Memo

Water & Earth Technologies, Inc.
Water Resources and Environmental Consulting

Date: January 6, 2009

To: Kevin Stewart and Chad Kudym

From: Markus Ritsch

Subject: **December 2008 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, 2008.

II. General System Analysis Summary

A total of 319,538 data records were analyzed from the ALERT 2 base station. Meteorological sensors account for 69 percent, water level sensors 4 percent, and rain sensors 1 percent of the total monthly records.

More than ninety-nine percent (99.76%) of the received data reports were flagged as "good" by the Nova Star validation process. Roughly, 776 reports were flagged as "bad." Of these "bad" reports, 88 originated from Squaw Mountain (ID 2191), 76 from Quincy Reservoir (ID 755), and 71 originated from Aurora Reservoir (ID 903).

The system-wide radio traffic loading was 10,308 reports per day with an average hourly loading of 429 reports. The peak hourly traffic loading was 558 reports, which occurred on December 15, between 10:00 AM and 11:00 AM. A plot of monthly average and peak hourly traffic loading is provided.

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 87 percent of the non-incrementing timer reports. The worst performing rain sensors for the month are summarized (Table 1).

Table 1. Monthly Summary of Sensors with Poor Timer Performance (Sensor ID)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2190	1660	1350	1710	1600	1600	1600	4130	1540	840	1520	2820
140	2190	110	540	540	110	1660	4560	1700	920	4200	2730
4150	140	2190	1600	1710	950	4140	4240	740	310	4140	4470
4060	4170	1370	1350	4080	1710	1350	4570	1360	110	4470	4520
4470	4150	620	710	4060	540	1710	1710	1660	820	4560	4850
4530	4530	840	4330	4150	4530	4530	4080	1480	2850	4850	4570

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.

Sensor ID 1460 has a 24-hour timer reporting interval and Sensor ID 1810 has an 18-hour timer-reporting interval.

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 2).

Table 2. District-Wide Total Tip/Count Statistical Summary

Statistical Parameter	Value	Comments
Mean	9.24	Only the 1-mm rain sensors were included in the analysis
Median	8.5	Only the 1-mm rain sensors were included in the analysis
Standard deviation	5.6	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	26.1	Only the 1-mm rain sensors were included in the analysis
Minimum total count	1	Lakewood CC and Gold Lake (ID 1550 and 4180)
Maximum total count	28	Morrison (ID 2330)

The highest reporting rain sensor this month was Morrison (ID 2330) with 28 tips. Irrigation sprinklers do not influence this sensor. No other sensors reported more than the mean plus three standard deviations.

B. Monthly Average Tip/Count Summary

A monthly summary of the District-wide mean total tip/count is presented (Table 3).

Table 3. 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

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

One sensor experienced a jump in sequential count of more than six (Table 4).

Table 4. Sensors with a Jump of More than 6 in Sequential Count

Sensor Description	Sensor ID	Comment
Johnny Park	4310	Between December 17 and 18, the count series jumps from 31 to 512 then continues up from 512.

D. Sensor-by-Sensor Incrementing Count Summary

The system-wide reception rate of incrementing, 1-mm tip reports for the month was approximately 95 percent. A total of 613 incrementing reports were received and a total of 647 were expected. The total loss of incrementing reports for the month was approximately 5.26 percent. Those sensors with the worst rain event transmission performance characteristics are summarized (Table 5).

Table 5. Monthly Summary of Sensors with the Most Missed Tips

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1640	4520	2930	1710	1600	1600	1660	1600	870	840	4840	2730
2190	4820	540	1600	2320	2750	4820	1100	1350	860	700	700
750	4530	2730	540	4150	2710	4080	1660	4090	700	2820	2190
4570	4470	2210	700	1710	310	2340	870	1050	970	1550	4130
2990	4810	110	110	4710	4090	2330	1710	2370	2190	--	970
--	700	1350	840	1350	4170	4060	410	120	2820	--	

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.

