

June 8, 2015

Mr. Neal Holdridge
Trammell Crow Company
3501 Jamboree Road, Suite 230
Newport Beach, CA 92660

SUBJECT: KNOX BUSINESS PARK SUPPLEMENTAL BASIC FREEWAY SEGMENT ANALYSIS

Dear Mr. Neal Holdridge:

This letter serves as a supplement to the *Knox Business Park Traffic Impact Analysis* (dated May 22, 2015) (referred to as "Traffic Study") that assesses freeway mainline segments for the following scenarios found in the Traffic Study:

- Existing (2015) Conditions
- Existing plus Project Conditions (E+P)
- Existing plus Ambient Growth plus Project (2017) Conditions (EAP)
- Existing plus Ambient Growth plus Project plus Cumulative (2017) Conditions (EAPC)
- Horizon Year (2035) Without Project Conditions
- Horizon Year (2035) With Project Conditions

Study area mainline segments were selected based on the Project's contribution of 50 or more peak hour trips on a segment based on actual vehicles which results in a wider study area than the I-215 Freeway and Harley Knox Boulevard interchange that was evaluated in the Project's Traffic Study.

SUMMARY OF FINDINGS

Based on the results of this analysis, no segments of SR-91 Freeway west of the I-215 Freeway, I-215 Freeway north of the SR-60/SR-91 Freeways, SR-60 Freeway east of the I-215 Freeway, or the I-215 Freeway south of Ramona Expressway are anticipated to receive 50 or more peak hour trips from the Project. Additionally, the proposed Project will result in a less than significant traffic impact on the SR-60/I-215 Freeway and I-215 Freeway segments where the Project is anticipated to contribute 50 or more peak hour trips for E+P traffic conditions (see Table 3 attached to this letter). EAPC (2017) and Horizon Year (2035) traffic growth along the I-215 Freeway are anticipated to exceed the capacity of existing lanes, and would thus result in a deficient level of service (LOS) for select freeway mainline segments under both EAPC (2017) traffic conditions (see Table 4 attached to this report) and Horizon Year (2035) traffic conditions (see Table 5 attached to this report).

INTRODUCTION

The *Caltrans Guide for the Preparation of Traffic Impact Studies* (December 2002), specifies when an assessment of a State highway facility (SHF) is typically required. Caltrans has also clarified their traffic study guidelines in a letter to the City of Moreno Valley and have further defined the scope of study for SHFs in CEQA documents (dated February 10, 2014), by indicating the need for analysis of freeway segments where a project is anticipated to contribute 50 or more peak hour trips and recognizing that a project’s contribution to freeway segments dissipates with distance from the point of entry onto the State Highway System (SHS). Although the letter was written for another project located on the opposite side of the I-215 Freeway, the project is located in close proximity to the proposed Knox Business Park development (referred to as “Project”) and would be applicable to the same study area.

The Project is anticipated to contribute 50 or more actual vehicle-based peak hour trips to portions of the I-215 Freeway (from the I-215/SR-60/SR-91 Freeway Interchange to Ramona Expressway). As the proposed Project is not anticipated to contribute 50 or more actual vehicle-based peak hour trips beyond these segments, additional segments of the I-215 Freeway have not been included for the purposes of this analysis and are not required to be evaluated by Caltrans. The following freeway segments are included in this supplemental analysis:

TABLE 1: BASIC FREEWAY SEGMENT ANALYSIS LOCATIONS

ID	Freeway	Direction	Segment
1	I-215	Southbound	SR-60/SR-91 Freeway to Blaine St.
2	I-215	Southbound	Blaine St. to University Av.
3	I-215	Southbound	University Av. to Martin Luther King Bl.
4	I-215	Southbound	Martin Luther King Bl. to Central Av.
5	I-215	Southbound	Central Av. to Box Springs Rd.
6	I-215	Southbound	Box Springs Rd. to SR-60/I-215 Freeway
7	I-215	Southbound	SR-60 Freeway to Eucalyptus Av.
8	I-215	Southbound	Eucalyptus Av. to Alessandro Bl.
9	I-215	Southbound	Alessandro Bl. to Cactus Av.
10	I-215	Southbound	Cactus Av. to Van Buren Bl.
11	I-215	Southbound	Van Buren Bl. to Harley Knox Bl.
12	I-215	Southbound	Harley Knox Bl. to Ramona Exwy.
13	I-215	Northbound	SR-60/SR-91 Freeway to Blaine St.
14	I-215	Northbound	Blaine St. to University Av.
15	I-215	Northbound	University Av. to Martin Luther King Bl.
16	I-215	Northbound	Martin Luther King Bl. to Central Av.
17	I-215	Northbound	Central Av. to Box Springs Rd.

ID	Freeway	Direction	Segment
18	I-215	Northbound	Box Springs Rd. to SR-60/I-215 Freeway
19	I-215	Northbound	SR-60 Freeway to Eucalyptus Av.
20	I-215	Northbound	Eucalyptus Av. to Alessandro Bl.
21	I-215	Northbound	Alessandro Bl. to Cactus Av.
22	I-215	Northbound	Cactus Av. to Van Buren Bl.
23	I-215	Northbound	Van Buren Bl. to Harley Knox Bl.
24	I-215	Northbound	Harley Knox Bl. to Ramona Exwy.

REGIONAL GOODS MOVEMENT

The Southern California Association of Governments (SCAG) is a regional agency established pursuant to California Government Code §6500, also referred to as the Joint Powers Authority law. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) with goals to:

- 1) Maximize mobility and accessibility for all people and goods in the region;
- 2) Ensure travel safety and reliability for all people and goods in the region;
- 3) Preserve and ensure a sustainable transportation system;
- 4) Maximize productivity of the transportation system;
- 5) Protect the environment, improve air quality, and promote energy efficiency;
- 6) Encourage land use and growth patterns that complement the transportation investments and improve the cost-effectiveness of expenditures; and
- 7) Maximize the security of the transportation system The RTP/SCS includes a chapter titled “Goods Movement.”

It states that the SCAG region hosts one of the largest clusters of logistics activity in North America. Logistics activities, and the jobs that go with them, depend on complex transportation network. The Goods Movement section of the RTP/SCS sets forth regional strategies to achieve an efficient movement of goods throughout Southern California. It recognizes that the SCAG region will experience dramatic increases in truck traffic on east-west corridors that will cause increased congestion and longer delays to both trucks and general traffic on existing routes.

Goods movements within the SCAG region ranges from moving goods directly from manufacturing centers to local consumers, to those traveling from the San Pedro Bay Ports, to distance destinations across the United States. Goods movements and freight transportation are essential to the SCAG regional economy and quality of life. The regional goods movement system has six primary

components: seaports, land ports, air cargo facilities, interstate/highways/local roads, railroads and warehousing/distribution centers. Each component is discussed below:

- Seaports – There are three major ports within the SCAG region: Los Angeles, Long Beach and Hueneme. The Ports of Los Angeles and Long Beach combined are the largest container port complex within the United States. Port Hueneme specializes in the import/export of automobiles, fresh fruit, produce, and serves as the primary support facility for the offshore oil industry.
- Land Ports – There are three international border crossings in Imperial County (Calexico West-Mexicali I, Calexico East-Mexicali II and Andrade-Los Algodones. These border crossings are busy commercial land ports primarily used for the transport of agricultural products.
- Air Cargo Facilities – Los Angeles International Airport (LAX) and Ontario International Airport (ONT) handle a combined 96 percent of the SCAG region’s air cargo.
- Interstate, Highways, and Local Roads – The roadway system carries a mix of local, domestic trade and international cargoes. The roadway system also provides connections between the ports, manufacturing facilities, intermodal terminals, warehouses and distribution centers.
- Railroads – The Burlington Northern Santa Fe Railway (NBSF) and the Union Pacific (UP) are two Class I railroads that are responsible for carrying international and domestic cargo to and from various areas of the country. Both railroads connect directly to the San Pedro Bay Ports.
- Warehousing and Distribution Centers – As of 2008, the SCAG region consisted of approximately 837 million square feet of warehousing space. Roughly 15 percent of the occupied warehouse space served port-related uses while the remaining 85 percent supported a mix of domestic and international cargo. Distribution facilities for domestic cargo tend to be located in areas farther away from the Ports – such as the Inland Empire.

REGIONAL FREEWAY SYSTEM

Sections of the I-710, I-605, SR-60 and SR-91 carry the highest volumes of truck traffic within the SCAG region, with each averaging approximately 25,000 trucks per day. Other major freeways within the area include the I-5, I-10, I-15 and I-210 where some carry as much as 20,000 trucks per day. The regional freeway system is a key component to the regional goods movement within the SCAG region. Trucks use the freeway system to carry freight between businesses and consumers throughout the SCAG region. The I-710 is anticipated to experience the highest growth in truck traffic related to the growth in port-related traffic. Considerable growth in truck traffic is also anticipated on the I-10 and I-210 Freeway with the highest growth of the east-west corridors is expected for the SR-60 Freeway.

Based on information from the 2012-2035 Regional Transportation Plan (RTP), 87.9 percent of all truck trips are anticipated to remain internal to Riverside County. The remaining 12.1 percent are external trips generated within Riverside County and leaving the SCAG region. The internal truck trips have

origins and destinations within the SCAG region and are generated by local industries, construction sites, domestic warehouses, domestic truck terminals and residences. The external truck trips are interregional that reflect trade between the SCAG region and the remainder of the United States. There are also port truck trips, secondary port truck trips and intermodal truck trips; however, these trips account for less than six percent of the overall truck trips.

Exhibit 1 illustrates the SCAG region truck routes and shows the distribution of truck traffic external to the SCAG region, per the 2012-2035 RTP. Based on the Project trip distribution patterns, the Project PM peak hour trips are shown on Exhibit 2. Based on the 50 peak hour trip threshold, the I-215 Freeway segments listed previously on Table 1 would receive 50 or more Project-related peak hour trips and were thus selected for analysis. In an effort to conservatively determine the study area, passenger-car-equivalent (PCE) volume-based trips were utilized as opposed to actual vehicles.

FREEWAY MAINLINE SEGMENT ANALYSIS METHODOLOGY & ASSUMPTIONS

The freeway segments of the I-215 Freeway shown on Table 1 have been selected for analysis based on Caltrans traffic study guidelines. The freeway segments evaluated in this supplemental analysis are based on actual vehicle-based peak hour directional volumes. The freeway segment analysis is based on the methodology described in the Highway Capacity Manual (HCM 2010), and performed using HCS2010 software. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane. Table 2 illustrates the freeway segment LOS thresholds for each density range utilized for this analysis.

The number of lanes for existing baseline conditions has been obtained from field observations conducted by Urban Crossroads or through aerial imagery. The existing freeway geometrics have been utilized for the following traffic conditions: Existing (2015), E+P, and EAP (2017). For analysis purposes, lane improvements at the segment between Cactus Avenue and Van Buren Boulevard on the I-215 Freeway have been assumed to be constructed and in place for EAPC (2017) and Horizon Year (2035) Without and With Project traffic conditions.

The I-215 Freeway mainline volume data was obtained from the Caltrans Performance Measurement System (PeMS) website for each of the segments of the I-215 Freeway identified in Table 1. The data was obtained for April 2015 for which reliable data could be obtained, similar to the count date of the intersections counts conducted for the Traffic Study. In an effort to conduct a conservative analysis, the maximum value observed within the three (3) day period was utilized for the weekday morning (AM) and evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic, has been utilized for the purposes of this analysis in an effort to not overstate traffic volumes and potential impacts. As such, actual vehicles (as opposed to PCE volumes) have been utilized for the purposes of the basic freeway segment analysis.

TABLE 2: FREEWAY MAINLINE LOS THRESHOLDS

Level of Service	Description	Density Range (pc/mi/ln) ¹
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0 – 11.0
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly and flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 – 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

¹ pc/mi/ln = passenger cars per mile per lane. Source: HCM 2010

PLANNED ENHANCEMENTS TO THE REGIONAL FREEWAY SYSTEM

The Riverside County Transportation Commission (RCTC) has plans in place for the widening of I-215 Freeway through the study area; however, a schedule for the widening of the I-215 between Nuevo Road in the City of Perris and Box Springs Road in the City of Riverside has not been set, due to the State’s ongoing budget challenges. The I-215 North Project proposes to add a carpool lane (high-occupancy vehicle or HOV lane) in each direction to a 10.75-mile section of the I-215 freeway, the northernmost section of the RCTC’s widening efforts along this freeway. Once project costs and funding are determined, project development will begin and last about three (3) years. As indicated on project documents found on the I-215 North Project website, final design will follow for about two and a half (2 ½) years, followed by three (3) years for construction. As such, the future expansion of the I-215 Freeway has not been assumed to be in place for either Existing, E+P, EAP (2017), or EAPC (2017) analyses.

To improve mobility through the downtown Riverside area, Caltrans, in partnership with RCTC and the City of Riverside, is currently constructing one HOV lane in each direction along the SR-91 Freeway between Adams Street and the SR-60/SR-91/I-215 freeway Interchange. The project was primarily funded by Measure A, federal funds and Corridor Mobility Improvement Account (CMIA) funds (the state Proposition 1B funding). The purpose of the project is to provide HOV continuity from the west and improve traffic safety and level of service. Construction began in Spring 2012 and is anticipated to be completed by the end of 2015.

The SCAG RTP includes a list of projects included in the Federal Transportation Improvement Program (FTIP). The following is the only applicable FTIP financially constrained project within the study area, which has also been assumed for EAPC (2017) and Horizon Year (2035) Without and With Project traffic conditions only:

- Interchange improvements at I-215/Cactus Avenue includes the extension of the northbound auxiliary lane between Alessandro Boulevard south to Cactus Avenue (to be completed by 2018).

