

# Memo

**Date:** November 8, 2013  
**To:** Kevin Stewart  
**From:** Markus Ritsch  
**Subject:** October 2013 ALERT Data Analysis

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## I. ALERT Data Source

Raw ALERT data records extracted from the Urban Drainage and Flood Control District's NovaStar 5 base station were analyzed for the period October 1 through October 31, 2013.

## II. General System Analysis Summary

In 2013 the District will upgrade the telemetry backbone from legacy ALERT (A1) to the new A2 protocol. As the season progresses, the A1 feed from outlying repeaters to the District base station at Diamond Hill will terminate and all data will be received as A2. The following table quantifies the data reception throughout the conversion of the telemetry system as the season progresses. As of January 29, 2013, the West Creek repeater in Douglas County processes both incoming data on A1 and A2 but passes on only A2 format messages to Diamond Hill.

**Table 1. Reception of A1/A2 Data at Diamond Hill**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Legacy	321,136	218,368	264,984	243,044	318,423	342,585	269,475	294,652	353,016	255,398		
Concentrator	304,067	319,089	379,891	381,523	571,616	686,278	538,090	430,404	374,351	430,291		
ALERT2	--	--	16,450	47,415	88,786	113,822	97,216	88,860	86,550	113,474		
<b>TOTAL</b>	<b>625,203</b>	<b>537,457</b>	<b>661,325</b>	<b>671,982</b>	<b>978,825</b>	<b>1,142,685</b>	<b>904,781</b>	<b>813,916</b>	<b>813,917</b>	<b>799,163</b>	<b>0</b>	<b>0</b>
Conc+A2	--	--	396,341	428,938	660,402	800,100	635,306	519,264	460,901	543,765		
Conc/Leg			1.43	1.57	1.80	2.00	2.00	1.46	1.06	1.68		

The daily ratio of ALERT2 reports received versus legacy ALERT is shown below.

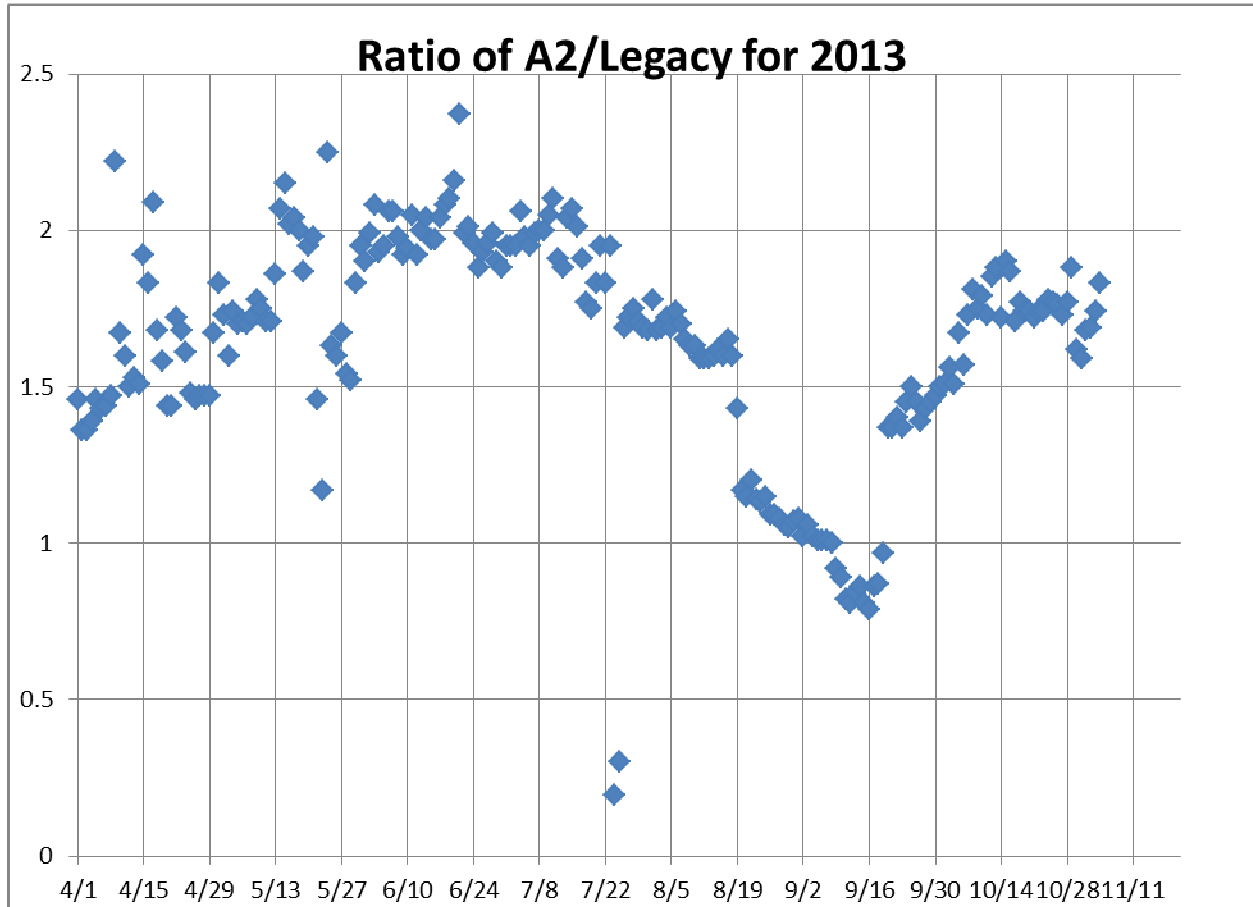


Figure 1. Daily Ratio of ALERT2/Legacy Reports

The number of concentrator A2 reports should be greater than the received legacy reports. Toward the end of October the ratio seems to have stabilized around 1.75.

### A. Performance of New A2 Sites

Currently there are only a handful of remote sites operating on the new A2 protocol. The “event” performance of these sites is tracked throughout the 2013 flood season in the table below.

Table 2. Event Performance of New A2 Sites

Description	ID	Install Date	Apr	May	Jun	Jul	Aug*	Sep*	Oct	
Heritage Regional Park	3090	03/14/2013	100%	93%	100%	91%	81%	99%	100%	
ETG @ Hampden	100110	05/01/2013	--	100%	100%	100%	100%	99%	100%	
Blackstone	100100	05/03/2013	--	100%	100%	100%	100%	95%	100%	
Newlin Gulch	3070	05/24/2013	--	--	51%	50%	45%	42%	100%	
Carr Street	100	05/31/2013	--	--	36%	85%	92%	88%	97%	
Maple Grove	1000	05/20/2013	--	--	67%	95%	100%	89%	100%	

\*-ALERT2 data reception at Diamond Hill was deteriorating

The reception of rain reports from Carr Street (ID 100) at Diamond Hill was 97 percent in October. A total of 32 incrementing tip reports were expected and only 31 were received. A single increment was missed on October 20 between 2:00 PM and 4:41 PM.

