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December 14, 2011

Mr. Paul Agnello
Richmond District Transportation Planner
Planning and Investment Management
Virginia Department of Transportation
2430 Pine Forest Drive
Colonial Heights, VA 23834

Re: **I-95/I-64 Overlap Safety and Operations Study**
Henrico County and City of Richmond, VA
Task 2.3 Deliverable – Existing Conditions Calibration Report

Dear Mr. Agnello:

Kimley-Horn and Associates, Inc. has completed the model development and calibration process for the VISSIM traffic simulation existing conditions modeling for I-95/I-64 Overlap Safety and Operations Study. Initial results and model files of the existing conditions for both AM and PM peak periods were submitted to the Study Work Group on November 23, 2011. Updated results and files for the existing conditions were submitted on December 12, 2011. The purpose of this memorandum is to document the model development and calibration process used by Kimley-Horn to match the traffic simulation model results to the traffic data collected in the field.

Base Model Development

Coding of the initial VISSIM model was completed by VDOT and submitted to Kimley-Horn. It included all network geometry, speed data, and AM and PM peak traffic signal timing. KHA then began modifications to the network to accommodate data input and output requirements and to calibrate the network to observed existing traffic conditions. The following section is a summary of the major changes made to the model from the original file created by VDOT and from software defaults.

Links and Connectors

- To facilitate freeway density data reporting, freeway links were modified to create one continuous link between each ramp.

- To create the most realistic driver behavior at ramp acceleration and deceleration areas, connectors at the end of lane drops were deleted. As a result, simulated vehicles use the lane change logic built into the driver behavior logic to merge into the adjacent lane by the end of the lane drop instead of all vehicles merging at one point at the end of the link.
- Segments with acceleration/deceleration lanes were coded as separate links that extended approximately halfway into the taper of the lane drop/add. This allows merging vehicles to utilize part of the taper section to begin or complete their lane change maneuver.

Vehicle Inputs

- Inputs were coded in 15-minute increments based on the balanced traffic volume data set developed from a combination of traffic count data and origin-destination (O-D) surveys collected for this study. A detailed description of the volume development process was described in a previous document.
- Based on a review of freeway classification counts, a standard vehicle composition of 11% heavy vehicles was applied to all vehicle inputs.

Vehicle Routing Decisions

- Vehicle routing decisions were coded in 15-minute increments based on the balanced traffic volume data set and origin-destination matrices developed by KHA. A detailed description of the volume development process was described in a previous document. All freeway routes were coded with continuous routes from entrance ramp to exit ramp. Additional surface street intersections were coded on a per intersection basis using turning movement counts. Routes through several closely spaced intersections were combined to create more realistic lane utilization behavior.

Desired Speed Decisions

- The number of speed decisions in the original model was reduced to only at those locations where posted speeds change, such as the transition from arterials to ramps and ramps to freeways.
- Additional speed distributions were created to reflect the reduced speeds on freeway-to-freeway connector ramps such as the Bryan Park interchange, and varying posted speed limits on arterials.

Conflict Areas

- As part of the revisions to the merge areas described under Links and Connectors, the conflict areas at the end of the merge sections were removed.

Stop Signs

- To incorporate right-turn-on-red (RTOR) movements, the starting point of the right-turn connectors at the signalized intersections were moved upstream of the stop bar and the RTOR stop signs placed on these connectors.

Signalized Intersections

- For simplicity, all traffic signals were converted to the Ring-Barrier-Controller (RBC) signal emulator in VISSIM.
- The time-of-day schedule for traffic signals in VISSIM must be coded in simulation seconds. The start time for the coordinated plan was set to 0 seconds for all signals.

Data Collection

- Link Evaluation was activated for all freeway links. Segment length was set to a value greater than link length to ensure reporting of entire link length. This is used to generate link density and average throughput and speed.
- Nodes were created at all arterial study intersections. This is used to report intersection throughput, delay, and queuing.
- Data Collection points were placed to approximate the location of count stations and Wavetronix data collection in the field. These points are used to report speeds in the simulation for comparison with data collected in the field.

Error Checking

The initial simulation runs were used for visual checks of the realism of the model and for minor coding errors. Examples of corrections made during this step are:

- Adding missing connectors
- Correcting placement of signal heads/stop bars
- Extending the freeway entry links further upstream approximately one mile to allow vehicles time to move to the correct lane.

Calibration Methodology

The unique geometric features and design deficiencies posed many challenges to the calibration process. Short merge and weave sections in the study area force drivers to make challenging maneuvers that cannot be replicated with the default settings in VISSIM. The following list of significant changes made to the model to replicate existing conditions are identified below:

- Based on past experience and discussions with the VISSIM software manufacturer (PTV), KHA has determined that in heavy weaving sections, the Urban (motorized) driver behavior produces more realistic results. This behavior model (Wiedemann 74), which is usually used on arterial streets, results in more lane change decisions per second than the freeway model (Wiedemann 99), which is better at replicating free-flow freeway conditions. The Urban (motorized) behavior model was initially coded on all merge/diverge areas and ultimately on all links within the overlap section and direct connector ramps.

- The corridor has several locations where multiple lanes are forced to merge into one lane to connect from one freeway to another. Traffic counts collected in these one-lane sections show that flow rates are much higher than a standard freeway lane, reaching 2300-2500 vehicles per hour. The default saturation flow rate of approximately 1900 vehicles per hour per lane was not sufficient to model this situation. To help account for these conditions, two additional categories of saturation flow rate were created. The first step up was called "high sat flow rate" and reflects approximately 2100 vehicles per hour per lane. This rate was coded for all links in advance of the ramps where the high flows are present to allow vehicles to start to congregate in the outside lanes. In the highest flow rate sections, a third category was created called "extreme high sat flow" with a flow rate of approximately 2400 vehicles per hour per lane.
- The accepted deceleration rate for lane changes for the higher flow rate behavior types was increased to make drivers more aggressive. The safety distance reduction factor was cut in half from the default value of 0.8 to 0.4 to make drivers accept smaller distances between other cars when making a lane change. This was based on observations of the simulation. The smallest value recommended by the software developer, PTV, is 0.25 for the most aggressive drivers.
- The "time before diffusion" parameter was reduced to 30 seconds in heavy weave sections (from the default value of 60 seconds). This was an attempt to balance allowing some vehicles to stop and block a lane to wait for a gap without waiting for an unreasonable time. Based on field observations, 30 seconds appeared to be a more appropriate length of time that any vehicle would be stopped before someone would let them in.
- A very powerful parameter on each connector is the "Lane Change" distance. This value specifies how many feet upstream of a connector (such as an exit ramp) that vehicles start to make their lane changes. Initial attempts were made to set these values to a standard value of ½ mile or 1 mile upstream of a ramp. However, due the unique nature of the overlap geometry and traffic flows, this proved unrealistic. For example, a large percentage of traffic within the overlap exits to I-64 in both directions. Coding the lane change distance for those ramps to a high value resulted in unrealistic congestion, because too many vehicles struggled to move to the right lane throughout the overlap. Based on several observations of simulated traffic flow, it was determined that a value of 1750 feet provided the best lane utilization within the overlap. Most ramps required many trial-and-error iterations to determine the ideal distance.

- In a few cases, changing only the Lane Change distance could not ensure that vehicles would be in the proper lane as they do in the field. This occurred primarily on the entries to the network. In these cases, short “dummy” connectors were added upstream of the overlap to force certain routes to make their lane changes further upstream. This is a common practice in VISSIM recommended by the software developer and is typically required when a vehicle’s target lanes become congested.

Calibration Special Case

As described above, the lane drop segments were revised to take advantage of the built-in lane change behavior of VISSIM instead of using a connector with at the end of the lane drop to represent a merge. This produces a more realistic representation of the behavior of an entrance ramp acceleration lane or lane drop. However, the extremely short merge distances present in this study area highlighted one of the limitations of VISSIM. If a vehicle reaches the end of the acceleration lane before it can make a lane change to merge into the next lane, it comes to a stop and waits for a gap, eventually being removed from the network if it does not find an opening. Unfortunately, VISSIM does not do a very good job replicating driver behavior in cases when most vehicles in the next lane slow down when they see a vehicle in the adjacent lane traveling at a significantly slower speed. VISSIM vehicles will typically pass by a stopped or slowed vehicle at nearly full speed, making it very difficult for merging vehicles to find a gap.

The first attempt to overcome this limitation was to use priority rules. They were coded to force vehicles on the main line to stop and let vehicle in when they reached the end of a lane drop. While this strategy worked in the majority of cases, when large trucks could not complete their merge in time, it frequently caused vehicles in both lanes to get “stuck” in a gridlock situation, apparently yielding to each other. For this reason, the majority of these priority rules were disabled.

To finally overcome this limitation, KHA developed an innovative custom strategy using the VAP scripting language in VISSIM. This script replicates real-world behavior by using a combination of detectors and desired speed decisions. In merge areas, vehicles are forced to slow down if they detect a vehicle in the adjacent lane going slow or stopped. The two sets of desired speed decisions leading into the merge area are altered dynamically based on the speed detected downstream in the adjacent lane. With the vehicles in each lane traveling at speeds much closer to each other, they are more likely to cooperate and let a merging vehicle into their lane. All vehicles are set back to freeway speeds near the end of the merge area.

Because the script is dynamic, it only slows vehicles down when necessary and allows the congestion to recover. This is much better alternative to more traditional methods of hard-coding the slow downs at bottlenecks and it will provide a more realistic picture of the impact of improving these merge areas in the future scenarios.

Calibration Results

Two hours of the AM and PM peak period models were calibrated to field collected data. For the AM peak period, it was the 7:15 – 8:15 AM and the 8:15 – 9:15 AM hours, and for the PM peak period, it was the 4:00 – 5:00 PM and the 5:00 – 6:00 PM hours. The calibration targets were based on two measures of effectiveness (MOEs) – traffic volume throughput and vehicle speeds. Because the model is microscopic in nature, an unrealistically modeled bottleneck at one point in the model will affect everything downstream because too much or too little traffic will pass through that point. The model bottlenecks were adjusted until traffic volumes that made it through the simulation network reached the levels measured during field data collection. As specified in the scope, the flows were calibrated based on the GEH statistic with the target thresholds in **Table 1**.

The GEH statistic is calculated as follows:

$$GEH = \sqrt{\frac{2(m-c)^2}{m+c}}$$

Notes:
*m = output traffic volumes from the **<u>m</u>**odel*
*c = input traffic volumes from the **<u>c</u>**ounts*

GEH < 5.0	Acceptable fit
5.0 <= GEH <= 10.0	Caution: possible model errors or bad data
GEH > 10.0	Unacceptable

Table 1 | GEH Volume Calibration Thresholds

Criteria	Acceptable Targets
GEH < 5.0	At least 85% of freeway links within the calibration area.
GEH < 5.0	All entry and exit links within the calibration area.
GEH < 5.0	All entrance and exit ramps with the calibration area.
GEH < 5.0	All intersection turning movements greater than 100 vph.
Individual flows within ±400 vph for flows exceeding 2700 vph.	At least 85% of applicable freeway links.
Sum of all link flows within the calibration area.	Within 5%.

The AM peak period calibration results based on these thresholds are presented in **Table 2**, while the PM peak period calibration results are presented in **Table 3.**

Table 2 | AM Peak Calibration Results

		7:15 - 8:15	**8:15 - 9:15**
GEH < 5.0	At least 85% of freeway links within the calibration area.	90%	100%
GEH < 5.0	All entry and exit links within the calibration area.	100%	100%
GEH < 5.0	All entrance and exit ramps with the calibration area.	88%	98%
GEH < 5.0	All intersection turning movements greater than 100 vph.	95%	92%
Individual flows within ±400 vph for flows exceeding 2700 vph.	At least 85% of applicable freeway links.	93%	100%
Sum of all link flows within the calibration area.	Within 5%.	3%	2%

Table 3 | PM Peak Calibration Results

		4:00 - 5:00	**5:00 - 6:00**
GEH < 5.0	At least 85% of freeway links within the calibration area.	93%	90%
GEH < 5.0	All entry and exit links within the calibration area.	100%	89%
GEH < 5.0	All entrance and exit ramps with the calibration area.	98%	91%
GEH < 5.0	All intersection turning movements greater than 100 vph.	92%	92%
Individual flows within ±400 vph for flows exceeding 2700 vph.	At least 85% of applicable freeway links.	100%	90%
Sum of all link flows within the calibration area.	Within 5%.	2%	2%

As shown in these tables, the models meet or nearly meet every calibration target for volumes. Detailed outputs of these results can be found in **Attachment A**.

Link speeds were also collected in the model at locations where field spot speed data was available such as continuous count stations and Wavetronix data collected for this study. A comparison of the speed results for the AM and PM calibration hours are presented in **Table 4** and **Table 5**. During the AM peak hours, simulated link speeds are within 10% of field measured speeds on about two-thirds of all locations measured, with 82% of them within 15%. In the first PM peak hour, 79% of all simulated link speeds are within 10% of field measured speed locations and 91% are within 15%. In the second hour, 58% of the spot speed locations are within 10% of field measured locations, and 70% are within 15%. Some of these discrepancies can be attributed to the unstable nature of traffic flow within the study area. It is difficult to collect a "typical" day in the area, because one small problem anywhere in the system can have a large effect on speeds both in the vicinity of the overlap and downstream of the overlap.

Table 4 | AM Peak Period Spot Speed Results

	7:15 - 8:15 AM			8:15 - 9:15 AM		
Location	Measured Speed (mph)	Simulated Speed (mph)	% Difference	Measured Speed (mph)	Simulated Speed (mph)	% Difference
I-64 EB West of Overlap	58	56.5	2.6%	43	57.9	34.6%
I-64 WB West of Overlap	59	55.2	6.5%	60	54.4	9.3%
I-95 SB North of Westbrook	54.8	52.5	4.2%	58.8	53.9	8.3%
I-95 NB North of Westbrook	59.7	56.6	5.2%	60	56.9	5.2%
I-95 SB North of I-95/I-64/I-195	54.6	53.1	2.8%	57.1	54.5	4.5%
I-95 NB North of I-95/I-64/I-195	62.5	58.0	7.2%	63.6	58.6	7.8%
Overlap NB North of North Blvd	55.4	53.8	3.0%	50.9	52.3	2.7%
Overlap SB North of North Blvd	58.3	54.7	6.1%	58.9	57.0	3.3%
Overlap NB South of Robin Hood	55.3	54.8	0.8%	56.8	55.6	2.1%
Overlap NB under Belvidere Overpass	55.8	52.0	6.9%	59.3	51.6	13.0%
Overlap SB under Belvidere Overpass	58.4	56.7	3.0%	58.6	57.2	2.4%
Overlap NB between Chamberlayne & 3rd St	58.2	42.8	26.4%	59.2	50.3	15.0%
Overlap SB between Chamberlayne & 3rd St	62.9	56.3	10.5%	62.8	56.8	9.6%
I-95 NB under 7th St Overpass	57.4	50.4	12.2%	56.7	55.1	2.8%
I-95 SB under 7th St Overpass	60.2	58.3	3.1%	59.9	58.4	2.4%
I-64 EB East of Overlap	63.3	58.7	7.3%	63	58.8	6.6%
I-64 WB East of Overlap	49.9	47.5	4.9%	60.4	38.7	36.0%
I-95 NB under Broad St Overpass	55.5	35.1	36.7%	55.4	48.8	11.9%
I-95 SB under Broad St Overpass	54.9	41.8	23.9%	55.2	44.8	18.9%
I-95 SB to I-195 SB	47.7	52.5	10.0%	48.1	53.4	11.0%
I-95 SB to I-64 WB	53.1	51.7	2.6%	53.2	52.0	2.3%
I-64 EB to I-195 SB	56.2	55.2	1.7%	55.2	54.9	0.6%
I-195 NB to I-64 WB	52.7	39.9	24.2%	55.8	20.6	63.1%
I-195 NB to I-95 SB	33	39.8	20.6%	36.1	41.3	14.3%
I-195 NB to I-95 NB	48.6	43.1	11.4%	50.3	46.4	7.8%
I-95 NB to I-195 SB	55.8	56.1	0.5%	54.1	56.1	3.7%
I-95 NB to I-64 WB	54.6	55.6	1.8%	54.1	55.4	2.4%
Laburnum Ave to I-64 WB	52.6	55.9	6.4%	52.1	56.2	7.8%
I-64 EB to I-95 NB	56.5	56.2	0.6%	52.3	56.2	7.4%
I-64 EB to I-95 SB	58.8	51.3	12.8%	44.5	55.5	24.7%
I-95 SB to I-64 EB	57.7	55.7	3.5%	58.4	55.8	4.4%
I-64 WB to I-95 SB/5th St	48.2	55.0	14.1%	52.8	54.1	2.4%
I-64 WB to I-95 NB	51.8	41.1	20.6%	57.1	32.2	43.7%
SUMMARY - WITHIN 10%			**64%**			**67%**
SUMMARY - WITHIN 15%			**82%**			**82%**

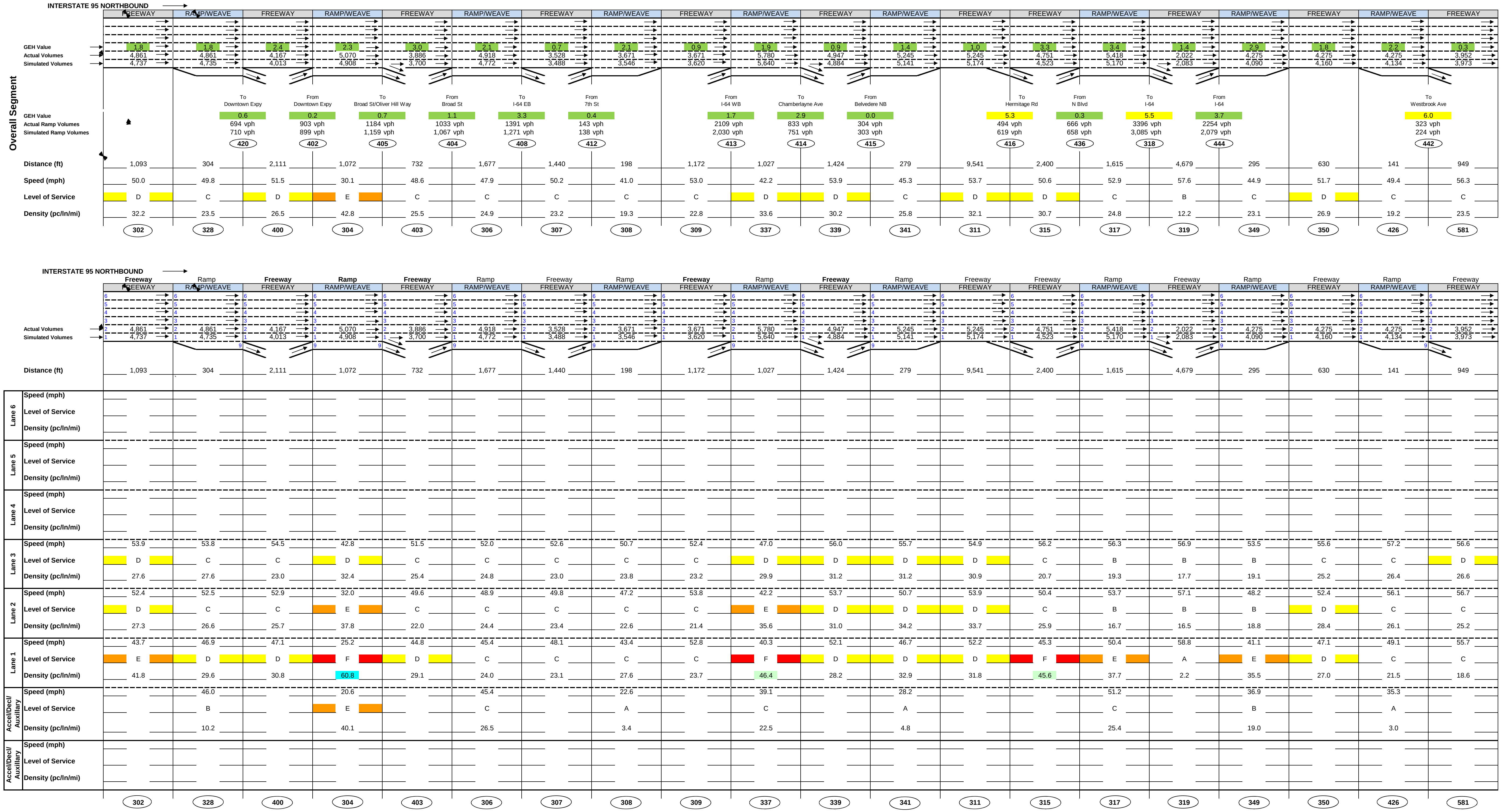
Table 5 | PM Peak Period Spot Speed Results

