

Memo

Date: September 17, 2018
To: Kevin Stewart
From: Markus Ritsch
Subject: August 2018 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 August 1 through August 31, 2018.

II. General System Analysis Summary

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

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

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
Legacy ALERT (line 1)	208,189	170,938	214,572	224,711	215,631	215,515	228,428	217,039					1,695,023
DHill Conc (line 2)	369,547	328,399	383,229	359,855	327,392	365,225	380,878	369,881					2,884,406
DHill ALERT2 (line 4)	608,216	474,112	513,779	511,112	563,921	562,145	578,579	574,552					4,386,416
Westy ALERT2 (line 8)		472,878	513,257	549,423	601,462	560,429	524,276	573,128					3,794,853
Westy Conc (line 6)		327,438	382,812	386,882	382,751	364,046	343,901	368,820					2,556,650
TOTAL	1,185,952	1,773,765	2,007,649	2,031,983	2,091,157	2,067,360	2,056,062	2,103,420	0	0	0	0	15,317,348
Con/Leg	1.78	1.92	1.79	1.60	1.52	1.69	1.67	1.70	0.00	0.00	0.00	0.00	1.70
DataChr	713,367	590,020	715,298	743,578	765,183	735,108	747,353	749,605					5,009,907

A new ALERT2 receiver/decoder was installed in Westy, Colorado in January of 2018. This redundant data feed was added to NovaStar5 in late January. The new data feeds (lines 6 and 8) were added to both the Diamond Hill base station and to the Greenhouse base station for backup. Data from this new source will be quantified as part of this report.

The District operates two 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.

The battery charger powering the ALERT2 decoder at Diamond Hill failed on April 22, 2018. The charger was replaced by OneRain on April 26, 2018. The number of ALERT2 and concentrator reports through Diamond Hill is decreased in April due to the failure of the battery charger. The ratio between legacy reports and concentrator reports is also decreased for these four days.

Network issues were present that degraded data collection on the Greenhouse server between July 2 and July 9, 2018. An uninterruptible power supply (UPS) malfunctioned around July 2 which caused a network switch to go down at Diamond Hill. The network was fully restored on July 9.

Table 2. Comparison of Data Reception by ns5a and ns5b

NS5A (Diamond Hill)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
Legacy	208,189	170,938	214,572	224,711	215,631	215,515	228,428	217,039					1,695,023
Concentrator	369,547	328,399	383,229	359,855	327,392	365,225	380,878	369,881					2,884,406
ALERT2	608,216	474,112	513,779	511,112	563,921	562,145	578,579	574,552					4,386,416
Westy (Conc)		327,438	382,812	386,882	382,751	364,046	343,901	368,820					2,556,650
Westy (A2)		472,878	513,257	549,423	601,462	560,429	524,276	573,128					3,794,853
NS5B (Greenhouse)													
Legacy	207,991	167,936	176,780	223,474	212,628	213,434	226,850	217,135					1,646,228
Concentrator	369,370	297,198	289,542	357,805	322,706	361,904	367,354	368,785					2,734,664
ALERT2	608,348	437,957	389,787	510,718	557,093	557,214	559,618	573,486					4,194,221
Westy (Conc)		304,809	292,048	386,008	382,805	361,518	367,720	368,477					2,463,385
Westy (A2)		446,873	398,421	548,228	601,760	556,688	560,820	572,515					3,685,305
Diff (NS5a-NS5b)													
Legacy (Digi One)	198	3,002	37,792	1,237	3,003	2,081	1,578	-96	0	0	0	0	48,795
Concentrator (B2010)	177	31,201	93,687	2,050	4,686	3,321	13,524	1,096	0	0	0	0	149,742
ALERT2 (B2010)	-132	36,155	123,992	394	6,828	4,931	18,961	1,066	0	0	0	0	192,195
Westy (Conc)	0	22,629	90,764	874	-54	2,528	-23,819	343	0	0	0	0	93,265
Westy (A2)	0	26,005	114,836	1,195	-298	3,741	-36,544	613	0	0	0	0	109,548
Comments		Network issues experienced this month at DH	New line numbers were assigned at GH	Data script updated									

The daily ratio of concentrator to legacy reports is shown (Figure 1).