The incrementing data series for those sensors with an event performance of less than 70 % are manually inspected.

a. Salisbury Park (ID 2730)

This sensor had a performance value of 67%. This station did not report data from December 4 through December 16, 2008. A faulty radio antenna cable was repaired on December 16 to return the station to operation.

b. Toll Gate at 6th Avenue (ID 700)

This sensor had a performance value of 70%. This station reported for the entire month and missed 3 reports out of 10 tips total. A manual inspection of the sequential series revealed nothing suspicious.

c. Squaw Mountain (ID 2190)

This sensor had a performance value of 70%. This station reported for the entire month and missed 3 reports out of 10 tips total. A manual inspection of the sequential series revealed nothing suspicious.

V. Heavy Radio Traffic Analysis

Periods exceeding 700 messages per hour are analyzed independently in an attempt to identify rain tip sequences where 3 or more, sequential messages are lost.

A. The Heaviest Hourly Traffic Periods This Month

The hourly periods of highest radio traffic this month include:

Peak Traffic Periods	Reports/hour	Hour Beginning
Peak Hourly Traffic	558	12/15/08 10:00 AM
2nd Max	547	12/30/08 7:00 AM
3rd Max	544	12/30/08 5:00 AM
4th Max	528	12/30/08 11:00 AM
5th Max	525	12/02/08 7:00 AM

B. December 30, 2008

The heaviest traffic period occurred on December 30, between 5:00 AM and 11:00 AM. Incrementing rain records from the 1-mm gages for the heavy radio traffic period were examined to characterize the loss of sequential incrementing tip transmissions (Table 6). During the heavy traffic period, a total of 42 reports were expected and 42 were received yielding a loss of approximately **0.00%** of the incrementing transmissions.

Table 6. Peak Traffic Analysis - Loss of Incrementing Tip Reports

	Occurrences of lost sequential tip reports during period			
Heavy Traffic Period (December 30)	**Loss of 3 sequential tips**	**Loss of 4 sequential tips**	**Loss of 5 sequential tips**	**Loss of 6 or more sequential tips**
5:00 AM to 11:00 AM	0	0	0	0

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 7).

Table 7. Summary of Unknown IDs

Description	Quantity
Total number of unknown IDs (IDs without a device definition)	154
Total reports from unknown IDs	528
Unknown IDs with only a single received report (potential noise)	112
Total reports from all IDs – RecData Log entire month	265767
Unknown reports as a fraction of total reports	0.20%

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 8).

Table 8. Reports Received by Unknown IDs

Unknown Sensor ID	Reports
8102	87
8101	75
8100	74
2726	43
2725	23
4093	7
4775	6
4063	5
4087	5
2365	5
2224	5
4639	4
4091	4
4094	4
4636	4
696	4
4769	3
4061	3
4086	3
4836	3
4740	3
4599	3

Unknown Sensor ID	Reports
4760	3
1657	3
4768	3
4663	2
4659	2
4272	2
2222	2
4494	2
4559	2
4371	2
4863	2
4282	2
4279	2
207	2
4511	2
4748	2
4766	2
4739	2
4847	2
4828	2

The “unknown” device reports are analyzed temporally to understand when they are received during the day (Table 9). 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 9. Temporal Distribution of Unknown Reports

Hour (AM)	Reports	Hour (PM)	Reports
0:00-00:59	9	12:00-12:59	19
1:00-1:59	37	1:00-1:59	48
2:00-2:59	6	2:00-2:59	15
3:00-3:59	6	3:00-3:59	19
4:00-4:59	37	4:00-4:59	37
5:00-5:59	10	5:00-5:59	8
6:00-6:59	7	6:00-6:59	16
7:00-7:59	38	7:00-7:59	44
8:00-8:59	14	8:00-8:59	20
9:00-9:59	20	9:00-9:59	17
10:00-10:59	42	10:00-10:59	37
11:00-11:59	6	11:00-11:59	16

Sensors 8100, 8101, and 8102 transmitted a large number of timer reports on the intervals of 1:00, 4:00, 7:00 and 10:00.