	4:00 - 5:00 PM			5:00 - 6:00 PM		
Location	Measured Speed (mph)	Simulated Speed (mph)	% Difference	Measured Speed (mph)	Simulated Speed (mph)	% Difference
I-64 EB West of Overlap	59.3	56.9	4.0%	58.1	51.0	12.2%
I-64 WB West of Overlap	60.6	56.8	6.3%	59.7	56.4	5.6%
I-95 SB North of Westbrook	54.8	60.1	9.7%	29.9	56.9	90.2%
I-95 NB North of Westbrook	59.7	58.9	1.3%	57.1	54.6	4.5%
I-95 SB North of I-95/I-64/I-195	59.2	56.9	3.9%	31.3	55.2	76.4%
I-95 NB North of I-95/I-64/I-195	63.1	57.3	9.2%	60.5	57.0	5.7%
Overlap NB North of North Blvd	58.5	53.2	9.1%	58.3	49.3	15.4%
Overlap SB North of North Blvd	56.8	57.8	1.8%	56.9	57.5	1.1%
Overlap NB South of Robin Hood	54.9	53.3	3.0%	54.3	50.7	6.7%
Overlap NB under Belvidere Overpass	53.6	42.3	21.1%	35.7	37.1	4.0%
Overlap SB under Belvidere Overpass	56.8	57.1	0.6%	58.8	52.8	10.1%
Overlap NB between Chamberlayne & 3rd St	57.5	51.8	9.9%	31.4	50.8	61.8%
Overlap SB between Chamberlayne & 3rd St	62.6	55.6	11.1%	62.1	52.7	15.1%
I-95 NB under 7th St Overpass	54.7	49.0	10.4%	53.3	48.0	10.0%
I-95 SB under 7th St Overpass	60.9	58.5	3.9%	60.9	58.2	4.5%
I-64 EB East of Overlap	61.2	56.2	8.2%	61.6	56.2	8.7%
I-64 WB East of Overlap	61.5	57.8	6.0%	61.1	57.7	5.6%
I-95 NB under Broad St Overpass	51.7	54.5	5.4%	42	56.1	33.6%
I-95 SB under Broad St Overpass	54.8	38.2	30.2%	54.3	35.8	34.1%
I-95 SB to I-195 SB	48	53.5	11.4%	46.1	50.9	10.3%
I-95 SB to I-64 WB	53.6	54.6	1.9%	52.2	53.9	3.3%
I-64 EB to I-195 SB	55.6	55.0	1.0%	54.9	35.3	35.8%
I-195 NB to I-64 WB	55.9	55.4	0.9%	53.5	51.3	4.1%
I-195 NB to I-95 SB	35.5	41.9	18.0%	32.6	21.4	34.3%
I-195 NB to I-95 NB	50.1	49.1	2.0%	28.6	13.2	53.7%
I-95 NB to I-195 SB	53.8	56.1	4.2%	54.8	56.2	2.6%
I-95 NB to I-64 WB	52.9	55.2	4.3%	52.8	55.1	4.4%
Laburnum Ave to I-64 WB	51.6	56.7	9.9%	52.1	56.6	8.7%
I-64 EB to I-95 NB	56.1	55.0	2.0%	48.5	52.5	8.2%
I-64 EB to I-95 SB	60.4	53.9	10.8%	54.4	53.1	2.3%
I-95 SB to I-64 EB	53.1	53.8	1.4%	52.4	53.9	2.9%
I-64 WB to I-95 SB/5th St	52.9	57.3	8.4%	53.2	57.4	7.9%
I-64 WB to I-95 NB	57.1	55.0	3.7%	52.4	55.2	5.4%
SUMMARY - WITHIN 10%			**79%**			**58%**
SUMMARY - WITHIN 15%			**91%**			**70%**

Summary

The unique geometry and traffic patterns of the I-95/64 Overlap study area posed some challenges for microsimulation modeling. The short merge/weave sections and numerous lane drops required several modifications to the default parameters in VISSIM and required the use of an add-on custom logic script developed by KHA to more accurately replicate the congestion behavior in the corridor. Saturation flow rates on some segments of the corridor approach the limits of the simulation software.

The goal of calibrating the models to existing conditions is to replicate a “typical” weekday, but the likelihood of collecting traffic and speed data throughout an entire peak period in this area without an incident or other non-typical slowdown is very low. Because the field-collected traffic volume and speed data set included some of these events, it may not be feasible to meet every calibration target. However, the vast majority of these targets have been met. The model is a valid representation of study area traffic conditions and can be used to compare the relative impacts of proposed improvement alternatives.



INTERSTATE 95 NORTHBOUND

Overall Segment

	302	328	400	304	403	306	307	308	309	337
	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE
GEH Value	1.8	1.8	2.4	2.3	3.0	2.1	0.7	2.1	0.9	1.9
Actual Volumes	4,861	4,861	4,167	5,070	3,886	4,918	3,528	3,671	3,671	5,780
Simulated Volumes	4,737	4,735	4,013	4,908	3,700	4,772	3,488	3,546	3,620	5,640
Distance (ft)	1,093	304	2,111	1,072	732	1,677	1,440	198	1,172	1,027
Speed (mph)	50.0	49.8	51.5	30.1	48.6	47.9	50.2	41.0	53.0	42.2
Level of Service	D	C	D	E	C	C	C	C	C	D
Density (pc/ln/mi)	32.2	23.5	26.5	42.8	25.5	24.9	23.2	19.3	22.8	33.6

	339	341	311	315	317	319	349	350	426	581
	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	0.9	1.4	1.0	3.3	3.4	1.4	2.9	1.8	2.2	0.3
Actual Volumes	4,947	5,245	5,245	4,751	5,418	2,022	4,275	4,275	4,275	3,952
Simulated Volumes	4,884	5,141	5,174	4,523	5,170	2,083	4,090	4,160	4,134	3,973
Distance (ft)	1,424	279	9,541	2,400	1,615	4,679	295	630	141	949
Speed (mph)	53.9	45.3	53.7	50.6	52.9	57.6	44.9	51.7	49.4	56.3
Level of Service	D	C	D	D	C	B	C	D	C	C
Density (pc/ln/mi)	30.2	25.8	32.1	30.7	24.8	12.2	23.1	26.9	19.2	23.5

	420	402	405	404	408	412	413
	To Downtown Expy	From Downtown Expy	To Broad St/Oliver Hill Way	From Broad St	To I-64 EB	From 7th St	From I-64 WB
GEH Value	0.6	0.2	0.7	1.1	3.3	0.4	1.7
Actual Ramp Volumes	694 vph	903 vph	1184 vph	1033 vph	1391 vph	143 vph	2109 vph
Simulated Ramp Volumes	710 vph	899 vph	1,159 vph	1,067 vph	1,271 vph	138 vph	2,030 vph

	414	415	416	436	318	444	442
	To Chamberlayne Ave	From Belvedere NB	To Hermitage Rd	From N Blvd	To I-64	From I-64	To Westbrook Ave
GEH Value	2.9	0.0	5.3	0.3	5.5	3.7	6.0
Actual Ramp Volumes	833 vph	304 vph	494 vph	666 vph	3396 vph	2254 vph	323 vph
Simulated Ramp Volumes	751 vph	303 vph	619 vph	658 vph	3,085 vph	2,079 vph	224 vph

INTERSTATE 95 NORTHBOUND

		302	328	400	304	403	306	307	308	309	337
		Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp
		FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE
	Actual Volumes	4,861	4,861	4,167	5,070	3,886	4,918	3,528	3,671	3,671	5,780
	Simulated Volumes	4,737	4,735	4,013	4,908	3,700	4,772	3,488	3,546	3,620	5,640
	Distance (ft)	1,093	304	2,111	1,072	732	1,677	1,440	198	1,172	1,027
Lane 6	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										
Lane 5	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										
Lane 4	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										
Lane 3	Speed (mph)	53.9	53.8	54.5	42.8	51.5	52.0	52.6	50.7	52.4	47.0
	Level of Service	D	C	C	D	C	C	C	C	C	D
	Density (pc/ln/mi)	27.6	27.6	23.0	32.4	25.4	24.8	23.0	23.8	23.2	29.9
Lane 2	Speed (mph)	52.4	52.5	52.9	32.0	49.6	48.9	49.8	47.2	53.8	42.2
	Level of Service	D	C	C	E	C	C	C	C	C	E
	Density (pc/ln/mi)	27.3	26.6	25.7	37.8	22.0	24.4	23.4	22.6	21.4	35.6
Lane 1	Speed (mph)	43.7	46.9	47.1	25.2	44.8	45.4	48.1	43.4	52.8	40.3
	Level of Service	E	D	D	F	D	C	C	C	C	F
	Density (pc/ln/mi)	41.8	29.6	30.8	60.8	29.1	24.0	23.1	27.6	23.7	46.4
Accel/Decl/ Auxillary	Speed (mph)		46.0		20.6		45.4		22.6		39.1
	Level of Service		B		E		C		A		C
	Density (pc/ln/mi)		10.2		40.1		26.5		3.4		22.5
Accel/Decl/ Auxillary	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										

		339	341	311	315	317	319	349	350	426	581
		Freeway	Ramp	Freeway	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway
		FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
	Actual Volumes	4,947	5,245	5,245	4,751	5,418	2,022	4,275	4,275	4,275	3,952
	Simulated Volumes	4,884	5,141	5,174	4,523	5,170	2,083	4,090	4,160	4,134	3,973
	Distance (ft)	1,424	279	9,541	2,400	1,615	4,679	295	630	141	949
Lane 6	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										
Lane 5	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										
Lane 4	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										
Lane 3	Speed (mph)	56.0	55.7	54.9	56.2	56.3	56.9	53.5	55.6	57.2	56.6
	Level of Service	D	D	D	C	B	B	B	C	C	D
	Density (pc/ln/mi)	31.2	31.2	30.9	20.7	19.3	17.7	19.1	25.2	26.4	26.6
Lane 2	Speed (mph)	53.7	50.7	53.9	50.4	53.7	57.1	48.2	52.4	56.1	56.7
	Level of Service	D	D	D	C	B	B	B	D	C	C
	Density (pc/ln/mi)	31.0	34.2	33.7	25.9	16.7	16.5	18.8	28.4	26.1	25.2
Lane 1	Speed (mph)	52.1	46.7	52.2	45.3	50.4	58.8	41.1	47.1	49.1	55.7
	Level of Service	D	D	D	F	E	A	E	D	C	C
	Density (pc/ln/mi)	28.2	32.9	31.8	45.6	37.7	2.2	35.5	27.0	21.5	18.6
Accel/Decl/ Auxillary	Speed (mph)		28.2			51.2		36.9		35.3	
	Level of Service		A			C		B		A	
	Density (pc/ln/mi)		4.8			25.4		19.0		3.0	
Accel/Decl/ Auxillary	Speed (mph)										
	Level of Service										
	Density (pc/ln/mi)										

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

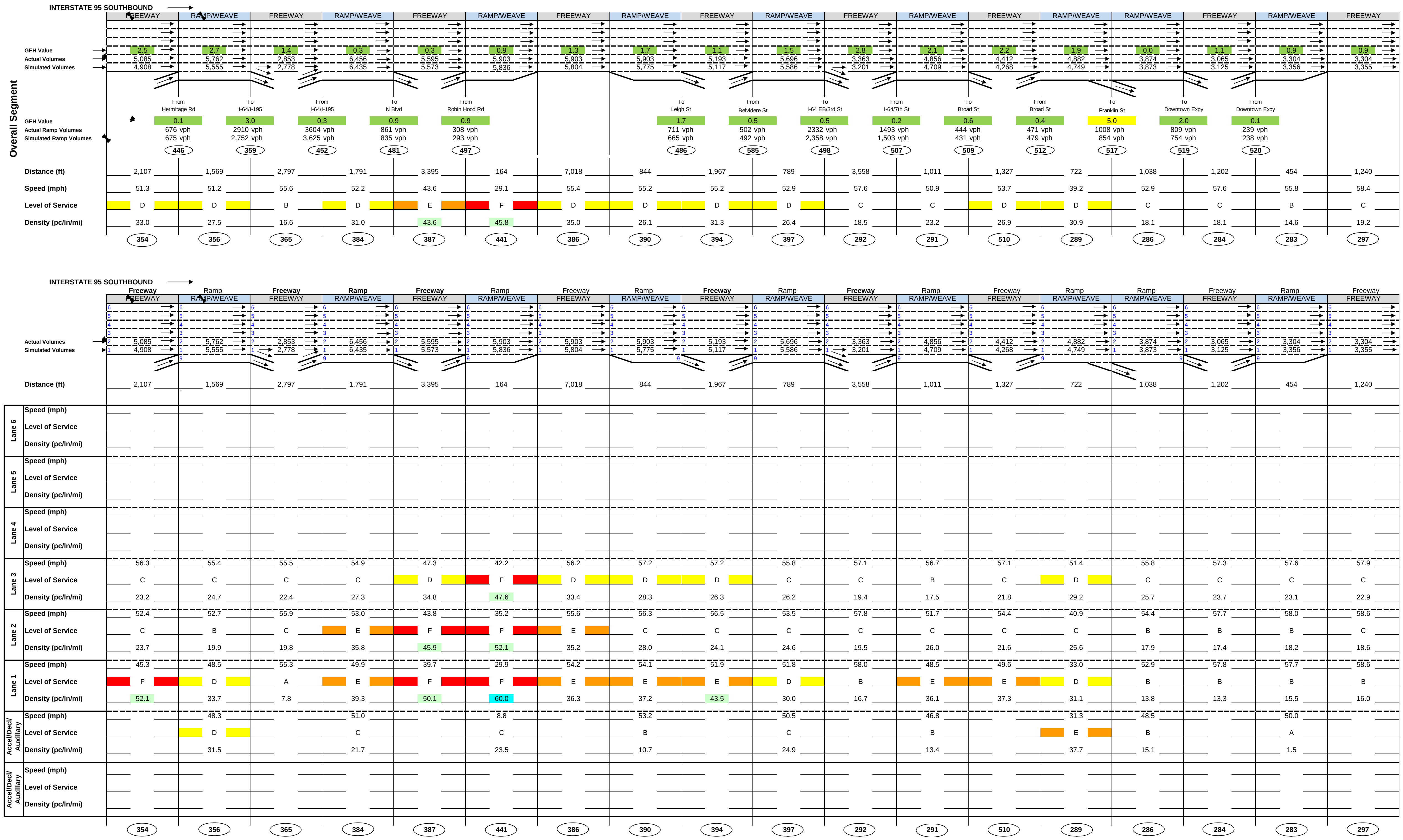
Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-1
I-64 and I-95 Overlap Report
Northbound I-95
2011 Existing Scenario - AM Peak Hour MOE's
7:15 - 8:15 AM



Overall Segment

	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	2.5	2.7	1.4	0.3	0.3	0.9	1.3	1.7	1.1	1.5	2.8	2.1	2.2	1.9	0.0	1.1	0.9	0.9
Actual Volumes	5,085	5,762	2,853	6,456	5,595	5,903	5,903	5,903	5,193	5,696	3,363	4,856	4,412	4,882	3,874	3,065	3,304	3,304
Simulated Volumes	4,908	5,555	2,778	6,435	5,573	5,836	5,804	5,775	5,117	5,586	3,201	4,709	4,268	4,749	3,873	3,125	3,356	3,355
Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Speed (mph)	51.3	51.2	55.6	52.2	43.6	29.1	55.4	55.2	55.2	52.9	57.6	50.9	53.7	39.2	52.9	57.6	55.8	58.4
Level of Service	D	D	B	D	E	F	D	D	D	D	C	C	D	D	C	C	B	C
Density (pc/ln/mi)	33.0	27.5	16.6	31.0	43.6	45.8	35.0	26.1	31.3	26.4	18.5	23.2	26.9	30.9	18.1	18.1	14.6	19.2
	354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

	GEH Value	Actual Ramp Volumes	Simulated Ramp Volumes	
From Hermitage Rd	0.1	676 vph	675 vph	446
To I-64/I-195	3.0	2910 vph	2,752 vph	359
From I-64/I-195	0.3	3604 vph	3,625 vph	452
To N Blvd	0.9	861 vph	835 vph	481
From Robin Hood Rd	0.9	308 vph	293 vph	497
To Leigh St	1.7	711 vph	665 vph	486
From Belvidere St	0.5	502 vph	492 vph	585
To I-64 EB/3rd St	0.5	2332 vph	2,358 vph	498
From I-64/7th St	0.2	1493 vph	1,503 vph	507
To Broad St	0.6	444 vph	431 vph	509
From Broad St	0.4	471 vph	479 vph	512
To Franklin St	5.0	1008 vph	854 vph	517
To Downtown Expy	2.0	809 vph	754 vph	519
From Downtown Expy	0.1	239 vph	238 vph	520

INTERSTATE 95 SOUTHBOUND

		Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Ramp	Freeway	Ramp	Freeway
		FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
	Actual Volumes	5,085	5,762	2,853	6,456	5,595	5,903	5,903	5,903	5,193	5,696	3,363	4,856	4,412	4,882	3,874	3,065	3,304	3,304
	Simulated Volumes	4,908	5,555	2,778	6,435	5,573	5,836	5,804	5,775	5,117	5,586	3,201	4,709	4,268	4,749	3,873	3,125	3,356	3,355
	Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Lane 6	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 5	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 4	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 3	Speed (mph)	56.3	55.4	55.5	54.9	47.3	42.2	56.2	57.2	57.2	55.8	57.1	56.7	57.1	51.4	55.8	57.3	57.6	57.9
	Level of Service	C	C	C	C	D	F	D	D	D	C	C	B	C	D	C	C	C	C
	Density (pc/ln/mi)	23.2	24.7	22.4	27.3	34.8	47.6	33.4	28.3	26.3	26.2	19.4	17.5	21.8	29.2	25.7	23.7	23.1	22.9
Lane 2	Speed (mph)	52.4	52.7	55.9	53.0	43.8	35.2	55.6	56.3	56.5	53.5	57.8	51.7	54.4	40.9	54.4	57.7	58.0	58.6
	Level of Service	C	B	C	E	F	F	E	C	C	C	C	C	C	C	B	B	B	C
	Density (pc/ln/mi)	23.7	19.9	19.8	35.8	45.9	52.1	35.2	28.0	24.1	24.6	19.5	26.0	21.6	25.6	17.9	17.4	18.2	18.6
Lane 1	Speed (mph)	45.3	48.5	55.3	49.9	39.7	29.9	54.2	54.1	51.9	51.8	58.0	48.5	49.6	33.0	52.9	57.8	57.7	58.6
	Level of Service	F	D	A	E	F	F	E	E	E	D	B	E	E	D	B	B	B	B
	Density (pc/ln/mi)	52.1	33.7	7.8	39.3	50.1	60.0	36.3	37.2	43.5	30.0	16.7	36.1	37.3	31.1	13.8	13.3	15.5	16.0
Accel/Decel/ Auxillary	Speed (mph)		48.3		51.0		8.8		53.2		50.5		46.8		31.3	48.5		50.0	
	Level of Service		D		C		C		B		C		B		E	B		A	
	Density (pc/ln/mi)		31.5		21.7		23.5		10.7		24.9		13.4		37.7	15.1		1.5	
Accel/Decel/ Auxillary	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
		354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

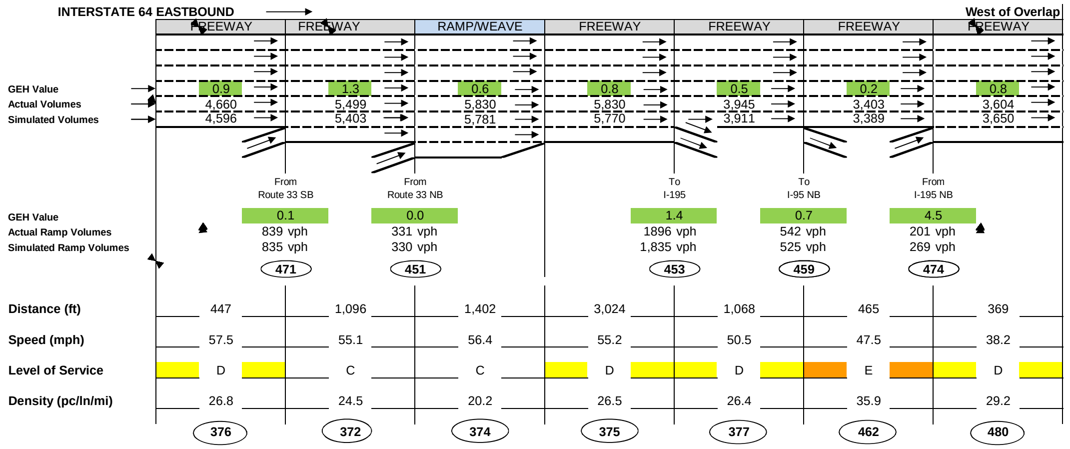
Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