## B. Specific Issues Identified this Month

Performance of the following sensors (Table 3) was questionable this month.

**Table 3. Sensors with Poor Performance Characteristics**

Sensor ID	Description	Timer	Event	Comments
840	Fire Station 12	42%	71%	
1200	Broomfield 3207	48%	84%	
920	Aurora Town Hall Wx	65%	86%	
2710	Highlands Ranch WTP	69%	100%	
2790	W. Cherry Creek	95%	69%	
4870	SBC@SB Road	100%	72%	
1423	Many reports received on this unknown ID.			
1424	Many reports received on this unknown ID.			
100117 (ETG@Hampden)	On October 15 at 3:02:33 AM we logged 8 reports for the stage sensor at 10011. Four reports were logged as A2 self-reports (Line=4) and four reports were logged as data concentrator reports (Line=2) coming from SA 6506. This reporting is causing NS5 to invalidate data. Communicated this to OneRain on Nov 8, 2013			

## C. Continuous Operation of Base Receiver/Decoder

The NS5 base station was in continuous operation for the entire month.

## D. Rain Sensor Timer Reporting Summary

The following analysis assumes that each rain sensor has a 12-hour timer-reporting interval. The worst performing rain sensors for the month are summarized (Table 4).

**Table 4. Monthly Summary of Sensors with Poor Timer Performance (Sensor ID)**

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
4470	4470	2790	1200	3070	2710	1480	840	840	840		
3070	4550	4550	840	2800	840	2190	2790	2790	1200		
1660	4870	2710	800	840	4350	840	2730	2730	920		
2790	2790	4870	4330	1700	2790	1660	2910	2930	2710		
4870	4490	4270	2360	2790	5940	3010	2230	2840	4510		
2320	4510	4190	620	100100	1660	3090	2860	2880	4470		

\*- Only sensors that operate year-round (weather stations and stations in Boulder County) are included for the analysis in these months.

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.

## III. 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 5). For the months of January, February, March, October, November and December only the stations that operate year-round are included in the rain event analysis. These stations include all weather stations and the stations in Boulder County.

**Table 5. District-Wide Total Tip/Count Statistical Summary**

Statistical Parameter	Value	Comments
Mean	29.64	Only the 1-mm rain sensors were included in the analysis
Median	30	Only the 1-mm rain sensors were included in the analysis
Standard deviation	12.27	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	66.44	Only the 1-mm rain sensors were included in the analysis
Minimum total count	5	Spring Valley Road – Douglas County (2930)
Maximum total count	59	Shanahan Ridge – Boulder County (4810)

## B. Monthly Average Tip/Count Summary

A monthly summary of the District-wide mean total tip/count is presented (Table 6).

**Table 6. 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
2010	5.97	11.90	32.54	70.57	39.63	56.04	50.23	31.01	4.18	18.31	8.30	3.31	27.67
2011	6.78	7.45	7.54	33.94	92.68	39.42	90.87	18.25	37.67	25.73	10.41	13.59	32.03
2012	4.89	13.57	2.35	30.17	38.97	19.35	73.03	11.31	48.81	22.32	2.98	4.18	22.66
2013	2.96	14.31	21.86	35.96	45.87	16.39	52.33	50.63	229.74	29.64			

\*- Only sensors that operate year-round (weather stations and stations in Boulder County) are included for the analysis in these months.

## 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 7).

**Table 7. Sensors with a Jump of 6 or More in Sequential Count**

Sensor Description	Sensor ID	Comment
SBC @ SB Road	4870	Several large jumps in count observed at these sites attributable to random decodes from marginal radio paths.
Gold Lake	4180	
Geer Canyon	5250	
Hiwan G.C. Weather	2210	

## D. Sensor-by-Sensor Incrementing Count Summary

The system-wide reception rate of incrementing, 1-mm tip reports for the month was approximately 96 percent. A total of 2,073 incrementing reports were received and a total of 2,164 reports were expected. The total loss of incrementing reports for the month was approximately 4 percent. Those sensors with the worst event transmission performance are summarized (Table 8).

**Table 8. Monthly Summary of Sensors with the Most Missed Tips**

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
4470	4510	4270	1200	4470	100	840	840	4570	2790		
2330	2930	4490	840	5900	4470	3070	4470	920	4870		
2980	4470	4790	4330	2980	1000	2980	4330	4330	4180		
1660	2980	4510	4100	2790	500	1700	2820	4470	2930		
--	2730	4320	4270	840	1660	2790	1660	2790	2750		
--	4790	4870	2980	4060	3070	2730	2790	2870	4710		

\*-Only sensors that are operational year-round (weather stations and stations in Boulder County) are included for the analysis in these months.

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.

## IV. Heavy Radio Traffic Analysis

Periods exceeding 1,000 messages per hour are analyzed independently in an attempt to quantify data loss rates from rain sensors using their sequential tip count series.

### A. The Heaviest Hourly Traffic Periods This Month

The hourly periods of highest radio traffic this month are shown (Table 9). The five heaviest hours of radio traffic are analyzed to quantify the number of missing rain reports for that hour.

**Table 9. Periods of Heavy Radio Traffic (total load includes legacy and A2 reports)**

Day	Hour	Expected	Received	Total Load	Loss
4	3	113	110	920	2.65%
30	3	3	3	821	0.00%
31	3	6	6	817	0.00%
27	3	4	4	746	0.00%
11	3	4	4	738	0.00%

## V. 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 10).

**Table 10. Summary of Unknown IDs**

Description	Quantity
Total number of unknown IDs (IDs without a device definition)	260
Total reports from unknown IDs	781
Unknown IDs with only a single received report (potential noise)	151
Total reports from all IDs – RecData Log entire month	255,398
Unknown reports as a fraction of total reports	0.31%

The total number of reports from unknown sensors is very small relative to the total reports received for the month. Shown below (Table 11) are the total reports received from unknown sensor IDs for each month of the year.

