

Memo



Date: January 8, 2010
To: Kevin Stewart
From: Markus Ritsch
Subject: December 2009 ALERT Data Analysis

I. ALERT Data Source

Raw ALERT data records extracted from the Urban Drainage and Flood Control District's Nova Star 4.0 base station (ALERT 2) were analyzed for the period December 1 through December 31, 2009.

II. General System Analysis Summary

A total of 297,241 ALERT data reports were analyzed from the ALERT 2 base station. Meteorological sensors account for 86 percent, water level sensors 3 percent, and rain sensors 2 percent of the total monthly records.

The system-wide radio traffic loading was 9,588 reports per day with an average hourly loading of 400 reports. The peak hourly traffic loading was 710 reports, which occurred on December 13, between 8:00 AM and 9:00 AM. A plot of monthly average and peak hourly traffic loading is provided.

A. Specific Issues Identified this Month

The performance of the following sensors, highlighted in yellow (Table 1), was unacceptable this month.

Table 1. Rain Sensors with Unacceptable Performance Characteristics

Rain ID	Description	Timer	Event	Comments
700	Toll Gate at 6th	0.77	0.20	Poor overall performance
920	Aurora Town Hall Wx	0.52	1.00	Poor timer performance and large number of invalid reports
1420	Diamond Hill	0.95	0.96	Large number of invalid reports
1440	Elbert	0.92	0.57	Poor event performance
1460	Urban Farm	0.58	0.18	Poor overall performance
1480	Third Creek at DIA	0.92	0.20	Poor event performance
1520	Marston Lake North	0.84	0.25	Poor overall performance
2210	Hiwan G.C.	0.95	0.43	Poor event performance
2320	Choke Cherry Reservoir	0.89	1.00	Large number of invalid reports
2900	Russelville Gulch	0.92	0.83	New amplifier installed 11/2/2009
2930	Spring Valley Road	0.94	0.67	Poor event performance
2970	Rampart Range Road	0.55	1.00	Testing new RF path direct to Diamond Hill
4030	Red Garden	0.44	0.91	Poor timer performance and large number of invalid reports
4330	Indian Ruins	0.58	0.29	Poor overall performance and large number of invalid reports
4470	Little Narrows	0.53	0.87	Poor overall performance and large number of invalid reports

III. Rain Sensor Timer Reporting Summary

The following analysis assumes that each rain sensor has a 12-hour timer-reporting interval. System-wide, the ALERT 2 base station received approximately 90 percent of the non-incrementing timer reports. The worst performing rain sensors for the month are summarized (Table 2).

Table 2. Monthly Summary of Sensors with Poor Timer Performance (Sensor ID)

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec
2850	4030	2840	1360	1350	2900	2270	1350	920	2970	220	220
1650	4200	1020	1640	2850	2270	2370	920	1700	920	300	4030
1810	4490	1040	2270	2270	2850	2850	2360	2970	700	440	920
4250	4520	1720	1600	410	410	1350	2350	2900	2920	510	4470
4790	4790	1030	2850	540	540	1530	2900	4330	1480	520	2970
4300	4020	1550	1350	2320	1350	110	1460	1480	2900	530	4330

*-Timer statistics are skewed in these months because system start-up/shut-down occurs. The rain/stage network is operational between April 1 and October 15. Only the weather stations remain operational throughout the year.

Sensor ID 1460 and 700 have a 24-hour timer-reporting interval and Sensor ID 1810 and 1640 have an 18-hour timer-reporting interval.

Sensors identified as having poor timer performance in multiple months are shaded with unique colors. A developing trend can thus be identified from the color shading as the year progresses.

IV. Rain Sensor Event Reporting Summary

A. District-Wide Total Tip/Count Statistics

The incrementing reports from all 1-mm rain sensors were analyzed to quantify the District-wide statistical total monthly tip summary (Table 3).

Table 3. District-Wide Total Tip/Count Statistical Summary

Statistical Parameter	Value	Comments
Mean	5.60	Only the 1-mm rain sensors were included in the analysis
Median	4.00	Only the 1-mm rain sensors were included in the analysis
Standard deviation	5.24	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	21.32	Only the 1-mm rain sensors were included in the analysis
Minimum total count	1	Numerous IDs
Maximum total count	27	Diamond Hill (ID 1420)

B. Monthly Average Tip/Count Summary

A monthly summary of the District-wide mean total tip/count is presented (Table 4).