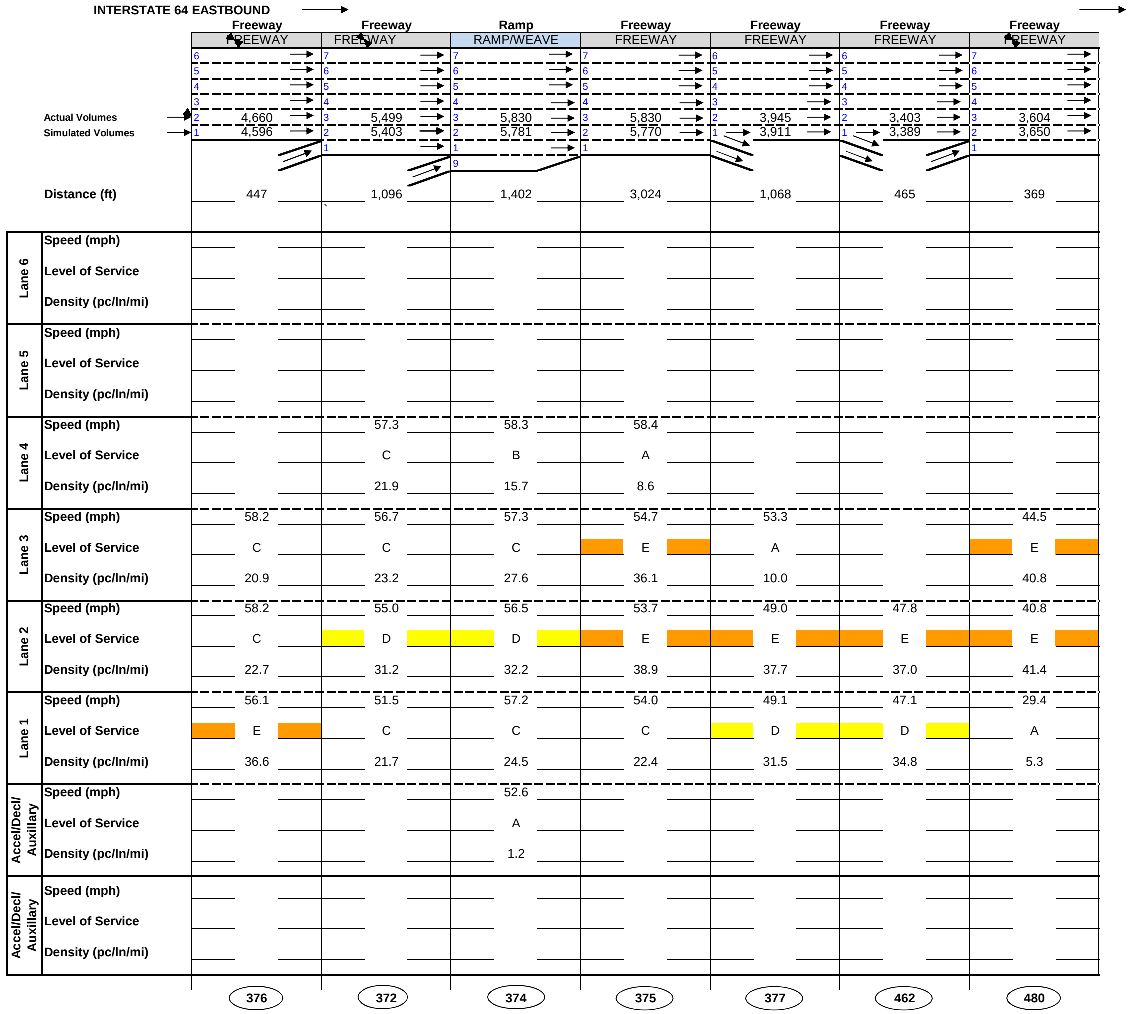
Kimley-Horn and Associates, Inc.

Figure A-2
I-64 and I-95 Overlap Report
Southbound I-95
2011 Existing Scenario - AM Peak Hour MOE's
7:15 - 8:15 AM



	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY
GEH Value	0.9	1.3	0.6	0.8	0.5	0.2	0.8
Actual Volumes	4,660	5,499	5,830	5,830	3,945	3,403	3,604
Simulated Volumes	4,596	5,403	5,781	5,770	3,911	3,389	3,650
Distance (ft)	447	1,096	1,402	3,024	1,068	465	369
Speed (mph)	57.5	55.1	56.4	55.2	50.5	47.5	38.2
Level of Service	D	C	C	D	D	E	D
Density (pc/ln/mi)	26.8	24.5	20.2	26.5	26.4	35.9	29.2
	376	372	374	375	377	462	480

	From Route 33 SB	From Route 33 NB	To I-195	To I-95 NB	From I-195 NB
GEH Value	0.1	0.0	1.4	0.7	4.5
Actual Ramp Volumes	839 vph	331 vph	1896 vph	542 vph	201 vph
Simulated Ramp Volumes	835 vph	330 vph	1,835 vph	525 vph	269 vph
	471	451	453	459	474



		Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway
		FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY
	Actual Volumes	4,660	5,499	5,830	5,830	3,945	3,403	3,604
	Simulated Volumes	4,596	5,403	5,781	5,770	3,911	3,389	3,650
	Distance (ft)	447	1,096	1,402	3,024	1,068	465	369
Lane 6	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 5	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 4	Speed (mph)		57.3	58.3	58.4			
	Level of Service		C	B	A			
	Density (pc/ln/mi)		21.9	15.7	8.6			
Lane 3	Speed (mph)	58.2	56.7	57.3	54.7	53.3		44.5
	Level of Service	C	C	C	E	A		E
	Density (pc/ln/mi)	20.9	23.2	27.6	36.1	10.0		40.8
Lane 2	Speed (mph)	58.2	55.0	56.5	53.7	49.0	47.8	40.8
	Level of Service	C	D	D	E	E	E	E
	Density (pc/ln/mi)	22.7	31.2	32.2	38.9	37.7	37.0	41.4
Lane 1	Speed (mph)	56.1	51.5	57.2	54.0	49.1	47.1	29.4
	Level of Service	E	C	C	C	D	D	A
	Density (pc/ln/mi)	36.6	21.7	24.5	22.4	31.5	34.8	5.3
Accel/Decl/ Auxillary	Speed (mph)			52.6				
	Level of Service			A				
	Density (pc/ln/mi)			1.2				
Accel/Decl/ Auxillary	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
		376	372	374	375	377	462	480

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

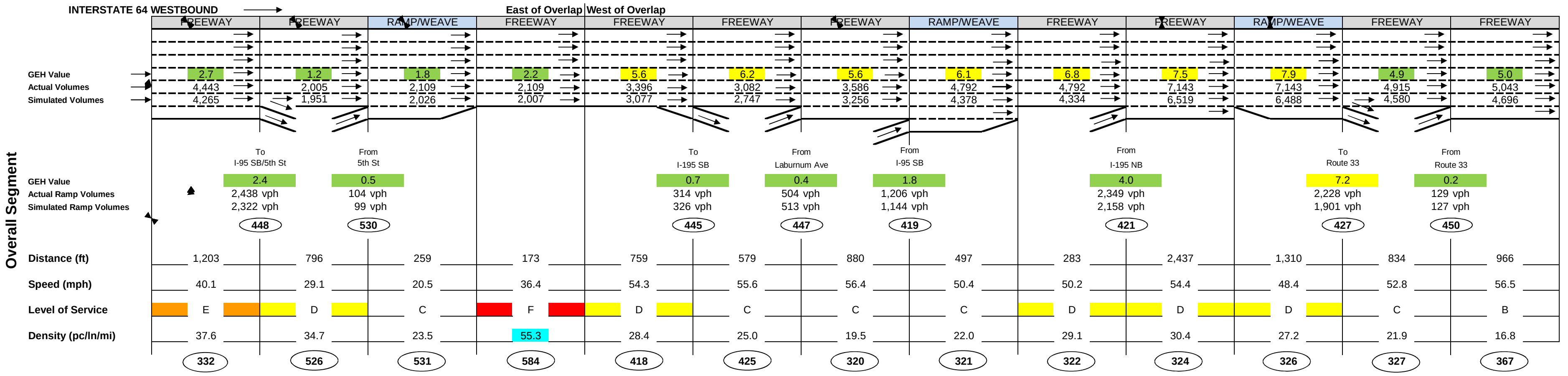
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-3
I-64 and I-95 Overlap Report
Eastbound I-64
2011 Existing Scenario - AM Peak Hour MOE's
7:15 - 8:15 AM

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



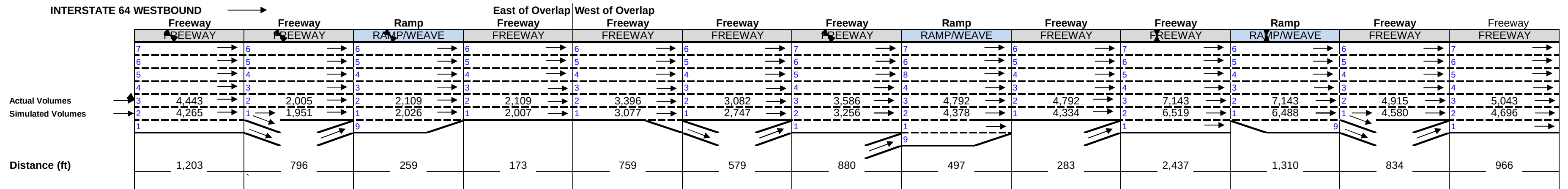
Overall Segment

	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	2.7	1.2	1.8	2.2	5.6	6.2	5.6	6.1	6.8	7.5	7.9	4.9	5.0
Actual Volumes	4,443	2,005	2,109	2,109	3,396	3,082	3,586	4,792	4,792	7,143	7,143	4,915	5,043
Simulated Volumes	4,265	1,951	2,026	2,007	3,077	2,747	3,256	4,378	4,334	6,519	6,488	4,580	4,696
Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966
Speed (mph)	40.1	29.1	20.5	36.4	54.3	55.6	56.4	50.4	50.2	54.4	48.4	52.8	56.5
Level of Service	E	D	C	F	D	C	C	C	D	D	D	C	B
Density (pc/ln/mi)	37.6	34.7	23.5	55.3	28.4	25.0	19.5	22.0	29.1	30.4	27.2	21.9	16.8
	332	526	531	584	418	425	320	321	322	324	326	327	367

	To I-95 SB/5th St	From 5th St	To I-195 SB	From Laburnum Ave	From I-95 SB	From I-195 NB	To Route 33	From Route 33
GEH Value	2.4	0.5	0.7	0.4	1.8	4.0	7.2	0.2
Actual Ramp Volumes	2,438 vph	104 vph	314 vph	504 vph	1,206 vph	2,349 vph	2,228 vph	129 vph
Simulated Ramp Volumes	2,322 vph	99 vph	326 vph	513 vph	1,144 vph	2,158 vph	1,901 vph	127 vph
	448	530	445	447	419	421	427	450

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



		Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway	Ramp	Freeway	Freeway	Ramp	Freeway	Freeway
		FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
	Actual Volumes	4,443	2,005	2,109	2,109	3,396	3,082	3,586	4,792	4,792	7,143	7,143	4,915	5,043
	Simulated Volumes	4,265	1,951	2,026	2,007	3,077	2,747	3,256	4,378	4,334	6,519	6,488	4,580	4,696
	Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966
Lane 6	**Speed (mph)**													
	Level of Service													
	Density (pc/ln/mi)													
Lane 5	**Speed (mph)**													55.4
	Level of Service													C
	Density (pc/ln/mi)													21.8
Lane 4	**Speed (mph)**										53.9	50.8	52.9	56.8
	Level of Service										C	C	C	C
	Density (pc/ln/mi)										25.4	25.2	23.9	22.9
Lane 3	**Speed (mph)**	49.9						56.8	55.5	52.7	55.7	51.3	54.2	57.7
	Level of Service	D						C	C	C	C	C	C	C
	Density (pc/ln/mi)	34.7						22.8	22.0	22.4	25.2	27.3	24.9	20.2
Lane 2	**Speed (mph)**	40.7	29.8	9.9		53.8	55.3	57.5	53.5	51.5	54.7	49.0	54.5	58.1
	Level of Service	C	A	A		D	C	C	C	D	D	C	C	B
	Density (pc/ln/mi)	21.1	5.1	8.9		30.0	23.6	21.7	26.9	31.8	29.1	26.8	21.9	13.3
Lane 1	**Speed (mph)**	29.8	28.3	32.5	36.4	54.8	55.9	57.8	50.3	49.6	52.6	49.3	53.0	54.9
	Level of Service	F	F	F	F	D	C	B	C	D	E	D	B	A
	Density (pc/ln/mi)	56.9	64.2	58.3	55.3	26.8	25.8	12.3	26.5	30.8	41.1	32.1	14.6	4.6
Accel/Decl/ Auxillary	**Speed (mph)**			19.0					44.6			53.1		
	Level of Service			A					A			B		
	Density (pc/ln/mi)			3.3					8.8			17.3		
Accel/Decl/ Auxillary	**Speed (mph)**													
	Level of Service													
	Density (pc/ln/mi)													
		332	526	531	584	418	425	320	321	322	324	326	327	367

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

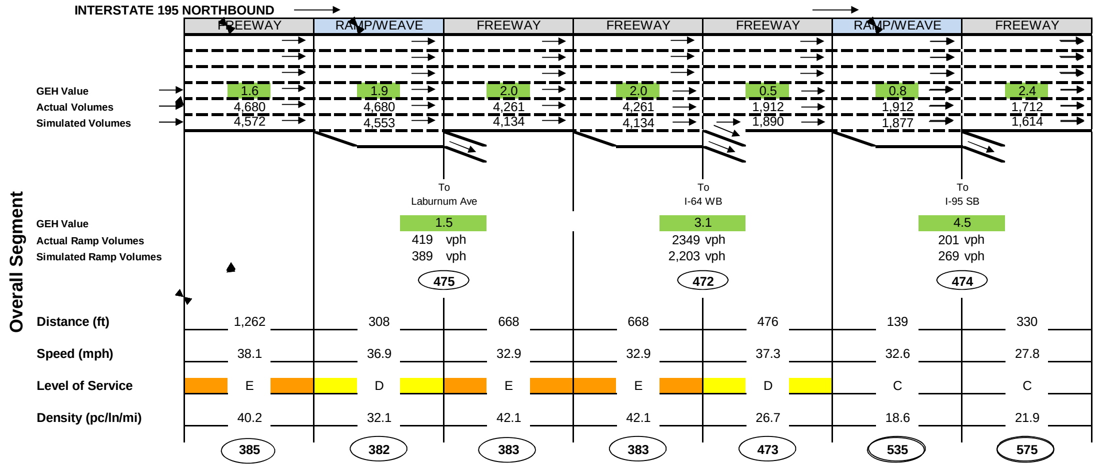
Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

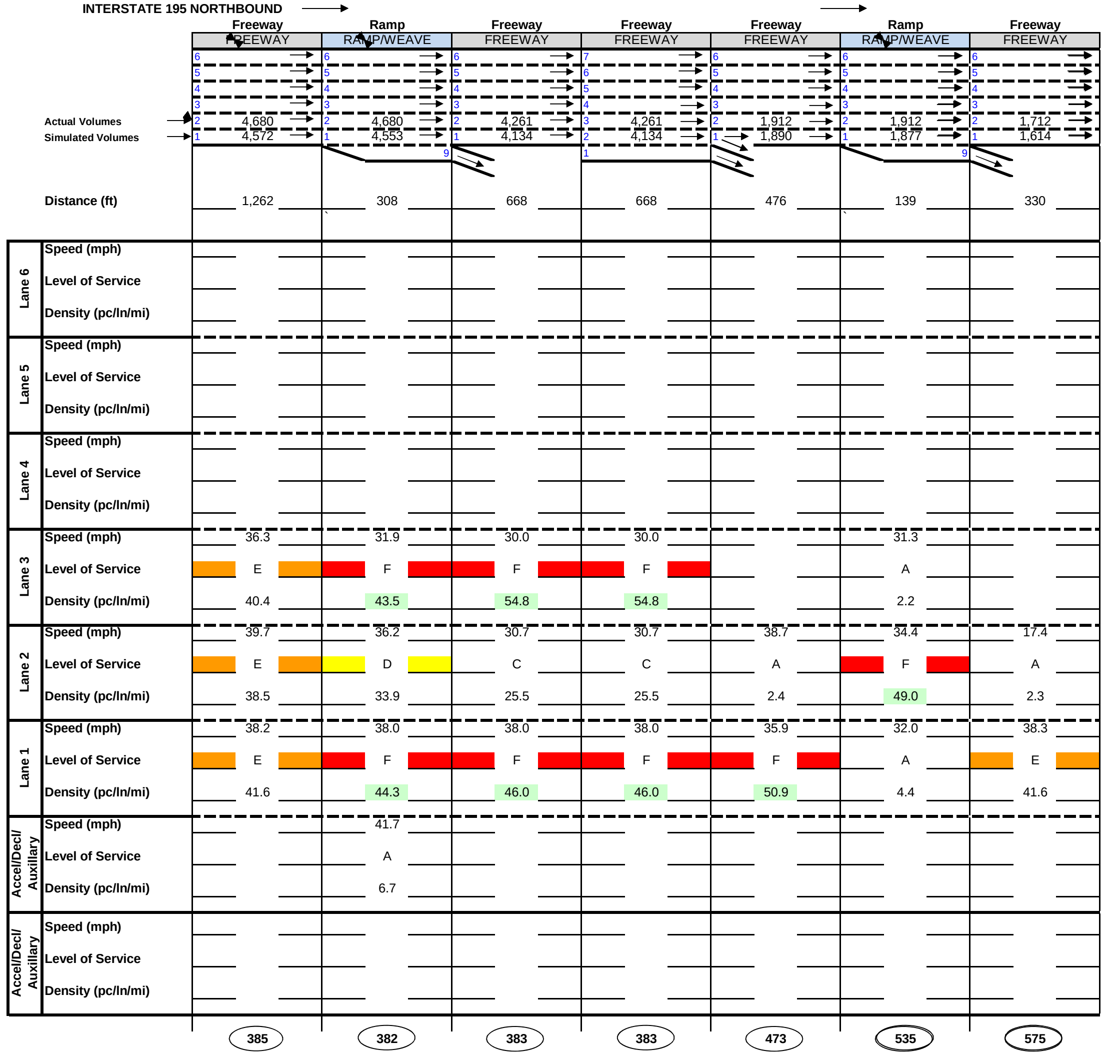
Kimley-Horn and Associates, Inc.

