Memo

Date: November 5, 2015
To: Kevin Stewart
From: Markus Ritsch
Subject: **October 2015 ALERT Data Analysis**

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, 2015.

II. General System Analysis Summary

In 2015 data will be received at the District through both the legacy ALERT channel and through the ALERT2 (concentrator plus A2 self-reports) channel. The following (Table 1) quantifies the data reports received by each channel.

Table 1. Reception of Data at Diamond Hill (Legacy, ALERT2 and Concentrator Reports)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Legacy	216,461	241,285	268,551	282,306	345,191	348,979	284,647	269,298	246,919	268,738		
Concentrator	366,229	405,210	443,612	458,979	499,841	511,002	449,469	438,917	403,457	444,814		
ALERT2	172,927	233,617	286,836	295,399	319,764	302,746	320,675	376,339	358,553	334,148		
TOTAL	**755,617**	**880,112**	**998,999**	**1,036,684**	**1,164,796**	**1,162,727**	**1,054,791**	**1,084,554**	**1,008,929**	**1,047,700**	**0**	**0**
Conc+A2	539,156	638,827	730,448	754,378	819,605	813,748	770,144	815,256	762,010	778,962		
Conc/Leg	1.69	1.68	1.65	1.63	1.45	1.46	1.58	1.63	1.63	1.66		
DataChron	529,216	564,798	652,811	702,865	777,203	772,052	742,221	755,645	716,065	694,527		

The District operates two redundant NovaStar5 base stations: the primary (ns5a) at Diamond Hill and a redundant base (ns5b) at Greenhouse Data. Additional analyses are conducted on the data received by these two base stations (Table 2). The data received by both base stations for the month are shown below.

Table 2. Comparison of Data Reception by ns5a and ns5b

NS5A (Diamond Hill)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Legacy	216,461	241,285	268,551	282,306	345,191	348,979	284,647	269,298	246,919	270,076
Concentrator	366,229	405,210	443,612	458,979	499,841	511,002	449,469	438,917	403,457	443,928
ALERT2	172,927	233,617	286,836	295,399	319,764	302,746	320,675	376,339	358,553	330,561
NS5B (Greenhouse)										
Legacy	244,232	241,143	268,417	262,549	341,926	341,600	288,199	269,168	246,796	268,738
Concentrator	409,951	405,875	444,660	430,407	499,657	502,908	456,087	440,313	405,243	444,814
ALERT2	191,784	234,150	289,044	275,955	319,750	299,635	328,435	381,397	365,140	334,148
Diff (NS5a-NS5b)										
Legacy (Digi One)	-27,771	142	134	19,757	3,265	7,379	-3,552	130	123	1,338
Concentrator (B2010)	-43,722	-665	-1,048	28,572	184	8,094	-6,618	-1,396	-1,786	-886
ALERT2 (B2010)	-18,857	-533	-2,208	19,444	14	3,111	-7,760	-5,058	-6,587	-3,587
Comments	Failed hard drive on ns5a		Tot A2 diff 1%	Outage on ns5b this month			Ns5a data collection was down on July 1		Total A2 diff about 1%	

For the last three months the feed from the legacy decoder (DigiOne) is better to the Diamond Hill base that to Greenhouse while the opposite is true for the B2010 ALERT2 decoder. This would lead one to believe the difference lies not in the network architecture between Diamond Hill and Greenhouse but rather has something to do with the serial-IP device.

The daily ratio of total concentrator reports received versus total legacy ALERT reports received is shown (Figure 1).

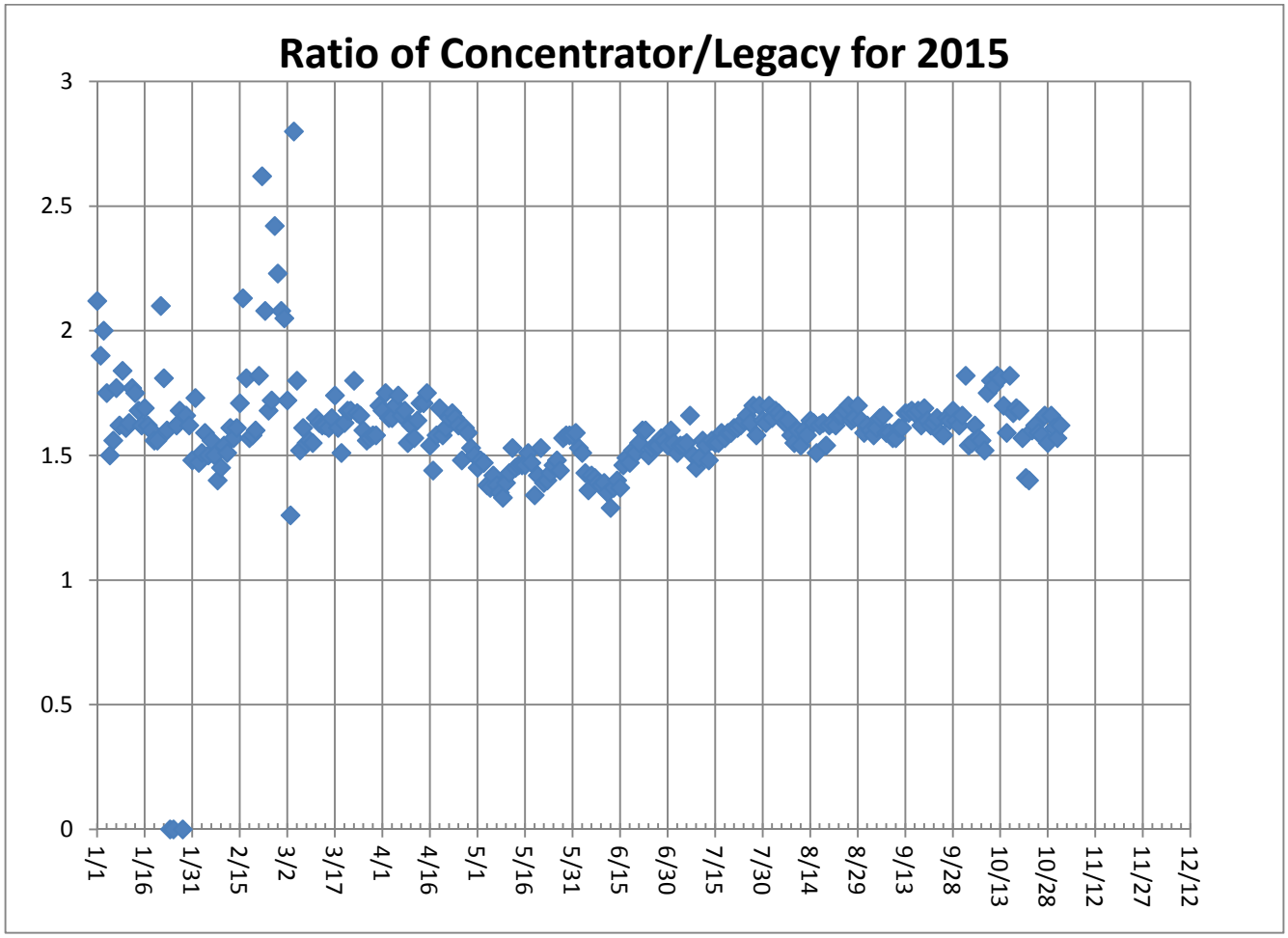


Figure 1. Daily Ratio of Concentrator Reports to Legacy Reports

The ratio is very consistent throughout the month. The ratio seems to fluctuate just around 1.6.

A. Continuous Operation of Base Receiver/Decoder

The ns5 base stations were NOT in continuous operation for the entire month. Data collection was down on the Greenhouse server on October 28th from 1:34 PM to October 28th at 3:43 PM. The Diamond Hill server however did collect data during this period so the problem was only at Greenhouse.

