

FEBRUARY 2018



**WIM #59/61
I-90,
MP 276.8
DRESBACH,
MN**

**MONTHLY
REPORT**



Your Destination...Our Priority



WIM Site Location

WIM #59 is located on I-90 near Dresbach in Winona county.

System Operation

WIM #59 was operational for the entire month of February 2018. Volume was computed using all monthly data.

System Calibration

WIM #59 was most recently calibrated on 2016-12-20. Table 1 summarizes the front axle weights of class 9s by lane ¹. Table 1 indicates that the class 9 front axle weights were all within +/- 9% of baseline calibration values for all lanes. Figure 1 shows the distribution of gross vehicle weights (GVW) in Class 9 vehicles at this site for the last 12 months of operation ². Figure 2 depicts the average front axle weight as a percent difference from the first full month following calibration.

Summary of Volume Statistics

Total Monthly Volume: 519119 | Passenger Vehicles: 457151 | Heavy Commercial Vehicles: 61968

Monthly Average Daily Traffic (MADT): 18540 | Monthly Heavy Commercial Average Daily Traffic (MHCADT): 2213

See Table 2 for vehicle class breakdown

Passenger Vehicles (PVs) and Heavy Commercial Vehicles (HCVs)

Volume trends. EB vehicles typically reached highest volume levels on Fridays, with lowest volumes reported on Tuesdays. WB vehicles typically reached highest volume levels on Fridays, with lowest volumes reported on Saturdays (see Figure 3 and 4).

Passenger Vehicles (PVs)

Volume trends. On an average 24-hour day (see Figure 5), EB PVs generally reached peak volume levels between 03 PM and 05 PM. Similarly, WB PVs peaked in volume between 03 PM and 05 PM

Heavy Commercial Vehicles (HCVs)

Volume trends. On an average 24-hour day, HCVs traveling EB typically reached peak volume levels between 03 PM and 05 PM, while volume going WB peaked between 03 PM and 05 PM. See Figure 6. Out of all HCVs, the two highest traffic volumes were generated by Class 9's and Class 14's.

Overweight HCVs

Volume trends. Of a total of 61968 HCVs, 14432 of them were overweight ³. These overweight HCVs contributed to 3% of total monthly volume, and 24.6% of total monthly HCV volume. EB overweight vehicles typically reached highest numbers on Mondays, with lowest volumes reported on Saturdays. WB overweight vehicles tended to reach highest volumes on Thursdays, with lowest volumes reported on Saturdays. See Figure 3 .

The top two overweight violators by class were the class 9 and class 11 vehicles . Overall, overweight vehicles tended to reach peak volume concentrations during typical business hours, with 75.1% of all overweight vehicles traveling WB this month (see Figure 7 & 8). Figure 9 shows the number of vehicles exceeding 88,000 pounds that crossed the WIM over the last 12 months. The highest number of 88,000+ vehicles within the last 12 months occurred in January.

WIMs are currently used as a screening tool for weight enforcement, and it is estimated that the WIM scales can measure gross vehicle weights (GVW) within 90-95% of static weight scale measurements. Due to the possibility of measurement error, vehicles exceeding 10% of their legal weight limits (or 1.1 times their legal weight limits) are considered overweight in this report ⁴.

Using normal load limits ,1334 EB vehicles exceeded 88,000 pounds (1266 vehicles were Class 9's; 30 vehicles were Class 10's). Of vehicles traveling WB,

3508 EB vehicles exceeded 88,000 pounds (3404 vehicles were Class 9's; 45 vehicles were Class 10's). Refer to Table 3 for the Top 10 highest recorded GVWs from Classes 9 and 10 from February 2018.

Loaded vs. Unloaded HCVs. Figure 10 shows the GVW distributions of Class 9s and 10s in February 2018. Data suggests that there were greater numbers of fully_loaded Class 9's than empty Class 9's traveling EB, while there were more fully_loaded Class 9's than empty traveling WB. Data also suggests that there were more empty Class 10's than fully_loaded traveling in the EB direction. In the WB direction, there were more fully_loaded class 10 vehicles.

Freight Totals. A total of 687414 tons of freight was recorded to have crossed the WIM. More freight was shipped WB (67.3%) than EB (32.7%). See Table 4 and Figure 11 for more freight information.

Infrastructure Considerations

Bridge. Bridge No. 85802 and 85801 (Prestressed Beam Span) are approximately .02 miles east of WIM #59. Bridge No. 85849 and 85850 (Continuous Steel Beam Span) are approximately .3 miles west of WIM #59. WIM #59 recorded a total of 519119 vehicles with a combined GVW of 5068368 kips (1 kip = 1,000 pounds = 0.5 tons) in February 2018. See Table 5 and Figures 12-13 for GVW information by vehicle class and lane.

Pavement Design. A total of 72652 equivalent single axle loads (ESALs) passed over the pavement at this site. Approximately 70% of all ESALs were recorded WB while 30% was observed EB. In particular, 88% of all ESALs were generated by the Class 9's (Class 9's were also responsible for generating 52% of total GVW observed this month). See Table 6 and

Figures 14-15 for more information on ESALs (Table 6 also provides flexible ESAL factors for each vehicle class using a terminal serviceability of 2.5 and a structural number of 5).

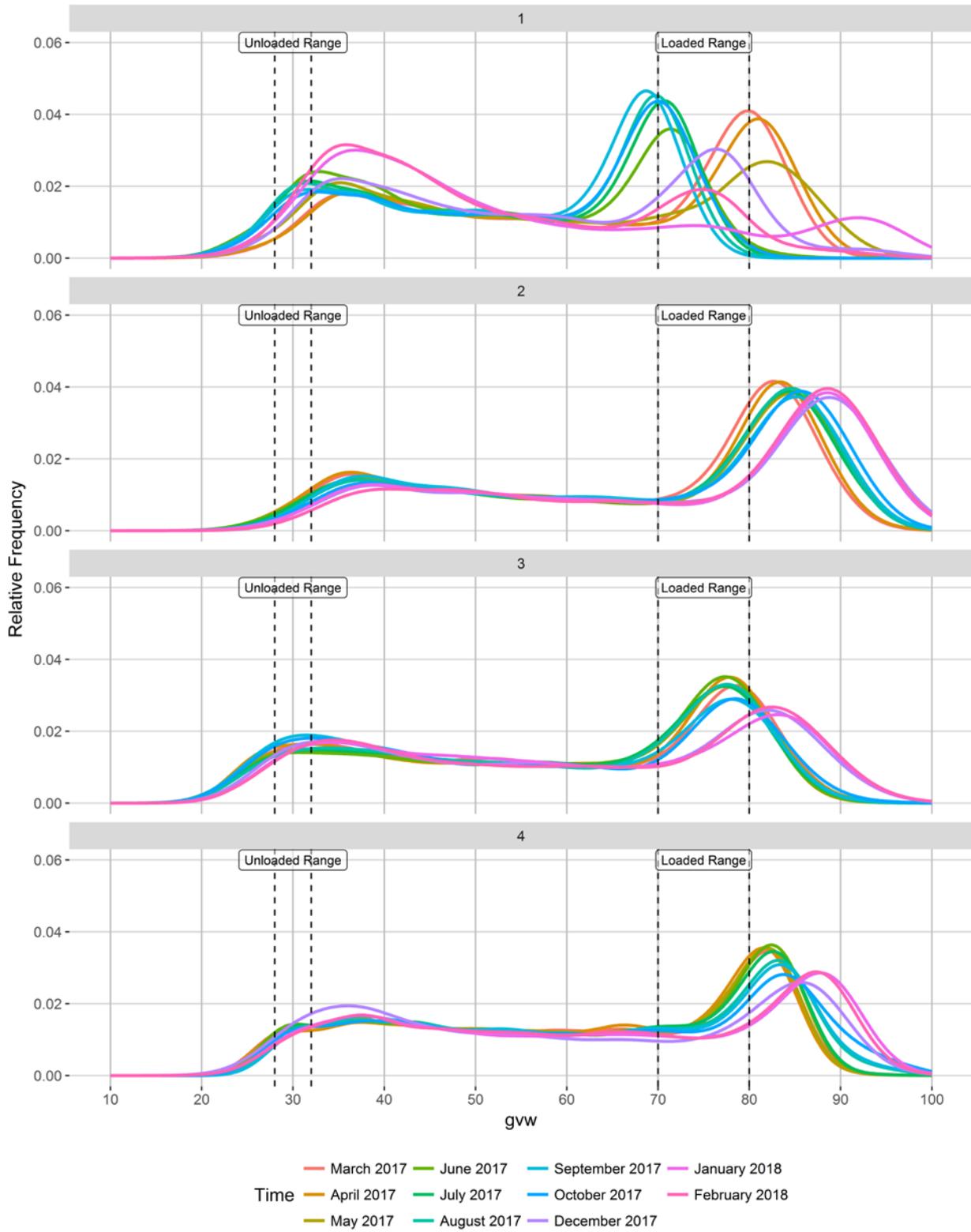
WIM monthly reports can be found at: <http://www.dot.state.mn.us/traffic/data/reports-monthly-wim.html>