Figure A-4
I-64 and I-95 Overlap Report
Westbound I-64
2011 Existing Scenario - AM Peak Hour MOE's
7:15 - 8:15 AM



	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	1.6	1.9	2.0	2.0	0.5	0.8	2.4
Actual Volumes	4,680	4,680	4,261	4,261	1,912	1,912	1,712
Simulated Volumes	4,572	4,553	4,134	4,134	1,890	1,877	1,614
Distance (ft)	1,262	308	668	668	476	139	330
Speed (mph)	38.1	36.9	32.9	32.9	37.3	32.6	27.8
Level of Service	E	D	E	E	D	C	C
Density (pc/ln/mi)	40.2	32.1	42.1	42.1	26.7	18.6	21.9
	385	382	383	383	473	535	575

	To Laburnum Ave	To I-64 WB	To I-95 SB
GEH Value	1.5	3.1	4.5
Actual Ramp Volumes	419 vph	2349 vph	201 vph
Simulated Ramp Volumes	389 vph	2,203 vph	269 vph
	475	472	474



	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Freeway FREEWAY	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY
Actual Volumes	4,680	4,680	4,261	4,261	1,912	1,912	1,712
Simulated Volumes	4,572	4,553	4,134	4,134	1,890	1,877	1,614
Distance (ft)	1,262	308	668	668	476	139	330
Lane 6 Speed (mph)							
Lane 6 Level of Service							
Lane 6 Density (pc/ln/mi)							
Lane 5 Speed (mph)							
Lane 5 Level of Service							
Lane 5 Density (pc/ln/mi)							
Lane 4 Speed (mph)							
Lane 4 Level of Service							
Lane 4 Density (pc/ln/mi)							
Lane 3 Speed (mph)	36.3	31.9	30.0	30.0		31.3	
Lane 3 Level of Service	E	F	F	F		A	
Lane 3 Density (pc/ln/mi)	40.4	43.5	54.8	54.8		2.2	
Lane 2 Speed (mph)	39.7	36.2	30.7	30.7	38.7	34.4	17.4
Lane 2 Level of Service	E	D	C	C	A	F	A
Lane 2 Density (pc/ln/mi)	38.5	33.9	25.5	25.5	2.4	49.0	2.3
Lane 1 Speed (mph)	38.2	38.0	38.0	38.0	35.9	32.0	38.3
Lane 1 Level of Service	E	F	F	F	F	A	E
Lane 1 Density (pc/ln/mi)	41.6	44.3	46.0	46.0	50.9	4.4	41.6
Accel/Decel/ Auxillary Speed (mph)		41.7					
Accel/Decel/ Auxillary Level of Service		A					
Accel/Decel/ Auxillary Density (pc/ln/mi)		6.7					
Accel/Decel/ Auxillary Speed (mph)							
Accel/Decel/ Auxillary Level of Service							
Accel/Decel/ Auxillary Density (pc/ln/mi)							
	385	382	383	383	473	535	575

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

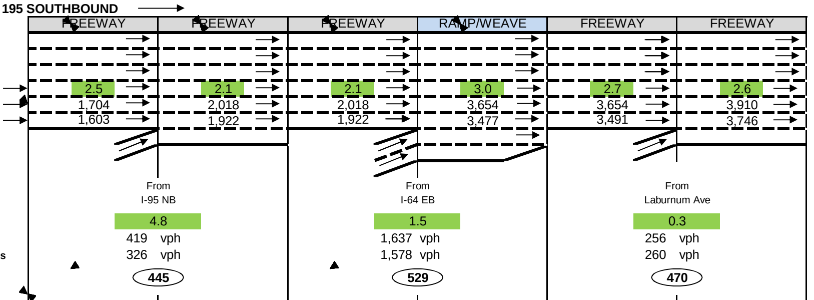
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-5
I-64 and I-95 Overlap Report
Northbound I-195
2011 Existing Scenario - AM Peak Hour MOE's
7:15 - 8:15 AM

INTERSTATE 195 SOUTHBOUND →



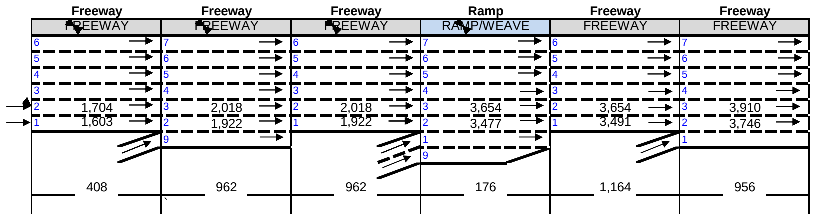
Overall Segment

	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	2.5	2.1	2.1	3.0	2.7	2.6
Actual Volumes	1,704	2,018	2,018	3,654	3,654	3,910
Simulated Volumes	1,603	1,922	1,922	3,477	3,491	3,746

	From I-95 NB	From I-64 EB	From Laburnum Ave
GEH Value	4.8	1.5	0.3
Actual Ramp Volumes	419 vph	1,637 vph	256 vph
Simulated Ramp Volumes	326 vph	1,578 vph	260 vph
	445	529	470

Distance (ft)	408	962	962	176	1,164	956
Speed (mph)	54.5	56.4	56.4	44.5	56.5	58.6
Level of Service	D	B	B	B	C	B
Density (pc/ln/mi)	29.4	17.2	17.2	16.6	20.6	16.0
	467	469	469	378	379	380

INTERSTATE 195 SOUTHBOUND →



		Freeway	Freeway	Freeway	Ramp	Freeway	Freeway
	Actual Volumes	1,704	2,018	2,018	3,654	3,654	3,910
	Simulated Volumes	1,603	1,922	1,922	3,477	3,491	3,746
	Distance (ft)	408	962	962	176	1,164	956
Lane 6	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 5	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 4	Speed (mph)						59.2
	Level of Service						C
	Density (pc/ln/mi)						18.2
Lane 3	Speed (mph)				58.0	57.4	57.9
	Level of Service				B	B	C
	Density (pc/ln/mi)				14.5	17.5	20.5
Lane 2	Speed (mph)		57.6	57.6	54.1	56.2	58.2
	Level of Service		B	B	C	C	C
	Density (pc/ln/mi)		11.9	11.9	21.5	22.2	18.5
Lane 1	Speed (mph)	54.5	55.2	55.2	51.3	55.8	59.2
	Level of Service	D	C	C	D	C	A
	Density (pc/ln/mi)	29.4	22.4	22.4	28.1	22.2	6.9
Accel/Decl/ Auxillary	Speed (mph)				14.4		
	Level of Service				A		
	Density (pc/ln/mi)				2.5		
Accel/Decl/ Auxillary	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
		467	469	469	378	379	380

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

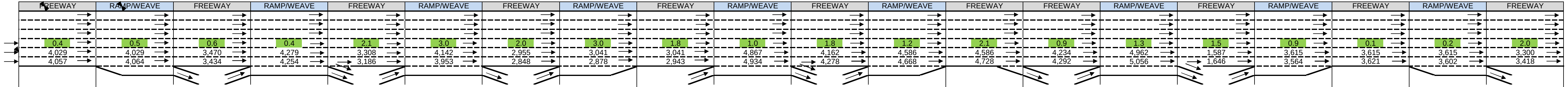
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-6
I-64 and I-95 Overlap Report
Southbound I-195
2011 Existing Scenario - AM Peak Hour MOE's
7:15 - 8:15 AM

INTERSTATE 95 NORTHBOUND →

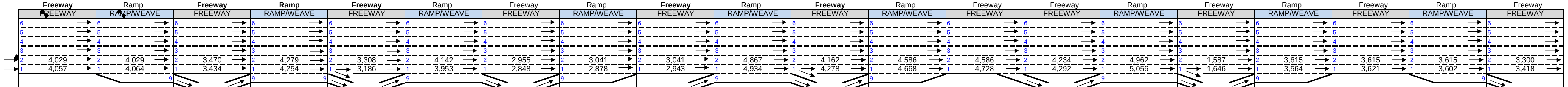
Overall Segment



	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	0.4	0.5	0.6	0.4	2.1	3.0	2.0	3.0	1.8	1.0	1.8	1.2	2.1	0.9	1.3	1.5	0.9	0.1	0.2	2.0
Actual Volumes	4,029	4,029	3,470	4,279	3,308	4,142	2,955	3,041	3,041	4,867	4,162	4,586	4,586	4,234	4,962	1,587	3,615	3,615	3,615	3,300
Simulated Volumes	4,057	4,064	3,434	4,254	3,186	3,953	2,848	2,878	2,943	4,934	4,278	4,668	4,728	4,292	5,056	1,646	3,564	3,621	3,602	3,418
Distance (ft)	1,093	304	2,111	1,072	732	1,677	1,440	198	1,172	1,027	1,424	279	9,541	2,400	1,615	4,679	295	630	141	949
Speed (mph)	53.1	51.6	56.6	47.7	54.0	52.8	55.0	46.1	56.3	49.7	55.3	45.2	54.8	49.2	50.6	58.2	46.3	52.1	49.2	56.7
Level of Service	C	C	C	C	C	C	B	B	B	C	C	C	D	D	C	A	C	C	B	C
Density (pc/ln/mi)	26.0	19.5	20.3	22.6	19.8	18.7	17.3	13.8	17.4	24.9	25.8	23.8	28.8	30.6	25.9	9.5	19.8	23.2	16.9	20.1
Link	302	328	400	304	403	306	307	308	309	337	339	341	311	315	317	319	349	350	426	581

	To Downtown Expy	From Downtown Expy	To Broad St/Oliver Hill Way	From Broad St	To I-64 EB	From 7th St	From I-64 WB	To Chamberlayne Ave	From Belvedere NB	To Hermitage Rd	From N Blvd	To I-64	From I-64	To Westbrook Ave
GEH Value	3.0	0.1	2.3	3.1	2.3	0.3	3.6	1.4	0.0	5.5	0.2	0.7	1.4	4.2
Actual Ramp Volumes	559 vph	809 vph	971 vph	834 vph	1,192 vph	86 vph	1,826 vph	705 vph	424 vph	352 vph	737 vph	3,376 vph	2,031 vph	313 vph
Simulated Ramp Volumes	633 vph	806 vph	1,044 vph	747 vph	1,113 vph	89 vph	1,984 vph	668 vph	423 vph	464 vph	742 vph	3,415 vph	1,966 vph	244 vph
Link	420	402	405	404	408	412	413	414	415	416	436	318	444	442

INTERSTATE 95 NORTHBOUND →



	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY
Actual Volumes	4,029	4,029	3,470	4,279	3,308	4,142	2,955	3,041	3,041	4,867	4,162	4,586	4,586	4,234	4,962	1,587	3,615	3,615	3,615	3,300
Simulated Volumes	4,057	4,064	3,434	4,254	3,186	3,953	2,848	2,878	2,943	4,934	4,278	4,668	4,728	4,292	5,056	1,646	3,564	3,621	3,602	3,418
Distance (ft)	1,093	304	2,111	1,072	732	1,677	1,440	198	1,172	1,027	1,424	279	9,541	2,400	1,615	4,679	295	630	141	949
Lane 6 Speed (mph)																				
Lane 6 Level of Service																				
Lane 6 Density (pc/ln/mi)																				
Lane 5 Speed (mph)																				
Lane 5 Level of Service																				
Lane 5 Density (pc/ln/mi)																				
Lane 4 Speed (mph)																				
Lane 4 Level of Service																				
Lane 4 Density (pc/ln/mi)																				
Lane 3 Speed (mph)	56.2	55.6	57.3	55.3	56.0	55.7	56.0	55.3	56.1	52.8	57.2	56.0	55.9	56.0	56.4	57.7	54.9	55.8	57.4	57.0
Lane 3 Level of Service	C	C	B	B	C	B	B	B	B	C	C	C	D	B	B	B	B	C	C	C
Lane 3 Density (pc/ln/mi)	21.2	21.8	17.6	18.2	18.9	18.9	17.6	17.6	17.8	21.7	25.3	27.2	27.7	17.1	15.8	14.1	14.8	21.1	22.7	23.0
Lane 2 Speed (mph)	55.4	54.7	57.1	49.1	55.2	54.1	55.0	53.4	56.9	49.5	55.1	50.7	54.9	48.3	52.0	58.1	49.7	52.8	56.3	57.1
Lane 2 Level of Service	C	C	C	C	B	B	B	B	B	C	D	D	D	C	B	B	B	C	C	C
Lane 2 Density (pc/ln/mi)	21.4	21.4	20.3	20.3	16.3	18.5	17.8	16.4	16.3	26.6	26.7	30.7	30.5	25.1	13.4	12.2	14.0	24.9	22.7	21.6
Lane 1 Speed (mph)	47.7	49.3	55.3	44.1	50.8	51.0	54.1	50.6	55.9	48.2	53.7	45.6	53.5	43.1	46.7	58.7	42.4	47.7	48.5	56.1
Lane 1 Level of Service	E	C	C	E	C	B	B	B	C	E	C	D	D	F	E	A	D	C	B	B
Lane 1 Density (pc/ln/mi)	35.3	25.8	22.9	37.2	24.1	16.8	16.4	19.4	18.2	36.3	25.3	31.1	28.1	49.7	42.3	2.1	32.7	23.6	18.7	15.5
Accel/Decl/ Auxillary Speed (mph)		46.9		42.5		50.5		25.0		48.1		28.8			47.4		38.2		34.6	
Accel/Decl/ Auxillary Level of Service		A		B		C		A		B		A			D		B		A	
Accel/Decl/ Auxillary Density (pc/ln/mi)		8.8		14.8		20.7		1.9		15.0		6.1			32.2		17.6		3.3	
Accel/Decl/ Auxillary Speed (mph)																				
Accel/Decl/ Auxillary Level of Service																				
Accel/Decl/ Auxillary Density (pc/ln/mi)																				
Link	302	328	400	304	403	306	307	308	309	337	339	341	311	315	317	319	349	350	426	581

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

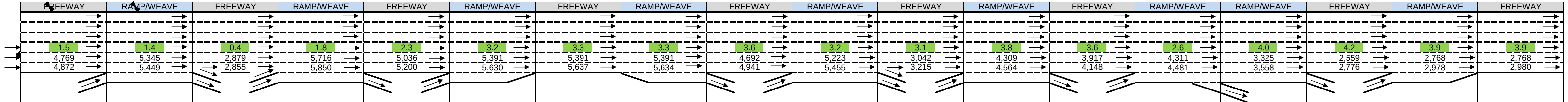
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-7
I-64 and I-95 Overlap Report
Northbound I-95
2011 Existing Scenario - AM Peak Hour MOE's
8:15 - 9:15 AM

INTERSTATE 95 SOUTHBOUND

Overall Segment

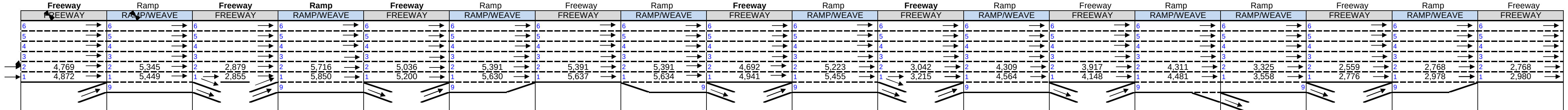


	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	1.5	1.4	0.4	1.8	2.3	3.2	3.3	3.3	3.6	3.2	3.1	3.8	3.6	2.6	4.0	4.2	3.9	3.9
Actual Volumes	4,769	5,345	2,879	5,716	5,036	5,391	5,391	5,391	4,692	5,223	3,042	4,309	3,917	4,311	3,325	2,559	2,768	2,768
Simulated Volumes	4,872	5,449	2,855	5,850	5,200	5,630	5,637	5,634	4,941	5,455	3,215	4,564	4,148	4,481	3,558	2,776	2,978	2,980

	From Hermitage Rd	To I-64/I-195	From I-64/I-195	To N Blvd	From Robin Hood Rd	To Leigh St	From Belvldere St	To I-64 EB/3rd St	From I-64/7th St	To Broad St	From Broad St	To Franklin St	To Downtown Expy	From Downtown Expy
GEH Value	0.1	2.5	2.0	0.1	2.0	0.4	0.4	1.0	1.8	1.2	2.5	2.3	1.2	0.0
Actual Ramp Volumes	575 vph	2,466 vph	2,836 vph	680 vph	355 vph	698 vph	527 vph	2,180 vph	1,267 vph	392 vph	367 vph	986 vph	766 vph	209 vph
Simulated Ramp Volumes	573 vph	2,593 vph	2,944 vph	677 vph	393 vph	710 vph	517 vph	2,226 vph	1,333 vph	417 vph	320 vph	914 vph	798 vph	208 vph
	446	359	452	481	497	486	585	498	507	509	512	517	519	520

	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Speed (mph)	53.5	53.5	55.7	55.6	46.6	27.2	55.3	56.1	57.0	54.7	57.7	51.5	54.5	42.2	54.1	58.2	56.5	58.7
Level of Service	D	C	B	D	E	F	D	C	D	C	C	C	C	D	B	B	B	B
Density (pc/ln/mi)	31.2	25.6	17.1	26.3	38.1	49.8	34.0	24.9	29.0	24.9	18.6	22.3	25.8	27.2	16.4	15.9	12.8	17.0
	354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

INTERSTATE 95 SOUTHBOUND



	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Ramp	Freeway	Ramp	Freeway
	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
Actual Volumes	4,769	5,345	2,879	5,716	5,036	5,391	5,391	5,391	4,692	5,223	3,042	4,309	3,917	4,311	3,325	2,559	2,768	2,768
Simulated Volumes	4,872	5,449	2,855	5,850	5,200	5,630	5,637	5,634	4,941	5,455	3,215	4,564	4,148	4,481	3,558	2,776	2,978	2,980
Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240

Lane 6	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 5	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 4	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 3	Speed (mph)	57.1	55.6	55.5	57.2	50.3	41.4	56.2	57.6	57.6	56.6	57.1	57.0	57.5	53.6	56.6	57.5	57.8	57.9
	Level of Service	C	C	C	C	D	F	D	C	C	C	C	B	C	C	C	C	C	C
	Density (pc/ln/mi)	22.1	24.5	22.6	23.9	28.7	46.8	32.9	27.8	25.6	25.3	19.1	16.7	20.1	25.4	23.0	21.4	20.9	20.6
Lane 2	Speed (mph)	54.8	54.0	55.8	56.2	46.6	33.0	55.6	57.6	58.0	55.3	57.8	52.4	55.4	44.8	56.1	58.3	58.5	58.9
	Level of Service	C	C	C	D	E	F	D	C	C	C	C	C	C	C	B	B	B	B
	Density (pc/ln/mi)	23.2	21.1	21.4	31.2	40.4	52.6	33.8	26.2	23.2	24.0	19.7	25.1	20.4	21.9	15.9	15.7	16.3	16.8
Lane 1	Speed (mph)	48.8	52.2	55.8	54.4	42.7	26.7	54.2	56.1	55.5	54.1	58.2	49.2	50.5	36.9	54.5	58.8	58.5	59.2
	Level of Service	F	D	A	D	F	F	E	D	E	C	B	D	E	C	B	A	B	B
	Density (pc/ln/mi)	48.1	29.6	7.3	33.8	45.2	62.9	35.2	34.2	38.3	27.9	16.9	34.8	36.9	26.1	11.0	10.7	12.9	13.5
Accel/Decl/ Auxillary	Speed (mph)		52.2		54.6		7.7		52.9		52.8		47.2		33.7	49.3		51.4	
	Level of Service		C		B		E		B		C		B		E	B		A	
	Density (pc/ln/mi)		27.2		16.5		36.8		11.5		22.6		12.5		35.5	15.6		1.2	
Accel/Decl/ Auxillary	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
		354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

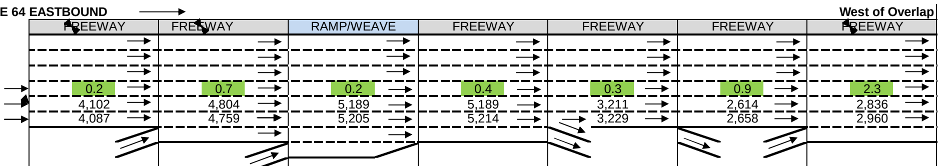
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn
and Associates, Inc.

