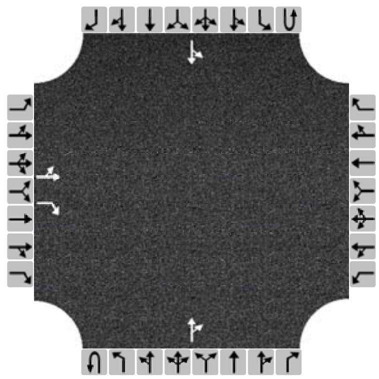
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						62		34		59						
Capacity, c (veh/h)						645		958		1419						
v/c Ratio						0.10		0.04		0.04						
95% Queue Length, Q_{95} (veh)						0.3		0.1		0.1						
Control Delay (s/veh)						11.2		8.9		7.6						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.4				3.1							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/29/2021	East/West Street	I5 SB Ramp
Analysis Year	2021	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		0	0	26							43	33		24	61	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

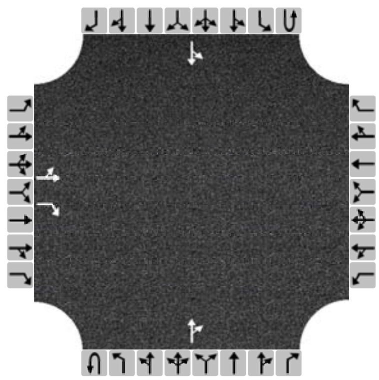
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)		0		30										27		
Capacity, c (veh/h)		0		990										1501		
v/c Ratio				0.03										0.02		
95% Queue Length, Q_{95} (veh)				0.1										0.1		
Control Delay (s/veh)		5.0		8.7										7.4		
Level of Service, LOS		A		A										A		
Approach Delay (s/veh)	8.7												2.2			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 SB Ramp
Analysis Year	2021	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		29	0	25							43	31		51	60	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

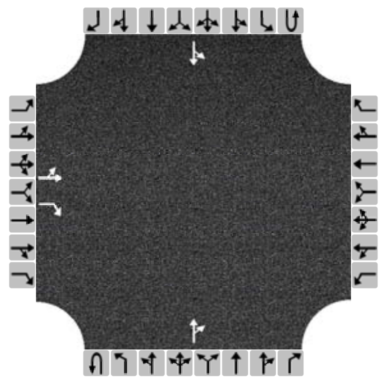
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33		28										58		
Capacity, c (veh/h)		736		992										1505		
v/c Ratio		0.04		0.03										0.04		
95% Queue Length, Q_{95} (veh)		0.1		0.1										0.1		
Control Delay (s/veh)		10.1		8.7										7.5		
Level of Service, LOS		B		A										A		
Approach Delay (s/veh)	9.5												3.6			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 SB Ramp
Analysis Year	2023	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		0	0	26							42	32		24	60	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

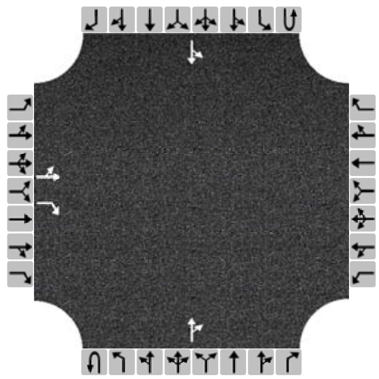
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0		30										27		
Capacity, c (veh/h)		0		992										1505		
v/c Ratio				0.03										0.02		
95% Queue Length, Q_{95} (veh)				0.1										0.1		
Control Delay (s/veh)		5.0		8.7										7.4		
Level of Service, LOS		A		A										A		
Approach Delay (s/veh)	8.7												2.2			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 SB Ramp
Analysis Year	2023	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		29	0	26							44	32		52	62	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

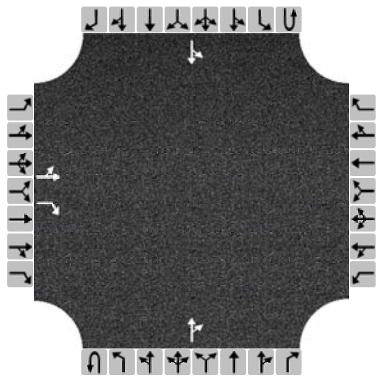
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33		30										59		
Capacity, c (veh/h)		730		989										1502		
v/c Ratio		0.05		0.03										0.04		
95% Queue Length, Q_{95} (veh)		0.1		0.1										0.1		
Control Delay (s/veh)		10.2		8.8										7.5		
Level of Service, LOS		B		A										A		
Approach Delay (s/veh)	9.5												3.6			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 SB Ramp
Analysis Year	2042	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		0	0	33							53	40		30	75	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

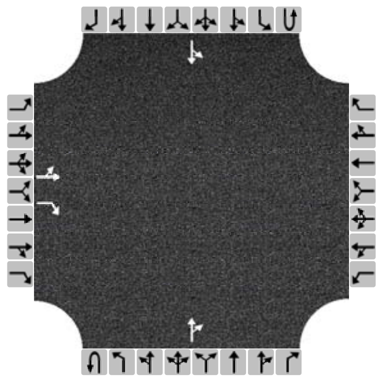
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0		38										34		
Capacity, c (veh/h)		0		970										1478		
v/c Ratio				0.04										0.02		
95% Queue Length, Q_{95} (veh)				0.1										0.1		
Control Delay (s/veh)		5.0		8.9										7.5		
Level of Service, LOS		A		A										A		
Approach Delay (s/veh)	8.9												2.3			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 SB Ramp
Analysis Year	2042	North/South Street	269
Time Analyzed	AM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		29	0	33							55	40		58	77	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

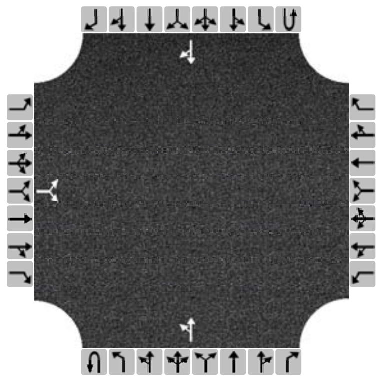
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33		38										66		
Capacity, c (veh/h)		685		967										1476		
v/c Ratio		0.05		0.04										0.04		
95% Queue Length, Q_{95} (veh)		0.2		0.1										0.1		
Control Delay (s/veh)		10.5		8.9										7.6		
Level of Service, LOS		B		A										A		
Approach Delay (s/veh)	9.6												3.4			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	269 & Project
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	Project Entrance
Analysis Year	2021	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	SR-269 & Project Entrance + Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		1		65						67	0				0	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

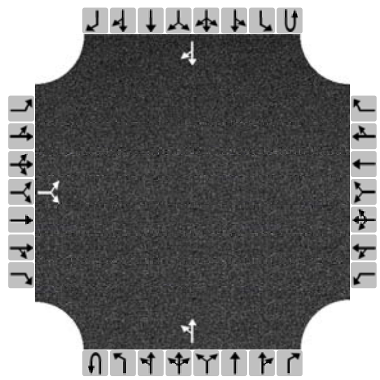
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			75							76						
Capacity, c (veh/h)			1076							1613						
v/c Ratio			0.07							0.05						
95% Queue Length, Q_{95} (veh)			0.2							0.1						
Control Delay (s/veh)			8.6							7.3						
Level of Service, LOS			A							A						
Approach Delay (s/veh)	8.6								7.3							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	269 & Project
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	Project Entrance
Analysis Year	2023	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	SR-269 & Project Entrance + Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		1		65						67	0				0	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Approach	Eastbound				Westbound				Northbound				Southbound			
Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

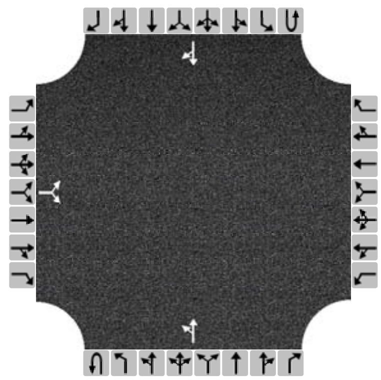
Delay, Queue Length, and Level of Service

Approach	Eastbound				Westbound				Northbound				Southbound			
Flow Rate, v (veh/h)			75							76						
Capacity, c (veh/h)			1076							1613						
v/c Ratio			0.07							0.05						
95% Queue Length, Q_{95} (veh)			0.2							0.1						
Control Delay (s/veh)			8.6							7.3						
Level of Service, LOS			A							A						
Approach Delay (s/veh)	8.6								7.3							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	269 & Project
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	Project Entrance
Analysis Year	2042	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	SR-269 & Project Entrance + Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		1		65						67	0				0	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