MnDOT's vehicle classification scheme and vehicle class groupings for traffic forecasting can be found at: <http://www.dot.state.mn.us/traffic/data/data-products.html#weight>

- ¹ Front axle weights of Class 9s are monitored on a monthly basis to assure performance between calibrations. The current goal of the WIM scale calibration is to have each individual axle weight stay within a range of ±9% of baseline calibration values
- ² Previous WIM research indicates that unloaded Class 9s typically weigh 28-32 kips, while loaded Class 9s generally fall in the 70-80 kip range. More recent data from several WIM sites suggests that the unloaded Class 9 range may have moved a little higher over time (due to increased presence of sleeper cabs, etc.), although these ranges are also thought to be site-specific.
- ³ An HCV is considered overweight during normal load limits in this report if they satisfy any of the following 1) exceed a gross vehicle weight (GVW) of 80,000 pounds, 2) exceed any of the legal weight maximums on any axle configurations (legal maximums are: single axle = 20,000 pounds; tandem axles spaced 8' or less = 34,000 pounds; tridem axles spaced 9' or less = 43,000 pounds; quad axles spaced 13' or less = 51,000 pounds). Monthly reports use this standard regardless of the time of year however, the Winter Load Increase (WLI) allows a 10% across the board increase in axle and gross vehicle weights without a permit on US, state routes, and county roads. An HCV is considered overweight during Winter Load Increase(WLI) if they satisfy any of the following 1) exceed a gross vehicle weight (GVW) of 88,000 pounds, 2) exceed any of the legal weight maximums on any axle configurations (legal maximums are: single axle = 22,000 pounds; tandem axles spaced 8' or less = 37,400 pounds; tridem axles spaced 9' or less = 47,300 pounds; quad axles spaced 13' or less = 56,100 pounds). An overweight HCV is only included once in the overweight volume calculations regardless of how many of the aforementioned conditions are violated. For information on MN weight limit dates and statutes: http://www.mrr.dot.state.mn.us/research/seasonal_load_limits/sllindex.asp
- ⁴ For example, Class 9s and 10s can legally have gross vehicle weights up to 80,000 lbs (with the exception of permitted loads) during normal load limits. To account for measurement error on the WIM scales, those exceeding 10% of the legal GVW maximum (or 1.1 times the legal GVW) should be screened (e.g., 80,000 lbs + 8,000 lbs = 88,000 lbs). Similarly during WLI vehicles weighing 96,800 lbs should be screened.

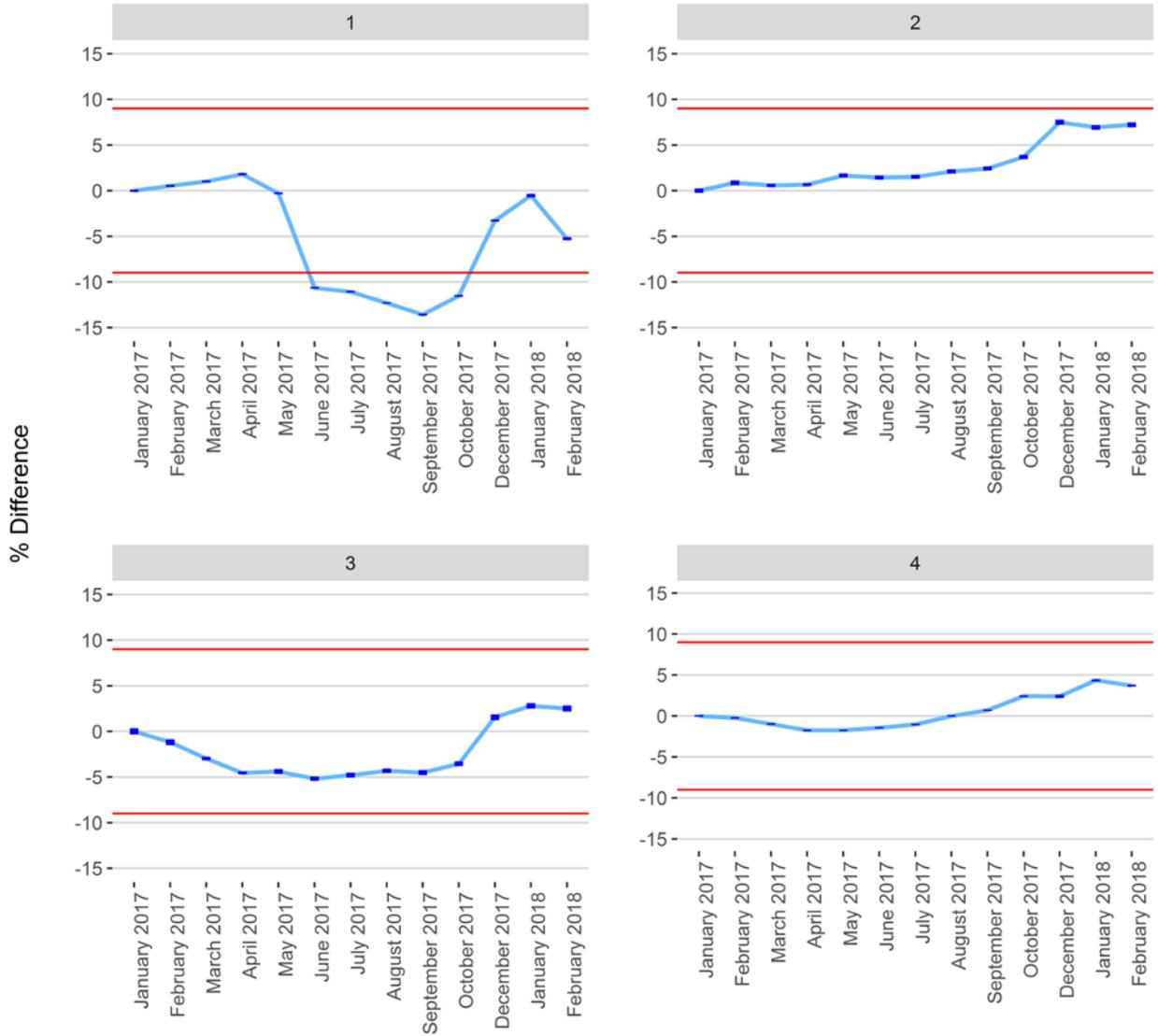
To request this document in an alternative format, please call 651-366-4718 or 1-800-657-3774, or email your request to ADArequest.dot@state.mn.us. Please request at least one week in advance.

Figure 1 - Monthly Class 9 GVW Histogram



Months that have not passed QC parameters are not displayed

Figure 2 - Percent Difference of Front Axle Weight from Last Calibration (+/- 95% CI)