EXISTING (2015) CONDITIONS ANALYSIS

Existing (2015) mainline directional volumes for the AM and PM peak hours are provided on Table 3. As shown on Table 3, the I-215 Freeway segments analyzed were found to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours. The Existing (2015) peak hour directional freeway mainline LOS is shown on Table 3 and are graphically shown on Exhibit 3. Existing (2015) basic freeway segment analysis worksheets are provided in Attachment A.

E+P CONDITIONS ANALYSIS

E+P conditions mainline directional volumes for the AM and PM peak hours are also shown on Table 3. Project traffic was added to the Existing (2015) volumes based on a combination of the Project's trip distribution from the Traffic Study and the distribution of trucks within the SCAG region (see Exhibit 1).

As shown on Table 3, I-215 Freeway segments analyzed were found to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours under E+P conditions. The E+P peak hour directional freeway mainline LOS is shown on Table 3 and are graphically shown on Exhibit 4. E+P conditions basic freeway segment analysis worksheets are provided in Attachment B.

EAP (2017) CONDITIONS

EAP (2017) mainline directional volumes for the AM and PM peak hours are provided on Table 4. Ambient growth and Project traffic has been added to Existing (2015) traffic conditions. As shown on Table 4, I-215 Freeway segments analyzed were found to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours under EAP (2017) conditions. The EAP (2017) peak hour directional freeway mainline LOS is shown on Table 4 and is graphically shown on Exhibit 5. EAP (2017) basic freeway segment analysis worksheets are provided in Attachment C.

EAPC (2017) CONDITIONS

EAPC (2017) mainline directional volumes for the AM and PM peak hours are also provided on Table 4. Ambient growth, Project traffic, and cumulative development traffic has been added to Existing (2015) traffic conditions. As shown on Table 4, the following freeway segments evaluated were found to operate at an unacceptable LOS (i.e., LOS E or worse) during one or both peak hours for EAPC (2017) traffic conditions:

ID	Freeway	Direction	Segment	Level of Service
8	I-215	Southbound	Eucalyptus Av. to Alessandro Bl.	LOS E PM peak hour only
18	I-215	Northbound	Box Springs Rd. to SR-60/I-215 Freeway	LOS E PM peak hour only
20	I-215	Northbound	Eucalyptus Av. to Alessandro Bl.	LOS E AM peak hour; LOS F PM peak hour

The EAPC (2017) peak hour directional freeway mainline LOS is shown on Table 4 and is graphically shown on Exhibit 6. EAPC (2017) basic freeway segment analysis worksheets are provided in Attachment D.

HORIZON YEAR (2035) CONDITIONS

Horizon Year (2035) mainline directional volumes for the AM and PM peak hours are provided on Table 5 for both Without and With Project conditions. Project traffic has been added to the Horizon Year (2035) Without Project forecasts for Horizon Year (2035) With Project traffic conditions. As shown on Table 5, the following freeway segments evaluated were found to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for both Without and With Project traffic conditions:

ID	Freeway	Direction	Segment	Level of Service
11	I-215	Southbound	Van Buren Bl. to Harley Knox Bl.	LOS E AM and PM peak hours
16	I-215	Northbound	Martin Luther King Bl. to Central Av.	LOS E AM and PM peak hours
19	I-215	Northbound	SR-60 Freeway to Eucalyptus Av.	LOS E AM and PM peak hours
23	I-215	Northbound	Van Buren Bl. to Harley Knox Bl.	LOS E AM and PM peak hours
8	I-215	Southbound	Eucalyptus Av. to Alessandro Bl.	LOS E PM peak hour only
18	I-215	Northbound	Box Springs Rd. to SR-60/I-215 Freeway	LOS E PM peak hour only
20	I-215	Northbound	Eucalyptus Av. to Alessandro Bl.	LOS E AM peak hour and LOS F PM peak hour

The Horizon Year (2035) Without and With Project peak hour directional freeway mainline LOS are shown on Table 5 and are graphically shown on Exhibits 7 and 8, respectively. Horizon Year (2035) Without Project basic freeway segment analysis worksheets are provided in Attachment E. Horizon Year (2035) With Project basic freeway segment analysis worksheets are provided in Attachment F.

Mr. Neal Holdridge
Trammell Crow Company
June 8, 2015
Page 9 of 9

If you have any questions, please contact me directly at (949) 336-5978.

Respectfully submitted,

URBAN CROSSROADS, INC.



Aric Evatt, PTP
Principal



Charlene So, PE
Senior Transportation Engineer

Table 3: Existing Plus Project Conditions Basic Freeway Segment Analysis

Freeway	Direction	Mainline Segment	Lanes ¹	Time Period	Existing (2015)			Existing Plus Project		
					Volume	Density ²	LOS	Volume	Density ²	LOS
I-215 Freeway	Southbound	SR-60/SR-91 Freeway to Blaine St.	5	AM	4,287	13.6	B	4,317	13.7	B
		PM		5,907	18.8	C	5,922	18.9	C	
		Blaine St. to University Av.	4	AM	4,344	17.4	B	4,374	17.5	B
		PM		4,209	16.5	B	4,224	16.6	B	
		University Av. to Martin Luther King Bl.	4	AM	4,640	19.0	C	4,670	19.1	C
		PM		5,182	20.8	C	5,197	20.9	C	
		Martin Luther King Bl. to Central Av.	5	AM	3,460	11.0	A	3,490	11.1	B
		PM		4,518	14.2	B	4,534	14.2	B	
		Central Av. to Box Springs Rd.	5	AM	5,093	16.3	B	5,123	16.4	B
		PM		6,720	21.2	C	6,736	21.3	C	
		Box Springs Rd. to SR-60/I-215 Freeway	4	AM	4,643	18.2	C	4,673	18.3	C
		PM		5,966	23.9	C	5,982	23.9	C	
		SR-60 Freeway to Eucalyptus Av.	5	AM	6,260	19.9	C	6,306	20.1	C
		PM		6,485	20.7	C	6,509	20.9	C	
Eucalyptus Av. to Alessandro Bl.	3	AM	3,456	18.7	C	3,502	19.0	C		
PM		5,159	30.6	D	5,183	31.0	D			
Alessandro Bl. to Cactus Av.	4	AM	4,985	19.9	C	534	20.2	C		
PM		5,540	22.5	C	5,565	22.6	C			
Cactus Av. to Van Buren Bl.	3	AM	4,693	26.0	D	4,742	26.4	D		
PM		5,354	31.4	D	5,379	31.7	D			
Van Buren Bl. to Harley Knox Bl.	3	AM	2,544	13.4	B	2,593	13.8	B		
PM		3,855	20.5	C	3,880	20.8	C			
Harley Knox Bl. to Ramona Exwy.	3	AM	2,186	11.4	B	2,195	11.5	B		
PM		3,445	18.1	C	3,466	18.2	C			
I-215 Freeway	Northbound	SR-60/SR-91 Freeway to Blaine St.	5	AM	3,532	11.2	B	3,545	11.3	B
		PM		3,453	11.0	A	3,487	11.2	B	
		Blaine St. to University Av.	5	AM	4,615	14.8	B	4,628	14.9	B
		PM		3,913	12.8	B	3,947	12.9	B	
		University Av. to Martin Luther King Bl.	4	AM	6,526	27.7	D	6,539	27.8	D
		PM		5,849	24.3	C	5,883	24.5	C	
		Martin Luther King Bl. to Central Av.	4	AM	5,255	21.4	C	5,269	21.5	C
		PM		5,332	21.9	C	5,367	22.0	C	
		Central Av. to Box Springs Rd.	5	AM	5,098	16.5	B	5,112	16.6	B
		PM		5,614	18.7	C	5,649	18.8	C	
		Box Springs Rd. to SR-60/I-215 Freeway	4	AM	6,028	24.3	C	6,042	24.4	C
		PM		6,305	25.6	C	6,340	25.9	C	
		SR-60 Freeway to Eucalyptus Av.	3	AM	3,567	18.8	C	3,588	18.9	C
		PM		3,832	20.4	C	3,885	20.7	C	
Eucalyptus Av. to Alessandro Bl.	3	AM	4,693	26.0	D	4,714	26.2	D		
PM		5,354	31.4	D	5,407	32.2	D			
Alessandro Bl. to Cactus Av.	4	AM	2,724	10.9	A	2,746	11.0	B		
PM		2,523	10.0	A	2,579	10.3	A			
Cactus Av. to Van Buren Bl.	3	AM	3,679	19.6	C	3,701	19.7	C		
PM		2,478	14.1	B	2,734	14.5	B			
Van Buren Bl. to Harley Knox Bl.	3	AM	4,092	22.0	C	4,114	22.2	C		
PM		3,247	17.1	B	3,303	17.5	B			
Harley Knox Bl. to Ramona Exwy.	3	AM	3,721	19.6	C	3,740	19.9	C		
PM		2,779	14.6	B	2,788	14.6	B			

* **BOLD** = Unacceptable Level of Service
¹ Number of lanes are in the specified direction and is based on existing conditions.
² Density is measured by passenger cars per mile per lane (pc/mi/ln).

Table 4: EAP (2017) EAPC (2017) Conditions Basic Freeway Segment Analysis

Freeway	Direction	Mainline Segment	Lanes ¹	Time Period	EAP (2017)			EAPC (2017)				
					Volume ²	Density ³	LOS	Volume ²	Density ³	LOS		
I-215 Freeway	Southbound	SR-60/SR-91 Freeway to Blaine St.	5	AM PM	4,490 6,161	14.3 19.7	B C	5,147 6,551	16.8 21.2	B C		
		Blaine St. to University Av.	4	AM PM	4,549 4,394	18.2 17.3	C B	5,265 4,823	21.8 19.3	C C		
		University Av. to Martin Luther King Bl.	4	AM PM	4,857 5,407	19.9 21.9	C C	5,632 5,874	24.2 24.4	C C		
		Martin Luther King Bl. to Central Av.	5	AM PM	3,630 4,716	11.5 14.8	B B	4,470 5,224	14.6 16.6	B B		
		Central Av. to Box Springs Rd.	5	AM PM	5,329 7,007	17.0 22.3	B C	6,230 7,555	20.5 24.7	C C		
		Box Springs Rd. to SR-60/I-215 Freeway	4	AM PM	4,861 6,223	19.1 28.2	C D	5,847 6,818	24.3 28.9	C D		
		SR-60 Freeway to Eucalyptus Av.	5	AM PM	6,559 6,771	21.0 21.9	C C	7,928 7,605	27.2 25.4	D C		
		Eucalyptus Av. to Alessandro Bl.	3	AM PM	3,641 5,391	19.8 33.0	C D	5,076 6,269	31.2 44.4	D E		
		Alessandro Bl. to Cactus Av.	4	AM PM	5,236 5,789	21.1 23.7	C C	6,735 6,710	30.1 29.2	D D		
		Cactus Av. to Van Buren Bl.	<u>4</u>	AM PM	4,932 595	27.8 33.8	D D	5,997 7,122	24.6 31.8	C D		
		Van Buren Bl. to Harley Knox Bl.	3	AM PM	2,696 4,036	14.3 21.7	B C	3,753 5,121	20.9 30.7	C D		
		Harley Knox Bl. to Ramona Exwy.	3	AM PM	2,284 3,605	12.0 19.1	B C	2,867 4,755	15.4 27.5	B D		
		I-215 Freeway	Northbound	SR-60/SR-91 Freeway to Blaine St.	5	AM PM	3,688 3,627	11.7 11.6	B B	4,022 4,338	12.9 14.2	B B
				Blaine St. to University Av.	5	AM PM	4,815 4,105	15.6 13.4	B B	5,182 4,879	16.8 16.3	B B
University Av. to Martin Luther King Bl.	4			AM PM	6,803 6,120	29.4 25.7	D C	7,204 6,956	32.6 31.8	D D		
Martin Luther King Bl. to Central Av.	4			AM PM	5,481 5,582	22.5 23.1	C C	5,916 6,488	24.8 28.8	C D		
Central Av. to Box Springs Rd.	5			AM PM	5,318 5,876	17.3 19.6	B C	5,787 6,848	19.0 23.7	C C		
Box Springs Rd. to SR-60/I-215 Freeway	4			AM PM	6,285 6,595	25.6 27.4	C D	6,796 7,660	29.0 35.6	D E		
SR-60 Freeway to Eucalyptus Av.	3			AM PM	3,732 4,039	19.7 21.6	C C	4,449 5,514	24.6 34.6	C D		
Eucalyptus Av. to Alessandro Bl.	3			AM PM	4,903 5,623	27.6 34.3	D D	5,657 7,167	35.3 62.5	E F		
Alessandro Bl. to Cactus Av.	<u>5</u>			AM PM	2,856 2,681	11.5 10.7	B A	3,647 4,295	11.9 14.3	B B		
Cactus Av. to Van Buren Bl.	<u>4</u>			AM PM	3,850 2,842	20.6 15.1	C B	5,185 4,216	21.1 17.2	C B		
Van Buren Bl. to Harley Knox Bl.	3			AM PM	4,280 3,434	23.3 18.2	C C	5,279 4,517	31.9 25.9	D C		
Harley Knox Bl. to Ramona Exwy.	3			AM PM	3,891 2,900	20.7 15.2	C B	4,941 3,501	28.7 18.8	D C		

* **BOLD** = Unacceptable Level of Service

¹ Number of lanes are in the specified direction and reflect new auxiliary lanes and assume the HOV lane in each direction.

² Volumes shown on this table have been reduced to account for the proposed HOV lane in each direction.

³ Density is measured by passenger cars per mile per lane (pc/mi/ln).