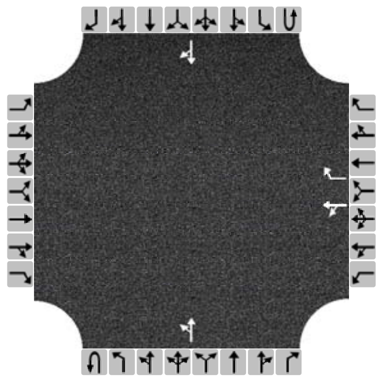
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			75							76						
Capacity, c (veh/h)			1076							1613						
v/c Ratio			0.07							0.05						
95% Queue Length, Q_{95} (veh)			0.2							0.1						
Control Delay (s/veh)			8.6							7.3						
Level of Service, LOS			A							A						
Approach Delay (s/veh)	8.6								7.3							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.		Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 NB Ramps
Analysis Year	2021	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						65	9	87		68	67				66	1
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

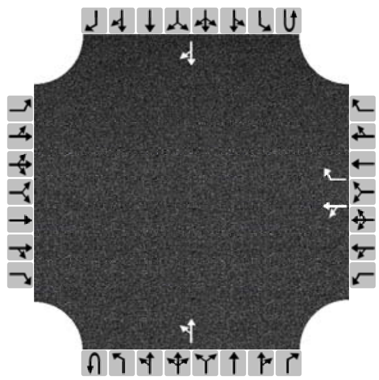
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						84		99		77						
Capacity, c (veh/h)						668		982		1515						
v/c Ratio						0.13		0.10		0.05						
95% Queue Length, Q_{95} (veh)						0.4		0.3		0.2						
Control Delay (s/veh)						11.2		9.1		7.5						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.0				4.0							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 NB Ramps
Analysis Year	2021	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						65	9	120		68	101				99	33
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

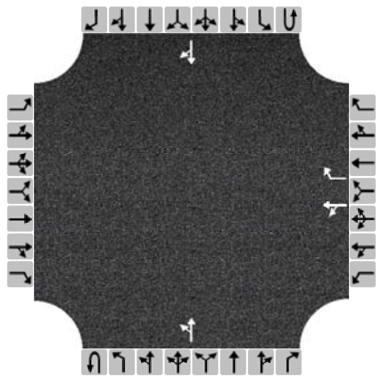
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						84		136		77						
Capacity, c (veh/h)						588		934		1423						
v/c Ratio						0.14		0.15		0.05						
95% Queue Length, Q_{95} (veh)						0.5		0.5		0.2						
Control Delay (s/veh)						12.1		9.5		7.7						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.5				3.3							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 NB Ramps
Analysis Year	2023	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						67	9	90		70	69				68	1
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

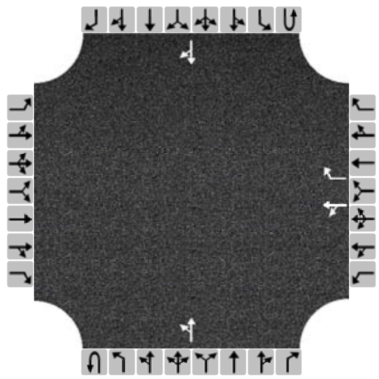
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						86		102		80						
Capacity, c (veh/h)						660		979		1512						
v/c Ratio						0.13		0.10		0.05						
95% Queue Length, Q_{95} (veh)						0.4		0.3		0.2						
Control Delay (s/veh)						11.3		9.1		7.5						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.1				4.0							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 NB Ramps
Analysis Year	2023	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						67	9	123		70	103				101	33
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Movement	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

Delay, Queue Length, and Level of Service

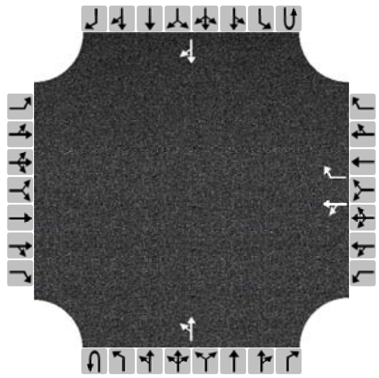
Movement	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)						86		140		80						
Capacity, c (veh/h)						580		932		1420						
v/c Ratio						0.15		0.15		0.06						
95% Queue Length, Q_{95} (veh)						0.5		0.5		0.2						
Control Delay (s/veh)						12.3		9.5		7.7						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.6				3.4							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information / Site Information

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 NB Ramps
Analysis Year	2042	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						85	12	113		88	87				86	1
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

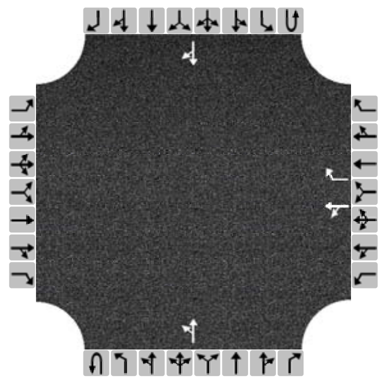
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)						111		128		100						
Capacity, c (veh/h)						589		953		1486						
v/c Ratio						0.19		0.13		0.07						
95% Queue Length, Q_{95} (veh)						0.7		0.5		0.2						
Control Delay (s/veh)						12.5		9.4		7.6						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					10.8				4.1							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 NB Ramps
Analysis Year	2042	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	0	1	0	0	0	1	0
Configuration						LT		R		LT						TR
Volume, V (veh/h)						85	12	146		88	121				119	33
Percent Heavy Vehicles (%)						3	3	3		3						
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						6.43	6.53	6.23		4.13						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.53	4.03	3.33		2.23						

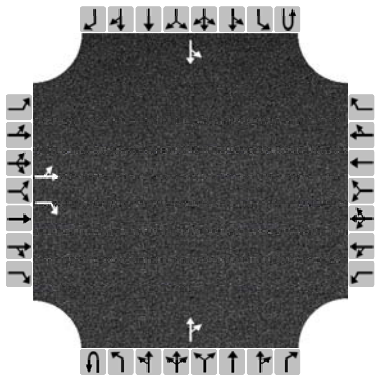
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						111		166		100						
Capacity, c (veh/h)						518		907		1396						
v/c Ratio						0.21		0.18		0.07						
95% Queue Length, Q_{95} (veh)						0.8		0.7		0.2						
Control Delay (s/veh)						13.8		9.9		7.8						
Level of Service, LOS						B		A		A						
Approach Delay (s/veh)					11.5				3.6							
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.		Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 SB Ramps
Analysis Year	2021	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		0	0	62							67	35		13	67	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

Delay, Queue Length, and Level of Service

	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Flow Rate, v (veh/h)		0		70										15		
Capacity, c (veh/h)		0		982										1465		
v/c Ratio				0.07										0.01		
95% Queue Length, Q_{95} (veh)				0.2										0.0		
Control Delay (s/veh)		5.0		8.9										7.5		
Level of Service, LOS		A		A										A		
Approach Delay (s/veh)	8.9												1.3			
Approach LOS	A															

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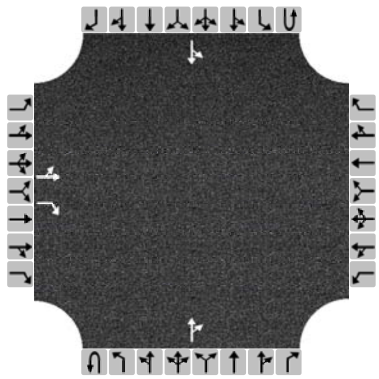
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV PINNACLE	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 SB Ramps
Analysis Year	2021	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		33	0	62							68	35		45	68	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

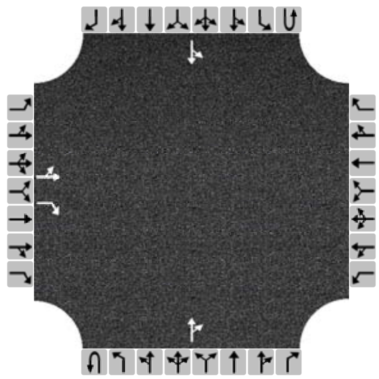
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		38		70										51		
Capacity, c (veh/h)		711		980										1464		
v/c Ratio		0.05		0.07										0.03		
95% Queue Length, Q_{95} (veh)		0.2		0.2										0.1		
Control Delay (s/veh)		10.3		9.0										7.5		
Level of Service, LOS		B		A										A		
Approach Delay (s/veh)	9.4												3.2			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 SB Ramps
Analysis Year	2023	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		0	0	64							69	36		13	69	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