Table 4. Monthly Summary of District-Wide Mean Total 1-mm Tip/Count

Year	Jan	Feb	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov	Dec	Ave
2006	4.62	5.92	18.39	20.47	19.44	13.75	74.03	46.89	24.17	41.13	5.04	16.45	24.19
2007	11.56	5.40	29.75	65.03	68.30	15.87	36.20	46.38	22.13	29.50	6.54	11.29	29.00
2008	4.05	7.38	12.26	20.57	54.82	26.06	16.43	90.20	37.54	19.59	2.82	9.24	25.08
2009	6.33	3.11	11.37	59.26	63.45	68.00	65.00	20.00	27.29	30.24	11.00	5.60	30.89

*-Event statistics are skewed in these months because system start-up/shut-down occurs. The rain network is operational between April 1 and October 15. Only the weather stations remain operational throughout the year.

C. Sensors with a Jump of Six or More in the Sequential Count

Several sensors experienced a large jump in the sequential tip count (Table 5).

Table 5. Sensors with a Jump of More than 6 in Sequential Count

Sensor Description	Sensor ID	Comment
Diamond Hill	1420	Multiple large jumps in count
Johnny Park	4310	One large jump in count

D. Sensor-by-Sensor Incrementing Count Summary

The system-wide reception rate of incrementing, 1-mm tip reports for the month was approximately 93 percent. A total of 381 incrementing reports were received and a total of 409 were expected. The total loss of incrementing reports for the month was approximately 7 percent. Those sensors with the worst event transmission performance are summarized (Table 6).

Table 6. Monthly Summary of Sensors with the Most Missed Tips

Jan	Feb*	Mar*	Apr**	May	Jun	Jul	Aug	Sep	Oct*	Nov	Dec
140	4030	860	860	110	2900	2900	2900	2900	1570	1460	1460
4490	4470	840	840	1350	540	2320	2810	1460	2210	700	1420
1420	4490	700	1640	2320	2320	2820	2320	1570	1480	1480	1520
4040	4110	2840	2850	2850	110	110	2820	1440	1460	1520	4330
4160	4510	1340	700	540	1350	1350	1350	1520	1520	4330	4470
4470	4790	920	1350	1810	2350	2370	1640	4330	220	2210	4520

* - Event statistics are poor in February, March, and October due to system start-up.

** - Poor event performance is evident at every station because the ALERT2 base station was unable to receive data for part of this month.

Sensors identified as having poor event performance in multiple months are shaded with unique colors. A developing trend can thus be identified from the color shading as the year progresses.

V. Heavy Radio Traffic Analysis

Periods exceeding 500 messages per hour were analyzed independently in an attempt to quantify data loss rates from rain sensors using the sequential tip count series.

A. The Heaviest Hourly Traffic Periods This Month

The hours of highest radio traffic this month are shown (Table 7).

Table 7. Heavy Radio Traffic Periods

Peak Traffic Periods	Reports/hour	Hour Beginning
Peak Hourly Traffic	710	12/13/2009 8:00 AM
2nd Max	695	12/13/2009 7:00 AM
3rd Max	642	12/10/2009 11:00 AM
4th Max	621	12/12/2009 7:00 PM
5th Max	617	12/10/2009 12:00 PM

Each hour exceeding 500 reports was analyzed to quantify the number of missing rain reports for that hour (Figure 1). The following plot shows the loss of data as a function of data loading.