Table 5: Horizon Year (2035) Conditions Basic Freeway Segment Analysis

Freeway	Direction	Mainline Segment	Lanes ¹	Time Period	2035 Without Project			2035 With Project				
					Volume ²	Density ³	LOS	Volume ²	Density ³	LOS		
I-215 Freeway	Southbound	SR-60/SR-91 Freeway to Blaine St.	5	AM PM	7,169 7,093	24.7 24.2	C C	7,195 7,106	24.8 24.7	C C		
		Blaine St. to University Av.	4	AM PM	6,812 6,735	31.5 30.9	D D	6,837 6,748	31.7 31.0	D D		
		University Av. to Martin Luther King Bl.	4	AM PM	6,991 6,915	33.1 32.2	D D	7,017 6,928	33.3 32.3	D D		
		Martin Luther King Bl. to Central Av.	5	AM PM	8,000 7,919	28.3 27.7	D D	8,026 7,932	28.4 27.9	D D		
		Central Av. to Box Springs Rd.	5	AM PM	8,882 8,799	32.4 31.7	D D	8,908 8,813	32.6 31.8	D D		
		Box Springs Rd. to SR-60/I-215 Freeway	4	AM PM	6,705 6,607	30.9 30.0	D D	6,731 6,621	31.1 30.1	D D		
		SR-60 Freeway to Eucalyptus Av.	5	AM PM	5,506 5,387	19.6 19.0	C C	5,546 5,407	19.7 19.2	C C		
		Eucalyptus Av. to Alessandro Bl.	3	AM PM	5,351 5,231	33.4 32.0	D D	5,390 5,252	33.8 32.2	D D		
		Alessandro Bl. to Cactus Av.	4	AM PM	5,500 5,381	23.1 22.3	C C	5,543 5,403	23.4 22.6	C C		
		Cactus Av. to Van Buren Bl.	<u>4</u>	AM PM	5,170 6,004	20.9 25.4	C C	5,212 6,025	21.2 25.5	C C		
		Van Buren Bl. to Harley Knox Bl.	3	AM PM	5,961 5,903	38.1 37.4	E E	6,003 5,925	39.0 37.7	E E		
		Harley Knox Bl. to Ramona Exwy.	3	AM PM	4,421 5,362	22.8 30.9	C D	4,429 5,381	22.9 31.1	C D		
		I-215 Freeway	Northbound	SR-60/SR-91 Freeway to Blaine St.	5	AM PM	7,086 7,184	24.2 24.8	C C	7,098 7,214	24.3 24.9	C C
				Blaine St. to University Av.	5	AM PM	6,728 6,826	22.9 23.3	C C	6,740 6,856	22.9 23.5	C C
University Av. to Martin Luther King Bl.	4			AM PM	6,908 7,006	32.2 33.2	D D	6,920 7,035	32.3 33.4	D D		
Martin Luther King Bl. to Central Av.	4			AM PM	7,912 8,014	40.0 41.4	E E	7,924 8,045	40.1 41.7	E E		
Central Av. to Box Springs Rd.	5			AM PM	8,793 8,897	31.7 32.5	D D	8,804 8,927	31.7 32.7	D D		
Box Springs Rd. to SR-60/I-215 Freeway	4			AM PM	6,599 6,724	30.0 31.1	D D	6,611 6,754	30.1 31.3	D D		
SR-60 Freeway to Eucalyptus Av.	3			AM PM	5,378 5,526	38.1 40.4	E E	5,396 5,571	38.3 41.1	E E		
Eucalyptus Av. to Alessandro Bl.	3			AM PM	5,223 5,370	31.9 33.6	D D	5,241 5,416	32.0 33.6	D D		
Alessandro Bl. to Cactus Av.	<u>5</u>			AM PM	5,372 5,520	17.5 18.2	B C	5,392 5,568	17.6 18.3	B C		
Cactus Av. to Van Buren Bl.	<u>4</u>			AM PM	6,181 4,535	26.3 18.1	D C	6,200 4,584	26.4 18.3	D C		
Van Buren Bl. to Harley Knox Bl.	3			AM PM	5,889 5,970	37.4 38.6	E E	5,918 6,018	37.6 39.2	E E		
Harley Knox Bl. to Ramona Exwy.	3			AM PM	5,404 4,550	31.2 23.6	D C	5,421 4,558	31.3 23.7	D C		

* **BOLD** = Unacceptable Level of Service

¹ Number of lanes are in the specified direction and reflect new auxiliary lanes and assume the HOV lane in each direction.

² Volumes shown on this table have been reduced to account for the proposed HOV lane in each direction.

³ Density is measured by passenger cars per mile per lane (pc/mi/ln).

EXHIBIT 1: SCAG REGION TRUCK ROUTES

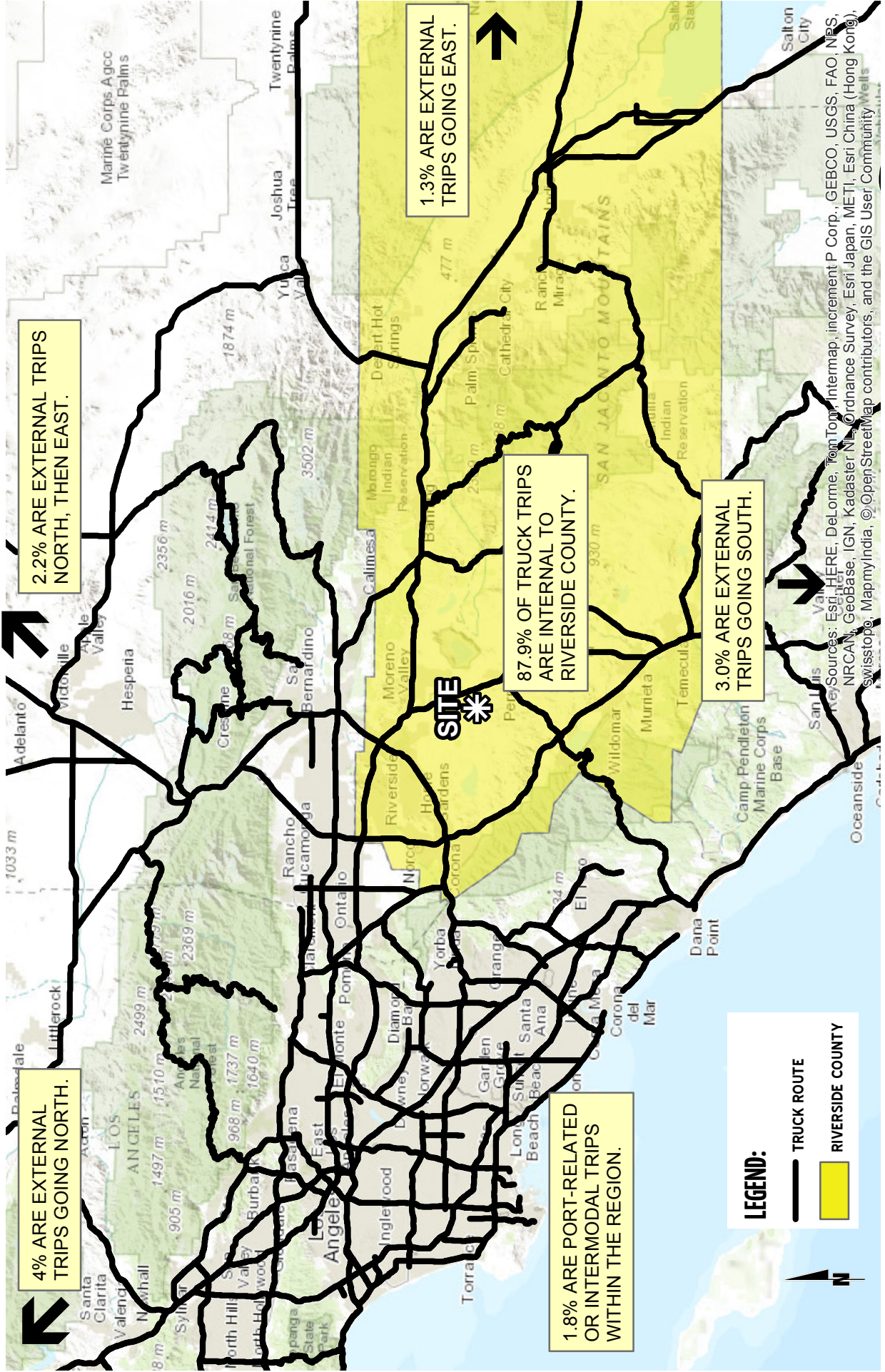


EXHIBIT 2: LOCATION MAP



EXHIBIT 3: EXISTING (2015) PEAK HOUR FREEWAY MAINLINE LOS

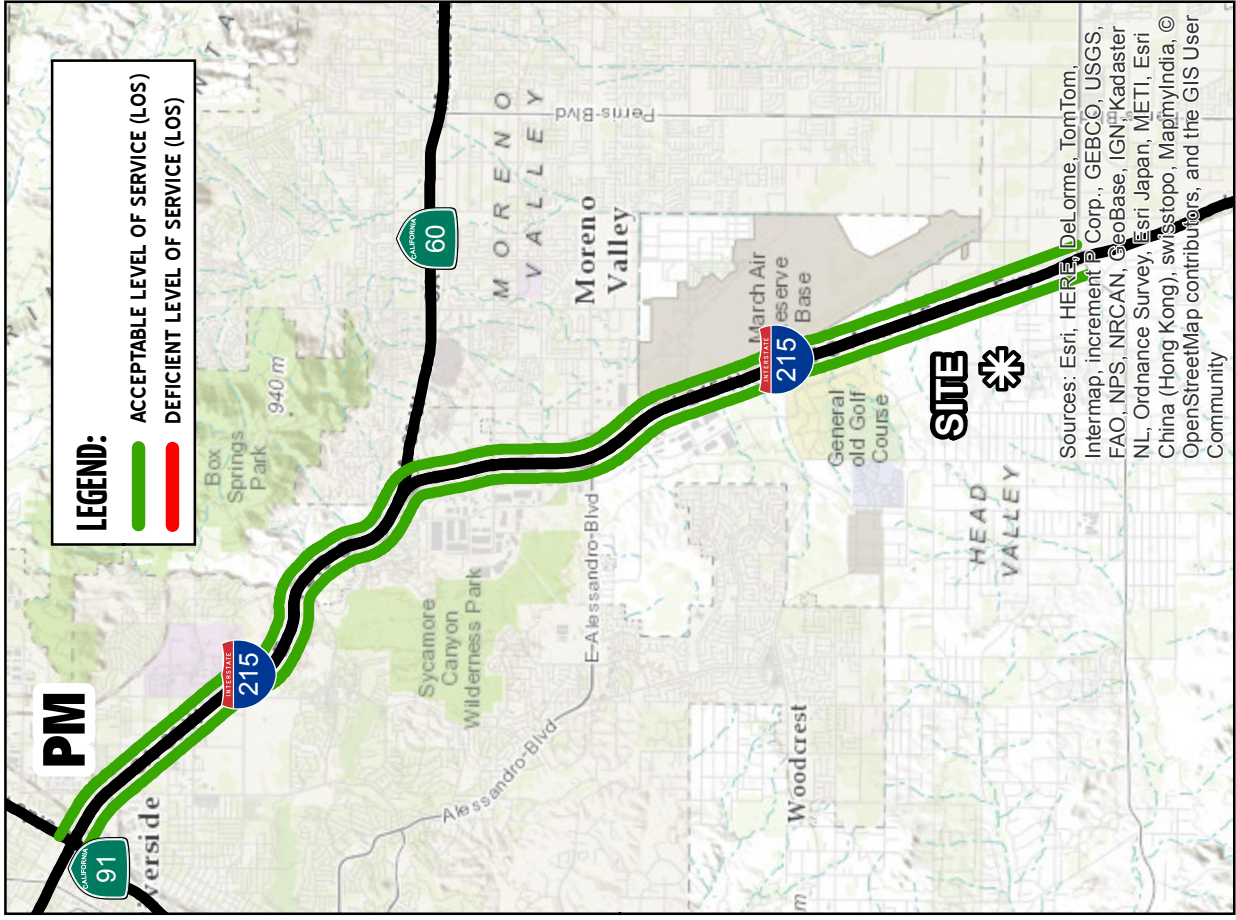
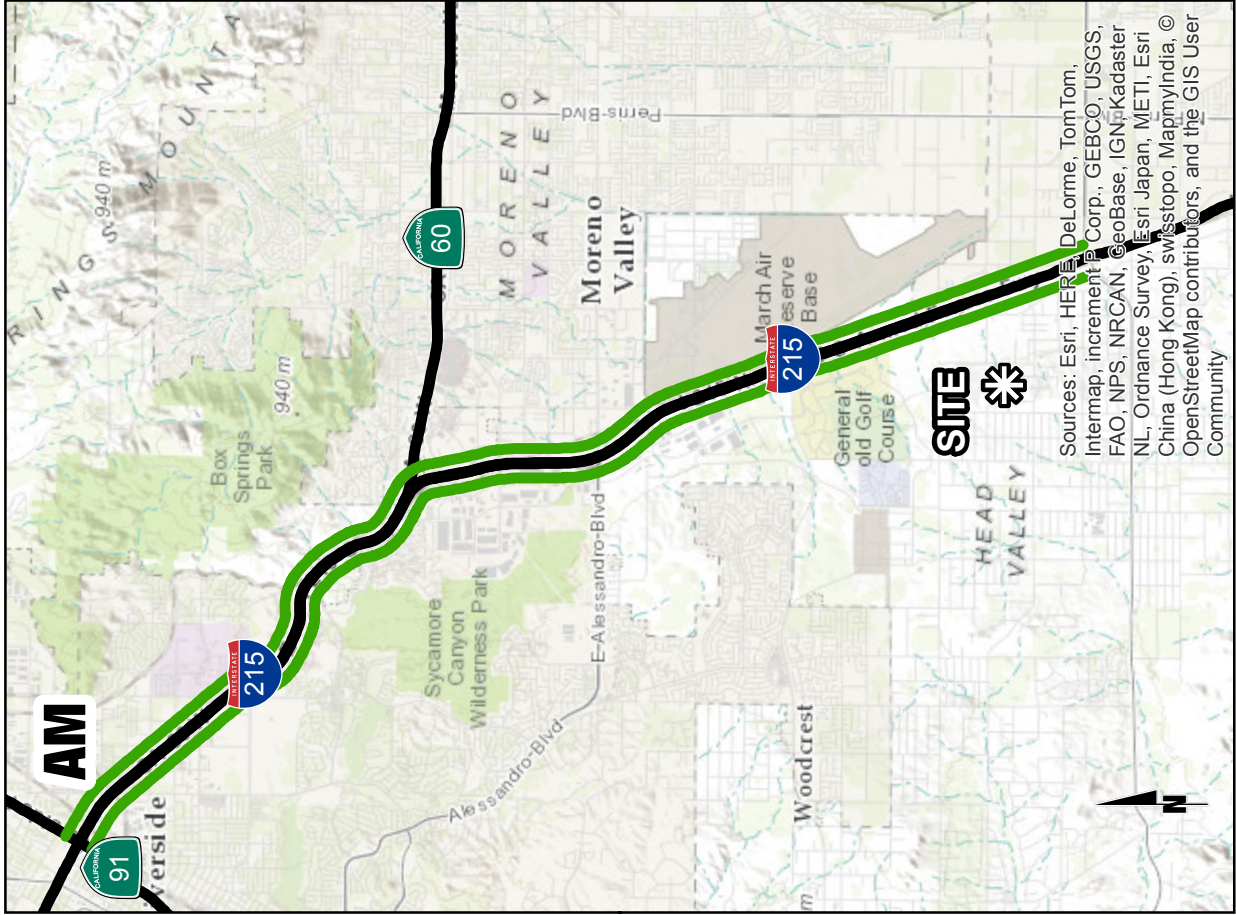


