Attachment A. Project Sheets

Exhibit 1 OR-99 & Garfield Street		South Stage Road Extension Plan Overpass/Underpass and Interchange Alternative
Purpose	This project will update the mobility standards at OR-99/Garfield Street.	
Description	The existing building, rail line, and railroad crossing prevent the ability to construct additional through or turn lanes to accommodate forecasted year 2045 demand. This project would develop and adopt an alternative mobility standard for the intersection to accommodate forecasted year 2045 demand.	
Roadway Characteristics	– Jurisdiction: ODOT (Oregon Department of Transportation) – Intersection Control Type: Signal – Functional Classification: Urban Other Principal Arterial – Freight Route Designation: City of Medford Freight Routes – Existing PM Peak Hour TEV: 3,715 (Source: 2019 Traffic Counts) – 2045 PM Peak Hour TEV (Overpass/Underpass): 4,256[1] – 2045 PM Peak Hour TEV (Interchange): 4,020[1]	– Posted Speed: OR-99 (40 mph), Garfield Street (35 mph) – Pedestrian Facilities: Sidewalk gaps along west side of OR-99, sidewalks on other legs – Bike Facilities: (5' on all legs) – Transit Facilities: Bus stops on the east leg
How Improvement Addresses Deficiencies	Existing/Future Need: – The intersection is projected to not meet ODOT's standards under the 2045 condition.	With Improvement: – The alternative mobility standard will allow development to be accommodated through year 2045.
Additional Considerations	N/A	
Cost Opinion	$50,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

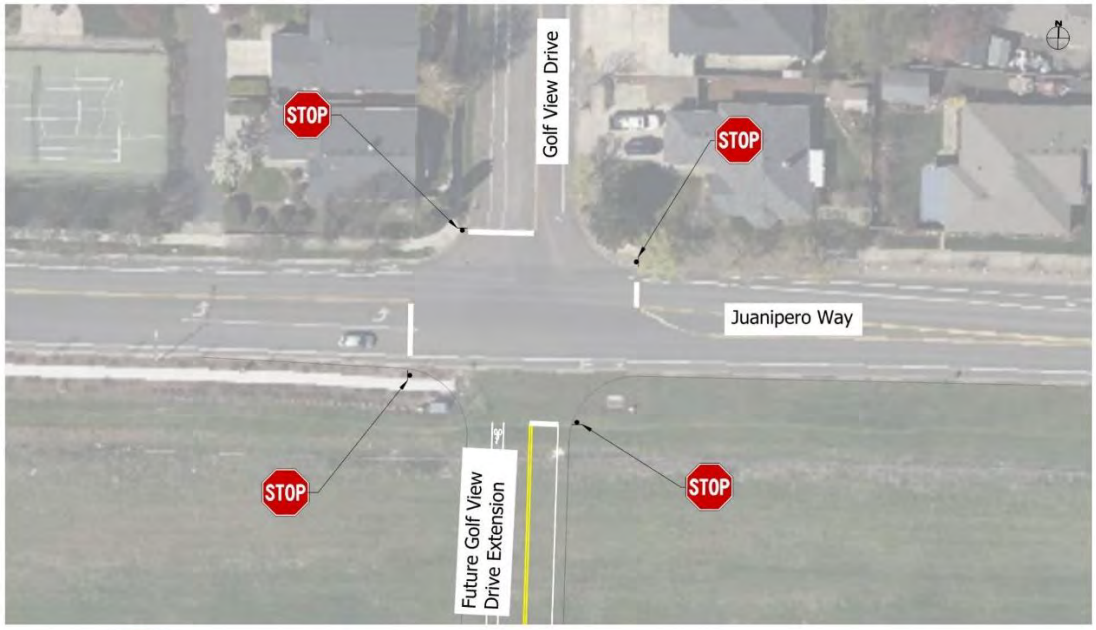
Purpose	This project will improve intersection operations to meet mobility standards and provide adequate storage for vehicles making the northbound right-turn, eastbound left-turn, and eastbound right-turn movements. This project is specific to the Overpass/Underpass Alternatives.	
Description	This project will construct separate right- and left-turn lanes on the west leg of the intersection with 100 feet of storage. A second right-turn lane will be constructed on the south leg. Both northbound right-turn lanes will have 125 feet of striped storage.	
Roadway Characteristics	– Jurisdiction: ODOT (Oregon Department of Transportation) – Intersection Control Type: Signal – Functional Classification: OR-99(Other Principal Arterial), N Phoenix-Bolz Road (Minor Arterial) – Freight Route Designation: OR-99(City of Phoenix Goods Movements Routes) – Existing PM Peak Hour TEV: 2,358 (Source: 2023 Traffic Counts) – 2045 PM Peak Hour TEV (Overpass/Underpass): 3,017[1]	– Posted Speed: OR-99(45 mph), N Phoenix-Bolz Road (20-30 mph) – Pedestrian Facilities: Sidewalks (7' on all legs) – Bike Facilities: (5' on north, south, and east legs) – Transit Facilities: Far side bus stop on OR-99 NB
How Improvement Addresses Deficiencies	Existing/Future Need: – The existing intersection is signalized with only one northbound right-turn lane and a shared eastbound left/through/right-turn lane. – The intersection is projected to not meet ODOT's standards under the 2045 condition.	With Improvement: – Addresses future increase in traffic volumes by improving the intersection operations to meet ODOT's standards and provide adequate storage for turning vehicles. – Feasible to construct with minimal environmental impacts.
Additional Considerations	This project will require coordination with utilities and will include traffic signal reconstruction.	
Cost Opinion	$1,640,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Purpose	This project will improve intersection operations to meet mobility standards and provide adequate storage for vehicles making the eastbound left-turn and eastbound right-turn movements. This project is specific to the Overpass/Underpass Alternatives.	
Description	This project will construct separate right- and left-turn lanes on the west leg of the intersection with 100 feet of storage.	
Roadway Characteristics	– Jurisdiction: ODOT (Oregon Department of Transportation) – Intersection Control Type: Signal – Functional Classification: OR-99(Other Principal Arterial), N Phoenix-Bolz Road (Minor Arterial) – Freight Route Designation: OR-99(City of Phoenix Goods Movements Routes) – Existing PM Peak Hour TEV: 2,358 (Source: 2023 Traffic Counts) – 2045 PM Peak Hour TEV (Interchange): 2,728[1]	– Posted Speed: OR-99(45 mph), N Phoenix-Bolz Road (20-30 mph) – Pedestrian Facilities: Sidewalks (7' on all legs) – Bike Facilities: (5' on north, south, and east legs) – Transit Facilities: Far side bus stop on OR-99 NB
How Improvement Addresses Deficiencies	Existing/Future Need: – The existing intersection is signalized with a shared eastbound left/through/right-turn lane. – The intersection is projected to not meet ODOT's standards under the 2045 condition.	With Improvement: – Addresses future increase in traffic volumes by improving the intersection operations to meet ODOT's standards and provide adequate storage for turning vehicles. – Feasible to construct with minimal environmental impacts.
Additional Considerations	This project will require coordination with utilities.	
Cost Opinion	$681,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Exhibit 3 Juanipero Way & Golf View Drive	South Stage Road Extension Plan Overpass/Underpass and Interchange Alternative



South Stage Road Extension Plan

Golf View Drive & Juanipero Way
Overpass/Underpass and Interchange Alternative

Purpose	This project is projected to improve intersection operations to meet the City's standards.	
Description	This project will convert the intersection from two-way stop control (TWSC) to all-way stop control (AWSC) so that the intersection is projected to meet the City's standard of LOS D. Lane configuration changes will be updated by the Centennial Golf Course development. Only the AWSC change is needed as part of this project.	
Roadway Characteristics	– Jurisdiction: City of Medford – Intersection Control Type: TWSC – Functional Classification: Juanipero Way (Major Collector), Golf View Drive (Major Collector) – Freight Route Designation: None – Existing PM Peak Hour TEV: 259 (Source: 2019 Traffic Counts) – 2045 PM Peak Hour TEV (Overpass/Underpass): 1,122[1] – 2045 PM Peak Hour TEV (Interchange): 996[1]	– Posted Speed: Juanipero Way (25 mph), Golf View Drive (25 mph) – Pedestrian Facilities: Sidewalks (5' on all legs except the south side of the east leg) – Bike Facilities: (5' on all legs) – Transit Facilities: Bus stops along Juanipero Way EB and Golf View Drive NB
How Improvement Addresses Deficiencies	Existing/Future Need: – The existing intersection has three legs and operates as TWSC. – The intersection is projected to not meet the City of Medford's standards under the 2045 condition. – It is assumed that Golf View Drive will be extended in the future and there will be a south leg on the intersection.	With Improvement: – Addresses future increase in traffic volumes by improving the intersection operations to meet the City's standards. – Feasible to construct with little to no right-of-way or environmental impacts.
Additional Considerations	This project may be implemented in tandem with the Centennial Golf Course development and extension of Golf View Drive to the south.	
Cost Opinion	$11,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Exhibit 4
North Phoenix Road & South Stage Road

South Stage Road Extension Plan
Overpass/Underpass and Interchange Alternative

South Stage Road
Extension Plan

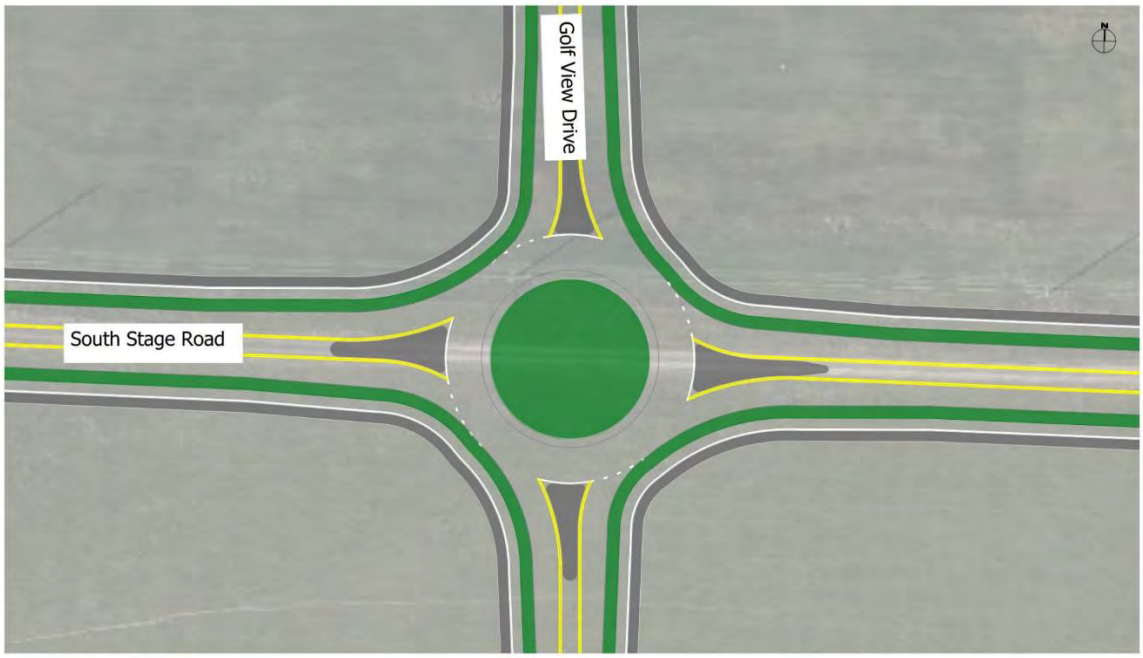
0 40 80 Feet

North Phoenix Road & South Stage Road
Overpass/Underpass and Interchange Alternative

Purpose	This project is projected to improve the intersection operations to meet the City's standards.	
Description	This project will convert the intersection from TWSC to a roundabout so that the intersection is projected to meet the City's standard of LOS D. The roundabout should have landscape buffers separating the adjacent 6-foot sidewalk and 6.3-foot bike lanes at the intersection with the South Stage Road extension.	
Roadway Characteristics	– Jurisdiction: City of Medford (assumed) – Intersection Control Type: None – Functional Classification: N Phoenix Road (Minor Arterial) – Freight Route Designation: N Phoenix Road (County Freight Routes) – Existing PM Peak Hour TEV: N/A – 2045 PM Peak Hour TEV (Overpass/Underpass): 2,156[1] – 2045 PM Peak Hour TEV (Interchange): 2,218[1]	– Posted Speed: N Phoenix Road (40 mph), South Stage Road (45 mph, assumed) – Pedestrian Facilities: None – Bike Facilities: None – Transit Facilities: None
How Improvement Addresses Deficiencies	Existing/Future Need: – The intersection is projected to not meet the City of Medford's standards under the 2045 condition with TWSC.	With Improvement: – Addresses future increase in traffic volumes by improving the intersection operations to meet the City's standards. – Feasible to construct with little environmental impacts.
Additional Considerations	This project will require coordination with utilities and the Padigan Winery.	
Cost Opinion	$6,593,000	

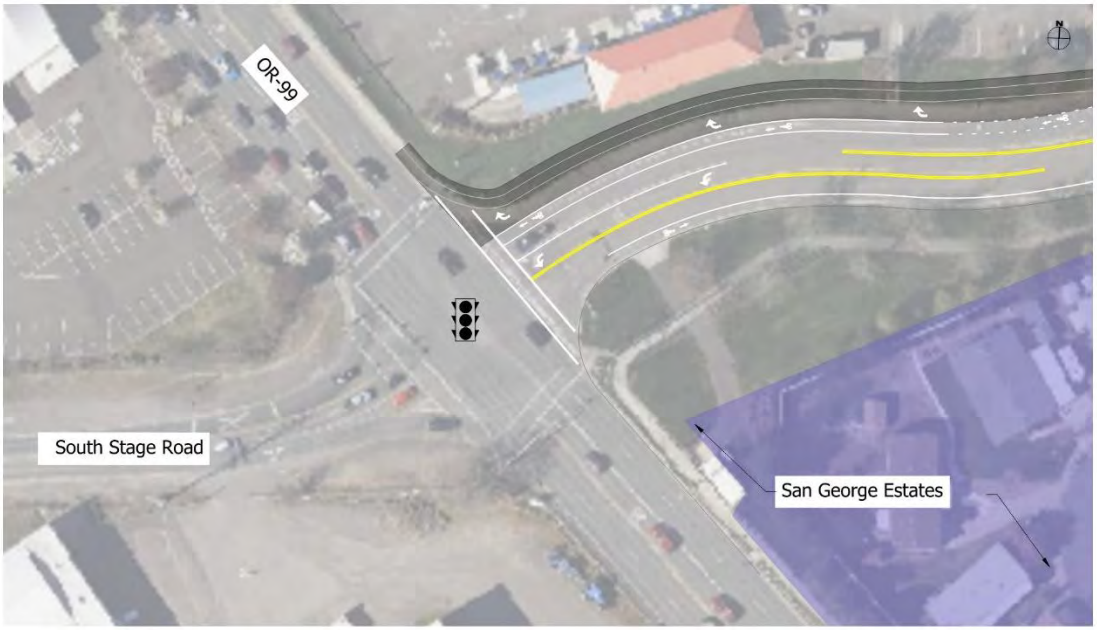
[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Exhibit 5 South Stage Road & Golf View Drive	South Stage Road Extension Plan Overpass/Underpass and Interchange Alternative



Purpose	This project is projected to improve the intersection operations to meet the City's standards.	
Description	This intersection does not currently exist but will in the future as part of the South Stage Road and Golf View Drive extensions. Construct a single lane roundabout with access on all four approaches to accommodate future planned public and private development funded roadway approaches. The roundabout should have landscape buffers separating the adjacent 6-foot sidewalk and 6.3-foot bike lanes at the intersection.	
Roadway Characteristics	– Jurisdiction: City of Medford (assumed) – Intersection Control Type: None – Functional Classification: None – Freight Route Designation: None – Existing PM Peak Hour TEV: N/A – 2045 PM Peak Hour TEV (Overpass/Underpass): 1,419[1] – 2045 PM Peak Hour TEV (Interchange): 1,573[1]	– Posted Speed: None – Pedestrian Facilities: None – Bike Facilities: None – Transit Facilities: None
How Improvement Addresses Deficiencies	Existing/Future Need: – The intersection is projected to not meet the City of Medford's standards under the 2045 condition with TWSC.	With Improvement: – Addresses future increase in traffic volumes by improving the intersection operations to meet the City's standards. – Feasible to construct with little environmental impacts.
Additional Considerations	This project will require coordination with utilities.	
Cost Opinion	$5,038,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.