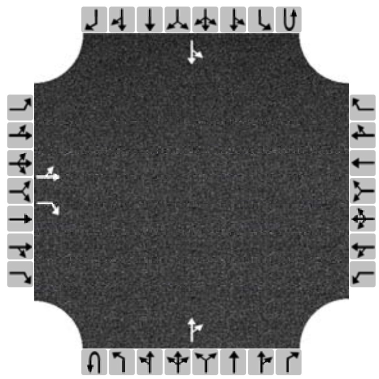
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0		73										15		
Capacity, c (veh/h)		0		979										1461		
v/c Ratio				0.07										0.01		
95% Queue Length, Q_{95} (veh)				0.2										0.0		
Control Delay (s/veh)		5.0		9.0										7.5		
Level of Service, LOS		A		A										A		
Approach Delay (s/veh)	9.0												1.3			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 SB Ramps
Analysis Year	2023	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+Project		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		33	0	64							70	36		45	70	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

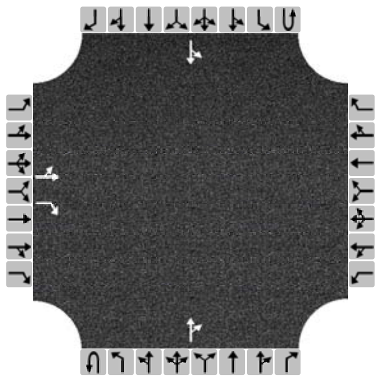
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)		38		73										51		
Capacity, c (veh/h)		706		977										1459		
v/c Ratio		0.05		0.07										0.03		
95% Queue Length, Q_{95} (veh)		0.2		0.2										0.1		
Control Delay (s/veh)		10.4		9.0										7.6		
Level of Service, LOS		B		A										A		
Approach Delay (s/veh)	9.5												3.1			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	3/30/2021	East/West Street	I5 SB Ramps
Analysis Year	2042	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		0	0	81							87	46		17	87	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

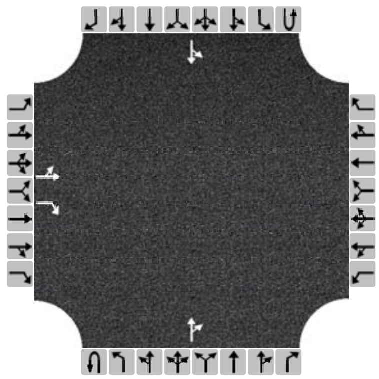
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0		92										19		
Capacity, c (veh/h)		0		953										1422		
v/c Ratio				0.10										0.01		
95% Queue Length, Q_{95} (veh)				0.3										0.0		
Control Delay (s/veh)		5.0		9.2										7.6		
Level of Service, LOS		A		A										A		
Approach Delay (s/veh)	9.2												1.3			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DMBR	Intersection	I5 & 269
Agency/Co.	LAV Pinnacle	Jurisdiction	FRESNO
Date Performed	6/23/2021	East/West Street	I5 SB Ramps
Analysis Year	2042	North/South Street	269
Time Analyzed	PM Peak Hours	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	TIS I5 & 269+PROJECT		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	0	0	0	1	0
Configuration		LT		R								TR		LT		
Volume, V (veh/h)		33	0	81							88	46		49	88	
Percent Heavy Vehicles (%)		3	3	3										3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		6.43	6.53	6.23										4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33										2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		38		92										56		
Capacity, c (veh/h)		655		952										1421		
v/c Ratio		0.06		0.10										0.04		
95% Queue Length, Q_{95} (veh)		0.2		0.3										0.1		
Control Delay (s/veh)		10.8		9.2										7.6		
Level of Service, LOS		B		A										A		
Approach Delay (s/veh)	9.7												2.9			
Approach LOS	A															

Street Segments

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2021
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	100	veh/h
Opposing direction volume, Vo	81	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	119	pc/h	97	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.7	mi/h
Percent Free Flow Speed, PFFS	96.0	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	114	pc/h	93	pc/h

Base percent time-spent-following,(note-4) BPTSFd	13.1	%
Adjustment for no-passing zones, fnp	30.2	
Percent time-spent-following, PTSFd	29.7	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.7	mi/h
Percent time-spent-following, PTSFd (from above)	29.7	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	113.6
Effective width of outside lane, We	33.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.32
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2021+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd 130 veh/h
Opposing direction volume, Vo 112 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	154	pc/h	133	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.0	mi/h
Average travel speed, ATSd	54.8	mi/h
Percent Free Flow Speed, PFFS	94.5	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	149	pc/h	128	pc/h
Base percent time-spent-following,(note-4) BPTSFd	16.7	%		
Adjustment for no-passing zones, fnp	33.4			
Percent time-spent-following, PTSFd	34.7	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.8	mi/h
Percent time-spent-following, PTSFd (from above)	34.7	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	147.7
Effective width of outside lane, We	30.30
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.31
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2023
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd 103 veh/h
Opposing direction volume, Vo 83 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	123	pc/h	99	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.7	mi/h
Percent Free Flow Speed, PFFS	96.0	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	118	pc/h	95	pc/h

