



October 16, 2014

Mr. Daniel Sorrow  
Cotleur & Hearing, Inc.  
1934 Commerce Lane, Suite 1  
Jupiter, Florida 33458

Re: Traffic Impact Analysis: Square Grouper  
Fort Pierce, Florida

Dear Mr. Sorrow:

It is proposed to construct 4,846 square feet of high turnover sit-down restaurant on the north side of Seaway Drive, just west of South Ocean Drive in Fort Pierce, Florida. Kimley-Horn and Associates, Inc. was retained to provide a traffic impact evaluation for the site. The parcel ID for the site is 2401-501-0035-000-9. Figure 1 shows the site location.

### **Trip Generation Analysis**

The trip generation potential for the proposed restaurant was calculated using rates and equations found in the Institute of Transportation Engineers' (ITE) *Trip Generation, 9<sup>th</sup> Edition* for a weekday. As indicated in Table 1, the proposed restaurant is expected to result in an increase of 351 net new external daily trips, 30 net new AM peak hour trips (17 in, 13 out) and 27 net new PM peak hour trips (17 in, 10 out).

### **Trip Assignment & Significance Determination**

The trips generated by the proposed restaurant were then distributed to the roadways in the vicinity of the site based on a review of land uses in the area. The following distribution was assumed:

South	–	15%
West	–	85%

The project trip distribution can be seen in Figure 2. After the project trips were assigned to the adjacent roadways, the project traffic volumes were compared to the level of service 'D' threshold for each roadway at a one percent significance threshold. LOS D volumes were obtained from the 2012 *FDOT Quality/Level of Service Handbook*. The results of this analysis are included in Table 2. As shown in the table, Seaway Drive west of the project will be significantly impacted (i.e. project traffic represents greater than one percent of the level of service volume) during both the AM and PM peak hours in the eastbound direction. Therefore, further roadway link analysis was undertaken.

### **Roadway Link Analysis**

A capacity analysis was performed for the significantly impacted link for the AM and PM peak hours. 2013 traffic volumes and peak season adjustment factors were obtained from FDOT. Future 2015 traffic volumes were projected for the links by combining the 2013 traffic volumes, peak season adjustment factors, a nominal growth rate of 1%, and project traffic. The results of the capacity analysis are shown in Table 3. As shown in the table, the significantly impacted link is expected to operate acceptably through buildout in 2015 during the AM and PM peak hours.

## Driveway Operations

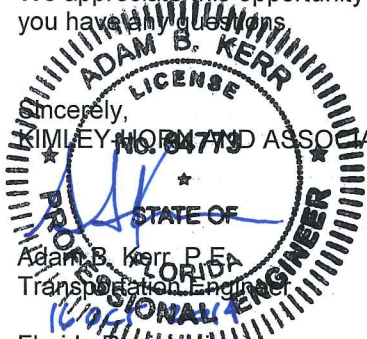
The site is proposed to be accessed by one full access driveway on Seaway Drive. The projected driveway volumes associated with the proposed restaurant are shown in Figure 3. Based on the inbound turning movement volumes, no turn lanes are recommended.

## Conclusion

The foregoing analysis demonstrates that the proposed development is expected to have a significant impact on Seaway Drive, west of the site, at a one percent significance threshold. The link was analyzed for capacity using 2013 traffic counts obtained from FDOT. Based on the analysis, the link is expected to operate acceptably through buildout in 2015. Furthermore, no turn lanes are recommended at the site driveway.

We appreciate this opportunity to work with you on this project. Please contact me at 561-840-0874 if you have any questions.

Sincerely,  
KIMLEY HORN AND ASSOCIATES, INC.