Purpose	This project will improve intersection operations to meet mobility standards and provide adequate storage for vehicles making the westbound right-turn movement.	
Description	This project will construct a separate right-turn lane on the east leg of the intersection with 275 feet of storage.	
Roadway Characteristics	– Jurisdiction: ODOT (Oregon Department of Transportation) – Intersection Control Type: Signal – Functional Classification: OR-99 (Other Principal Arterial), South Stage Road (Minor Arterial) – Freight Route Designation: OR-99 (NHS Freight Route and County Freight Routes), South Stage Road (City of Medford Freight Routes) – Existing PM Peak Hour TEV: 2,088 (Source: 2023 Traffic Counts) – 2045 PM Peak Hour TEV (Overpass/Underpass): 3,294[1] – 2045 PM Peak Hour TEV (Interchange): 3,107[1]	– Posted Speed: OR-99 (45 mph), South Stage Road (45 mph) – Pedestrian Facilities: Sidewalks (7' on the east side of OR-99 and 8' on the east leg of South Stage Road on the north side) – Bike Facilities: (5' on the east leg of South Stage Road) – Transit Facilities: Bus stops NB and SB on OR-99
How Improvement Addresses Deficiencies	Existing/Future Need: – The existing signalized intersection currently only has a westbound through-right lane. – The westbound right-turn queue length is projected to exceed the existing storage under the 2045 condition.	With Improvement: – Addresses future increase in traffic volumes by providing adequate storage for turning vehicles. – Feasible to construct with minimal environmental impacts.
Additional Considerations	This project will require coordination with utilities.	
Cost Opinion	$684,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Exhibit 7 Samike Drive-Devonshire Lane & South Stage Road	South Stage Road Extension Plan Overpass/Underpass and Interchange Alternative

Purpose	This project is projected to improve the intersection operations to meet the City's standards.	
Description	This project will convert the intersection from having a yield sign on the north leg and stop sign on the south leg to a signal so that the intersection is projected to meet the City's standard of LOS D. The South Stage Road extension will construct an east leg on the intersection. The east leg is currently the entrance to the Bear Creek Greenway. A 14-foot multi-use path will be constructed on the north side of South Stage Road. The west leg will be converted to a left-turn lane and a shared through/right-turn lane.	
Roadway Characteristics	– Jurisdiction: City of Medford – Intersection Control Type: TWSC/Yield – Functional Classification: Samike Drive (Local), Devonshire Lane (Local, South Stage Road (Minor Arterial) – Freight Route Designation: South Stage Road (City of Medford Freight Route) – Existing PM Peak Hour TEV: 199 (Source: 2023 Traffic Counts) – 2045 PM Peak Hour TEV (Overpass/Underpass): 1,320[1] – 2045 PM Peak Hour TEV (Interchange): 1,733[1]	– Posted Speed: South Stage Road (45 mph) – Pedestrian Facilities: Sidewalks (5' on all legs) – Bike Facilities: (5' on the west leg) – Transit Facilities: None
How Improvement Addresses Deficiencies	Existing/Future Need: – The existing intersection operates as TWSC/Yield control and has three legs. – The intersection is projected to not meet the City of Medford's standards under the 2045 condition.	With Improvement: – Addresses future increase in traffic volumes by improving the intersection operations to meet the City's standards. – Feasible to construct with little to no right-of-way or environmental impacts.
Additional Considerations	This project will require coordination with utilities.	
Cost Opinion	$1,510,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Exhibit 8
Golf View Drive & Barnett Road

South Stage Road Extension Plan
Overpass/Underpass and Interchange Alternative

South Stage Road
Extension Plan

0 50 100 Feet

Golf View Drive & Barnett Road
Overpass/Underpass and Interchange Alternative

Purpose	This project is intended to improve safety at the intersection.	
Description	This project will install left-turn lanes on the east and west legs. The project will remove the unprotected left signal and install a left turn signal.	
Roadway Characteristics	– Jurisdiction: City of Medford – Intersection Control Type: Signal – Functional Classification: Golf View Drive (Major Collector), Barnett Road (Minor Arterial) – Freight Route Designation: Barnett Road (City of Medford Freight Routes) – Existing PM Peak Hour TEV: 1295 (Source: 2019 Traffic Counts) – 2045 PM Peak Hour TEV (Overpass/Underpass): 2,838[1] – 2045 PM Peak Hour TEV (Interchange): 1,3,71[1]	– Posted Speed: Barnett Road (35 mph), Golf View Drive (25 mph) – Pedestrian Facilities: Sidewalks (5' on the south side of the west leg and east side of the north leg, 7' on all other legs) – Bike Facilities: (6' on the south leg) – Transit Facilities: Bus stop 300 feet east of the intersection on the north side
How Improvement Addresses Deficiencies	Existing/Future Need: – The existing intersection operates as signal control with unprotected left turns. These vehicles turn from the through lanes.	With Improvement: – Reduces rear-end and left-turn/through crashes.
Additional Considerations	This project will require coordination with utilities.	
Cost Opinion	$1,250,000	

[1]Traffic volumes forecasted from the Southern Oregon Activity Based Model.

Attachment B. Signal Warrants

KITTELSON & ASSOCIATES

Signal Warrant Assessment

Based on 2009 Edition of the MUTCD

Project #:	23021
Project Name:	South Stage Extension Plan
Analyst:	AEG
Analysis Date:	7/11/2024
Intersection:	S Stage Road/Samike Dr-Devonshire Ln
Scenario:	Overpass
Data Date:	6/26/2045

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	Yes
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Highest	Yes	Yes
#2	Four-Hour	Yes	Yes
#3	Peak Hour	Yes	Yes

**The peak hour signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

Select Type Of Major Street Approach From Dropdown Menu	Urban Minor Arterial
Select Type Of Minor Street Approach From Dropdown Menu	Urban Minor Arterial

Note: traffic volume profile for weekday (if weekend is desired, tab "vol profile" needs to be adjusted)

Traffic Volumes

Hour		Major Street		Minor Street		Major St.	Minor St.
Begin	End	EB	WB	NB	SB	Adj. Factor	Adj. Factor
4:15 AM	5:15 AM	553	658	36	78	1.00	1.00
2nd Highest Hour		524	623	34	74	0.95	0.95
3rd Highest Hour		516	614	34	73	0.93	0.93
4th Highest Hour		494	588	32	70	0.89	0.89
5th Highest Hour		487	579	32	69	0.88	0.88
6th Highest Hour		487	579	32	69	0.88	0.88
7th Highest Hour		465	553	30	66	0.84	0.84
8th Highest Hour		457	544	30	64	0.83	0.83
9th Highest Hour		442	526	29	62	0.80	0.80
10th Highest Hour		413	491	27	58	0.75	0.75
11th Highest Hour		398	474	26	56	0.72	0.72
12th Highest Hour		391	465	25	55	0.71	0.71
13th Highest Hour		376	447	24	53	0.68	0.68
14th Highest Hour		324	386	21	46	0.59	0.59
15th Highest Hour		258	307	17	36	0.47	0.47
16th Highest Hour		243	290	16	34	0.44	0.44
17th Highest Hour		170	202	11	24	0.31	0.31
18th Highest Hour		140	167	9	20	0.25	0.25
19th Highest Hour		74	88	5	10	0.13	0.13
20th Highest Hour		52	61	3	7	0.09	0.09
21st Highest Hour		44	53	3	6	0.08	0.08
22nd Highest Hour		29	35	2	4	0.05	0.05
23rd Highest Hour		15	18	1	2	0.03	0.03
24th Highest Hour		15	18	1	2	0.03	0.03

calculated based on roadway type - can be overwritten if desired

Data Input

KITTELSON & ASSOCIATES

Signal Warrant Assessment

Based on 2009 Edition of the MUTCD

Project #:	23021
Project Name:	South Stage Extension Plan
Analyst:	AEG
Analysis Date:	7/11/2024
Intersection:	S Stage Road/Samike Dr-Devonshire Ln
Scenario:	Interchange
Data Date:	6/26/2045

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	Yes
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Highest	Yes	Yes
#2	Four-Hour	Yes	Yes
#3	Peak Hour	Yes	Yes

**The peak hour signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

Select Type Of Major Street Approach From Dropdown Menu	Urban Minor Arterial
Select Type Of Minor Street Approach From Dropdown Menu	Urban Minor Arterial

Note: traffic volume profile for weekday (if weekend is desired, tab "vol profile" needs to be adjusted)

Traffic Volumes

Hour		Major Street		Minor Street		Major St.	Minor St.
Begin	End	EB	WB	NB	SB	Adj. Factor	Adj. Factor
4:15 AM	5:15 AM	840	792	24	78	1.00	1.00
2nd Highest Hour		795	750	23	74	0.95	0.95
3rd Highest Hour		784	739	22	73	0.93	0.93
4th Highest Hour		750	708	21	70	0.89	0.89
5th Highest Hour		739	697	21	69	0.88	0.88
6th Highest Hour		739	697	21	69	0.88	0.88
7th Highest Hour		706	665	20	66	0.84	0.84
8th Highest Hour		694	655	20	64	0.83	0.83
9th Highest Hour		672	634	19	62	0.80	0.80
10th Highest Hour		627	591	18	58	0.75	0.75
11th Highest Hour		605	570	17	56	0.72	0.72
12th Highest Hour		594	560	17	55	0.71	0.71
13th Highest Hour		571	539	16	53	0.68	0.68
14th Highest Hour		493	465	14	46	0.59	0.59
15th Highest Hour		392	370	11	36	0.47	0.47
16th Highest Hour		370	348	11	34	0.44	0.44
17th Highest Hour		258	243	7	24	0.31	0.31
18th Highest Hour		213	201	6	20	0.25	0.25
19th Highest Hour		112	106	3	10	0.13	0.13
20th Highest Hour		78	74	2	7	0.09	0.09
21st Highest Hour		67	63	2	6	0.08	0.08
22nd Highest Hour		45	42	1	4	0.05	0.05
23rd Highest Hour		22	21	1	2	0.03	0.03
24th Highest Hour		22	21	1	2	0.03	0.03

calculated based on roadway type - can be overwritten if desired

Data Input

Attachment C. Operations Worksheets

Vistro File: H:\...\27003_Southstage Vistro.vistro
Report File: H:\...\2045 No-Build_PM.pdf

Scenario 3 2045 No-Build PM
7/18/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
103	OR99/Garfield Street	Signalized	HCM 7th Edition	NB Thru	0.966	51.3	D
104	OR99/Stage Road	Signalized	HCM 7th Edition	EB Right	0.836	29.5	C
106	OR99/Phoenix Road-Bolz Road	Signalized	HCM 7th Edition	EB Thru	0.977	66.1	E
114	Barnett Road/Black Oak Drive	Signalized	HCM 7th Edition	WB Left	0.980	59.7	E
117	Juanipero Way/Golf View Drive	Two-way stop	HCM 7th Edition	NB Left	1.067	130.2	F
120	Phoenix Road/Commercial Drive	Two-way stop	HCM 7th Edition	WB Thru	0.031	43.6	E
124	Golf View Drive/S Stage Road	Two-way stop	HCM 7th Edition	WB Left	0.032	10.9	B
125	S Stage Road/Samike Dr-Devonshire Ln	Two-way stop	HCM 7th Edition	NB Thru	0.009	9.7	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 103: OR99/Garfield Street

Control Type:	Signalized	Delay (sec / veh):	51.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name	OR99			OR99			Garfield St			Garfield St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	200.00	100.00	335.00	175.00	100.00	500.00	215.00	100.00	100.00	300.00	100.00	220.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	OR99			OR99			Garfield St			Garfield St		
Base Volume Input [veh/h]	96	808	563	452	771	53	76	300	46	472	526	281
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	3.00	2.00	2.00	7.00	2.00	4.00	6.00	3.00	4.00	5.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	282	0	0	27	0	0	14	0	0	141
Total Hourly Volume [veh/h]	96	808	281	452	771	26	76	300	32	472	526	140
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	227	79	127	217	7	21	84	9	133	148	39
Total Analysis Volume [veh/h]	108	908	316	508	866	29	85	337	36	530	591	157
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	2			0			0			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			0			0			2		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	138
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	5	2	2	1	6	6	7	4	0	3	8	8
Auxiliary Signal Groups			2,3			6,7						1,8
Maximum Green [s]	25	30	30	24	30	30	20	30	0	35	75	75
Amber [s]	3.5	4.7	4.7	3.5	4.7	4.7	3.5	4.0	0.0	3.5	4.0	4.0
All red [s]	0.5	0.7	0.7	0.5	0.7	0.7	0.5	0.5	0.0	0.5	0.5	0.5
Walk [s]	0	8	8	0	0	0	0	8	0	0	8	8
Pedestrian Clearance [s]	0	29	29	0	0	0	0	30	0	0	25	25
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.4	3.4	2.0	3.4	3.4	2.0	2.5	0.0	2.0	2.5	2.5
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	11	46	46	22	57	57	10	44	0	26	60	60
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	5	0	5	5	5
Vehicle Extension [s]	2.1	4.7	4.7	2.1	4.7	4.7	2.5	2.5	0.0	2.1	2.5	2.5
Minimum Recall	No	Yes	Yes	No	Yes	Yes	No	No		No	No	No
Maximum Recall	No	No	No	No	No	No	No	No		No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	122	122	122	122	122	122	122	122	122	122	122	122
L, Total Lost Time per Cycle [s]	4.00	5.40	4.00	4.00	5.40	4.00	4.00	4.50	4.50	4.00	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.40	0.00	2.00	3.40	0.00	2.00	2.50	2.50	2.00	2.50	0.00
g_i, Effective Green Time [s]	10	30	60	22	42	55	8	28	28	24	45	71
g / C, Green / Cycle	0.08	0.25	0.49	0.18	0.34	0.45	0.07	0.23	0.23	0.20	0.37	0.58
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.22	0.16	0.26	0.02	0.05	0.11	0.11	0.17	0.35	0.11
s, saturation flow rate [veh/h]	1667	3253	1440	3186	3279	1391	1640	1695	1633	3160	1695	1417
c, Capacity [veh/h]	132	800	705	563	1126	630	107	392	378	631	620	820
d1, Uniform Delay [s]	53.74	41.02	13.06	45.64	29.04	13.43	54.89	36.27	36.32	42.94	30.30	6.26
k, delay calibration	0.05	0.21	0.38	0.05	0.20	0.20	0.08	0.08	0.08	0.05	0.12	0.07
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.72	68.01	1.57	2.77	2.11	0.06	9.35	0.68	0.72	1.45	9.90	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	1.14	0.45	0.90	0.77	0.05	0.79	0.48	0.49	0.84	0.95	0.19
d, Delay for Lane Group [s/veh]	59.46	109.04	14.63	48.41	31.15	13.48	64.25	36.95	37.05	44.39	40.20	6.33
Lane Group LOS	E	F	B	D	C	B	E	D	D	D	D	A
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.38	18.80	3.94	7.33	10.03	0.34	2.79	4.45	4.35	7.30	16.64	1.05
50th-Percentile Queue Length [ft/ln]	84.47	470.01	98.43	183.26	250.63	8.57	69.87	111.15	108.70	182.48	416.04	26.15
95th-Percentile Queue Length [veh/ln]	6.08	27.81	7.09	11.77	15.22	0.62	5.03	7.90	7.77	11.73	23.33	1.88
95th-Percentile Queue Length [ft/ln]	152.05	695.26	177.17	294.26	380.44	15.43	125.76	197.60	194.19	293.25	583.30	47.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.46	109.04	14.63	48.41	31.15	13.48	64.25	36.99	37.05	44.39	40.20	6.33
Movement LOS	E	F	B	D	C	B	E	D	D	D	D	A
d_A, Approach Delay [s/veh]	82.62			37.03			42.05			37.78		
Approach LOS	F			D			D			D		
d_I, Intersection Delay [s/veh]	51.34											
Intersection LOS	D											
Intersection V/C	0.966											

Emissions

Vehicle Miles Traveled [mph]	16.63	139.85	48.67	113.02	192.67	6.45	9.97	22.13	21.60	96.09	107.15	28.46
Stops [stops/h]	99.77	1110.23	116.25	432.88	592.01	10.13	82.52	131.28	128.38	431.04	491.37	30.88
Fuel consumption [US gal/h]	2.54	32.04	3.59	12.05	16.69	0.40	1.98	3.06	2.99	11.12	11.96	1.54
CO [g/h]	177.73	2239.30	250.73	842.15	1166.70	28.04	138.21	213.60	208.79	777.57	836.00	107.98
NOx [g/h]	34.58	435.69	48.78	163.85	227.00	5.46	26.89	41.56	40.62	151.29	162.66	21.01
VOC [g/h]	41.19	518.98	58.11	195.18	270.39	6.50	32.03	49.50	48.39	180.21	193.75	25.02

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	12.0	0.0	12.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	2024.55
d_p, Pedestrian Delay [s]	49.55	49.55	0.00	49.55
l_p,int, Pedestrian LOS Score for Intersectio	3.365	3.025	0.000	3.132
Crosswalk LOS	C	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	666	846	648	910
d_b, Bicycle Delay [s]	27.14	20.29	27.87	18.10
l_b,int, Bicycle LOS Score for Intersection	2.891	2.739	1.949	3.901
Bicycle LOS	C	B	A	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 104: OR99/Stage Road

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.836

Intersection Setup

Name	OR99			OR99			South Stage Road			S Stage Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	160.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	20.00	130.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	OR99			OR99			South Stage Road			S Stage Road		
Base Volume Input [veh/h]	316	726	41	37	750	191	135	20	263	48	31	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	3.00	0.00	1.00	6.00	4.00	0.00	2.00	0.00	4.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	316	726	41	37	750	191	135	20	263	48	31	31
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	197	11	10	204	52	37	5	71	13	8	8
Total Analysis Volume [veh/h]	343	789	45	40	815	208	147	22	286	52	34	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	18	34	0	10	26	0	30	16	0	30	16	0
Amber [s]	3.5	4.7	0.0	3.5	4.7	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	0.7	0.0	0.5	0.7	0.0	1.0	0.5	0.0	1.0	0.5	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	33	0	0	29	0	0	21	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.4	0.0	2.0	3.4	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	91	48	0	102	59	0	54	69	0	21	36	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	13	0	5	13	0	5	5	0	5	5	0
Vehicle Extension [s]	2.5	5.8	0.0	2.5	5.8	0.0	3.0	2.5	0.0	3.0	2.5	0.0
Minimum Recall	No	Yes		Yes	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	74	74	74	74	74	74	74	74	74	74	74
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.40	5.40	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.40	3.40	0.00	3.40	3.40	0.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	42	35	35	42	25	25	23	16	16	23	12
g / C, Green / Cycle	0.56	0.47	0.47	0.56	0.34	0.34	0.31	0.21	0.21	0.31	0.16
(v / s)_i Volume / Saturation Flow Rate	0.37	0.24	0.24	0.05	0.31	0.31	0.10	0.01	0.20	0.04	0.04
s, saturation flow rate [veh/h]	926	1722	1690	784	1736	1616	1429	1750	1464	1220	1557
c, Capacity [veh/h]	500	808	793	467	592	551	536	376	314	512	255
d1, Uniform Delay [s]	13.78	13.89	13.90	8.52	23.30	23.31	19.43	23.29	28.57	18.17	27.24
k, delay calibration	0.42	0.35	0.35	0.08	0.43	0.43	0.08	0.08	0.34	0.11	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.38	1.69	1.72	0.06	16.60	17.63	0.20	0.05	24.54	0.09	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.52	0.52	0.09	0.89	0.90	0.27	0.06	0.91	0.10	0.27
d, Delay for Lane Group [s/veh]	20.16	15.58	15.62	8.57	39.91	40.94	19.63	23.33	53.11	18.25	27.65
Lane Group LOS	C	B	B	A	D	D	B	C	D	B	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.58	4.89	4.81	0.23	10.41	9.85	1.75	0.29	6.65	0.62	1.05
50th-Percentile Queue Length [ft/ln]	89.39	122.22	120.23	5.85	260.13	246.22	43.80	7.19	166.19	15.50	26.33
95th-Percentile Queue Length [veh/ln]	6.44	8.51	8.41	0.42	15.70	15.00	3.15	0.52	10.88	1.12	1.90
95th-Percentile Queue Length [ft/ln]	160.89	212.87	210.14	10.52	392.39	374.89	78.84	12.93	271.89	27.91	47.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.16	15.60	15.62	8.57	40.27	40.94	19.63	23.33	53.11	18.25	27.65	27.65
Movement LOS	C	B	B	A	D	D	B	C	D	B	C	C
d_A, Approach Delay [s/veh]	16.93			39.21			40.85			23.58		
Approach LOS	B			D			D			C		
d_I, Intersection Delay [s/veh]	29.49											
Intersection LOS	C											
Intersection V/C	0.836											