Months that have not passed QC parameters are not displayed

Figure 2 - Average Vehicle Volume vs. Day of the Week

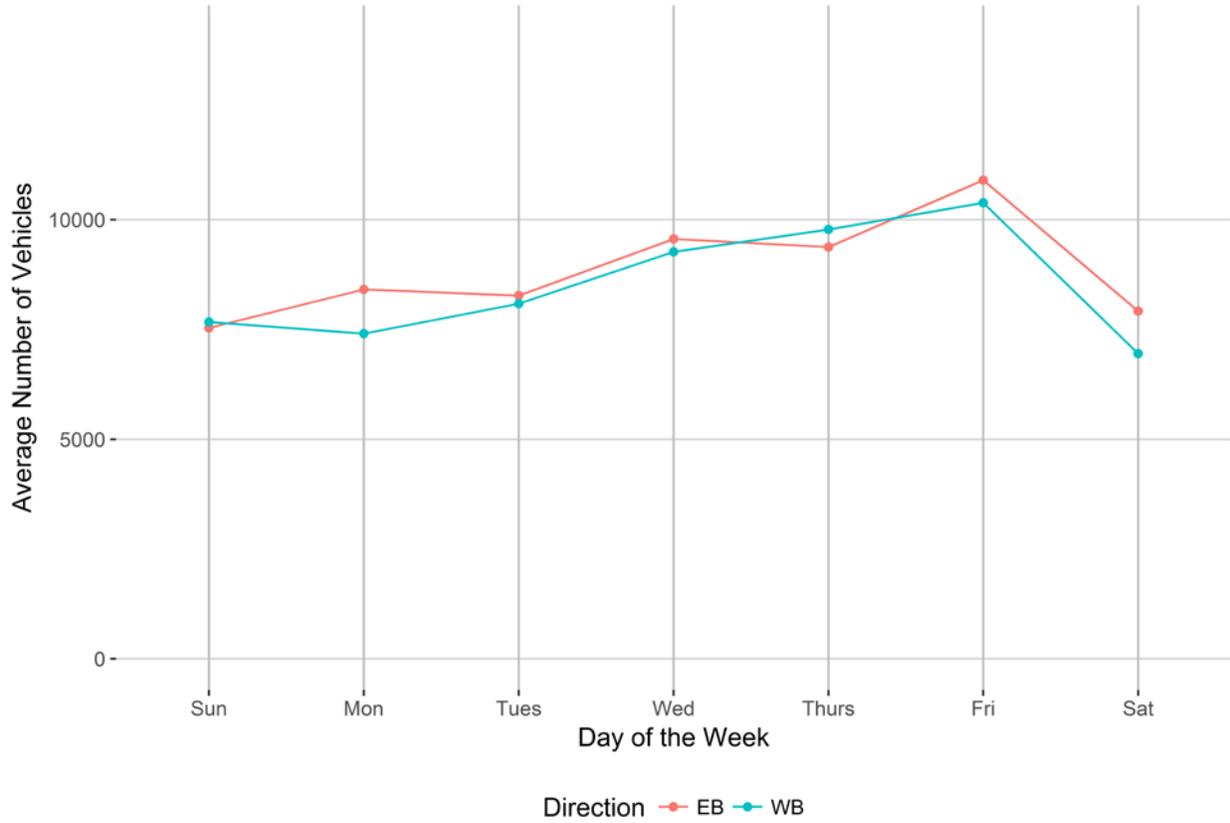


Figure 3 - Average Overweight Vehicle Volume vs. Day of the Week

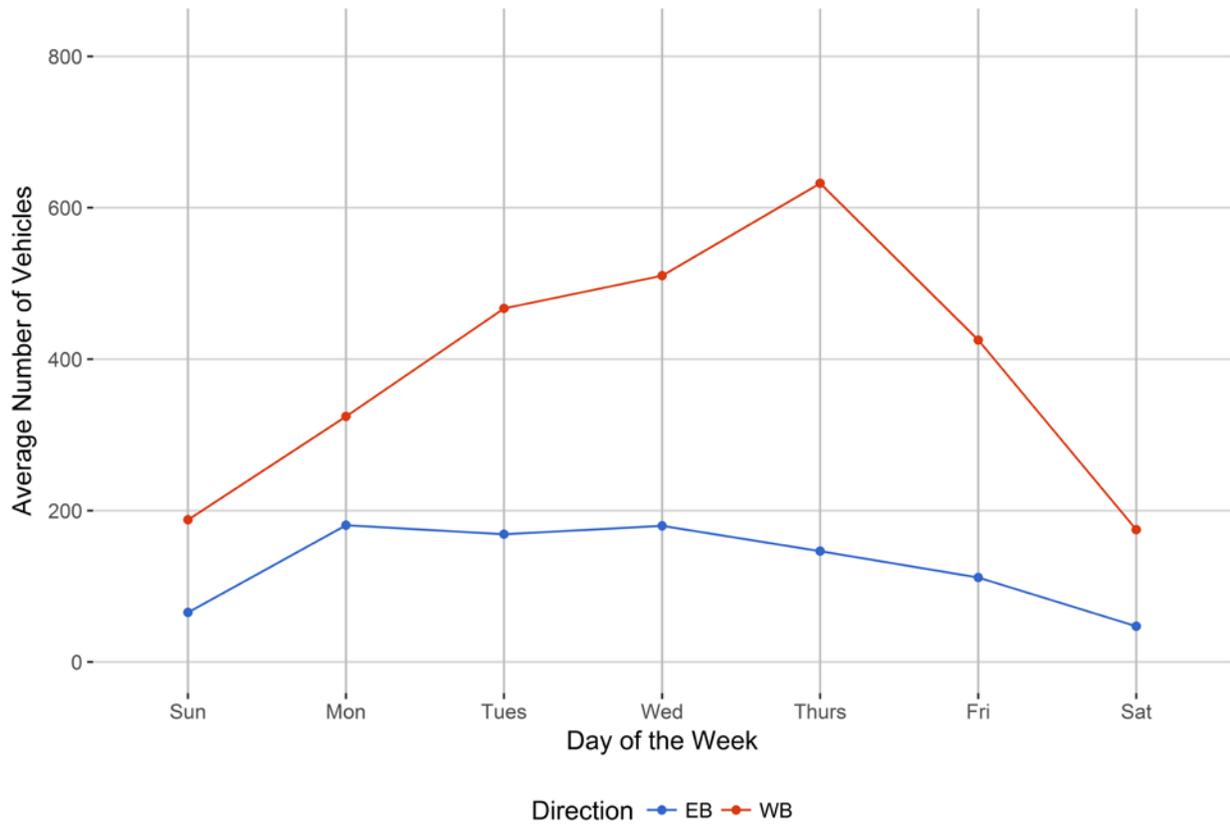


Figure 4 - Passenger Vehicles vs. Hour of the Day

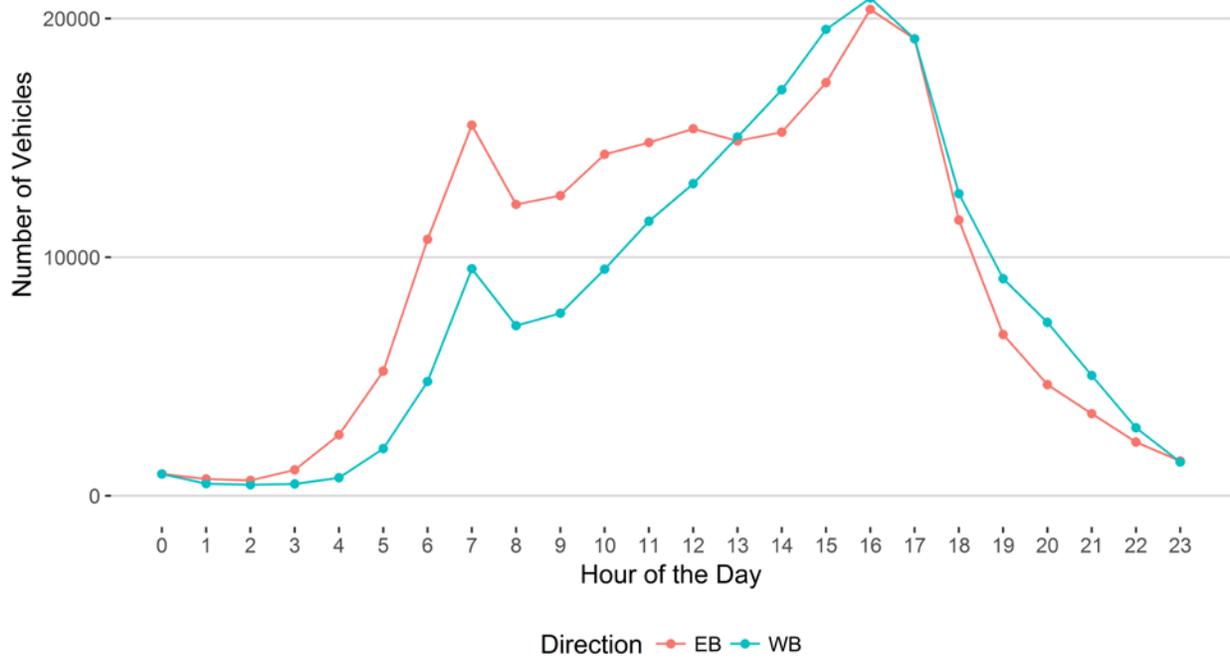


Figure 5 - Heavy Commercial Vehicles vs. Hour of the Day

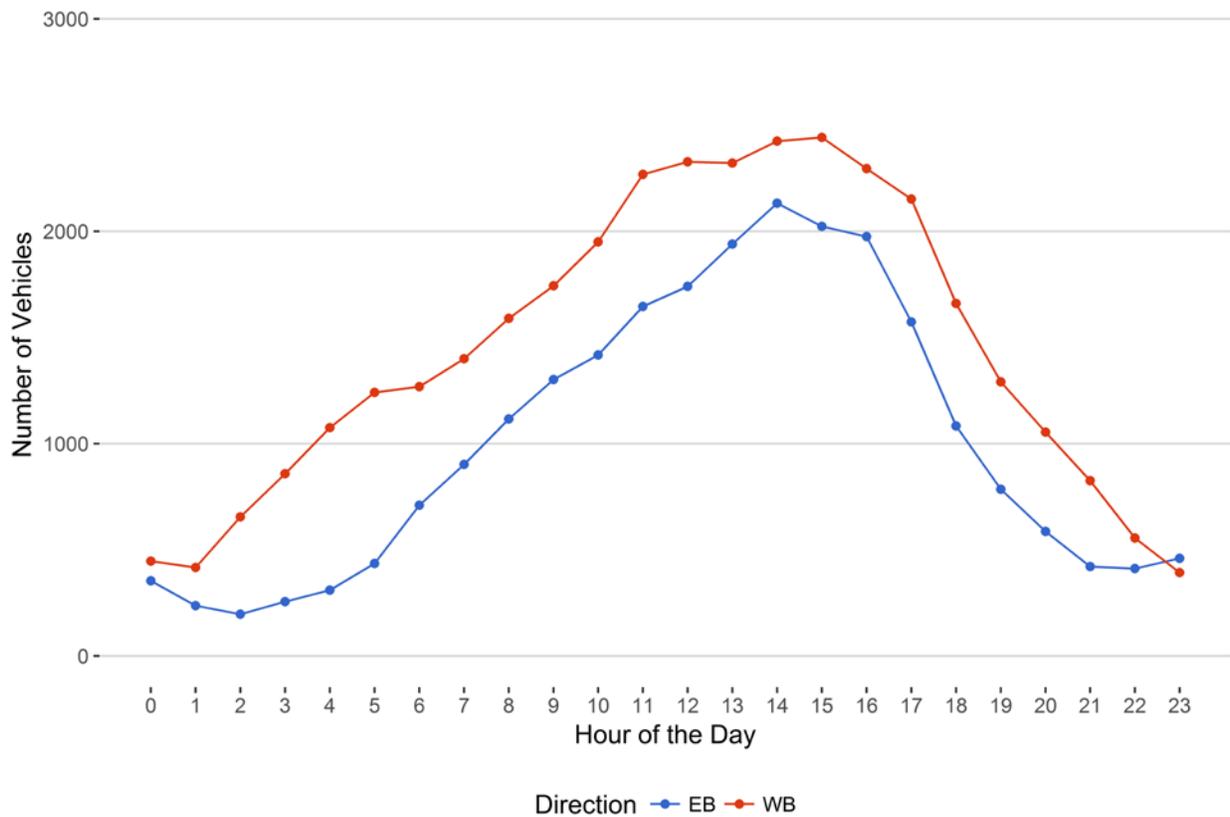


Figure 6 - Overweight Vehicles by Class vs. Hour of the Day

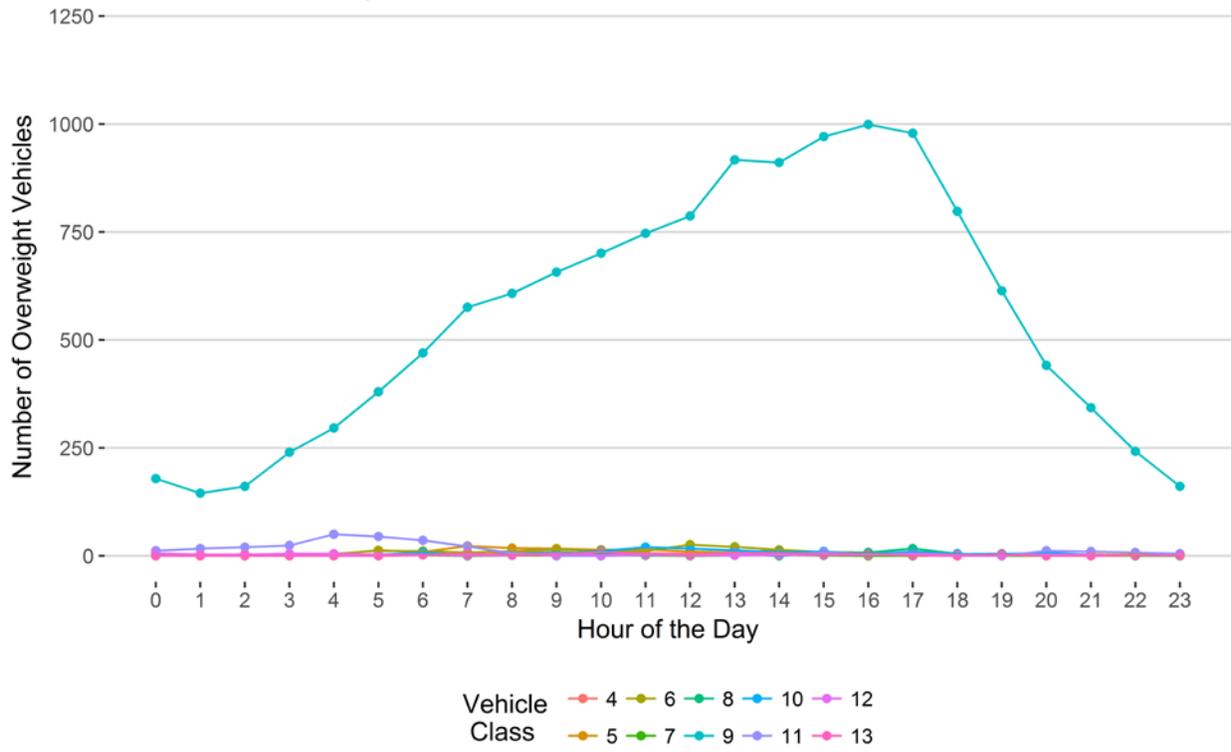


Figure 7 - Overweight Vehicles by Direction