VII. Issues Identified this Month

Sensors with a large number of invalid reports:

Sensor ID	Description	Invalid Reports	Sensor
2191	Squaw Mountain	88	Relative Humidity
755	Quincy Reservoir	76	Battery Voltage Analog
903	Aurora Reservoir	71	Barometric Pressure
1439	Elbert	47	Wind Gust
4774	Cal-Wood Ranch	47	Barometric Pressure
2744	Castle Rock	38	Wind Gust
1437	Elbert	38	Wind Speed Average
4724	Sugarloaf	27	Wind Gust
2724	Salisbury Park	25	Wind Gust
2704	Highlands Ranch WTP	23	Wind Gust
4744	Louisville Lake	18	Wind Gust
4704	Ward C-1	18	Wind Gust
4784	Button Rock	17	Wind Gust
4764	Cal-Wood Ranch	17	Wind Gust
971	Pump Sta 3	16	Relative Humidity
906	Aurora Reservoir	16	Wind Direction
751	Quincy Reservoir	13	Relative Humidity
1914	Brighton	11	Wind Gust
139	Blue Mountain	10	Wind Gust

Sensors reporting frequently (over reporting):

Sensor ID	Reports	Description	Group
4707	5711	Ward C-1	Wind Speed Average & Azimuth
749	5694	Quincy Reservoir	Wind Gust
2747	4745	Castle Rock	Wind Speed Average & Azimuth
2752	3124	Castle Rock	Temperature
2751	3114	Castle Rock	Relative Humidity
908	3017	Aurora Reservoir	Solar Radiation
903	3014	Aurora Reservoir	Barometric Pressure
4727	2969	Sugarloaf	Wind Speed Average & Azimuth
141	2955	Blue Mountain	Relative Humidity
139	2954	Blue Mountain	Wind Gust
2744	2953	Castle Rock	Wind Gust
138	2952	Blue Mountain	Wind Direction
143	2951	Blue Mountain	Fuel Moisture
2188	2949	Squaw Mountain	Wind Direction
137	2948	Blue Mountain	Wind Speed Average
2192	2947	Squaw Mountain	Temperature
144	2947	Blue Mountain	Fuel Temperature
2187	2936	Squaw Mountain	Wind Speed Average
752	2935	Quincy Reservoir	Temperature
754	2934	Quincy Reservoir	Barometric Pressure

Sensors reporting infrequently (under reporting):

Sensor ID	Reports	Description	Group
2315	1	Genesee Village	Battery Voltage HSE
2235	1	Bear Cr below Cub	Battery Voltage HSE
4460	1	Middle SSV	Water Level PT
735	1	Confluence Pond	Battery Voltage HSE
765	1	Mission Viejo Park	Battery Voltage HSE
1723	1	Cherry Cr @ Steele	Water Level PT
2255	2	Rosedale	Battery Voltage HSE
1905	3	Niver Detention	Battery Voltage HSE
1550	3	Lakewood CC	Precipitation
2276	3	Kinney Peak	Handar 585 ALARM Status
415	3	Kelly Dam	Battery Voltage HSE
2825	5	Haskins Gulch Conf	Battery Voltage HSE
410	5	Kelly Dam	Precipitation
2820	10	Haskins Gulch Conf	Precipitation
705	19	Toll Gate @ 6th	Battery Voltage HSE
413	24	Kelly Dam	Water Level PT-HSE
978	25	Pump Sta 3	Battery

Poor timer reporting:

The following sensors reported for the entire month and showed poor timer performance.

Rain Sensors	Description	Performance
410	Kelly Dam	3%
2820	Haskins Gulch Conf	8%
2730	Salisbury Park	58%
4470	Little Narrows	63%
4520	Eagle Ridge	63%
4850	Porphory Mtn	74%
4510	Pinewood Springs	79%
4570	St. Antons	79%
970	Pump Sta 3	81%
4560	Lyons Diversion NSV	81%
4790	Button Rock	81%
4290	Red Hill	82%
1460	Stapleton	84%
4070	Bear Peak	84%
4130	Swiss Peaks	84%
4170	Pine Brook	84%

Poor event reporting:

The following sensors reported for the entire month and showed poor event performance.

Sensor	Performance
2730	67%
700	70%
2190	70%
4130	73%
970	75%
4150	83%

Low rain total:

Sensor	Tips
1550	1
4180	1
410	2
1460	2
1660	2

High rain total:

Sensor	Tips
2330	28
4360	22
2990	21
4110	20

Large Jump in Sequential Count (bit flip errors/contention loss/transmitter problems):

Sensor Description	Sensor ID	Comment
Johnny Park	4310	Between December 17 and 18, the count series jumps from 31 to 512 then continues up from 512.

Reports from "Unknown Sensors":

The following table shows the "unknown" sensor IDs and the number of reports received for the month.