Emissions

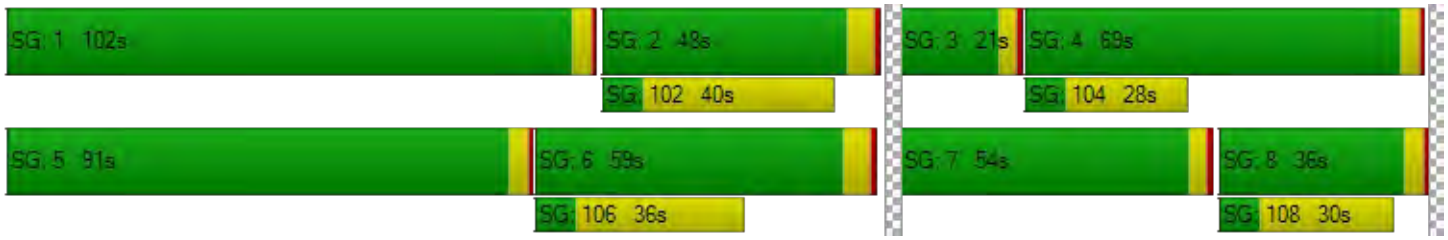
Vehicle Miles Traveled [mph]	160.84	197.32	193.76	7.05	93.30	86.89	17.97	2.69	34.97	5.29	6.91
Stops [stops/h]	172.84	236.32	232.47	11.30	503.00	476.09	84.69	13.89	321.34	29.98	50.91
Fuel consumption [US gal/h]	8.98	10.76	10.57	0.45	13.75	13.01	2.26	0.37	8.29	0.58	0.95
CO [g/h]	627.93	752.34	739.15	31.58	961.37	909.26	157.72	25.82	579.13	40.29	66.30
NOx [g/h]	122.17	146.38	143.81	6.14	187.05	176.91	30.69	5.02	112.68	7.84	12.90
VOC [g/h]	145.53	174.36	171.31	7.32	222.81	210.73	36.55	5.98	134.22	9.34	15.37

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.05	27.05	27.05	27.05
l_p,int, Pedestrian LOS Score for Intersectio	2.762	2.924	2.680	2.032
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1144	1439	1746	859
d_b, Bicycle Delay [s]	6.82	2.92	0.60	12.11
l_b,int, Bicycle LOS Score for Intersection	2.531	2.437	2.310	1.758
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 106: OR99/Phoenix Road-Bolz Road

Control Type:	Signalized	Delay (sec / veh):	66.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.977

Intersection Setup

Name	OR99			OR99			Bolz Rd			Bolz Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	2	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	OR99			OR99			Bolz Rd			Bolz Rd		
Base Volume Input [veh/h]	12	516	476	345	1224	77	92	262	46	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	2.00	2.00	4.00	0.00	10.00	5.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	516	476	345	1224	77	92	262	46	0	0	0
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	145	134	97	344	22	26	74	13	0	0	0
Total Analysis Volume [veh/h]	13	580	535	388	1375	87	103	294	52	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Maximum Green [s]	25	45	0	40	40	0	0	25	0	0	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	24	0	0	16	0	0	29	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	0.0	20.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	36	0	9	36	0	0	45	0	0	0	0
Lead / Lag	Lag	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	5	0	0	0	0
Vehicle Extension [s]	2.5	1.4	0.0	2.5	4.1	0.0	0.0	4.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No				
Maximum Recall	No	No		No	No			No				
Pedestrian Recall	No	No		No	No			No				

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	
C, Cycle Length [s]	91	91	91	91	91	91	91	
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.00	4.50	4.50	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	0.00	2.50	2.50	2.00	2.50	2.50	2.00	
g_i, Effective Green Time [s]	39	38	38	15	40	40	25	
g / C, Green / Cycle	0.43	0.42	0.42	0.16	0.44	0.44	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.41	0.14	0.48	0.49	0.31	
s, saturation flow rate [veh/h]	761	2880	1318	2867	1525	1494	1466	
c, Capacity [veh/h]	371	1213	555	473	673	659	405	
d1, Uniform Delay [s]	22.08	13.90	19.21	36.53	25.30	25.30	32.80	
k, delay calibration	0.16	0.04	0.29	0.08	0.50	0.50	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.06	0.11	21.76	2.69	60.94	67.84	77.96	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.04	0.48	0.96	0.82	1.09	1.11	1.11	
d, Delay for Lane Group [s/veh]	22.14	14.01	40.97	39.22	86.24	93.13	110.76	
Lane Group LOS	C	B	D	D	F	F	F	
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.12	3.05	11.74	4.24	24.84	25.59	17.32	
50th-Percentile Queue Length [ft/ln]	2.98	76.14	293.42	106.04	620.99	639.77	432.93	
95th-Percentile Queue Length [veh/ln]	0.21	5.48	17.36	7.62	35.08	36.42	25.65	
95th-Percentile Queue Length [ft/ln]	5.37	137.06	433.88	190.48	876.90	910.38	641.30	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.14	14.01	40.97	39.22	89.46	93.13	110.76	110.76	110.76	0.00	0.00	0.00
Movement LOS	C	B	D	D	F	F	F	F	F			
d_A, Approach Delay [s/veh]	26.89			79.10			110.76			0.00		
Approach LOS	C			E			F			A		
d_I, Intersection Delay [s/veh]	66.06											
Intersection LOS	E											
Intersection V/C	0.977											

Emissions

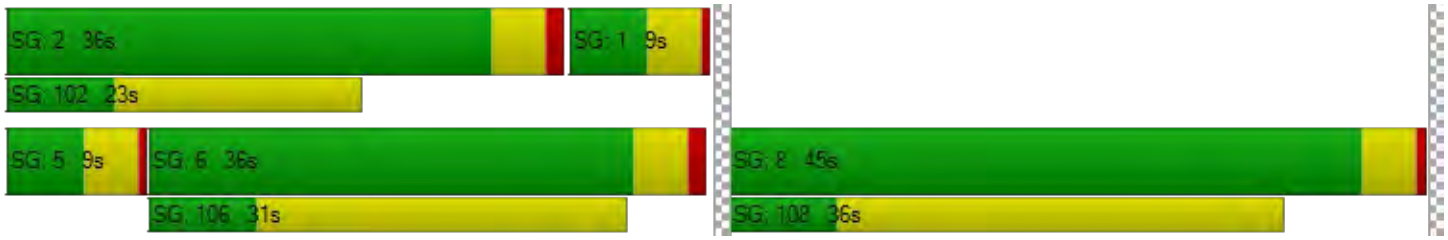
Vehicle Miles Traveled [mph]	0.81	36.28	33.47	36.77	69.42	69.14	15.98	
Stops [stops/h]	4.75	242.27	466.80	337.39	987.94	1017.82	688.75	
Fuel consumption [US gal/h]	0.12	4.49	8.42	6.47	21.17	22.30	14.58	
CO [g/h]	8.27	313.53	588.35	452.57	1479.67	1558.44	1019.29	
NOx [g/h]	1.61	61.00	114.47	88.05	287.89	303.22	198.32	
VOC [g/h]	1.92	72.66	136.36	104.89	342.93	361.18	236.23	

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.93	34.93	34.93	34.93
l_p,int, Pedestrian LOS Score for Intersectio	2.868	2.864	1.995	2.308
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	696	696	906	0
d_b, Bicycle Delay [s]	19.24	19.24	13.54	45.26
l_b,int, Bicycle LOS Score for Intersection	2.490	3.086	2.300	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 114: Barnett Road/Black Oak Drive

Control Type:	Signalized	Delay (sec / veh):	59.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.980

Intersection Setup

Name	Black Oak Dr			Black Oak Dr			Barnett Rd			Barnett Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	75.00	100.00	100.00	70.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Black Oak Dr			Black Oak Dr			Barnett Rd			Barnett Rd		
Base Volume Input [veh/h]	439	227	113	67	233	147	90	856	498	58	910	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	439	227	113	67	233	147	90	856	498	58	910	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	110	57	28	17	58	37	23	214	125	15	228	15
Total Analysis Volume [veh/h]	439	227	113	67	233	147	90	856	498	58	910	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			6			7			1		
v_di, Inbound Pedestrian Volume crossing m	1			7			6			1		
v_co, Outbound Pedestrian Volume crossing	3			3			3			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			3			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	144
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	95.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Maximum Green [s]	13	48	48	13	48	48	17	50	50	17	50	50
Amber [s]	3.5	4.0	4.0	3.5	4.0	4.0	3.5	4.0	4.0	3.5	4.0	4.0
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Walk [s]	0	8	8	0	8	8	0	8	8	0	8	8
Pedestrian Clearance [s]	0	22	22	0	22	22	0	17	17	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.5	2.5
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	33	62	62	8	37	37	13	65	65	9	61	61
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	3	5	5	3	5	5	3	8	8	5	8	8
Vehicle Extension [s]	1.5	2.0	2.0	1.5	2.0	2.0	1.5	3.5	3.5	1.5	3.5	3.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	144	144	144	144	144	144	144	144	144	144
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.00	4.50	4.50	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	0.00	2.50	2.00	2.50	2.50	2.00	2.50	2.50
g_i, Effective Green Time [s]	66	58	66	33	9	60	60	5	57	57
g / C, Green / Cycle	0.46	0.40	0.46	0.23	0.06	0.42	0.42	0.03	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.33	0.20	0.06	0.23	0.05	0.40	0.42	0.03	0.27	0.27
s, saturation flow rate [veh/h]	1348	1699	1117	1672	1714	1772	1550	1714	1800	1759
c, Capacity [veh/h]	457	679	424	378	105	744	650	60	708	692
d1, Uniform Delay [s]	43.30	32.44	23.95	55.72	67.00	40.49	41.46	69.43	36.41	36.43
k, delay calibration	0.30	0.04	0.11	0.18	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.17	0.21	0.17	28.60	7.55	23.81	32.74	27.19	5.50	5.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.50	0.16	1.00	0.86	0.96	0.99	0.97	0.69	0.69
d, Delay for Lane Group [s/veh]	67.47	32.65	24.13	84.31	74.55	64.30	74.19	96.62	41.91	42.07
Lane Group LOS	E	C	C	F	E	E	E	F	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	14.36	9.12	1.35	16.84	3.49	28.76	28.02	2.58	15.34	15.05
50th-Percentile Queue Length [ft/ln]	359.08	227.98	33.87	420.97	87.24	719.06	700.45	64.52	383.61	376.16
95th-Percentile Queue Length [veh/ln]	20.58	14.07	2.44	23.63	6.28	37.56	36.70	4.65	21.77	21.41
95th-Percentile Queue Length [ft/ln]	514.47	351.80	60.97	590.83	157.03	938.94	917.47	116.14	544.22	535.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.47	32.65	32.65	24.13	84.31	84.31	74.55	65.98	74.19	96.62	41.99	42.07
Movement LOS	E	C	C	C	F	F	E	E	E	F	D	D
d_A, Approach Delay [s/veh]	52.27			75.29			69.35			45.07		
Approach LOS	D			E			E			D		
d_I, Intersection Delay [s/veh]	59.72											
Intersection LOS	E											
Intersection V/C	0.980											

Emissions

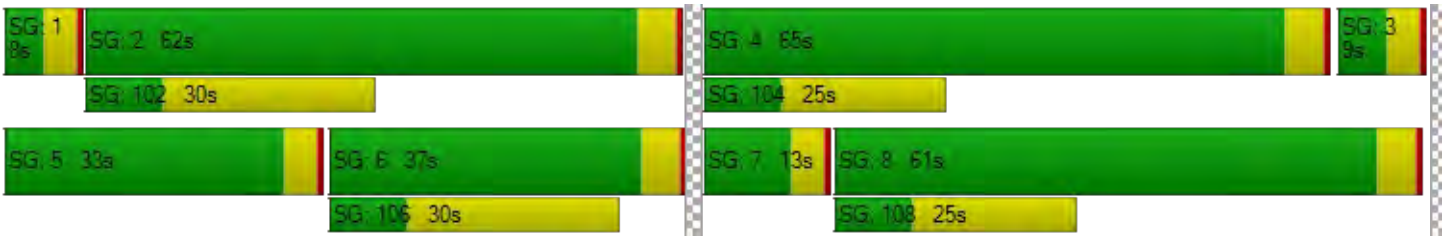
Vehicle Miles Traveled [mph]	283.64	219.67	7.25	41.13	46.64	368.31	333.44	9.11	77.03	75.37
Stops [stops/h]	359.08	227.98	33.87	420.97	87.24	719.06	700.45	64.52	383.61	376.16
Fuel consumption [US gal/h]	20.16	13.01	0.78	9.98	3.80	28.74	27.69	1.97	10.00	9.81
CO [g/h]	1409.10	909.53	54.87	697.85	265.56	2009.21	1935.50	137.90	699.17	685.63
NOx [g/h]	274.16	176.96	10.68	135.78	51.67	390.92	376.58	26.83	136.03	133.40
VOC [g/h]	326.57	210.79	12.72	161.73	61.55	465.65	448.57	31.96	162.04	158.90

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	12.0	12.0	12.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	238.48	0.00
d_p, Pedestrian Delay [s]	60.50	60.50	60.50	60.50
l_p,int, Pedestrian LOS Score for Intersectio	2.387	2.185	3.140	2.831
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	799	451	840	785
d_b, Bicycle Delay [s]	25.98	43.17	24.21	26.58
l_b,int, Bicycle LOS Score for Intersection	2.845	2.297	2.751	2.408
Bicycle LOS	C	B	C	B

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 117: Juanipero Way/Golf View Drive

Control Type:	Two-way stop	Delay (sec / veh):	130.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.067

Intersection Setup

Name				Golf View Dr			Juanipero W			Juanipero Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			25.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Golf View Dr			Juanipero W			Juanipero Way		
Base Volume Input [veh/h]	220	20	91	4	37	5	5	176	363	156	127	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	220	20	91	4	37	5	5	176	363	156	127	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	5	23	1	9	1	1	44	91	39	32	1
Total Analysis Volume [veh/h]	220	20	91	4	37	5	5	176	363	156	127	2
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.07	0.08	0.13	0.02	0.18	0.01	0.00	0.00	0.00	0.15	0.00	0.00
d_M, Delay for Movement [s/veh]	130.17	20.29	12.00	24.50	25.73	12.38	7.48	0.00	0.00	9.12	0.00	0.00
Movement LOS	F	C	B	C	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	9.98	0.78	0.78	0.06	0.65	0.65	0.01	0.00	0.00	0.53	0.00	0.00
95th-Percentile Queue Length [ft/ln]	249.54	19.38	19.38	1.62	16.32	16.32	0.26	0.00	0.00	13.33	0.00	0.00
d_A, Approach Delay [s/veh]	91.04			24.17			0.07			4.99		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	27.12											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 120: Phoenix Road/Commercial Drive

Control Type:	Two-way stop	Delay (sec / veh):	43.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Phoenix Rd			Phoenix Rd			S Stage Rd			Commercial Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Phoenix Rd			Phoenix Rd			S Stage Rd			Commercial Drive		
Base Volume Input [veh/h]	14	833	2	4	756	15	27	7	18	1	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	25.00	0.00	1.00	2.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	833	2	4	756	15	27	7	18	1	3	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	208	1	1	189	4	7	2	5	0	1	0
Total Analysis Volume [veh/h]	14	833	2	4	756	15	27	7	18	1	3	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.00	0.01	0.00	0.21	0.07	0.03	0.01	0.03	0.00
d_M, Delay for Movement [s/veh]	9.36	0.00	0.00	9.48	0.00	0.00	39.94	43.40	12.50	37.55	43.58	12.57
Movement LOS	A	A	A	A	A	A	E	E	B	E	E	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.01	0.00	0.00	0.75	0.33	0.33	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	1.27	0.00	0.00	0.37	0.00	0.00	18.65	8.32	8.32	3.06	3.06	3.06
d_A, Approach Delay [s/veh]	0.15			0.05			30.91			42.08		
Approach LOS	A			A			D			E		
d_I, Intersection Delay [s/veh]	1.16											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 124: Golf View Drive/S Stage Road

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Golf View Dr		Golf View Dr		S Stage Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Golf View Dr		Golf View Dr		S Stage Rd	
Base Volume Input [veh/h]	131	25	18	198	20	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	25	18	198	20	10
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	6	5	50	5	3
Total Analysis Volume [veh/h]	131	25	18	198	20	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	7.56	0.00	10.94	8.96
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.00	0.10	0.03
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.96	0.00	2.47	0.83
d_A, Approach Delay [s/veh]	0.00		0.63		10.28	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.11					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 125: S Stage Road/Samike Dr-Devonshire Ln

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	Devonshire Ln		Samike Dr		S Stage Road	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Devonshire Ln		Samike Dr		S Stage Road	
Base Volume Input [veh/h]	25	7	8	75	56	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	7	8	75	56	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	2	2	19	14	8
Total Analysis Volume [veh/h]	25	7	8	75	56	31
Pedestrian Volume [ped/h]	6		3		7	