**Table 11. Monthly Summary of Total Reports from Unknown IDs**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	1,220	1,474	1,276	1,174	721	5,707	610	1,738	442	533	2,857	6,396
2011	1,231	2,165	3,065	1,254	2,051	439	489	456	191	683	747	861
2012	692	750	1,575	977	5,469	11,016	453	683	774	2,657	3,854	5,466
2013	4,265	994	1,100	2,589	3,623	6,973	5,230	1,070	4,429	781		

The fraction of reports from unknown sensors relative to the total number of reports is shown below (Table 12).

**Table 12. Monthly Percent of Unknown Sensor Reports**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	0.42%	0.56%	0.38%	0.32%	0.20%	1.61%	0.17%	0.49%	0.13%	0.16%	0.93%	1.88%
2011	0.39%	0.73%	0.90%	0.37%	0.58%	0.12%	0.12%	0.05%	0.12%	0.18%	0.22%	0.26%
2012	0.30%	0.25%	0.43%	0.26%	1.37%	2.74%	0.11%	0.18%	0.20%	0.72%	1.15%	1.62%
2013	1.40%	0.31%	0.29%	0.60%	0.37%	0.61%	0.82%	0.21%	0.96%	0.31%		

Any month shaded in yellow has an excessive number of reports from unknown sensors.

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 13).

**Table 13. Reports Received by Unknown IDs**

Unknown ID	Reports	Comment
1423	142	Possibly coming from Diamond Hill
1424	140	
2231	17	
718	13	
1470	13	
4829	13	
2239	8	
4149	8	

## VI. Sensors with Invalid Reports

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

Sensor ID	Description	Invalid Reports	Comments																																																															
2210	Wx – Hiwan G.C.	29	Numerous random reports received during the month resulting in invalid reports.																																																															
1500	Powers Park	6	<p>Erroneous reports on both legacy ALERT and Concentrator (see below)</p> <table border="1"> <thead> <tr> <th>Date/Time</th> <th>Count</th> <th>Sensor ID</th> <th>Line</th> <th>SA</th> </tr> </thead> <tbody> <tr> <td>10/20/2013 4:40:04 PM</td> <td>135</td> <td>1500</td> <td>1</td> <td></td> </tr> <tr> <td>10/20/2013 4:40:04 PM</td> <td>135</td> <td>1500</td> <td>2</td> <td>6503</td> </tr> <tr> <td>10/20/2013 5:18:56 PM</td> <td>106</td> <td>1500</td> <td>1</td> <td></td> </tr> <tr> <td>10/20/2013 5:18:56 PM</td> <td>234</td> <td>1500</td> <td>1</td> <td></td> </tr> <tr> <td>10/20/2013 5:18:57 PM</td> <td>250</td> <td>1500</td> <td>1</td> <td></td> </tr> <tr> <td>10/20/2013 5:18:56 PM</td> <td>106</td> <td>1500</td> <td>2</td> <td>6503</td> </tr> <tr> <td>10/20/2013 5:18:56 PM</td> <td>234</td> <td>1500</td> <td>2</td> <td>6503</td> </tr> <tr> <td>10/20/2013 5:18:57 PM</td> <td>250</td> <td>1500</td> <td>2</td> <td>6503</td> </tr> <tr> <td>10/20/2013 5:39:16 PM</td> <td>136</td> <td>1500</td> <td>1</td> <td></td> </tr> <tr> <td>10/20/2013 5:39:16 PM</td> <td>136</td> <td>1500</td> <td>2</td> <td>6503</td> </tr> </tbody> </table>	Date/Time	Count	Sensor ID	Line	SA	10/20/2013 4:40:04 PM	135	1500	1		10/20/2013 4:40:04 PM	135	1500	2	6503	10/20/2013 5:18:56 PM	106	1500	1		10/20/2013 5:18:56 PM	234	1500	1		10/20/2013 5:18:57 PM	250	1500	1		10/20/2013 5:18:56 PM	106	1500	2	6503	10/20/2013 5:18:56 PM	234	1500	2	6503	10/20/2013 5:18:57 PM	250	1500	2	6503	10/20/2013 5:39:16 PM	136	1500	1		10/20/2013 5:39:16 PM	136	1500	2	6503								
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## **VII. Rainfall Alarms and Intensity Analysis**

The following rainfall rate alarms from the Urban Drainage and Flood Control District NovaStar 5.0 Web Server were identified this month.

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No rainfall alarms recorded this month.

# General System Analysis

**Database Name** P:\A207-UDFCD-Data-Analysis\2013\10-2013\Novastar\_extract\_2013Oct.mdb

<b>First Date in Database</b>	10/1/13 12:00 AM	<b>Total Days</b>	31.0
<b>Last Date in Database</b>	10/31/13 11:59 PM	<b>Total Hours</b>	744.0

**Total Records Analyzed** 543,765

**Records by Group**

Wind Data	187,311	34%
Temperature	92,884	17%
Relative Humidity	78,329	14%
Barometric Pressure	37,721	7%
Battery Voltage	36,922	7%
Water Level	28,259	5%
Precipitation	17,297	3%
Dew Point Temperature	11,730	2%
Wind Chill	11,684	2%
Peak Wind	11,676	2%
Solar Radiation	11,077	2%
Fuel Moisture	6,064	1%
Fuel Temperature	6,036	1%
Soil Moisture	3,009	1%
Repeater Status Report	1,787	0%
Unknown	781	0%
Flasher Status	517	0%
12Hr Status Report	420	0%
Hayman Battery	115	0%
Repeater Pass List	70	0%
Handar 585 ALARM Status	69	0%
Solar Power	7	0%
<b>Total</b>	<b>543,765</b>	

**Records by Major Group**

Meteorologic Sensors	220,011	40%
Water Level Sensors	28,259	5%
Rain Sensors	17,297	3%
Soil and Fuel Sensors	15,109	3%
Sensor Status Transmissions	2,353	0%
<b>Total</b>	<b>283,029</b>	

**Traffic Loading Summary**

**Conc + A2 Self Reports**

**Legacy**

Alert Reports	543,765		255,398
Average Daily Traffic	17,541		8,239
Average Hourly Traffic	731		343
Median Hourly Traffic	702	hour beginning	324
Peak Hourly Traffic	1,524	Oct 4, 3:00 AM	920
2nd Max	1,512	Oct 30, 3:00 AM	821
3rd Max	1,352	Oct 31, 3:00 AM	817
4th Max	1,328	Oct 27, 3:00 AM	746
5th Max	1,325	Oct 25, 3:00 AM	738