Unknown Sensor ID	Reports
8102	87
8101	75
8100	74
2726	43
2725	23
4093	7
4775	6
4063	5
4087	5
2365	5
2224	5
4639	4
4091	4
4094	4
4636	4
696	4
4769	3
4061	3
4086	3
4836	3
4740	3
4599	3
4760	3
1657	3
4768	3
4663	2
4659	2
4272	2
2222	2
4494	2
4559	2
4371	2
4863	2
4282	2
4279	2
207	2
4511	2
4748	2
4766	2

General System Analysis

Database Name P:\A207-UDFCD-Data-Analysis\2008_Dec\Novastar_extract_2008Dec.mdb

First Date in Database	12/1/08 12:00 AM	**Total Days**	31.0
Last Date in Database	12/31/08 11:59 PM	**Total Hours**	744.0

Total Records Analyzed 319538

Records by Group

None-ALERT-ID	57456	18%
Wind Gust	45099	14%
Temperature	43437	14%
Relative Humidity	42307	13%
Wind Speed Average & Azimuth	24827	8%
Barometric Pressure	19658	6%
Wind Direction	18132	6%
Wind Speed Average	16629	5%
Solar Radiation	9234	3%
Water Level PT-HSE	8906	3%
Precipitation	4624	1%
Water Level Float	3943	1%
Battery Voltage HSE	3706	1%
Fuel Temperature	3685	1%
Fuel Moisture	3683	1%
Battery Voltage Analog	3339	1%
Soil Moisture	2892	1%
Battery Voltage Digital	2577	1%
Repeater Pass List	615	0%
Repeater Status Report	491	0%
Precipitation - Mean	444	0%
Water Level PT	333	0%
Precipitation - Test	242	0%
Wing Gust	217	0%
12Hr Status Report	166	0%
Battery	145	0%
Longmont Flow Gage	108	0%
Longmont Water Level PT	48	0%
Handar 585 ALARM Status	3	0%
Total	316946	

Records by Major Group

Meteorologic Sensors	219323	69%
Water Level Sensors	13338	4%
Sensor Status Transmissions	10897	3%
Soil and Fuel Sensors	10260	3%
Rain Sensors	4624	1%
Total	258442	

Records by Validation Type

Good	0	318762	99.76%
Questionable	1	776	0.24%
	Total	319538	

Sensors With Most Invalid Data

Description	Sensor	Reports
Squaw Mountain	2191	88
Quincy Reservoir	755	76
Aurora Reservoir	903	71
Elbert	1439	47
Cal-Wood Ranch	4774	47

Traffic Loading Summary

Alert Reports	319538	
Average Daily Traffic	10308	
Average Hourly Traffic	429	
Median Hourly Traffic	427	hour beginning
Peak Hourly Traffic	558	12/15/08 10:00 AM
2nd Max	547	12/30/08 7:00 AM
3rd Max	544	12/30/08 5:00 AM
4th Max	528	12/30/08 11:00 AM
5th Max	525	12/2/08 7:00 AM