Base percent time-spent-following,(note-4) BPTSFd	13.5	%
Adjustment for no-passing zones, fnp	30.5	
Percent time-spent-following, PTSFd	30.4	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.7	mi/h
Percent time-spent-following, PTSFd (from above)	30.4	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	117.0
Effective width of outside lane, We	32.73
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.42
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2023+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	133	veh/h
Opposing direction volume, Vo	114	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	157	pc/h	136	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.0	mi/h
Average travel speed, ATSd	54.7	mi/h
Percent Free Flow Speed, PFFS	94.3	%

```
__________________________Percent Time-Spent-Following__________________________

Direction                                      Analysis(d)        Opposing (o)
PCE for trucks, ET                                 1.1                 1.1
PCE for RVs, ER                                    1.0                 1.0
Heavy-vehicle adjustment factor, fHV               0.994               0.994
Grade adjustment factor,(note-1) fg                1.00                1.00
Directional flow rate,(note-2) vi                  152    pc/h         130     pc/h
Base percent time-spent-following,(note-4) BPTSFd  17.0   %
Adjustment for no-passing zones, fnp               33.6
Percent time-spent-following, PTSFd                35.1   %

________________Level of Service and Other Performance Measures________________

Level of service, LOS                              B
Volume to capacity ratio, v/c                      0.53
Peak 15-min vehicle-miles of travel, VMT15         0       veh-mi
Peak-hour vehicle-miles of travel, VMT60           0       veh-mi
Peak 15-min total travel time, TT15                0.0     veh-h
Capacity from ATS, CdATS                           1700    veh/h
Capacity from PTSF, CdPTSF                         1700    veh/h
Directional Capacity                               1700    veh/h

_____________________________Passing Lane Analysis_____________________________

Total length of analysis segment, Lt                         0.0     mi
Length of two-lane highway upstream of the passing lane, Lu  -       mi
Length of passing lane including tapers, Lpl                 -       mi
Average travel speed, ATSd (from above)                      54.7    mi/h
Percent time-spent-following, PTSFd (from above)             35.1
Level of service, LOSd (from above)                          B

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde     -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld  -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                    -
Average travel speed including passing lane, ATSpl           -
Percent free flow speed including passing lane, PFFSpl       0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde    -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld    -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                     -
Percent time-spent-following
    including passing lane, PTSFpl                           -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl     E
Peak 15-min total travel time, TT15                -       veh-h

__________________________ Bicycle Level of Service __________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	151.1
Effective width of outside lane, We	30.03
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.40
Bicycle LOS	A

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2042
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	130	veh/h
Opposing direction volume, Vo	105	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	154	pc/h	125	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	54.9	mi/h
Percent Free Flow Speed, PFFS	94.7	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	149	pc/h	120	pc/h

Base percent time-spent-following,(note-4) BPTSFd	16.7	%
Adjustment for no-passing zones, fnp	32.9	
Percent time-spent-following, PTSFd	34.9	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.9	mi/h
Percent time-spent-following, PTSFd (from above)	34.9	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	147.7
Effective width of outside lane, We	30.30
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.31
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2042+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	160	veh/h
Opposing direction volume, Vo	136	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.965		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	188	pc/h	161	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	54.0	mi/h
Percent Free Flow Speed, PFFS	93.1	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	183	pc/h	155	pc/h

Base percent time-spent-following,(note-4) BPTSFd	20.0	%
Adjustment for no-passing zones, fnp	36.1	
Percent time-spent-following, PTSFd	39.5	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.0	mi/h
Percent time-spent-following, PTSFd (from above)	39.5	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	181.8
Effective width of outside lane, We	27.60
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	2.19
Bicycle LOS	B

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2021
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	42	veh/h
Opposing direction volume, Vo	60	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	50	pc/h	72	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	56.4	mi/h
Percent Free Flow Speed, PFFS	97.3	%

________________________Percent Time-Spent-Following________________________

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	48	pc/h	69	pc/h

Base percent time-spent-following,(note-4) BPTSFd	5.9	%
Adjustment for no-passing zones, fnp	30.4	
Percent time-spent-following, PTSFd	18.4	%

________________Level of Service and Other Performance Measures________________

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

_____________________________Passing Lane Analysis_____________________________

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	56.4	mi/h
Percent time-spent-following, PTSFd (from above)	18.4	
Level of service, LOSd (from above)	A	

___________________Average Travel Speed with Passing Lane___________________

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

__________________________ Bicycle Level of Service __________________________

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	47.7
Effective width of outside lane, We	38.22
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-1.98
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2021+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	102	veh/h
Opposing direction volume, Vo	118	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	121	pc/h	141	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	54.9	mi/h
Percent Free Flow Speed, PFFS	94.6	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                Analysis(d)        Opposing (o)
PCE for trucks, ET                           1.1                1.1
PCE for RVs, ER                              1.0                1.0
Heavy-vehicle adjustment factor, fHV         0.994              0.994
Grade adjustment factor,(note-1) fg          1.00               1.00
Directional flow rate,(note-2) vi            117    pc/h        135     pc/h
Base percent time-spent-following,(note-4) BPTSFd  13.4   %
Adjustment for no-passing zones, fnp               32.2
Percent time-spent-following, PTSFd                28.4   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                              B
Volume to capacity ratio, v/c                      0.53
Peak 15-min vehicle-miles of travel, VMT15         0       veh-mi
Peak-hour vehicle-miles of travel, VMT60           0       veh-mi
Peak 15-min total travel time, TT15                0.0     veh-h
Capacity from ATS, CdATS                           1700    veh/h
Capacity from PTSF, CdPTSF                         1700    veh/h
Directional Capacity                               1700    veh/h

_____________________________Passing Lane Analysis____________________________

Total length of analysis segment, Lt                         0.0     mi
Length of two-lane highway upstream of the passing lane, Lu  -       mi
Length of passing lane including tapers, Lpl                 -       mi
Average travel speed, ATSd (from above)                      54.9    mi/h
Percent time-spent-following, PTSFd (from above)             28.4
Level of service, LOSd (from above)                          B

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde     -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld  -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                    -
Average travel speed including passing lane, ATSpl           -
Percent free flow speed including passing lane, PFFSpl       0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde    -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld    -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                     -
Percent time-spent-following
    including passing lane, PTSFpl                           -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl     E
Peak 15-min total travel time, TT15                -       veh-h

__________________________ Bicycle Level of Service __________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	115.9
Effective width of outside lane, We	32.82
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.39
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2023
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	43	veh/h
Opposing direction volume, Vo	62	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	51	pc/h	74	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	56.4	mi/h
Percent Free Flow Speed, PFFS	97.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	49	pc/h	71	pc/h

Base percent time-spent-following,(note-4) BPTSFd	6.0	%
Adjustment for no-passing zones, fnp	30.5	
Percent time-spent-following, PTSFd	18.5	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	56.4	mi/h
Percent time-spent-following, PTSFd (from above)	18.5	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	48.9
Effective width of outside lane, We	38.13
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-1.93
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2023+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	103	veh/h
Opposing direction volume, Vo	120	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	123	pc/h	143	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATSd	54.8	mi/h
Percent Free Flow Speed, PFFS	94.5	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	118	pc/h	137	pc/h

Base percent time-spent-following,(note-4) BPTSFd	13.5	%
Adjustment for no-passing zones, fnp	32.3	
Percent time-spent-following, PTSFd	28.4	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.8	mi/h
Percent time-spent-following, PTSFd (from above)	28.4	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	117.0
Effective width of outside lane, We	32.73
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.42
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2042
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	54	veh/h
Opposing direction volume, Vo	78	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	65	pc/h	93	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	56.2	mi/h
Percent Free Flow Speed, PFFS	96.8	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	62	pc/h	89	pc/h

Base percent time-spent-following,(note-4) BPTSFd	7.5	%
Adjustment for no-passing zones, fnp	30.5	
Percent time-spent-following, PTSFd	20.0	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	56.2	mi/h
Percent time-spent-following, PTSFd (from above)	20.0	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	61.4
Effective width of outside lane, We	37.14
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-1.45
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2042+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	114	veh/h
Opposing direction volume, Vo	136	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	136	pc/h	161	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	54.4	mi/h
Percent Free Flow Speed, PFFS	93.8	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	130	pc/h	155	pc/h
Base percent time-spent-following,(note-4) BPTSFd	14.8	%		
Adjustment for no-passing zones, fnp	33.7			
Percent time-spent-following, PTSFd	30.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.4	mi/h
Percent time-spent-following, PTSFd (from above)	30.2	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	129.5
Effective width of outside lane, We	31.74
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.80
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenall Cutoff Rd
Jurisdiction	Fresno
Analysis Year	2021
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	83	veh/h
Opposing direction volume, Vo	72	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	99	pc/h	86	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.9	mi/h
Percent Free Flow Speed, PFFS	96.5	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	95	pc/h	82	pc/h

Base percent time-spent-following,(note-4) BPTSFd	11.1	%
Adjustment for no-passing zones, fnp	29.7	
Percent time-spent-following, PTSFd	27.0	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.9	mi/h
Percent time-spent-following, PTSFd (from above)	27.0	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	94.3
Effective width of outside lane, We	34.53
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-0.29
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenall Cutoff Rd
Jurisdiction	Fresno
Analysis Year	2021+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	85	veh/h
Opposing direction volume, Vo	74	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	102	pc/h	89	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.9	mi/h
Percent Free Flow Speed, PFFS	96.4	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                    Analysis(d)         Opposing (o)
PCE for trucks, ET                               1.1                 1.1
PCE for RVs, ER                                  1.0                 1.0
Heavy-vehicle adjustment factor, fHV             0.994               0.994
Grade adjustment factor,(note-1) fg              1.00                1.00
Directional flow rate,(note-2) vi                97     pc/h         85      pc/h
Base percent time-spent-following,(note-4) BPTSFd  11.3   %
Adjustment for no-passing zones, fnp                29.7
Percent time-spent-following, PTSFd                 27.1   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                               A
Volume to capacity ratio, v/c                       0.53
Peak 15-min vehicle-miles of travel, VMT15          0       veh-mi
Peak-hour vehicle-miles of travel, VMT60            0       veh-mi
Peak 15-min total travel time, TT15                 0.0     veh-h
Capacity from ATS, CdATS                            1700    veh/h
Capacity from PTSF, CdPTSF                          1700    veh/h
Directional Capacity                                1700    veh/h

_____________________________Passing Lane Analysis_____________________________

Total length of analysis segment, Lt                          0.0     mi