Hour of the Day

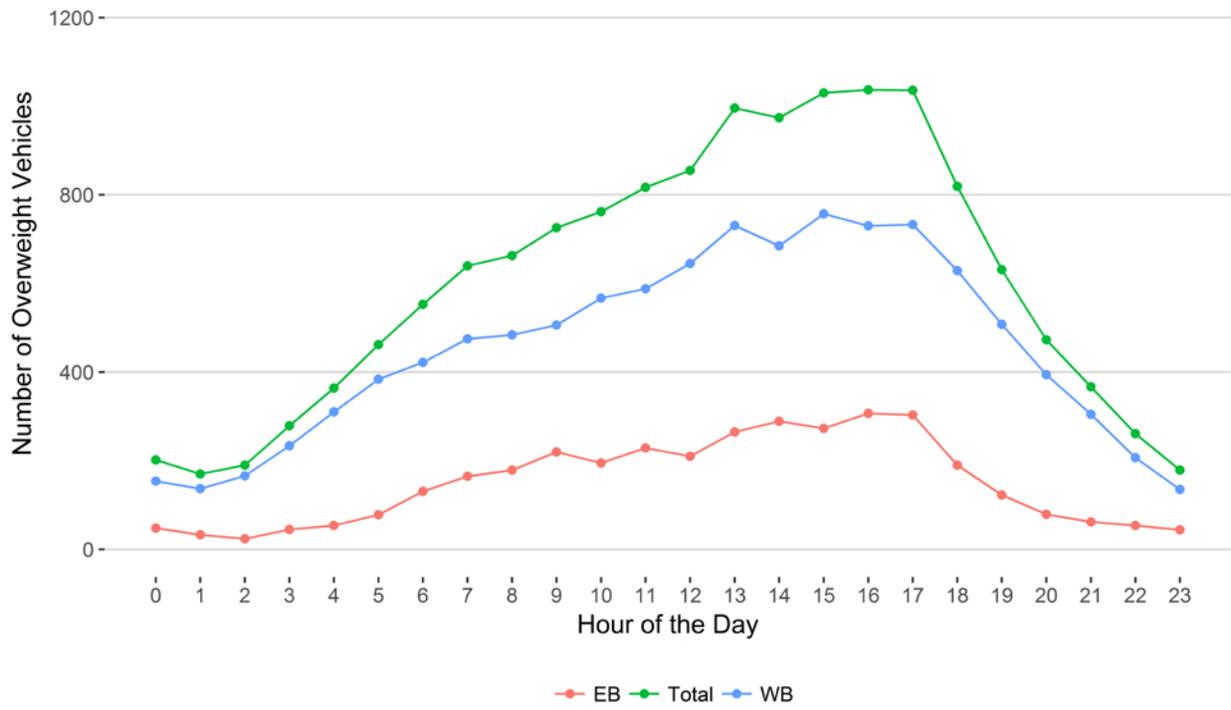
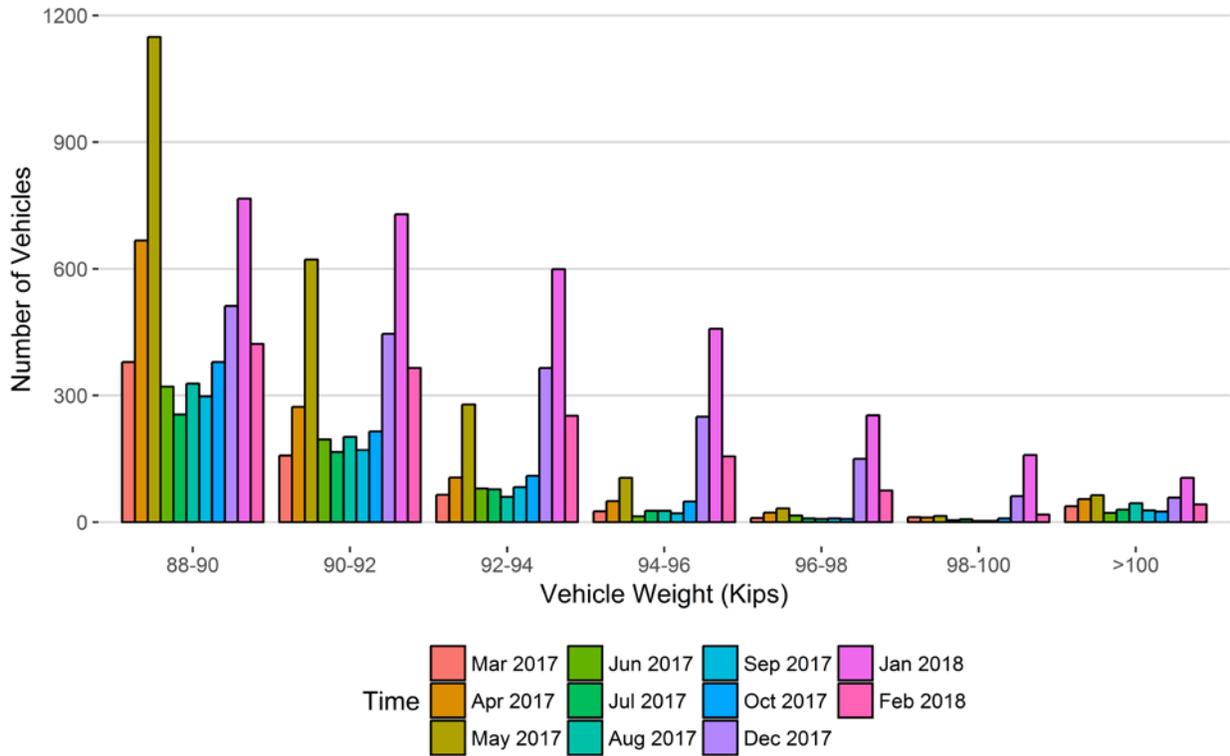
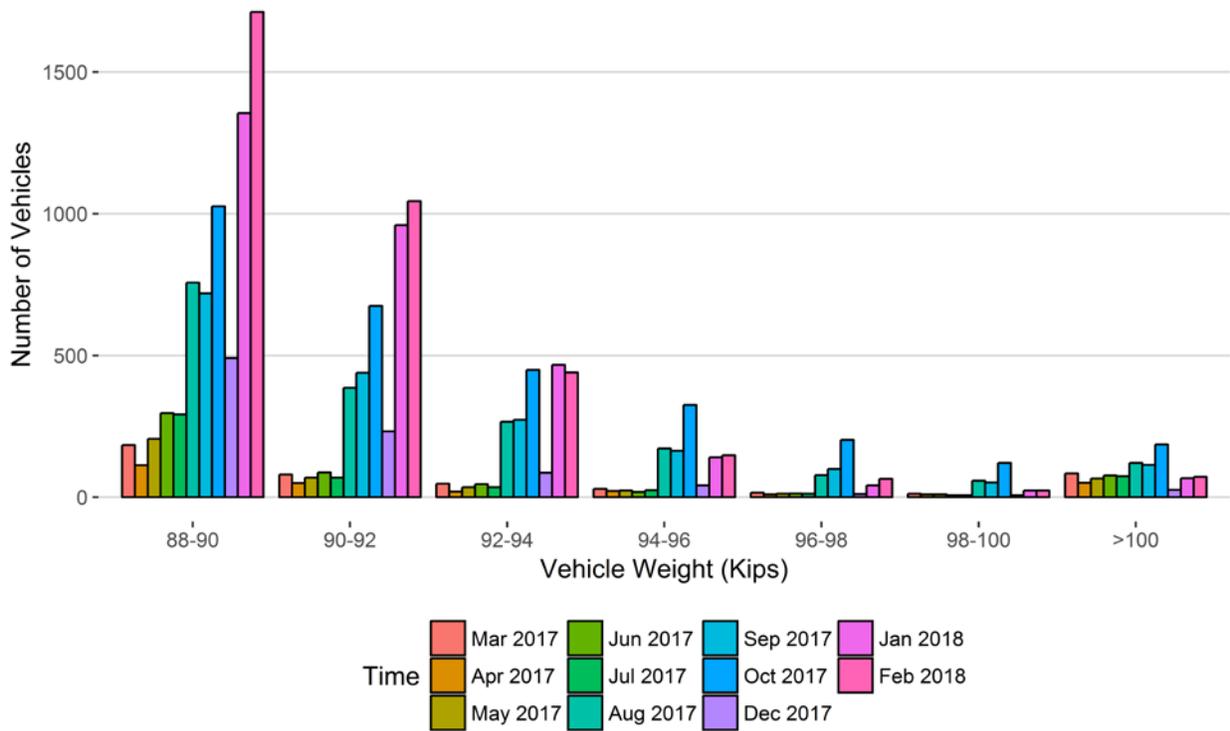


Figure 8 - Histogram of EB Vehicles Over 88,000 Pounds for Current Month



Vehicle Weights (Kips)	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Dec 2017	Jan 2018	Feb 2018
88-90	379	667	1149	321	255	328	298	379	512	766	422
90-92	158	273	622	196	166	202	171	215	446	729	365
92-94	65	106	279	80	78	60	83	110	365	599	252
94-96	26	50	105	14	27	27	21	49	250	458	156
96-98	10	23	33	16	9	8	9	8	150	253	75
98-100	12	11	15	5	7	3	3	9	62	159	18
>100	38	55	64	22	30	45	28	25	58	105	42
Total	688	1185	2267	654	572	673	613	795	1843	3069	1330

Figure 8 - Histogram of WB Vehicles Over 88,000 Pounds for Current Month



Vehicle Weights (Kips)	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Dec 2017	Jan 2018	Feb 2018
88-90	184	113	206	297	292	757	719	1026	491	1355	1712
90-92	80	50	69	87	69	386	439	675	232	960	1044
92-94	48	20	35	46	35	266	273	449	86	467	440
94-96	30	22	24	18	25	172	164	326	42	141	148
96-98	16	10	12	13	12	78	100	202	11	42	65
98-100	12	10	10	7	7	58	52	121	7	24	24
>100	84	51	66	77	74	121	114	186	26	67	72
Total	454	276	422	545	514	1838	1861	2985	895	3056	3505