EXHIBIT 4: E+P PEAK HOUR FREEWAY MAINLINE LOS

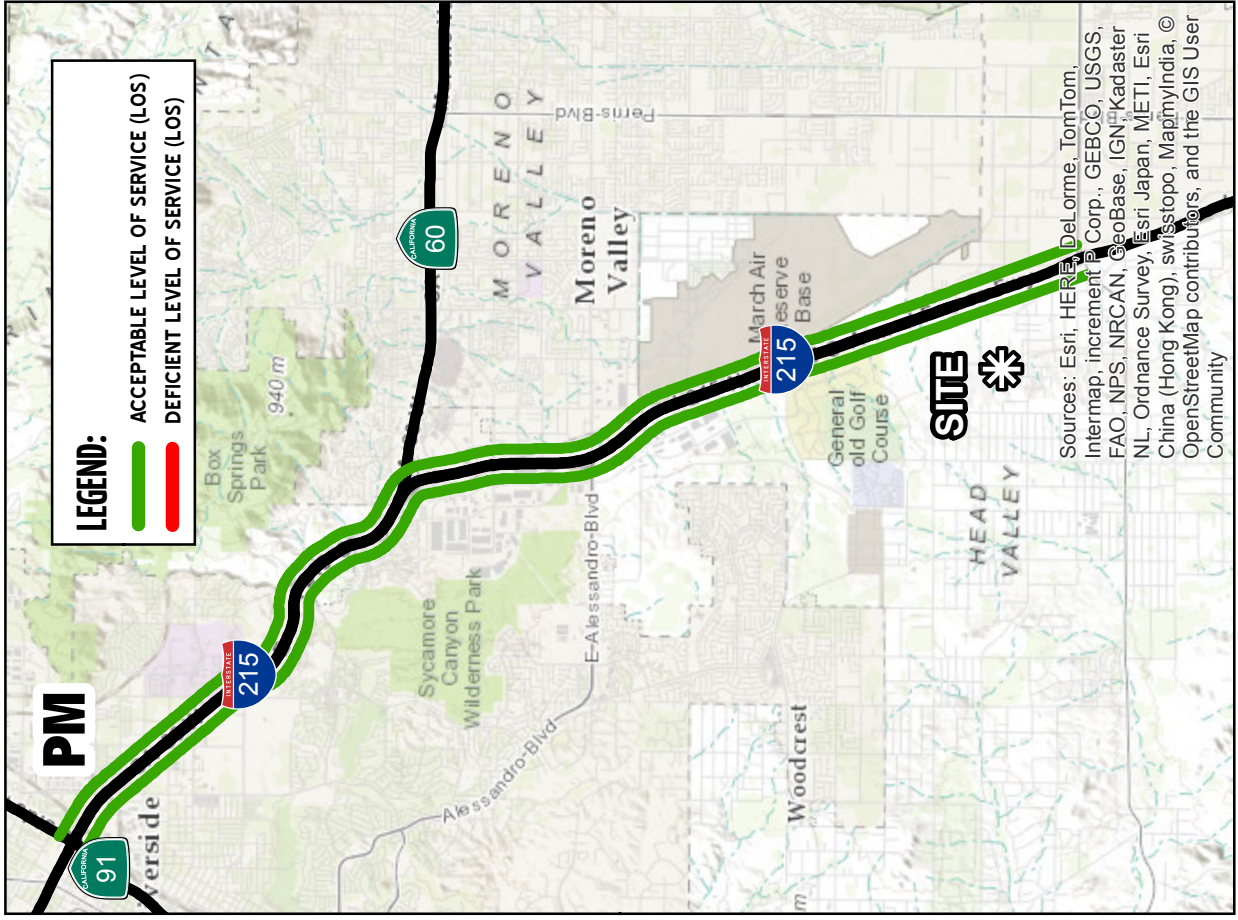
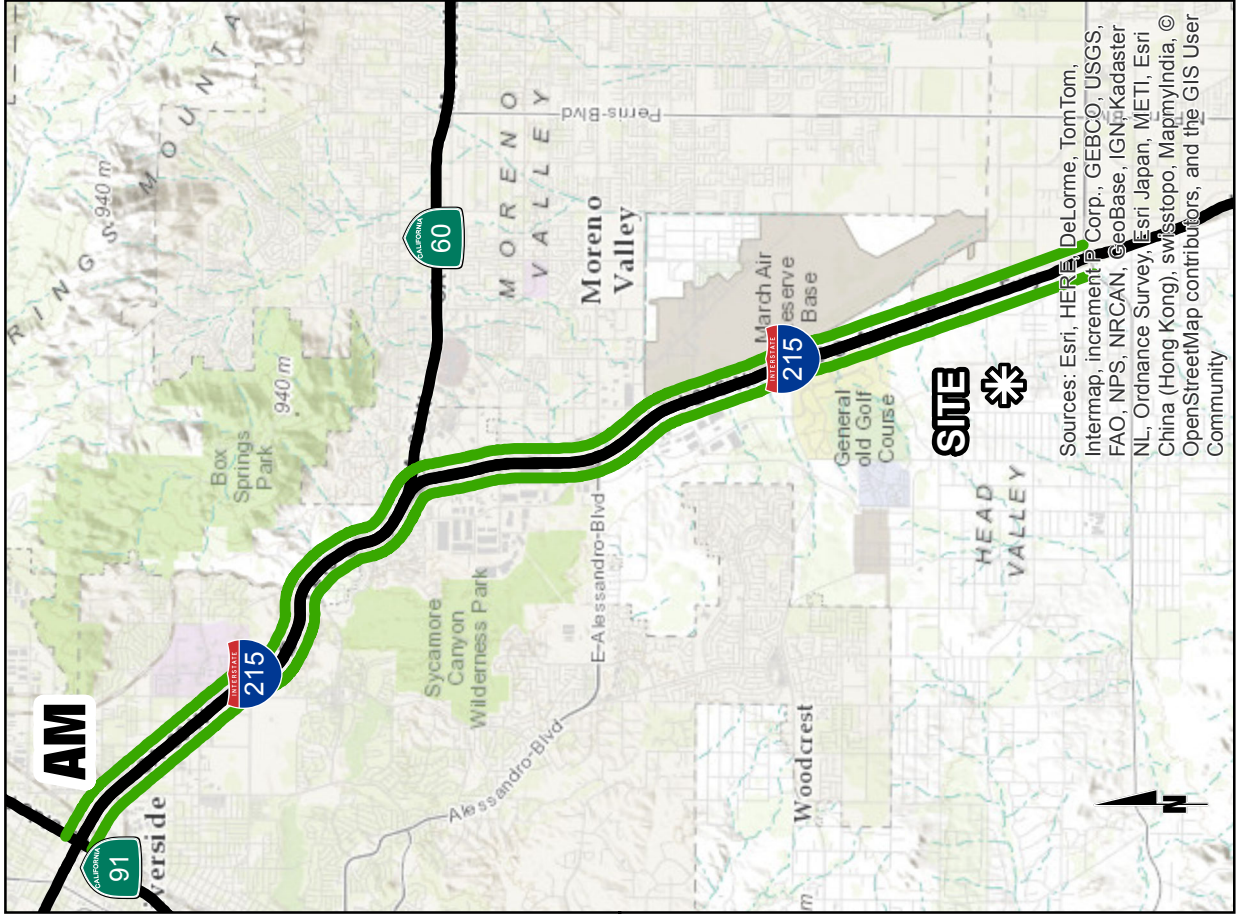


EXHIBIT 5: EAP (2017) PEAK HOUR FREEWAY MAINLINE LOS

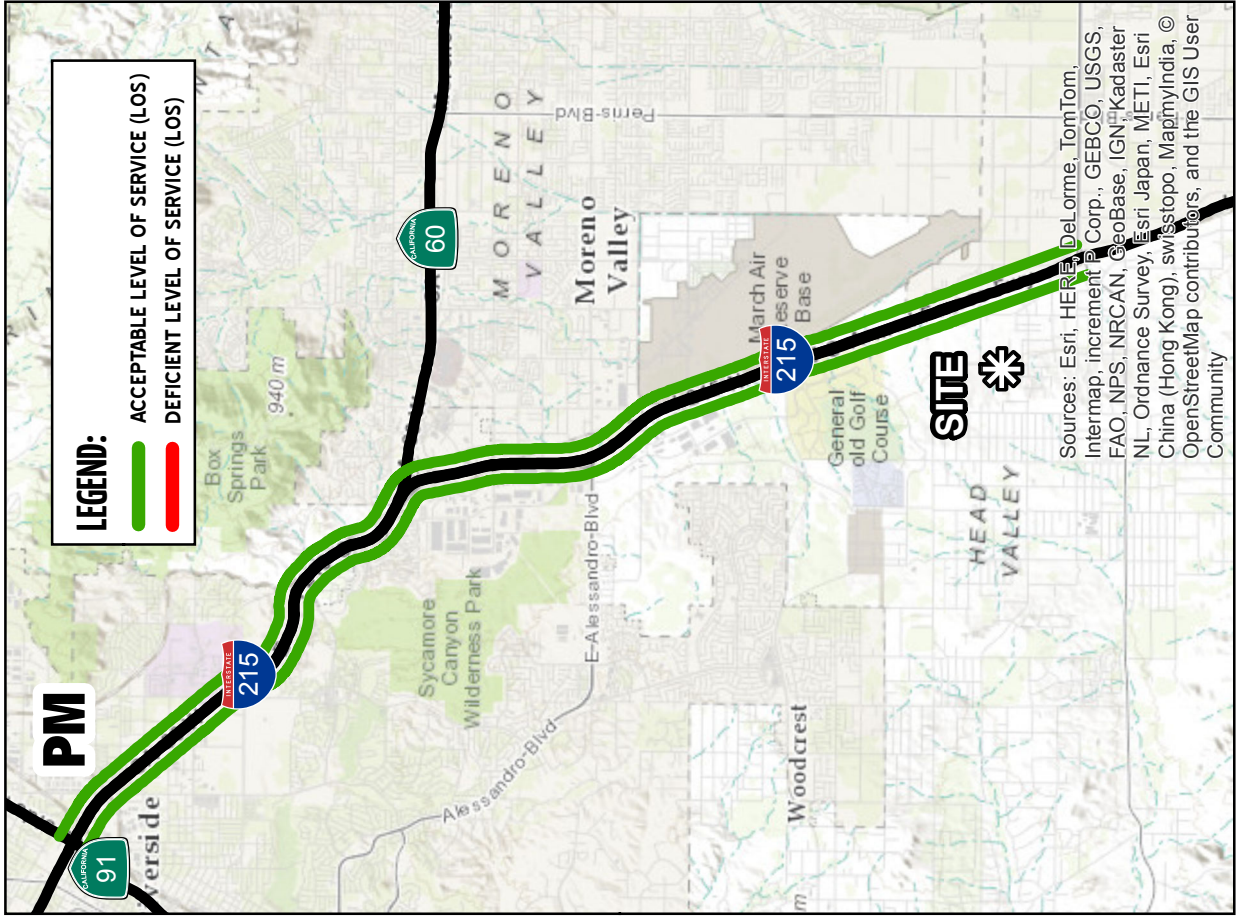
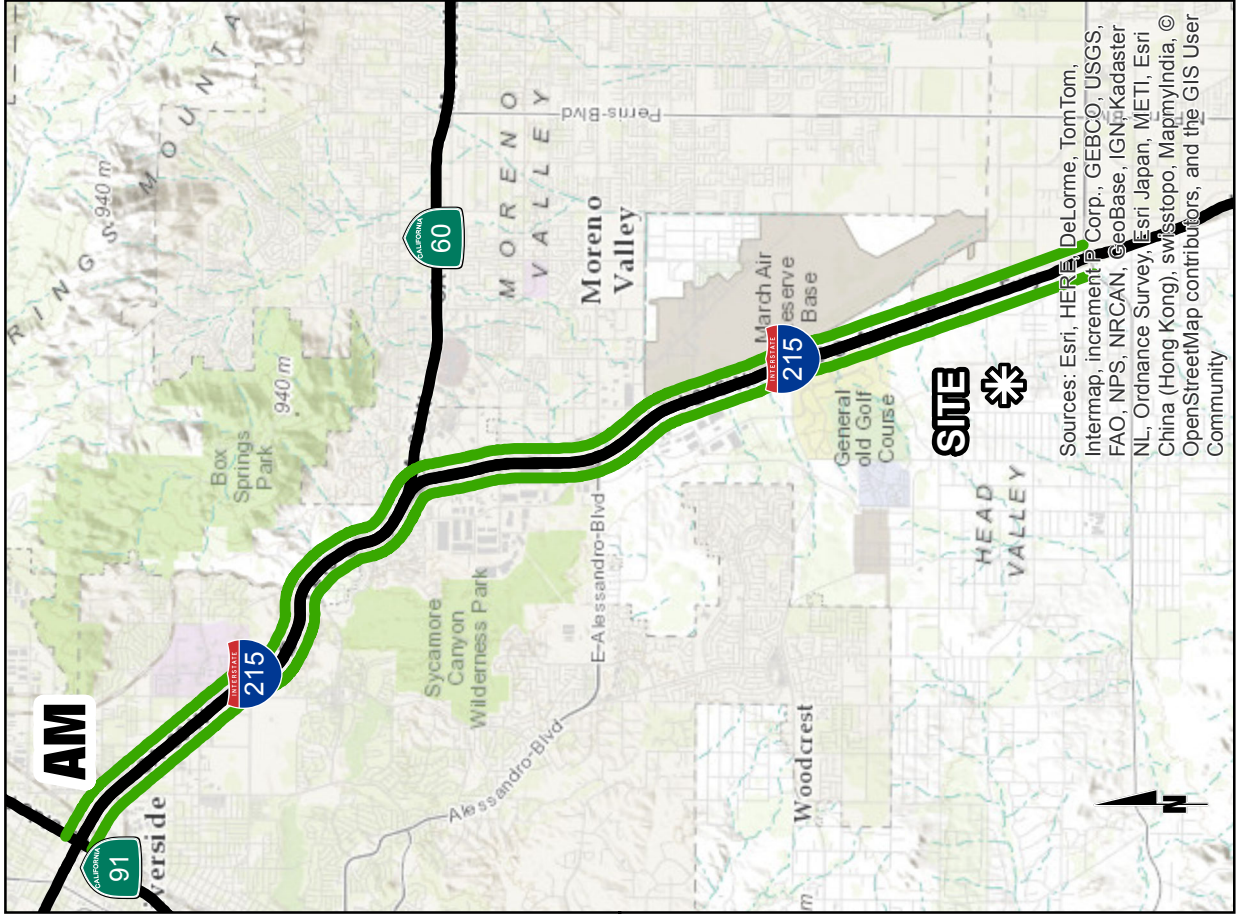