Length of two-lane highway upstream of the passing lane, Lu  -       mi
Length of passing lane including tapers, Lpl                  -       mi
Average travel speed, ATSd (from above)                       55.9    mi/h
Percent time-spent-following, PTSFd (from above)              27.1
Level of service, LOSd (from above)                           A

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde     -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld  -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                     -
Average travel speed including passing lane, ATSpl            -
Percent free flow speed including passing lane, PFFSpl       0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde    -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld    -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                      -
Percent time-spent-following
    including passing lane, PTSFpl                            -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl     E
Peak 15-min total travel time, TT15                 -       veh-h

__________________________ Bicycle Level of Service ___________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	96.6
Effective width of outside lane, We	34.35
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-0.22
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenall Cutoff Rd
Jurisdiction	Fresno
Analysis Year	2023+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	88	veh/h
Opposing direction volume, Vo	76	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	105	pc/h	91	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.9	mi/h
Percent Free Flow Speed, PFFS	96.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	101	pc/h	87	pc/h

Base percent time-spent-following,(note-4) BPTSFd	11.7	%
Adjustment for no-passing zones, fnp	29.7	
Percent time-spent-following, PTSFd	27.7	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.9	mi/h
Percent time-spent-following, PTSFd (from above)	27.7	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	100.0
Effective width of outside lane, We	34.08
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-0.11
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenall Cutoff Rd
Jurisdiction	Fresno
Analysis Year	2023
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	86	veh/h
Opposing direction volume, Vo	74	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.9		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.949		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	103	pc/h	89	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.9	mi/h
Percent Free Flow Speed, PFFS	96.4	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	98	pc/h	85	pc/h

Base percent time-spent-following,(note-4) BPTSFd	11.4	%
Adjustment for no-passing zones, fnp	29.7	
Percent time-spent-following, PTSFd	27.3	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.9	mi/h
Percent time-spent-following, PTSFd (from above)	27.3	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	97.7
Effective width of outside lane, We	34.26
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	-0.18
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenall Cutoff Rd
Jurisdiction	Fresno
Analysis Year	2042
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	108	veh/h
Opposing direction volume, Vo	93	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	129	pc/h	111	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.7	mi/h
Average travel speed, ATSd	55.4	mi/h
Percent Free Flow Speed, PFFS	95.5	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	123	pc/h	106	pc/h

Base percent time-spent-following,(note-4) BPTSFd	14.0	%
Adjustment for no-passing zones, fnp	31.1	
Percent time-spent-following, PTSFd	30.7	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.4	mi/h
Percent time-spent-following, PTSFd (from above)	30.7	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	122.7
Effective width of outside lane, We	32.28
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.59
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	AM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenall Cutoff Rd
Jurisdiction	Fresno
Analysis Year	2042+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	110	veh/h
Opposing direction volume, Vo	95	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.954		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	131	pc/h	114	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATSd	55.3	mi/h
Percent Free Flow Speed, PFFS	95.4	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                    Analysis(d)        Opposing (o)
PCE for trucks, ET                               1.1                1.1
PCE for RVs, ER                                  1.0                1.0
Heavy-vehicle adjustment factor, fHV             0.994              0.994
Grade adjustment factor,(note-1) fg              1.00               1.00
Directional flow rate,(note-2) vi                126    pc/h        109     pc/h
Base percent time-spent-following,(note-4) BPTSFd  14.3   %
Adjustment for no-passing zones, fnp                 31.4
Percent time-spent-following, PTSFd                  31.1   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                                A
Volume to capacity ratio, v/c                        0.53
Peak 15-min vehicle-miles of travel, VMT15           0       veh-mi
Peak-hour vehicle-miles of travel, VMT60             0       veh-mi
Peak 15-min total travel time, TT15                  0.0     veh-h
Capacity from ATS, CdATS                             1700    veh/h
Capacity from PTSF, CdPTSF                           1700    veh/h
Directional Capacity                                 1700    veh/h

_____________________________Passing Lane Analysis____________________________

Total length of analysis segment, Lt                           0.0     mi
Length of two-lane highway upstream of the passing lane, Lu    -       mi
Length of passing lane including tapers, Lpl                   -       mi
Average travel speed, ATSd (from above)                        55.3    mi/h
Percent time-spent-following, PTSFd (from above)               31.1
Level of service, LOSd (from above)                            A

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde       -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld    -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                      -
Average travel speed including passing lane, ATSpl             -
Percent free flow speed including passing lane, PFFSpl         0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde      -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld      -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                       -
Percent time-spent-following
    including passing lane, PTSFpl                             -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl       E
Peak 15-min total travel time, TT15                  -       veh-h

__________________________ Bicycle Level of Service __________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	125.0
Effective width of outside lane, We	32.10
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	0.66
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2021
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	131	veh/h
Opposing direction volume, Vo	135	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	155	pc/h	160	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	54.3	mi/h
Percent Free Flow Speed, PFFS	93.6	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.994	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	150 pc/h	154 pc/h

Base percent time-spent-following,(note-4) BPTSFd	16.8	%
Adjustment for no-passing zones, fnp	35.2	
Percent time-spent-following, PTSFd	34.2	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.3	mi/h
Percent time-spent-following, PTSFd (from above)	34.2	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	148.9
Effective width of outside lane, We	30.21
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.34
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2021+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd 164 veh/h
Opposing direction volume, Vo 169 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.5	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.965		0.971	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	193	pc/h	198	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	53.2	mi/h
Percent Free Flow Speed, PFFS	91.8	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                      Analysis(d)        Opposing (o)
PCE for trucks, ET                                 1.1                 1.1
PCE for RVs, ER                                    1.0                 1.0
Heavy-vehicle adjustment factor, fHV               0.994               0.994
Grade adjustment factor,(note-1) fg                1.00                1.00
Directional flow rate,(note-2) vi                  187    pc/h         193     pc/h
Base percent time-spent-following,(note-4) BPTSFd  20.3   %
Adjustment for no-passing zones, fnp                    39.5
Percent time-spent-following, PTSFd                     39.7   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                                   B
Volume to capacity ratio, v/c                           0.53
Peak 15-min vehicle-miles of travel, VMT15              0       veh-mi
Peak-hour vehicle-miles of travel, VMT60                0       veh-mi
Peak 15-min total travel time, TT15                     0.0     veh-h
Capacity from ATS, CdATS                                1700    veh/h
Capacity from PTSF, CdPTSF                              1700    veh/h
Directional Capacity                                    1700    veh/h

_____________________________Passing Lane Analysis____________________________

Total length of analysis segment, Lt                              0.0     mi
Length of two-lane highway upstream of the passing lane, Lu      -       mi
Length of passing lane including tapers, Lpl                      -       mi
Average travel speed, ATSd (from above)                           53.2    mi/h
Percent time-spent-following, PTSFd (from above)                  39.7
Level of service, LOSd (from above)                               B

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde          -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld      -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                         -
Average travel speed including passing lane, ATSpl                -
Percent free flow speed including passing lane, PFFSpl            0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde         -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld         -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                          -
Percent time-spent-following
    including passing lane, PTSFpl                                -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl     E
Peak 15-min total travel time, TT15                     -       veh-h

__________________________ Bicycle Level of Service ___________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	186.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.13
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2023
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	135	veh/h
Opposing direction volume, Vo	139	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	160	pc/h	165	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	54.1	mi/h
Percent Free Flow Speed, PFFS	93.3	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.994	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	154 pc/h	159 pc/h

Base percent time-spent-following,(note-4) BPTSFd	17.2	%
Adjustment for no-passing zones, fnp	35.7	
Percent time-spent-following, PTSFd	34.8	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.1	mi/h
Percent time-spent-following, PTSFd (from above)	34.8	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	153.4
Effective width of outside lane, We	29.85
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.46
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2023+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	168	veh/h
Opposing direction volume, Vo	173	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.5	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.971		0.971	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	197	pc/h	202	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	53.2	mi/h
Percent Free Flow Speed, PFFS	91.7	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	192	pc/h	198	pc/h
Base percent time-spent-following,(note-4) BPTSFd	20.8	%		
Adjustment for no-passing zones, fnp	40.1			
Percent time-spent-following, PTSFd	40.5	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	53.2	mi/h
Percent time-spent-following, PTSFd (from above)	40.5	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	190.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.15
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2042
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	171	veh/h
Opposing direction volume, Vo	175	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.5	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.971		0.971	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	200	pc/h	205	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	53.1	mi/h
Percent Free Flow Speed, PFFS	91.6	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	195	pc/h	200	pc/h

Base percent time-spent-following,(note-4) BPTSFd	21.1	%
Adjustment for no-passing zones, fnp	40.4	
Percent time-spent-following, PTSFd	41.0	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	53.1	mi/h
Percent time-spent-following, PTSFd (from above)	41.0	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	194.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.16
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB Ramps/I5 SB Ramps
Jurisdiction	Fresno
Analysis Year	2042+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	204	veh/h
Opposing direction volume, Vo	209	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.5	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.971		0.971	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	239	pc/h	245	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.7	mi/h
Average travel speed, ATSd	52.6	mi/h
Percent Free Flow Speed, PFFS	90.7	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	233	pc/h	239	pc/h
Base percent time-spent-following,(note-4) BPTSFd	26.3	%		
Adjustment for no-passing zones, fnp	39.8			
Percent time-spent-following, PTSFd	45.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	52.6	mi/h
Percent time-spent-following, PTSFd (from above)	45.9	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	231.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.25
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2021
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	154	veh/h
Opposing direction volume, Vo	67	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.965		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	181	pc/h	80	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.4	mi/h
Percent Free Flow Speed, PFFS	95.4	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	176	pc/h	77	pc/h

Base percent time-spent-following,(note-4) BPTSFd	19.3	%