# Rain Timer Performance

Analyze Rain Sensors

Rain Sensors	Description	Rcv	Timer	Exp	Performance	Comment
840	Fire Station 12	26	22:17	62	42%	
1200	Broomfield 3207	30	15:57	62	48%	
920	Wx-Aurora Town Hall	40	16:21	62	65%	
2710	Wx-Highlands Ranch WTP	43	16:00	62	69%	
4510	Pinewood Springs	49	14:24	62	79%	
4470	Little Narrows	52	14:27	62	84%	
3010	EPC at Hwy 105	52	13:40	62	84%	
2360	Indian Hills	53	13:18	62	85%	
1660	SPR at Henderson	53	13:33	62	85%	
2320	Choke Cherry Resvr	54	12:33	62	87%	
1530	Bear Creek @ Lowell	55	12:28	62	89%	
2240	Cold Sprg Glch conf	56	11:56	62	90%	
1400	Upper Sloan Det.	56	12:13	62	90%	
1360	Denver Zoo	56	12:45	62	90%	
4220	Fling's	57	12:31	62	92%	
2260	Brook Forest	57	9:09	62	92%	
1030	NREL/S. Table Mtn.	57	12:12	62	92%	
1420	Wx-Diamond Hill	58	12:28	62	94%	
2340	El Rancho	58	8:46	62	94%	
1900	Niver Detention	58	12:25	62	94%	
830	Side Creek Park	58	11:57	62	94%	
810	Granby Ditch @ 6th	58	12:25	62	94%	
530	Fire Station #19	58	12:25	62	94%	
2790	Wx-W. Cherry Creek	59	12:03	62	95%	
1440	Wx-Elbert	59	12:00	62	95%	
1570	Wx-Brighton Ditch	59	12:14	62	95%	
4860	Fairview Peak	59	12:16	62	95%	
4360	Justice Center	59	12:12	62	95%	
4240	Sunset	59	11:57	62	95%	
4020	Rio Grande	59	12:27	62	95%	
1810	Sand Creek at mouth	59	12:10	62	95%	
1700	Cherry Cr @ Champa	59	12:13	62	95%	
1500	Powers Park	59	12:27	62	95%	
1350	Chatfield COE	59	12:00	62	95%	
410	Kelly Dam	59	12:25	62	95%	
310	Guy Hill Ranch	59	12:26	62	95%	
110	Ralston Reservoir	59	12:42	62	95%	
4750	Wx-Louisville Lake	60	12:15	62	97%	
900	Wx-Aurora Reservoir	60	12:14	62	97%	
4530	Winiger Ridge	60	11:57	62	97%	
4570	St. Antons	60	11:59	62	97%	
4550	Boulder Jail	60	11:57	62	97%	
4520	Eagle Ridge	60	12:27	62	97%	
4340	Riverside	60	11:57	62	97%	
4320	Lee Hill Rain 2012	60	11:57	62	97%	
4230	Golden Age	60	11:57	62	97%	
4030	Red Garden	60	12:11	62	97%	
2850	Cherry Cr bl Bayou Glch	60	8:08	62	97%	
1800	Sand Creek Park	60	12:23	62	97%	
1640	SPR at Union Ave.	60	12:25	62	97%	
1300	Hidden Lake	60	12:03	62	97%	
1100	Louisville Rec Ctr	60	11:57	62	97%	
860	Sand Cr at Colfax	60	12:00	62	97%	
850	Flying J	60	12:15	62	97%	

820	ETG @ Buckley	60	12:10	62	97%
700	Toll Gate @ 6th	60	12:13	62	97%
630	Temple Pond at DTC	60	11:56	62	97%
510	Virginia Court	60	11:57	62	97%
200	Leyden Reservoir	60	11:57	62	97%
3020	Wx-West Creek WX	61	11:50	62	98%
2990	Wx-Tomah Rd-DougCnty	61	11:54	62	98%
2730	Wx-Salisbury Park	61	11:50	62	98%
140	Wx-Blue Mountain	61	12:00	62	98%
4330	Hansen Rain	61	12:05	62	98%
4160	Sunshine	61	11:58	62	98%
4090	Magnolia	61	11:57	62	98%
4060	Lakeshore	61	11:29	62	98%
1720	Cherry Cr @ Steele	61	12:11	62	98%
970	Pump Sta 3	61	12:00	62	98%
870	Murphy Creek GC	61	12:00	62	98%
650	Iliff Pond	61	11:44	62	98%
620	Quincy/Highline	61	11:43	62	98%
540	Parker/Mississippi	61	12:10	62	98%
520	Jewell Detention	61	12:10	62	98%
440	Fire Station #7	61	11:57	62	98%
420	Expo Park	61	11:44	62	98%
210	Leyden Confluence	61	11:58	62	98%
150	Nott Creek	61	11:57	62	98%
120	West Woods	61	11:42	62	98%
2930	Wx-Spring Valley Rd-DougCnty	62	11:59	62	100%
2750	Wx-Castle Rock	62	11:42	62	100%
4770	Wx-Cal-Wood Ranch	62	12:14	62	100%
4790	Wx-Button Rock	62	12:00	62	100%
4850	Porphory Mtn	62	12:48	62	100%
4270	Cannon Mountain	62	11:43	62	100%
4250	Geer Canyon	62	11:53	62	100%
4170	Pine Brook	62	11:57	62	100%
4100	Filter Plant	62	11:57	62	100%
4080	Twin Sisters	62	11:44	62	100%
4040	Martin Gulch	62	11:57	62	100%
4010	Crescent	62	12:06	62	100%
1620	Slaughterhouse Glch	62	11:58	62	100%
1550	Lakewood CC	62	11:56	62	100%
1340	Sanderson at Xavier	62	12:13	62	100%
1320	SPR at 3rd Ave	62	11:58	62	100%
1310	LDC at 64th	62	11:29	62	100%
800	Sable Ditch @ 18th	62	11:57	62	100%
400	Montview Park	62	11:44	62	100%
1460	Wx-Urban Farm	63	11:08	62	102%
1920	Wx-Brighton	63	12:00	62	102%
4260	Taylor Mountain	63	11:52	62	102%
4190	Slaughterhouse	63	11:30	62	102%
4150	Gold Hill	63	11:57	62	102%
4140	Logan Mill	63	11:43	62	102%
4050	Walker Ranch	63	11:42	62	102%
1370	West Metro FS13	63	11:36	62	102%
1010	Denver West	63	11:33	62	102%
500	Havana Park	63	11:58	62	102%
320	Sports Complex	63	11:15	62	102%
300	Van Bibber Park	63	11:25	62	102%
750	Wx-Quincy Reservoir	64	11:20	62	103%
4870	SBC @ SB Road	64	11:26	62	103%
2370	Red Rocks Park	64	11:16	62	103%