EXHIBIT 6: EAPC (2017) PEAK HOUR FREEWAY MAINLINE LOS

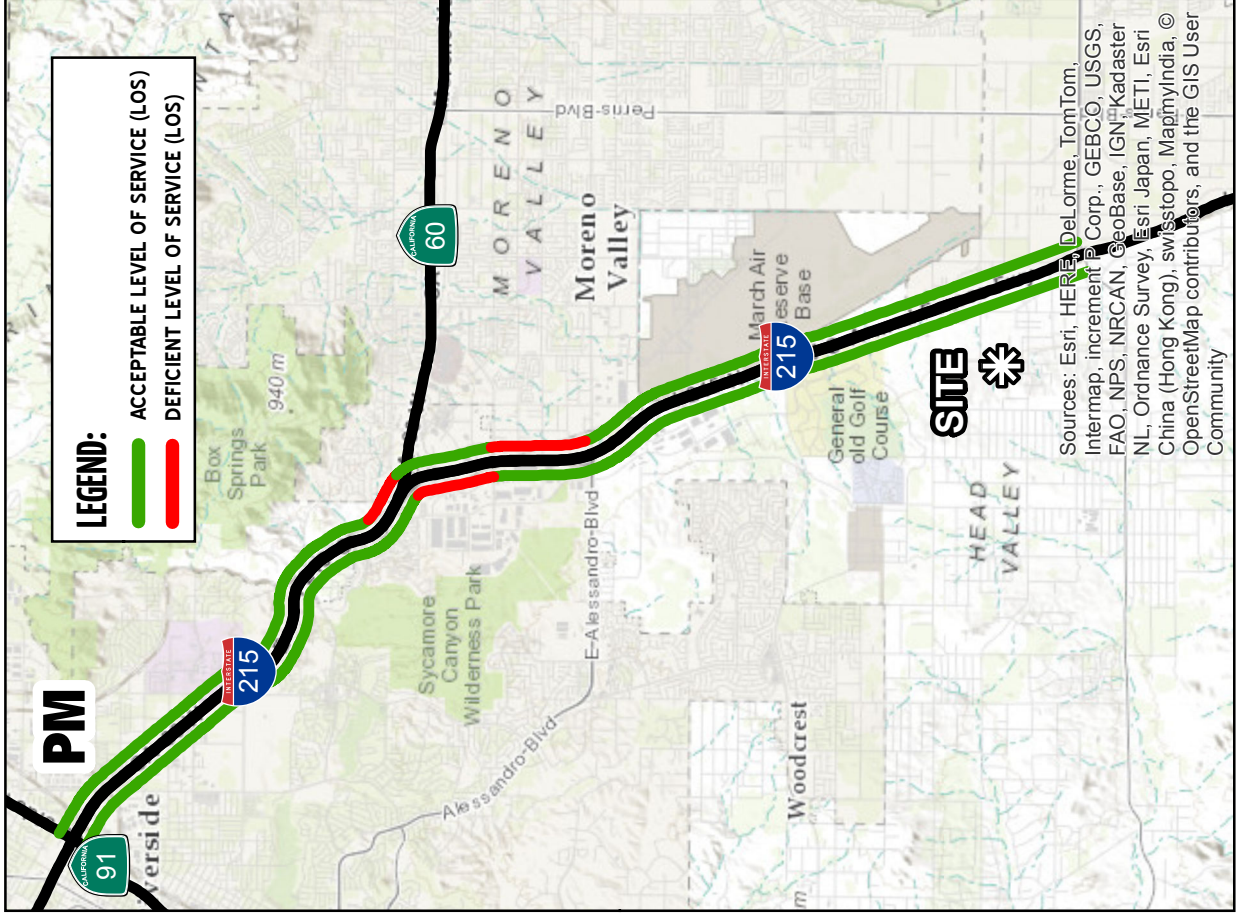
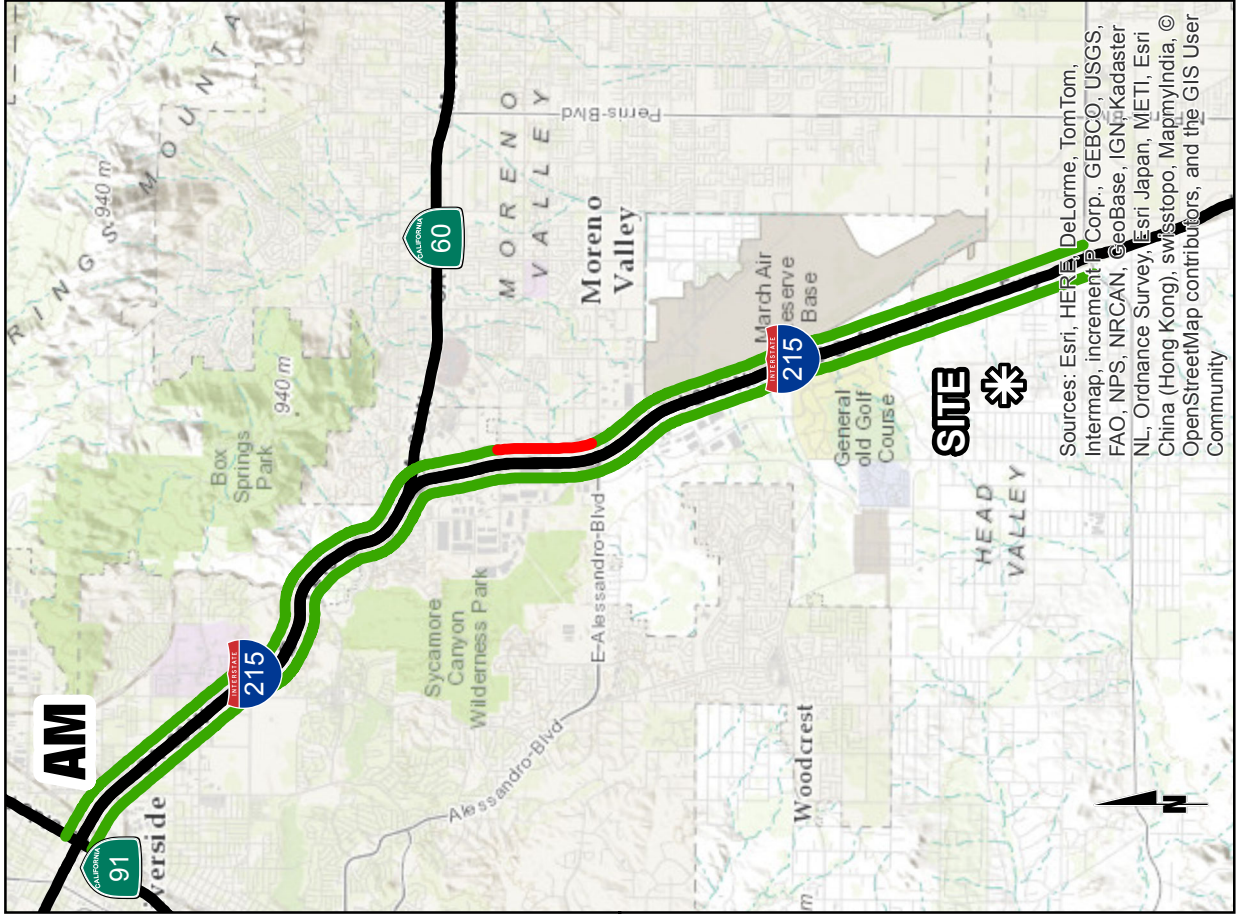
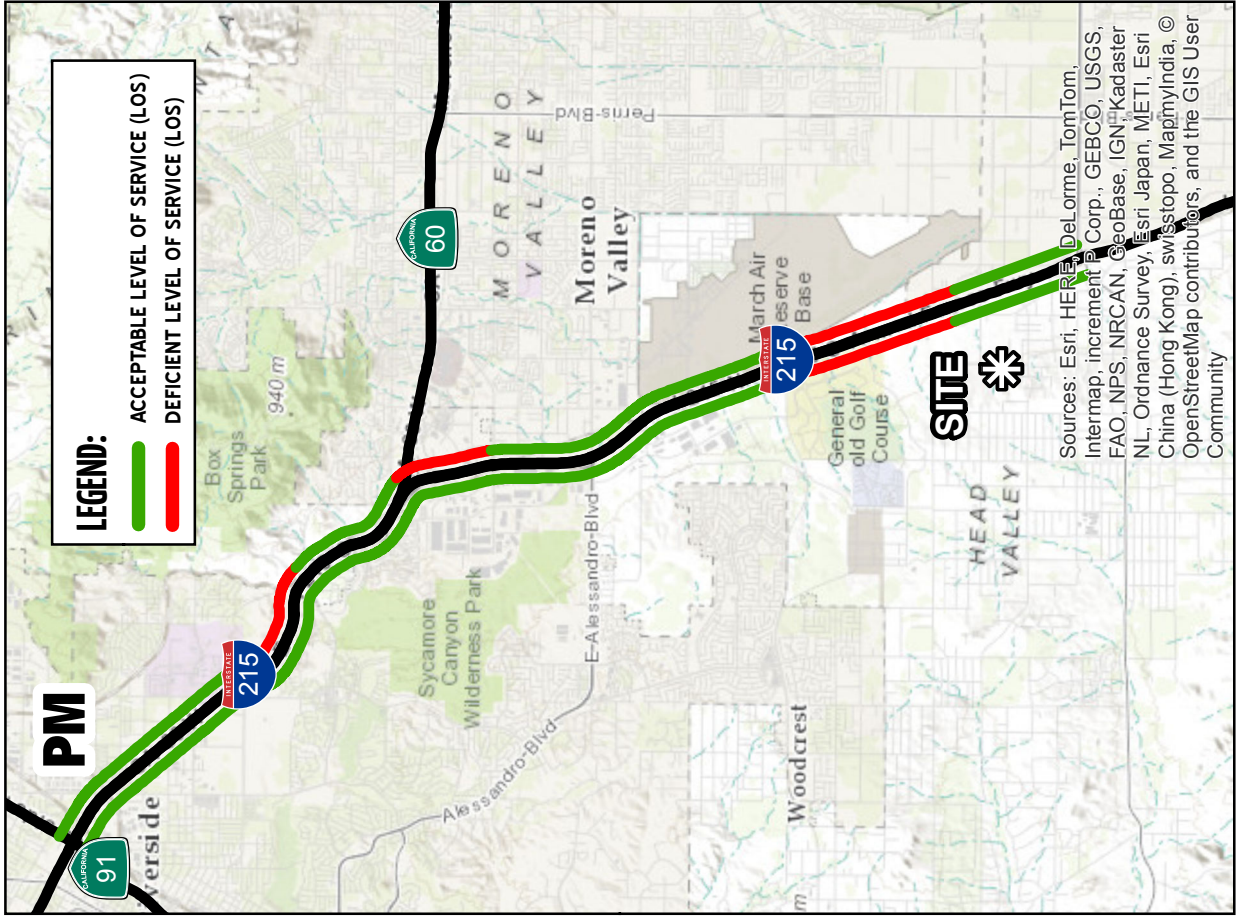
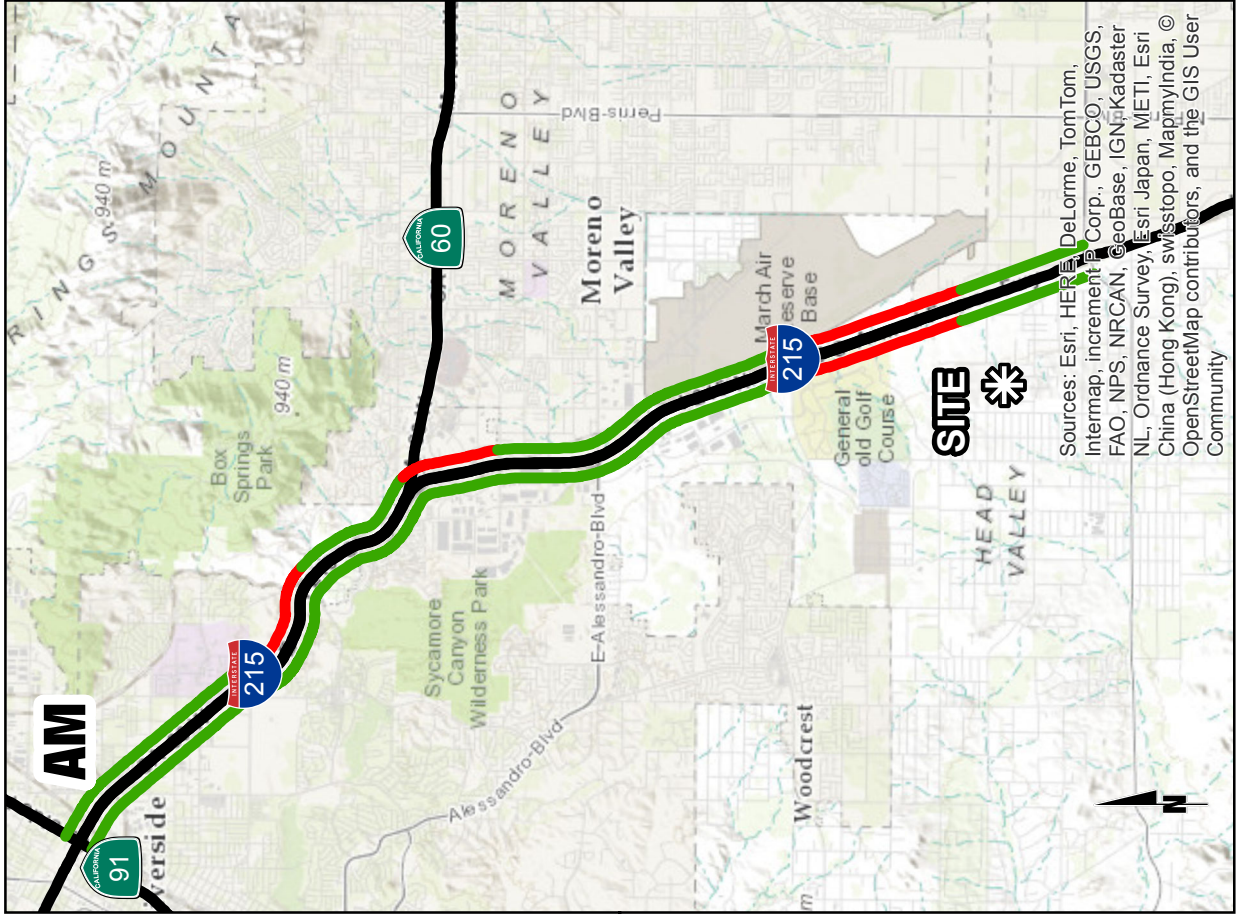
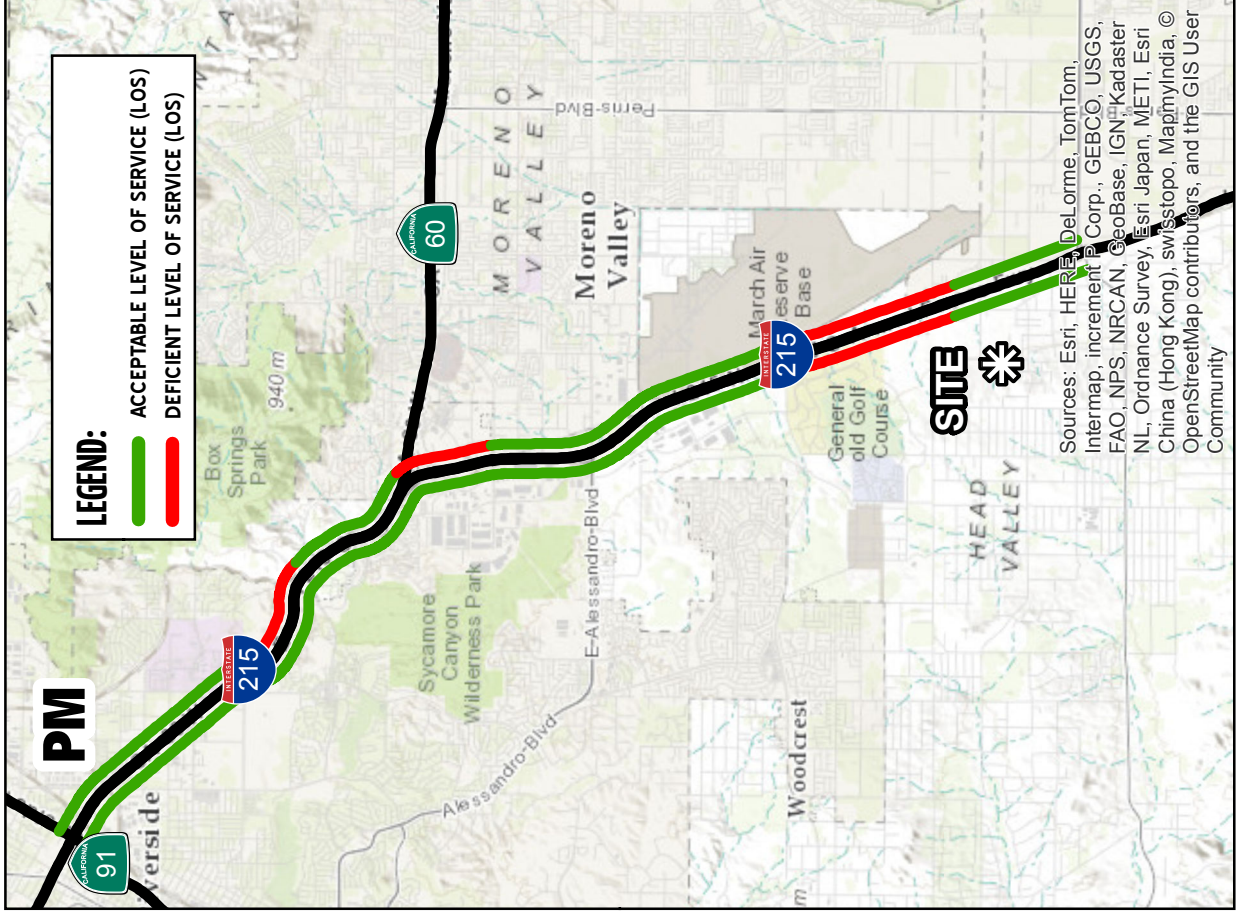
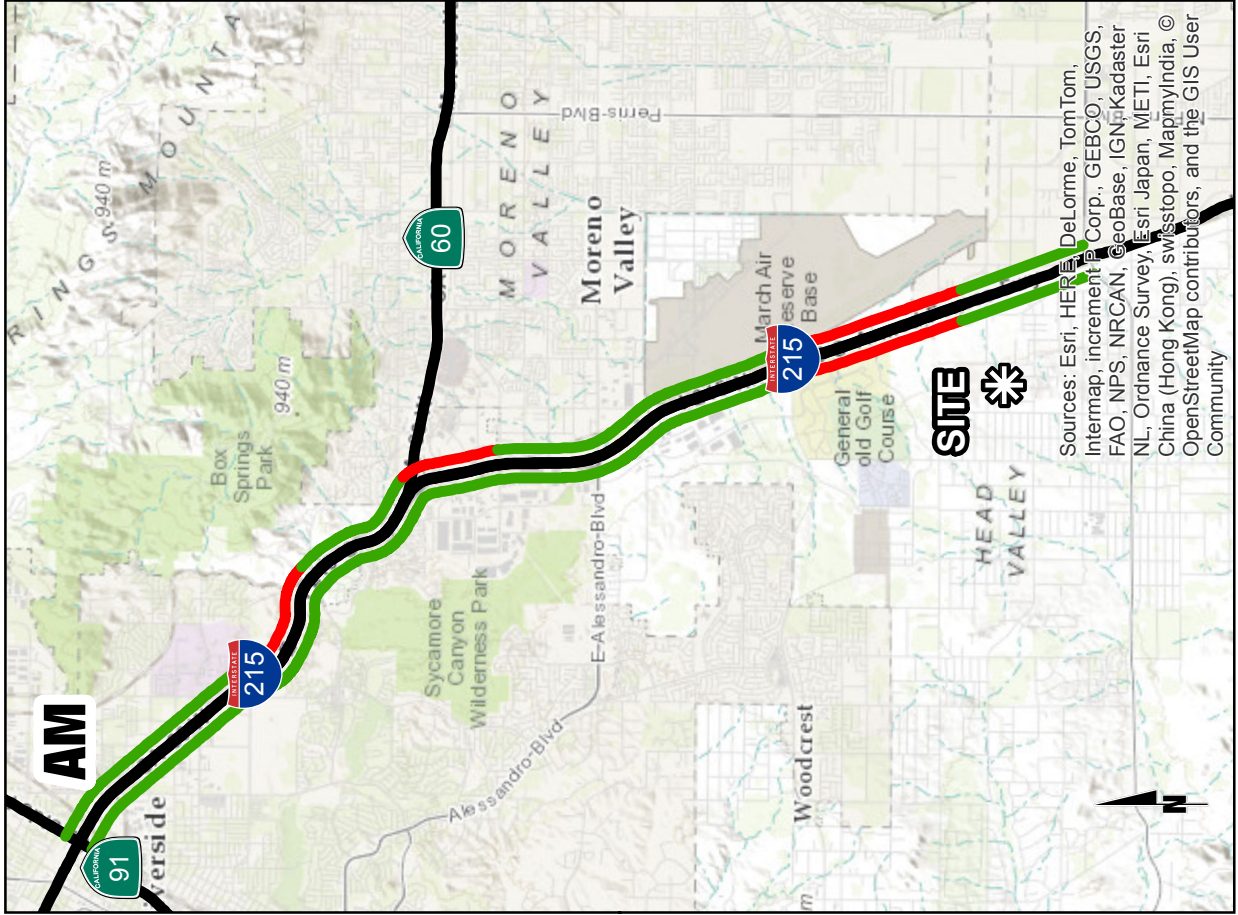