Figure 8 - Class 9's and 10's by Direction vs Gross Vehicle Weight

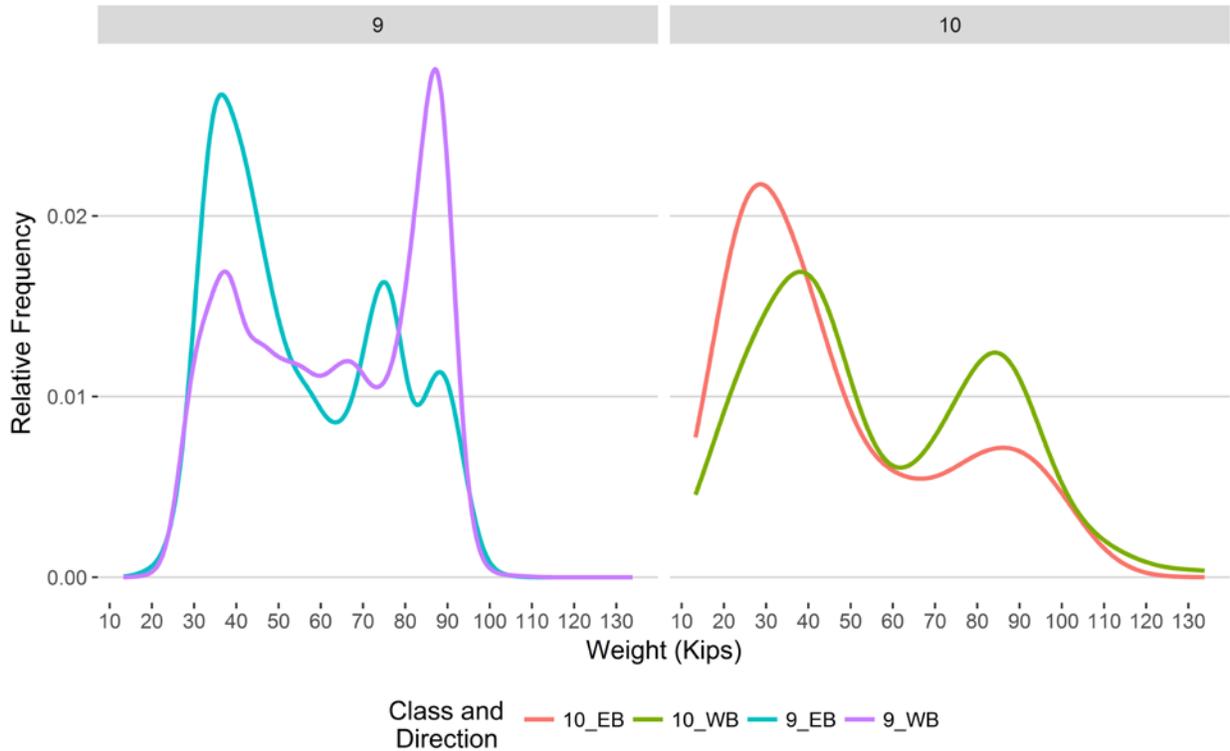


Figure 9 - Freight Percentage by Direction and Class

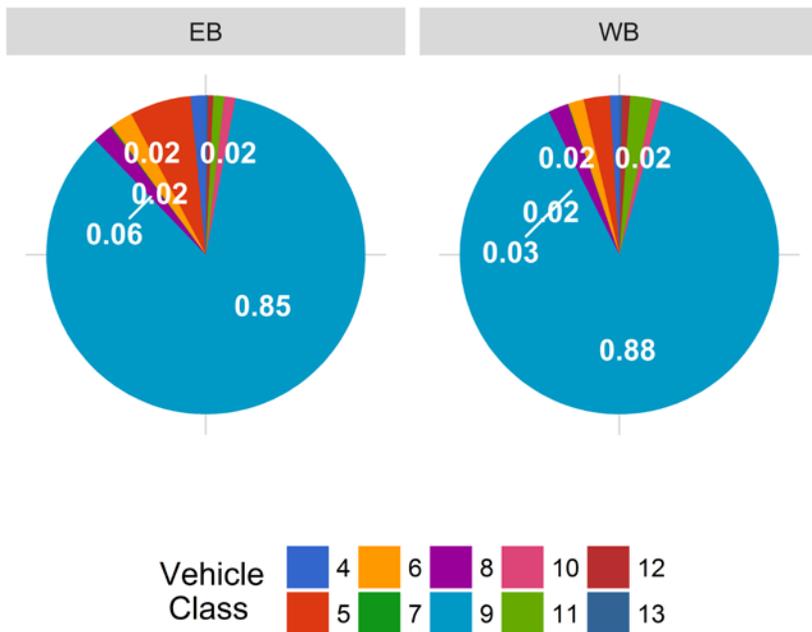


Figure 10 - Total Gross Vehicle Weight Percentage by Class and Lane

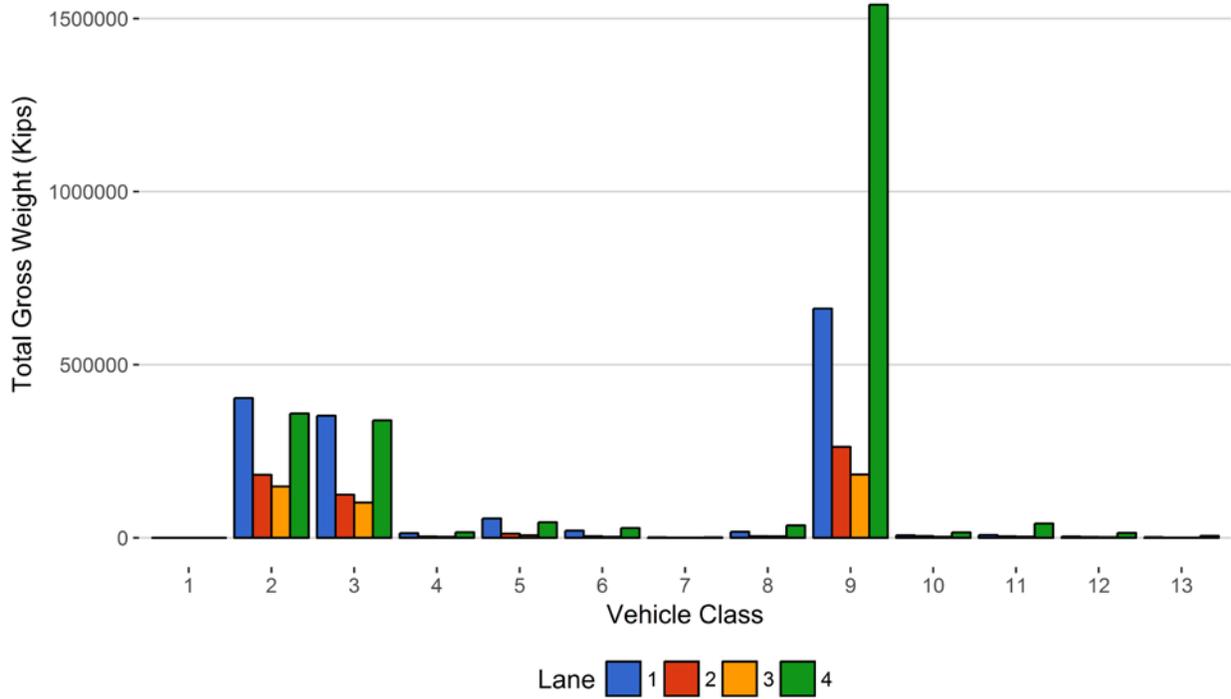


Figure 11 - Total Gross Vehicle Weight I

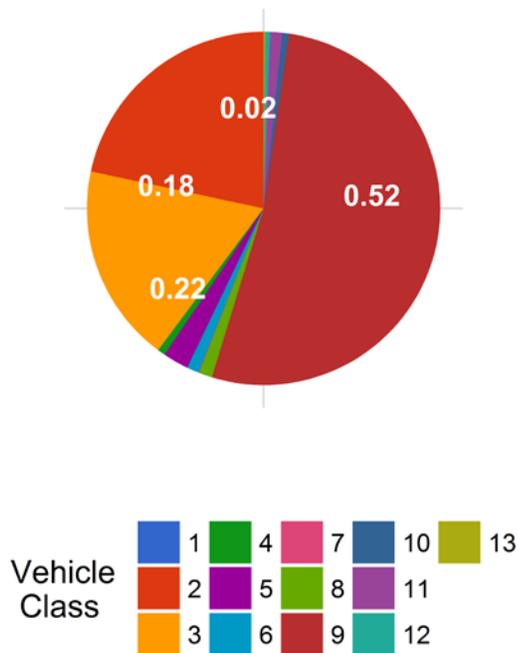


Figure 12 - Total ESALs by Class and Lane

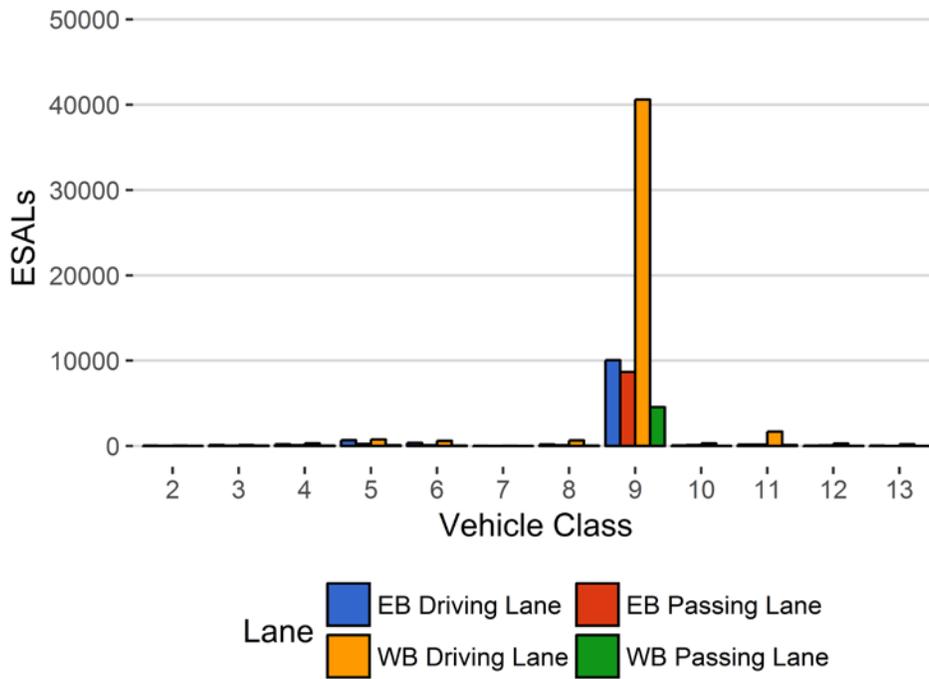


Figure 13 - ESALs by Class

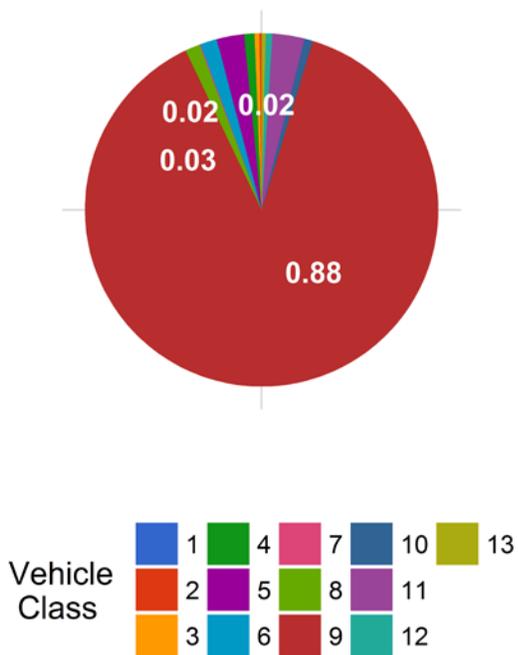


Table 1 Class 9 Front Axle Weight by Lane

<i>Month</i>	<i>Lane 1 (Kips)</i>	<i>Front Axle +/- 9%</i>	<i>Lane 2 (Kips)</i>	<i>Front Axle +/- 9%</i>	<i>Lane 3 (Kips)</i>	<i>Front Axle +/- 9%</i>	<i>Lane 4 (kips)</i>	<i>Front Axle +/- 9%</i>
January 2017	11.32	0.00	12.24	0.00	12.06	0.00	11.96	0.00
February 2017	11.38	0.53	12.34	0.86	11.92	-1.18	11.93	-0.24
March 2017	11.43	1.01	12.31	0.58	11.71	-2.97	11.84	-0.98
April 2017	11.52	1.80	12.32	0.66	11.52	-4.55	11.75	-1.74
May 2017	11.29	-0.29	12.44	1.67	11.53	-4.39	11.75	-1.74
June 2017	10.11	-10.64	12.42	1.43	11.44	-5.18	11.79	-1.43
July 2017	10.07	-11.07	12.43	1.51	11.49	-4.78	11.84	-1.04
August 2017	9.93	-12.30	12.50	2.10	11.54	-4.33	11.96	0.00
September 2017	9.78	-13.58	12.54	2.43	11.52	-4.51	12.04	0.71
October 2017	10.01	-11.53	12.69	3.70	11.64	-3.54	12.25	2.42
December 2017	10.95	-3.27	13.16	7.50	12.25	1.55	12.25	2.40
January 2018	11.26	-0.54	13.09	6.93	12.40	2.80	12.48	4.35
February 2018	10.72	-5.27	13.12	7.22	12.37	2.50	12.40	3.70

Table 2 Vehicle Classification Data

<i>Vehicle Class</i>	<i>Monthly Average Daily Volume</i>	<i>Monthly Total Volume</i>	<i>Monthly Total Volume Percentage</i>	<i>Monthly Total Overweight Vehicles</i>	<i>Monthly Total Overweight Percentage</i>
1	0	6	0	0	0
2	10323	289040	55.7	0	0
3	6004	168104	32.4	0	0
4	46	1283	0.2	99	0.7
5	304	8525	1.6	191	1.3
6	71	1983	0.4	174	1.2
7	2	55	0	12	0.1
8	66	1849	0.4	84	0.6
9	1656	46374	8.9	13323	92.3
10	22	616	0.1	140	1
11	31	876	0.2	289	2
12	12	332	0.1	64	0.4
13	3	76	0	56	0.4
TOTAL	18540	519119	100	14432	100