Adam B. Kerr, P.E.  
Transportation Engineer  
Florida Registration  
Number 64773  
Certificate of Authorization  
Number CA00000696

ABK/JWH

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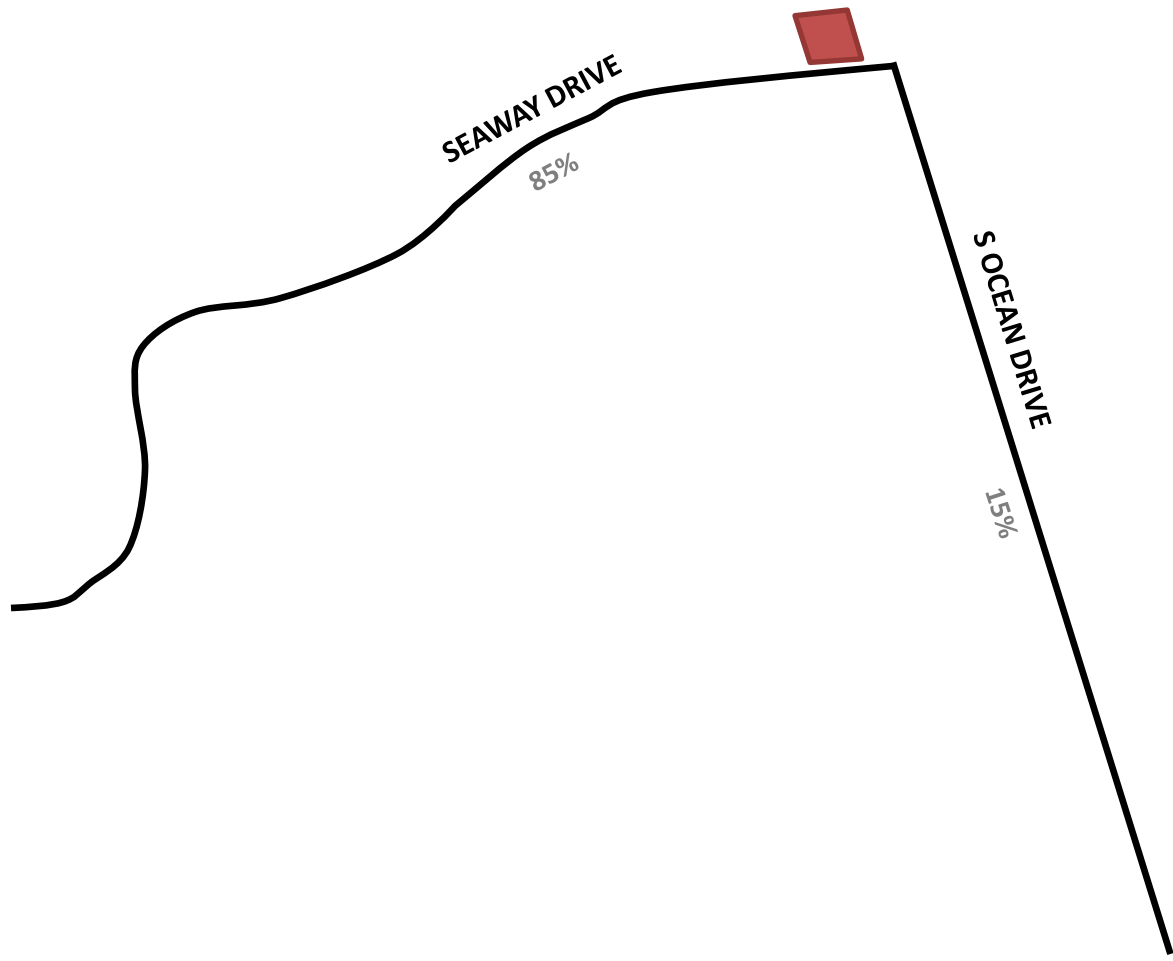
**LEGEND**