430	Utah Park	64	11:13	62	103%
220	Upper Leyden	64	11:09	62	103%
4710	Wx-Ward C-1	65	11:20	62	105%
1520	Wx-Marston Lake North	65	11:26	62	105%
4200	Lazy Acres	65	11:18	62	105%
4130	Swiss Peaks	65	11:16	62	105%
2250	Rosedale	65	8:56	62	105%
1480	Third Creek at DIA	65	11:23	62	105%
4730	Wx-Sugarloaf	66	11:12	62	106%
3030	WX-Bingham Lake Park	66	11:00	62	106%
4490	Apple Valley	66	11:17	62	106%
4350	Conifer Hill	66	10:20	62	106%
4180	Gold Lake	66	10:56	62	106%
4110	Betasso	67	10:40	62	108%
4070	Bear Peak	67	11:04	62	108%
2280	Kinney Peak	67	9:31	62	108%
4300	Big Elk Park	68	10:51	62	110%
4290	Red Hill	68	11:29	62	110%
330	Van Bibber @ Hwy 93	68	10:38	62	110%
4310	Johnny Park	69	11:19	62	111%
2350	Idledale	69	10:11	62	111%
1600	Englewood Dam	72	10:32	62	116%
640	Goldsmith @ Eastman	75	9:55	62	121%
600	Harvard Gulch Park	75	10:16	62	121%
610	Harvard @ Jackson	79	9:11	62	127%
710	Horseshoe Park Drop	80	9:07	62	129%
2210	Wx-Hiwan G.C.	82	9:05	62	132%
2330	Morrison	90	8:30	62	145%
4830	SBC @ San Souci	119	7:05	62	192%
4820	Doudy Draw	121	6:25	62	195%
100110	A2-ETG @ Hampden Precip	323		62	521%
100100	A2-Blackstone Precip	303		62	489%
4880	Whispering Pines	166		62	268%
4840	SBC@S Boulder Ditch	134		62	216%
4810	Shanahan Ridge	132		62	213%
3090	Highland Heritage Park-A2	231		62	373%
3070	Newlin Gulch-A2	256		124	206%
1000	A2-Maple Grove Resv.	153		62	247%
100	A2-Carr Street	131		62	211%

5720	Four Mile Creek	14	12:55	62	23%
5730	West Creek	16	12:00	62	26%
5740	Trail Creek	15	12:51	62	24%
5810	Stump Bump	16	12:00	62	26%
5860	Cedar Mountain	16	12:00	62	26%
5880	Hackett Mountain	16	12:00	62	26%
5940	Log Jumper	16	12:00	62	26%

Winterized in Oct  
Winterized in Oct  
Winterized in Oct  
Winterized in Oct  
Winterized in Oct  
Winterized in Oct  
Winterized in Oct

1710	Shop Creek	13	15:16	62	21%	Winterized in Oct
950	Piney at Liverpool	16	11:57	62	26%	Winterized in Oct
730	No Name @ Quincy	16	10:58	62	26%	Winterized in Oct
720	Confluence Pond	16	11:57	62	26%	Winterized in Oct
940	Aurora Regional Pond	17	12:16	62	27%	Winterized in Oct
760	Mission Viejo Park	20	9:08	62	32%	Winterized in Oct
2810	Pine Cliff Road	28	12:32	62	45%	Winterized in Oct
1050	Jeffco Fairgrounds	29	11:33	62	47%	Winterized in Oct

1060	Heritage Square	30	10:54	62	48%	Winterized in Oct
1040	Lena @ U.S. Hwy 6	30	11:54	62	48%	Winterized in Oct
2890	Spruce Mt - Douglas	36	13:07	62	58%	Winterized in Oct
2960	Indian Creek	37	13:32	62	60%	Winterized in Oct
1110	Gunbarrel	37	10:47	62	60%	Winterized in Oct
3050	East/West Trailhead	38	12:00	62	61%	Winterized in Oct
2920	West Cherry Head-Douglas Cnty	38	12:00	62	61%	Winterized in Oct
2900	Russelville Gulch-Douglas	38	12:24	62	61%	Winterized in Oct
3080	Tallman Gulch	39	12:00	62	63%	Winterized in Oct
2860	CC at Stroh Rd	39	11:57	62	63%	Winterized in Oct
2230	Bear Cr below Cub	39	12:21	62	63%	Winterized in Oct
3040	CC @ Prairie Canyon Ranch	40	12:20	62	65%	Winterized in Oct
2980	Dakan Rd	40	12:21	62	65%	Winterized in Oct
2880	Happy Canyon at N Surrey Dr	40	12:00	62	65%	Winterized in Oct
2870	Cottonwood (Apache)	40	12:00	62	65%	Winterized in Oct
2840	Sulphur Gulch	40	11:59	62	65%	Winterized in Oct
3060	Fire Sta 47	41	12:00	62	66%	Winterized in Oct
2940	Willow Creek - DougCnty	41	12:00	62	66%	Winterized in Oct
2910	East Cherry Cr-Douglas	41	12:00	62	66%	Winterized in Oct
2820	Haskins Gulch Conf	42	12:00	62	68%	Winterized in Oct
2310	Genesee Village	42	11:57	62	68%	Winterized in Oct
2950	DC Public Works	43	12:00	62	69%	Winterized in Oct
2270	Cub Cr below Blue	44	11:18	62	71%	Winterized in Oct
2800	Columbine Open Space	45	11:07	62	73%	Winterized in Oct