Figure A-8
I-64 and I-95 Overlap Report
Southbound I-95
2011 Existing Scenario - AM Peak Hour MOE's
8:15 - 9:15 AM

INTERSTATE 64 EASTBOUND →

West of Overlap



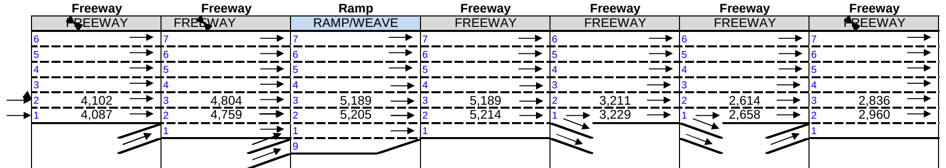
Overall Segment

	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY
GEH Value	0.2	0.7	0.2	0.4	0.3	0.9	2.3
Actual Volumes	4,102	4,804	5,189	5,189	3,211	2,614	2,836
Simulated Volumes	4,087	4,759	5,205	5,214	3,229	2,658	2,960

	From Route 33 SB	From Route 33 NB	To I-195	To I-95 NB	From I-195 NB
GEH Value	0.1	0.1	0.4	0.6	4.9
Actual Ramp Volumes	702 vph	385 vph	1,977 vph	597 vph	222 vph
Simulated Ramp Volumes	699 vph	383 vph	1,993 vph	581 vph	302 vph
	471	451	453	459	474

Distance (ft)	447	1,096	1,402	3,024	1,068	465	369
Speed (mph)	57.8	55.9	56.7	57.3	55.1	55.4	47.6
Level of Service	C	C	C	C	C	C	C
Density (pc/ln/mi)	23.7	21.3	18.1	22.9	19.6	24.0	19.2
	376	372	374	375	377	462	480

INTERSTATE 64 EASTBOUND →



	Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY
Actual Volumes	4,102	4,804	5,189	5,189	3,211	2,614	2,836
Simulated Volumes	4,087	4,759	5,205	5,214	3,229	2,658	2,960
Distance (ft)	447	1,096	1,402	3,024	1,068	465	369

Lane 6	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 5	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 4	Speed (mph)		58.0	58.7	59.0			
	Level of Service		B	B	A			
	Density (pc/ln/mi)		17.8	12.9	8.4			
Lane 3	Speed (mph)	58.6	57.6	57.9	57.3	55.6		53.5
	Level of Service	B	C	C	D	A		D
	Density (pc/ln/mi)	17.2	19.0	23.2	28.8	10.4		26.6
Lane 2	Speed (mph)	58.5	55.7	56.9	56.1	54.8	55.1	51.4
	Level of Service	C	D	D	D	D	D	D
	Density (pc/ln/mi)	18.9	28.9	29.6	33.6	27.6	26.0	27.3
Lane 1	Speed (mph)	56.3	52.4	57.3	56.7	55.0	55.6	37.8
	Level of Service	E	C	C	C	C	C	A
	Density (pc/ln/mi)	35.1	19.6	23.6	21.0	20.7	22.0	3.6
Accel/Decl/ Auxillary	Speed (mph)			52.7				
	Level of Service			A				
	Density (pc/ln/mi)			1.3				
Accel/Decl/ Auxillary	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
		376	372	374	375	377	462	480

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

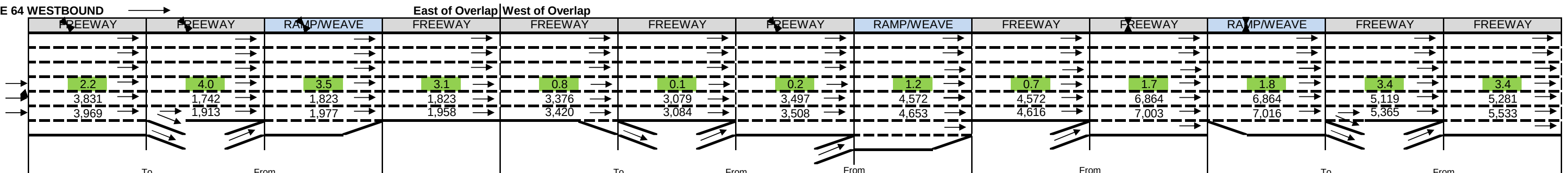
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-9
I-64 and I-95 Overlap Report
Eastbound I-64
2011 Existing Scenario - AM Peak Hour MOE's
8:15 - 9:15 AM

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



Overall Segment

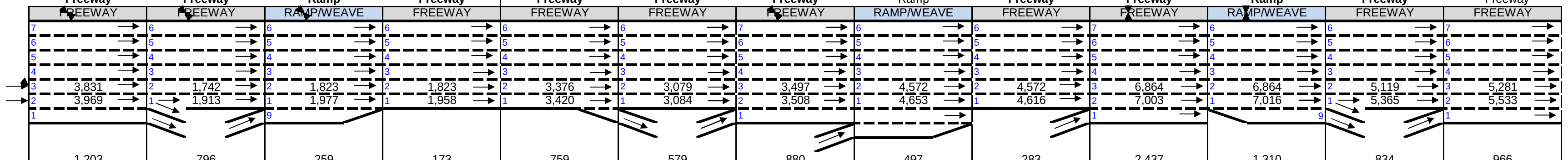
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	2.2	4.0	3.5	3.1	0.8	0.1	0.2	1.2	0.7	1.7	1.8	3.4	3.4
Actual Volumes	3,831	1,742	1,823	1,823	3,376	3,079	3,497	4,572	4,572	6,864	6,864	5,119	5,281
Simulated Volumes	3,969	1,913	1,977	1,958	3,420	3,084	3,508	4,653	4,616	7,003	7,016	5,365	5,533

	To I-95 SB/5th St	From 5th St	To I-195 SB	From Laburnum Ave	From I-95 SB	From I-195 NB	To Route 33	From Route 33
GEH Value	0.1	0.6	2.3	0.1	2.4	0.6	1.8	0.1
Actual Ramp Volumes	2,089 vph	81 vph	297 vph	418 vph	1,075 vph	2,293 vph	1,745 vph	162 vph
Simulated Ramp Volumes	2,095 vph	76 vph	339 vph	419 vph	1,155 vph	2,322 vph	1,670 vph	161 vph
	448	530	445	447	419	421	427	450

Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966
Speed (mph)	34.7	26.5	19.7	35.4	53.4	55.3	56.5	47.3	48.8	53.3	49.6	52.2	56.0
Level of Service	E	E	C	F	D	D	C	C	D	D	D	C	C
Density (pc/ln/mi)	43.0	40.9	25.1	55.8	32.1	27.9	20.7	24.3	31.7	32.9	28.6	25.7	19.7
	332	526	531	584	418	425	320	321	322	324	326	327	367

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



	Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway	Ramp	Freeway	Freeway	Ramp	Freeway	Freeway
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
Actual Volumes	3,831	1,742	1,823	1,823	3,376	3,079	3,497	4,572	4,572	6,864	6,864	5,119	5,281
Simulated Volumes	3,969	1,913	1,977	1,958	3,420	3,084	3,508	4,653	4,616	7,003	7,016	5,365	5,533
Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966
Lane 6 Speed (mph)													
Lane 6 Level of Service													
Lane 6 Density (pc/ln/mi)													
Lane 5 Speed (mph)													54.9
Lane 5 Level of Service													C
Lane 5 Density (pc/ln/mi)													25.4
Lane 4 Speed (mph)										52.9	49.3	51.7	56.1
Lane 4 Level of Service										D	D	D	C
Lane 4 Density (pc/ln/mi)										29.4	30.1	28.3	26.1
Lane 3 Speed (mph)	46.7						56.3	53.4	50.2	54.6	49.9	52.7	56.9
Lane 3 Level of Service	E						C	C	C	D	D	D	C
Lane 3 Density (pc/ln/mi)	35.3						25.4	26.1	27.4	29.2	31.8	28.7	23.3
Lane 2 Speed (mph)	33.9	28.7	10.2		52.9	55.1	56.6	50.4	48.8	53.8	47.3	52.8	57.5
Lane 2 Level of Service	C	A	B		D	C	C	D	D	D	D	C	B
Lane 2 Density (pc/ln/mi)	24.2	7.1	11.3		33.1	26.0	24.3	30.4	34.9	31.7	31.3	26.0	17.1
Lane 1 Speed (mph)	23.6	24.2	30.4	35.4	53.8	55.5	56.6	45.9	47.3	51.8	48.1	51.7	54.7
Lane 1 Level of Service	F	F	F	F	D	D	B	D	D	E	D	B	A
Lane 1 Density (pc/ln/mi)	69.6	74.6	61.1	55.8	31.1	29.8	12.6	29.3	33.0	41.5	33.7	19.7	6.6
Accel/Decl/ Auxillary Speed (mph)			18.5					39.5			53.3		
Accel/Decl/ Auxillary Level of Service			A					B			B		
Accel/Decl/ Auxillary Density (pc/ln/mi)			2.8					11.3			16.0		
Accel/Decl/ Auxillary Speed (mph)													
Accel/Decl/ Auxillary Level of Service													
Accel/Decl/ Auxillary Density (pc/ln/mi)													
	332	526	531	584	418	425	320	321	322	324	326	327	367

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

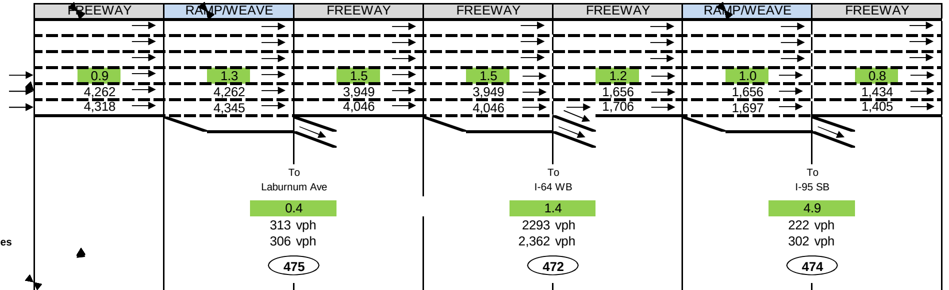
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn
and Associates, Inc.

Figure A-10
I-64 and I-95 Overlap Report
Westbound I-64
2011 Existing Scenario - AM Peak Hour MOE's
8:15 - 9:15 AM

Overall Segment

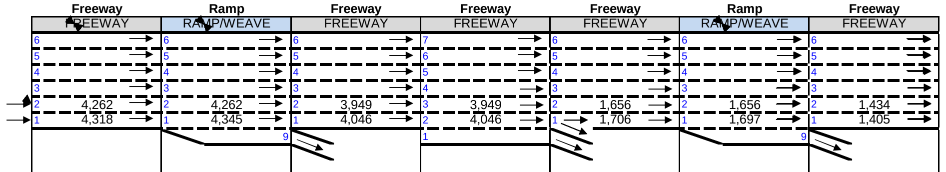
INTERSTATE 195 NORTHBOUND →



	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	0.9	1.3	1.5	1.5	1.2	1.0	0.8
Actual Volumes	4,262	4,262	3,949	3,949	1,656	1,656	1,434
Simulated Volumes	4,318	4,345	4,046	4,046	1,706	1,697	1,405
Distance (ft)	1,262	308	668	668	476	139	330
Speed (mph)	23.1	27.2	22.6	22.6	40.1	37.6	33.0
Level of Service	F	F	F	F	C	B	B
Density (pc/ln/mi)	64.6	51.2	69.3	69.3	21.2	14.7	15.8
	385	382	383	383	473	535	575

	To Laburnum Ave	To I-64 WB	To I-95 SB
GEH Value	0.4	1.4	4.9
Actual Ramp Volumes	313 vph	2293 vph	222 vph
Simulated Ramp Volumes	306 vph	2,362 vph	302 vph
	475	472	474

INTERSTATE 195 NORTHBOUND →



		Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Freeway FREEWAY	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY
	Actual Volumes	4,262	4,262	3,949	3,949	1,656	1,656	1,434
	Simulated Volumes	4,318	4,345	4,046	4,046	1,706	1,697	1,405
	Distance (ft)	1,262	308	668	668	476	139	330
Lane 6	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 5	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 4	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 3	Speed (mph)	17.5	13.9	13.6	13.6		38.8	
	Level of Service	F	F	F	F		A	
	Density (pc/ln/mi)	73.5	82.2	97.6	97.6		0.3	
Lane 2	Speed (mph)	23.5	19.8	16.1	16.1	39.7	39.3	20.8
	Level of Service	F	F	F	F	A	E	A
	Density (pc/ln/mi)	63.9	68.4	66.9	66.9	0.4	39.3	0.4
Lane 1	Speed (mph)	28.4	33.7	38.3	38.3	40.4	34.6	45.2
	Level of Service	F	F	E	E	E	A	D
	Density (pc/ln/mi)	56.5	48.7	43.5	43.5	42.0	4.4	31.3
Accel/Decl/ Auxillary	Speed (mph)		41.6					
	Level of Service		A					
	Density (pc/ln/mi)		5.5					
Accel/Decl/ Auxillary	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
		385	382	383	383	473	535	575

LEGEND

500 Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

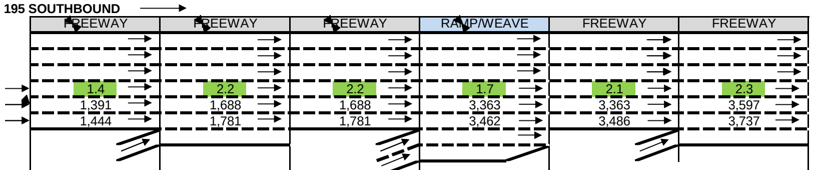
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-11
I-64 and I-95 Overlap Report
Northbound I-195
2011 Existing Scenario - AM Peak Hour MOE's
8:15 - 9:15 AM

INTERSTATE 195 SOUTHBOUND →

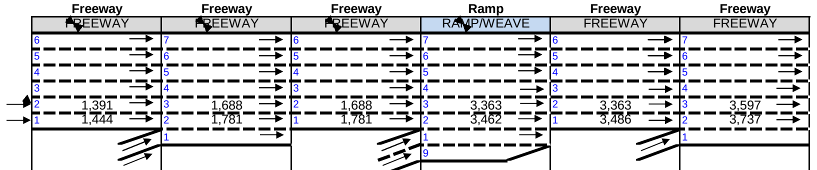


Overall Segment

	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	1.4	2.2	2.2	1.7	2.1	2.3
Actual Volumes	1,391	1,688	1,688	3,363	3,363	3,597
Simulated Volumes	1,444	1,781	1,781	3,462	3,486	3,737
Distance (ft)	408	962	962	176	1,164	956
Speed (mph)	54.9	56.3	56.3	44.0	56.2	58.6
Level of Service	D	B	B	B	C	B
Density (pc/ln/mi)	26.3	15.9	15.9	16.9	20.7	16.0
	467	469	469	378	379	380

	From I-95 NB	From I-64 EB	From Laburnum Ave
GEH Value	1.4	0.5	0.5
Actual Ramp Volumes	313 vph	1,675 vph	234 vph
Simulated Ramp Volumes	339 vph	1,694 vph	241 vph
	445	529	470

INTERSTATE 195 SOUTHBOUND →



		Freeway	Freeway	Freeway	Ramp	Freeway	Freeway
	Actual Volumes	1,391	1,688	1,688	3,363	3,363	3,597
	Simulated Volumes	1,444	1,781	1,781	3,462	3,486	3,737
	Distance (ft)	408	962	962	176	1,164	956
Lane 6	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 5	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 4	Speed (mph)						59.0
	Level of Service						B
	Density (pc/ln/mi)						18.0
Lane 3	Speed (mph)				57.6	56.8	58.0
	Level of Service				B	B	C
	Density (pc/ln/mi)				13.9	17.4	20.2
Lane 2	Speed (mph)		57.4	57.4	53.3	56.1	58.1
	Level of Service		B	B	C	C	C
	Density (pc/ln/mi)		11.2	11.2	20.5	21.8	19.0
Lane 1	Speed (mph)	54.9	55.2	55.2	50.6	55.5	59.1
	Level of Service	D	C	C	D	C	A
	Density (pc/ln/mi)	26.3	20.6	20.6	30.3	22.9	6.7
Accel/Decl/ Auxillary	Speed (mph)				14.7		
	Level of Service				A		
	Density (pc/ln/mi)				2.8		
Accel/Decl/ Auxillary	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
		467	469	469	378	379	380

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

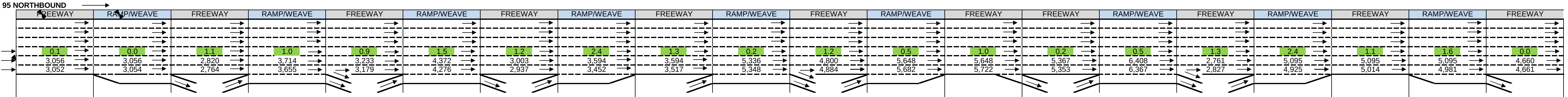
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-11
I-64 and I-95 Overlap Report
Southbound I-195
2011 Existing Scenario - AM Peak Hour MOE's
8:15 - 9:15 AM

INTERSTATE 95 NORTHBOUND →

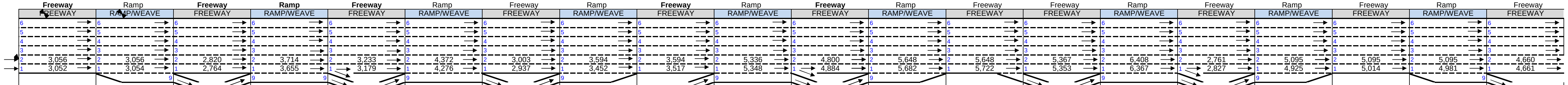


Overall Segment

	302	328	400	304	403	306	307	308	309	337	339	341	311	315	317	319	349	350	426	581
	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	0.1	0.0	1.1	1.0	0.9	1.5	1.2	2.4	1.3	0.2	1.2	0.5	1.0	0.2	0.5	1.3	2.4	1.1	1.6	0.0
Actual Volumes	3,056	3,056	2,820	3,714	3,233	4,372	3,003	3,594	3,594	5,336	4,800	5,648	5,648	5,367	6,408	2,761	5,095	5,095	5,095	4,660
Simulated Volumes	3,052	3,054	2,764	3,655	3,179	4,276	2,937	3,452	3,517	5,348	4,884	5,682	5,722	5,353	6,367	2,827	4,925	5,014	4,981	4,661
Distance (ft)	1,093	304	2,111	1,072	732	1,677	1,440	198	1,172	1,027	1,424	279	9,541	2,400	1,615	4,679	295	630	141	949
Speed (mph)	57.9	55.8	58.0	54.7	55.7	49.7	49.5	35.6	49.9	49.1	46.8	34.0	49.8	46.0	46.0	55.7	39.5	48.4	46.6	54.9
Level of Service	B	B	B	B	C	C	C	C	C	D	D	E	E	E	D	B	D	D	C	D
Density (pc/ln/mi)	17.6	13.4	16.2	17.1	19.5	21.9	19.1	22.8	22.9	26.9	34.7	39.3	37.6	38.9	34.5	17.0	31.1	34.3	24.3	27.9

	420	402	405	404	408	412	413	414	415	416	436	318	444	442
	To Downtown Expy	From Downtown Expy	To Broad St/Oliver Hill Way	From Broad St	To I-64 EB	From 7th St	From I-64 WB	To Chamberlayne Ave	From Belvedere NB	To Hermitage Rd	From N Blvd	To I-64	From I-64	To Westbrook Ave
GEH Value	1.3	0.2	1.2	1.6	0.9	0.1	2.3	2.9	0.2	3.4	0.4	2.0	2.7	1.8
Actual Ramp Volumes	236 vph	894 vph	481 vph	1140 vph	1370 vph	591 vph	1736 vph	536 vph	848 vph	281 vph	1040 vph	3647 vph	2335 vph	436 vph
Simulated Ramp Volumes	217 vph	888 vph	455 vph	1,086 vph	1,337 vph	588 vph	1,832 vph	470 vph	843 vph	341 vph	1,026 vph	3,525 vph	2,206 vph	399 vph

INTERSTATE 95 NORTHBOUND →



		302	328	400	304	403	306	307	308	309	337	339	341	311	315	317	319	349	350	426	581
		Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY
	Actual Volumes	3,056	3,056	2,820	3,714	3,233	4,372	3,003	3,594	3,594	5,336	4,800	5,648	5,648	5,367	6,408	2,761	5,095	5,095	5,095	4,660
	Simulated Volumes	3,052	3,054	2,764	3,655	3,179	4,276	2,937	3,452	3,517	5,348	4,884	5,682	5,722	5,353	6,367	2,827	4,925	5,014	4,981	4,661
	Distance (ft)	1,093	304	2,111	1,072	732	1,677	1,440	198	1,172	1,027	1,424	279	9,541	2,400	1,615	4,679	295	630	141	949
Lane 6	Speed (mph)																				
	Level of Service																				
	Density (pc/ln/mi)																				
Lane 5	Speed (mph)																				
	Level of Service																				
	Density (pc/ln/mi)																				
Lane 4	Speed (mph)																				
	Level of Service																				
	Density (pc/ln/mi)																				
Lane 3	Speed (mph)	58.3	58.2	58.6	58.2	57.9	54.0	52.9	46.1	47.9	51.6	51.4	46.3	51.5	52.6	52.5	54.7	48.5	53.6	56.0	55.2
	Level of Service	B	B	B	B	B	B	C	C	C	C	D	E	E	D	C	C	C	D	D	D
	Density (pc/ln/mi)	15.5	15.7	13.0	12.8	14.2	18.1	19.5	24.0	23.8	24.3	33.1	41.8	38.4	29.1	27.7	24.4	27.3	31.9	32.4	32.4
Lane 2	Speed (mph)	58.6	58.1	58.2	55.2	57.0	51.3	49.3	39.7	51.3	49.2	45.8	37.5	50.1	45.3	46.4	54.7	42.3	49.6	54.0	55.3
	Level of Service	B	B	B	B	B	B	C	C	C	D	E	F	E	D	C	C	D	E	D	D
	Density (pc/ln/mi)	16.5	16.7	17.1	16.2	14.8	19.7	19.5	23.2	22.5	30.6	35.3	46.3	39.1	33.4	24.8	22.7	29.1	35.1	32.3	29.7
Lane 1	Speed (mph)	56.7	55.9	57.3	52.2	52.1	47.1	46.5	33.7	50.6	48.2	43.2	31.3	47.9	40.1	42.0	57.6	35.8	41.9	43.8	54.1
	Level of Service	C	B	C	D	D	C	C	D	C	E	E	F	E	F	F	A	F	E	C	C
	Density (pc/ln/mi)	20.9	18.1	18.3	30.2	29.5	20.7	18.3	30.9	22.4	38.3	35.7	49.3	35.3	54.3	47.8	3.8	44.4	35.9	26.7	21.8
Accel/Decel Auxiliary	Speed (mph)		51.1		53.0		46.3		22.7		47.4		20.8			43.1		31.4		32.6	
	Level of Service		A		A		D		B		B		B			E		C		A	
	Density (pc/ln/mi)		3.0		9.2		29.0		13.3		14.5		19.6			37.6		23.4		6.0	
Accel/Decel Auxiliary	Speed (mph)																				
	Level of Service																				
	Density (pc/ln/mi)																				