Adjustment for no-passing zones, fnp	28.8	
Percent time-spent-following, PTSFd	39.3	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.4	mi/h
Percent time-spent-following, PTSFd (from above)	39.3	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	175.0
Effective width of outside lane, We	28.14
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	2.02
Bicycle LOS	B

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2021+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	221	veh/h
Opposing direction volume, Vo	132	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.4		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.977		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	257	pc/h	156	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.2	mi/h
Average travel speed, ATSd	53.5	mi/h
Percent Free Flow Speed, PFFS	92.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	253	pc/h	151	pc/h

Base percent time-spent-following,(note-4) BPTSFd	26.3	%
Adjustment for no-passing zones, fnp	34.6	
Percent time-spent-following, PTSFd	48.0	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	53.5	mi/h
Percent time-spent-following, PTSFd (from above)	48.0	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	251.1
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.29
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2023
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	159	veh/h
Opposing direction volume, Vo	69	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.6		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.965		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	187	pc/h	83	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.6	mi/h
Average travel speed, ATSd	55.3	mi/h
Percent Free Flow Speed, PFFS	95.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	182	pc/h	79	pc/h

Base percent time-spent-following,(note-4) BPTSFd	19.9	%
Adjustment for no-passing zones, fnp	28.9	
Percent time-spent-following, PTSFd	40.1	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.3	mi/h
Percent time-spent-following, PTSFd (from above)	40.1	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	180.7
Effective width of outside lane, We	27.69
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	2.17
Bicycle LOS	B

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2023+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	226	veh/h
Opposing direction volume, Vo	134	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.4		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.977		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	263	pc/h	159	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	53.4	mi/h
Percent Free Flow Speed, PFFS	92.1	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	258	pc/h	153	pc/h

Base percent time-spent-following,(note-4) BPTSFd	26.7	%
Adjustment for no-passing zones, fnp	34.5	
Percent time-spent-following, PTSFd	48.4	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	53.4	mi/h
Percent time-spent-following, PTSFd (from above)	48.4	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	256.8
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.30
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2042
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	200	veh/h
Opposing direction volume, Vo	87	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.9	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.971		0.949	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	234	pc/h	104	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.7	mi/h
Average travel speed, ATSd	54.7	mi/h
Percent Free Flow Speed, PFFS	94.3	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                      Analysis(d)        Opposing (o)
PCE for trucks, ET                                 1.1                1.1
PCE for RVs, ER                                    1.0                1.0
Heavy-vehicle adjustment factor, fHV               0.994              0.994
Grade adjustment factor,(note-1) fg                1.00               1.00
Directional flow rate,(note-2) vi                  229    pc/h        99      pc/h
Base percent time-spent-following,(note-4) BPTSFd  24.2   %
Adjustment for no-passing zones, fnp                   29.7
Percent time-spent-following, PTSFd                    44.9   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                                  B
Volume to capacity ratio, v/c                          0.53
Peak 15-min vehicle-miles of travel, VMT15             0       veh-mi
Peak-hour vehicle-miles of travel, VMT60               0       veh-mi
Peak 15-min total travel time, TT15                    0.0     veh-h
Capacity from ATS, CdATS                               1700    veh/h
Capacity from PTSF, CdPTSF                             1700    veh/h
Directional Capacity                                   1700    veh/h

_____________________________Passing Lane Analysis____________________________

Total length of analysis segment, Lt                             0.0     mi
Length of two-lane highway upstream of the passing lane, Lu      -       mi
Length of passing lane including tapers, Lpl                     -       mi
Average travel speed, ATSd (from above)                          54.7    mi/h
Percent time-spent-following, PTSFd (from above)                 44.9
Level of service, LOSd (from above)                              B

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde         -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld      -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                        -
Average travel speed including passing lane, ATSpl               -
Percent free flow speed including passing lane, PFFSpl       0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde        -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld        -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                         -
Percent time-spent-following
    including passing lane, PTSFpl                               -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl     E
Peak 15-min total travel time, TT15                    -       veh-h

__________________________ Bicycle Level of Service __________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	227.3
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.24
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 NB/Jayne Ave
Jurisdiction	Fresno
Analysis Year	2042+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	267	veh/h
Opposing direction volume, Vo	152	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.4		1.6	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.977		0.965	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	311	pc/h	179	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.5	mi/h
Average travel speed, ATSd	52.7	mi/h
Percent Free Flow Speed, PFFS	90.8	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	305	pc/h	174	pc/h

Base percent time-spent-following,(note-4) BPTSFd	30.6	%
Adjustment for no-passing zones, fnp	34.2	
Percent time-spent-following, PTSFd	52.4	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	52.7	mi/h
Percent time-spent-following, PTSFd (from above)	52.4	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	303.4
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.38
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenal Cutoff Rd.
Jurisdiction	Fresno
Analysis Year	2021
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	129	veh/h
Opposing direction volume, Vo	102	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	153	pc/h	121	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	55.0	mi/h
Percent Free Flow Speed, PFFS	94.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.994	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	147 pc/h	117 pc/h

Base percent time-spent-following,(note-4) BPTSFd	16.5	%
Adjustment for no-passing zones, fnp	32.6	
Percent time-spent-following, PTSFd	34.7	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.0	mi/h
Percent time-spent-following, PTSFd (from above)	34.7	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	146.6
Effective width of outside lane, We	30.39
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.28
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenal Cutoff Rd.
Jurisdiction	Fresno
Analysis Year	2021+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	130	veh/h
Opposing direction volume, Vo	103	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	154	pc/h	123	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	55.0	mi/h
Percent Free Flow Speed, PFFS	94.8	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	149	pc/h	118	pc/h

Base percent time-spent-following,(note-4) BPTSFd	16.7	%
Adjustment for no-passing zones, fnp	32.7	
Percent time-spent-following, PTSFd	34.9	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	55.0	mi/h
Percent time-spent-following, PTSFd (from above)	34.9	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	147.7
Effective width of outside lane, We	30.30
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.31
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenal Cutoff Rd.
Jurisdiction	Fresno
Analysis Year	2023
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	133	veh/h
Opposing direction volume, Vo	105	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	157	pc/h	125	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	54.9	mi/h
Percent Free Flow Speed, PFFS	94.7	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	152	pc/h	120	pc/h

Base percent time-spent-following,(note-4) BPTSFd	17.0	%
Adjustment for no-passing zones, fnp	32.9	
Percent time-spent-following, PTSFd	35.4	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.9	mi/h
Percent time-spent-following, PTSFd (from above)	35.4	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	151.1
Effective width of outside lane, We	30.03
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.40
Bicycle LOS	A

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenal Cutoff Rd.
Jurisdiction	Fresno
Analysis Year	2023+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	134	veh/h
Opposing direction volume, Vo	106	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7		1.8	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.960		0.954	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	159	pc/h	126	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	0.9	mi/h
Average travel speed, ATSd	54.9	mi/h
Percent Free Flow Speed, PFFS	94.6	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                   Analysis(d)         Opposing (o)
PCE for trucks, ET                              1.1                 1.1
PCE for RVs, ER                                 1.0                 1.0
Heavy-vehicle adjustment factor, fHV            0.994               0.994
Grade adjustment factor,(note-1) fg             1.00                1.00
Directional flow rate,(note-2) vi               153    pc/h         121     pc/h
Base percent time-spent-following,(note-4) BPTSFd  17.1   %
Adjustment for no-passing zones, fnp               33.0
Percent time-spent-following, PTSFd                35.5   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                              B
Volume to capacity ratio, v/c                      0.53
Peak 15-min vehicle-miles of travel, VMT15         0       veh-mi
Peak-hour vehicle-miles of travel, VMT60           0       veh-mi
Peak 15-min total travel time, TT15                0.0     veh-h
Capacity from ATS, CdATS                           1700    veh/h
Capacity from PTSF, CdPTSF                         1700    veh/h
Directional Capacity                               1700    veh/h

_____________________________Passing Lane Analysis____________________________

Total length of analysis segment, Lt                         0.0     mi
Length of two-lane highway upstream of the passing lane, Lu  -       mi
Length of passing lane including tapers, Lpl                 -       mi
Average travel speed, ATSd (from above)                      54.9    mi/h
Percent time-spent-following, PTSFd (from above)             35.5
Level of service, LOSd (from above)                          B

___________________Average Travel Speed  with Passing Lane____________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde     -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld  -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                    -
Average travel speed including passing lane, ATSpl           -
Percent free flow speed including passing lane, PFFSpl       0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde    -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld    -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                     -
Percent time-spent-following
    including passing lane, PTSFpl                           -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl     E
Peak 15-min total travel time, TT15                -       veh-h

__________________________ Bicycle Level of Service ___________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	152.3
Effective width of outside lane, We	29.94
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	1.43
Bicycle LOS	A

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	4/6/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenal Cutoff Rd.
Jurisdiction	Fresno
Analysis Year	2042
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	168	veh/h
Opposing direction volume, Vo	133	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.971		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	197	pc/h	157	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	54.0	mi/h
Percent Free Flow Speed, PFFS	93.1	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	192	pc/h	152	pc/h

Base percent time-spent-following,(note-4) BPTSFd	20.8	%
Adjustment for no-passing zones, fnp	35.9	
Percent time-spent-following, PTSFd	40.8	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.0	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	54.0	mi/h
Percent time-spent-following, PTSFd (from above)	40.8	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	190.9
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.15
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	DMBR
Agency/Co.	LAVPinnacle
Date Performed	6/23/2021
Analysis Time Period	PM Peak Hours
Highway	SR 269
From/To	I5 SB Ramps/Avenal Cutoff Rd.
Jurisdiction	Fresno
Analysis Year	2042+Project
Description	TIS SR 269 & I-5 Project

Input Data

Highway class	Class 1		Peak hour factor, PHF	0.88	
Shoulder width	6.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.0	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	4	%
Grade: Length	-	mi	% No-passing zones	20	%
Up/down	-	%	Access point density	8	/mi

Analysis direction volume, Vd	169	veh/h
Opposing direction volume, Vo	134	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.5		1.7	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.971		0.960	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	198	pc/h	159	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	60.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.0	mi/h
Adj. for access point density,(note-3) fA	2.0	mi/h
Free-flow speed, FFSd	58.0	mi/h
Adjustment for no-passing zones, fnp	1.3	mi/h
Average travel speed, ATSd	53.9	mi/h
Percent Free Flow Speed, PFFS	93.0	%