Rain Timer Performance

Analyze Rain Sensors

			systemwide average (days) 0.5401		87%
Rain Sensors	**Description**	**Rcv**	**Timer**	**Exp**	**Performance**
410	Kelly Dam	2	11:58	62.00	3%
2820	Haskins Gulch Cont	5	11:59	62.00	8%
2730	Salisbury Park	36	12:24	62.00	58%
4470	Little Narrows	39	17:46	62.00	63%
4520	Eagle Ridge	39	14:54	62.00	63%
4850	Porphory Mtn	46	15:37	62.00	74%
4510	Pinewood Springs	49	13:24	62.00	79%
4570	St. Antons	49	15:08	62.00	79%
970	Pump Sta 3	50	13:47	62.00	81%
4560	.yons Diversion NS\	50	14:26	62.00	81%
4790	Button Rock	50	14:36	62.00	81%
4290	Red Hill	51	13:33	62.00	82%
1460	Stapleton	26	1:02	31.00	84%
4070	Bear Peak	52	13:29	62.00	84%
4130	Swiss Peaks	52	13:28	62.00	84%
4170	Pine Brook	52	13:00	62.00	84%
4010	Cresent	53	13:28	62.00	85%
4050	Walker Ranch	53	13:53	62.00	85%
4080	Twin Sisters	53	13:10	62.00	85%
4190	Slaughterhouse	53	13:33	62.00	85%
4230	Golden Age	53	13:25	62.00	85%
4310	Johnny Park	53	13:37	62.00	85%
4360	Justice Center	53	13:10	62.00	85%
4490	Apple Valley	53	13:27	62.00	85%
1000	Maple Grove Resv.	54	12:59	62.00	87%
4030	Red Garden	54	13:28	62.00	87%
4140	Logan Mill	54	12:59	62.00	87%
4240	Sunset	54	13:21	62.00	87%
4260	Taylor Mountain	54	13:10	62.00	87%
4270	Cannon Mountain	54	13:24	62.00	87%
4750	Louisville Lake	54	13:42	62.00	87%
140	Blue Mountain	55	13:09	62.00	89%
4150	Gold Hill	55	13:13	62.00	89%
4160	Sunshine	55	12:58	62.00	89%
1630	SPR at Dartmouth	56	13:03	62.00	90%
4020	Rio Grande	56	12:54	62.00	90%
4060	Lakeshore	56	12:41	62.00	90%
4100	Filter Plant	56	13:26	62.00	90%
4200	Lazy Acres	56	12:58	62.00	90%
4220	Fling's	56	13:07	62.00	90%
4250	Geer Canyon	56	13:09	62.00	90%
4300	Big Elk Park	56	12:55	62.00	90%
4340	Riverside	56	12:41	62.00	90%
4710	Ward C-1	56	12:55	62.00	90%
4730	Sugarloaf	56	13:10	62.00	90%
4860	Fairview Peak	56	12:57	62.00	90%
700	Toll Gate @ 6th	57	12:00	62.00	92%
1420	Diamond Hill	57	12:40	62.00	92%
2190	Squaw Mountain	57	12:26	62.00	92%
2220	Evergreen Lake	57	12:49	62.00	92%
2850	ıerry Cr bl Bayou Gl	57	12:51	62.00	92%
4090	Magnolia	57	12:25	62.00	92%
4110	Betasso	57	12:45	62.00	92%
4180	Gold Lake	57	12:37	62.00	92%
4530	Winiger Ridge	57	12:52	62.00	92%
4810	Shanahan Ridge	57	12:39	62.00	92%
4830	SBC @ San Souci	57	12:24	62.00	92%