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	Comments
10029	Plum Creek at Sedalia	Poor timer reporting
10027	West Creek Hayman	Poor timer and event reporting
10026	Trumbull Hayman	Poor timer and event reporting
10024	Westerly Creek Dam	Poor timer reporting
4850	Porphory Mtn	Poor timer reporting
4470	Little Narrows	Poor timer and event reporting
2271, 2272 2274	Unknown IDs	Possibly coming from Cub Creek below Blue
2283	Unknown ID	Possibly coming from Kinney Peak
1382	Unknown ID	Possibly coming from Ferril Lake
6505	Lee Hill Repeater	Massive change in operational throughput from this repeater

A significant development this month is the deteriorating performance of the Lee Hill repeater in terms of ALERT2 data throughput. The expected traffic load through Lee Hill dropped as did the performance of the ALERT2 sensors going through Lee Hill.

C. Performance of New A2 Sites

This section of the report will look at specific reporting characteristics of the new A2 sites by analyzing their APDUID (Application PDU Identifier). The APDUID is a cyclical, incrementing counter from 0 to 6. Tracking skipped values and restarts of the application control byte counter provides useful insight into site performance and general network health. The performance of the cyclical counter is quantified for each A2 self-reporting site and repeater path (Table 4).

Table 4. APDUID Performance of A2 Sites by Source Address

Description	ID	W. Creek (6001)	Smoky Hill (6502)	Blue Mt. (6503)	Lee Hill (6505)	Gold Hill (6506)
Carr Street (10012)	100		0.90	0.95	0.50	0.92
Murphy Creek (10019)	870		0.98	0.98	0.78	0.97
Maple Grove (10013)	1000		0.97	0.53	0.67	0.97
Lena @ Nolte Pond (10025)	1020		0.98	0.99	0.73	0.97
Newlin Gulch	3070		0.94	0.19	0.62	0.48
Heritage Regional Park	3090		0.78	0.15	0.60	0.96
Lower Left Hand (10018)	4453		0.98	--	0.64	--
Magnolia	6602		0.93	0.99	0.79	0.98
Blackstone**	100100		0.11	0.07	0.09	0.14
ETG @ Hampden**	100110		0.14	0.12	0.12	0.12
Upper Sellers	100140	0.90				
Haystack Road	100150	0.83				
Sand Cr at Colfax	100160		0.98	0.98	0.78	0.98
James Creek	100177		0.31	--	0.80	0.97
S. St. Vrain at Berry Ridge	100210		--	--	0.99	0.19
Arvada/Blunn Reservoir	100227		0.97	0.97	0.62	0.72
Havana Pond	100237		0.98	0.98	0.77	0.97
Westerly Creek Dam	100247		0.99	0.99	0.65	0.98
Trumbull (Hayman)	100260	0.85	--	--	--	--
West Creek (Hayman)	100270	0.84	--	--	--	--

**-the APDUID is disabled for these sites…..these are original HSE A2 transmitters and may not support the APDUID

Notice that the APDUID performance for sites coming through Lee Hill has declined this month. There seems to be a problem with the Lee Hill repeater.

D. ALERT2 Repeater Loading

The ALERT2 architecture utilizes 5 repeaters with a single transmit frequency (170.300 MHz) to Diamond Hill. The repeaters utilize a 20 second frame where each repeater is allocated a slot of specific size and an offset within the frame. The slot allocated to each repeater is sized appropriately to accommodate the total number of existing and future remote sites routed through that repeater. Each repeater is shown along with its designated slot (Table 5). Currently there is no pass-listing for the ALERT2 repeaters. Any remote ALERT2 site can be received by all repeaters and re-broadcast to the base except for West Creek which has an input frequency unique to Douglas County.

Table 5. ALERT2 Repeater Architecture

Repeater	Slot Size (sec)	Slot Offset (sec)	Source Address	ALERT2 Input Frequency (MHz)	ALERT2 Output Frequency (MHz) – received at Diamond Hill
West Creek	2	0	6001	169.425	170.300
Smoky	3	2	6502	169.525	170.300
Blue Mt.	4	5	6503	169.525	170.300
Lee Hill	3	9	6505	169.525	170.300
Gold Hill	3	12	6506	169.525	170.300
Magnolia	5	15	6507		170.300
Frame Size	20				

The following tables summarize the total number of reports received through each repeater (Table 6) and the distribution of reports by time slot (Table 7). This quantifies repeater loading for the ALERT2 backbone.

Table 6. ALERT2 Reports Received through Each Repeater (Only A2 Self Reports)

Month	West Creek (6001)	Smoky (6502)	Blue Mt. (6503)	Lee Hill (6505)	Gold Hill (6506)	TOTAL
Jan	0	44,501	44,636	44,783	39,007	172,927
Feb	0	58,543	56,150	61,160	57,764	233,617
Mar	346	73,198	69,604	77,968	65,323	286,439
Apr	595	73,711	69,568	79,215	72,310	295,399
May	5,259	78,694	72,340	86,297	77,174	319,764
June	11,987	72,449	65,742	82,998	69,570	302,746
July	28,595	75,379	71,394	79,026	74,041	328,435
Aug	28,409	92,299	84,057	84,363	87,211	376,339
Sep	26,809	84,143	84,776	84,289	85,123	365,140
Oct	19,775	82,683	83,390	63,475**	84,825	334,148

** - The number of reports coming through Lee Hill has declined in October (Figure 2)

Table 7. Messages Received by Time Slot (Only A2 Self Reports)

	West Cr. (6001)		Smoky (6502)			Blue Mt. (6503)				Lee Hill (6505)			Gold Hill (6506)			Unused				
Tot	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Oct	8005	4655	15782	28004	10126	23825	25785	7012	1481	3861	2957	224	5224	2073	25	14	10	9	3	9
	1035	1007	3585	3391	335	4132	9098	7056	662	4726	4139	2528	6928	10863	3206	186	76	53	35	40
	43	39	4519	14276	3855	3463	3090	171	92	16597	23342	5592	27734	24830	4038	208	32	14	15	33
334,148	9,083	5,701	23,886	45,671	14,316	31,420	37,973	14,239	2,235	25,184	30,438	8,344	39,886	37,766	7,269	408	118	76	53	82