Rain Event Performance		Reports Received	2,073			Analyze Rain Sensors									
Weather Stations		Total Tips	2,164												
Boulder County Stations	Systemwide Avg	Data Loss	4.21%												
95.79%															
Description	Sensor	Performance	1-tips	2-tips	3-tips	4-tips	5-tips	6-tips	>6-tips	Rcv	Exp	Miss	Hold	Bucket	
Wx-W. Cherry Creek	2790	69%	5	4	0	0	0	0	1	9	13	4	0	0.03937	
SBC @ SB Road	4870	72%	28	5	1	0	0	0	5	34	47	7	0	0.03937	
Gold Lake	4180	77%	21	1	0	1	0	0	2	23	30	4	0	0.03937	
Wx-Spring Valley Rd-DougCr	2930	80%	3	1	0	0	0	0	0	4	5	1	0	0.03937	
Wx-Castle Rock	2750	83%	4	1	0	0	0	0	0	5	6	1	0	0.03937	
Wx-Ward C-1	4710	85%	16	0	0	1	0	0	0	17	20	3	0	0.03937	
Wx-Aurora Town Hall	920	86%	17	1	0	0	0	0	2	18	21	1	0	0.03937	
Wx-Button Rock	4790	87%	29	3	1	0	0	0	0	33	38	5	0	0.03937	
Geer Canyon	4250	89%	36	3	0	0	1	0	3	40	45	7	0	0.03937	
Johnny Park	4310	89%	40	1	0	0	1	0	0	42	47	5	0	0.03937	
Pinewood Springs	4510	89%	38	3	1	0	0	0	0	42	47	5	0	0.03937	
Conifer Hill	4350	90%	36	1	0	1	0	0	1	38	42	4	0	0.03937	
Slaughterhouse	4190	91%	30	0	0	1	0	0	0	31	34	3	0	0.03937	
St. Antons	4570	92%	21	2	0	0	0	0	0	23	25	2	0	0.03937	
Eagle Ridge	4520	93%	23	2	0	0	0	0	0	25	27	2	0	0.03937	
Hansen Rain	4330	94%	45	1	1	0	0	0	0	47	50	3	0	0.03937	
Riverside	4340	94%	31	2	0	0	0	0	0	33	35	2	0	0.03937	
Little Narrows	4470	94%	32	2	0	0	0	0	1	34	36	2	0	0.03937	
Wx-Marston Lake North	1520	95%	17	1	0	0	0	0	1	18	19	1	0	0.03937	
Wx-Hiwan G.C.	2210	95%	19	0	0	0	0	0	3	19	20	0	0	0.03937	
Wx-Brighton	1920	95%	21	0	0	0	0	0	1	21	22	0	0	0.03937	
Walker Ranch	4050	96%	24	1	0	0	0	0	0	25	26	1	0	0.03937	
Big Elk Park	4300	96%	25	1	0	0	0	0	0	26	27	1	0	0.03937	
Sunshine	4160	97%	27	1	0	0	0	0	0	28	29	1	0	0.03937	
Cannon Mountain	4270	97%	29	1	0	0	0	0	0	30	31	1	0	0.03937	
Red Garden	4030	97%	30	1	0	0	0	0	1	31	32	1	0	0.03937	
A2-Carr Street	100	97%	30	1	0	0	0	0	0	31	32	1	0	0.03937	
Wx-Louisville Lake	4750	97%	32	1	0	0	0	0	1	33	34	1	0	0.03937	
Filter Plant	4100	97%	32	1	0	0	0	0	0	33	34	1	0	0.03937	
Apple Valley	4490	97%	32	1	0	0	0	0	0	33	34	1	0	0.03937	
Wx-Sugarloaf	4730	97%	33	1	0	0	0	0	1	34	35	1	0	0.03937	
Magnolia	4090	97%	34	1	0	0	0	0	0	35	36	1	0	0.03937	
Lee Hill Rain 2012	4320	97%	34	1	0	0	0	0	0	35	36	1	0	0.03937	
Whispering Pines	4880	97%	35	1	0	0	0	0	0	36	37	1	0	0.03937	
Lazy Acres	4200	97%	37	1	0	0	0	0	0	38	39	1	0	0.03937	
Doudy Draw	4820	98%	42	1	0	0	0	0	1	43	44	1	0	0.03937	
Red Hill	4290	98%	43	1	0	0	0	0	1	44	45	1	0	0.03937	
Boulder Jail	4550	98%	43	1	0	0	0	0	0	44	45	1	0	0.03937	
SBC @ San Souci	4830	98%	51	1	0	0	0	0	0	52	53	1	0	0.03937	
Wx-Elbert	1440	100%	5	0	0	0	0	0	1	5	5	0	0	0.03937	
Wx-Urban Farm	1460	100%	15	0	0	1	0	0	1	15	15	3	0	0.03937	
Wx-Brighton Ditch	1570	100%	11	0	0	0	0	0	1	11	11	0	0	0.03937	
Wx-West Creek WX	3020	100%	12	0	0	0	0	0	1	12	12	0	0	0.03937	
Rio Grande	4020	100%	30	0	0	0	0	0	1	30	30	0	1	0.03937	
Lakeshore	4060	100%	29	0	0	0	0	0	1	29	29	0	1	0.03937	
Fling's	4220	100%	30	0	0	0	0	0	1	30	30	0	0	0.03937	
Winiger Ridge	4530	100%	23	0	0	0	0	0	1	23	23	0	0	0.03937	
SBC@S Boulder Ditch	4840	100%	50	0	0	0	0	0	1	50	50	0	0	0.03937	
Wx-Blue Mountain	140	100%	20	0	0	0	0	0	0	20	20	0	0	0.03937	
Wx-Quincy Reservoir	750	100%	13	0	0	0	0	0	0	13	13	0	0	0.03937	
Wx-Aurora Reservoir	900	100%	18	0	0	0	0	0	0	18	18	0	0	0.03937	
Wx-Diamond Hill	1420	100%	25	0	0	0	0	0	0	25	25	0	0	0.03937	
Wx-Highlands Ranch WTP	2710	100%	13	0	0	0	0	0	0	13	13	0	0	0.03937	
Wx-Salisbury Park	2730	100%	6	0	0	0	0	0	0	6	6	0	0	0.03937	
Wx-Tomah Rd-DougCnty	2990	100%	20	0	0	0	0	0	0	20	20	0	0	0.03937	
WX-Bingham Lake Park	3030	100%	16	0	0	0	0	0	0	16	16	0	0	0.03937	
Cresent	4010	100%	30	0	0	0	0	0	0	30	30	0	0	0.03937	
Martin Gulch	4040	100%	22	0	0	0	0	0	0	22	22	0	0	0.03937	
Bear Peak	4070	100%	37	0	0	0	0	0	0	37	37	0	0	0.03937	
Twin Sisters	4080	100%	27	0	0	0	0	0	0	27	27	0	0	0.03937	
Betasso	4110	100%	45	0	0	0	0	0	0	45	45	0	1	0.03937	
Swiss Peaks	4130	100%	33	0	0	0	0	0	0	33	33	0	0	0.03937	
Logan Mill	4140	100%	33	0	0	0	0	0	0	33	33	0	0	0.03937	
Gold Hill	4150	100%	29	0	0	0	0	0	0	29	29	0	0	0.03937	
Pine Brook	4170	100%	39	0	0	0	0	0	0	39	39	0	0	0.03937	
Golden Age	4230	100%	20	0	0	0	0	0	0	20	20	0	0	0.03937	
Sunset	4240	100%	25	0	0	0	0	0	0	25	25	0	0	0.03937	
Taylor Mountain	4260	100%	26	0	0	0	0	0	0	26	26	0	0	0.03937	
Justice Center	4360	100%	48	0	0	0	0	0	0	48	48	0	0	0.03937	
Wx-Cal-Wood Ranch	4770	100%	31	0	0	0	0	0	0	31	31	0	0	0.03937	
Shanahan Ridge	4810	100%	59	0	0	0	0	0	0	59	59	0	0	0.03937	
A2-Blackstone Precip	100100	100%	19	0	0	0	0	0	0	19	19	0	0	0.03937	
A2-ETG @ Hampden Precip	100110	100%	27	0	0	0	0	0	0	27	27	0	0	0.03937	
TOTAL			2011	52	4	5	2	0	34	2073	2164	83	3		
Porphyry Mtn	4850	90%	95	7	2	0	0	0	0	104	115	11	0	0.01	