In March, the system configuration for data reception at Greenhouse was changed so that unique line numbers could be used to quantify data reports received uniquely at each base station. The automated script used to quantify reports was not updated until April. That's why the large discrepancy in reporting was quantified in March between Diamond Hill and Greenhouse. The new line numbering convention is as follows:

Primary Node Diamond Hill Base Station

-) Line 1 = Legacy ALERT
-) Line 2 = Concentrator from Diamond Hill Decoder
-) Line 4 = ALERT2 from Diamond Hill Decoder
-) Line 6 = Concentrator from Westminster Decoder
-) Line 8 = ALERT2 at Westminster Decoder

Backup Node Greenhouse Base Station

-) Line 1 = Legacy ALERT
-) Line 3 = Concentrator from Diamond Hill Decoder
-) Line 5 = ALERT2 from Diamond Hill Decoder
-) Line 7 = Concentrator from Westminster Decoder
-) Line 9 = ALERT2 at Westminster Decoder

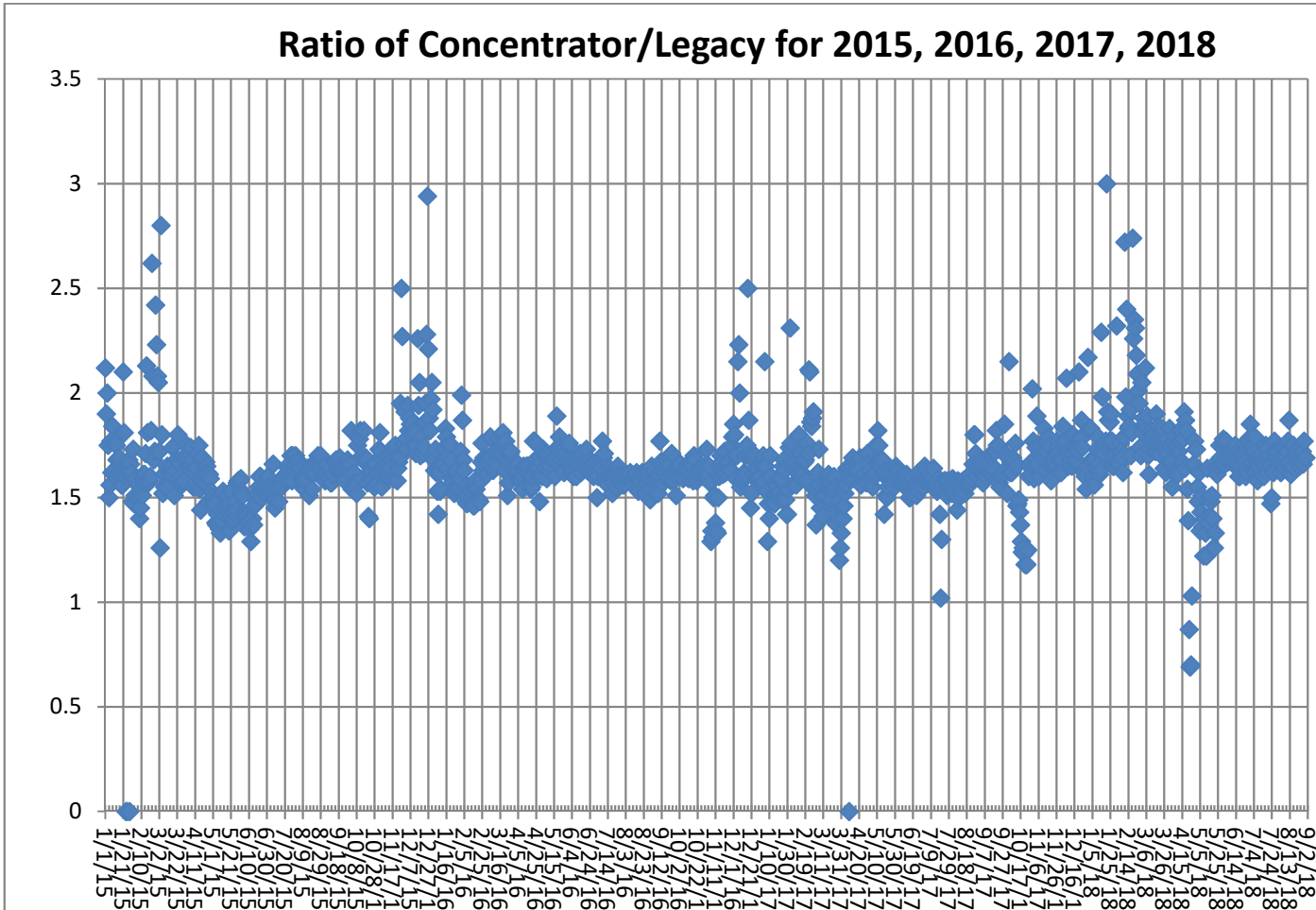


Figure 1. Daily Ratio of Concentrator Reports to Legacy Reports

The ratio becomes more volatile in the cold months as the Blue Mountain repeater has problems with legacy ALERT reporting when the temperature drops below zero.