Intersection Settings

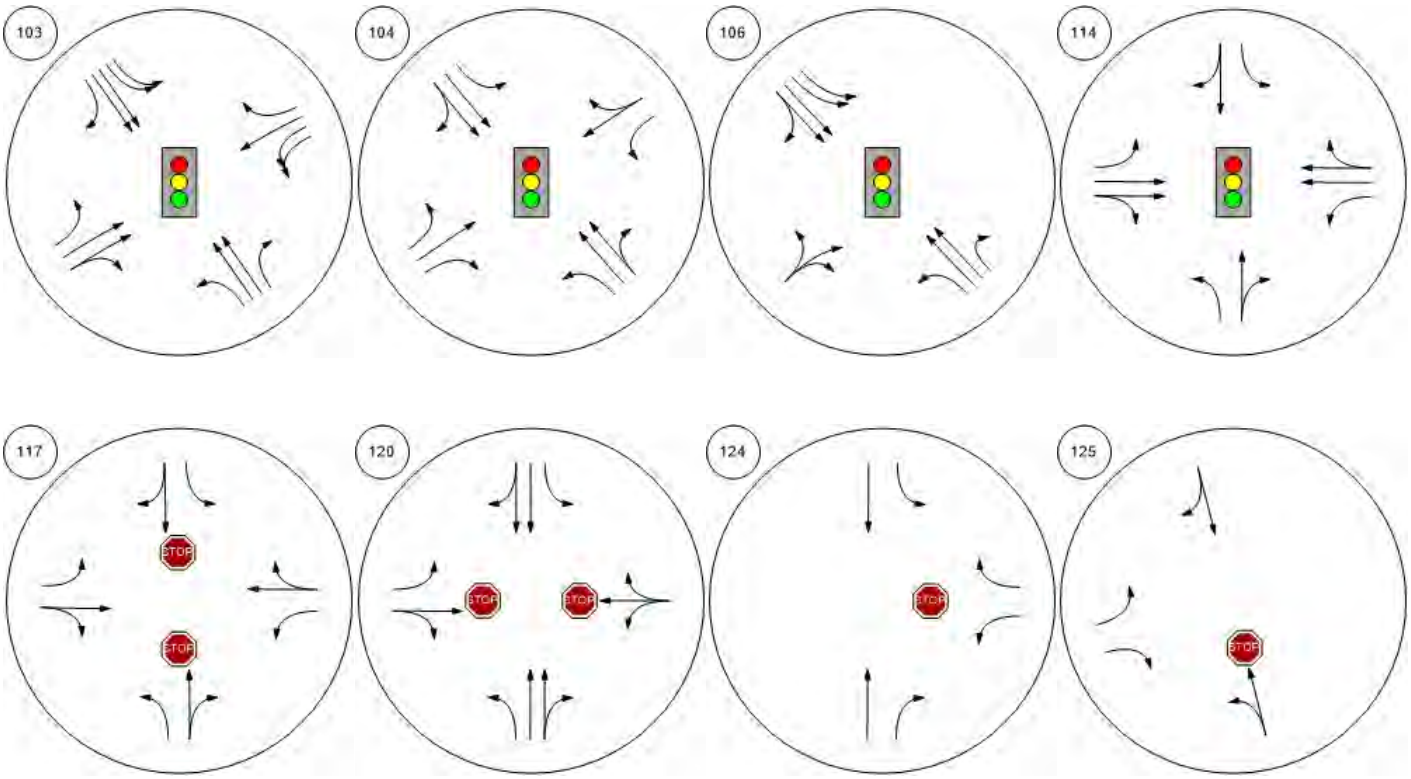
Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.61	9.67	7.39	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.17	0.17	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.08	3.08	4.35	4.35	0.00	0.00
d_A, Approach Delay [s/veh]	9.63		0.71		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.82					
Intersection LOS	A					

Study Intersections

Lane Configuration and Traffic Control



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Scenario 13 2045 Overpass PM_Enhanced
7/18/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
103	OR99/Garfield Street	Signalized	HCM 7th Edition	NB Thru	0.955	49.2	D
104	OR99/Stage Road	Signalized	HCM 7th Edition	SB Right	0.846	33.0	C
106	OR99/Phoenix Road-Bolz Road	Signalized	HCM 7th Edition	EB Thru	0.847	20.0	C
114	Barnett Road/Black Oak Drive	Signalized	HCM 7th Edition	WB Left	0.861	44.1	D
117	Juanipero Way/Golf View Drive	All-way stop	HCM 2010	EB Right	0.929	27.5	D
125	S Stage Road/Samike Dr-Devonshire Ln	Signalized	HCM 7th Edition	SB Right	0.431	13.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 103: OR99/Garfield Street

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.955

Intersection Setup

Name	OR99			OR99			Garfield St			Garfield St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	200.00	100.00	335.00	175.00	100.00	500.00	215.00	100.00	100.00	300.00	100.00	220.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	OR99			OR99			Garfield St			Garfield St		
Base Volume Input [veh/h]	90	806	431	415	816	60	86	260	46	435	518	293
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	3.00	2.00	2.00	7.00	2.00	4.00	6.00	3.00	4.00	5.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	216	0	0	30	0	0	14	0	0	147
Total Hourly Volume [veh/h]	90	806	215	415	816	30	86	260	32	435	518	146
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	226	60	117	229	8	24	73	9	122	146	41
Total Analysis Volume [veh/h]	101	906	242	466	917	34	97	292	36	489	582	164
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	2			0			0			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			0			0			2		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	138
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	5	2	2	1	6	6	7	4	0	3	8	8
Auxiliary Signal Groups			2,3			6,7						1,8
Maximum Green [s]	25	30	30	24	30	30	20	30	0	35	75	75
Amber [s]	3.5	4.7	4.7	3.5	4.7	4.7	3.5	4.0	0.0	3.5	4.0	4.0
All red [s]	0.5	0.7	0.7	0.5	0.7	0.7	0.5	0.5	0.0	0.5	0.5	0.5
Walk [s]	0	8	8	0	0	0	0	8	0	0	8	8
Pedestrian Clearance [s]	0	29	29	0	0	0	0	30	0	0	25	25
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.4	3.4	2.0	3.4	3.4	2.0	2.5	0.0	2.0	2.5	2.5
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	20.0	20.0	20.0	0.0	0.0	0.0	20.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	24	43	43	25	44	44	9	44	0	26	61	61
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	5	0	5	5	5
Vehicle Extension [s]	2.1	4.7	4.7	2.1	4.7	4.7	2.5	2.5	0.0	2.1	2.5	2.5
Minimum Recall	No	Yes	Yes	No	Yes	Yes	No	No		No	No	No
Maximum Recall	No	No	No	No	No	No	No	No		No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	5.40	4.00	4.00	5.40	4.00	4.00	4.50	4.50	4.00	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.40	0.00	2.00	3.40	0.00	2.00	2.50	2.50	2.00	2.50	0.00
g_i, Effective Green Time [s]	9	30	57	20	41	55	9	30	30	22	43	67
g / C, Green / Cycle	0.07	0.25	0.48	0.17	0.34	0.46	0.07	0.25	0.25	0.18	0.36	0.56
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.17	0.15	0.28	0.02	0.06	0.10	0.10	0.15	0.34	0.12
s, saturation flow rate [veh/h]	1667	3253	1440	3186	3279	1391	1640	1695	1625	3160	1695	1417
c, Capacity [veh/h]	124	815	690	527	1120	640	121	425	408	581	611	798
d1, Uniform Delay [s]	53.11	39.86	12.91	45.55	29.39	12.70	53.13	32.85	32.90	43.54	30.07	6.98
k, delay calibration	0.05	0.20	0.26	0.05	0.20	0.20	0.08	0.08	0.08	0.05	0.11	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.85	57.87	0.74	2.47	2.84	0.06	8.82	0.44	0.47	1.60	8.76	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	1.11	0.35	0.88	0.82	0.05	0.80	0.39	0.40	0.84	0.95	0.21
d, Delay for Lane Group [s/veh]	58.96	97.73	13.65	48.02	32.23	12.77	61.94	33.29	33.37	45.14	38.83	7.07
Lane Group LOS	E	F	B	D	C	B	E	C	C	D	D	A
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.11	17.73	2.87	6.56	10.85	0.38	3.09	3.61	3.52	6.67	15.88	1.18
50th-Percentile Queue Length [ft/ln]	77.81	443.22	71.78	164.10	271.23	9.59	77.27	90.29	88.12	166.81	396.91	29.54
95th-Percentile Queue Length [veh/ln]	5.60	26.15	5.17	10.77	16.25	0.69	5.56	6.50	6.34	10.91	22.41	2.13
95th-Percentile Queue Length [ft/ln]	140.06	653.78	129.21	269.15	406.28	17.26	139.08	162.52	158.62	272.72	560.27	53.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.96	97.73	13.65	48.02	32.23	12.77	61.94	33.32	33.37	45.14	38.83	7.07
Movement LOS	E	F	B	D	C	B	E	C	C	D	D	A
d_A, Approach Delay [s/veh]	78.31			36.95			39.86			37.11		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	49.22											
Intersection LOS	D											
Intersection V/C	0.955											

Emissions

Vehicle Miles Traveled [mph]	15.56	139.55	37.27	103.68	204.02	7.56	11.37	19.48	18.97	88.65	105.51	29.73
Stops [stops/h]	93.69	1067.38	86.43	395.20	653.19	11.55	93.04	108.72	106.11	401.72	477.92	35.57
Fuel consumption [US gal/h]	2.37	29.66	2.68	11.00	18.02	0.46	2.20	2.53	2.47	10.36	11.58	1.66
CO [g/h]	165.64	2073.11	187.62	769.22	1259.68	32.40	154.11	176.71	172.38	724.20	809.64	115.80
NOx [g/h]	32.23	403.35	36.50	149.66	245.09	6.30	29.98	34.38	33.54	140.90	157.53	22.53
VOC [g/h]	38.39	480.46	43.48	178.27	291.94	7.51	35.72	40.96	39.95	167.84	187.64	26.84

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	12.0	0.0	12.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	2271.53
d_p, Pedestrian Delay [s]	48.40	48.40	0.00	48.40
l_p,int, Pedestrian LOS Score for Intersectio	3.248	3.034	0.000	3.097
Crosswalk LOS	C	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	629	646	661	945
d_b, Bicycle Delay [s]	28.12	27.44	26.83	16.65
l_b,int, Bicycle LOS Score for Intersection	2.768	2.753	1.922	3.840
Bicycle LOS	C	C	A	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 104: OR99/Stage Road

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

Intersection Setup

Name	OR99			OR99			South Stage Road			South Stage Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	20.00	130.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	OR99			OR99			South Stage Road			South Stage Road		
Base Volume Input [veh/h]	221	682	141	248	780	257	191	102	215	154	129	174
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	3.00	0.00	1.00	6.00	4.00	0.00	2.00	0.00	4.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	221	682	141	248	780	257	191	102	215	154	129	174
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	185	38	67	212	70	52	28	58	42	35	47
Total Analysis Volume [veh/h]	240	741	153	270	848	279	208	111	234	167	140	189
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	18	34	0	10	26	0	30	16	0	30	16	0
Amber [s]	3.5	4.7	0.0	3.5	4.7	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	0.7	0.0	0.5	0.7	0.0	1.0	0.5	0.0	1.0	0.5	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	33	0	0	29	0	0	21	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.4	0.0	2.0	3.4	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	69	46	0	65	42	0	43	56	0	73	86	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	13	0	5	13	0	5	5	0	5	5	0
Vehicle Extension [s]	2.5	5.8	0.0	2.5	5.8	0.0	3.0	2.5	0.0	3.0	2.5	0.0
Minimum Recall	No	Yes		Yes	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	77	77	77	77	77	77	77	77	77	77	77	77
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.40	5.40	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.40	3.40	0.00	3.40	3.40	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	41	28	28	41	28	28	26	14	14	26	12	12
g / C, Green / Cycle	0.54	0.37	0.37	0.54	0.36	0.36	0.34	0.19	0.19	0.34	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.29	0.27	0.27	0.30	0.34	0.34	0.16	0.06	0.16	0.13	0.08	0.13
s, saturation flow rate [veh/h]	816	1722	1621	907	1736	1592	1296	1750	1464	1283	1695	1452
c, Capacity [veh/h]	408	635	598	478	630	578	499	327	273	517	272	233
d1, Uniform Delay [s]	15.23	20.96	20.98	13.45	23.58	23.77	19.53	27.24	30.36	18.77	29.62	31.24
k, delay calibration	0.38	0.37	0.37	0.50	0.46	0.47	0.24	0.08	0.24	0.11	0.08	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.72	5.24	5.59	4.78	20.60	24.36	1.22	0.45	15.03	0.36	1.12	7.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.72	0.73	0.57	0.93	0.94	0.42	0.34	0.86	0.32	0.51	0.81
d, Delay for Lane Group [s/veh]	19.95	26.20	26.56	18.23	44.18	48.13	20.74	27.69	45.39	19.13	30.74	39.04
Lane Group LOS	B	C	C	B	D	D	C	C	D	B	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.50	7.58	7.21	2.67	12.43	12.20	2.68	1.68	4.99	2.17	2.42	3.82
50th-Percentile Queue Length [ft/ln]	62.49	189.45	180.14	66.69	310.78	304.96	67.08	41.97	124.71	54.36	60.41	95.61
95th-Percentile Queue Length [veh/ln]	4.50	12.09	11.61	4.80	18.21	17.93	4.83	3.02	8.65	3.91	4.35	6.88
95th-Percentile Queue Length [ft/ln]	112.49	302.32	290.20	120.03	455.34	448.16	120.75	75.54	216.28	97.85	108.73	172.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.95	26.34	26.56	18.23	45.42	48.13	20.74	27.69	45.39	19.13	30.74	39.04
Movement LOS	B	C	C	B	D	D	C	C	D	B	C	D
d_A, Approach Delay [s/veh]	25.02			40.70			32.57			29.99		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	32.99											
Intersection LOS	C											
Intersection V/C	0.846											

Emissions

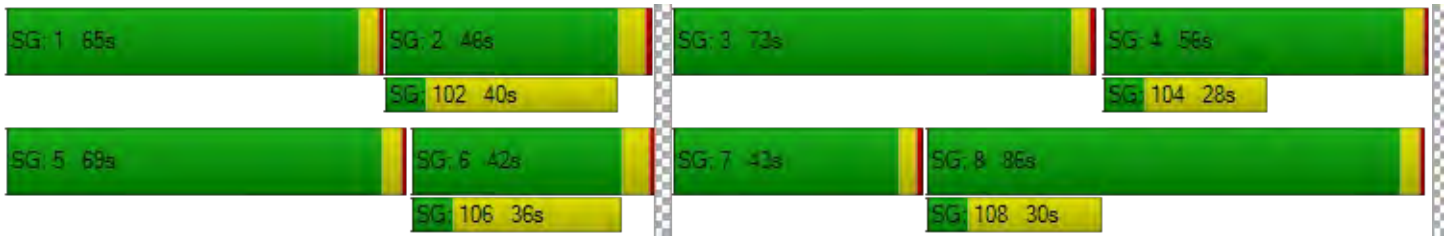
Vehicle Miles Traveled [mph]	112.54	215.77	203.46	47.56	102.77	95.74	25.43	13.57	28.61	16.74	14.03	18.95
Stops [stops/h]	117.03	354.78	337.33	124.88	581.97	571.08	125.62	78.59	233.53	101.79	113.12	179.05
Fuel consumption [US gal/h]	6.25	13.30	12.58	4.18	16.00	15.71	3.31	2.07	6.05	1.79	1.94	3.04
CO [g/h]	437.14	929.41	879.67	292.48	1118.69	1097.86	231.49	144.54	422.60	125.37	135.66	212.51
NOx [g/h]	85.05	180.83	171.15	56.91	217.66	213.60	45.04	28.12	82.22	24.39	26.40	41.35
VOC [g/h]	101.31	215.40	203.87	67.79	259.27	254.44	53.65	33.50	97.94	29.06	31.44	49.25

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.24	28.24	28.24	28.24
l_p,int, Pedestrian LOS Score for Intersectio	2.806	3.088	2.698	2.483
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1056	952	1352	2133
d_b, Bicycle Delay [s]	8.57	10.56	4.03	0.17
l_b,int, Bicycle LOS Score for Intersection	2.495	2.712	2.472	2.378
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 106: OR99/Phoenix Road-Bolz Road

Control Type:	Signalized	Delay (sec / veh):	20.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	OR99			OR99			Bolz Rd			Bolz Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	2	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	OR99			OR99			Bolz Rd			Bolz Rd		
Base Volume Input [veh/h]	12	518	491	293	1241	66	87	256	53	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	2.00	2.00	4.00	0.00	10.00	5.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	518	491	293	1241	66	87	256	53	0	0	0
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	146	138	82	349	19	24	72	15	0	0	0
Total Analysis Volume [veh/h]	13	582	552	329	1394	74	98	288	60	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Maximum Green [s]	25	45	0	40	40	0	0	25	0	0	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	24	0	0	16	0	0	29	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	37	0	13	41	0	0	40	0	0	0	0
Lead / Lag	Lag	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	5	0	0	0	0
Vehicle Extension [s]	2.5	1.4	0.0	2.5	4.1	0.0	0.0	4.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No				
Maximum Recall	No	No		No	No			No				
Pedestrian Recall	No	No		No	No			No				

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	
C, Cycle Length [s]	61	61	61	61	61	61	61	61	61	
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.00	4.50	4.50	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	0.00	2.50	2.50	2.00	2.50	2.50	2.00	2.00	2.00	
g_i, Effective Green Time [s]	25	24	24	10	33	33	14	14	14	
g / C, Green / Cycle	0.41	0.40	0.40	0.16	0.54	0.54	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.03	0.20	0.24	0.11	0.48	0.49	0.07	0.19	0.04	
s, saturation flow rate [veh/h]	449	2880	2332	2867	1525	1499	1382	1513	1339	
c, Capacity [veh/h]	253	1156	936	450	826	812	328	359	318	
d1, Uniform Delay [s]	19.52	10.34	10.80	24.56	12.41	12.56	19.13	21.96	18.61	
k, delay calibration	0.16	0.04	0.04	0.08	0.50	0.30	0.15	0.15	0.15	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.12	0.13	0.22	1.72	13.84	9.91	0.72	5.85	0.40	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.05	0.50	0.59	0.73	0.89	0.90	0.30	0.80	0.19	
d, Delay for Lane Group [s/veh]	19.64	10.47	11.02	26.28	26.25	22.47	19.85	27.80	19.02	
Lane Group LOS	B	B	B	C	C	C	B	C	B	
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.08	1.97	1.94	2.23	10.13	9.23	1.12	4.16	0.67	
50th-Percentile Queue Length [ft/ln]	2.01	49.22	48.44	55.71	253.16	230.84	28.12	103.91	16.67	
95th-Percentile Queue Length [veh/ln]	0.14	3.54	3.49	4.01	15.35	14.22	2.02	7.48	1.20	
95th-Percentile Queue Length [ft/ln]	3.62	88.60	87.20	100.27	383.63	355.42	50.62	187.04	30.00	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.64	10.47	11.02	26.28	24.47	22.47	19.85	27.80	19.02	0.00	0.00	0.00
Movement LOS	B	B	B	C	C	C	B	C	B			
d_A, Approach Delay [s/veh]	10.84			24.72			24.87			0.00		
Approach LOS	B			C			C			A		
d_I, Intersection Delay [s/veh]	20.04											
Intersection LOS	C											
Intersection V/C	0.847											