Table 3 Top 10 Gross Vehicle Weight, Class 9 and 10

<i>Date</i>	<i>Day of Week</i>	<i>Time</i>	<i>Vehicle Class</i>	<i>Direction</i>	<i>Lane</i>	<i>GVW (lbs)</i>
2018-02-14	Wednesday	17:38:42	10	WB	4	133.84
2018-02-16	Friday	08:26:28	10	EB	1	131.95
2018-02-14	Wednesday	15:27:46	10	WB	4	131.56
2018-02-02	Friday	09:34:04	10	EB	1	130.34
2018-02-07	Wednesday	06:10:49	10	EB	1	126.69
2018-02-13	Tuesday	10:10:24	10	EB	1	126.31
2018-02-22	Thursday	07:50:09	10	EB	1	124.09
2018-02-21	Wednesday	06:35:23	10	EB	1	123.16
2018-02-16	Friday	12:02:47	10	EB	1	123.06
2018-02-26	Monday	03:52:37	10	EB	1	121.56

Table 4 Freight Summary

<i>Vehicle Class</i>	<i>Direction</i>	<i>Weight of Empty Vehicle (Kips)</i>	<i>Total Number of Vehicles</i>	<i>Number of Empty Vehicles</i>	<i>Percentage of Empty Vehicles</i>	<i>Total Weight of Vehicles with Freight (Kips)</i>	<i>Total Weight of Empty Vehicles (Kips)</i>	<i>Total Weight of Freight (Tons)</i>
4	EB	15	604	93	15.4	15502	1213	3919
5	EB	8	4713	549	11.6	64075	3940	15381
6	EB	19	886	232	26.2	21025	3933	4299
7	EB	11.5	27	0	0	1404	0	547
8	EB	31	669	283	42.3	15371	6602	1702
9	EB	33	16532	1637	9.9	876302	48900	192384
10	EB	33.5	260	104	40	9696	2570	2235
11	EB	36.5	209	3	1.4	11965	95	2223
12	EB	36.5	90	1	1.1	5850	24	1301
13	EB	31.5	23	0	0	2342	0	809
TOTAL	****	****	24013	2902	****	1023532	****	224800
<i>Vehicle Class</i>	<i>Direction</i>	<i>Weight of Empty Vehicle (Kips)</i>	<i>Total Number of Vehicles</i>	<i>Number of Empty Vehicles</i>	<i>Percentage of Empty Vehicles</i>	<i>Total Weight of Vehicles with Freight (Kips)</i>	<i>Total Weight of Empty Vehicles (Kips)</i>	<i>Total Weight of Freight (Tons)</i>
4	WB	15	611	53	8.7	17881	700	4756
5	WB	8	3358	256	7.6	49737	1858	12460
6	WB	19	991	92	9.3	29332	1629	6125
7	WB	11.5	25	0	0	1562	0	637
8	WB	31	1081	335	31	31183	8550	4028
9	WB	33	27370	2362	8.6	1653187	69864	413961
10	WB	33.5	323	79	24.5	16231	2012	4029
11	WB	36.5	620	2	0.3	44350	58	10896
12	WB	36.5	224	0	0	15756	0	3790
13	WB	31.5	49	0	0	5407	0	1932
TOTAL	****	****	34652	3179	****	1864625	****	462615
GRAND TOTAL	****	****	58665	6081	238	2888156	151946	687414