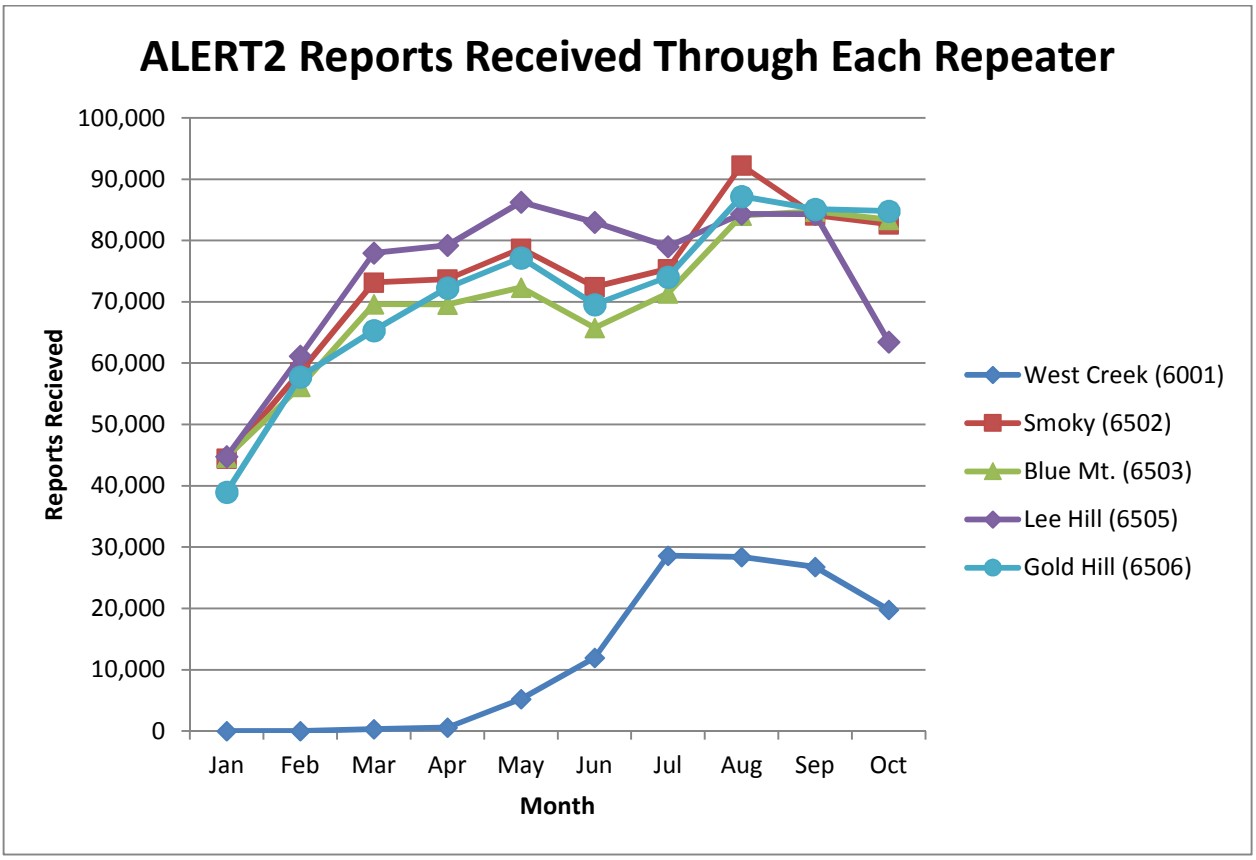


Figure 2. Reports received through each repeater (ALERT2 Only)

The reduction this month in ALERT2 reports through Lee Hill is evident in the plot above (Figure 2).

The following tables summarize the system-wide latency of ALERT2 self-reports (Table 8 and Table 9).

Table 8. System-Wide Latency of ALERT2 Self-Reports (seconds)

Statistical Parameter	Value	Comments
Mean	70.61	The average time it took a report from the field to reach the base
Minimum	4	The minimum time it took for a report to go from the field to the base
Maximum	261	The maximum time it took for a report to go from the field to the base

Table 9. Summary of ALERT2 System-Wide Latency (seconds)

Statistical Parameter	Feb	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	340	35.7	44.04	38.14	34.23	59.75	71.60	70.48	70.61		
Minimum	5	3	3	3	3	4	3	4	4		
Maximum	35,209	3,706	43,089	205	245	1,093	261	264	261		

E. Rain Sensor Timer Reporting Summary

The following analysis assumes that each legacy rain sensor has a 12-hour timer-reporting interval and each A2 rain sensor has a 1-hour timer-reporting interval. The worst performing rain sensors for the month are summarized (Table 10).

Table 10. Monthly Summary of Sensors with Poor Timer Performance (Sensor ID)

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
4470	4470	4470	4850	2330	430	2330	1660	4850	10029		
700	2330	4270	2330	310	2330	2360	430	100140	10027		
2330	4870	2790	430	2360	3010	1570	2330	2850	10026		
4240	3010	4240	5720	430	2360	430	2850	430	10024		
3010	1660	4870	2970	4470	310	2850	1570	2330	4850		
4870	4240	3010	2360	4870	1660	1660	2360	2360	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 11). 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 11. District-Wide Total Tip/Count Statistical Summary

Statistical Parameter	Value	Comments
Mean	53.28	Only the 1-mm rain sensors were included in the analysis
Median	54	Only the 1-mm rain sensors were included in the analysis
Standard deviation	13.10	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	92.59	Only the 1-mm rain sensors were included in the analysis
Mean minus two standard deviations	27.08	Only the 1-mm rain sensors were included in the analysis
Minimum total count	23	Spring Valley Road – Douglas County (2930)
Maximum total count	80	Fling's (4220)
Sensors showing **NO** rain for the month		--
Sensors greater than 3 SD (over reporting)		None

B. Monthly Average Tip/Count Summary

A monthly summary of the District-wide mean total tip/count is presented (Table 12).

Table 12. 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	5.86	4.00	42.46
2014	6.88	11.86	25.91	29.30	77.30	29.16	99.73	43.59	50.96	29.26	13.36	8.11	35.45
2015	9.88	24.42	20.78	69.75	143.07	86.93	54.59	29.95	7.16	53.28			

***- 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 13).

Table 13. Sensors with a Jump of 6 or More in Sequential Count

Sensor Description	Sensor ID	Comment
Little Narrows	4470	This site has a poor radio path and the count jumps

D. Sensor-by-Sensor Incrementing Count Summary

The system-wide reception rate of incrementing, 1-mm tip reports for the month was approximately 94 percent. A total of 3,556 incrementing reports were received and a total of 3,783 reports were expected. The total loss of incrementing reports for the month was approximately 6 percent. Those sensors with the worst event transmission performance are summarized (Table 14).

Table 14. Monthly Summary of Sensors with the Worst Performance

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
4470	2330	100150	100150	310	430	2790	2330	2240	4470		
700	4470	4470	4240	1620	4470	430	430	2970	10027		
4750	700	2340	430	2330	2330	2360	4330	1440	10026		
4330	2320	100140	100140	430	2970	4870	4270	1040	4510		
2790	4330	1520	2330	2230	2230	2850	4470	1710	4790		
4870	4870	1100	1620	4470	2360	2330	1660	4330	2790		

***-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. 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 15).

Table 15. Summary of Unknown IDs

Description	Concentrator	Legacy	A2
Total number of unknown IDs (IDs without a device definition)	411	422	0
Total reports from unknown IDs	1,063	1,038	0
Unknown IDs with only a single received report (potential noise)	265	289	0
Total reports from all IDs – RecData Log entire month	444,814	268,738	334,148
Unknown reports as a fraction of total reports	0.24%	0.39%	0%

The total number of reports from unknown sensors is very small relative to the total reports received for the month. Shown below (Table 16) are the total reports received from unknown sensor IDs for each month of the year.

Table 16. Monthly Summary of Total Reports from Unknown IDs (Concentrator)

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	13,459	1,213
2014	870	4,284	2,399	2,104	25,746	1,832	3,983	268	369	448	470	1,099
2015	542	9,137	1,524	1,007	946	699	1,179	1,860	1,153	1,063		

The fraction of reports from unknown sensors relative to the total number of reports is shown below (Table 17).

Table 17. Monthly Percent of Unknown Sensor Reports (Concentrator)

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%	5.37%	0.23%
2014	0.14%	0.94%	0.40%	0.34%	3.95%	0.34%	0.66%	0.03%	0.03%	0.07%	0.11%	0.26%
2015	0.15%	2.25%	0.34%	0.22%	0.19%	0.14%	0.26%	0.42%	0.29%	0.24%		

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 18).

Table 18. Reports Received by Unknown IDs

Concentrator		Legacy ALERT		
Unknown ID	**Reports**	**Unknown ID**	**Reports**	**Comment**
623	64	623	60	Quincy/Highline
1382	51	1382	49	Ferril Lake
2272	50	2271	48	Cub Creek below Blue
2271	48	2272	48	Cub Creek below Blue
2274	48	2274	43	Cub Creek below Blue
2283	48	2283	40	Cub Creek below Blue
1430	24	2	34	

V. Sensors with Invalid Reports

The sensors below (Table 19 and Table 20) have the largest number of invalid decodes as determined by the validation process defined at the District NovaStar5 base station. These invalid reports may indicate poor radio paths (bit flip/contention errors/random decode) or validation criteria that do not match the physical installation at the site.