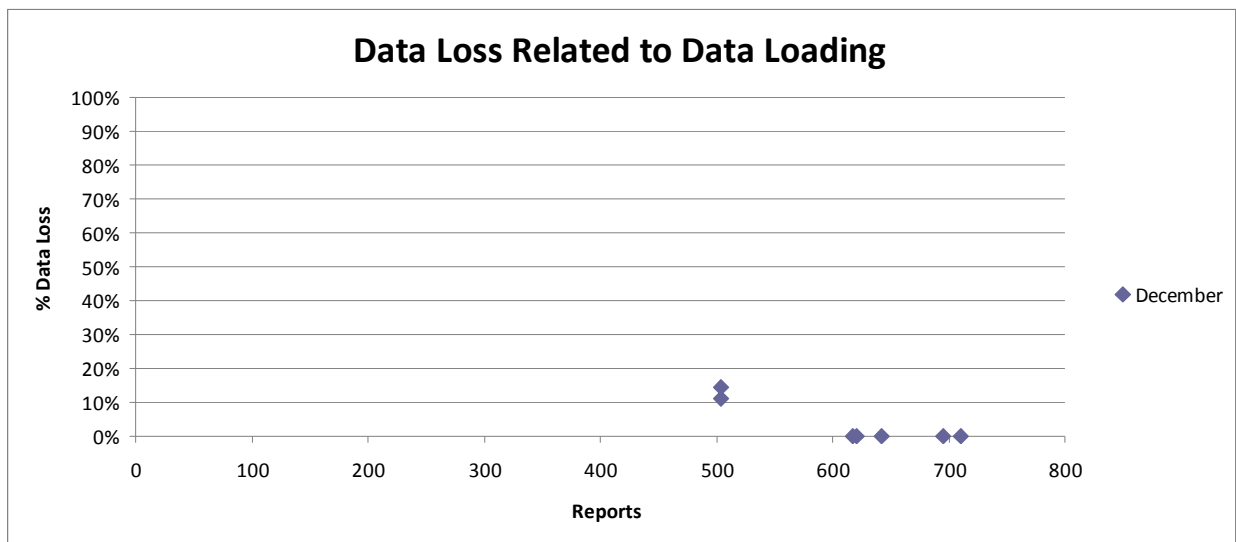


Figure 1. Data Loss vs. Data Loading

VI. Unknown Device Analysis – Received Data Log

The ALERT IDs present in the audio signal received by the decoder are compared against a list of “active” device IDs that are defined within NovaStar. Those IDs received by the decoder that are not defined within NovaStar are considered to be “unknown” and may be the result of radio noise or problems with the telemetry system. The reception of “unknown” device reports for the month is summarized (Table 8).

Table 8. Summary of Unknown IDs

Description	Quantity
Total number of unknown IDs (IDs without a device definition)	428
Total reports from unknown IDs	1,166
Unknown IDs with only a single received report (potential noise)	250
Total reports from all IDs – RecData Log entire month	297,241
Unknown reports as a fraction of total reports	0.39%

The total number of reports from unknown sensors is very small relative to the total reports received for the month.

A number of “unknown” sensors had multiple reports, which may indicate the existence of a transmitter that is sending information on an ID that is not currently defined within NovaStar. The unknown IDs with multiple reports including the number of reports received by each are shown (Table 9).

Table 9. Reports Received by Unknown IDs

Unknown Sensor ID	Number of Reports
1423	32
1470	28
2768	20
1453	16
1446	15
1486	14
2811	14
2756	14
1529	14
1926	14
2754	13
1953	12
1454	12
2745	12
1933	12
225	12
1457	11
1934	11
1954	11
2748	11
4639	10
2716	10
1918	10
1449	10
4031	9
1919	9
1430	9
1531	9
2775	9
2746	9
2715	8
4094	8
1501	8
2784	8
1915	8
2808	7
4093	7
1961	7
4742	7
208	7
1937	6
201	6
1163	6
2776	6
1938	6
1534	6
2760	6
2365	6
4838	6
1458	6
4087	6
1443	6
1950	5
4029	5
4759	5
1965	5
1957	5
1419	5
1925	5
1631	5
153	5
202	5
2766	4
1506	4
1502	4
1415	4
1481	4
1478	4
4071	4
4023	4
5933	4
4836	4
1949	4
4775	4
4768	4

The “unknown” device reports are analyzed temporally to understand when they are received during the day (Table 10). The goal of this analysis is to determine a pattern of occurrence that may correspond to a source of noise in the system, such as the use of a wireless microphone nearby.