EXHIBIT 7: HORIZON YEAR (2035) WITHOUT PROJECT PEAK HOUR FREEWAY MAINLINE LOS



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geobase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

EXHIBIT 8: HORIZON YEAR (2035) WITH PROJECT PEAK HOUR FREEWAY MAINLINE LOS



ATTACHMENT A
EXISTING (2015) CONDITIONS
HCS2010 BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4287	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	955	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	13.6	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4344	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1216	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	17.4	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4640	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1324	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.0	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3460	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	767	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.0	pc/mi/ln	S
LOS	A		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5093	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1140	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.3	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4643	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1274	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6260	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1388	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3456	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1309	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4985	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1388	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4693	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1734	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.7	mph	S
D = v _p / S	26.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	2544	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			4
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	940	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	13.4	pc/mi/ln	pc/h/ln
LOS	B		f _p)
			S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2186	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	800	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	11.4	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3532	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	787	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.2	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4615	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1038	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.8	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	University Av to MLK Bl	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	AM Peak Hour		Analysis Year	Existing (2015)	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6526	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	5	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1818	pc/h/ln	Design LOS		
S	65.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	27.7	pc/mi/ln	S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5255	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1478	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.1	mph	S
D = v _p / S	21.4	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5098	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1158	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.5	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6028	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1646	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.7	mph	S
D = v _p / S	24.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3567	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1312	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description Knox Logistics Center Phase II TIA (JN 09347)			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4693	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1734	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.7	mph	S
D = v _p / S	26.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2724	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	766	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	10.9	pc/mi/ln	S
LOS	A		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3679	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1366	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.7	mph	S
D = v _p / S	19.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	Existing (2015)
Project Description Knox Logistics Center Phase II TIA (JN 09347)			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4092	veh/h	Peak-Hour Factor, PHF 0.92
AADT		veh/day	%Trucks and Buses, P _T 4
Peak-Hr Prop. of AADT, K			%RVs, P _R 0
Peak-Hr Direction Prop, D			General Terrain: Level
DDHV = AADT x K x D		veh/h	Grade % Length mi Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1512	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.9	mph	S
D = v _p / S	22.0	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	South of Harley Knox Bl.	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	AM Peak Hour		Analysis Year	Existing (2015)	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	3721	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	3	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1368	pc/h/ln	Design LOS		
S	69.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	19.6	pc/mi/ln	S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5907	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	5	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1316	pc/h/ln	
S	69.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	18.8	pc/mi/ln	pc/h/ln
LOS	C		mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4209	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1155	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.5	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5182	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1443	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4518	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	992	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	14.2	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6720	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1468	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.2	mph	S
D = v _p / S	21.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5966	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			0
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	1.000
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1621	pc/h/ln	Design LOS
S	67.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	23.9	pc/mi/ln	S
LOS	C		D = v _p / S
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6485	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1438	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5540	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1543	pc/h/ln	Design LOS
S	68.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	22.5	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5354	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1979	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.0	mph	S
D = v _p / S	31.4	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3445	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1267	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	SR-60 to Blaine St	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	Existing (2015)	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	3453	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	5	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	5		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	769	pc/h/ln	Design LOS		
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	11.0	pc/mi/ln	S	mph	
LOS	A		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3913	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	897	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	12.8	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	University Av to MLK Bl	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	Existing (2015)	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	5849	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	7	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1645	pc/h/ln	Design LOS		
S	67.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	24.3	pc/mi/ln	S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5332	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1507	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.9	mph	S
D = v _p / S	21.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5614	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1306	pc/h/ln	Design LOS
S	69.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	18.7	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	Box Springs Rd to SR60/I215	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	Existing (2015)	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6305	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	0	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	1.000	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1713	pc/h/ln	Design LOS		
S	66.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	25.6	pc/mi/ln	S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3832	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1416	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.5	mph	S
D = v _p / S	20.4	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5354	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1979	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.0	mph	S
D = v _p / S	31.4	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2523	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	703	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	10.0	pc/mi/ln	S
LOS	A		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2678	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	990	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.1	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3247	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1200	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	17.1	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	Existing (2015)
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2779	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1022	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.6	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