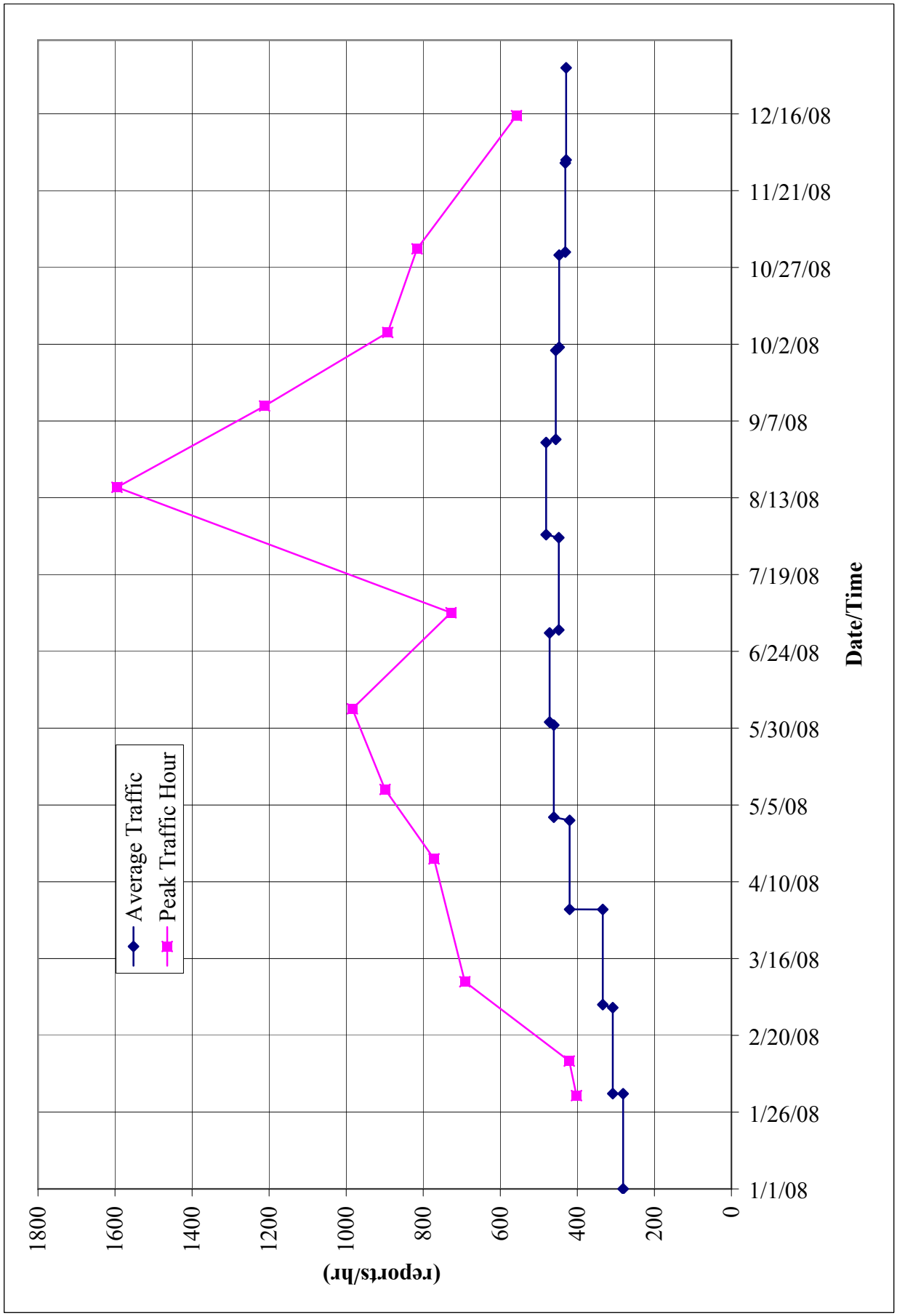
1440	Elbert	58	12:37	62.00	94%
2330	Morrison	58	12:39	62.00	94%
4040	Martin Gulch	58	12:43	62.00	94%
4350	Conifer Hill	58	12:37	62.00	94%
1810	Sand Creek at mouth	39	18:00	41.00	95%
900	Aurora Reservoir	59	12:24	62.00	95%
1660	SPR at Henderson	59	12:36	62.00	95%
4840	BC@S Boulder Ditc	59	12:10	62.00	95%
920	Aurora Town Hall W	60	12:12	62.00	97%
2710	Highlands Ranch WT	60	12:00	62.00	97%
4770	Cal-Wood Ranch	60	12:12	62.00	97%
4820	Doudy Draw	60	12:09	62.00	97%
1570	Brighton Ditch Wx	61	12:00	62.00	98%
1920	Brighton	61	12:00	62.00	98%
2210	Hiwan G.C.	61	12:00	62.00	98%
2990	mah Rd-Douglas C	61	12:00	62.00	98%
750	Quincy Reservoir	62	11:57	62.00	100%
2750	Castle Rock	62	12:00	62.00	100%
4550	Boulder Jail	63	11:33	62.00	102%
1550	Lakewood CC	1		62.00	