Table 10. Temporal Distribution of Unknown Reports

Hour (AM)	Reports	Hour (PM)	Reports
0:00-00:59	25	12:00-12:59	41
1:00-1:59	21	1:00-1:59	57
2:00-2:59	28	2:00-2:59	57
3:00-3:59	34	3:00-3:59	50
4:00-4:59	44	4:00-4:59	66
5:00-5:59	78	5:00-5:59	62
6:00-6:59	74	6:00-6:59	66
7:00-7:59	55	7:00-7:59	55
8:00-8:59	36	8:00-8:59	46
9:00-9:59	74	9:00-9:59	26
10:00-10:59	55	10:00-10:59	28
11:00-11:59	52	11:00-11:59	36

VII. Sensors with Invalid Reports

The following precipitation sensors had a large number of invalid reports (bit flip/contention errors/random decode):

Sensor ID	Description	July Reports	August Reports	Sept Reports	Oct Reports	Nov Reports	Dec Reports
310	Guy Hill Ranch	0	0	3	2	5	0
900	Aurora Reservoir	0	0	0	5	1	0
920	Aurora Town Hall Wx	3	0	1	16	16	5
1420	Diamond Hill	0	0	0	3	6	6
1460	Urban Farm	0	0	0	3	0	1
1530	Bear Creek at Lowell	2	5	0	8	9	7
2210	Hiwan G.C.	12	6	2	0	3	4
2230	Bear Cr below Cub	6	3	3	0	0	0
2320	Choke Cherry Resvr	8	3	3	3	3	5
2810	Pine Cliff Road	6	0	0	2	0	0
2820	Haskins Gulch Conf	5	4	0	0	0	0
2860	CC at Stroh Rd	3	7	1	0	0	0
4030	Red Garden	2	4	3	4	2	1
4070	Bear Peak	0	0	3	1	3	0
4330	Indian Ruins	0	0	7	5	1	2
4790	Button Rock	0	0	3	0	1	0

General System Analysis

Database Name

P:\A207-UDFCD-Data-Analysis\2009\12-2009\Novastar_extract_2009Dec.mdb

First Date in Database

12/1/09 12:00 AM

Total Days

31.0

Last Date in Database

12/31/09 11:59 PM

Total Hours

744.0

Total Records Analyzed

297241

Records by Group

Temperature	55430	19%
Relative Humidity	54755	18%
Wind Gust	44170	15%
Barometric Pressure	24946	8%
Wind Speed Average & Azimuth	24093	8%
Wind Direction	21522	7%
Wind Speed Average	20669	7%
Solar Radiation	9041	3%
Water Level PT-HSE	6129	2%
Fuel Temperature	5849	2%
Fuel Moisture	5837	2%
Precipitation	5115	2%
Battery Voltage HSE	3830	1%
Water Level Float	3611	1%
Battery Voltage Analog	3502	1%
Battery Voltage Digital	2809	1%
Repeater Status Report	2138	1%
Battery	1225	0%
Repeater Pass List	605	0%
12Hr Status Report	313	0%
Water Level PT	296	0%
Wing Gust	98	0%
Soil Moisture	60	0%
Solar Power	20	0%
Handar 585 ALARM Status	9	0%
Battery Voltage	1	0%
Hayman Battery	1	0%
Water Level	1	0%
Total	296075	

Records by Major Group

Meteorologic Sensors	254626	86%
Sensor Status Transmissions	13226	4%
Soil and Fuel Sensors	11746	4%
Water Level Sensors	10036	3%
Rain Sensors	5115	2%
Total	294749	

Records by Validation Type

Good	0	354881	119%
Questionable	1	607	0%
Total		355488	

Sensors With Most Invalid Data

Description	Sensor	Reports
Quincy Reservoir	755	54
Cal-Wood Ranch	4774	50
Castle Rock	2744	32
Salisbury Park	2724	21
Louisville Lake	4744	21

Traffic Loading Summary

Alert Reports	297241	
Average Daily Traffic	9588	
Average Hourly Traffic	400	
Median Hourly Traffic	400	hour beginning
Peak Hourly Traffic	710	12/13/09 8:00 AM
2nd Max	695	12/13/09 7:00 AM
3rd Max	642	12/10/09 11:00 AM
4th Max	621	12/12/09 7:00 PM
5th Max	617	12/10/09 12:00 PM