Fairview Peak	4860	99%	116	1	0	0	0	0	0	117	118	1	0	0.01
Newlin Gulch-A2	3070	100%	0	20	0	0	0	0	0	1	21	21	20	0.019685
EPC at Hwy 105	3010	92%	49	5	0	0	0	0	0	54	59	5	0	0.01
Highland Heritage Park-A2	3090	100%	18	0	0	0	0	0	0	18	18	0	0	0.03937
Tallman Gulch	3080	92%	10	1	0	0	0	0	0	11	12	1	0	0.03937
Fire Sta 47	3060	94%	15	1	0	0	0	0	0	16	17	1	0	0.03937
East/West Trailhead	3050	100%	13	0	0	0	0	0	4	13	13	0	0	0.03937
CC @ Prairie Canyon Ranch	3040	100%	6	0	0	0	0	0	0	6	6	0	0	0.03937
Dakan Rd	2980	62%	4	3	1	0	0	0	0	8	13	5	0	0.03937
Indian Creek	2960	94%	15	1	0	0	0	0	1	16	17	1	0	0.03937
DC Public Works	2950	100%	10	0	0	0	0	0	0	10	10	0	0	0.03937
Willow Creek - DougCnty	2940	91%	9	1	0	0	0	0	1	10	11	1	0	0.03937
West Cherry Head-Douglas C	2920	100%	6	0	0	0	0	0	0	6	6	0	0	0.03937
East Cherry Cr-Douglas	2910	100%	9	0	0	0	0	0	0	9	9	0	0	0.03937
Russelville Gulch-Douglas	2900	100%	13	0	0	0	0	0	0	13	13	0	0	0.03937
Spruce Mt - Douglas	2890	100%	4	0	0	0	0	0	0	4	4	0	0	0.03937
Happy Canyon at N Surrey D	2880	100%	14	0	0	0	0	0	0	14	14	0	0	0.03937
Cottonwood (Apache)	2870	100%	15	0	0	0	0	0	0	15	15	0	0	0.03937
CC at Stroh Rd	2860	100%	13	0	0	0	0	0	0	13	13	0	0	0.03937
Cherry Cr bl Bayou Glch	2850	100%	8	0	0	0	0	0	0	8	8	0	0	0.03937
Sulphur Gulch	2840	100%	14	0	0	0	0	0	0	14	14	0	0	0.03937
Haskins Gulch Conf	2820	93%	12	1	0	0	0	0	0	13	14	1	0	0.03937
Pine Cliff Road	2810	83%	13	1	1	0	0	0	4	15	18	3	0	0.03937
Columbine Open Space	2800	100%	15	0	0	0	0	0	0	15	15	0	0	0.03937
Red Rocks Park	2370	93%	23	2	0	0	0	0	0	25	27	2	0	0.03937
Indian Hills	2360	85%	18	4	0	0	0	0	0	22	26	4	0	0.03937
Idledale	2350	100%	24	0	0	0	0	0	2	24	24	0	0	0.03937
El Rancho	2340	100%	14	0	0	0	0	0	0	14	14	0	0	0.03937
Morrison	2330	96%	24	1	0	0	0	0	3	25	26	1	0	0.03937
Choke Cherry Resvr	2320	92%	22	2	0	0	0	0	1	24	26	2	0	0.03937
Genesee Village	2310	100%	17	0	0	0	0	0	0	17	17	0	0	0.03937
Kinney Peak	2280	94%	14	1	0	0	0	0	0	15	16	1	0	0.03937
Cub Cr below Blue	2270	79%	21	0	1	0	1	0	0	23	29	6	0	0.03937
Brook Forest	2260	100%	26	0	0	0	0	0	0	26	26	0	0	0.03937
Rosedale	2250	100%	24	0	0	0	0	0	0	24	24	0	0	0.03937
Cold Sprg Glch conf	2240	100%	24	0	0	0	0	0	0	24	24	0	0	0.03937
Bear Cr below Cub	2230	59%	10	3	2	0	1	0	0	16	27	11	0	0.03937
Niver Detention	1900	100%	15	0	0	0	0	0	1	15	15	0	0	0.03937
Sand Creek at mouth	1810	93%	13	1	0	0	0	0	1	14	15	1	0	0.03937
Sand Creek Park	1800	89%	14	2	0	0	0	0	0	16	18	2	0	0.03937
Cherry Cr @ Steele	1720	94%	16	1	0	0	0	0	0	17	18	1	0	0.03937
Shop Creek	1710	86%	5	1	0	0	0	0	0	6	7	1	0	0.03937
Cherry Cr @ Champa	1700	100%	10	0	0	0	0	0	1	10	10	0	0	0.03937
SPR at Henderson	1660	88%	12	2	0	0	0	0	0	14	16	2	0	0.03937
SPR at Union Ave.	1640	90%	8	1	0	0	0	0	2	9	10	1	0	0.03937
Slaughterhouse Glch	1620	89%	14	2	0	0	0	0	0	16	18	2	0	0.03937
Englewood Dam	1600	91%	18	2	0	0	0	0	1	20	22	2	0	0.03937
Lakewood CC	1550	100%	23	0	0	0	0	0	1	23	23	0	0	0.03937
Bear Creek @ Lowell	1530	100%	23	0	0	0	0	0	2	23	23	0	0	0.03937
Powers Park	1500	100%	17	0	0	0	0	0	6	17	17	0	0	0.03937
Third Creek at DIA	1480	100%	11	0	0	0	0	0	0	11	11	0	0	0.03937
Upper Sloan Det.	1400	96%	24	1	0	0	0	0	1	25	26	1	0	0.03937
West Metro FS13	1370	100%	20	0	0	0	0	0	0	20	20	0	0	0.03937
Denver Zoo	1360	100%	18	0	0	0	0	0	2	18	18	0	0	0.03937
Chatfield COE	1350	93%	13	1	0	0	0	0	4	14	15	1	0	0.03937
Sanderson at Xavier	1340	100%	22	0	0	0	0	0	1	22	22	0	0	0.03937
SPR at 3rd Ave	1320	83%	15	4	0	0	0	0	0	19	23	4	0	0.03937
LDC at 64th	1310	95%	20	1	0	0	0	0	0	21	22	1	0	0.03937
Hidden Lake	1300	95%	20	1	0	0	0	0	0	21	22	1	0	0.03937
Broomfield 3207	1200	84%	19	1	0	1	0	0	1	21	25	4	0	0.03937
Gunbarrel	1110	93%	13	1	0	0	0	0	0	14	15	1	0	0.03937
Louisville Rec Ctr	1100	92%	33	3	0	0	0	0	0	36	39	3	1	0.03937
Heritage Square	1060	94%	14	1	0	0	0	0	1	15	16	1	0	0.03937
Jeffco Fairgrounds	1050	100%	16	0	0	0	0	0	0	16	16	0	0	0.03937
Lena @ U.S. Hwy 6	1040	100%	15	0	0	0	0	0	3	15	15	0	0	0.03937
NREL/S. Table Mtn.	1030	94%	28	2	0	0	0	0	1	30	32	2	0	0.03937
Denver West	1010	97%	28	1	0	0	0	0	1	29	30	1	0	0.03937
A2-Maple Grove Resv.	1000	100%	28	0	0	0	0	0	0	28	28	0	0	0.03937
Pump Sta 3	970	100%	15	0	0	0	0	0	0	15	15	0	1	0.03937
Piney at Liverpool	950	100%	6	0	0	0	0	0	0	6	6	0	0	0.03937
Aurora Regional Pond	940	100%	8	0	0	0	0	0	0	8	8	0	0	0.03937
Murphy Creek GC	870	100%	17	0	0	0	0	0	0	17	17	0	0	0.03937
Sand Cr at Colfax	860	95%	18	1	0	0	0	0	0	19	20	1	0	0.03937
Flying J	850	100%	16	0	0	0	0	0	0	16	16	0	0	0.03937
Fire Station 12	840	71%	13	1	0	0	0	1	0	15	21	6	0	0.03937
Side Creek Park	830	100%	16	0	0	0	0	0	1	16	16	0	0	0.03937
ETG @ Buckley	820	100%	19	0	0	0	0	0	0	19	19	0	0	0.03937
Granby Ditch @ 6th	810	100%	23	0	0	0	0	0	0	23	23	0	0	0.03937
Sable Ditch @ 18th	800	96%	23	1	0	0	0	0	0	24	25	1	0	0.03937
Mission Viejo Park	760	91%	9	1	0	0	0	0	0	10	11	1	0	0.03937