Table 19. Rain Sensors with the Most Invalid Reports

Sensor ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temple Pond at DTC (630)	0	0	0	0	0	0	113	0	0	0		
Bear Creek @ Lowell (1530)	5	6	2	1	15	9	0	0	0	1		
Pine Cliff Road (2810)	4	5	6	4	2	7	5	5	7	4		
Porphory Mtn (4850)	0	0	0	0	0	7	5	2	1	3		
East/West Trailhead (3050)	0	0	0	0	0	5	4	1	1	3		
Haskins Gulch (2820)	0	0	0	0	64	0	0	0	0	0		
Wx-West Creek (3020)	0	0	10	4	13	1	0	2	0	0		
Wx-Castle Rock (2750)	0	0	5	2	30	0	0	0	0	0		
A2-Newlin Gulch (3070)	0	0	0	6	35	2	0	0	1	134		
A2-Highland Heritage Park (3090)	0	0	0	0	0	0	0	0	0	121		
CC at Stroh Road (2860)	0	0	0	0	0	0	0	10	0	0		
Cannon Mt (4270)	0	0	0	0	0	0	0	8	0	1		
A2-Upper Sellers Gulch (10014)	0	0	0	0	0	0	0	0	0	94		
A2-Haystack (10015)	0	0	0	0	0	0	0	0	0	79		

Table 20. Level Sensors with the Most Invalid Reports

Sensor ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Van Bibber @ Hwy 93 (333)	0	0	0	0	0	0	43	5	0	0		
Horseshoe Park Drop (713)	0	0	0	0	0	0	198	0	0	1		
Louisville Rec Ctr (1103)	0	0	0	0	0	0	94	4	0	0		
Pine Cliff Road (2813)	0	0	0	0	0	0	41	17	0	3		
Ferril Lake (1383)	666	667	725	720	261	0	0	0	0	307		
Kelly Dam (413)	0	0	0	0	61	70	47	42	18	2		
A2-Lena @ Nolte Pond (1023)	na	545	745	738	0	0	0	1	0	0		
Piney at Liverpool (953)	0	0	228	232	26	0	0	0	0	0		
Flying J (853)	0	0	52	60	60	58	61	62	59	62		
Sanderson at Xavier (1343)	0	0	31	7	15	26	6	1	0	0		
SPR at Henderson (1663)	0	0	0	0	0	0	18	10	5	3		
Little Narrows (4473)	33	208	2	8	11	24	7	1	3	1		
SPR at Dartmouth (1629)				49	58	3	0	51	96	0		
Murphy Creek GC (873)	0	0	0	0	36	1	0	0	0	0		
Marston Lake North (1523)	0	0	0	0	20	10	0	4	0	5		
Bridge (4423)	0	0	0	0	0	32	3	0	0	0		
SBC @ San Souci (4833)	0	0	0	0	0	26	1	1	6	0		
Sand Creek Park (1803)	0	0	0	0	0	23	1	0	4	0		
Newlin Gulch (3073)	0	0	0	0	0	0	0	34	0	0		
A2-Highland Heritage Park (3093)	0	0	0	0	0	0	0	0	0	73		
A2-Havana Pond (100237)	0	0	0	0	0	0	0	13	60	0		
Lyons Diversion NSV (4563)	0	0	0	0	0	0	0	0	16	1		
Red Rocks Park (2373)	0	0	0	0	0	0	0	0	10	1		

VI. 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.

ID	Description	Alarm	Date
300	Van Bibber Park Precipitation-JF-Arvada	Jefferson County 10 minute rainfall	10/3/2015 19:39
100	Carr Street Precipitation-JF-Arvada	Jefferson County 10 minute rainfall	10/3/2015 19:52
5810	Stump Bump Precipitation-TL	Hayman 30 minute rainfall	10/5/2015 18:30
5810	Stump Bump Precipitation-TL	Hayman 1 hour rainfall	10/5/2015 18:44
5810	Stump Bump Precipitation-TL	Hayman 30 minute rainfall	10/5/2015 18:44
5810	Stump Bump Precipitation-TL	Hayman 90 minute rainfall	10/5/2015 19:25
5730	West Creek Precipitation-TL	Hayman 30 minute rainfall	10/5/2015 19:46
5730	West Creek Precipitation-TL	Hayman 1 hour rainfall	10/5/2015 19:55
2790	West Cherry Creek Precipitation-DG	Douglas County 10 minute rainfall	10/6/2015 13:10
2790	West Cherry Creek Precipitation-DG	Douglas County 1 hour-1 Inch rainfall	10/6/2015 13:25
3040	East Cherry Creek at Russellville Road Precip-DG	Douglas County 1 hour-1 Inch rainfall	10/6/2015 13:40
2970	Rampart Range Road Precipitation-DG	2970 Rampart Range Road 0.2" in 30 Minutes Rainfall	10/6/2015 15:30
2970	Rampart Range Road Precipitation-DG	2970 Rampart Range Road 0.4" in 1 Hour Rainfall	10/6/2015 15:30
4320	Lee Hill Rain Precipitation-BO	FMC-BA 0.25" in 10 Min Rainfall	10/13/2015 11:40
4320	Lee Hill Rain Precipitation-BO	FMC-BA 0.50" in 30 Min Rainfall	10/13/2015 11:47
4320	Lee Hill Rain Precipitation-BO	Boulder County 10 minute rainfall	10/13/2015 11:47
630	Temple Pond at DTC Precipitation-DN	Plains 10 minute rainfall	10/14/2015 0:39
630	Temple Pond at DTC Precipitation-DN	Plains 1 hour rainfall	10/14/2015 0:44
630	Temple Pond at DTC Precipitation-DN	Plains 10 minute rainfall	10/14/2015 0:50
630	Temple Pond at DTC Precipitation-DN	Plains 10 minute rainfall	10/14/2015 1:01
630	Temple Pond at DTC Precipitation-DN	Plains 2 hour rainfall	10/14/2015 1:09
630	Temple Pond at DTC Precipitation-DN	Plains 10 minute rainfall	10/14/2015 1:17
300	Van Bibber Park Precipitation-JF-Arvada	Tweet Arvada Heavy Rain 0.5"-10min	10/3/2015 19:39
300	Van Bibber Park Precipitation-JF-Arvada	Tweet Jefferson County Heavy Rain 0.5"-10min	10/3/2015 19:39
100	Carr Street Precipitation-JF-Arvada	Tweet Arvada Heavy Rain 0.5"-10min	10/3/2015 19:52
100	Carr Street Precipitation-JF-Arvada	Tweet Jefferson County Heavy Rain 0.5"-10min	10/3/2015 19:52
2790	West Cherry Creek Precipitation-DG	Tweet Douglas County Heavy Rain 0.5"-10min	10/6/2015 13:10
2790	West Cherry Creek Precipitation-DG	Tweet Douglas County Heavy Rain 1"-1hour	10/6/2015 13:25
3040	East Cherry Creek at Russellville Road Precip-DG	Tweet Douglas County Heavy Rain 1"-1hour	10/6/2015 13:40

4320	Lee Hill Rain Precipitation-BO	Tweet Boulder County Heavy Rain 0.5"-10min	10/13/2015 11:47
630	Temple Pond at DTC Precipitation-DN	Tweet Denver Heavy Rain 0.5"-10min	10/14/2015 0:39
630	Temple Pond at DTC Precipitation-DN	Tweet Denver Heavy Rain 1"-1hour	10/14/2015 0:44
630	Temple Pond at DTC Precipitation-DN	Tweet Denver Heavy Rain 0.5"-10min	10/14/2015 0:50
630	Temple Pond at DTC Precipitation-DN	Tweet Denver Heavy Rain 0.5"-10min	10/14/2015 1:01
630	Temple Pond at DTC Precipitation-DN	Tweet Denver Heavy Rain 0.5"-10min	10/14/2015 1:17

General System Analysis

Database Name	P:\A207-UDFCD-Data-Analysis\2015\10-2015\Novastar_extract_2015Oct.mdb

First Date in Database	9/30/15 11:59 PM	**Total Days**	31.0
Last Date in Database	10/31/15 11:59 PM	**Total Hours**	744.0