Rain Timer Performance

n Timer Performance

Analyze Rain Sensors

12:53

0.84971127

Rain ID	Description	Rcv	Timer	Ave Exp	Performance
140	Blue Mountain	57	12:39	62.00	92%
220	Upper Leyden	11	0:26	62.00	18%
700	Toll Gate @ 6th	24	2:24	31.00	77%
750	Quincy Reservoir	60	12:09	62.00	97%
900	Aurora Reservoir	57	12:54	62.00	92%
920	Aurora Town Hall Wx	32	15:29	62.00	52%
970	Pump Sta 3	59	12:12	62.00	95%
1000	Maple Grove Resv.	52	13:23	62.00	84%
1420	Diamond Hill	59	11:30	62.00	95%
1440	Elbert	57	12:51	62.00	92%
1460	Urban Farm	18	6:51	31.00	58%
1480	Third Creek at DIA	57	12:51	62.00	92%
1520	Marston Lake North	52	12:32	62.00	84%
1570	Brighton Ditch Wx	57	12:38	62.00	92%
1640	SPR at Union Ave.	57	12:40	62.00	92%
1660	SPR at Henderson	56	12:11	62.00	90%
1810	Sand Creek at mouth	58	12:11	62.00	94%
1920	Brighton	58	12:26	62.00	94%
2190	Squaw Mountain	59	12:24	62.00	95%
2210	Hiwan G.C.	59	12:24	62.00	95%
2280	Kinney Peak	2	0:00	62.00	3%
2320	Choke Cherry Resvr	221	0:00	248.00	89%
2330	Morrison	55	13:19	62.00	89%
2710	Highlands Ranch WTP	58	12:39	62.00	94%
2730	Salisbury Park	56	12:53	62.00	90%
2750	Castle Rock	56	13:09	62.00	90%
2900	Russelville Gulch-Douglas	57	12:53	62.00	92%
2930	Spring Valley Rd - DougCnty	58	12:25	62.00	94%
2970	Rampart Range Rd	34	19:12	62.00	55%
2990	Tomah Rd-Douglas Cnty	52	13:36	62.00	84%
3020	West Creek WX	60	12:12	62.00	97%
4010	Crescent	53	13:39	62.00	85%
4020	Rio Grande	59	12:34	62.00	95%
4030	Red Garden	27	12:57	62.00	44%
4040	Martin Gulch	56	12:40	62.00	90%
4050	Walker Ranch	56	13:04	62.00	90%
4060	Lakeshore	51	13:42	62.00	82%
4070	Bear Peak	58	12:26	62.00	94%
4080	Twin Sisters	49	15:01	62.00	79%
4090	Magnolia	51	13:47	62.00	82%
4100	Filter Plant	55	13:33	62.00	89%
4110	Betasso	58	12:42	62.00	94%
4130	Swiss Peaks	51	14:02	62.00	82%
4140	Logan Mill	52	13:48	62.00	84%
4150	Gold Hill	51	13:42	62.00	82%
4160	Sunshine	58	12:50	62.00	94%
4170	Pine Brook	51	14:17	62.00	82%
4180	Gold Lake	50	14:12	62.00	81%
4190	Slaughterhouse	60	12:10	62.00	97%
4200	Lazy Acres	58	12:42	62.00	94%
4220	Fling's	57	12:50	62.00	92%
4230	Golden Age	57	12:50	62.00	92%
4240	Sunset	48	15:09	62.00	77%
4250	Geer Canyon	58	12:39	62.00	94%