 PROJECT SITE

**FIGURE 1**  
**SITE LOCATION**  
**SQUARE GROUPER**

**TABLE 1  
TRIP GENERATION COMPARISON  
SQUARE GROUPER: FORT PIERCE**

LAND USE	INTENSITY	DAILY TRIPS	AM PEAK HOUR			PM PEAK HOUR		
			TOTAL	IN	OUT	TOTAL	IN	OUT
<b>Proposed Development</b>								
High Turnover Sit-Down Restaurant	4,846 s.f.	616	52	29	23	48	29	19
<b>Pass-By Traffic</b>								
High Turnover Sit-Down Restaurant	43%	265	22	12	10	21	12	9
<b>Net New External Trips</b>		<b>351</b>	<b>30</b>	<b>17</b>	<b>13</b>	<b>27</b>	<b>17</b>	<b>10</b>
<b>Daily Trips</b>								
High Turnover Sit-Down Restaurant	[ITE 932]	=	127.15 trips / 1,000 s.f.					
<b>AM Peak Hour</b>								
High Turnover Sit-Down Restaurant	[ITE 932]	=	10.81 trips / 1,000 s.f. (55% in, 45% out)					
<b>PM Peak Hour</b>								
High Turnover Sit-Down Restaurant	[ITE 932]	=	9.85 trips / 1,000 s.f. (60% in, 40% out)					
<b>Pass-By</b>								
High Turnover Sit-Down Restaurant	[ITE]	=	43%					