Emissions

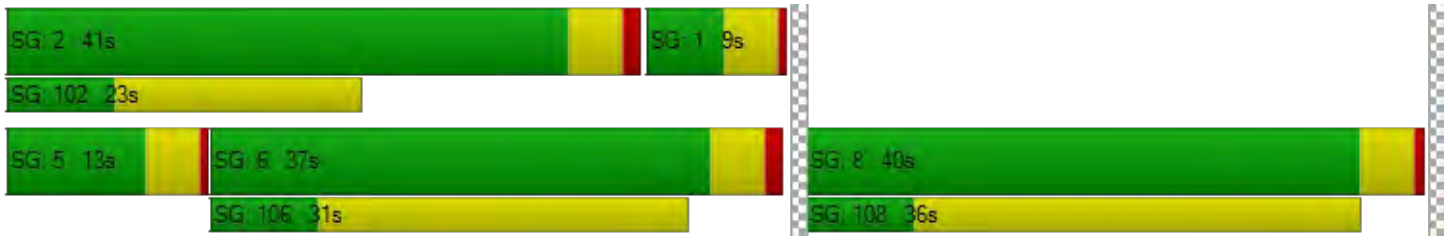
Vehicle Miles Traveled [mph]	0.81	36.41	34.53	31.18	69.74	69.39	3.49	10.25	2.14	
Stops [stops/h]	4.74	232.28	228.62	262.89	597.36	544.68	66.36	245.19	39.33	
Fuel consumption [US gal/h]	0.11	4.02	3.92	4.50	10.10	9.21	0.91	3.41	0.54	
CO [g/h]	7.80	281.15	274.21	314.24	706.14	644.07	63.34	238.08	37.56	
NOx [g/h]	1.52	54.70	53.35	61.14	137.39	125.31	12.32	46.32	7.31	
VOC [g/h]	1.81	65.16	63.55	72.83	163.66	149.27	14.68	55.18	8.71	

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.51	20.51	20.51	20.51
l_p,int, Pedestrian LOS Score for Intersectio	2.935	2.834	2.255	2.263
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1065	1196	1180	0
d_b, Bicycle Delay [s]	6.67	4.93	5.13	30.51
l_b,int, Bicycle LOS Score for Intersection	2.506	3.042	2.296	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 114: Barnett Road/Black Oak Drive

Control Type:	Signalized	Delay (sec / veh):	44.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.861

Intersection Setup

Name	Black Oak Dr			Black Oak Dr			Barnett Rd			Barnett Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	75.00	100.00	100.00	70.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Black Oak Dr			Black Oak Dr			Barnett Rd			Barnett Rd		
Base Volume Input [veh/h]	350	230	105	83	230	157	91	800	371	51	864	72
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	350	230	105	83	230	157	91	800	371	51	864	72
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	58	26	21	58	39	23	200	93	13	216	18
Total Analysis Volume [veh/h]	350	230	105	83	230	157	91	800	371	51	864	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			6			7			1		
v_di, Inbound Pedestrian Volume crossing m	1			7			6			1		
v_co, Outbound Pedestrian Volume crossing	3			3			3			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			3			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	144
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	95.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Maximum Green [s]	13	48	48	13	48	48	17	50	50	17	50	50
Amber [s]	3.5	4.0	4.0	3.5	4.0	4.0	3.5	4.0	4.0	3.5	4.0	4.0
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Walk [s]	0	8	8	0	8	8	0	8	8	0	8	8
Pedestrian Clearance [s]	0	22	22	0	22	22	0	17	17	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.5	2.5
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	24	64	64	12	52	52	21	54	54	14	47	47
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	3	5	5	3	5	5	3	8	8	5	8	8
Vehicle Extension [s]	1.5	2.0	2.0	1.5	2.0	2.0	1.5	3.5	3.5	1.5	3.5	3.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	144	144	144	144	144	144	144	144	144	144
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.00	4.50	4.50	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	0.00	2.50	2.00	2.50	2.50	2.00	2.50	2.50
g_i, Effective Green Time [s]	59	49	59	35	9	66	66	6	62	62
g / C, Green / Cycle	0.41	0.34	0.41	0.25	0.07	0.46	0.46	0.04	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.28	0.20	0.07	0.23	0.05	0.35	0.35	0.03	0.26	0.26
s, saturation flow rate [veh/h]	1271	1705	1152	1668	1714	1772	1578	1714	1800	1750
c, Capacity [veh/h]	372	582	377	411	112	813	724	67	778	756
d1, Uniform Delay [s]	36.98	38.87	28.18	53.27	66.40	32.33	32.58	68.56	31.55	31.56
k, delay calibration	0.15	0.04	0.22	0.19	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.94	0.34	0.58	16.50	5.14	6.52	7.67	6.61	3.55	3.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.58	0.22	0.94	0.81	0.76	0.77	0.76	0.61	0.61
d, Delay for Lane Group [s/veh]	51.92	39.21	28.76	69.77	71.54	38.86	40.25	75.17	35.09	35.22
Lane Group LOS	D	D	C	E	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	10.71	9.92	1.88	15.74	3.46	18.94	17.44	1.98	13.40	13.07
50th-Percentile Queue Length [ft/ln]	267.81	248.00	46.98	393.49	86.38	473.62	435.95	49.53	334.90	326.63
95th-Percentile Queue Length [veh/ln]	16.08	15.09	3.38	22.25	6.22	26.08	24.29	3.57	19.40	18.99
95th-Percentile Queue Length [ft/ln]	402.00	377.14	84.57	556.15	155.48	652.07	607.16	89.15	484.96	474.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.92	39.21	39.21	28.76	69.77	69.77	71.54	39.18	40.25	75.17	35.15	35.22
Movement LOS	D	D	D	C	E	E	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	45.70			62.53			41.82			37.22		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	44.13											
Intersection LOS	D											
Intersection V/C	0.861											

Emissions

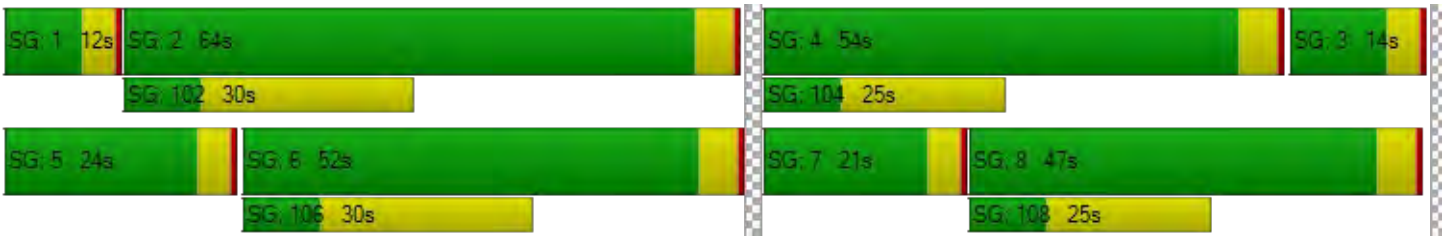
Vehicle Miles Traveled [mph]	226.13	216.44	8.98	41.89	47.16	318.92	287.98	8.01	74.53	72.53
Stops [stops/h]	267.79	247.99	46.98	393.47	86.37	473.59	435.92	49.52	334.88	326.62
Fuel consumption [US gal/h]	14.89	13.36	1.07	8.89	3.77	20.58	18.81	1.46	8.75	8.53
CO [g/h]	1041.07	933.67	74.79	621.18	263.66	1438.76	1314.53	101.91	611.40	596.22
NOx [g/h]	202.55	181.66	14.55	120.86	51.30	279.93	255.76	19.83	118.96	116.00
VOC [g/h]	241.28	216.39	17.33	143.96	61.11	333.45	304.66	23.62	141.70	138.18

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	12.0	12.0	12.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	243.60	0.00
d_p, Pedestrian Delay [s]	60.50	60.50	60.50	60.50
l_p,int, Pedestrian LOS Score for Intersectio	2.324	2.196	3.050	2.813
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	826	660	687	590
d_b, Bicycle Delay [s]	24.80	32.34	31.01	35.78
l_b,int, Bicycle LOS Score for Intersection	2.690	2.335	2.601	2.374
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 117: Juanipero Way/Golf View Drive

Control Type:	All-way stop	Delay (sec / veh):	27.5
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.929

Intersection Setup

Name				Golf View Dr			Juanipero W			Juanipero Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			25.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Golf View Dr			Juanipero W			Juanipero Way		
Base Volume Input [veh/h]	202	20	107	5	36	5	4	167	289	162	123	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	202	20	107	5	36	5	4	167	289	162	123	2
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	6	32	1	11	1	1	50	86	48	37	1
Total Analysis Volume [veh/h]	240	24	127	6	43	6	5	199	344	193	146	2
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	465	543	417	449	505	585	481	514
Degree of Utilization, x	0.52	0.28	0.01	0.11	0.01	0.93	0.40	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.91	1.13	0.04	0.36	0.03	11.91	1.91	1.18
95th-Percentile Queue Length [ft]	72.66	28.29	1.10	9.11	0.75	297.85	47.79	29.57
Approach Delay [s/veh]	15.91		11.67		45.78		13.99	
Approach LOS	C		B		E		B	
Intersection Delay [s/veh]	27.51							
Intersection LOS	D							

MOVEMENT SUMMARY

Site: 120 [S Stage Road / Phoenix Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Scenario 2 - PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Phoenix Road															
3	L2	All MCs	82	2.0	82	2.0	0.786	13.5	LOS B	11.1	280.0	0.87	0.70	0.98	32.7
8	T1	All MCs	788	1.0	788	1.0	0.786	8.5	LOS A	11.1	280.0	0.87	0.70	0.98	33.3
18	R2	All MCs	1	25.0	1	25.0	0.786	10.0	LOS B	11.1	280.0	0.87	0.70	0.98	32.4
Approach			871	1.1	871	1.1	0.786	9.0	LOS A	11.1	280.0	0.87	0.70	0.98	33.2
East: S Stage Road															
1	L2	All MCs	1	0.0	1	0.0	0.014	17.1	LOS B	0.1	2.4	0.91	0.69	0.91	31.2
6	T1	All MCs	4	2.0	4	2.0	0.014	12.5	LOS B	0.1	2.4	0.91	0.69	0.91	31.7
16	R2	All MCs	1	0.0	1	0.0	0.014	12.0	LOS B	0.1	2.4	0.91	0.69	0.91	31.5
Approach			6	1.3	6	1.3	0.014	13.2	LOS B	0.1	2.4	0.91	0.69	0.91	31.6
North: Phoenix Road															
7	L2	All MCs	2	0.0	2	0.0	0.772	10.3	LOS B	10.9	275.0	0.65	0.47	0.65	33.6
4	T1	All MCs	783	1.0	783	1.0	0.772	5.5	LOS A	10.9	275.0	0.65	0.47	0.65	34.2
14	R2	All MCs	191	2.0	191	2.0	0.772	5.4	LOS A	10.9	275.0	0.65	0.47	0.65	33.9
Approach			976	1.2	976	1.2	0.772	5.5	LOS A	10.9	275.0	0.65	0.47	0.65	34.2
West: S Stage Road															
5	L2	All MCs	221	2.0	221	2.0	0.463	15.7	LOS B	3.6	91.3	0.88	0.83	0.98	30.7
2	T1	All MCs	11	2.0	11	2.0	0.463	10.8	LOS B	3.6	91.3	0.88	0.83	0.98	31.3
12	R2	All MCs	74	2.0	74	2.0	0.463	10.7	LOS B	3.6	91.3	0.88	0.83	0.98	31.0
Approach			306	2.0	306	2.0	0.463	14.3	LOS B	3.6	91.3	0.88	0.83	0.98	30.8
All Vehicles			2159	1.3	2159	1.3	0.786	8.2	LOS A	11.1	280.0	0.77	0.61	0.83	33.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 124 [S Stage Road / Golf View Drive (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Scenario 2 - PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Golf View Drive															
3	L2	All MCs	131	2.0	131	2.0	0.205	11.9	LOS B	1.1	28.8	0.60	0.69	0.60	32.4
8	T1	All MCs	29	2.0	29	2.0	0.205	7.1	LOS A	1.1	28.8	0.60	0.69	0.60	33.0
18	R2	All MCs	27	2.0	27	2.0	0.205	6.9	LOS A	1.1	28.8	0.60	0.69	0.60	32.7
Approach			187	2.0	187	2.0	0.205	10.5	LOS B	1.1	28.8	0.60	0.69	0.60	32.5
East: S Stage Road															
1	L2	All MCs	33	2.0	33	2.0	0.276	11.4	LOS B	1.5	38.2	0.54	0.60	0.54	33.6
6	T1	All MCs	202	2.0	202	2.0	0.276	6.5	LOS A	1.5	38.2	0.54	0.60	0.54	34.3
16	R2	All MCs	44	2.0	44	2.0	0.276	6.4	LOS A	1.5	38.2	0.54	0.60	0.54	34.0
Approach			279	2.0	279	2.0	0.276	7.1	LOS A	1.5	38.2	0.54	0.60	0.54	34.1
North: Golf View Drive															
7	L2	All MCs	45	2.0	45	2.0	0.286	11.2	LOS B	1.6	40.6	0.53	0.61	0.53	33.9
4	T1	All MCs	35	2.0	35	2.0	0.286	6.3	LOS A	1.6	40.6	0.53	0.61	0.53	34.5
14	R2	All MCs	215	2.0	215	2.0	0.286	6.2	LOS A	1.6	40.6	0.53	0.61	0.53	34.2
Approach			295	2.0	295	2.0	0.286	6.9	LOS A	1.6	40.6	0.53	0.61	0.53	34.2
West: S Stage Road															
5	L2	All MCs	245	2.0	245	2.0	0.529	10.1	LOS B	4.0	102.5	0.41	0.54	0.41	33.6
2	T1	All MCs	233	2.0	233	2.0	0.529	5.3	LOS A	4.0	102.5	0.41	0.54	0.41	34.2
12	R2	All MCs	180	2.0	180	2.0	0.529	5.1	LOS A	4.0	102.5	0.41	0.54	0.41	33.9
Approach			658	2.0	658	2.0	0.529	7.0	LOS A	4.0	102.5	0.41	0.54	0.41	33.9
All Vehicles			1419	2.0	1419	2.0	0.529	7.5	LOS A	4.0	102.5	0.49	0.59	0.49	33.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection Level Of Service Report

Intersection 125: S Stage Road/Samike Dr-Devonshire Ln

Control Type:	Signalized	Delay (sec / veh):	13.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name	Devonshire Ln			Samike Dr			South Stage Road			South Stage Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Devonshire Ln			Samike Dr			South Stage Road			South Stage Road		
Base Volume Input [veh/h]	13	0	23	30	0	48	39	605	22	23	492	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	0	23	30	0	48	39	605	22	23	492	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	6	8	0	12	10	151	6	6	123	6
Total Analysis Volume [veh/h]	13	0	23	30	0	48	39	605	22	23	492	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			3			4			3		
v_di, Inbound Pedestrian Volume crossing m	3			4			3			2		
v_co, Outbound Pedestrian Volume crossing	3			2			3			1		
v_ci, Inbound Pedestrian Volume crossing mi	3			1			3			2		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	24	0	0	24	0	0	216	0	0	216	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	20	212	212	212	212
g / C, Green / Cycle	0.08	0.08	0.88	0.88	0.88	0.88
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.05	0.37	0.03	0.31
s, saturation flow rate [veh/h]	1295	1390	795	1672	718	1669
c, Capacity [veh/h]	128	137	684	1477	608	1474
d1, Uniform Delay [s]	103.42	106.45	3.97	2.61	4.71	2.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.38	16.19	0.16	0.90	0.12	0.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.57	0.06	0.42	0.04	0.35
d, Delay for Lane Group [s/veh]	108.80	122.65	4.13	3.51	4.83	3.02
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.34	5.42	0.41	5.50	0.27	4.10
50th-Percentile Queue Length [ft/ln]	58.60	135.39	10.15	137.57	6.63	102.62
95th-Percentile Queue Length [veh/ln]	4.22	9.23	0.73	9.35	0.48	7.39
95th-Percentile Queue Length [ft/ln]	105.47	230.81	18.28	233.74	11.94	184.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	108.80	108.80	108.80	122.65	122.65	122.65	4.13	3.51	3.51	4.83	3.02	3.02
Movement LOS	F	F	F	F	F	F	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	108.80			122.65			3.54			3.10		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	13.27											
Intersection LOS	B											
Intersection V/C	0.431											

Emissions

Vehicle Miles Traveled [mph]	1.49	2.12	3.91	62.85	21.68	487.32
Stops [stops/h]	35.16	81.24	6.09	82.54	3.98	61.57
Fuel consumption [US gal/h]	1.05	2.48	0.23	3.59	1.01	22.47
CO [g/h]	73.57	173.51	16.21	250.99	70.79	1570.59
NOx [g/h]	14.31	33.76	3.15	48.83	13.77	305.58
VOC [g/h]	17.05	40.21	3.76	58.17	16.41	364.00

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
l_p,int, Pedestrian LOS Score for Intersectio	1.833	1.886	2.335	2.354
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	167	1767	1767
d_b, Bicycle Delay [s]	100.83	100.83	1.63	1.63
l_b,int, Bicycle LOS Score for Intersection	1.619	1.688	2.659	2.451
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Vistro File: H:\...\27003_Southstage Vistro.vistro Scenario 14 2045 Interchange PM_Enhanced
Report File: H:\...\2045 Enhanced Interchange_PM.pdf 7/18/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
103	OR99/Garfield Street	Signalized	HCM 7th Edition	NB Thru	0.936	43.8	D
104	OR99/Stage Road	Signalized	HCM 7th Edition	WB Right	0.811	30.1	C
106	OR99/Phoenix Road-Bolz Road	Signalized	HCM 7th Edition	SB Left	0.850	20.2	C
114	Barnett Road/Black Oak Drive	Signalized	HCM 7th Edition	WB Left	0.823	41.2	D
117	Juanipero Way/Golf View Drive	All-way stop	HCM 2010	EB Right	0.617	13.4	B
125	S Stage Road/Samike Dr-Devonshire Ln	Signalized	HCM 7th Edition	SB Right	0.538	10.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 103: OR99/Garfield Street

Control Type:	Signalized	Delay (sec / veh):	43.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