No Name @ Quincy	730	100%	8	0	0	0	0	0	0	0	8	8	0	0	0.03937
Confluence Pond	720	100%	4	0	0	0	0	0	0	0	4	4	0	0	0.03937
Horseshoe Park Drop	710	94%	14	1	0	0	0	0	0	1	15	16	1	0	0.03937
Toll Gate @ 6th	700	100%	23	0	0	0	0	0	0	0	23	23	0	0	0.03937
Iliff Pond	650	100%	19	0	0	0	0	0	0	1	19	19	0	0	0.03937
Goldsmith @ Eastman	640	94%	14	1	0	0	0	0	0	1	15	16	1	0	0.03937
Temple Pond at DTC	630	100%	28	0	0	0	0	0	0	0	28	28	0	0	0.03937
Quincy/Highline	620	96%	24	1	0	0	0	0	0	0	25	26	1	0	0.03937
Harvard @ Jackson	610	100%	22	0	0	0	0	0	0	1	22	22	0	0	0.03937
Harvard Gulch Park	600	100%	15	0	0	0	0	0	0	0	15	15	0	0	0.03937
Parker/Mississippi	540	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.03937
Fire Station #19	530	95%	17	1	0	0	0	0	0	0	18	19	1	0	0.03937
Jewell Detention	520	94%	16	1	0	0	0	0	0	0	17	18	1	0	0.03937
Virginia Court	510	100%	22	0	0	0	0	0	0	0	22	22	0	0	0.03937
Havana Park	500	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.03937
Fire Station #7	440	100%	23	0	0	0	0	0	0	0	23	23	0	0	0.03937
Utah Park	430	100%	29	0	0	0	0	0	0	0	29	29	0	0	0.03937
Expo Park	420	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.03937
Kelly Dam	410	100%	24	0	0	0	0	0	0	0	24	24	0	0	0.03937
Montview Park	400	100%	17	0	0	0	0	0	0	0	17	17	0	0	0.03937
Van Bibber @ Hwy 93	330	96%	25	1	0	0	0	0	0	3	26	27	1	0	0.03937
Sports Complex	320	100%	27	0	0	0	0	0	0	2	27	27	0	0	0.03937
Guy Hill Ranch	310	100%	19	0	0	0	0	0	0	1	19	19	0	0	0.03937
Van Bibber Park	300	100%	26	0	0	0	0	0	0	1	26	26	0	0	0.03937
Upper Leyden	220	100%	27	0	0	0	0	0	0	0	27	27	0	0	0.03937
Leyden Confluence	210	97%	31	1	0	0	0	0	0	0	32	33	1	0	0.03937
Leyden Reservoir	200	94%	27	2	0	0	0	0	0	0	29	31	2	0	0.03937
Nott Creek	150	100%	24	0	0	0	0	0	0	2	24	24	0	0	0.03937
West Woods	120	100%	29	0	0	0	0	0	0	0	29	29	0	0	0.03937
Ralston Reservoir	110	100%	26	0	0	0	0	0	0	0	26	26	0	0	0.03937
Four Mile Creek	5720	50%	0	1	0	0	0	0	0	0	1	2	1	0	0.03937
Log Jumper	5940	100%	3	0	0	0	0	0	0	0	3	3	0	0	0.03937

## 2013 Monthly ALERT Radio Traffic Summary