**LEGEND**



SITE

XX%

PROJECT ASSIGNMENT

**FIGURE 2**  
**TRIP ASSIGNMENT**  
**SQUARE GROUPER**

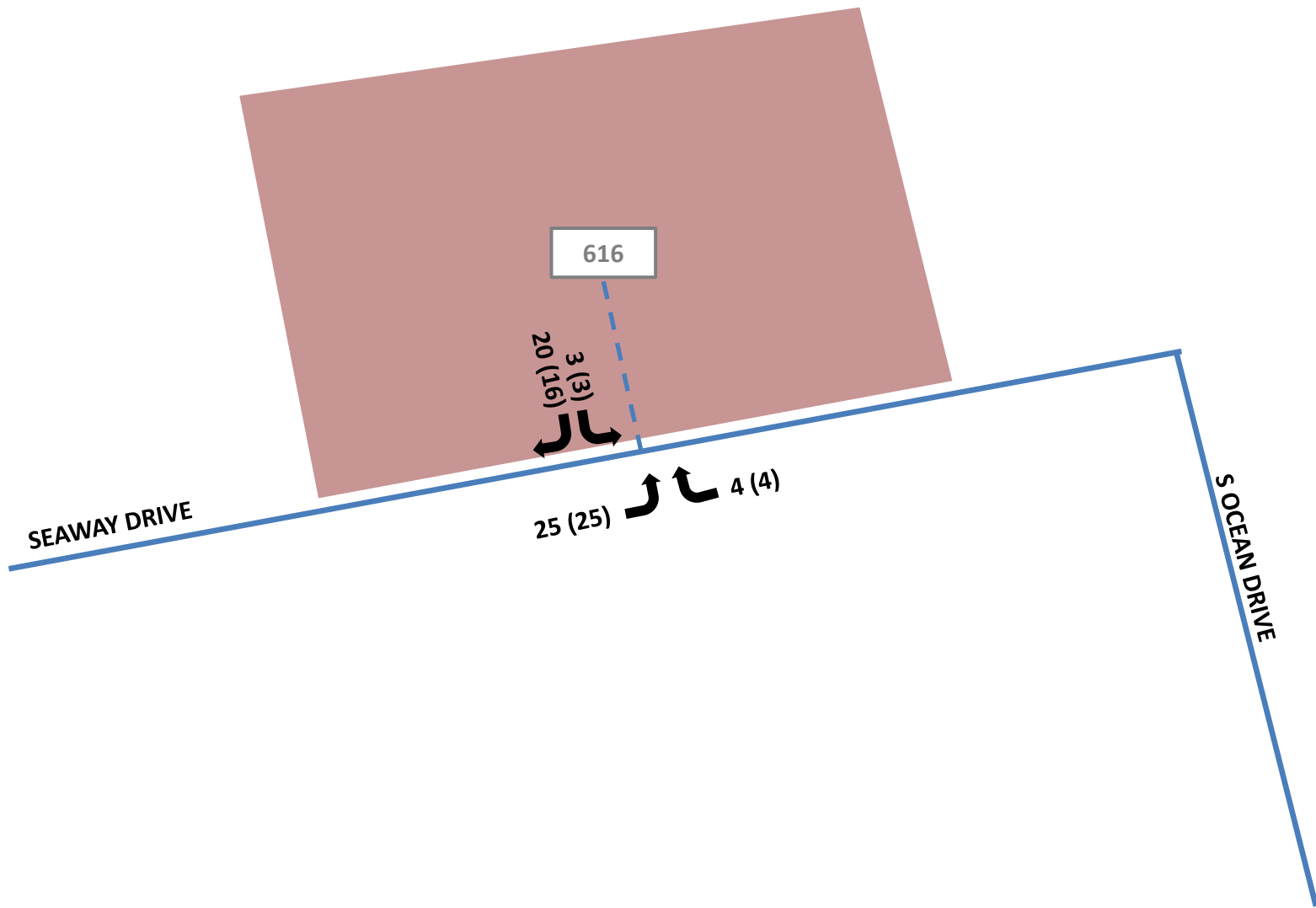
TABLE 2  
 TEST 1 SIGNIFICANCE ANALYSIS  
 SQUARE GROUPER: FORT PIERCE

ROADWAY SEGMENT	COMMITTED NUMBER OF LANES	FACILITY TYPE	LOS D GEN. SVC. VOLUME*	% ASSIGNMENT	NB/EB IN/OUT?	PROJECT TRIPS											
						AM PEAK HOUR						PM PEAK HOUR					
						TRIPS		% IMPACT		Sig?		TRIPS		% IMPACT		Sig?	
NB/EB	SB/WB	NB/EB	Sig?	SB/WB	Sig?	NB/EB	SB/WB	NB/EB	Sig?	SB/WB	Sig?						
Seaway Drive West of Project East of Project	2L	Uninterrupted	1,190	85%	i	14	11	1.18%	Yes	0.92%	No	14	9	1.18%	Yes	0.76%	No
	2L	Uninterrupted	1,190	15%	o	2	3	0.17%	No	0.25%	No	2	3	0.17%	No	0.25%	No
S Ocean Drive South of Seaway Drive	2L	Uninterrupted	1,190	43%	i	7	6	0.59%	No	0.50%	No	7	4	0.59%	No	0.34%	No

Peak Season Adjustment Factor: 1.00

**TABLE 3  
CAPACITY ANALYSIS  
SQUARE GROUPER: FORT PIERCE**

From	To	Existing			Direction	Significantly Impacted?	Year 2013 Traffic Volume	Peak Season Volume	Growth Rate	Growth	Project Traffic	2015 Total Traffic	Meets Standard ??
		Lanes	Facility Type	LOS D Service Volume									
<b>AM PEAK HOUR</b>													
Seaway Drive	West of Project	2L	Uninterrupted	1190	EB	YES	309	309	1.00%	6	14	329	Yes
<b>PM PEAK HOUR</b>													
Seaway Drive	West of Project	2L	Uninterrupted	1190	EB	YES	577	577	1.00%	12	14	603	Yes
<b>Notes:</b>													
(1) The generalized service capacities, existing peak hour traffic volumes, and peak season adjustment factors were obtained from FDOT.													



**LEGEND**



SITE

XX

AM Peak Hour Volumes

(XX)