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)	LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	45 and above	LOS	F	43 and above
LOS	E	35 to 45	LOS	E	35 to 43
LOS	D	26 to 35	LOS	D	28 to 35
LOS	C	18 to 26	LOS	C	20 to 28
LOS	B	11 to 18	LOS	B	10 to 20
LOS	A	0 to 11	LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

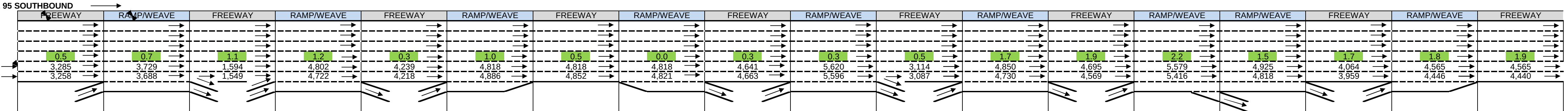
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-13
I-64 and I-95 Overlap Report
Northbound I-95
2011 Existing Scenario - PM Peak Hour MOE's
4:00 - 5:00 PM

INTERSTATE 95 SOUTHBOUND →

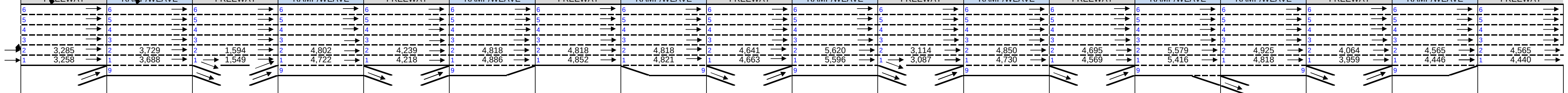
Overall Segment



	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
	0.5	0.7	1.1	1.2	0.3	1.0	0.5	0.0	0.3	0.3	0.5	1.7	1.9	2.2	1.5	1.7	1.8	1.9
Actual Volumes	3,285	3,729	1,594	4,802	4,239	4,818	4,818	4,818	4,641	5,620	3,114	4,850	4,695	5,579	4,925	4,064	4,565	4,565
Simulated Volumes	3,258	3,688	1,549	4,722	4,218	4,886	4,852	4,821	4,663	5,596	3,087	4,730	4,569	5,416	4,818	3,959	4,446	4,440
Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Speed (mph)	58.1	56.4	56.4	57.0	54.7	31.1	56.4	57.5	55.8	49.6	57.7	52.5	53.2	36.1	51.1	56.6	53.6	57.5
Level of Service	C	B	A	C	C	E	D	C	D	D	B	C	D	E	C	C	C	C
Density (pc/ln/mi)	19.0	16.4	9.1	20.8	25.9	39.6	28.6	21.0	28.2	28.4	17.9	22.4	28.9	37.9	23.3	23.3	20.0	25.7
	354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

	From Hermitage Rd	To I-64/I-195	From I-64/I-195	To N Blvd	From Robin Hood Rd	To Leigh St	From Belvidere St	To I-64 EB/3rd St	From I-64/7th St	To Broad St	From Broad St	To Franklin St	To Downtown Expy	From Downtown Expy
	0.1	0.1	1.1	3.1	4.2	1.3	0.5	0.5	2.2	0.2	0.8	3.5	0.3	0.1
Actual Ramp Volumes	443 vph	2135 vph	3209 vph	563 vph	579 vph	177 vph	980 vph	2506 vph	1736 vph	155 vph	878 vph	654 vph	861 vph	500 vph
Simulated Ramp Volumes	441 vph	2,128 vph	3,145 vph	492 vph	684 vph	161 vph	966 vph	2,483 vph	1,646 vph	152 vph	853 vph	568 vph	869 vph	498 vph
	446	359	452	481	497	486	585	498	507	509	512	517	519	520

INTERSTATE 95 SOUTHBOUND →



	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Ramp	Freeway	Ramp	Freeway
	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
Actual Volumes	3,285	3,729	1,594	4,802	4,239	4,818	4,818	4,818	4,641	5,620	3,114	4,850	4,695	5,579	4,925	4,064	4,565	4,565
Simulated Volumes	3,258	3,688	1,549	4,722	4,218	4,886	4,852	4,821	4,663	5,596	3,087	4,730	4,569	5,416	4,818	3,959	4,446	4,440
Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Lane 6 Speed (mph)																		
Lane 6 Level of Service																		
Lane 6 Density (pc/ln/mi)																		
Lane 5 Speed (mph)																		
Lane 5 Level of Service																		
Lane 5 Density (pc/ln/mi)																		
Lane 4 Speed (mph)																		
Lane 4 Level of Service																		
Lane 4 Density (pc/ln/mi)																		
Lane 3 Speed (mph)	59.3	57.7	56.6	58.8	57.1	47.1	57.2	58.0	57.6	54.5	57.2	57.5	56.6	48.9	54.3	56.7	56.9	57.6
Lane 3 Level of Service	A	B	B	B	C	D	D	C	C	C	C	B	C	E	D	D	D	D
Lane 3 Density (pc/ln/mi)	9.6	11.6	12.2	15.5	19.3	34.1	29.7	23.7	23.0	25.4	19.8	19.0	24.6	36.7	32.0	29.2	28.6	28.7
Lane 2 Speed (mph)	59.0	56.6	56.3	57.3	54.3	36.8	56.4	57.5	56.9	49.8	57.6	53.6	53.6	36.7	52.0	56.7	56.2	57.8
Lane 2 Level of Service	B	B	B	C	D	E	D	C	C	C	C	C	C	D	C	C	C	C
Lane 2 Density (pc/ln/mi)	12.0	13.7	13.6	24.3	27.5	39.7	30.3	26.2	21.9	23.7	19.0	27.7	25.0	34.8	23.9	22.5	24.8	25.4
Lane 1 Speed (mph)	55.9	55.4	56.3	56.0	52.7	29.5	55.8	56.6	52.8	47.0	58.3	51.1	49.4	29.5	49.9	56.3	55.2	57.1
Lane 1 Level of Service	E	C	A	D	D	F	C	D	E	E	B	D	E	E	B	C	C	C
Lane 1 Density (pc/ln/mi)	35.4	22.8	1.7	30.4	30.8	48.2	25.9	31.9	39.6	38.7	14.7	34.2	37.1	41.8	19.8	18.3	22.7	23.0
Accel/Decl/ Auxillary Speed (mph)		56.1		55.9		11.2		58.0		46.9		47.6		29.2	48.3		46.0	
Accel/Decl/ Auxillary Level of Service		B		B		E		A		C		A		E	B		A	
Accel/Decl/ Auxillary Density (pc/ln/mi)		17.5		12.8		36.4		2.4		25.8		8.5		38.2	17.6		3.7	
Accel/Decl/ Auxillary Speed (mph)																		
Accel/Decl/ Auxillary Level of Service																		
Accel/Decl/ Auxillary Density (pc/ln/mi)																		
	354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	🟥 45 and above
LOS	E	🟧 35 to 45
LOS	D	🟨 26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	🟥 43 and above
LOS	E	🟧 35 to 43
LOS	D	🟨 28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

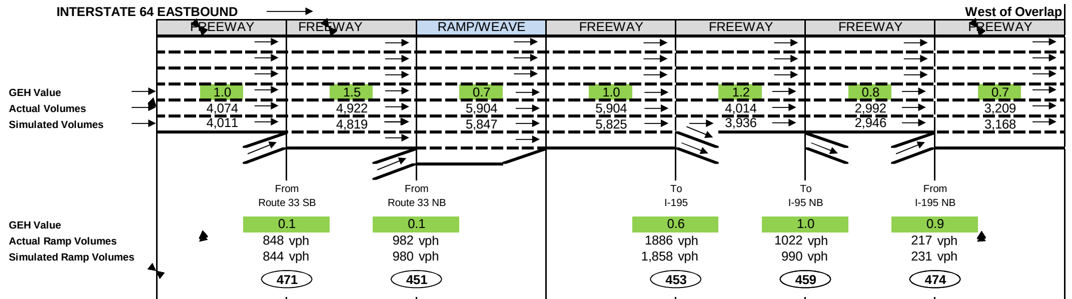
Degrees of LOS F:

Density above	🟪 75	pc/ln/mi
Density above	🟦 55	pc/ln/mi
Density above	🟩 43	pc/ln/mi

Kimley-Horn
and Associates, Inc.

Figure A-14
I-64 and I-95 Overlap Report
Southbound I-95
2011 Existing Scenario - PM Peak Hour MOE's
4:00 - 5:00 PM

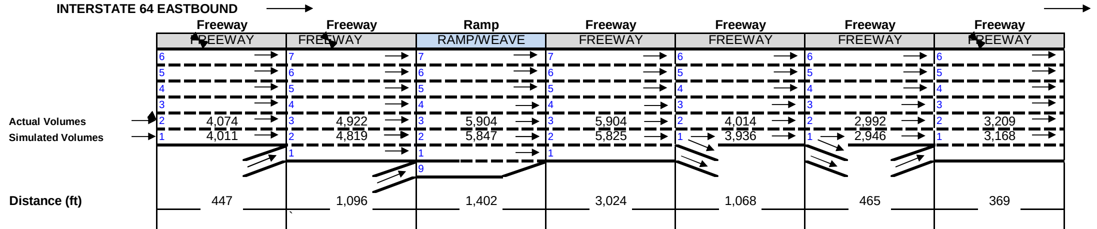
Overall Segment



	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY
GEH Value	1.0	1.5	0.7	1.0	1.2	0.8	0.7
Actual Volumes	4,074	4,922	5,904	5,904	4,014	2,992	3,209
Simulated Volumes	4,011	4,819	5,847	5,825	3,936	2,946	3,168

	From Route 33 SB	From Route 33 NB	To I-195	To I-95 NB	From I-195 NB
GEH Value	0.1	0.1	0.6	1.0	0.9
Actual Ramp Volumes	848 vph	982 vph	1886 vph	1022 vph	217 vph
Simulated Ramp Volumes	844 vph	980 vph	1,858 vph	990 vph	231 vph
	471	451	453	459	474

Distance (ft)	447	1,096	1,402	3,024	1,068	465	369
Speed (mph)	57.8	55.4	55.6	55.1	51.4	53.2	44.7
Level of Service	C	C	C	D	C	D	C
Density (pc/ln/mi)	23.2	21.7	20.8	26.6	25.7	27.7	21.5
	376	372	374	375	377	462	480



	Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway
Actual Volumes	4,074	4,922	5,904	5,904	4,014	2,992	3,209
Simulated Volumes	4,011	4,819	5,847	5,825	3,936	2,946	3,168
Distance (ft)	447	1,096	1,402	3,024	1,068	465	369

Lane 6	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 5	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 4	Speed (mph)		57.6	58.3	57.7			
	Level of Service		C	B	B			
	Density (pc/ln/mi)		19.3	15.5	14.0			
Lane 3	Speed (mph)	58.4	57.2	57.2	55.1	52.3		51.2
	Level of Service	C	C	C	D	C		D
	Density (pc/ln/mi)	18.6	20.7	25.7	33.0	18.7		29.6
Lane 2	Speed (mph)	58.3	55.4	55.9	53.9	50.6	53.0	48.8
	Level of Service	C	D	D	E	D	D	D
	Density (pc/ln/mi)	19.9	27.2	31.2	36.5	31.7	28.5	31.5
Lane 1	Speed (mph)	56.6	51.6	55.2	53.9	51.2	53.3	34.0
	Level of Service	D	C	D	C	D	D	A
	Density (pc/ln/mi)	31.2	19.8	28.0	22.8	26.6	26.9	3.4
Accel/Decel/ Auxillary	Speed (mph)			51.2				
	Level of Service			A				
	Density (pc/ln/mi)			3.6				
Accel/Decel/ Auxillary	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
		376	372	374	375	377	462	480

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

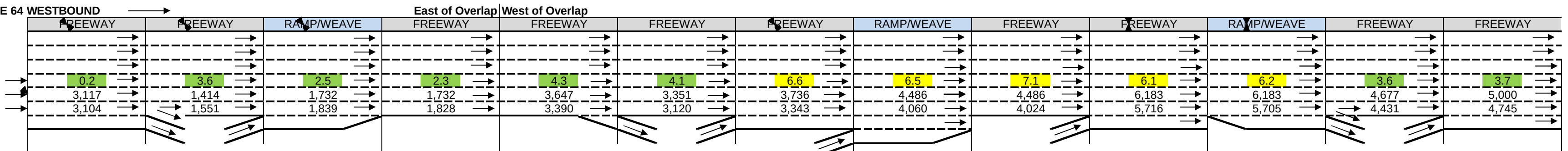
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-15
I-64 and I-95 Overlap Report
Eastbound I-64
2011 Existing Scenario - PM Peak Hour MOE's
4:00 - 5:00 PM

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



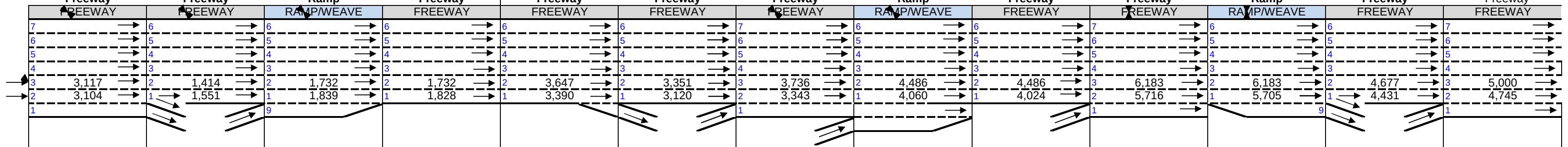
Overall Segment

	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	0.2	3.6	2.5	2.3	4.3	4.1	6.6	6.5	7.1	6.1	6.2	3.6	3.7
Actual Volumes	3,117	1,414	1,732	1,732	3,647	3,351	3,736	4,486	4,486	6,183	6,183	4,677	5,000
Simulated Volumes	3,104	1,551	1,839	1,828	3,390	3,120	3,343	4,060	4,024	5,716	5,705	4,431	4,745
Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966
Speed (mph)	55.2	42.6	23.2	38.0	54.0	55.6	56.4	50.4	50.2	54.4	48.4	52.8	56.5
Level of Service	C	C	C	F	D	C	C	C	D	D	D	C	B
Density (pc/ln/mi)	19.4	20.5	19.9	48.3	31.4	25.0	19.5	22.0	29.1	30.4	27.2	21.9	16.8
	332	526	531	584	418	425	320	321	322	324	326	327	367

	To I-95 SB/5th St	From 5th St	To I-195 SB	From Laburnum Ave	From I-95 SB	From I-195 NB	To Route 33	From Route 33
GEH Value	3.2	0.8	1.7	9.3	0.7	0.9	6.1	0.1
Actual Ramp Volumes	1,703 vph	318 vph	296 vph	385 vph	750 vph	1,692 vph	1,506 vph	323 vph
Simulated Ramp Volumes	1,575 vph	304 vph	267 vph	223 vph	730 vph	1,653 vph	1,279 vph	321 vph
	448	530	445	447	419	421	427	450

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



	Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway	Ramp	Freeway	Freeway	Ramp	Freeway	Freeway
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
Actual Volumes	3,117	1,414	1,732	1,732	3,647	3,351	3,736	4,486	4,486	6,183	6,183	4,677	5,000
Simulated Volumes	3,104	1,551	1,839	1,828	3,390	3,120	3,343	4,060	4,024	5,716	5,705	4,431	4,745
Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966

Lane 6	**Speed (mph)**													
	Level of Service													
	Density (pc/ln/mi)													
Lane 5	**Speed (mph)**													56.0
	Level of Service													C
	Density (pc/ln/mi)													20.1
Lane 4	**Speed (mph)**										55.3	54.1	54.7	57.3
	Level of Service										C	C	C	C
	Density (pc/ln/mi)										21.0	20.7	21.1	22.3
Lane 3	**Speed (mph)**	57.1						56.9	57.7	57.0	57.4	55.4	56.0	57.9
	Level of Service	C						C	C	C	C	C	C	C
	Density (pc/ln/mi)	22.1						24.8	22.2	20.7	22.8	23.5	23.3	20.6
Lane 2	**Speed (mph)**	57.6	46.2	15.5		53.6	55.2	57.7	57.3	56.2	57.1	54.7	56.4	57.6
	Level of Service	A	A	A		D	D	C	C	D	C	C	C	B
	Density (pc/ln/mi)	6.8	0.9	1.2		31.5	26.2	23.7	25.0	27.5	24.9	23.6	21.6	13.8
Lane 1	**Speed (mph)**	50.9	39.0	33.6	38.0	54.5	55.5	59.9	56.7	55.5	55.9	52.8	55.3	52.5
	Level of Service	D	E	F	F	D	D	A	B	C	D	C	B	A
	Density (pc/ln/mi)	29.4	40.2	49.5	48.3	31.3	30.2	9.5	19.7	23.3	32.6	27.2	13.6	6.8
Accel/Decl/ Auxillary	**Speed (mph)**			20.4					50.7			56.6		
	Level of Service			A					A			A		
	Density (pc/ln/mi)			8.8					4.6			9.9		
Accel/Decl/ Auxillary	**Speed (mph)**													
	Level of Service													
	Density (pc/ln/mi)													
		332	526	531	584	418	425	320	321	322	324	326	327	367

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

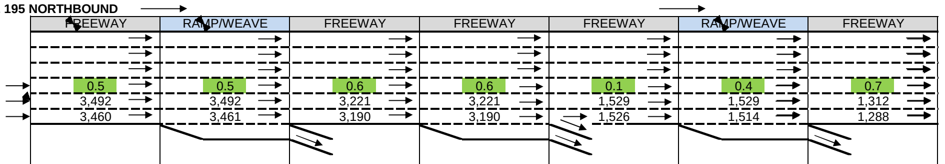
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-16
I-64 and I-95 Overlap Report
Westbound I-64
2011 Existing Scenario - PM Peak Hour MOE's
4:00 - 5:00 PM

INTERSTATE 195 NORTHBOUND

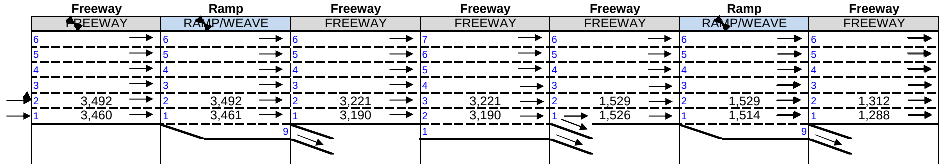


Overall Segment

	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	0.5	0.5	0.6	0.6	0.1	0.4	0.7
Actual Volumes	3,492	3,492	3,221	3,221	1,529	1,529	1,312
Simulated Volumes	3,460	3,461	3,190	3,190	1,526	1,514	1,288
Distance (ft)	1,262	308	668	668	476	139	330
Speed (mph)	57.8	55.5	57.1	57.1	49.3	39.8	34.9
Level of Service	C	B	C	C	B	B	B
Density (pc/ln/mi)	20.0	15.3	18.8	18.8	16.4	12.2	14.7
	385	382	383	383	473	535	575

	To Laburnum Ave	To I-64 WB	To I-95 SB
GEH Value	0.7	0.9	0.9
Actual Ramp Volumes	271 vph	1,692 vph	217 vph
Simulated Ramp Volumes	259 vph	1,654 vph	231 vph
	475	472	474

INTERSTATE 195 NORTHBOUND



		Freeway	Ramp	Freeway	Freeway	Freeway	Ramp	Freeway
		FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY
	Actual Volumes	3,492	3,492	3,221	3,221	1,529	1,529	1,312
	Simulated Volumes	3,460	3,461	3,190	3,190	1,526	1,514	1,288
	Distance (ft)	1,262	308	668	668	476	139	330
Lane 6	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 5	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 4	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 3	Speed (mph)	58.3	58.2	57.6	57.6		42.0	
	Level of Service	B	B	C	C		A	
	Density (pc/ln/mi)	17.5	17.3	23.8	23.8		0.9	
Lane 2	Speed (mph)	57.9	58.3	58.7	58.7	52.1	42.2	24.9
	Level of Service	C	B	A	A	A	D	A
	Density (pc/ln/mi)	20.8	14.6	6.8	6.8	1.0	32.6	0.8
Lane 1	Speed (mph)	57.2	55.0	55.2	55.2	46.5	35.3	45.0
	Level of Service	C	C	C	C	D	A	D
	Density (pc/ln/mi)	21.6	26.0	25.8	25.8	31.8	3.2	28.6
Accel/Decl/ Auxillary	Speed (mph)		50.5					
	Level of Service		A					
	Density (pc/ln/mi)		3.4					
Accel/Decl/ Auxillary	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
		385	382	383	383	473	535	575

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

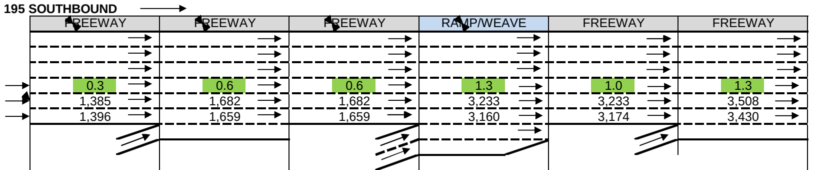
LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring				Weave/Ramp Density (pc/ln/mi)
Degrees of LOS F:			F	43 and above
			E	35 to 43
Density above	75	pc/ln/m	D	28 to 35
Density above	55	pc/ln/m	C	20 to 28
Density above	43	pc/ln/m	B	10 to 20
			A	0 to 10

Kimley-Horn
and Associates, Inc.