Summarize

Total Records Analyzed 444,814

Records by Group	**Concentrator**	**Percent**	**Legacy**	**Percent**	**A2**	**Percent**
Wind Data	169,335	38.07%	87,392	32.52%	139,367	41.71%
Temperature	71,571	16.09%	37,425	13.93%	44,097	13.20%
Relative Humidity	63,132	14.19%	36,848	13.71%	42,858	12.83%
Barometric Pressure	37,092	8.34%	21,260	7.91%	706	0.21%
Battery Voltage	26,339	5.92%	15,635	5.82%	31,636	9.47%
Water Level	21,036	4.73%	20,047	7.46%	25,470	7.62%
Precipitation	17,561	3.95%	16,800	6.25%	20,133	6.03%
Solar Radiation	12,642	2.84%	11,141	4.15%	0	0.00%
Fuel Moisture	6,567	1.48%	6,201	2.31%	0	0.00%
Fuel Temperature	6,389	1.44%	6,212	2.31%	0	0.00%
Wind Direction	4,016	0.90%	3	0.00%	0	0.00%
Soil Moisture	3,451	0.78%	3,017	1.12%	0	0.00%
Repeater Status Report	2,447	0.55%	3,142	1.17%	0	0.00%
Unknown	1,063	0.24%	1,038	0.39%	0	0.00%
ET-Hourly	860	0.19%	788	0.29%	0	0.00%
Hayman Battery	473	0.11%	1	0.00%		0.00%
12Hr Status Report	332	0.07%	309	0.11%	2,756	0.82%
Not Used	257	0.06%	264	0.10%	569	0.17%
Repeater Pass List	75	0.02%	563	0.21%	0	0.00%
GPS Lock	69	0.02%	544	0.20%	8,427	2.52%
Handar 585 ALARM Status	65	0.01%	65	0.02%	0	0.00%
ET-Daily	36	0.01%	37	0.01%	0	0.00%
Solar Power	3	0.00%	6	0.00%	0	0.00%
ALERT/A2 Testing	2	0.00%	0	0.00%	0	0.00%
Evapotranspiration	1	0.00%	0	0.00%	0	0.00%
Wind Chill	0	0.00%	0	0.00%	8,100	2.42%
Dew Point Temperature	0	0.00%	0	0.00%	8,099	2.42%
Flasher Status	0	0.00%	0	0.00%	1,930	0.58%
Total	**444,814**	**100.00%**	**268,738**	**100.00%**	**334,148**	**100.00%**

Traffic Loading Summary	**Concentrator**		**Legacy**		**ALERT2**	
Alert Reports	444,814		268,738		334,148	
Average Daily Traffic	13,900		8,669		10,779	
Average Hourly Traffic	579		361		449	
Median Hourly Traffic	562	hour beginning	346	hour beginning	455	hour beginning
Peak Hourly Traffic	970	Oct 21, 6:00 AM	759	Oct 22, 9:00 AM	569	Oct 6, 6:00 PM
2nd Max	954	Oct 12, 9:00 AM	728	Oct 22, 10:00 AM	564	Oct 3, 7:00 PM
3rd Max	950	Oct 22, 9:00 AM	723	Oct 12, 9:00 AM	562	Oct 21, 5:00 AM
4th Max	937	Oct 11, 1:00 PM	692	Oct 21, 8:00 AM	549	Oct 3, 8:00 PM
5th Max	933	Oct 20, 11:00 PM	662	Oct 21, 12:00 AM	546	Oct 3, 5:00 PM

Rain Timer Performance

Analyze Rain Sensors

Rain Sensors	Description	Rcv	Timer	Exp	Performance	Comment
100290	Wx-A2-PlumCr at Sedalia - Precip	326		744	44%	
100270	Wx-A2-WestCreek (Hayman) - Precip	339		744	46%	
100260	WX-A2-Trumbull (Hayman) - Precip	352		744	47%	
100240	A2-Westerly Cr Dam Precip	468		744	63%	
4850	Porphory Mtn	42	13:32	64	66%	
4470	Little Narrows	42	14:06	64	66%	
4270	Cannon Mountain	44	14:46	64	69%	
2790	Wx-W. Cherry Creek	47	15:00	64	73%	
4790	Wx-Button Rock	52	13:12	64	81%	
4510	Pinewood Springs	53	13:06	64	83%	
4490	Apple Valley	53	13:09	64	83%	
4180	Gold Lake	53	12:51	64	83%	
4300	Big Elk Park	55	12:50	64	86%	
1460	Wx-Urban Farm	56	12:28	64	88%	
1520	Wx-Marston Lake North	56	12:58	64	88%	
4050	Walker Ranch	56	12:29	64	88%	
100150	A2-Sellers Gulch at Haystack Precip	656		744	88%	
1440	Wx-Elbert	57	12:45	64	89%	
2750	Wx-Castle Rock	57	12:58	64	89%	
4870	SBC @ SB Road	57	12:48	64	89%	
4520	Eagle Ridge	57	11:58	64	89%	
4360	Justice Center	57	12:42	64	89%	
4290	Red Hill	57	12:28	64	89%	
4070	Bear Peak	57	12:43	64	89%	
4060	Lakeshore	57	12:13	64	89%	
4040	Martin Gulch	57	12:47	64	89%	
100140	A2-Upper Sellers Gulch Precip	670		744	90%	
2930	Wx-Spring Valley Rd-DougCnty	58	12:27	64	91%	
1920	Wx-Brighton	58	12:13	64	91%	
4830	SBC @ San Souci	58	12:11	64	91%	
4570	St. Antons	58	11:59	64	91%	
4350	Conifer Hill	58	13:02	64	91%	
4330	Hansen Rain	58	11:57	64	91%	
4260	Taylor Mountain	58	12:13	64	91%	
4020	Rio Grande	58	12:13	64	91%	
4710	Wx-Ward C-1	59	12:36	64	92%	
2210	Wx-Hiwan G.C.	59	12:00	64	92%	
4820	Doudy Draw	59	12:13	64	92%	
4810	Shanahan Ridge	59	12:13	64	92%	
4310	Johnny Park	59	12:45	64	92%	
4220	Fling's	59	12:29	64	92%	
4110	Betasso	59	12:43	64	92%	
4030	Red Garden	59	12:29	64	92%	
3020	Wx-West Creek WX	60	12:14	64	94%	
4730	Wx-Sugarloaf	60	12:00	64	94%	
750	Wx-Quincy Reservoir	60	11:56	64	94%	
140	Wx-Blue Mountain	60	12:14	64	94%	
3030	WX-Bingham Lake Park	60	12:00	64	94%	
900	Wx-Aurora Reservoir	60	12:15	64	94%	
4840	SBC@S Boulder Ditch	60	11:57	64	94%	
4550	Boulder Jail	60	11:56	64	94%	
4340	Riverside	60	11:57	64	94%	
4250	Geer Canyon	60	11:57	64	94%	
4190	Slaughterhouse	60	12:13	64	94%	
4100	Filter Plant	60	11:59	64	94%	
2990	Wx-Tomah Rd-DougCnty	61	12:00	64	95%	
2730	Wx-Salisbury Park	61	12:00	64	95%	
4750	Wx-Louisville Lake	61	12:00	64	95%	
2710	Wx-Highlands Ranch WTP	61	12:00	64	95%	
3010	WX-EPC at Hwy 105	61	12:00	64	95%	
1420	Wx-Diamond Hill	61	12:00	64	95%	
4770	Wx-Cal-Wood Ranch	61	12:00	64	95%	
1570	Wx-Brighton Ditch	61	12:00	64	95%	
920	Wx-Aurora Town Hall	61	12:00	64	95%	
4530	Winiger Ridge	61	11:58	64	95%	
100110	A2-ETG @ Hampden Precip	61	12:00	64	95%	
100100	A2-Blackstone Precip	61	12:00	64	95%	
4860	Fairview Peak	61	12:00	64	95%	
4230	Golden Age	61	11:57	64	95%	