PM Peak Hour Volumes

xxx

Daily Volumes

**FIGURE 3  
DRIVEWAY VOLUMES  
SQUARE GROUPER**

**Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas<sup>1</sup>**

**TABLE 7**

12/18/12

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
<b>STATE SIGNALIZED ARTERIALS</b>						<b>FREEWAYS</b>					
<b>Class I</b> (40 mph or higher posted speed limit)						Lanes	B	C	D	E	
Lanes	Median	B	C	D	E	2	2,260	3,020	3,660	3,940	
1	Undivided	*	830	880	**	3	3,360	4,580	5,500	6,080	
2	Divided	*	1,910	2,000	**	4	4,500	6,080	7,320	8,220	
3	Divided	*	2,940	3,020	**	5	5,660	7,680	9,220	10,360	
4	Divided	*	3,970	4,040	**	6	7,900	10,320	12,060	12,500	
<b>Class II</b> (35 mph or slower posted speed limit)						<b>Freeway Adjustments</b>					
Lanes	Median	B	C	D	E	Auxiliary Lane	Ramp Metering				
1	Undivided	*	370	750	800	+ 1,000	+ 5%				
2	Divided	*	730	1,630	1,700						
3	Divided	*	1,170	2,520	2,560						
4	Divided	*	1,610	3,390	3,420						
<b>Non-State Signalized Roadway Adjustments</b> (Alter corresponding state volumes by the indicated percent.)											
Non-State Signalized Roadways - 10%											
<b>Median &amp; Turn Lane Adjustments</b>											
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors							
1	Divided	Yes	No	+5%							
1	Undivided	No	No	-20%							
Multi	Undivided	Yes	No	-5%							
Multi	Undivided	No	No	-25%							
-	-	-	Yes	+ 5%							
<b>One-Way Facility Adjustment</b> Multiply the corresponding directional volumes in this table by 1.2											
<b>BICYCLE MODE<sup>2</sup></b> (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)											
<b>Paved Shoulder/Bicycle Lane Coverage</b>						B	C	D	E		
0-49%						*	150	390	1,000		
50-84%						110	340	1,000	>1,000		
85-100%						470	1,000	>1,000	**		
<b>PEDESTRIAN MODE<sup>2</sup></b> (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)											
<b>Sidewalk Coverage</b>						B	C	D	E		
0-49%						*	*	140	480		
50-84%						*	80	440	800		
85-100%						200	540	880	>1,000		
<b>BUS MODE (Scheduled Fixed Route)<sup>3</sup></b> (Buses in peak hour in peak direction)											
<b>Sidewalk Coverage</b>						B	C	D	E		
0-84%						> 5	≥ 4	≥ 3	≥ 2		
85-100%						> 4	≥ 3	≥ 2	≥ 1		
						<b>UNINTERRUPTED FLOW HIGHWAYS</b>					
Lanes	Median	B	C	D	E						
1	Undivided	420	840	1,190	1,640						
2	Divided	1,810	2,560	3,240	3,590						
3	Divided	2,720	3,840	4,860	5,380						
<b>Uninterrupted Flow Highway Adjustments</b>											
Lanes	Median	Exclusive left lanes		Adjustment factors							
1	Divided	Yes		+5%							
Multi	Undivided	Yes		-5%							
Multi	Undivided	No		-25%							
						<sup>1</sup> Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.					
						<sup>2</sup> Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.					
						<sup>3</sup> Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.					
						* Cannot be achieved using table input value defaults.					
						** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.					
						Source: Florida Department of Transportation Systems Planning Office <a href="http://www.dot.state.fl.us/planning/systems/sm/los/default.shtm">www.dot.state.fl.us/planning/systems/sm/los/default.shtm</a>					

2013 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL  
 CATEGORY: 9400 EAST-A1A TO US1

WEEK	DATES	SF	MOCF: 0.89 PSCF
1	01/01/2013 - 01/05/2013	1.02	1.15
2	01/06/2013 - 01/12/2013	0.98	1.10
3	01/13/2013 - 01/19/2013	0.94	1.06
* 4	01/20/2013 - 01/26/2013	0.93	1.04
* 5	01/27/2013 - 02/02/2013	0.91	1.02
* 6	02/03/2013 - 02/09/2013	0.90	1.01
* 7	02/10/2013 - 02/16/2013	0.88	0.99
* 8	02/17/2013 - 02/23/2013	0.87	0.98
* 9	02/24/2013 - 03/02/2013	0.86	0.97
*10	03/03/2013 - 03/09/2013	0.86	0.97
*11	03/10/2013 - 03/16/2013	0.86	0.97
*12	03/17/2013 - 03/23/2013	0.86	0.97
*13	03/24/2013 - 03/30/2013	0.87	0.98
*14	03/31/2013 - 04/06/2013	0.89	1.00
*15	04/07/2013 - 04/13/2013	0.90	1.01
*16	04/14/2013 - 04/20/2013	0.92	1.03
17	04/21/2013 - 04/27/2013	0.95	1.07
18	04/28/2013 - 05/04/2013	0.98	1.10
19	05/05/2013 - 05/11/2013	1.01	1.13
20	05/12/2013 - 05/18/2013	1.04	1.17
21	05/19/2013 - 05/25/2013	1.05	1.18
22	05/26/2013 - 06/01/2013	1.06	1.19
23	06/02/2013 - 06/08/2013	1.07	1.20
24	06/09/2013 - 06/15/2013	1.08	1.21
25	06/16/2013 - 06/22/2013	1.10	1.24
26	06/23/2013 - 06/29/2013	1.10	1.24
27	06/30/2013 - 07/06/2013	1.10	1.24
28	07/07/2013 - 07/13/2013	1.10	1.24
29	07/14/2013 - 07/20/2013	1.11	1.25
30	07/21/2013 - 07/27/2013	1.11	1.25
31	07/28/2013 - 08/03/2013	1.11	1.25
32	08/04/2013 - 08/10/2013	1.10	1.24
33	08/11/2013 - 08/17/2013	1.10	1.24
34	08/18/2013 - 08/24/2013	1.10	1.24
35	08/25/2013 - 08/31/2013	1.11	1.25
36	09/01/2013 - 09/07/2013	1.12	1.26
37	09/08/2013 - 09/14/2013	1.12	1.26
38	09/15/2013 - 09/21/2013	1.13	1.27
39	09/22/2013 - 09/28/2013	1.11	1.25
40	09/29/2013 - 10/05/2013	1.09	1.22
41	10/06/2013 - 10/12/2013	1.07	1.20
42	10/13/2013 - 10/19/2013	1.06	1.19
43	10/20/2013 - 10/26/2013	1.05	1.18
44	10/27/2013 - 11/02/2013	1.05	1.18
45	11/03/2013 - 11/09/2013	1.04	1.17
46	11/10/2013 - 11/16/2013	1.04	1.17
47	11/17/2013 - 11/23/2013	1.04	1.17
48	11/24/2013 - 11/30/2013	1.03	1.16
49	12/01/2013 - 12/07/2013	1.03	1.16
50	12/08/2013 - 12/14/2013	1.02	1.15
51	12/15/2013 - 12/21/2013	1.02	1.15
52	12/22/2013 - 12/28/2013	0.98	1.10
53	12/29/2013 - 12/31/2013	0.94	1.06