ATTACHMENT B
E+P CONDITIONS
HCS2010 BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4317	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	962	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	13.7	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4374	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1224	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	17.5	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4670	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1332	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3490	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	774	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.1	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5123	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1147	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	16.4	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4673	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1283	pc/h/ln	Design LOS
S	69.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	18.3	pc/mi/ln	S
LOS	C		D = v _p / S
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6306	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1398	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.5	mph	S
D = v _p / S	20.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS) <input type="checkbox"/> Des.(N) <input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	3502	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length <i>mi</i>
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1326	pc/h/ln	
S	69.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	19.0	pc/mi/ln	
LOS	C		
		Design LOS	
		S	
		D = v _p / S	
		Required Number of Lanes, N	
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5034	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1402	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.5	mph	S
D = v _p / S	20.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4742	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1752	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.5	mph	S
D = v _p / S	26.4	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	2593	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			5
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	963	pc/h/ln	
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	13.8	pc/mi/ln	pc/h/ln
LOS	B		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2195	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	807	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.5	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3545	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	790	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.3	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4628	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1046	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.9	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6539	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1821	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	65.5	mph	S
D = v _p / S	27.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5269	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1482	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.1	mph	S
D = v _p / S	21.5	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5112	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1161	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.6	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6042	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1650	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.7	mph	S
D = v _p / S	24.4	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3588	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1319	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	18.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	4714	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			4
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1742	pc/h/ln	
S	66.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	26.2	pc/mi/ln	pc/h/ln
LOS	D		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2746	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	772	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.0	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3701	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1374	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4114	veh/h	Peak-Hour Factor, PHF 0.92
AADT		veh/day	%Trucks and Buses, P _T 5
Peak-Hr Prop. of AADT, K			%RVs, P _R 0
Peak-Hr Direction Prop, D			General Terrain: Level
DDHV = AADT x K x D		veh/h	Grade % Length mi Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1528	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.8	mph	S
D = v _p / S	22.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3740	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1382	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5922	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1320	pc/h/ln	Design LOS
S	69.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	18.9	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4224	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1165	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.6	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5197	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1448	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4534	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	996	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	14.2	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6736	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1472	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.1	mph	S
D = v _p / S	21.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5982	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			0
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	1.000
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1626	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.9	mph	S
D = v _p / S	23.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6509	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1450	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5183	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
			Level
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1962	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.3	mph	S
D = v _p / S	31.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5565	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1550	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.6	mph	S
D = v _p / S	22.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5379	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1988	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.8	mph	S
D = v _p / S	31.7	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3880	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1441	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3446	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1274	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3487	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	781	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.2	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3947	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	905	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	12.9	pc/mi/ln	f _p
LOS	B		S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5883	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1655	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.6	mph	S
D = v _p / S	24.5	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5367	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	4	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1517	pc/h/ln	
S	68.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	22.0	pc/mi/ln	pc/h/ln
LOS	C		mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5649	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1314	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	18.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6340	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1731	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.7	mph	S
D = v _p / S	25.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	3885	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1436	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.4	mph	S
D = v _p / S	20.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5407	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			5
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2008	pc/h/ln	Design LOS
S	62.4	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	32.2	pc/mi/ln	pc/h/ln
LOS	D		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2579	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	722	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	10.3	pc/mi/ln	S
LOS	A		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2734	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1015	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.5	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3303	veh/h	Peak-Hour Factor, PHF 0.92
AADT		veh/day	%Trucks and Buses, P _T 5
Peak-Hr Prop. of AADT, K			%RVs, P _R 0
Peak-Hr Direction Prop, D			General Terrain: Level
DDHV = AADT x K x D		veh/h	Grade % Length mi Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1227	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	17.5	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	E+P
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2788	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1025	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.6	pc/mi/ln	f _p
LOS	B		S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

ATTACHMENT C
EAP (2017) CONDITIONS
HCS2010 BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4490	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1000	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	14.3	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4549	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1273	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4857	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1386	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3630	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	805	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.5	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5329	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1193	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	17.0	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4861	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1334	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6559	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1454	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	21.0	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3641	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
			Level
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1379	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5236	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1458	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.2	mph	S
D = v _p / S	21.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4932	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1823	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	65.5	mph	S
D = v _p / S	27.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2696	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1001	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	14.3	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2284	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	840	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	12.0	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3688	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	822	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.7	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4815	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1089	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	15.6	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6803	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1895	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.4	mph	S
D = v _p / S	29.4	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5481	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1542	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.6	mph	S
D = v _p / S	22.5	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5318	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1208	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	17.3	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6285	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1716	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.9	mph	S
D = v _p / S	25.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3732	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1372	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.7	mph	S
D = v _p / S	19.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4903	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
			Level
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1812	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	65.7	mph	S
D = v _p / S	27.6	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2856	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	803	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.5	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3850	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1430	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.4	mph	S
D = v _p / S	20.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4280	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1589	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.2	mph	S
D = v _p / S	23.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3891	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1438	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6161	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1373	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.7	mph	S
D = v _p / S	19.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4394	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1212	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	17.3	pc/mi/ln	S
LOS	B		D = v _p / S
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5407	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1506	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.9	mph	S
D = v _p / S	21.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4716	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1035	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.8	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7007	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1531	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.7	mph	S
D = v _p / S	22.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6771	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			0
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	1.000
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1840	pc/h/ln	Design LOS
S	65.2	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	28.2	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6771	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1509	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.9	mph	S
D = v _p / S	21.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5391	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2041	pc/h/ln	
S	61.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	33.0	pc/mi/ln	
LOS	D		
			Design LOS
			S
			D = v _p / S
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5789	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	4	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1612	pc/h/ln	
S	68.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	23.7	pc/mi/ln	
LOS	C		
			pc/h/ln
			mph
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5595	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2068	pc/h/ln	Design LOS
S	61.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	33.8	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound Van Buren Bl. to Harley Knox B		
Agency or Company	Urban Crossroads, Inc.	From/To			
Date Performed	05/22/2015	Jurisdiction	Caltrans		
Analysis Time Period	PM Peak Hour	Analysis Year	EAP		
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	4036	veh/h	Peak-Hour Factor, PHF	0.92	
AADT			%Trucks and Buses, P _T	5	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D	veh/h		Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft		f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD	ramps/mi		TRD Adjustment	mph	
FFS (measured)	70.0		FFS	70.0	
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1499		Design LOS		
f _p			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
S	69.0		f _p	mph	
D = v _p / S	21.7		S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3605	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1332	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3627	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	812	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	11.6	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4105	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	941	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	13.4	pc/mi/ln	f _p
LOS	B		S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6120	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1721	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.9	mph	S
D = v _p / S	25.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5582	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1578	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.3	mph	S
D = v _p / S	23.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5876	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1367	pc/h/ln	Design LOS
S	69.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	19.6	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6595	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			1
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.995
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1801	pc/h/ln	Design LOS
S	65.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	27.4	pc/mi/ln	f _p
LOS	D		S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4039	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1493	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.0	mph	S
D = v _p / S	21.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
		<input type="checkbox"/> Planning Data	
Flow Inputs			
Volume, V	5623	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2088	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	60.9	mph	S
D = v _p / S	34.3	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2681	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	750	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	10.7	pc/mi/ln	S
LOS	A		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2842	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1055	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	15.1	pc/mi/ln	f _p
LOS	B		S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	Van Buren Bl. to Harley Knox B	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	EAP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	3434	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	5	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1275	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
S	69.9	mph	S	mph	
D = v _p / S	18.2	pc/mi/ln	D = v _p / S	pc/mi/ln	
LOS	C		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2900	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1066	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	15.2	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

ATTACHMENT D
EAPC (2017) CONDITIONS
HCS2010 BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5147	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	5	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1175	pc/h/ln	
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	16.8	pc/mi/ln	
LOS	B		
			S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5265	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1502	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.9	mph	S
D = v _p / S	21.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5632	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1638	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.8	mph	S
D = v _p / S	24.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4470	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1020	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.6	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6230	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1422	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.4	mph	S
D = v _p / S	20.5	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5847	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1644	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.7	mph	S
D = v _p / S	24.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7928	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1792	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	65.9	mph	S
D = v _p / S	27.2	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5076	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			14
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1968	pc/h/ln	Design LOS
S	63.2	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	31.2	pc/mi/ln	pc/h/ln
LOS	D		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6735	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1922	pc/h/ln	Design LOS
S	64.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	30.1	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5997	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1662	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.5	mph	S
D = v _p / S	24.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	3753	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			13
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.939
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1448	pc/h/ln	Design LOS
S	69.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	20.9	pc/mi/ln	pc/h/ln
LOS	C		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	2867	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1080	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	15.4	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4022	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	905	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	12.9	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5182	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1177	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.8	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7204	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2026	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.1	mph	S
D = v _p / S	32.6	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5916	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1672	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.4	mph	S
D = v _p / S	24.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5787	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1327	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.0	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6796	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1874	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.7	mph	S
D = v _p / S	29.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4449	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1660	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.5	mph	S
D = v _p / S	24.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5657	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2121	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	60.2	mph	S
D = v _p / S	35.3	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3647	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	832	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	11.9	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5185	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1458	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.2	mph	S
D = v _p / S	21.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5279	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length <i>mi</i>
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1999	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.6	mph	S
D = v _p / S	31.9	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4941	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1862	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.9	mph	S
D = v _p / S	28.7	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6551	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1467	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.2	mph	S
D = v _p / S	21.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4823	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1343	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Southbound	
Agency or Company	Urban Crossroads, Inc.		From/To	University Av to MLK Bl	
Date Performed	05/25/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	EAPC	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	5874	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	7	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1652	pc/h/ln	Design LOS		
S	67.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	24.4	pc/mi/ln	S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5224	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1164	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.6	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7555	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			3
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.985
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1667	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.5	mph	S
D = v _p / S	24.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6818	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			2
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1871	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.8	mph	S
D = v _p / S	28.9	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7605	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1703	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.1	mph	S
D = v _p / S	25.4	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound		
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B		
Date Performed	05/22/2015	Jurisdiction	Caltrans		
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC		
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6269	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	10	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2385	pc/h/ln	Design LOS		
S	53.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	44.4	pc/mi/ln	S	mph	
LOS	E		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed				
V - Hourly volume	D - Density	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9		
LOS - Level of service	BFFS - Base free-flow speed	f _p - Page 11-18	TRD - Page 11-11		
DDHV - Directional design hour volume		LOS, S, FFS, v _p - Exhibits 11-2, 11-3			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6710	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1887	pc/h/ln	Design LOS
S	64.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	29.2	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7122	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1993	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.7	mph	S
D = v _p / S	31.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5121	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			10
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1948	pc/h/ln	Design LOS
S	63.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	30.7	pc/mi/ln	pc/h/ln
LOS	D		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4755	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1809	pc/h/ln	Design LOS
S	65.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	27.5	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4338	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	995	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.2	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4879	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1140	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	16.3	pc/mi/ln	D = v _p / S
LOS	B		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6956	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1994	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.7	mph	S
D = v _p / S	31.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6488	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1869	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.8	mph	S
D = v _p / S	28.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6848	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			17
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.922
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1615	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.0	mph	S
D = v _p / S	23.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7660	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2134	pc/h/ln	Design LOS
S	59.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	35.6	pc/mi/ln	S
LOS	E		D = v _p / S
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/I215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5514	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2098	pc/h/ln	Design LOS
S	60.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	34.6	pc/mi/ln	f _p
LOS	D		S
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	Eucalyptus Av. to Alessandro B	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	EAPC	
Project Description Knox Logistics Center Phase II TIA (JN 09347)					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	7167	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	9	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2714	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
S	43.4	mph	S	mph	
D = v _p / S	62.5	pc/mi/ln	D = v _p / S	pc/mi/ln	
LOS	F		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4295	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	999	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	14.3	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4216	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1203	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	17.2	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4517	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1727	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.8	mph	S
D = v _p / S	25.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	EAPC
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	3501	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1313	pc/h/ln	
S	69.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	18.8	pc/mi/ln	
LOS	C		
			pc/h/ln
			mph
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