Intersection Setup

Name	OR99			OR99			Garfield St			Garfield St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	200.00	100.00	335.00	175.00	100.00	500.00	215.00	100.00	100.00	300.00	100.00	220.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	1	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	OR99			OR99			Garfield St			Garfield St		
Base Volume Input [veh/h]	87	747	410	421	711	62	89	279	43	370	520	281
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	3.00	2.00	2.00	7.00	2.00	4.00	6.00	3.00	4.00	5.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	205	0	0	31	0	0	13	0	0	141
Total Hourly Volume [veh/h]	87	747	205	421	711	31	89	279	30	370	520	140
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	210	58	118	200	9	25	78	8	104	146	39
Total Analysis Volume [veh/h]	98	839	230	473	799	35	100	313	34	416	584	157
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	2			0			0			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			0			0			2		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	138
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	5	2	2	1	6	6	7	4	0	3	8	8
Auxiliary Signal Groups			2,3			6,7						1,8
Maximum Green [s]	25	30	30	24	30	30	20	30	0	35	75	75
Amber [s]	3.5	4.7	4.7	3.5	4.7	4.7	3.5	4.0	0.0	3.5	4.0	4.0
All red [s]	0.5	0.7	0.7	0.5	0.7	0.7	0.5	0.5	0.0	0.5	0.5	0.5
Walk [s]	0	8	8	0	0	0	0	8	0	0	8	8
Pedestrian Clearance [s]	0	29	29	0	0	0	0	30	0	0	25	25
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.4	3.4	2.0	3.4	3.4	2.0	2.5	0.0	2.0	2.5	2.5
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	29	36	36	28	36	36	24	34	0	39	80	80
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	5	0	5	5	5
Vehicle Extension [s]	2.1	4.7	4.7	2.1	4.7	4.7	2.5	2.5	0.0	2.1	2.5	2.5
Minimum Recall	No	Yes	Yes	No	Yes	Yes	No	No		No	No	No
Maximum Recall	No	No	No	No	No	No	No	No		No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No		No	No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	121	121	121	121	121	121	121	121	121	121	121	121
L, Total Lost Time per Cycle [s]	4.00	5.40	4.00	4.00	5.40	4.00	4.00	4.50	4.50	4.00	4.50	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.40	0.00	2.00	3.40	0.00	2.00	2.50	2.50	2.00	2.50	0.00
g_i, Effective Green Time [s]	9	30	55	20	41	56	9	33	33	20	44	68
g / C, Green / Cycle	0.07	0.25	0.45	0.17	0.34	0.46	0.08	0.28	0.28	0.16	0.36	0.57
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.16	0.15	0.24	0.03	0.06	0.10	0.10	0.13	0.34	0.11
s, saturation flow rate [veh/h]	1667	3253	1439	3186	3279	1391	1640	1695	1633	3160	1695	1417
c, Capacity [veh/h]	121	805	652	532	1121	643	125	468	451	510	613	802
d1, Uniform Delay [s]	53.92	40.61	15.00	46.02	28.18	12.73	53.59	30.61	30.66	45.85	30.37	6.92
k, delay calibration	0.05	0.20	0.25	0.05	0.20	0.20	0.08	0.08	0.08	0.05	0.11	0.06
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.83	32.15	0.75	2.54	1.59	0.06	8.58	0.37	0.39	1.51	9.27	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	1.04	0.35	0.89	0.71	0.05	0.80	0.38	0.38	0.82	0.95	0.20
d, Delay for Lane Group [s/veh]	59.74	72.76	15.75	48.55	29.77	12.79	62.17	30.98	31.05	47.36	39.64	6.99
Lane Group LOS	E	F	B	D	C	B	E	C	C	D	D	A
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.06	14.81	3.04	6.76	8.79	0.40	3.21	3.66	3.58	5.80	16.24	1.13
50th-Percentile Queue Length [ft/ln]	76.54	370.27	76.12	169.07	219.79	9.94	80.30	91.62	89.57	144.91	406.01	28.15
95th-Percentile Queue Length [veh/ln]	5.51	21.63	5.48	11.03	13.65	0.72	5.78	6.60	6.45	9.74	22.85	2.03
95th-Percentile Queue Length [ft/ln]	137.78	540.84	137.01	275.70	341.36	17.89	144.55	164.91	161.23	243.62	571.24	50.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.74	72.76	15.75	48.55	29.77	12.79	62.17	31.01	31.05	47.36	39.64	6.99
Movement LOS	E	F	B	D	C	B	E	C	C	D	D	A
d_A, Approach Delay [s/veh]	60.43			36.11			37.98			37.99		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	43.81											
Intersection LOS	D											
Intersection V/C	0.936											

Emissions

Vehicle Miles Traveled [mph]	15.09	129.23	35.43	105.23	177.76	7.79	11.72	20.59	20.09	75.42	105.88	28.46
Stops [stops/h]	91.04	880.85	90.54	402.22	522.87	11.82	95.52	108.98	106.54	344.73	482.93	33.49
Fuel consumption [US gal/h]	2.32	22.61	2.70	11.23	15.05	0.48	2.28	2.56	2.50	9.02	11.74	1.58
CO [g/h]	161.86	1580.26	188.42	784.80	1051.79	33.34	159.04	178.72	174.64	630.36	820.45	110.45
NOx [g/h]	31.49	307.46	36.66	152.69	204.64	6.49	30.94	34.77	33.98	122.65	159.63	21.49
VOC [g/h]	37.51	366.24	43.67	181.89	243.76	7.73	36.86	41.42	40.47	146.09	190.15	25.60

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	12.0	0.0	12.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	2267.32
d_p, Pedestrian Delay [s]	49.13	49.13	0.00	49.13
l_p,int, Pedestrian LOS Score for Intersectio	3.186	3.010	0.000	3.076
Crosswalk LOS	C	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	506	506	487	1247
d_b, Bicycle Delay [s]	33.82	33.82	34.64	8.58
l_b,int, Bicycle LOS Score for Intersection	2.692	2.663	1.939	3.701
Bicycle LOS	B	B	A	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 104: OR99/Stage Road

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name	OR99			OR99			South Stage Road			S Stage Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	160.00	100.00	100.00	160.00	100.00	100.00	100.00	100.00	20.00	130.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			45.00			45.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	OR99			OR99			South Stage Road			S Stage Road		
Base Volume Input [veh/h]	189	555	134	285	582	264	205	128	175	162	187	241
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	3.00	0.00	1.00	6.00	4.00	0.00	2.00	0.00	4.00	3.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	555	134	285	582	264	205	128	175	162	187	241
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	51	151	36	77	158	72	56	35	48	44	51	65
Total Analysis Volume [veh/h]	205	603	146	310	633	287	223	139	190	176	203	262
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	18	34	0	10	26	0	30	16	0	30	16	0
Amber [s]	3.5	4.7	0.0	3.5	4.7	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.5	0.7	0.0	0.5	0.7	0.0	1.0	0.5	0.0	1.0	0.5	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	33	0	0	29	0	0	21	0	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.4	0.0	2.0	3.4	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	91	48	0	102	59	0	54	69	0	21	36	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	13	0	5	13	0	5	5	0	5	5	0
Vehicle Extension [s]	2.5	5.8	0.0	2.5	5.8	0.0	3.0	2.5	0.0	3.0	2.5	0.0
Minimum Recall	No	Yes		Yes	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	79	79	79	79	79	79	79	79	79	79	79	79
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.40	5.40	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.40	3.40	0.00	3.40	3.40	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	40	26	26	40	27	27	30	18	18	30	16	16
g / C, Green / Cycle	0.50	0.32	0.32	0.50	0.34	0.34	0.38	0.23	0.23	0.38	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.23	0.22	0.22	0.31	0.28	0.28	0.19	0.08	0.13	0.14	0.12	0.18
s, saturation flow rate [veh/h]	889	1722	1608	1009	1736	1556	1198	1750	1464	1268	1695	1452
c, Capacity [veh/h]	416	557	520	495	587	526	488	401	336	545	341	292
d1, Uniform Delay [s]	15.43	23.46	23.46	14.89	24.13	24.20	18.26	25.64	27.13	17.18	28.80	30.94
k, delay calibration	0.35	0.35	0.35	0.50	0.43	0.43	0.35	0.08	0.14	0.11	0.10	0.33
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.91	4.99	5.34	5.90	10.76	12.30	2.16	0.38	1.96	0.34	1.61	23.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.70	0.70	0.63	0.82	0.83	0.46	0.35	0.57	0.32	0.60	0.90
d, Delay for Lane Group [s/veh]	18.34	28.46	28.80	20.79	34.89	36.50	20.42	26.02	29.09	17.52	30.41	54.29
Lane Group LOS	B	C	C	C	C	D	C	C	C	B	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.24	6.78	6.38	3.65	9.13	8.47	2.89	2.07	3.11	2.21	3.60	6.67
50th-Percentile Queue Length [ft/ln]	56.07	169.59	159.56	91.26	228.29	211.86	72.37	51.68	77.76	55.22	89.89	166.74
95th-Percentile Queue Length [veh/ln]	4.04	11.06	10.53	6.57	14.09	13.25	5.21	3.72	5.60	3.98	6.47	10.90
95th-Percentile Queue Length [ft/ln]	100.93	276.38	263.13	164.27	352.18	331.22	130.26	93.02	139.97	99.39	161.81	272.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.34	28.58	28.80	20.79	35.27	36.50	20.42	26.02	29.09	17.52	30.41	54.29
Movement LOS	B	C	C	C	D	D	C	C	C	B	C	D
d_A, Approach Delay [s/veh]	26.41			31.91			24.81			36.63		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	30.09											
Intersection LOS	C											
Intersection V/C	0.811											

Emissions

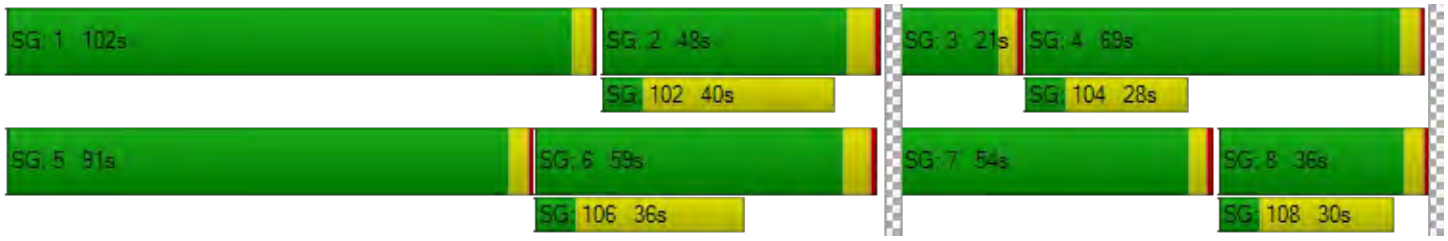
Vehicle Miles Traveled [mph]	96.13	181.65	169.58	54.60	85.17	76.87	27.27	17.00	23.23	17.99	20.75	26.78
Stops [stops/h]	101.80	307.91	289.69	165.69	414.48	384.66	131.39	93.82	141.18	100.25	163.21	302.73
Fuel consumption [US gal/h]	5.28	11.42	10.70	5.24	11.51	10.66	3.50	2.49	3.68	1.82	2.82	5.26
CO [g/h]	369.41	798.43	747.98	366.52	804.30	745.12	244.31	173.72	256.97	127.29	196.79	367.66
NOx [g/h]	71.87	155.35	145.53	71.31	156.49	144.97	47.53	33.80	50.00	24.77	38.29	71.53
VOC [g/h]	85.62	185.04	173.35	84.94	186.40	172.69	56.62	40.26	59.56	29.50	45.61	85.21

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.42	29.42	29.42	29.42
l_p,int, Pedestrian LOS Score for Intersectio	2.737	3.043	2.686	2.529
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1074	1352	1639	807
d_b, Bicycle Delay [s]	8.50	4.17	1.29	14.11
l_b,int, Bicycle LOS Score for Intersection	2.347	2.574	2.470	2.617
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 106: OR99/Phoenix Road-Bolz Road

Control Type:	Signalized	Delay (sec / veh):	20.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.850

Intersection Setup

Name	OR99			OR99			Bolz Rd			Bolz Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	2	0	0	1	0	1	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	OR99			OR99			Bolz Rd			Bolz Rd		
Base Volume Input [veh/h]	18	396	473	199	1161	69	72	264	76	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.00	2.00	2.00	4.00	0.00	10.00	5.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	396	473	199	1161	69	72	264	76	0	0	0
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	111	133	56	326	19	20	74	21	0	0	0
Total Analysis Volume [veh/h]	20	445	531	224	1304	78	81	297	85	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Maximum Green [s]	25	45	0	40	40	0	0	25	0	0	0	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	24	0	0	16	0	0	29	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	39	0	11	41	0	0	40	0	0	0	0
Lead / Lag	Lag	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	0	5	0	0	0	0
Vehicle Extension [s]	2.5	1.4	0.0	2.5	4.1	0.0	0.0	4.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No				
Maximum Recall	No	No		No	No			No				
Pedestrian Recall	No	No		No	No			No				

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	
C, Cycle Length [s]	59	59	59	59	59	59	59	59	59	
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.00	4.50	4.50	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	0.00	2.50	2.50	2.00	2.50	2.50	2.00	2.00	2.00	
g_i, Effective Green Time [s]	26	25	25	7	31	31	15	15	15	
g / C, Green / Cycle	0.44	0.43	0.43	0.12	0.52	0.52	0.25	0.25	0.25	
(v / s)_i Volume / Saturation Flow Rate	0.04	0.15	0.40	0.08	0.46	0.46	0.06	0.20	0.06	
s, saturation flow rate [veh/h]	465	2880	1318	2867	1525	1495	1382	1513	1339	
c, Capacity [veh/h]	273	1230	563	334	790	774	340	372	329	
d1, Uniform Delay [s]	18.07	8.39	12.11	25.12	12.66	12.75	17.92	20.99	18.01	
k, delay calibration	0.16	0.04	0.04	0.08	0.50	0.26	0.15	0.15	0.15	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.17	0.07	3.99	1.74	13.36	8.06	0.51	5.57	0.59	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.07	0.36	0.94	0.67	0.88	0.89	0.24	0.80	0.26	
d, Delay for Lane Group [s/veh]	18.23	8.46	16.10	26.86	26.02	20.81	18.43	26.56	18.60	
Lane Group LOS	B	A	B	C	C	C	B	C	B	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.11	1.25	4.37	1.49	9.37	8.14	0.87	4.09	0.92	
50th-Percentile Queue Length [ft/ln]	2.72	31.21	109.19	37.37	234.21	203.52	21.67	102.26	22.92	
95th-Percentile Queue Length [veh/ln]	0.20	2.25	7.79	2.69	14.39	12.82	1.56	7.36	1.65	
95th-Percentile Queue Length [ft/ln]	4.89	56.18	194.87	67.27	359.70	320.51	39.00	184.08	41.26	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.23	8.46	16.10	26.86	23.59	20.81	18.43	26.56	18.60	0.00	0.00	0.00
Movement LOS	B	A	B	C	C	C	B	C	B			
d_A, Approach Delay [s/veh]	12.73			23.91			23.67			0.00		
Approach LOS	B			C			C			A		
d_I, Intersection Delay [s/veh]	20.24											
Intersection LOS	C											
Intersection V/C	0.850											

Emissions

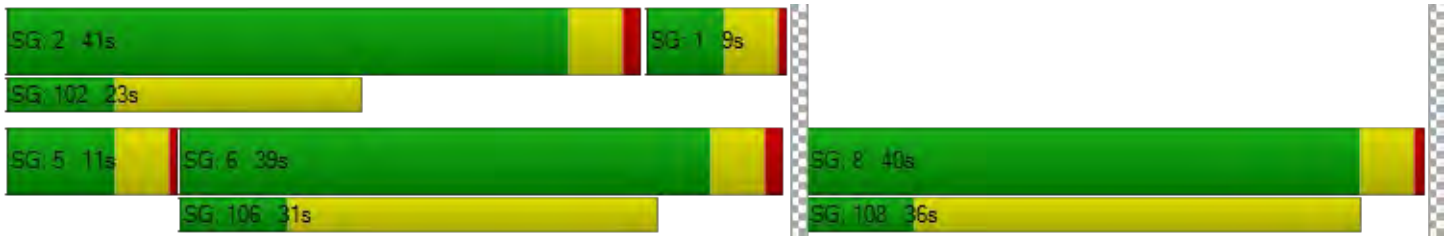
Vehicle Miles Traveled [mph]	1.25	27.84	33.22	21.23	65.87	65.11	2.88	10.57	3.03	
Stops [stops/h]	6.61	151.93	265.76	181.92	570.06	495.38	52.74	248.91	55.79	
Fuel consumption [US gal/h]	0.16	2.75	4.58	3.10	9.54	8.33	0.71	3.42	0.75	
CO [g/h]	11.34	192.30	319.83	216.94	666.95	582.04	49.90	238.75	52.74	
NOx [g/h]	2.21	37.42	62.23	42.21	129.76	113.24	9.71	46.45	10.26	
VOC [g/h]	2.63	44.57	74.12	50.28	154.57	134.89	11.56	55.33	12.22	

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	19.60	19.60	19.60	19.60
l_p,int, Pedestrian LOS Score for Intersectio	2.817	2.776	2.268	2.204
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1166	1234	1217	0
d_b, Bicycle Delay [s]	5.14	4.34	4.53	29.58
l_b,int, Bicycle LOS Score for Intersection	2.381	2.885	2.324	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 114: Barnett Road/Black Oak Drive

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.823

Intersection Setup

Name	Black Oak Dr			Black Oak Dr			Barnett Rd			Barnett Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	75.00	100.00	100.00	70.00	100.00	100.00	85.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Black Oak Dr			Black Oak Dr			Barnett Rd			Barnett Rd		
Base Volume Input [veh/h]	314	216	102	83	222	145	87	791	354	53	860	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	216	102	83	222	145	87	791	354	53	860	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	54	26	21	56	36	22	198	89	13	215	19
Total Analysis Volume [veh/h]	314	216	102	83	222	145	87	791	354	53	860	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			6			7			1		
v_di, Inbound Pedestrian Volume crossing m	1			7			6			1		
v_co, Outbound Pedestrian Volume crossing	3			3			3			3		
v_ci, Inbound Pedestrian Volume crossing mi	3			3			3			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	144
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	95.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Maximum Green [s]	13	48	48	13	48	48	17	50	50	17	50	50
Amber [s]	3.5	4.0	4.0	3.5	4.0	4.0	3.5	4.0	4.0	3.5	4.0	4.0
All red [s]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Walk [s]	0	8	8	0	8	8	0	8	8	0	8	8
Pedestrian Clearance [s]	0	22	22	0	22	22	0	17	17	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.5	2.5	2.0	2.5	2.5
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	24	64	64	12	52	52	21	54	54	14	47	47
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	3	5	5	3	5	5	3	8	8	5	8	8
Vehicle Extension [s]	1.5	2.0	2.0	1.5	2.0	2.0	1.5	3.5	3.5	1.5	3.5	3.5
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	144	144	144	144	144	144	144	144	144	144
L, Total Lost Time per Cycle [s]	4.50	4.50	4.50	4.50	4.00	4.50	4.50	4.00	4.50	4.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	0.00	2.50	2.00	2.50	2.50	2.00	2.50	2.50
g_i, Effective Green Time [s]	58	47	58	34	9	68	68	6	64	64
g / C, Green / Cycle	0.40	0.33	0.40	0.23	0.06	0.47	0.47	0.04	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.24	0.19	0.07	0.22	0.05	0.34	0.34	0.03	0.26	0.26
s, saturation flow rate [veh/h]	1290	1702	1170	1670	1714	1772	1582	1714	1800	1748
c, Capacity [veh/h]	373	559	375	391	108	832	743	69	804	781
d1, Uniform Delay [s]	35.85	39.94	29.12	54.13	66.59	30.67	30.86	68.44	29.91	29.92
k, delay calibration	0.09	0.04	0.21	0.16	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.21	0.34	0.56	14.43	5.18	5.41	6.28	6.46	3.16	3.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.57	0.22	0.94	0.80	0.72	0.73	0.77	0.59	0.59
d, Delay for Lane Group [s/veh]	40.06	40.28	29.69	68.56	71.77	36.08	37.13	74.89	33.07	33.18
Lane Group LOS	D	D	C	E	E	D	D	E	C	C
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.64	9.51	1.92	14.73	3.31	17.73	16.28	2.05	12.95	12.61
50th-Percentile Queue Length [ft/ln]	215.97	237.70	48.00	368.25	82.67	443.32	406.94	51.37	323.63	315.27
95th-Percentile Queue Length [veh/ln]	13.46	14.56	3.46	21.02	5.95	24.64	22.89	3.70	18.85	18.43
95th-Percentile Queue Length [ft/ln]	336.48	364.12	86.39	525.61	148.80	615.97	572.36	92.46	471.14	460.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.06	40.28	40.28	29.69	68.56	68.56	71.77	36.33	37.13	74.89	33.12	33.18
Movement LOS	D	D	D	C	E	E	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	40.17			61.39			39.06			35.37		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	41.21											
Intersection LOS	D											
Intersection V/C	0.823											