```
_________________________Percent Time-Spent-Following_________________________

Direction                                     Analysis(d)        Opposing (o)
PCE for trucks, ET                                1.1                1.1
PCE for RVs, ER                                   1.0                1.0
Heavy-vehicle adjustment factor, fHV              0.994              0.994
Grade adjustment factor,(note-1) fg               1.00               1.00
Directional flow rate,(note-2) vi                 193    pc/h        153     pc/h
Base percent time-spent-following,(note-4) BPTSFd  20.9   %
Adjustment for no-passing zones, fnp                       36.0
Percent time-spent-following, PTSFd                        41.0   %

________________Level of Service and Other Performance Measures_______________

Level of service, LOS                                      B
Volume to capacity ratio, v/c                              0.53
Peak 15-min vehicle-miles of travel, VMT15                 0       veh-mi
Peak-hour vehicle-miles of travel, VMT60                   0       veh-mi
Peak 15-min total travel time, TT15                        0.0     veh-h
Capacity from ATS, CdATS                                   1700    veh/h
Capacity from PTSF, CdPTSF                                 1700    veh/h
Directional Capacity                                       1700    veh/h

_____________________________Passing Lane Analysis____________________________

Total length of analysis segment, Lt                                 0.0     mi
Length of two-lane highway upstream of the passing lane, Lu          -       mi
Length of passing lane including tapers, Lpl                         -       mi
Average travel speed, ATSd (from above)                              53.9    mi/h
Percent time-spent-following, PTSFd (from above)                     41.0
Level of service, LOSd (from above)                                  B

___________________Average Travel Speed  with Passing Lane___________________

Downstream length of two-lane highway within effective
    length of passing lane for average travel speed, Lde             -       mi
Length of two-lane highway downstream of effective
    length of the passing lane for average travel speed, Ld          -       mi
Adj. factor for the effect of passing lane
    on average speed, fpl                                            -
Average travel speed including passing lane, ATSpl                   -
Percent free flow speed including passing lane, PFFSpl               0.0     %

________________Percent Time-Spent-Following with Passing Lane________________

Downstream length of two-lane highway within effective length
    of passing lane for percent time-spent-following, Lde            -       mi
Length of two-lane highway downstream of effective length of
    the passing lane for percent time-spent-following, Ld            -       mi
Adj. factor for the effect of passing lane
    on percent time-spent-following, fpl                             -
Percent time-spent-following
    including passing lane, PTSFpl                                   -       %

______Level of Service and Other Performance Measures with Passing Lane ______

Level of service including passing lane, LOSpl             E
Peak 15-min total travel time, TT15                        -       veh-h