Figure A-17
I-64 and I-95 Overlap Report
Northbound I-195
2011 Existing Scenario - PM Peak Hour MOE's
4:00 - 5:00 PM

INTERSTATE 195 SOUTHBOUND →

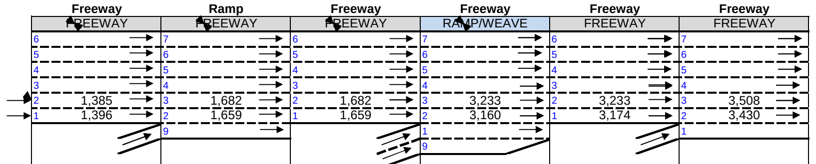


Overall Segment

	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	0.3	0.6	0.6	1.3	1.0	1.3
Actual Volumes	1,385	1,682	1,682	3,233	3,233	3,508
Simulated Volumes	1,396	1,659	1,659	3,160	3,174	3,430
Distance (ft)	408	962	962	176	1,164	956
Speed (mph)	55.0	56.7	56.7	45.4	56.8	58.7
Level of Service	C	B	B	B	C	B
Density (pc/ln/mi)	25.4	14.7	14.7	14.9	18.7	14.6
	467	469	469	378	379	380

	From I-95 NB	From I-64 EB	From Laburnum Ave
GEH Value	0.2	0.7	1.0
Actual Ramp Volumes	271 vph	1,551 vph	275 vph
Simulated Ramp Volumes	267 vph	1,524 vph	259 vph
	445	529	470

INTERSTATE 195 SOUTHBOUND →



	Freeway FREEWAY	Ramp FREEWAY	Freeway FREEWAY	Freeway RAMP/WEAVE	Freeway FREEWAY	Freeway FREEWAY
Actual Volumes	1,385	1,682	1,682	3,233	3,233	3,508
Simulated Volumes	1,396	1,659	1,659	3,160	3,174	3,430
Distance (ft)	408	962	962	176	1,164	956

Lane 6	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 5	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 4	Speed (mph)						59.5
	Level of Service						B
	Density (pc/ln/mi)						15.8
Lane 3	Speed (mph)				58.5	57.8	58.1
	Level of Service				B	B	C
	Density (pc/ln/mi)				12.2	15.0	18.7
Lane 2	Speed (mph)		57.9	57.9	54.6	56.6	58.2
	Level of Service		A	A	C	C	B
	Density (pc/ln/mi)		9.9	9.9	18.8	20.0	17.5
Lane 1	Speed (mph)	55.0	55.5	55.5	52.4	56.1	59.2
	Level of Service	C	B	C	D	C	A
	Density (pc/ln/mi)	25.4	19.5	19.5	26.6	21.0	6.5
Accel/Decl/ Auxillary	Speed (mph)				15.9		
	Level of Service				A		
	Density (pc/ln/mi)				1.9		
Accel/Decl/ Auxillary	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
		467	469	469	378	379	380

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

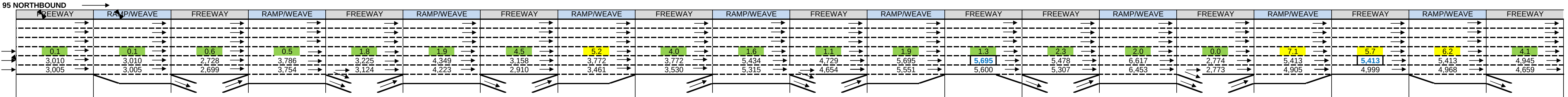
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-18
I-64 and I-95 Overlap Report
Southhbound I-195
2011 Existing Scenario - PM Peak Hour MOE's
4:00 - 5:00 PM

INTERSTATE 95 NORTHBOUND →

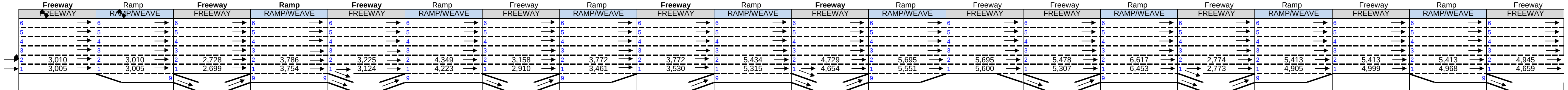


Overall Segment

Link	Segment	GEH Value	Actual Volumes	Simulated Volumes	Distance (ft)	Speed (mph)	Level of Service	Density (pc/ln/mi)
302	FREEWAY	0.1	3,010	3,005	1,093	57.8	B	17.4
328	RAMP/WEAVE	0.1	3,010	3,005	304	55.7	B	13.2
400	FREEWAY	0.6	2,728	2,699	2,111	58.1	B	15.5
304	RAMP/WEAVE	0.5	3,786	3,754	1,072	55.3	B	17.1
403	FREEWAY	1.8	3,225	3,124	732	56.1	C	18.8
306	RAMP/WEAVE	1.9	4,349	4,223	1,677	51.2	C	20.7
307	FREEWAY	4.5	3,158	2,910	1,440	48.2	C	20.1
308	RAMP/WEAVE	5.2	3,772	3,461	198	32.4	D	26.3
309	FREEWAY	4.0	3,772	3,530	1,172	45.3	D	27.0
337	RAMP/WEAVE	1.6	5,434	5,315	1,027	39.1	E	36.8
339	FREEWAY	1.1	4,729	4,654	1,424	31.5	F	52.6
341	RAMP/WEAVE	1.9	5,695	5,551	279	24.3	F	56.8
311	FREEWAY	1.3	5,695	5,600	9,541	33.6	F	56.7
315	FREEWAY	2.3	5,478	5,307	2,400	33.7	F	56.1
317	RAMP/WEAVE	2.0	6,617	6,453	1,615	37.5	E	44.8
319	FREEWAY	0.0	2,774	2,773	4,679	54.9	B	17.1
349	RAMP/WEAVE	7.1	5,413	4,905	295	39.9	D	30.9
350	FREEWAY	5.7	5,413	4,999	630	48.9	D	34.2
426	RAMP/WEAVE	6.2	5,413	4,968	141	47.0	C	24.3
581	FREEWAY	4.1	4,945	4,659	949	55.0	D	28.2

Link	Ramp	GEH Value	Actual Ramp Volumes	Simulated Ramp Volumes
420	To Downtown Expy	1.3	281 vph	303 vph
402	From Downtown Expy	0.1	1,058 vph	1,053 vph
405	To Broad St/Oliver Hill Way	1.7	561 vph	603 vph
404	From Broad St	1.1	1,124 vph	1,088 vph
408	To I-64 EB	3.3	1,192 vph	1,309 vph
412	From 7th St	0.2	614 vph	619 vph
413	From I-64 WB	3.0	1,662 vph	1,787 vph
414	To Chamberlayne Ave	1.9	705 vph	654 vph
415	From Belvedere NB	0.6	965 vph	947 vph
416	To Hermitage Rd	5.2	217 vph	300 vph
436	From N Blvd	0.2	1,138 vph	1,132 vph
318	To I-64	2.7	3,843 vph	3,679 vph
444	From I-64	8.2	2,639 vph	2,234 vph
442	To Westbrook Ave	3.9	469 vph	389 vph

INTERSTATE 95 NORTHBOUND →



Link		Segment	Actual Volumes	Simulated Volumes	Distance (ft)
302	Freeway	FREEWAY	3,010	3,005	1,093
328	Ramp	RAMP/WEAVE	3,010	3,005	304
400	Freeway	FREEWAY	2,728	2,699	2,111
304	Ramp	RAMP/WEAVE	3,786	3,754	1,072
403	Freeway	FREEWAY	3,225	3,124	732
306	Ramp	RAMP/WEAVE	4,349	4,223	1,677
307	Freeway	FREEWAY	3,158	2,910	1,440
308	Ramp	RAMP/WEAVE	3,772	3,461	198
309	Freeway	FREEWAY	3,772	3,530	1,172
337	Ramp	RAMP/WEAVE	5,434	5,315	1,027
339	Freeway	FREEWAY	4,729	4,654	1,424
341	Ramp	RAMP/WEAVE	5,695	5,551	279
311	Freeway	FREEWAY	5,695	5,600	9,541
315	Freeway	FREEWAY	5,478	5,307	2,400
317	Ramp	RAMP/WEAVE	6,617	6,453	1,615
319	Freeway	FREEWAY	2,774	2,773	4,679
349	Ramp	RAMP/WEAVE	5,413	4,905	295
350	Freeway	FREEWAY	5,413	4,999	630
426	Ramp	RAMP/WEAVE	5,413	4,968	141
581	Freeway	FREEWAY	4,945	4,659	949

Lane 6, Lane 5, Lane 4 and the second Accel/Decl/ Auxiliary rows (Speed (mph), Level of Service, Density (pc/ln/mi)) are blank for all links.

Link	Lane 3 Speed (mph)	Lane 3 Level of Service	Lane 3 Density (pc/ln/mi)	Lane 2 Speed (mph)	Lane 2 Level of Service	Lane 2 Density (pc/ln/mi)	Lane 1 Speed (mph)	Lane 1 Level of Service	Lane 1 Density (pc/ln/mi)	Accel/Decl/ Auxiliary Speed (mph)	Accel/Decl/ Auxiliary Level of Service	Accel/Decl/ Auxiliary Density (pc/ln/mi)
302	58.3	B	14.7	58.6	B	15.8	56.5	C	21.5			
328	58.1	B	14.9	58.2	B	16.1	55.6	B	18.1	50.8	A	3.8
400	58.5	B	12.7	58.4	B	16.2	57.5	B	17.6			
304	58.4	B	12.5	56.2	B	15.6	53.1	D	28.7	53.4	B	11.6
403	57.9	B	13.8	57.5	B	14.8	53.0	D	27.8			
306	54.9	B	17.6	52.6	B	19.6	48.9	C	20.3	48.6	C	25.4
307	52.1	C	19.7	48.1	C	20.6	44.5	C	20.1			
308	43.1	C	26.1	36.5	C	26.3	30.1	E	35.8	19.7	B	17.2
309	43.6	D	27.3	46.8	D	26.4	45.6	D	27.3			
337	42.6	D	32.5	39.7	E	39.4	38.1	F	48.4	35.9	C	26.9
339	37.2	F	49.3	30.8	F	53.5	26.6	F	55.0			
341	35.1	F	56.4	28.4	F	62.0	21.5	F	64.8	12.1	F	44.2
311	35.2	F	56.5	33.7	F	57.9	32.1	F	55.5			
315	43.5	E	40.0	31.4	F	49.0	26.1	F	79.4			
317	47.6	D	33.4	36.2	D	29.5	31.7	F	61.5	34.4	F	54.7
319	53.9	C	24.7	54.0	C	22.7	56.9	A	3.7			
349	48.7	C	27.1	42.6	D	28.7	36.6	F	44.5	31.8	C	23.4
350	53.8	D	31.6	50.2	E	35.2	42.8	E	35.9			
426	56.1	D	32.2	54.7	D	32.4	44.6	C	26.9	32.7	A	5.9
581	55.3	D	32.3	55.5	D	30.0	54.4	C	22.3			

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	🟥 45 and above
LOS	E	🟧 35 to 45
LOS	D	🟨 26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	🟥 43 and above
LOS	E	🟧 35 to 43
LOS	D	🟨 28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

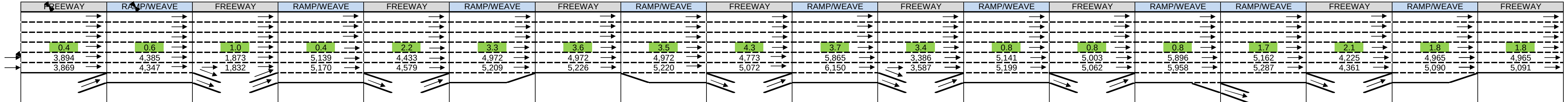
Density above	🟪 75	pc/ln/mi
Density above	🟦 55	pc/ln/mi
Density above	🟩 43	pc/ln/mi

Kimley-Horn
and Associates, Inc.

Figure A-19
I-64 and I-95 Overlap Report
Northbound I-95
2011 Existing Scenario - PM Peak Hour MOE's
5:00 - 6:00 PM

INTERSTATE 95 SOUTHBOUND →

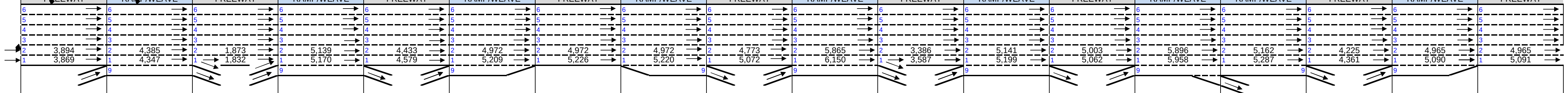
Overall Segment



	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
	0.4	0.6	1.0	0.4	2.2	3.3	3.6	3.5	4.3	3.7	3.4	0.8	0.8	0.8	1.7	2.1	1.8	1.8
Actual Volumes	3,894	4,385	1,873	5,139	4,433	4,972	4,972	4,972	4,773	5,865	3,386	5,141	5,003	5,896	5,162	4,225	4,965	4,965
Simulated Volumes	3,869	4,347	1,832	5,170	4,579	5,209	5,226	5,220	5,072	6,150	3,587	5,199	5,062	5,958	5,287	4,361	5,090	5,091
Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Speed (mph)	57.5	53.6	56.3	56.5	52.9	28.5	54.6	49.7	46.2	41.3	56.6	49.5	49.0	32.8	48.4	52.6	45.0	55.6
Level of Service	C	C	A	C	D	F	D	D	E	E	C	D	E	F	D	D	D	D
Density (pc/ln/mi)	22.9	20.8	10.9	22.9	29.1	46.3	32.0	28.9	39.3	38.1	21.1	26.1	35.1	45.7	27.2	28.2	27.5	30.5
	354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

			Actual Ramp Volumes	Simulated Ramp Volumes	
From	Hermitage Rd	0.1	491 vph	490 vph	446
To	I-64/I-195	0.2	2,512 vph	2,502 vph	359
From	I-64/I-195	0.5	3,266 vph	3,297 vph	452
To	N Blvd	4.3	706 vph	597 vph	481
From	Robin Hood Rd	3.0	539 vph	610 vph	497
To	Leigh St	2.2	201 vph	171 vph	486
From	Belvidere St	0.4	1,092 vph	1,080 vph	585
To	I-64 EB/3rd St	1.5	2,479 vph	2,552 vph	498
From	I-64/7th St	3.9	1,755 vph	1,594 vph	507
To	Broad St	0.2	138 vph	136 vph	509
From	Broad St	0.5	893 vph	878 vph	512
To	Franklin St	3.0	734 vph	655 vph	517
To	Downtown Expy	0.2	937 vph	942 vph	519
From	Downtown Expy	0.0	740 vph	739 vph	520

INTERSTATE 95 SOUTHBOUND →



		Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Ramp	Freeway	Ramp	Freeway
		FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	RAMP/WEAVE	FREEWAY	RAMP/WEAVE	FREEWAY
	Actual Volumes	3,894	4,385	1,873	5,139	4,433	4,972	4,972	4,972	4,773	5,865	3,386	5,141	5,003	5,896	5,162	4,225	4,965	4,965
	Simulated Volumes	3,869	4,347	1,832	5,170	4,579	5,209	5,226	5,220	5,072	6,150	3,587	5,199	5,062	5,958	5,287	4,361	5,090	5,091
	Distance (ft)	2,107	1,569	2,797	1,791	3,395	164	7,018	844	1,967	789	3,558	1,011	1,327	722	1,038	1,202	454	1,240
Lane 6	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 5	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 4	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
Lane 3	Speed (mph)	59.1	56.8	56.4	58.4	55.3	43.5	55.6	52.4	52.8	48.0	56.1	55.7	53.6	44.4	51.2	53.3	51.9	56.5
	Level of Service	B	B	B	B	C	E	D	D	D	E	C	C	D	F	E	D	D	D
	Density (pc/ln/mi)	11.7	14.5	15.1	18.3	23.1	41.3	33.0	32.7	32.5	36.1	23.0	22.5	30.3	44.9	36.2	33.1	34.0	32.5
Lane 2	Speed (mph)	58.5	54.7	56.1	56.9	52.5	34.0	54.5	47.9	47.0	40.6	56.6	50.5	49.4	32.7	49.0	52.6	48.7	55.9
	Level of Service	B	B	B	C	D	F	D	E	D	D	C	D	D	F	D	D	D	D
	Density (pc/ln/mi)	15.3	16.1	15.1	26.4	30.7	46.4	33.7	36.2	30.0	32.5	22.2	32.8	30.6	43.2	28.6	27.8	33.9	30.7
Lane 1	Speed (mph)	54.8	50.9	56.3	55.4	50.8	27.5	53.6	42.9	38.9	37.7	57.2	47.6	44.0	27.0	46.6	51.7	46.8	54.5
	Level of Service	E	D	A	D	D	F	D	F	F	F	C	E	E	F	C	C	D	D
	Density (pc/ln/mi)	41.7	30.9	2.4	32.0	33.4	52.8	29.3	43.8	55.3	48.3	18.2	39.5	44.5	49.3	24.6	23.8	31.6	28.3
Accel/Decel/ Auxiliary	Speed (mph)		51.8		55.3		8.9		55.8		39.0		44.2		27.2	47.0		32.4	
	Level of Service		C		B		F		A		E		A		F	B		B	
	Density (pc/ln/mi)		21.9		14.9		44.6		2.6		35.6		9.6		45.7	19.6		10.5	
Accel/Decel/ Auxiliary	Speed (mph)																		
	Level of Service																		
	Density (pc/ln/mi)																		
		354	356	365	384	387	441	386	390	394	397	292	291	510	289	286	284	283	297

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

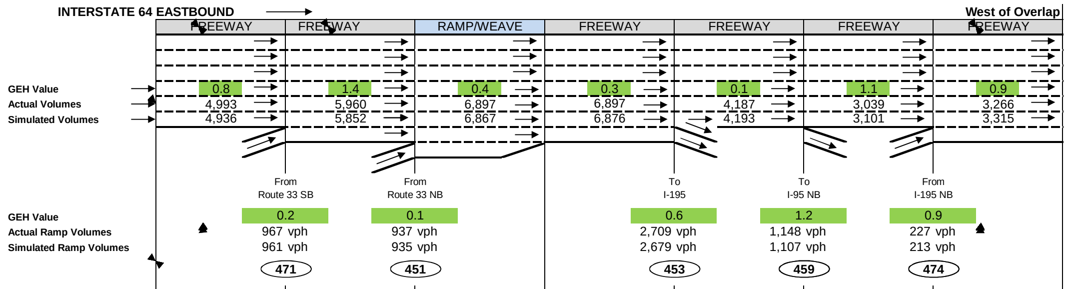
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-20
I-64 and I-95 Overlap Report
Southbound I-95
2011 Existing Scenario - PM Peak Hour MOE's
5:00 - 6:00 PM

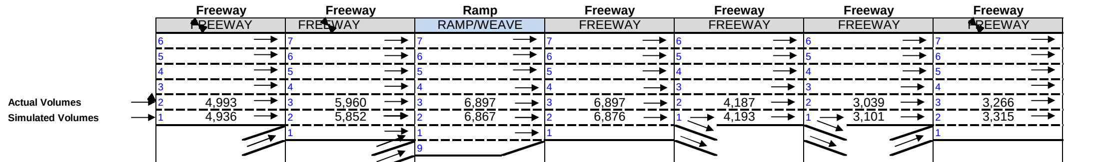
INTERSTATE 64 EASTBOUND →



	376	372	374	375	377	462	480
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY
GEH Value	0.8	1.4	0.4	0.3	0.1	1.1	0.9
Actual Volumes	4,993	5,960	6,897	6,897	4,187	3,039	3,266
Simulated Volumes	4,936	5,852	6,867	6,876	4,193	3,101	3,315
Distance (ft)	447	1,096	1,402	3,024	1,068	465	369
Speed (mph)	50.2	44.1	41.5	44.8	45.5	52.8	43.4
Level of Service	D	D	D	E	D	D	C
Density (pc/ln/mi)	33.5	34.1	34.5	39.5	31.6	29.4	23.0