Emissions

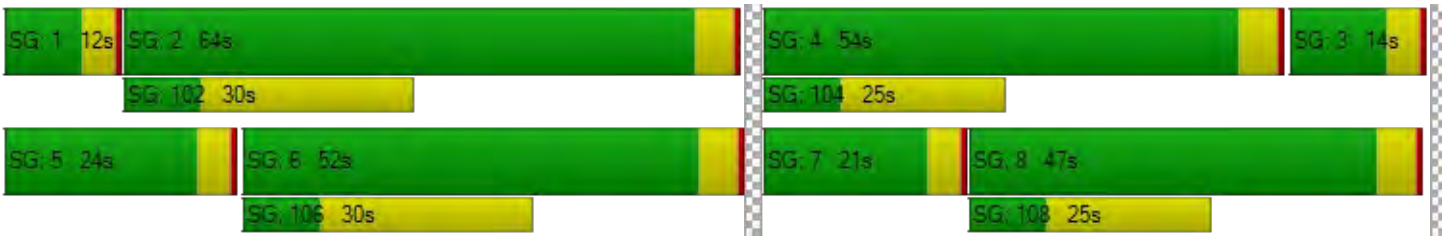
Vehicle Miles Traveled [mph]	202.87	205.46	8.98	39.72	45.09	311.75	281.67	8.33	74.49	72.41
Stops [stops/h]	215.96	237.68	47.99	368.23	82.66	443.29	406.92	51.36	323.61	315.25
Fuel consumption [US gal/h]	12.51	12.76	1.09	8.32	3.61	19.63	17.90	1.51	8.46	8.24
CO [g/h]	874.52	891.74	76.15	581.45	252.40	1372.36	1251.43	105.64	591.59	576.19
NOx [g/h]	170.15	173.50	14.82	113.13	49.11	267.01	243.48	20.55	115.10	112.11
VOC [g/h]	202.68	206.67	17.65	134.76	58.50	318.06	290.03	24.48	137.11	133.54

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	12.0	12.0	12.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	273.98	0.00
d_p, Pedestrian Delay [s]	60.50	60.50	60.50	60.50
l_p,int, Pedestrian LOS Score for Intersectio	2.304	2.186	3.013	2.809
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	826	660	687	590
d_b, Bicycle Delay [s]	24.80	32.34	31.01	35.78
l_b,int, Bicycle LOS Score for Intersection	2.602	2.302	2.576	2.375
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 117: Juanipero Way/Golf View Drive

Control Type:	All-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name				Golf View Dr			Juanipero W			Juanipero Way		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			25.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Golf View Dr			Juanipero W			Juanipero Way		
Base Volume Input [veh/h]	156	20	95	6	35	5	4	171	234	147	121	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	156	20	95	6	35	5	4	171	234	147	121	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	5	24	2	9	1	1	43	59	37	30	1
Total Analysis Volume [veh/h]	156	20	95	6	35	5	4	171	234	147	121	2
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	518	615	487	530	563	656	549	596
Degree of Utilization, x	0.30	0.19	0.01	0.08	0.01	0.62	0.27	0.21

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.26	0.68	0.04	0.24	0.02	4.26	1.07	0.77
95th-Percentile Queue Length [ft]	31.41	17.07	0.93	6.10	0.54	106.47	26.85	19.25
Approach Delay [s/veh]	11.46		10.07		16.54		11.03	
Approach LOS	B		B		C		B	
Intersection Delay [s/veh]	13.37							
Intersection LOS	B							

MOVEMENT SUMMARY

Site: 120 [S Stage Road / Phoenix Road (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Scenario 3 - PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Phoenix Road															
3	L2	All MCs	146	2.0	146	2.0	0.847	14.9	LOS B	14.7	370.7	0.97	0.75	1.13	32.2
8	T1	All MCs	799	1.0	799	1.0	0.847	9.9	LOS A	14.7	370.7	0.97	0.75	1.13	32.9
18	R2	All MCs	1	25.0	1	25.0	0.847	11.6	LOS B	14.7	370.7	0.97	0.75	1.13	32.0
Approach			946	1.2	946	1.2	0.847	10.7	LOS B	14.7	370.7	0.97	0.75	1.13	32.8
East: S Stage Road															
1	L2	All MCs	1	0.0	1	0.0	0.016	18.5	LOS B	0.1	2.9	0.95	0.72	0.95	30.6
6	T1	All MCs	4	2.0	4	2.0	0.016	14.0	LOS B	0.1	2.9	0.95	0.72	0.95	31.1
16	R2	All MCs	1	0.0	1	0.0	0.016	13.5	LOS B	0.1	2.9	0.95	0.72	0.95	30.9
Approach			6	1.3	6	1.3	0.016	14.6	LOS B	0.1	2.9	0.95	0.72	0.95	30.9
North: Phoenix Road															
7	L2	All MCs	1	0.0	1	0.0	0.805	11.6	LOS B	11.8	298.6	0.83	0.58	0.86	33.2
4	T1	All MCs	710	1.0	710	1.0	0.805	6.8	LOS A	11.8	298.6	0.83	0.58	0.86	33.8
14	R2	All MCs	244	2.0	244	2.0	0.805	6.7	LOS A	11.8	298.6	0.83	0.58	0.86	33.4
Approach			955	1.3	955	1.3	0.805	6.8	LOS A	11.8	298.6	0.83	0.58	0.86	33.7
West: S Stage Road															
5	L2	All MCs	213	2.0	213	2.0	0.460	14.6	LOS B	3.6	90.7	0.88	0.80	0.95	31.3
2	T1	All MCs	11	2.0	11	2.0	0.460	9.8	LOS A	3.6	90.7	0.88	0.80	0.95	31.8
12	R2	All MCs	90	2.0	90	2.0	0.460	9.6	LOS A	3.6	90.7	0.88	0.80	0.95	31.6
Approach			314	2.0	314	2.0	0.460	13.0	LOS B	3.6	90.7	0.88	0.80	0.95	31.4
All Vehicles			2221	1.3	2221	1.3	0.847	9.4	LOS A	14.7	370.7	0.90	0.69	0.99	32.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 124 [S Stage Road / Golf View Drive (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Scenario 3 - PM Peak
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Golf View Drive															
3	L2	All MCs	107	2.0	107	2.0	0.146	12.2	LOS B	0.8	20.0	0.61	0.71	0.61	32.0
8	T1	All MCs	11	2.0	11	2.0	0.146	7.4	LOS A	0.8	20.0	0.61	0.71	0.61	32.6
18	R2	All MCs	10	2.0	10	2.0	0.146	7.2	LOS A	0.8	20.0	0.61	0.71	0.61	32.3
Approach			128	2.0	128	2.0	0.146	11.4	LOS B	0.8	20.0	0.61	0.71	0.61	32.1
East: S Stage Road															
1	L2	All MCs	22	2.0	22	2.0	0.401	11.7	LOS B	2.4	61.1	0.59	0.61	0.59	33.6
6	T1	All MCs	349	2.0	349	2.0	0.401	6.8	LOS A	2.4	61.1	0.59	0.61	0.59	34.2
16	R2	All MCs	35	2.0	35	2.0	0.401	6.6	LOS A	2.4	61.1	0.59	0.61	0.59	33.9
Approach			406	2.0	406	2.0	0.401	7.0	LOS A	2.4	61.1	0.59	0.61	0.59	34.1
North: Golf View Drive															
7	L2	All MCs	25	2.0	25	2.0	0.317	11.9	LOS B	1.9	48.4	0.63	0.65	0.63	33.8
4	T1	All MCs	16	2.0	16	2.0	0.317	7.0	LOS A	1.9	48.4	0.63	0.65	0.63	34.5
14	R2	All MCs	256	2.0	256	2.0	0.317	6.9	LOS A	1.9	48.4	0.63	0.65	0.63	34.2
Approach			297	2.0	297	2.0	0.317	7.3	LOS A	1.9	48.4	0.63	0.65	0.63	34.1
West: S Stage Road															
5	L2	All MCs	285	2.0	285	2.0	0.573	9.8	LOS A	4.9	125.5	0.34	0.52	0.34	33.7
2	T1	All MCs	276	2.0	276	2.0	0.573	4.9	LOS A	4.9	125.5	0.34	0.52	0.34	34.4
12	R2	All MCs	181	2.0	181	2.0	0.573	4.8	LOS A	4.9	125.5	0.34	0.52	0.34	34.1
Approach			742	2.0	742	2.0	0.573	6.8	LOS A	4.9	125.5	0.34	0.52	0.34	34.0
All Vehicles			1573	2.0	1573	2.0	0.573	7.3	LOS A	4.9	125.5	0.48	0.58	0.48	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Intersection Level Of Service Report

Intersection 125: S Stage Road/Samike Dr-Devonshire Ln

Control Type:	Signalized	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name	Devonshire Ln			Samike Dr			S Stage Road			S Stage Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Devonshire Ln			Samike Dr			S Stage Road			S Stage Road		
Base Volume Input [veh/h]	9	0	15	29	0	49	21	782	28	36	748	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	0	15	29	0	49	21	782	28	36	748	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	4	7	0	12	5	196	7	9	187	4
Total Analysis Volume [veh/h]	9	0	15	29	0	49	21	782	28	36	748	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	230
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	19	0	0	19	0	0	211	0	0	211	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C
C, Cycle Length [s]	230	230	230	230	230	230
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	207	207	207	207
g / C, Green / Cycle	0.07	0.07	0.90	0.90	0.90	0.90
(v / s)_i Volume / Saturation Flow Rate	0.02	0.05	0.03	0.48	0.06	0.46
s, saturation flow rate [veh/h]	1288	1448	633	1673	606	1677
c, Capacity [veh/h]	106	116	542	1505	514	1509
d1, Uniform Delay [s]	102.11	105.91	4.40	2.23	5.02	2.11
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.95	27.00	0.13	1.38	0.26	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.67	0.04	0.54	0.07	0.51
d, Delay for Lane Group [s/veh]	107.06	132.92	4.54	3.61	5.28	3.33
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.53	5.55	0.23	6.44	0.43	5.75
50th-Percentile Queue Length [ft/ln]	38.28	138.76	5.73	160.93	10.78	143.64
95th-Percentile Queue Length [veh/ln]	2.76	9.41	0.41	10.60	0.78	9.68
95th-Percentile Queue Length [ft/ln]	68.91	235.35	10.32	264.96	19.40	241.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	107.06	107.06	107.06	132.92	132.92	132.92	4.54	3.61	3.61	5.28	3.33	3.33
Movement LOS	F	F	F	F	F	F	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	107.06			132.92			3.64			3.42		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	10.79											
Intersection LOS	B											
Intersection V/C	0.538											

Emissions

Vehicle Miles Traveled [mph]	0.65	1.84	2.15	82.78	12.83	272.35
Stops [stops/h]	23.97	86.87	3.59	100.76	6.75	89.93
Fuel consumption [US gal/h]	0.68	2.67	0.13	4.70	0.64	13.11
CO [g/h]	47.66	186.31	9.06	328.86	44.85	916.40
NOx [g/h]	9.27	36.25	1.76	63.98	8.73	178.30
VOC [g/h]	11.04	43.18	2.10	76.22	10.40	212.38

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	106.18	106.18	106.18	106.18
l_p,int, Pedestrian LOS Score for Intersectio	1.853	1.845	2.441	2.466
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	130	130	1800	1800
d_b, Bicycle Delay [s]	100.49	100.49	1.15	1.15
l_b,int, Bicycle LOS Score for Intersection	1.599	1.688	2.931	2.880
Bicycle LOS	A	A	C	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment D. Freeway Operations Worksheets

HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.7	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1768	634
Peak Hour Factor (PHF)	0.87	0.86
Total Trucks, %	9.90	2.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.924
Flow Rate (vi),pc/h	2233	798
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.48	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.500
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	74.3
Flow in Lanes 1 and 2 (v12), pc/h	2233	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 SB Off Ramp - SB	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	3063	1581
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	3.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.945
Flow Rate (vi),pc/h	3619	1838
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.80	0.88

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.398
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	3619	Ramp Junction Speed (S), mi/h	50.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	35.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1788	561
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.90	7.60
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.909
Flow Rate (vi),pc/h	2090	664
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.33

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.488
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.7
Flow in Lanes 1 and 2 (v12), pc/h	2090	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.3

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2133	501
Peak Hour Factor (PHF)	0.93	0.92
Total Trucks, %	9.90	14.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.843
Flow Rate (vi),pc/h	2520	646
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.54	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.486
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	2520	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.0

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Garfield Street Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1257	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	794
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.9
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	57.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	650
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1257	1018
Peak Hour Factor (PHF)	0.87	0.77
Total Trucks, %	9.90	6.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.910
Flow Rate (vi),pc/h	1588	1453
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.73

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.357
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	51.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	57.2
Flow in Lanes 1 and 2 (v12), pc/h	1588	Ramp Junction Speed (S), mi/h	51.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3041	Average Density (D), pc/mi/ln	29.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.5

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	50.0
Segment Length (L) / Acceleration Length (LA),ft	1500	550
Terrain Type	Level	Specific Grade
Percent Grade, %	-	2.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1482	651
Peak Hour Factor (PHF)	0.90	0.96
Total Trucks, %	9.90	2.80
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.938
Flow Rate (vi),pc/h	1810	723
Capacity (c), pc/h	4700	2100
Volume-to-Capacity Ratio (v/c)	0.54	0.34

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.315
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.8
Flow in Lanes 1 and 2 (v12), pc/h	1810	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2533	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.5

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	68.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1227	664
Peak Hour Factor (PHF)	0.91	0.75
Total Trucks, %	9.90	12.10
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.869
Flow Rate (vi),pc/h	1482	1019
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.51

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.316
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	68.2
Flow in Lanes 1 and 2 (v12), pc/h	1482	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2501	Average Density (D), pc/mi/ln	20.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.9

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1632	591
Peak Hour Factor (PHF)	0.88	0.79
Total Trucks, %	9.90	8.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.891
Flow Rate (vi),pc/h	2038	840
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.61	0.42

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.362
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	67.2
Flow in Lanes 1 and 2 (v12), pc/h	2038	Ramp Junction Speed (S), mi/h	58.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2878	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.1

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Garfield St Ramps -SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1482	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	905
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Phoenix Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	68.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1227	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	741
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2382
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2382
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	1.8	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	68.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Phoenix Rd Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1632	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.88	Flow Rate (V_p), pc/h/ln	1019
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.2
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Garfield Street to Phoenix Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1891	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	1194
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2377
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	2.3	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Garfield St to Phoenix Rd - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2133	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1260
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	North of Garfield Street Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2275	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.82	Flow Rate (V_p), pc/h/ln	1524
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	North of Garfield Street Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3063	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1850
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South of Phoenix Road Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1788	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1045
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South of Phoenix Road Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2223	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1328
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Garfield Street Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1194	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	754
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Garfield St Ramps -SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1381	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	843
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Phoenix Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	68.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1350	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	815
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2382
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2382
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	12.0
Total Ramp Density Adjustment	1.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	68.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Phoenix Rd Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1419	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.88	Flow Rate (V_p), pc/h/ln	886
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.7	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1842	648
Peak Hour Factor (PHF)	0.87	0.86
Total Trucks, %	9.90	2.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.924
Flow Rate (vi),pc/h	2327	815
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.41

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.501
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	74.3
Flow in Lanes 1 and 2 (v12), pc/h	2327	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.0

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	2/19/2024
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 SB Off Ramp - SB	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	3001	1620
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	3.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.945
Flow Rate (vi),pc/h	3546	1884
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.79	0.90

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.403
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	3546	Ramp Junction Speed (S), mi/h	50.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	34.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.3

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	57.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	650
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1194	1052
Peak Hour Factor (PHF)	0.87	0.77
Total Trucks, %	9.90	6.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.910
Flow Rate (vi),pc/h	1508	1501
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.75

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.355
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	51.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	57.2
Flow in Lanes 1 and 2 (v12), pc/h	1508	Ramp Junction Speed (S), mi/h	51.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3009	Average Density (D), pc/mi/ln	29.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.3

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	50.0
Segment Length (L) / Acceleration Length (LA),ft	1500	550
Terrain Type	Level	Specific Grade
Percent Grade, %	-	2.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1381	551
Peak Hour Factor (PHF)	0.90	0.96
Total Trucks, %	9.90	2.80
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.938
Flow Rate (vi),pc/h	1686	612
Capacity (c), pc/h	4700	2100
Volume-to-Capacity Ratio (v/c)	0.49	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.305
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.8
Flow in Lanes 1 and 2 (v12), pc/h	1686	Ramp Junction Speed (S), mi/h	59.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2298	Average Density (D), pc/mi/ln	19.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.7

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Garfield Street to Phoenix Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1842	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	1164
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2377
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.2
Total Ramp Density Adjustment	2.3	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Garfield St to Phoenix Rd - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1932	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1142
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	North of Garfield Street Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2246	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.82	Flow Rate (V_p), pc/h/ln	1505
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	North of Garfield Street Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3001	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1812
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.8
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1838	488
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.90	7.60
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.909
Flow Rate (vi),pc/h	2149	577
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.480
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.7
Flow in Lanes 1 and 2 (v12), pc/h	2149	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.8

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1932	513
Peak Hour Factor (PHF)	0.93	0.92
Total Trucks, %	9.90	14.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.843
Flow Rate (vi),pc/h	2283	661
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.33