Rain Event Performance

Analyze Rain Sensors

		Reports Received	613
	Systemwide Avg	Total Tips	647
	94.7%	Data Loss	5.26%

Sensor	Performance	1-tips	2-tips	3-tips	4-tips	5-tips	6-tips	>6-tips	Rcv	Exp	Miss	Hold	Bucket
2730	67%	1	1	0	0	0	0	0	2	3	1	0	0.0393701
700	70%	4	3	0	0	0	0	0	7	10	3	0	0.0393701
2190	70%	4	3	0	0	0	0	0	7	10	3	0	0.0393701
4130	73%	5	3	0	0	0	0	0	8	11	3	0	0.0393701
970	75%	2	1	0	0	0	0	0	3	4	1	0	0.0393701
4150	83%	8	2	0	0	0	0	0	10	12	2	0	0.0393701
1420	88%	6	1	0	0	0	0	0	7	8	1	0	0.0393701
1810	88%	6	1	0	0	0	0	0	7	8	1	0	0.0393701
4220	88%	6	1	0	0	0	0	0	7	8	1	0	0.0393701
1000	88%	13	2	0	0	0	0	0	15	17	2	0	0.0393701
2710	89%	7	1	0	0	0	0	0	8	9	1	0	0.0393701
4060	89%	7	1	0	0	0	0	0	8	9	1	0	0.0393701
4090	89%	7	1	0	0	0	0	0	8	9	1	0	0.0393701
4840	89%	14	2	0	0	0	0	0	16	18	2	0	0.0393701
4040	89%	15	2	0	0	0	0	0	17	19	2	0	0.0393701
4030	90%	8	1	0	0	0	0	0	9	10	1	0	0.0393701
4170	90%	8	1	0	0	0	0	0	9	10	1	0	0.0393701
4260	90%	8	1	0	0	0	0	0	9	10	1	0	0.0393701
4360	91%	18	2	0	0	0	0	0	20	22	2	0	0.0393701
4830	94%	14	1	0	0	0	0	0	15	16	1	0	0.0393701
4310	94%	16	1	0	0	0	0	1	17	18	1	0	0.0393701
2990	95%	19	1	0	0	0	0	0	20	21	1	0	0.0393701
2330	96%	26	1	0	0	0	0	0	27	28	1	0	0.0393701
1550	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701
4180	100%	1	0	0	0	0	0	0	1	1	0	0	0.0393701
410	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701
1460	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701
1660	100%	2	0	0	0	0	0	0	2	2	0	0	0.0393701
750	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701
1570	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701
4240	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701
4710	100%	3	0	0	0	0	0	0	3	3	0	0	0.0393701
1920	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701
2210	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701
2750	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701
2820	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701
4350	100%	4	0	0	0	0	0	0	4	4	0	0	0.0393701
920	100%	5	0	0	0	0	0	0	5	5	0	0	0.0393701
4050	100%	5	0	0	0	0	0	0	5	5	0	0	0.0393701
4230	100%	5	0	0	0	0	0	0	5	5	0	0	0.0393701
4730	100%	5	0	0	0	0	0	0	5	5	0	0	0.0393701
4080	100%	6	0	0	0	0	0	0	6	6	0	0	0.0393701
4530	100%	6	0	0	0	0	0	0	6	6	0	0	0.0393701
4790	100%	6	0	0	0	0	0	0	6	6	0	0	0.0393701
4100	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701
4490	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701
4570	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701
4770	100%	7	0	0	0	0	0	0	7	7	0	0	0.0393701
140	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701
4070	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701
4190	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701
4300	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701
4750	100%	8	0	0	0	0	0	0	8	8	0	0	0.0393701
4010	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701
4160	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701
4270	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701
4340	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701
4520	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701
4820	100%	9	0	0	0	0	0	0	9	9	0	0	0.0393701
4200	100%	11	0	0	0	0	0	0	11	11	0	0	0.0393701
4470	100%	11	0	0	0	0	0	0	11	11	0	0	0.0393701
2850	100%	12	0	0	0	0	0	0	12	12	0	0	0.0393701
4550	100%	12	0	0	0	0	0	0	12	12	0	0	0.0393701
4020	100%	13	0	0	0	0	0	0	13	13	0	0	0.0393701
4290	100%	15	0	0	0	0	0	0	15	15	0	0	0.0393701
4510	100%	15	0	0	0	0	0	0	15	15	0	0	0.0393701
4810	100%	15	0	0	0	0	0	0	15	15	0	0	0.0393701
4140	100%	16	0	0	0	0	0	0	16	16	0	0	0.0393701
4250	100%	17	0	0	0	0	0	0	17	17	0	0	0.0393701
4110	100%	20	0	0	0	0	0	0	20	20	0	1	0.0393701
	Total	**579**	**34**	**0**	**0**	**0**	**0**	**1**	**613**	**647**	**34**	**1**	


Average Traffic
Peak Traffic Hour
1800
1600
1400
1200
1000
800
600
400
200
0
(reports/hr)
12/16/08
11/21/08
10/27/08
10/2/08
9/7/08
8/13/08
7/19/08
6/24/08
5/30/08
5/5/08
4/10/08
3/16/08
2/20/08
1/26/08
1/1/08
Date/Time