__________________________ Bicycle Level of Service ___________________________
```

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	192.0
Effective width of outside lane, We	24.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.15
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Freeway Ramps

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	43
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	49
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.432
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	61.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	61.0
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.4

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	72
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	82
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.435
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.5

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	44
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	50
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_s)	0.432
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	61.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	61.0
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	25.9

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	73
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	83
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.435
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	26.0

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	56
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	64
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.434
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.1

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	85
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	97
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.437
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.8
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.2

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop+Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3551	62
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	70
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.56	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.434
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.450	Outer Lanes Freeway Speed (S_O), mi/h	79.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	67.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	25
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	28
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.01

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.431
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	61.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	61.0
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.4

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	54
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	61
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.433
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.5

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	26
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	30
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.431
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	61.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	61.0
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	25.9

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	55
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	62
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.434
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	26.0

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	33
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	38
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.431
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	61.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	61.0
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.1

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	62
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	70
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.434
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.1

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project+Mitigated
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop+Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3551	62
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	70
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.56	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.434
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.450	Outer Lanes Freeway Speed (S_O), mi/h	79.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	67.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	B		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	42
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	48
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.356
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3149	Ramp Junction Speed (S), mi/h	63.5
Density in Ramp Influence Area (D_R), pc/mi/ln	25.1	Average Density (D), pc/mi/ln	24.8

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	70
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	80
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.359
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3181	Ramp Junction Speed (S), mi/h	63.4
Density in Ramp Influence Area (D_R), pc/mi/ln	25.3	Average Density (D), pc/mi/ln	25.1

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	43
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	49
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.362
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3210	Ramp Junction Speed (S), mi/h	63.3
Density in Ramp Influence Area (D_R), pc/mi/ln	25.5	Average Density (D), pc/mi/ln	25.4

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	71
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	81
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.365
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3242	Ramp Junction Speed (S), mi/h	63.2
Density in Ramp Influence Area (D_R), pc/mi/ln	25.8	Average Density (D), pc/mi/ln	25.6

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	55
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	62
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.85	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.500
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4097	Ramp Junction Speed (S), mi/h	58.7
Density in Ramp Influence Area (D_R), pc/mi/ln	32.5	Average Density (D), pc/mi/ln	34.9

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	83
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	94
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.507
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4129	Ramp Junction Speed (S), mi/h	58.5
Density in Ramp Influence Area (D_R), pc/mi/ln	32.7	Average Density (D), pc/mi/ln	35.3

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project+Mitigated
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3551	83
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	94
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.57	0.02

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	14.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.259
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.555	Outer Lanes Freeway Speed (S_O), mi/h	71.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	68.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2400	Average Density (D), pc/mi/ln	20.1
Level of Service (LOS)	B		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	54
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	61
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.357
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3163	Ramp Junction Speed (S), mi/h	63.5
Density in Ramp Influence Area (D_R), pc/mi/ln	25.2	Average Density (D), pc/mi/ln	24.9

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	82
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	93
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.360
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3195	Ramp Junction Speed (S), mi/h	63.4
Density in Ramp Influence Area (D_R), pc/mi/ln	25.4	Average Density (D), pc/mi/ln	25.2

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	56
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	64
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.363
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3226	Ramp Junction Speed (S), mi/h	63.3
Density in Ramp Influence Area (D_R), pc/mi/ln	25.7	Average Density (D), pc/mi/ln	25.5

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	84
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	95
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.366
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3257	Ramp Junction Speed (S), mi/h	63.2
Density in Ramp Influence Area (D_R), pc/mi/ln	25.9	Average Density (D), pc/mi/ln	25.8

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	70
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	80
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.504
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4115	Ramp Junction Speed (S), mi/h	58.6
Density in Ramp Influence Area (D_R), pc/mi/ln	32.6	Average Density (D), pc/mi/ln	35.1

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	98
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	111
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.511
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4146	Ramp Junction Speed (S), mi/h	58.3
Density in Ramp Influence Area (D_R), pc/mi/ln	32.8	Average Density (D), pc/mi/ln	35.6

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project+Mitigated
Jurisdiction	Fresno	Time Period Analyzed	AM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop+Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3551	98
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	111
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.58	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	14.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.260
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.555	Outer Lanes Freeway Speed (S_O), mi/h	71.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	68.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2417	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	161
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	183
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.09

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.444
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.6
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.6

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	194
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	220
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.11

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_s)	0.448
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.4
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.7

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	166
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	189
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.09

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.445
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.5
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	26.1

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	199
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	226
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.11

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.448
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.4
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	26.2

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	210
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	239
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.12

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.450
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.4
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.4

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	243
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	276
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.14

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_s)	0.453
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.3
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.5

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3551	243
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	276
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.56	0.07

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.453
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.450	Outer Lanes Freeway Speed (S_O), mi/h	79.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	67.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.0
Level of Service (LOS)	B		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	62
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	70
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.434
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.5

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store+Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	95
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	108
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.438
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.8
Density in Ramp Influence Area (D_R), pc/mi/ln	27.3	Average Density (D), pc/mi/ln	25.5

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	64
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	73
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.435
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.9
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	26.0

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	97
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	110
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.438
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.8
Density in Ramp Influence Area (D_R), pc/mi/ln	27.8	Average Density (D), pc/mi/ln	26.0

Level of Service (LOS)	C		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	81
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	92
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.436
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.8
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.2

Level of Service (LOS)	E		

HCS7 Freeway Diverge Report

Project Information

Analyst	DMBR	Date	6/24/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	114
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	130
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (D_S)	0.440
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Off-Ramp Influence Area Speed (S_R), mi/h	60.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.7
Density in Ramp Influence Area (D_R), pc/mi/ln	35.4	Average Density (D), pc/mi/ln	33.2

Level of Service (LOS)	E		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	78
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	89
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.360
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3190	Ramp Junction Speed (S), mi/h	63.4
Density in Ramp Influence Area (D_R), pc/mi/ln	25.4	Average Density (D), pc/mi/ln	25.2

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2729	110
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3101	125
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.363
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3101	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3226	Ramp Junction Speed (S), mi/h	63.3
Density in Ramp Influence Area (D_R), pc/mi/ln	25.6	Average Density (D), pc/mi/ln	25.5

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	80
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	91
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.366
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3252	Ramp Junction Speed (S), mi/h	63.2
Density in Ramp Influence Area (D_R), pc/mi/ln	25.9	Average Density (D), pc/mi/ln	25.7

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2782	112
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3161	127
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.369
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3161	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3288	Ramp Junction Speed (S), mi/h	63.1
Density in Ramp Influence Area (D_R), pc/mi/ln	26.1	Average Density (D), pc/mi/ln	26.1

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	101
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	115
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.512
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4150	Ramp Junction Speed (S), mi/h	58.3
Density in Ramp Influence Area (D_R), pc/mi/ln	32.8	Average Density (D), pc/mi/ln	35.6

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	133
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	151
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.87	0.08

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.521
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4186	Ramp Junction Speed (S), mi/h	58.0
Density in Ramp Influence Area (D_R), pc/mi/ln	33.1	Average Density (D), pc/mi/ln	36.1

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project+Mitigated
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop+Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	3551	133
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	151
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.58	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	15.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.262
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.555	Outer Lanes Freeway Speed (S_O), mi/h	71.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	68.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2457	Average Density (D), pc/mi/ln	20.4
Level of Service (LOS)	B		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2021
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	48
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	55
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.357
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3157	Ramp Junction Speed (S), mi/h	63.5
Density in Ramp Influence Area (D_R), pc/mi/ln	25.1	Average Density (D), pc/mi/ln	24.9

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2021+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2730	80
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3102	91
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.360
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3102	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3193	Ramp Junction Speed (S), mi/h	63.4
Density in Ramp Influence Area (D_R), pc/mi/ln	25.4	Average Density (D), pc/mi/ln	25.2

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2023
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	49
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	56
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.362
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3218	Ramp Junction Speed (S), mi/h	63.3
Density in Ramp Influence Area (D_R), pc/mi/ln	25.6	Average Density (D), pc/mi/ln	25.4

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2023+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Truck Stop+Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	2783	81
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	3162	92
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.366
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3162	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3254	Ramp Junction Speed (S), mi/h	63.2
Density in Ramp Influence Area (D_R), pc/mi/ln	25.9	Average Density (D), pc/mi/ln	25.7

Level of Service (LOS)	C		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	4/22/2021
Agency	LAV Pinnacle	Analysis Year	2042
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	63
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	72
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.502
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4107	Ramp Junction Speed (S), mi/h	58.6
Density in Ramp Influence Area (D_R), pc/mi/ln	32.5	Average Density (D), pc/mi/ln	35.0

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store + Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Volume (V_i), veh/h	3551	95
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Passenger Car Equivalent (E_T)	2.000	2.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	108
Capacity (c), pc/h	4800	2000
Volume-to-Capacity Ratio (v/c)	0.86	0.05

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Speed Index (M_S)	0.511
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	4035	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4143	Ramp Junction Speed (S), mi/h	58.3
Density in Ramp Influence Area (D_R), pc/mi/ln	32.8	Average Density (D), pc/mi/ln	35.5

Level of Service (LOS)	D		

HCS7 Freeway Merge Report

Project Information

Analyst	DMBR	Date	6/23/2021
Agency	LAV Pinnacle	Analysis Year	2042+Project+Mitigated
Jurisdiction	Fresno	Time Period Analyzed	PM Peak Hour
Project Description	TIS SR 269 & I-5 Gas/Convenient Store + Project		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	2
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3551	95
Peak Hour Factor (PHF)	0.88	0.88
Total Trucks, %	0.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	1.000
Flow Rate (v_i), pc/h	4035	108
Capacity (c), pc/h	7200	4000
Volume-to-Capacity Ratio (v/c)	0.58	0.03

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	14.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.260
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1729
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.555	Outer Lanes Freeway Speed (S_O), mi/h	71.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2306	Ramp Junction Speed (S), mi/h	68.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2414	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	B		

Appendix “C”
Pass-By Survey

Driveway Survey for I-5 and SR-269								Date:	2/1/2021	
				Primary Route - Arrival		Primary Route - Departure		Survey By:		N/A
No.	Purpose of your trip:	Trip Origin:	Trip Destination:	I5	SR-269	I5	SR-269	Pass-Bys	Diverted Link	Time:
1)	Business	Sacramento	Barstow	N		S			X	12:10
2)	Business	Local	269 AG		N		S	X		12:15
3)	Business	San Francisco	Los Angeles	N		S			X	12:20
4)	Family	Ventura	Avenal Prison	S			S		X	12:22
5)	Business	Coalinga	Lost Hills	N		S			X	12:25
6)	Personal	Elk Grove	Paso Robles	N		S			X	12:30
7)	Moving	Livermoore	Arizona	N		S			X	12:45
8)	Pleasure	San Francisco	Los Angeles	N		S			X	1:00
9)	Lunch	Avenal	Gas Station		N		S	X		1:10
10)	PG&e Business	Sacramento	San Luis Obispo	N		S			X	1:20
11)	Personal	Bakersfield	Oakland	S		N			X	1:25
12)	Vacation	Las Vegas	San Francisco	S		N			X	1:30
13)	Business	Huron	Avenal		N		S	X		1:30
14)	Pleasure	Kettleman City	Harris Ranch	S		N			X	1:45
15)	PG&E	Los Banos	Lost Hills	N		S			X	1:52
16)	Moving	San Francisco	San Diego	N		S			X	1:58
17)	Vacation	Oregon	Arizona	N		S			X	2:10
18)	Lunch	Ag East of I-5	Ag East of I-5		N		N	X		2:15
19)	Vacation	Bakersfield	Santa Cruz	S		N			X	2:20
20)	Dog Show	Oregon	Ventura	N		S			X	2:30

Total	
Pass-By	20%
Diverted Link	80%