ATTACHMENT E
HORIZON YEAR (2035) WITHOUT PROJECT CONDITIONS
HCS2010 BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7169	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1668	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.5	mph	S
D = v _p / S	24.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6812	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1981	pc/h/ln	Design LOS
S	62.9	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	31.5	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6991	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2042	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	61.8	mph	S
D = v _p / S	33.1	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8000	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1843	pc/h/ln	Design LOS
S	65.2	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	28.3	pc/mi/ln	S
LOS	D		D = v _p / S
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8882	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2018	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.2	mph	S
D = v _p / S	32.4	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6705	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1959	pc/h/ln	Design LOS
S	63.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	30.9	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5506	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			28
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.877
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1365	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.7	mph	S
D = v _p / S	19.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5351	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			12
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2055	pc/h/ln	Design LOS
S	61.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	33.4	pc/mi/ln	pc/h/ln
LOS	D		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5500	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1577	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.4	mph	S
D = v _p / S	23.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5170	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1447	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.3	mph	S
D = v _p / S	20.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5961	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			mi
			Level
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2214	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	58.1	mph	S
D = v _p / S	38.1	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4171	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1564	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.5	mph	S
D = v _p / S	22.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	SR-60 to Blaine St	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	AM Peak Hour		Analysis Year	2035 NP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	7086	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	13	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.939	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	5		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1641	pc/h/ln	Design LOS		
S	67.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	24.2	pc/mi/ln	S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6728	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1565	pc/h/ln	Design LOS
S	68.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	22.9	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6908	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2009	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.4	mph	S
D = v _p / S	32.2	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7912	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2268	pc/h/ln	Design LOS
S	56.8	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	40.0	pc/mi/ln	S
LOS	E		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8793	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1988	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.8	mph	S
D = v _p / S	31.7	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6599	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1919	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.0	mph	S
D = v _p / S	30.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5378	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			27
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.881
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2212	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	58.1	mph	S
D = v _p / S	38.1	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5223	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			11
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1996	pc/h/ln	Design LOS
S	62.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	31.9	pc/mi/ln	pc/h/ln
LOS	D		f _p)
			S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5372	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1226	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	17.5	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6181	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1747	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	66.5	mph	S
D = v _p / S	26.3	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5899	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2191	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	58.6	mph	S
D = v _p / S	37.4	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5324	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1968	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.2	mph	S
D = v _p / S	31.2	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7093	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			13
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.939
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1642	pc/h/ln	Design LOS
S	67.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	24.2	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6735	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1958	pc/h/ln	Design LOS
S	63.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	30.9	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6915	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2011	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.4	mph	S
D = v _p / S	32.2	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Southbound	
Agency or Company	Urban Crossroads, Inc.		From/To	MLK Bl to Central Av	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	2035 NP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS) <input type="checkbox"/> Des.(N) <input type="checkbox"/> Planning Data					
Flow Inputs					
Volume, V	7919	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	11	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f _{LW}	mph	
Rt-Side Lat. Clearance	ft		f _{LC}	mph	
Number of Lanes, N	5		TRD Adjustment	mph	
Total Ramp Density, TRD	ramps/mi		FFS	70.0 mph	
FFS (measured)	70.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1816	pc/h/ln	Design LOS		
S	65.6 mph		v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	27.7 pc/mi/ln		S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	8799	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			8
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain: <i>Level</i>
			Grade % Length <i>mi</i>
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	5	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1989	Design LOS	
S	62.8	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln
D = v _p / S	31.7	S	mph
LOS	D	D = v _p / S	pc/mi/ln
		Required Number of Lanes, N	
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6607	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1921	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.0	mph	S
D = v _p / S	30.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5387	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			27
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.881
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1329	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.0	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description Knox Logistics Center Phase II TIA (JN 09347)			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5231	veh/h	Peak-Hour Factor, PHF 0.92
AADT		veh/day	%Trucks and Buses, P _T 11
Peak-Hr Prop. of AADT, K			%RVs, P _R 0
Peak-Hr Direction Prop, D			General Terrain: Level
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW} mph
Number of Lanes, N	3		f _{LC} mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment mph
FFS (measured)	70.0	mph	FFS 70.0 mph
Base free-flow Speed, BFFS		mph	
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2000	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.6	mph	S
D = v _p / S	32.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5381	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1535	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.7	mph	S
D = v _p / S	22.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6004	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1705	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.0	mph	S
D = v _p / S	25.4	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5903	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			5
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2192	pc/h/ln	Design LOS
S	58.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	37.4	pc/mi/ln	pc/h/ln
LOS	E		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5274	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1959	pc/h/ln	Design LOS
S	63.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	30.9	pc/mi/ln	S
LOS	D		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	7184	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1671	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.4	mph	S
D = v _p / S	24.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	Blaine St to University Av	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	2035 NP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6826	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	14	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	5		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1588	pc/h/ln	Design LOS		
S	68.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	23.3	pc/mi/ln	S	mph	
LOS	C		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	University Av to MLK Bl	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	2035 NP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	7006	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	15	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2047	pc/h/ln	Design LOS		
S	61.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	33.2	pc/mi/ln	S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8014	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2308	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	55.8	mph	S
D = v _p / S	41.4	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8897	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2021	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.2	mph	S
D = v _p / S	32.5	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6724	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1964	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.2	mph	S
D = v _p / S	31.1	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5526	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			28
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.877
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2282	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	56.4	mph	S
D = v _p / S	40.4	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	Eucalyptus Av. to Alessandro B	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	2035 NP	
Project Description Knox Logistics Center Phase II TIA (JN 09347)					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	5370	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	12	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2062	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
S	61.4	mph	S	mph	
D = v _p / S	33.6	pc/mi/ln	D = v _p / S	pc/mi/ln	
LOS	D		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5520	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1272	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4535	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1263	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	70.0	mph	S
D = v _p / S	18.1	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5970	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			6
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
			Grade % Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2228	pc/h/ln	Design LOS
S	57.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	38.6	pc/mi/ln	pc/h/ln
LOS	E		S
			mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 NP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4319	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1604	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.1	mph	S
D = v _p / S	23.6	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

ATTACHMENT F
HORIZON YEAR (2035) WITH PROJECT CONDITIONS
HCS2010 BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7195	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1674	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.4	mph	S
D = v _p / S	24.8	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/15	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6837	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1988	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.8	mph	S
D = v _p / S	31.7	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7017	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2050	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	61.6	mph	S
D = v _p / S	33.3	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8026	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1849	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	65.1	mph	S
D = v _p / S	28.4	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8908	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2024	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.1	mph	S
D = v _p / S	32.6	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6731	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1966	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.2	mph	S
D = v _p / S	31.1	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5546	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			28
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.877
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1374	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.6	mph	S
D = v _p / S	19.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5390	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2070	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	61.2	mph	S
D = v _p / S	33.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5543	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1597	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.2	mph	S
D = v _p / S	23.4	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5212	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1466	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.2	mph	S
D = v _p / S	21.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound Van Buren Bl. to Harley Knox B		
Agency or Company	Urban Crossroads, Inc.	From/To	Caltrans		
Date Performed	05/22/2015	Jurisdiction	2035 WP		
Analysis Time Period	AM Peak Hour	Analysis Year			
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6003	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	6	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2240	pc/h/ln	Design LOS		
S	57.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	39.0	pc/mi/ln	S	mph	
LOS	E		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed				
V - Hourly volume	D - Density	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9		
LOS - Level of service	BFFS - Base free-flow speed	f _p - Page 11-18	TRD - Page 11-11		
DDHV - Directional design hour volume	LOS, S, FFS, v _p - Exhibits 11-2, 11-3				

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4173	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			7
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.966
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1565	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.5	mph	S
D = v _p / S	22.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7098	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			13
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.939
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1643	pc/h/ln	Design LOS
S	67.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	24.3	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6740	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1568	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.4	mph	S
D = v _p / S	22.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6920	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2012	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.4	mph	S
D = v _p / S	32.3	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7924	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2272	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	56.7	mph	S
D = v _p / S	40.1	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8804	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1990	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.8	mph	S
D = v _p / S	31.7	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6611	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1922	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	64.0	mph	S
D = v _p / S	30.1	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5396	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			27
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.881
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2219	pc/h/ln	Design LOS
S	58.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	38.3	pc/mi/ln	S
LOS	E		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5241	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2003	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.5	mph	S
D = v _p / S	32.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5392	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			10
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.952
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1231	pc/h/ln	Design LOS
S	70.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	17.6	pc/mi/ln	S
LOS	B		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	Cactus Av. to Van Buren Bl.	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	AM Peak Hour		Analysis Year	2035 WP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6200	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	8	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1752	pc/h/ln	Design LOS		
S	66.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	26.4	pc/mi/ln	S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	AM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5340	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			4
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.980
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1973	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.1	mph	S
D = v _p / S	31.3	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7160	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1665	pc/h/ln	Design LOS
S	67.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	24.7	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/25/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6748	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1962	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.3	mph	S
D = v _p / S	31.0	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound		
Agency or Company	Urban Crossroads, Inc.	From/To	University Av to MLK Bl		
Date Performed	05/25/2015	Jurisdiction	Caltrans		
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP		
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	6928	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	14	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2014	pc/h/ln	Design LOS		
S	62.3	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	32.3	pc/mi/ln	S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7932	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1828	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	65.4	mph	S
D = v _p / S	27.9	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8813	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			8
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.962
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1993	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.7	mph	S
D = v _p / S	31.8	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6621	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1925	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.9	mph	S
D = v _p / S	30.1	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5407	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			28
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.877
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1340	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.8	mph	S
D = v _p / S	19.2	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound		
Agency or Company	Urban Crossroads, Inc.	From/To	Eucalyptus Av. to Alessandro B		
Date Performed	05/22/2015	Jurisdiction	Caltrans		
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP		
Project Description Knox Logistics Center Phase II TIA (JN 09347)					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	5252	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	11	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2008	pc/h/ln	Design LOS		
S	62.4	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	32.2	pc/mi/ln	S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5403	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			11
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.948
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1549	pc/h/ln	Design LOS
S	68.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	22.6	pc/mi/ln	S
LOS	C		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6025	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1711	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.0	mph	S
D = v _p / S	25.5	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	Van Buren Bl. to Harley Knox B
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	
<input type="checkbox"/> Planning Data			
Flow Inputs			
Volume, V	5925	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	0.92
Peak-Hr Prop. of AADT, K			%Trucks and Buses, P _T
Peak-Hr Direction Prop, D			5
DDHV = AADT x K x D		veh/h	%RVs, P _R
			0
			General Terrain:
			Level
		Grade %	Length
			mi
			Up/Down %
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width	ft		
Rt-Side Lat. Clearance	ft	f _{LW}	mph
Number of Lanes, N	3	f _{LC}	mph
Total Ramp Density, TRD	ramps/mi	TRD Adjustment	mph
FFS (measured)	70.0	FFS	70.0
Base free-flow Speed, BFFS	mph		
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2200	pc/h/ln	Design LOS
S	58.4	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	37.7	pc/mi/ln	pc/h/ln
LOS	E		mph
			D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Southbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5292	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			5
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.976
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1965	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.2	mph	S
D = v _p / S	31.1	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR-60 to Blaine St
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	7214	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			14
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.935
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1678	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	67.3	mph	S
D = v _p / S	24.9	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Blaine St to University Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6856	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1602	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.1	mph	S
D = v _p / S	23.5	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	CKS		Highway/Direction of Travel	I-215 Northbound	
Agency or Company	Urban Crossroads, Inc.		From/To	University Av to MLK Bl	
Date Performed	05/22/2015		Jurisdiction	Caltrans	
Analysis Time Period	PM Peak Hour		Analysis Year	2035 WP	
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>					
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)		<input type="checkbox"/> Planning Data	
Flow Inputs					
Volume, V	7035	veh/h	Peak-Hour Factor, PHF	0.92	
AADT		veh/day	%Trucks and Buses, P _T	15	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	70.0	mph	FFS	70.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2055	pc/h/ln	Design LOS		
S	61.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	pc/h/ln	
D = v _p / S	33.4	pc/mi/ln	S	mph	
LOS	D		D = v _p / S	pc/mi/ln	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	MLK Bl to Central Av
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper.(LOS)		<input type="checkbox"/> Des.(N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8045	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2317	pc/h/ln	Design LOS
S	55.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
D = v _p / S	41.7	pc/mi/ln	S
LOS	E		D = v _p / S
			pc/mi/ln
			Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Central Av to Box Springs Rd
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	8927	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			9
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.957
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2028	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	62.0	mph	S
D = v _p / S	32.7	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Box Springs Rd to SR60/I215
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	6754	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			15
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.930
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1973	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	63.1	mph	S
D = v _p / S	31.3	pc/mi/ln	D = v _p / S
LOS	D		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	SR60/1215 to Eucalyptus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5571	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			28
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.877
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	2301	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	55.9	mph	S
D = v _p / S	41.1	pc/mi/ln	D = v _p / S
LOS	E		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Alessandro Bl. to Cactus Av.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	5568	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			12
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.943
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	5		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1283	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	Cactus Av. to Van Buren Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4584	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	4		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1283	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	69.9	mph	S
D = v _p / S	18.3	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET			
General Information		Site Information	
Analyst	CKS	Highway/Direction of Travel	I-215 Northbound
Agency or Company	Urban Crossroads, Inc.	From/To	South of Harley Knox Bl.
Date Performed	05/22/2015	Jurisdiction	Caltrans
Analysis Time Period	PM Peak Hour	Analysis Year	2035 WP
Project Description <i>Knox Logistics Center Phase II TIA (JN 09347)</i>			
<input checked="" type="checkbox"/> Oper. (LOS)		<input type="checkbox"/> Des. (N)	<input type="checkbox"/> Planning Data
Flow Inputs			
Volume, V	4320	veh/h	Peak-Hour Factor, PHF
AADT		veh/day	%Trucks and Buses, P _T
Peak-Hr Prop. of AADT, K			%RVs, P _R
Peak-Hr Direction Prop, D			General Terrain:
DDHV = AADT x K x D		veh/h	Grade % Length
			Up/Down %
			0.92
			6
			0
			Level
			mi
Calculate Flow Adjustments			
f _p	1.00	E _R	1.2
E _T	1.5	f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.971
Speed Inputs		Calc Speed Adj and FFS	
Lane Width		ft	
Rt-Side Lat. Clearance		ft	f _{LW}
Number of Lanes, N	3		f _{LC}
Total Ramp Density, TRD		ramps/mi	TRD Adjustment
FFS (measured)	70.0	mph	FFS
Base free-flow Speed, BFFS		mph	70.0
			mph
LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	1612	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)
S	68.0	mph	S
D = v _p / S	23.7	pc/mi/ln	D = v _p / S
LOS	C		Required Number of Lanes, N
Glossary		Factor Location	
N - Number of lanes	S - Speed	E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed	f _p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v _p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			