The ratio on January 21, 2018 was very high with a value of 3. The system experienced a significant decrease in legacy ALERT reports on this day. The loss of ALERT legacy reports on January 21, 2018 are from Blue Mountain, Elbert, Urban Farm, and Marston Lake North. The most likely explanation is that the legacy ALERT output from the Blue Mountain repeater was down due to the cold weather experienced on both January 21 and January 15.

A cold spell in February likely contributed to the higher than expected ratio of concentration to legacy reporting.

The failure of the battery charger at the Diamond Hill ALERT2/Concentrator decoder for the period April 22 through April 26 is evident in the decreased ratios for these days.

A. Continuous Operation of Base Receiver/Decoder

Data was collected on a continuous basis for a total of 744 hours of operation. Outages of less than one hour are not identified.

B. Specific Issues Identified

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

Table 3. Sensors with Poor Performance Characteristics

Sensor ID	Description	Comments
1620	Slaughterhouse Gulch	Poor timer and event performance
2101	Unknown	Concentrator received 8,518 reports from this ID with SA 9001
2330	Morrison	Consistently poor timer and event performance
2360	Indian Hills	Poor timer performance two months in a row
0, 1, 2	Unknown	Unknown IDS transmitted on legacy ALERT
100200	OneRain WX Rain	This 0.01-in rain gage received only 53% of the incrementing ALERT2 tip reports

C. ALERT2 Repeater Loading

The District's 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 4). 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 4. 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 5). This helps to quantify repeater loading for the ALERT2 backbone.

Table 5. ALERT2 Reports Received through Each Repeater (Only A2 Self Reports)

Month-Yr	West Creek (6001)	Smoky (6502)	Blue Mt. (6503)	Lee Hill (6505)	Gold Hill (6506)	TOTAL
Jan-15	0	44,501	44,636	44,783	39,007	172,927
Feb-15	0	58,543	56,150	61,160	57,764	233,617
Mar-15	346	73,198	69,604	77,968	65,323	286,439
Apr-15	595	73,711	69,568	79,215	72,310	295,399
May-15	5,259	78,694	72,340	86,297	77,174	319,764
Jun-15	11,987	72,449	65,742	82,998	69,570	302,746
Jul-15	28,595	75,379	71,394	79,026	74,041	328,435
Aug-15	28,409	92,299	84,057	84,363	87,211	376,339
Sep-15	26,809	84,143	84,776	84,289	85,123	365,140
Oct-15	19,775	82,683	83,390	63,475	84,825	334,148
Nov-15	6,438	62,615	61,477	50,888	58,004	239,422
Dec-15	9,835	72,886	72,465	73,431	47,996	276,613
Jan-16	4,034	38,348	36,826	37,168	19,768	138,160
Feb-16	11,732	93,120	99,206	96,284	99,188	399,530
Mar-16	12,533	126,123	134,329	140,226	139,536	552,747
Apr-16	13,262	128,473	130,223	135,499	133,197	540,654
May-16	27,002	125,098	124,280	138,033	130,513	544,926
Jun-16	30,405	117,877	111,309	133,036	122,798	515,425
Jul-16	37,492	108,334	102,335	115,028	110,577	473,766
Aug-16	48,323	130,666	123,827	136,746	131,957	571,519
Sep-16	49,555	122,625	115,898	129,454	127,606	545,138
Oct-16	51,170	111,105	110,038	116,087	116,489	504,889
Nov-2016	47,039	72,761	92,941	100,083	99,508	412,332
Dec-2016	48,946	102,329	97,321	79,274	102,097	429,967
Jan-2017	47,286	50,748	27,307	97,947	104,689	327,977
Feb-2017	45,366	96,629	94,065	88,239	98,411	422,710
Mar-2017	53,021	87,160	33,983	121,578	126,722	422,464
Apr-2017	49,833	110,418	116,486	122,506	120,727	519,970
May-2017	54,375	128,362	128,310	118,908	134,173	564,128
Jun-2017	60,671	131,745	124,019	146,333	138,056	600,824
Jul-2017	58,442	137,750	130,136	146,134	139,778	612,240
Aug-2017	60,322	136,739	128,716	145,280	139,257	610,314
Sep-2017	58,388	146,759	135,632	157,248	150,762	648,789
Oct-2017	48,644	148,071	149,899	159,639	157,788	664,041
Nov-2017	39,868	123,026	134,197	141,153	140,478	578,722
Dec-2017	38,801	138,219	137,672	142,389	141,303	598,384
Jan-2018	45,373	140,341	139,290	141,045	142,167	608,216
Feb-2018	30,490	110,604	109,467	111,922	111,629	474,112
Mar-2018	72,863	110,844	106,466	112,417	111,189	513,779
Apr-2018	71,726	120,656	114,768	125,831	116,442	549,423
May-2018	44,674	132,258	125,752	144,129	117,108	563,921
Jun-2018	95,030	115,819	110,643	124,698	115,955	562,145
Jul-2018	101,000	119,381	112,276	127,372	118,550	578,579
Aug-2018	101,506	118,221	112,287	125,491	117,047	574,552