4260	Taylor Mountain	55	13:08	62.00	89%
4270	Cannon Mountain	51	14:15	62.00	82%
4290	Red Hill	57	13:00	62.00	92%
4300	Big Elk Park	59	12:23	62.00	95%
4310	Johnny Park	58	12:32	62.00	94%
4330	Indian Ruins	36	18:41	62.00	58%
4340	Riverside	58	12:23	62.00	94%
4350	Conifer Hill	59	12:23	62.00	95%
4360	Justice Center	57	12:40	62.00	92%
4470	Little Narrows	33	19:32	62.00	53%
4490	Apple Valley	54	13:35	62.00	87%
4510	Pinewood Springs	57	12:12	62.00	92%
4520	Eagle Ridge	60	12:13	62.00	97%
4530	Winiger Ridge	47	15:33	62.00	76%
4550	Boulder Jail	62	11:43	62.00	100%
4570	St. Antons	50	14:44	62.00	81%
4710	Ward C-1	54	13:42	62.00	87%
4730	Sugarloaf	56	12:55	62.00	90%
4750	Louisville Lake	52	14:15	62.00	84%
4770	Cal-Wood Ranch	59	12:26	62.00	95%
4790	Button Rock	58	12:27	62.00	94%
4810	Shanahan Ridge	57	13:06	62.00	92%
4820	Doudy Draw	54	13:27	62.00	87%
4830	SBC @ San Souci	54	13:32	62.00	87%
4840	SBC@S Boulder Ditch	53	13:40	62.00	85%
4850	Porphory Mtn	55	12:42	62.00	89%
4860	Fairview Peak	54	13:38	62.00	87%

Rain Event Performance		Reports Received	381	Analyze Rain Sensors										
	Systemwide Avg	Total Tips	409											
	93.15%	Data Loss	6.85%											
Rain ID	Performance	1-tips	2-tips	3-tips	4-tips	5-tips	6-tips	>6-tips	Rcv	Exp	Miss	Hold	Bucket	
1460	44%	1	2	0	1	0	0	0	4	9	5	0	0.0393701	
1520	67%	4	1	1	0	0	0	0	6	9	3	0	0.0393701	
1420	74%	17	2	0	0	0	1	1	20	27	7	0	0.0393701	
4330	75%	2	1	0	0	0	0	0	3	4	1	0	0.0393701	
4470	75%	2	1	0	0	0	0	0	3	4	1	0	0.0393701	
4520	75%	4	2	0	0	0	0	0	6	8	2	0	0.0393701	
2970	80%	3	1	0	0	0	0	0	4	5	1	0	0.0393701	
4850	86%	5	1	0	0	0	0	0	6	7	1	1	0.01	
4040	88%	6	1	0	0	0	0	0	7	8	1	0	0.0393701	
4530	89%	7	1	0	0	0	0	0	8	9	1	0	0.0393701	
4860	89%	7	1	0	0	0	0	0	8	9	1	0	0.01	
4290	93%	13	1	0	0	0	0	0	14	15	1	0	0.0393701	
4840	94%	14	1	0	0	0	0	0	15	16	1	0	0.0393701	
4310	94%	16	1	0	0	0	0	2	17	18	1	0	0.0393701	
4360	96%	25	1	0	0	0	0	0	26	27	1	0	0.0393701	
140	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
700	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
750	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
900	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393699	
970	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
1000	100%	12	0	0	0	0	0	0	12	12	0	0	0.0393701	
1480	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
1640	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
1660	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701	
1810	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701	
1920	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
2320	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
2330	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
2710	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
2730	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
2750	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
2900	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
2930	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
2990	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701	
3020	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4010	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4020	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
4030	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
4050	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
4060	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4070	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701	
4080	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4090	100%	6	0	0	0	0	0	0	6	6	0	0	0.0393701	
4110	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701	
4130	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
4140	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701	
4150	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4160	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4170	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4180	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
4190	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4200	100%	10	0	0	0	0	0	0	10	10	0	0	0.0393701	
4220	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4230	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4240	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4250	100%	11	0	0	0	0	0	0	11	11	0	0	0.0393701	
4260	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4270	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4300	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
4340	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4350	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701	
4490	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4510	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701	
4550	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701	
4570	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701	
4710	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
4730	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701	
4750	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
4770	100%	5	0	0	0	0	0	0	5	5	0	0	0.0393701	
4790	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701	
4810	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701	
4820	100%	6	0	0	0	0	0	0	6	6	0	0	0.0393701	
4830	100%	11	0	0	0	0	0	0	11	11	0	0	0.0393701	
	Total Tips	360	18	1	1	0	1	3	381	409	28	1		

Monthly Traffic Loading