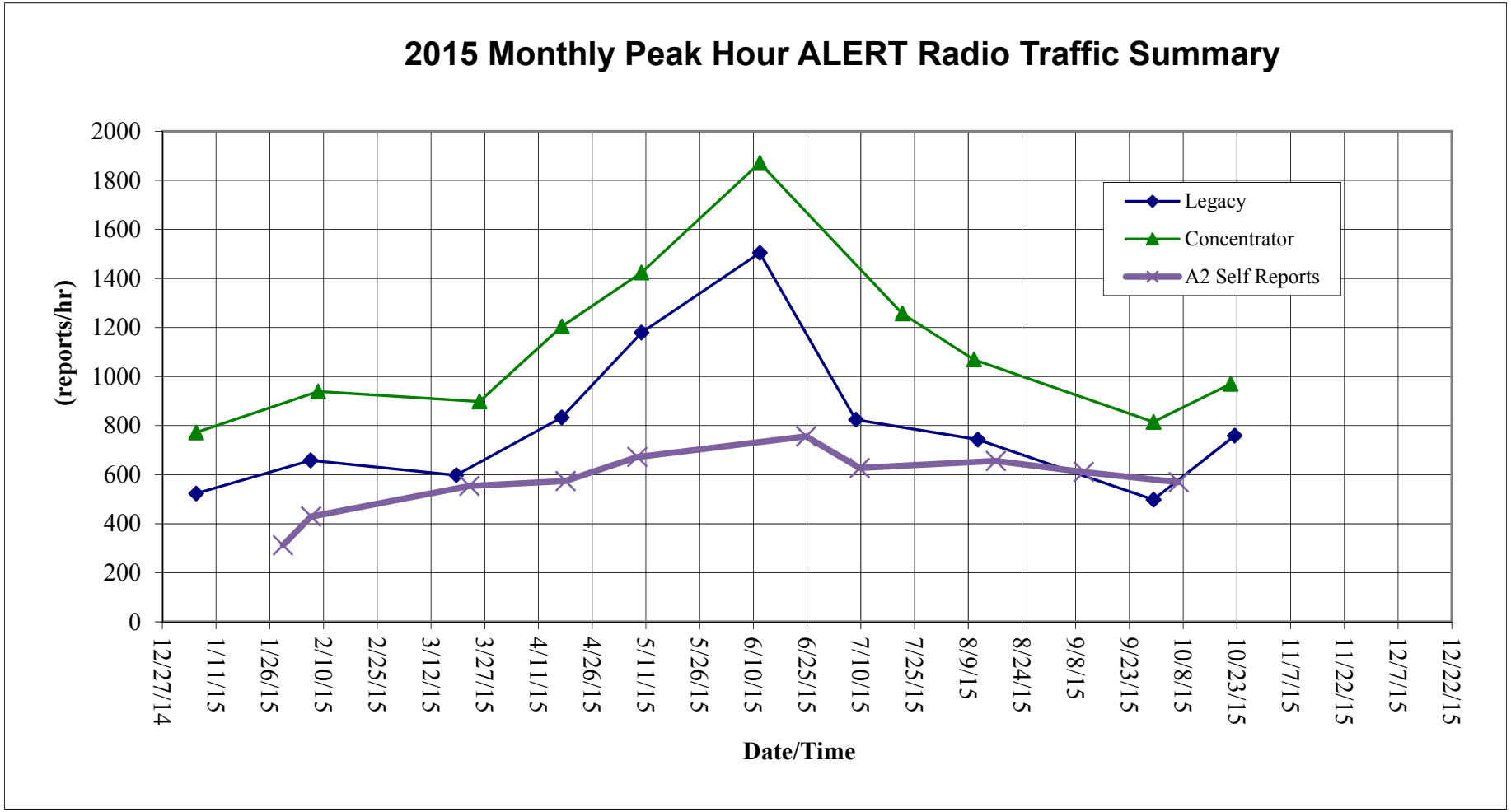
4170	Pine Brook	61	11:43	64	95%
4160	Sunshine	61	11:58	64	95%
4130	Swiss Peaks	61	11:57	64	95%
4090	Magnolia	61	11:58	64	95%
4010	Cresent	61	11:57	64	95%
4880	Whispering Pines	62	11:43	64	97%
4200	Lazy Acres	62	11:59	64	97%
4150	Gold Hill	62	11:58	64	97%
4140	Logan Mill	62	11:57	64	97%
4080	Twin Sisters	62	11:58	64	97%
4240	Sunset	63	11:57	64	98%
100230	A2-Havana Pond Precip	743	0:00	744	100%
100160	A2-Sand Creek at Colfax Precip	743		744	100%
4320	Lee Hill Rain 2012	69	10:25	64	108%
6601	A2-Magnolia WX-Precip	90	8:00	64	141%
3090	A2-Highland Heritage Park	786		744	106%
3080	Tallman Gulch	36	12:00	64	56%
3070	A2-Newlin Gulch Precip	796		744	107%
3060	Fire Sta 47	35	12:21	64	55%
3050	East/West Trailhead	39	12:00	64	61%
3040	CC @ Russelville Road Precip	34	12:24	64	53%
2980	Dakan Rd	57	12:53	64	89%
2970	Rampart Range Rd-Satellite	134		128	105%
2960	Indian Creek	36	13:05	64	56%
2950	DC Public Works	38	12:00	64	59%
2940	Willow Creek - DougCnty	38	12:00	64	59%
2920	West Cherry Head-Douglas Cnty	36	12:21	64	56%
2910	East Cherry Cr-Douglas	35	12:45	64	55%
2900	Russelville Gulch-Douglas	36	12:00	64	56%
2890	Spruce Mt - Douglas	36	12:21	64	56%
2880	Happy Canyon at N Surrey Dr	39	12:00	64	61%
2870	Cottonwood (Apache)	36	12:00	64	56%
2860	CC at Stroh Rd	35	12:20	64	55%
2850	Cherry Cr bl Bayou Glch	14	4:00	64	22%
2840	Sulphur Gulch	33	13:09	64	52%
2820	Haskins Gulch Conf	36	13:05	64	56%
2810	Pine Cliff Road	37	12:00	64	58%
2370	Red Rocks Park	59	12:25	64	92%
2360	Indian Hills	28	18:46	64	44%
2350	Idledale	31	19:19	64	48%
2340	El Rancho	50	12:14	64	78%
2330	Morrison	31	22:59	64	48%
2320	Choke Cherry Resvr	45	15:58	64	70%
2310	Genesee Village	51	11:56	64	80%
2280	Kinney Peak	44	12:56	64	69%
2270	Cub Cr below Blue	41	14:12	64	64%
2260	Brook Forest	52	11:58	64	81%
2250	Rosedale	54	12:14	64	84%
2240	Cold Sprg Glch conf	48	12:16	64	75%
2230	Bear Cr below Cub	39	14:11	64	61%
1900	Niver Detention	23	12:33	64	36%
1800	Sand Creek Park	61	11:58	64	95%
1720	Cherry Cr @ Steele	61	11:57	64	95%
1710	Shop Creek	47	14:20	64	73%
1700	Cherry Cr @ Champa	60	12:24	64	94%
1660	SPR at Henderson	51	13:01	64	80%
1640	SPR at Union Ave.	57	12:39	64	89%
1620	Slaughterhouse Glch	44	14:35	64	69%
1600	Englewood Dam	57	12:26	64	89%
1550	Lakewood CC	56	12:26	64	88%
1530	Bear Creek @ Lowell	57	12:11	64	89%
1500	Powers Park	59	11:56	64	92%
1480	Third Creek at DIA	60	12:24	64	94%
1400	Upper Sloan Det.	54	12:57	64	84%
1370	West Metro FS13	58	12:41	64	91%
1360	Denver Zoo	37	12:01	64	58%
1350	Chatfield COE	61	11:43	64	95%
1340	Sanderson at Xavier	57	12:51	64	89%
1320	SPR at 3rd Ave	58	12:25	64	91%
1310	LDC at 64th	24	11:58	64	38%
1300	Hidden Lake	25	11:18	64	39%
1200	Broomfield 3207	59	12:11	64	92%
1110	Gunbarrel	61	11:58	64	95%