	471	451	453	459	474
	From Route 33 SB	From Route 33 NB	To I-195	To I-95 NB	From I-195 NB
GEH Value	0.2	0.1	0.6	1.2	0.9
Actual Ramp Volumes	967 vph	937 vph	2,709 vph	1,148 vph	227 vph
Simulated Ramp Volumes	961 vph	935 vph	2,679 vph	1,107 vph	213 vph

INTERSTATE 64 EASTBOUND →



		376	372	374	375	377	462	480
		Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway
	Actual Volumes	4,993	5,960	6,897	6,897	4,187	3,039	3,266
	Simulated Volumes	4,936	5,852	6,867	6,876	4,193	3,101	3,315
	Distance (ft)	447	1,096	1,402	3,024	1,068	465	369
Lane 6	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 5	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
Lane 4	Speed (mph)		50.8	53.8	51.4			
	Level of Service		D	C	C			
	Density (pc/ln/mi)		28.6	23.1	20.6			
Lane 3	Speed (mph)	53.1	47.0	50.4	45.4	46.1		50.3
	Level of Service	D	D	D	F	C		D
	Density (pc/ln/mi)	26.9	27.7	33.0	45.8	25.4		32.1
Lane 2	Speed (mph)	51.2	41.8	36.8	41.5	44.9	52.6	47.5
	Level of Service	D	E	F	F	E	D	D
	Density (pc/ln/mi)	26.2	42.6	52.0	49.7	38.7	30.6	33.6
Lane 1	Speed (mph)	46.2	36.8	32.7	41.0	45.4	53.1	32.2
	Level of Service	F	E	F	E	D	D	A
	Density (pc/ln/mi)	47.6	37.4	52.7	41.9	30.8	28.1	3.3
Accel/Decl/ Auxillary	Speed (mph)			33.5				
	Level of Service			B				
	Density (pc/ln/mi)			11.5				
Accel/Decl/ Auxillary	Speed (mph)							
	Level of Service							
	Density (pc/ln/mi)							
		376	372	374	375	377	462	480

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

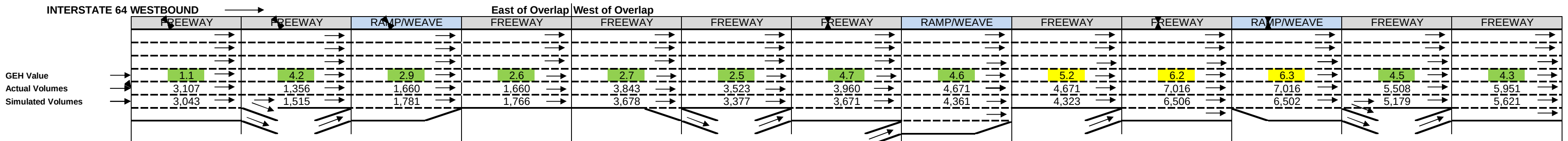
Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-21
I-64 and I-95 Overlap Report
Eastbound I-64
2011 Existing Scenario - PM Peak Hour MOE's
5:00 - 6:00 PM

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



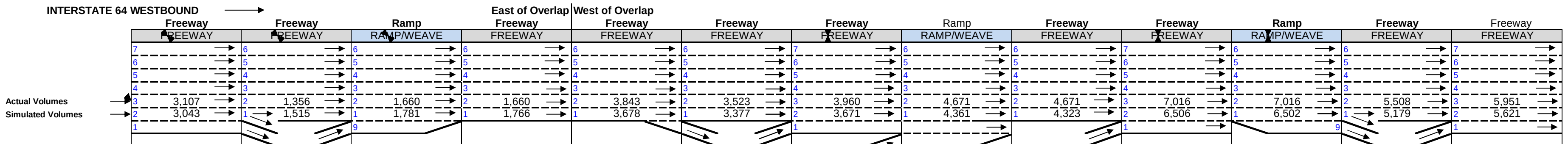
Overall Segment

	332	526	531	584	418	425	320	321	322	324	326	327	367
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	1.1	4.2	2.9	2.6	2.7	2.5	4.7	4.6	5.2	6.2	6.3	4.5	4.3
Actual Volumes	3,107	1,356	1,660	1,660	3,843	3,523	3,960	4,671	4,671	7,016	7,016	5,508	5,951
Simulated Volumes	3,043	1,515	1,781	1,766	3,678	3,377	3,671	4,361	4,323	6,506	6,502	5,179	5,621
Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966
Speed (mph)	51.7	40.8	23.1	37.4	53.5	55.0	57.8	55.2	55.9	56.0	52.4	53.8	55.6
Level of Service	C	C	C	F	D	D	C	C	C	D	C	C	C
Density (pc/ln/mi)	22.5	23.8	22.2	48.7	34.4	30.7	21.3	19.3	25.8	29.1	25.1	24.1	20.1

	448	530	445	447	419	421	427	450
	To I-95 SB/5th St	From 5th St	To I-195 SB	From Laburnum Ave	From I-95 SB	From I-195 NB	To Route 33	From Route 33
GEH Value	5.3	0.8	1.2	7.5	0.3	4.3	4.7	0.0
Actual Ramp Volumes	1,751 vph	304 vph	321 vph	437 vph	711 vph	2,339 vph	1,508 vph	443 vph
Simulated Ramp Volumes	1,535 vph	290 vph	299 vph	293 vph	704 vph	2,134 vph	1,329 vph	442 vph

INTERSTATE 64 WESTBOUND →

East of Overlap | West of Overlap



	332	526	531	584	418	425	320	321	322	324	326	327	367
	Freeway	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway	Ramp	Freeway	Freeway	Ramp	Freeway	Freeway
	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
Actual Volumes	3,107	1,356	1,660	1,660	3,843	3,523	3,960	4,671	4,671	7,016	7,016	5,508	5,951
Simulated Volumes	3,043	1,515	1,781	1,766	3,678	3,377	3,671	4,361	4,323	6,506	6,502	5,179	5,621
Distance (ft)	1,203	796	259	173	759	579	880	497	283	2,437	1,310	834	966

		332	526	531	584	418	425	320	321	322	324	326	327	367
Lane 6	Speed (mph)													
	Level of Service													
	Density (pc/ln/mi)													
Lane 5	Speed (mph)													55.1
	Level of Service													C
	Density (pc/ln/mi)													23.9
Lane 4	Speed (mph)										54.8	51.6	52.9	56.6
	Level of Service										C	C	C	C
	Density (pc/ln/mi)										27.3	26.8	25.9	25.6
Lane 3	Speed (mph)	55.0						56.8	57.7	56.9	57.2	52.9	54.2	57.2
	Level of Service	C						C	C	C	C	D	C	C
	Density (pc/ln/mi)	23.3						26.3	23.9	22.6	26.1	28.6	27.2	23.7
Lane 2	Speed (mph)	52.3	42.6	14.8		52.9	55.0	57.2	56.8	55.7	56.6	50.9	54.6	56.8
	Level of Service	B	A	A		D	C	C	C	D	C	D	C	B
	Density (pc/ln/mi)	10.4	5.2	7.1		33.2	27.2	26.3	27.3	29.5	27.7	28.3	25.1	17.6
Lane 1	Speed (mph)	47.8	39.0	33.3	37.4	54.1	54.9	59.3	56.3	55.1	55.3	50.9	53.5	52.2
	Level of Service	D	E	F	F	E	D	B	C	C	E	D	B	A
	Density (pc/ln/mi)	33.8	42.4	51.3	48.7	35.5	34.2	11.4	21.4	25.3	35.2	30.5	18.1	9.6
Accel/Decl/ Auxillary	Speed (mph)			21.3					49.9			55.8		
	Level of Service			A					A			B		
	Density (pc/ln/mi)			8.0					4.7			11.1		
Accel/Decl/ Auxillary	Speed (mph)													
	Level of Service													
	Density (pc/ln/mi)													

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

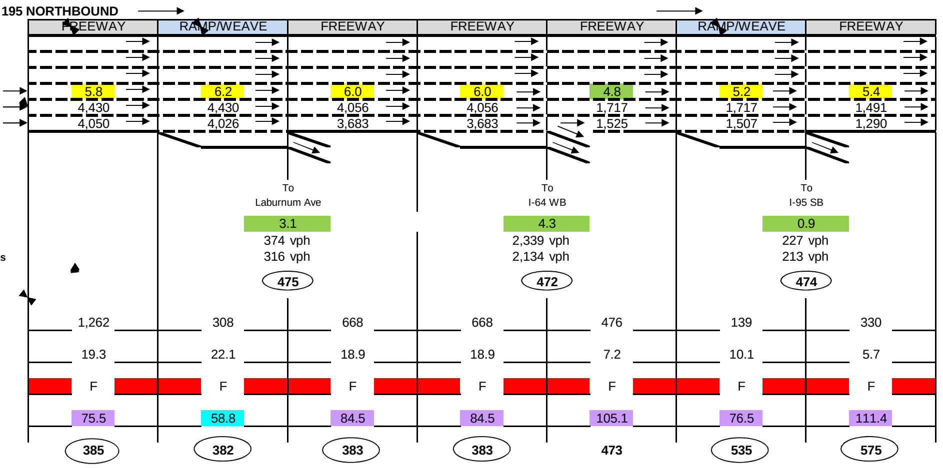
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-22
I-64 and I-95 Overlap Report
Westbound I-64
2011 Existing Scenario - PM Peak Hour MOE's
5:00 - 6:00 PM

INTERSTATE 195 NORTHBOUND



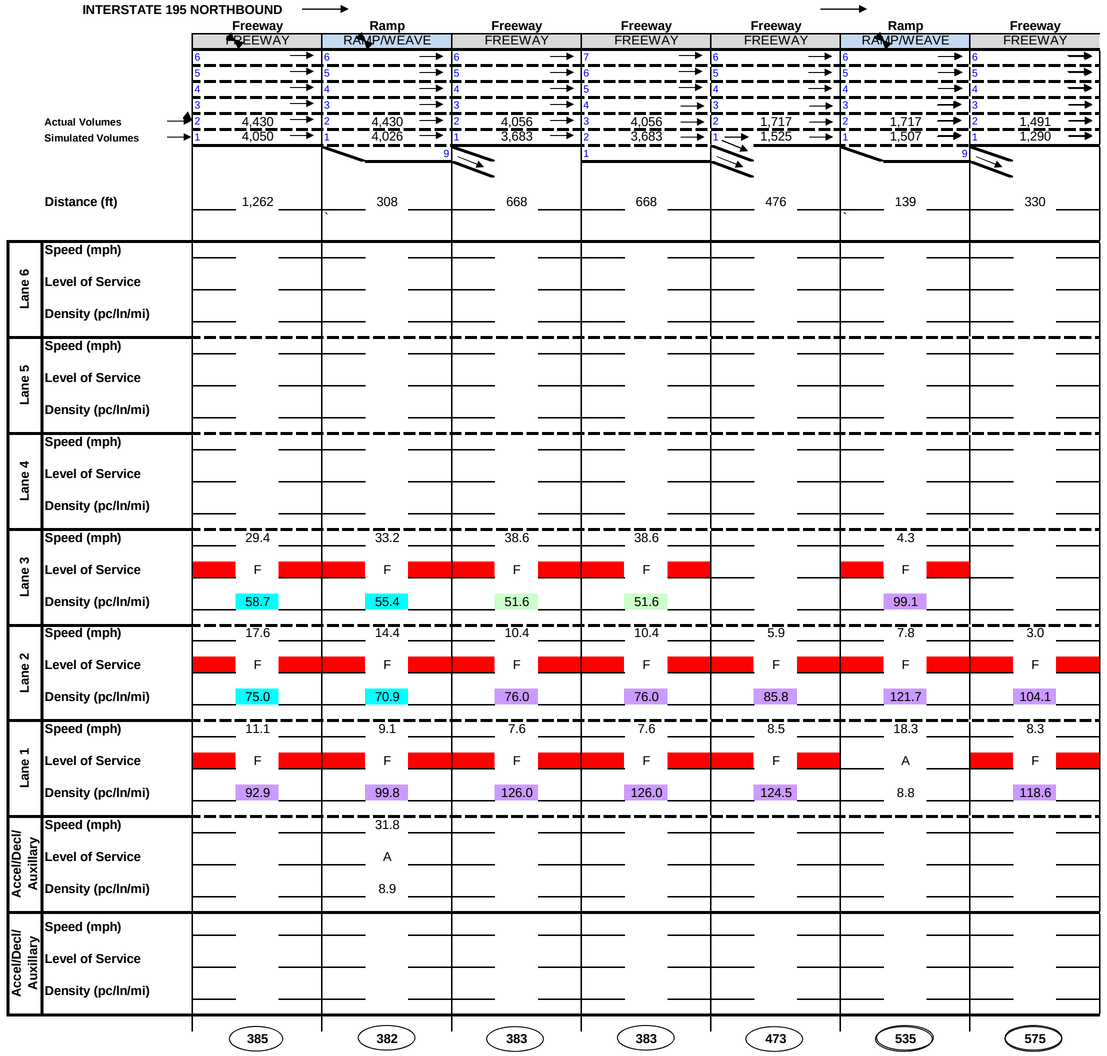
Overall Segment

	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY
GEH Value	5.8	6.2	6.0	6.0	4.8	5.2	5.4
Actual Volumes	4,430	4,430	4,056	4,056	1,717	1,717	1,491
Simulated Volumes	4,050	4,026	3,683	3,683	1,525	1,507	1,290

	To Laburnum Ave	To I-64 WB	To I-95 SB
GEH Value	3.1	4.3	0.9
Actual Ramp Volumes	374 vph	2,339 vph	227 vph
Simulated Ramp Volumes	316 vph	2,134 vph	213 vph
	475	472	474

Distance (ft)	1,262	308	668	668	476	139	330
Speed (mph)	19.3	22.1	18.9	18.9	7.2	10.1	5.7
Level of Service	F	F	F	F	F	F	F
Density (pc/ln/mi)	75.5	58.8	84.5	84.5	105.1	76.5	111.4
	385	382	383	383	473	535	575

INTERSTATE 195 NORTHBOUND



	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY	Freeway FREEWAY	Freeway FREEWAY	Ramp RAMP/WEAVE	Freeway FREEWAY
Actual Volumes	4,430	4,430	4,056	4,056	1,717	1,717	1,491
Simulated Volumes	4,050	4,026	3,683	3,683	1,525	1,507	1,290
Distance (ft)	1,262	308	668	668	476	139	330
Lane 6 Speed (mph)							
Lane 6 Level of Service							
Lane 6 Density (pc/ln/mi)							
Lane 5 Speed (mph)							
Lane 5 Level of Service							
Lane 5 Density (pc/ln/mi)							
Lane 4 Speed (mph)							
Lane 4 Level of Service							
Lane 4 Density (pc/ln/mi)							
Lane 3 Speed (mph)	29.4	33.2	38.6	38.6		4.3	
Lane 3 Level of Service	F	F	F	F		F	
Lane 3 Density (pc/ln/mi)	58.7	55.4	51.6	51.6		99.1	
Lane 2 Speed (mph)	17.6	14.4	10.4	10.4	5.9	7.8	3.0
Lane 2 Level of Service	F	F	F	F	F	F	F
Lane 2 Density (pc/ln/mi)	75.0	70.9	76.0	76.0	85.8	121.7	104.1
Lane 1 Speed (mph)	11.1	9.1	7.6	7.6	8.5	18.3	8.3
Lane 1 Level of Service	F	F	F	F	F	A	F
Lane 1 Density (pc/ln/mi)	92.9	99.8	126.0	126.0	124.5	8.8	118.6
Accel/Decl/ Auxillary Speed (mph)		31.8					
Accel/Decl/ Auxillary Level of Service		A					
Accel/Decl/ Auxillary Density (pc/ln/mi)		8.9					
Accel/Decl/ Auxillary Speed (mph)							
Accel/Decl/ Auxillary Level of Service							
Accel/Decl/ Auxillary Density (pc/ln/mi)							
	385	382	383	383	473	535	575

LEGEND

500 Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

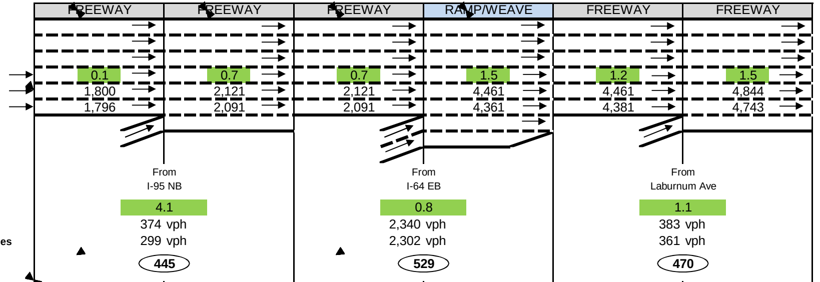
Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn and Associates, Inc.

Figure A-23
I-64 and I-95 Overlap Report
Northbound I-195
2011 Existing Scenario - PM Peak Hour MOE's
5:00 - 6:00 PM

INTERSTATE 195 SOUTHBOUND →

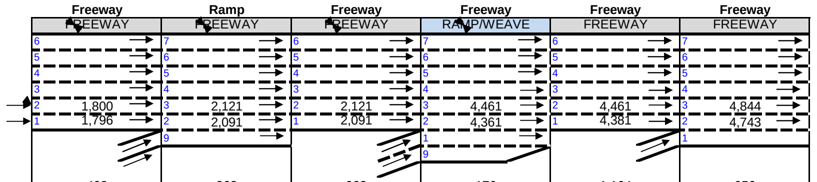


Overall Segment

	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
GEH Value	0.1	0.7	0.7	1.5	1.2	1.5
Actual Volumes	1,800	2,121	2,121	4,461	4,461	4,844
Simulated Volumes	1,796	2,091	2,091	4,361	4,381	4,743
Distance (ft)	408	962	962	176	1,164	956
Speed (mph)	53.9	50.7	50.7	30.7	46.8	56.3
Level of Service	D	C	C	D	D	C
Density (pc/ln/mi)	33.3	20.7	20.7	35.0	31.2	21.1
	467	469	469	378	379	380

	From I-95 NB	From I-64 EB	From Laburnum Ave
GEH Value	4.1	0.8	1.1
Actual Ramp Volumes	374 vph	2,340 vph	383 vph
Simulated Ramp Volumes	299 vph	2,302 vph	361 vph
	445	529	470

INTERSTATE 195 SOUTHBOUND →



	Freeway	Ramp	Freeway	Freeway	Freeway	Freeway
	FREEWAY	FREEWAY	FREEWAY	RAMP/WEAVE	FREEWAY	FREEWAY
Actual Volumes	1,800	2,121	2,121	4,461	4,461	4,844
Simulated Volumes	1,796	2,091	2,091	4,361	4,381	4,743
Distance (ft)	408	962	962	176	1,164	956

Lane 6	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 5	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
Lane 4	Speed (mph)						55.2
	Level of Service						C
	Density (pc/ln/mi)						24.6
Lane 3	Speed (mph)				45.3	45.4	55.9
	Level of Service				D	D	C
	Density (pc/ln/mi)				28.1	32.7	25.1
Lane 2	Speed (mph)		52.9	52.9	33.8	47.4	56.9
	Level of Service		B	C	E	D	C
	Density (pc/ln/mi)		18.1	18.1	37.4	31.2	22.9
Lane 1	Speed (mph)	53.9	48.6	48.6	28.9	47.6	57.2
	Level of Service	D	C	C	F	D	B
	Density (pc/ln/mi)	33.3	23.3	23.3	51.2	29.8	11.9
Accel/Decl/ Auxillary	Speed (mph)				14.9		
	Level of Service				C		
	Density (pc/ln/mi)				23.3		
Accel/Decl/ Auxillary	Speed (mph)						
	Level of Service						
	Density (pc/ln/mi)						
		467	469	469	378	379	380

LEGEND

(500) Link Number

LOS		Freeway Density (pc/ln/mi)
LOS	F	45 and above
LOS	E	35 to 45
LOS	D	26 to 35
LOS	C	18 to 26
LOS	B	11 to 18
LOS	A	0 to 11

LOS		Weave/Ramp Density (pc/ln/mi)
LOS	F	43 and above
LOS	E	35 to 43
LOS	D	28 to 35
LOS	C	20 to 28
LOS	B	10 to 20
LOS	A	0 to 10

Freeway, Weave, and Ramp Density Coloring

Degrees of LOS F:

Density above	75	pc/ln/mi
Density above	55	pc/ln/mi
Density above	43	pc/ln/mi

Kimley-Horn
and Associates, Inc.

Figure A-24
I-64 and I-95 Overlap Report
Southbound I-195
2011 Existing Scenario - PM Peak Hour MOE's
5:00 - 6:00 PM