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.487
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	2283	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.0

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	68.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1350	492
Peak Hour Factor (PHF)	0.91	0.75
Total Trucks, %	9.90	12.10
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.869
Flow Rate (vi),pc/h	1630	755
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.51	0.38

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.311
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	60.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	68.2
Flow in Lanes 1 and 2 (v12), pc/h	1630	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2385	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.1

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1419	654
Peak Hour Factor (PHF)	0.88	0.79
Total Trucks, %	9.90	8.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.891
Flow Rate (vi),pc/h	1772	929
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.46

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.351
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	67.2
Flow in Lanes 1 and 2 (v12), pc/h	1772	Ramp Junction Speed (S), mi/h	58.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2701	Average Density (D), pc/mi/ln	23.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South of Phoenix Road Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1838	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1074
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.0
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South of Phoenix Road Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2073	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1238
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Garfield Street Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1334	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	842
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2264
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2264
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.9
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Garfield St Ramps -SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1528	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.90	Flow Rate (V_p), pc/h/ln	933
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2259
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2259
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Phoenix Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1422	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	858
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	12.8
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between Phoenix Rd Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1597	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.88	Flow Rate (V_p), pc/h/ln	997
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2364
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2364
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.0
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between South Stage Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1690	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	1068
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Between South Stage Road Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1903	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1124
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1974	630
Peak Hour Factor (PHF)	0.87	0.86
Total Trucks, %	9.90	2.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.924
Flow Rate (vi),pc/h	2493	793
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.499
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	2493	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.4

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	2/19/2024
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 SB Off Ramp - SB	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	55.9	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	3074	1546
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	3.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.945
Flow Rate (vi),pc/h	3632	1798
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.81	0.86

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.395
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	61.3
Flow in Lanes 1 and 2 (v12), pc/h	3632	Ramp Junction Speed (S), mi/h	50.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	36.0
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	34.0

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	650
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1344	929
Peak Hour Factor (PHF)	0.87	0.77
Total Trucks, %	9.90	6.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.910
Flow Rate (vi),pc/h	1698	1326
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.66

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.356
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	51.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	56.4
Flow in Lanes 1 and 2 (v12), pc/h	1698	Ramp Junction Speed (S), mi/h	51.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3024	Average Density (D), pc/mi/ln	29.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Garfield Street/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	65.9	50.0
Segment Length (L) / Acceleration Length (LA),ft	1500	550
Terrain Type	Level	Specific Grade
Percent Grade, %	-	2.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1528	616
Peak Hour Factor (PHF)	0.90	0.96
Total Trucks, %	9.90	2.80
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.938
Flow Rate (vi),pc/h	1866	684
Capacity (c), pc/h	4700	2100
Volume-to-Capacity Ratio (v/c)	0.54	0.33

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.316
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	65.9
Flow in Lanes 1 and 2 (v12), pc/h	1866	Ramp Junction Speed (S), mi/h	58.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2550	Average Density (D), pc/mi/ln	21.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.7

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Garfield Street to South Stage Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1974	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	1246
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	Garfield St to S Stage Rd - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2144	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1266
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	North of Garfield Street Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2273	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.82	Flow Rate (V_p), pc/h/ln	1523
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2264
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2264
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	North of Garfield Street Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3074	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1856
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2264
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2264
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.1
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.4		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1878	456
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.90	7.60
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.909
Flow Rate (vi),pc/h	2195	539
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.477
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	72.8
Flow in Lanes 1 and 2 (v12), pc/h	2195	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	65.9	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2123	526
Peak Hour Factor (PHF)	0.93	0.92
Total Trucks, %	9.90	14.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.843
Flow Rate (vi),pc/h	2509	678
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.34

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.489
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	72.3
Flow in Lanes 1 and 2 (v12), pc/h	2509	Ramp Junction Speed (S), mi/h	54.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.9

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1422	475
Peak Hour Factor (PHF)	0.91	0.75
Total Trucks, %	9.90	12.10
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.869
Flow Rate (vi),pc/h	1717	729
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.36

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.314
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	67.2
Flow in Lanes 1 and 2 (v12), pc/h	1717	Ramp Junction Speed (S), mi/h	59.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2446	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.6

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	Phoenix Road /I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1597	559
Peak Hour Factor (PHF)	0.88	0.79
Total Trucks, %	9.90	8.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.891
Flow Rate (vi),pc/h	1994	794
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.356
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.4
Flow in Lanes 1 and 2 (v12), pc/h	1994	Ramp Junction Speed (S), mi/h	57.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	2788	Average Density (D), pc/mi/ln	24.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.4

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South of Phoenix Road Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1878	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1098
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2364
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2364
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South of Phoenix Road Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2156	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1288
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	South Stage Road/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1897	207
Peak Hour Factor (PHF)	0.87	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2396	225
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.51	0.11

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.448
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	2396	Ramp Junction Speed (S), mi/h	55.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.7

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SStageOFFNB_AM_Scenario3.xuf

HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	2/19/2024
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	South Stage Road/I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	55.9	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2144	241
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2533	262
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.452
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	49.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	61.3
Flow in Lanes 1 and 2 (v12), pc/h	2533	Ramp Junction Speed (S), mi/h	49.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.8

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SStageOFFSB_AM_Scenario3.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	South Stage Road/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1690	284
Peak Hour Factor (PHF)	0.87	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2135	308
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.54	0.15

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	56.8
Flow in Lanes 1 and 2 (v12), pc/h	2135	Ramp Junction Speed (S), mi/h	52.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2443	Average Density (D), pc/mi/ln	23.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.4

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SStageONNB_Scenario3.xuf

HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday AM Peak Hour
Project Description	South Stage Road/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1903	220
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2249	239
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.12

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.8
Flow in Lanes 1 and 2 (v12), pc/h	2249	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2488	Average Density (D), pc/mi/ln	21.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.8

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	South Stage Road to Phoenix Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1897	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.87	Flow Rate (V_p), pc/h/ln	1198
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.9
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	AM Peak Hour
Project Description	S Stage Rd to Phoenix Road - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2123	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1254
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.7	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2705	689
Peak Hour Factor (PHF)	0.91	0.83
Total Trucks, %	9.90	1.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.953
Flow Rate (vi),pc/h	3267	871
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.506
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	74.3
Flow in Lanes 1 and 2 (v12), pc/h	3267	Ramp Junction Speed (S), mi/h	54.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.1

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Garfield Street Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2016	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1178
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	57.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	650
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2016	1244
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	9.90	1.40
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.962
Flow Rate (vi),pc/h	2357	1406
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.70

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.444
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	50.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	57.2
Flow in Lanes 1 and 2 (v12), pc/h	2357	Ramp Junction Speed (S), mi/h	50.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3763	Average Density (D), pc/mi/ln	37.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.2

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	50.0
Segment Length (L) / Acceleration Length (LA),ft	1500	550
Terrain Type	Level	Specific Grade
Percent Grade, %	-	2.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1621	702
Peak Hour Factor (PHF)	0.96	0.89
Total Trucks, %	9.90	0.60
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.986
Flow Rate (vi),pc/h	1856	800
Capacity (c), pc/h	4700	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.38

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.322
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.8
Flow in Lanes 1 and 2 (v12), pc/h	1856	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2656	Average Density (D), pc/mi/ln	22.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	68.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2032	673
Peak Hour Factor (PHF)	0.93	0.85
Total Trucks, %	9.90	6.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.914
Flow Rate (vi),pc/h	2401	866
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.43

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.371
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	68.2
Flow in Lanes 1 and 2 (v12), pc/h	2401	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3267	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.9

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1679	548
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	9.90	5.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.909
Flow Rate (vi),pc/h	1963	677
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.34

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.348
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	67.2
Flow in Lanes 1 and 2 (v12), pc/h	1963	Ramp Junction Speed (S), mi/h	58.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2640	Average Density (D), pc/mi/ln	22.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.3

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Garfield Street Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1621	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	928
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2025
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Phoenix Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	68.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2032	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1092
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2382
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2382
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.0
Total Ramp Density Adjustment	1.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	68.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Phoenix Road Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1679	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	982
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street to Phoenix Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2705	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1634
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2377
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.7
Total Ramp Density Adjustment	2.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	8/14/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield St to Phoenix Rd - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2323	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1372
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	8/14/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	North of Garfield Street Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3260	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1906
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.8
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	North of Garfield Street Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2960	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1749
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South of Phoenix Road Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2557	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1510
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.6
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	8/14/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South of Phoenix Road Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2227	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1288
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 SB Off Ramp - SB	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2960	1339
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	2.80
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.947
Flow Rate (vi),pc/h	3498	1554
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.74

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.373
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	51.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	3498	Ramp Junction Speed (S), mi/h	51.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	34.1
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	20232045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2557	525
Peak Hour Factor (PHF)	0.93	0.93
Total Trucks, %	9.90	6.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.919
Flow Rate (vi),pc/h	3021	614
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.31

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.483
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.7
Flow in Lanes 1 and 2 (v12), pc/h	3021	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.3

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2323	644
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	5.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.908
Flow Rate (vi),pc/h	2745	779
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.58	0.39

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.498
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	2745	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.9

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Garfield Street Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1965	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1148
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.1
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Garfield Street Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1534	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	878
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2025
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Phoenix Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	68.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1917	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1030
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2382
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2382
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.1
Total Ramp Density Adjustment	1.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	68.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Phoenix Road Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1633	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	954
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.2
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.7	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2591	626
Peak Hour Factor (PHF)	0.91	0.83
Total Trucks, %	9.90	1.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.953
Flow Rate (vi),pc/h	3129	791
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.40

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.499
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	74.3
Flow in Lanes 1 and 2 (v12), pc/h	3129	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 SB Off Ramp - SB	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2923	1389
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	2.80
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.947
Flow Rate (vi),pc/h	3454	1612
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.77

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.378
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	3454	Ramp Junction Speed (S), mi/h	51.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	33.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.5

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HCS7 Freeway Merge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	57.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	650
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1965	1261
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	9.90	1.40
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.962
Flow Rate (vi),pc/h	2297	1425
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.83	0.71

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.437
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	50.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	57.2
Flow in Lanes 1 and 2 (v12), pc/h	2297	Ramp Junction Speed (S), mi/h	50.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3722	Average Density (D), pc/mi/ln	36.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.8

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HCS7 Freeway Merge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	50.0
Segment Length (L) / Acceleration Length (LA),ft	1500	550
Terrain Type	Level	Specific Grade
Percent Grade, %	-	2.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1534	564
Peak Hour Factor (PHF)	0.96	0.89
Total Trucks, %	9.90	0.60
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.986
Flow Rate (vi),pc/h	1756	643
Capacity (c), pc/h	4700	2100
Volume-to-Capacity Ratio (v/c)	0.51	0.31

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	59.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.8
Flow in Lanes 1 and 2 (v12), pc/h	1756	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2399	Average Density (D), pc/mi/ln	20.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.5

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street to Phoenix Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2591	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1564
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2377
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2377
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	2.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	8/14/2023
Agency		Analysis Year	2045 (No-Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield St to Phoenix Rd - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2098	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1240
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	8/14/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	North of Garfield Street Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3226	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1886
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.3
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	North of Garfield Street Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2923	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1727
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2272
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2272
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.2		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	20232045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2536	619
Peak Hour Factor (PHF)	0.93	0.93
Total Trucks, %	9.90	6.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.919
Flow Rate (vi),pc/h	2997	724
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.36

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.493
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.7
Flow in Lanes 1 and 2 (v12), pc/h	2997	Ramp Junction Speed (S), mi/h	54.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.1

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2098	465
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	5.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.908
Flow Rate (vi),pc/h	2479	563
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.479
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	2479	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.6

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	68.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1917	674
Peak Hour Factor (PHF)	0.93	0.85
Total Trucks, %	9.90	6.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.914
Flow Rate (vi),pc/h	2265	868
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.43

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.358
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	68.2
Flow in Lanes 1 and 2 (v12), pc/h	2265	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3133	Average Density (D), pc/mi/ln	26.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

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HCS7 Freeway Merge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 SB On Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1633	534
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	9.90	5.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.909
Flow Rate (vi),pc/h	1909	660
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.33

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.344
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	67.2
Flow in Lanes 1 and 2 (v12), pc/h	1909	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2569	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.8

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South of Phoenix Road Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2536	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1498
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	8/14/2023
Agency		Analysis Year	2045 (Scenario 2 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South of Phoenix Road Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2167	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1254
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	PM Peak Hour
Project Description	Between Garfield Street Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2068	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1209
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2264
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2264
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.4		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	65.9	50.0
Segment Length (L) / Acceleration Length (LA),ft	1500	550
Terrain Type	Level	Specific Grade
Percent Grade, %	-	2.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1722	711
Peak Hour Factor (PHF)	0.96	0.89
Total Trucks, %	9.90	0.60
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.986
Flow Rate (vi),pc/h	1971	810
Capacity (c), pc/h	4700	2100
Volume-to-Capacity Ratio (v/c)	0.59	0.39

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.329
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	65.9
Flow in Lanes 1 and 2 (v12), pc/h	1971	Ramp Junction Speed (S), mi/h	58.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2781	Average Density (D), pc/mi/ln	24.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.4

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Garfield St Ramps -SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1722	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	986
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2259
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2259
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Phoenix Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	67.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2158	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1275
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2372
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2372
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	2.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	67.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between Phoenix Rd Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1868	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1092
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2364
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2364
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.4
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between South Stage Road Ramps - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2477	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1496
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Between South Stage Road Ramps - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2085	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1232
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.4
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2766	698
Peak Hour Factor (PHF)	0.91	0.83
Total Trucks, %	9.90	1.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.953
Flow Rate (vi),pc/h	3340	882
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.71	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.507
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	3340	Ramp Junction Speed (S), mi/h	54.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	30.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.7

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 SB Off Ramp - SB	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	55.9	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2950	1228
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	2.80
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.947
Flow Rate (vi),pc/h	3486	1425
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.68

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.361
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	61.3
Flow in Lanes 1 and 2 (v12), pc/h	3486	Ramp Junction Speed (S), mi/h	50.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	34.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	32.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	650
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2068	1182
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	9.90	1.40
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.962
Flow Rate (vi),pc/h	2418	1336
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.83	0.67

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.442
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	50.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	56.8
Flow in Lanes 1 and 2 (v12), pc/h	2418	Ramp Junction Speed (S), mi/h	50.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3754	Average Density (D), pc/mi/ln	37.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.1

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield Street to South Stage Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2766	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1670
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Garfield St to S Stage Rd - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2433	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1438
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	North of Garfield Street Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3250	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1900
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2264
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2264
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	North of Garfield Street Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2950	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1743
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2264
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2264
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.4		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	20232045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.4	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	1.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2712	554
Peak Hour Factor (PHF)	0.93	0.93
Total Trucks, %	9.90	6.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.919
Flow Rate (vi),pc/h	3205	648
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.32

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.486
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	72.8
Flow in Lanes 1 and 2 (v12), pc/h	3205	Ramp Junction Speed (S), mi/h	54.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

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HCS7 Freeway Diverge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	65.9	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	215
Terrain Type	Level	Specific Grade
Percent Grade, %	-	5.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2411	543
Peak Hour Factor (PHF)	0.93	0.91
Total Trucks, %	9.90	5.30
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.908
Flow Rate (vi),pc/h	2849	657
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.61	0.33

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.487
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	72.3
Flow in Lanes 1 and 2 (v12), pc/h	2849	Ramp Junction Speed (S), mi/h	54.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.8

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HCS7 Freeway Merge Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 NB On Ramp	Units	U.S. Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	67.2	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	750
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.00
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2158	669
Peak Hour Factor (PHF)	0.93	0.85
Total Trucks, %	9.90	6.20
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.914
Flow Rate (vi),pc/h	2550	861
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.43

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.387
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	67.2
Flow in Lanes 1 and 2 (v12), pc/h	2550	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3411	Average Density (D), pc/mi/ln	29.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.1

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	Phoenix Road /I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Specific Grade
Percent Grade, %	-	3.50
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	1868	411
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	9.90	5.00
Single-Unit Trucks (SUT), %	-	30
Tractor-Trailers (TT), %	-	70
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.909
Flow Rate (vi),pc/h	2184	508
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.25

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.351
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.4
Flow in Lanes 1 and 2 (v12), pc/h	2184	Ramp Junction Speed (S), mi/h	57.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2692	Average Density (D), pc/mi/ln	23.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.8

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South of Phoenix Road Interchange - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.16
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2712	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1602
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2364
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2364
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.5
Total Ramp Density Adjustment	3.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South of Phoenix Road Interchange - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2279	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1318
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.0
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South Stage Road/I-5 NB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2827	350
Peak Hour Factor (PHF)	0.91	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	3414	380
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.462
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	73.3
Flow in Lanes 1 and 2 (v12), pc/h	3414	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	30.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.4

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AEG	Date	2/19/2024
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South Stage Road/I-5 SB Off Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	55.9	35.0
Segment Length (L) / Deceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2433	348
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2875	378
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.462
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	49.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	61.3
Flow in Lanes 1 and 2 (v12), pc/h	2875	Ramp Junction Speed (S), mi/h	49.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South Stage Road/I-5 NB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	56.8	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2477	289
Peak Hour Factor (PHF)	0.91	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2991	314
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.371
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	51.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	56.8
Flow in Lanes 1 and 2 (v12), pc/h	2991	Ramp Junction Speed (S), mi/h	51.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3305	Average Density (D), pc/mi/ln	32.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.2

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HCS7 Freeway Merge Report

Project Information			
Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	South Stage Road/I-5 SB On Ramp	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

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 (Vi)	2085	326
Peak Hour Factor (PHF)	0.93	0.94
Total Trucks, %	9.90	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.910	0.980
Flow Rate (vi),pc/h	2464	354
Capacity (c), pc/h	4700	2000
Volume-to-Capacity Ratio (v/c)	0.60	0.18

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.330
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	66.8
Flow in Lanes 1 and 2 (v12), pc/h	2464	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	2818	Average Density (D), pc/mi/ln	24.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.3

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	PM Peak Hour
Project Description	South Stage Road to Phoenix Road - NB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	66.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2827	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.91	Flow Rate (V_p), pc/h/ln	1707
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2368
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2368
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	66.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AEG	Date	12/15/2023
Agency		Analysis Year	2045 (Scenario 3 Build)
Jurisdiction		Time Analyzed	Weekday PM Peak Hour
Project Description	S Stage Rd to Phoenix Road - SB	Units	U.S. Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	1.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2411	Heavy Vehicle Adjustment Factor (f_{HV})	0.910
Peak Hour Factor	0.93	Flow Rate (V_p), pc/h/ln	1424
Total Trucks, %	9.90	Capacity (c), pc/h/ln	2359
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2359
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.00		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	4.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.9		

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