1100	Louisville Rec Ctr	60	12:13	64	94%
1060	Heritage Square	56	12:42	64	88%
1050	Jeffco Fairgrounds	55	12:56	64	86%
1040	Lena @ U.S. Hwy 6	58	12:25	64	91%
1030	NREL/S. Table Mtn.	58	12:58	64	91%
1010	Denver West	57	12:39	64	89%
1000	A2-Maple Grove Resv.	743	0:00	744	100%
970	Pump Sta 3	61	12:00	64	95%
950	Piney at Liverpool	61	11:57	64	95%
940	Aurora Regional Pond	59	12:11	64	92%
870	A2-Murphy Creek GC	743		744	100%
850	Flying J	60	12:00	64	94%
840	Fire Station 12	57	12:14	64	89%
830	Side Creek Park	55	12:27	64	86%
820	ETG @ Buckley	56	11:57	64	88%
810	Granby Ditch @ 6th	59	12:10	64	92%
800	Sable Ditch @ 18th	61	11:57	64	95%
760	Mission Viejo Park	60	12:10	64	94%
730	No Name @ Quincy	59	11:58	64	92%
720	Confluence Pond	58	12:26	64	91%
710	Horseshoe Park Drop	59	12:22	64	92%
700	Toll Gate @ 6th	61	12:00	64	95%
650	Iliff Pond	53	13:00	64	83%
640	Goldsmith @ Eastman	59	12:10	64	92%
630	Temple Pond at DTC	58	12:13	64	91%
620	Quincy/Highline	61	11:57	64	95%
610	Harvard @ Jackson	62	12:10	64	97%
600	Harvard Gulch Park	62	11:58	64	97%
540	Parker/Mississippi	54	12:27	64	84%
530	Fire Station #19	54	12:11	64	84%
520	Jewell Detention	56	11:57	64	88%
510	Virginia Court	56	12:13	64	88%
500	Havana Park	56	11:56	64	88%
440	Fire Station #7	55	12:02	64	86%
430	Utah Park	27	23:18	64	42%
420	Expo Park	56	11:45	64	88%
410	Kelly Dam	37	12:19	64	58%
330	Van Bibber @ Hwy 93	56	12:13	64	88%
320	Sports Complex	24	11:56	64	38%
310	Guy Hill Ranch	49	12:48	64	77%
300	Van Bibber Park	58	11:56	64	91%
220	Upper Leyden	59	12:00	64	92%
210	Leyden Confluence	58	12:10	64	91%
200	Leyden Reservoir	58	12:10	64	91%
150	Nott Creek	59	12:29	64	92%
120	West Woods	59	11:56	64	92%
110	Ralston Reservoir	55	12:55	64	86%
100	A2-Carr Street	300		744	40%
5720	Four Mile Creek	24	16:12	64	38%
5730	West Creek	33	12:00	64	52%
5740	Trail Creek	32	12:00	64	50%
5810	Stump Bump	32	12:00	64	50%
5860	Cedar Mountain	32	12:00	64	50%
5880	Hackett Mountain	32	12:00	64	50%
5900	Horse Creek-Satellite	478		64	
5940	Log Jumper	45	13:42	64	70%

Reports Received	Reports Received	3,556		Analyze Rain Sensors			0	<<show stations with zero rain (1-yes, 0-no)							
Systemwide Avg	Total Tips	3,783													
94.00%	Data Loss	6.00%													
Sensor	**Performance**	**1-tips**	**2-tips**	**3-tips**	**4-tips**	**5-tips**	**6-tips**	**>6-tips**	**Rcv**	**Exp**	**Miss**	**Hold**	**Bucket**		
4470	69%	29	5	2	0	0	0	1	36	52	16	0	0.03937		
100270	71%	29	3	3	2	0	0	0	37	52	15	0	0.03937	Mean	53.28169
100260	75%	15	5	1	0	0	0	0	21	28	7	0	0.03937	Median	54
4510	76%	40	8	2	0	1	0	0	51	67	16	0	0.03937	St. Dev	13.10309
4790	78%	39	6	4	0	0	0	0	49	63	14	0	0.03937	Mean plus 3 SD	92.59096
2790	81%	48	9	1	1	0	0	0	59	73	14	0	0.03937	Min	23
4330	81%	42	4	0	1	1	0	0	48	59	11	0	0.03937	Max	80
1920	83%	20	5	0	0	0	0	0	25	30	5	0	0.03937		
4520	85%	41	4	2	0	0	0	0	47	55	8	0	0.03937		
4270	86%	48	9	0	0	0	0	0	57	66	9	0	0.03937		
1570	88%	21	1	1	0	0	0	0	23	26	3	0	0.03937		
4550	90%	32	4	0	0	0	0	0	36	40	4	0	0.03937		
4870	91%	43	5	0	0	0	0	0	48	53	5	0	0.03937		
1520	91%	36	4	0	0	0	0	0	40	44	4	0	0.03937		
4220	91%	67	5	1	0	0	0	0	73	80	7	0	0.03937		
140	92%	41	4	0	0	0	0	0	45	49	4	0	0.03937		
4770	92%	64	6	0	0	0	0	0	70	76	6	0	0.03937		
4060	92%	44	4	0	0	0	0	0	48	52	4	0	0.03937		
4040	92%	55	5	0	0	0	0	0	60	65	5	0	0.03937		
4340	93%	59	5	0	0	0	0	0	64	69	5	0	0.03937		
4570	93%	48	4	0	0	0	0	0	52	56	4	1	0.03937		
4360	93%	40	3	0	0	0	0	0	43	46	3	0	0.03937		
4250	94%	46	3	0	0	0	0	0	49	52	3	0	0.03937		
4350	95%	66	4	0	0	0	0	0	70	74	4	0	0.03937		
3030	95%	34	2	0	0	0	0	0	36	38	2	0	0.03937		
4010	95%	52	1	1	0	0	0	0	54	57	3	0	0.03937		
4820	95%	54	3	0	0	0	0	0	57	60	3	0	0.03937		
4030	95%	59	3	0	0	0	0	0	62	65	3	0	0.03937		
4070	95%	61	1	1	0	0	0	0	63	66	3	0	0.03937		
1460	96%	41	2	0	0	0	0	0	43	45	2	0	0.03937		
4320	96%	63	1	1	0	0	0	0	65	68	3	0	0.03937		
4260	96%	66	3	0	0	0	0	0	69	72	3	0	0.03937		
4290	96%	47	2	0	0	0	0	0	49	51	2	0	0.03937		
1440	97%	27	1	0	0	0	0	0	28	29	1	0	0.03937		
4200	97%	54	2	0	0	0	0	0	56	58	2	1	0.03937		
4080	97%	55	2	0	0	0	0	0	57	59	2	0	0.03937		
4160	97%	56	2	0	0	0	0	0	58	60	2	0	0.03937		
900	97%	28	1	0	0	0	0	0	29	30	1	0	0.03937		
2210	97%	57	2	0	0	0	0	0	59	61	2	0	0.03937		
2750	97%	32	1	0	0	0	0	0	33	34	1	0	0.03937		
920	97%	34	1	0	0	0	0	0	35	36	1	0	0.03937		
4180	97%	71	2	0	0	0	0	0	73	75	2	0	0.03937		
2710	97%	37	1	0	0	0	0	0	38	39	1	0	0.03937		
4050	98%	43	1	0	0	0	0	0	44	45	1	0	0.03937		
4830	98%	46	1	0	0	0	0	0	47	48	1	0	0.03937		