\* PEAK SEASON

18-FEB-2014 08:46:30

830UPD

4\_9400\_PKSEASON.TXT

COUNTY: 94  
 STATION: 0115  
 DESCRIPTION: SR A1A/S - E END OF S BRIDGE  
 START DATE: 04/02/2013  
 START TIME: 0000

TIME	DIRECTION: E					DIRECTION: W					COMBINED TOTAL
	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	
0000	11	8	9	12	40	8	5	11	2	26	66
0100	7	6	5	9	27	10	3	4	11	28	55
0200	4	2	2	2	10	6	4	6	2	18	28
0300	4	9	5	4	22	3	4	3	2	12	34
0400	5	4	13	22	44	5	7	5	7	24	68
0500	25	31	51	43	150	9	14	22	27	72	222
0600	50	49	58	48	205	38	58	58	69	223	428
0700	46	58	50	60	214	88	94	139	123	444	658
0800	60	56	66	86	268	98	98	112	106	414	682
0900	65	60	98	93	316	112	109	124	123	468	784
1000	91	77	91	95	354	113	88	109	101	411	765
1100	106	112	120	123	461	107	132	91	107	437	898
1200	119	123	105	111	458	113	108	124	127	472	930
1300	123	106	125	120	474	128	144	107	127	506	980
1400	109	110	109	112	440	146	136	104	121	507	947
1500	122	129	124	121	496	123	103	112	141	479	975
1600	99	113	122	137	471	132	102	121	100	455	926
1700	139	129	148	161	577	121	113	82	90	406	983
1800	93	123	120	104	440	85	80	79	98	342	782
1900	99	91	87	82	359	78	58	66	78	280	639
2000	64	91	65	68	288	63	65	52	36	216	504
2100	60	69	54	43	226	53	41	30	39	163	389
2200	34	41	28	25	128	37	18	20	31	106	234
2300	17	14	12	14	57	19	20	18	6	63	120

24-HOUR TOTALS: 6525 6572 13097

	DIRECTION: E		DIRECTION: W		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	845	309	730	458	845	760
P.M.	1700	577	1315	524	1315	984
DAILY	1700	577	1315	524	1315	984

TRUCK PERCENTAGE 7.51 11.26 9.39

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	98	4192	1053	10	121	53	17	259	7	1	0	0	22	0	692	490	6525
W	94	2262	2939	21	353	48	16	280	9	1	5	0	7	0	537	740	6572