Table 5 Gross Vehicle Weight by Class and Lane

<i>Vehicle Class</i>	<i>EB Driving Lane</i>	<i>EB Passing Lane</i>	<i>WB Passing Lane</i>	<i>WB Driving Lane</i>	<i>Total</i>	<i>Percentage</i>
1	5	0	1	0	6	0
2	403854	181679	148269	359041	1092844	21.6
3	352824	124343	101851	339262	918280	18.2
4	13216	3499	2501	16080	35296	0.7
5	55873	12141	7069	44526	119609	2.4
6	20559	4399	2690	28272	55918	1.1
7	1080	324	235	1326	2966	0.1
8	17561	4412	3832	35901	61706	1.2
9	662460	262742	182710	1540341	2648253	52.4
10	7250	5016	2545	15698	30509	0.6
11	7983	4076	3072	41335	56467	1.1
12	3641	2232	1659	14097	21629	0.4
13	1775	568	229	5178	7750	0.2
TOTAL	1548081	605432	456661	2441057	5051231	100
GVW/LANE	30.65	11.99	9.04	48.33	100	0

Table 6 ESALs by Class and Lane and Flexible ESAL Factors

<i>Vehicle Class</i>	<i>EB Driving Lane</i>	<i>EB Passing Lane</i>	<i>WB Passing Lane</i>	<i>WB Driving Lane</i>	<i>Total</i>	<i>Percentage</i>	<i>Flexible ESAL Factor</i>
1	0	0	0	0	0	0	0.1429
2	42	26	24	47	139	0.19	0.0011
3	113	50	43	122	328	0.45	0.0041
4	211	106	44	328	690	0.95	1.14
5	688	257	85	776	1806	2.49	0.45
6	355	100	56	603	1114	1.54	1.19
7	27	7	5	36	76	0.1	2.68
8	178	87	48	655	968	1.34	1.11
9	10049	8687	4553	40592	63881	88.24	2.91
10	66	126	36	327	555	0.77	1.89
11	155	162	126	1680	2123	2.93	5.07
12	43	68	34	298	443	0.61	2.76
13	51	16	4	199	270	0.37	6.51
TOTAL	11979	9693	5057	45663	72392	100	26
ESALS/LANE	16.5	13.4	7	63.1	100	--	--

Table 7 Site Summary: Volume and Vehicle Class

<i>Month</i>	<i>Total Volume</i>	<i>Monthly ADT</i>	<i>Monthly HCAD T</i>	<i>Passenger Vehicles</i>	<i>Passenger Vehicles %</i>	<i>Heavy Commercial Vehicles</i>	<i>Heavy Commercial Vehicles %</i>	<i>Heavy Commercial Vehicles in Driving Lane %</i>	<i>Heavy Commercial Vehicles in Passing Lane %</i>
Mar 2017	639529	20630	3401	534094	83.5	105434.8	16.5	79.7	20.3
Apr 2017	671733	22391	3478	567386	84.5	104347.1	15.5	69.1	30.9
May 2017	731825	23607	3667	618140	84.5	113685.5	15.5	88.5	11.5
Jun 2017	787202	26240	3845	671842	85.3	115359.8	14.7	87.6	12.4
Jul 2017	793741	25604	3569	683116	86.1	110625.4	13.9	87.8	12.2
Aug 2017	804859	25963	3913	683559	84.9	121300.1	15.1	88.2	11.8
Sep 2017	726392	24213	3236	629322	86.6	97070.4	13.4	87.1	12.9
Oct 2017	719949	23224	2883	630576	87.6	89373.1	12.4	84.9	15.1
Dec 2017	608686	19635	1976	547422	89.9	61264.4	10.1	81.9	18.1
Jan 2018	545214	17588	1886	486743	89.3	58471.1	10.7	80.9	19.1
Feb 2018	519119	18540	2213	457151	88.1	61968	11.9	84.8	15.2
TOTAL	7548249	--	--	6509351	--	1038900	--	--	--
AVERAGE	686204	22512	3097	591759	86	94445	14	84	16

ESALS

<i>Month</i>	<i>ESALS EB Passing Lane</i>	<i>ESALS EB Driving Lane</i>	<i>ESALS WB Driving Lane</i>	<i>ESALS WB Passing Lane</i>	<i>Total ESALS</i>	<i>Driving Lane ESALS %</i>	<i>Passing Lane ESALS %</i>	<i>Pavement Life Decrease Months</i>
Mar 2017	49490	15135	11156	50981	126763	79	21	3.6
Apr 2017	44029	22469	16215	42608	125321	69	31	4
May 2017	53277	10973	5355	62162	131767	88	12	2.9
Jun 2017	29143	11749	5847	65483	112222	84	16	3.1
Jul 2017	32412	10936	5392	58059	106799	85	15	3.6
Aug 2017	33618	11934	5771	69776	121098	85	15	12.8
Sep 2017	21056	9854	4941	62745	98597	85	15	14.4
Oct 2017	17870	10341	5631	60500	94342	83	17	25.9
Dec 2017	32042	9829	5415	21039	68325	78	22	11.1
Jan 2018	19672	10910	5796	35694	72073	77	23	37.1
Feb 2018	11994	9787	5059	45812	72652	80	20	31.6
TOTAL	344602	133917	76579	574860	1129959	--	--	--
AVERAGE	31328	12174	6962	52260	102724	81	19	14

Gross Vehicle Weight

<i>Month</i>	<i>GVW EB Passing Lane</i>	<i>GVW EB Driving Lane</i>	<i>GVW WB Passing Lane</i>	<i>GVW WB Driving Lane</i>	<i>Total GVW Kips</i>
Mar 2017	1766773	670355	515044	1948965	4901137
Apr 2017	1548618	606656	457410	2455684	5068368
May 2017	2996907	1063281	942839	3096553	8099580
Jun 2017	2648294	1481308	1318219	2714367	8162188
Jul 2017	3360608	864935	637411	3843661	8706616
Aug 2017	2952550	967704	732361	4032996	8685611
Sep 2017	3159815	956636	735948	3732726	8585126
Oct 2017	3303649	990874	745014	4084406	9123942
Dec 2017	2281938	844722	639059	3699998	7465716
Jan 2018	1844438	851013	680855	3359518	6735824
Feb 2018	2602727	725139	571128	1034431	4933426
TOTAL	28466319	10022623	7975287	34003305	80467534
AVERAGE	2587847	911148	725026	3091210	7315230

Overweight Vehicles

<i>Month</i>	<i>Total Number of Overweight Vehicles</i>	<i>Overweight / Total Volume</i>	<i>Overweight / Heavy Commercial Volume</i>	<i>Number Over 88,000 lbs</i>	<i>Number Over 98,000 lbs</i>
Mar 2017	26922	4.3	25.8	1164	156
Apr 2017	26954	4.1	26.2	1477	131
May 2017	27913	3.9	25	2709	160
Jun 2017	19465	2.5	17.2	1210	117
Jul 2017	16898	2.2	15.5	1096	125
Aug 2017	19320	2.5	16.3	2517	230
Sep 2017	16680	2.4	17.8	2488	208
Oct 2017	16692	2.6	19.2	3826	354
Dec 2017	10576	2	15.9	2771	163
Jan 2018	14410	2.9	22.6	6149	364
Feb 2018	14486	3	22.6	4842	158
TOTAL	210316	--	--	30249	2166
AVERAGE	19119.6	2.9	20.4	2749.9	196.9

Freight

<i>Month</i>	<i>EB Freight Tons</i>	<i>WB Freight Tons</i>	<i>Total Freight</i>	<i>EB Freight %</i>	<i>WB Freight %</i>
Mar 2017	668778	636574	1305352	51.2	48.8
Apr 2017	668042	616077	1284119	52	48
May 2017	640310	701589	1341898	47.7	52.3
Jun 2017	496712	733003	1229716	40.4	59.6
Jul 2017	537419	650628	1188047	45.2	54.8
Aug 2017	575347	742535	1317881	43.7	56.3
Sep 2017	391097	664771	1055867	37	63
Oct 2017	337732	622525	960257	35.2	64.8
Dec 2017	444244	175532	619776	71.7	28.3
Jan 2018	278786	364384	643170	43.3	56.7
Feb 2018	224800	462615	687414	32.7	67.3
TOTAL	5263267	6370232	11633498	--	--
AVERAGE	478478.8	579112	1057590.8	45.5	54.5