750	98%	51	1	0	0	0	0	0	52	53	1	0	0.03937		
4230	98%	52	1	0	0	0	0	0	53	54	1	0	0.03937		
4300	98%	54	1	0	0	0	0	1	55	56	1	1	0.03937		
4190	98%	54	1	0	0	0	0	0	55	56	1	0	0.03937		
4110	98%	54	1	0	0	0	0	0	55	56	1	0	0.03937		
4020	98%	56	1	0	0	0	0	0	57	58	1	0	0.03937		
4810	98%	57	1	0	0	0	0	0	58	59	1	0	0.03937		
4090	98%	59	1	0	0	0	0	0	60	61	1	0	0.03937		
4310	98%	64	1	0	0	0	0	0	65	66	1	0	0.03937		
4710	99%	72	1	0	0	0	0	0	73	74	1	0	0.03937		
3020	100%	42	0	0	0	0	0	0	42	42	0	0	0.03937		
2990	100%	35	0	0	0	0	0	0	35	35	0	0	0.03937		
4730	100%	51	0	0	0	0	0	0	51	51	0	0	0.03937		
2930	100%	23	0	0	0	0	0	0	23	23	0	0	0.03937		
2730	100%	35	0	0	0	0	0	0	35	35	0	0	0.03937		
4750	100%	46	0	0	0	0	0	0	46	46	0	0	0.03937		
1420	100%	45	0	0	0	0	0	0	45	45	0	0	0.03937		
4530	100%	48	0	0	0	0	0	0	48	48	0	0	0.03937		
4880	100%	54	0	0	0	0	0	0	54	54	0	0	0.03937		
4840	100%	50	0	0	0	0	0	0	50	50	0	0	0.03937		
4490	100%	48	0	0	0	0	0	0	48	48	0	0	0.03937		
4240	100%	66	0	0	0	0	0	0	66	66	0	0	0.03937		
4170	100%	58	0	0	0	0	0	0	58	58	0	0	0.03937		
4150	100%	60	0	0	0	0	0	0	60	60	0	0	0.03937		
4140	100%	54	0	0	0	0	0	0	54	54	0	1	0.03937		
4100	100%	52	0	0	0	0	0	0	52	52	0	0	0.03937		
TOTAL		**3370**	**160**	**20**	**4**	**2**	**0**	**2**	**3556**	**3783**	**227**	**4**			
3010	98%	114	3	0	0	0	0	0	117	120	3	0	0.01		
4860	97%	219	8	0	0	0	0	0	227	235	8	0	0.01		
4850	90%	156	18	1	0	0	0	2	175	195	20	0	0.01		
3090	100%	4	0	0	0	0	0	8	4	4	0	0	0.03937		
3080	100%	2	0	0	0	0	0	0	2	2	0	0	0.03937		
3070	100%	3	0	0	0	0	0	11	3	3	0	0	0.03937		
3060	100%	2	0	0	0	0	0	0	2	2	0	0	0.03937		
3050	100%	7	0	0	0	0	0	0	7	7	0	0	0.03937		
3040	95%	33	2	0	0	0	0	0	35	37	2	0	0.03937		
2980	62%	5	2	0	1	0	0	0	8	13	5	0	0.03937		
2970	62%	10	0	2	0	1	0	1	13	21	8	0	0.03937		
2960	90%	8	1	0	0	0	0	0	9	10	1	0	0.03937		
2950	100%	1	0	0	0	0	0	0	1	1	0	0	0.03937		
2940	93%	13	1	0	0	0	0	0	14	15	1	0	0.03937		
2920	100%	4	0	0	0	0	0	0	4	4	0	0	0.03937		
2910	100%	9	0	0	0	0	0	0	9	9	0	0	0.03937		
2900	95%	38	2	0	0	0	0	0	40	42	2	0	0.03937		
2890	100%	3	0	0	0	0	0	0	3	3	0	0	0.03937		
2880	100%	3	0	0	0	0	0	0	3	3	0	0	0.03937		

2870	100%	6	0	0	0	0	0	0	6	6	0	0	0.03937		
2860	100%	2	0	0	0	0	0	0	2	2	0	0	0.03937		
2850	56%	3	1	0	1	0	0	0	5	9	4	0	0.03937		
2840	86%	5	1	0	0	0	0	0	6	7	1	0	0.03937		
2820	100%	4	0	0	0	0	0	0	4	4	0	0	0.03937		
2810	100%	5	0	0	0	0	0	0	5	5	0	0	0.03937		
2370	87%	40	7	0	0	0	0	0	47	54	7	0	0.03937		
2360	70%	28	6	2	2	0	0	0	38	54	16	0	0.03937		
2350	100%	7	0	0	0	0	0	0	7	7	0	0	0.03937		
2340	96%	50	2	0	0	0	0	0	52	54	2	0	0.03937		
2330	72%	31	6	3	0	1	0	0	41	57	16	0	0.03937		
2320	84%	44	5	1	1	0	0	0	51	61	10	0	0.03937		
2310	83%	47	8	2	0	0	0	0	57	69	12	0	0.03937		
2280	88%	51	4	2	0	0	0	0	57	65	8	0	0.03937		
2270	68%	29	5	3	1	1	0	0	39	57	18	0	0.03937		
2260	93%	55	1	0	1	0	0	0	57	61	4	0	0.03937		
2250	92%	53	3	1	0	0	0	0	57	62	5	1	0.03937		
2240	88%	54	6	1	0	0	0	0	61	69	8	0	0.03937		
2230	63%	25	5	3	2	1	0	0	36	57	21	0	0.03937		
1900	100%	5	0	0	0	0	0	0	5	5	0	0	0.03937		
1720	93%	39	3	0	0	0	0	0	42	45	3	0	0.03937		
1710	93%	35	3	0	0	0	0	0	38	41	3	0	0.03937		
1700	92%	40	4	0	0	0	0	0	44	48	4	0	0.03937		
1660	94%	28	2	0	0	0	0	0	30	32	2	0	0.03937		
1640	88%	34	3	1	0	0	0	0	38	43	5	0	0.03937		
1620	63%	12	2	2	0	1	0	1	17	27	10	0	0.03937		
1600	100%	48	0	0	0	0	0	0	48	48	0	0	0.03937		
1550	95%	37	2	0	0	0	0	0	39	41	2	0	0.03937		
1530	88%	37	6	0	0	0	0	0	43	49	6	0	0.03937		
1500	90%	69	7	1	0	0	0	0	77	86	9	0	0.03937		
1480	91%	30	1	1	0	0	0	0	32	35	3	0	0.03937		
1400	89%	30	2	1	0	0	0	0	33	37	4	0	0.03937		
1370	88%	43	5	1	0	0	0	0	49	56	7	0	0.03937		
1360	100%	4	0	0	0	0	0	0	4	4	0	0	0.03937		
1350	86%	31	4	1	0	0	0	0	36	42	6	0	0.03937		
1340	73%	6	1	1	0	0	0	0	8	11	3	0	0.03937		
1320	90%	40	5	0	0	0	0	0	45	50	5	0	0.03937		
1310	100%	2	0	0	0	0	0	0	2	2	0	0	0.03937		
1300	100%	10	0	0	0	0	0	1	10	10	0	0	0.03937		
1200	98%	39	1	0	0	0	0	0	40	41	1	0	0.03937		
1110	96%	47	2	0	0	0	0	0	49	51	2	0	0.03937		
1100	98%	44	1	0	0	0	0	0	45	46	1	0	0.03937		
1060	94%	48	3	0	0	0	0	0	51	54	3	0	0.03937		
1050	96%	42	2	0	0	0	0	0	44	46	2	0	0.03937		
1040	82%	32	7	1	0	0	0	0	40	49	9	0	0.03937		
1030	81%	41	9	0	1	0	0	0	51	63	12	0	0.03937		
1010	94%	42	1	1	0	0	0	0	44	47	3	0	0.03937		
1000	98%	39	1	0	0	0	0	0	40	41	1	0	0.03937		
970	100%	36	0	0	0	0	0	0	36	36	0	0	0.03937		
950	94%	30	2	0	0	0	0	0	32	34	2	0	0.03937		


2015 Monthly Peak Hour ALERT Radio Traffic Summary
(reports/hr)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Legacy
Concentrator
A2 Self Reports
12/27/14
1/11/15
1/26/15
2/10/15
2/25/15
3/12/15
3/27/15
4/11/15
4/26/15
5/11/15
5/26/15
6/10/15
6/25/15
7/10/15
7/25/15
8/9/15
8/24/15
9/8/15
9/23/15
10/8/15
10/23/15
11/7/15
11/22/15
12/7/15
12/22/15
Date/Time