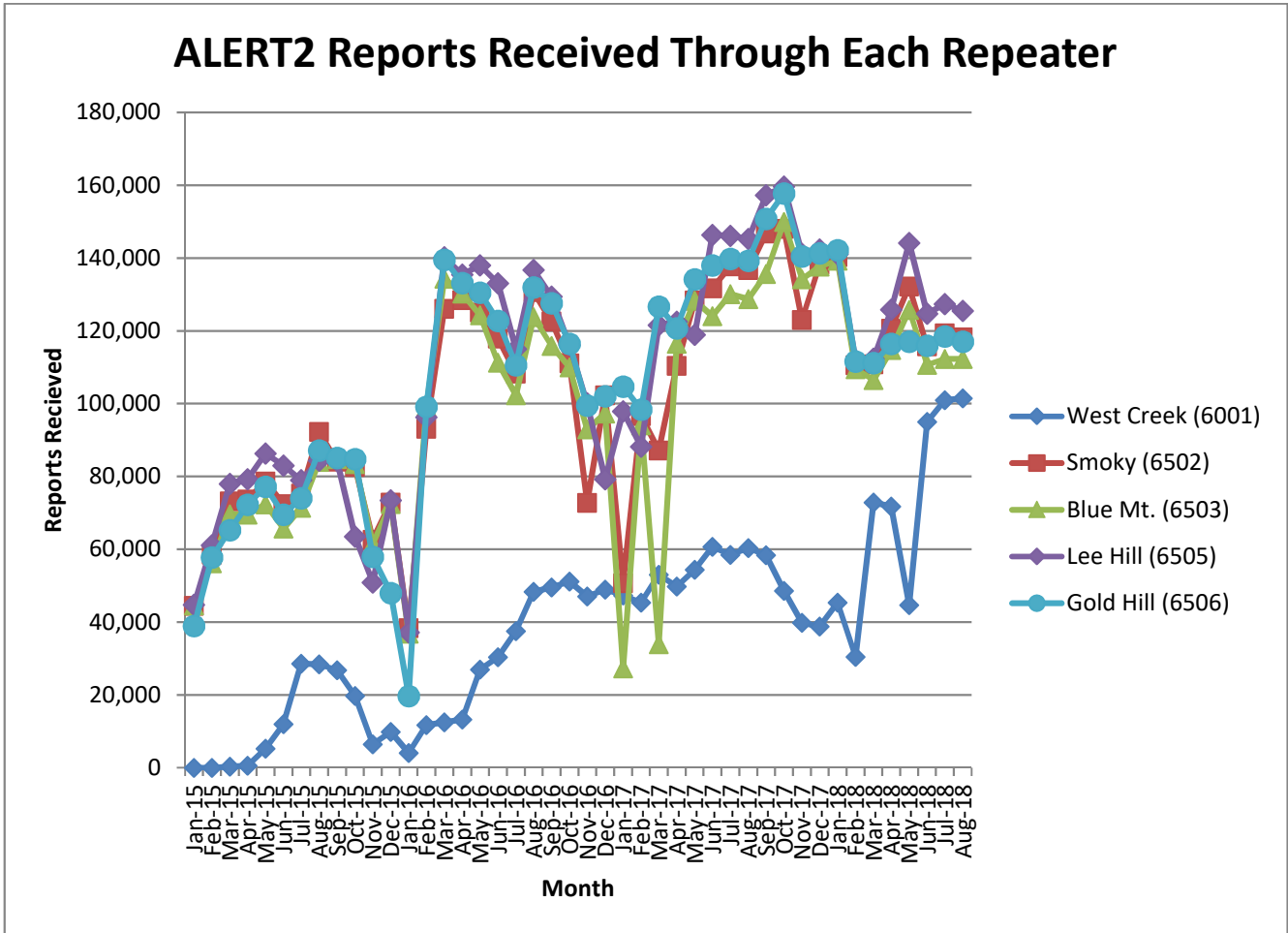


Figure 2. Reports received through each repeater (ALERT2 Only)

A convenient mechanism to track repeater performance throughout the year is to monitor total ALERT2 reports passed by each repeater. In general, each of the primary repeaters in the District process an equivalent number of ALERT2 reports because pass/block filtering is not being used. Several months are evident where the throughput of one repeater is not consistent with the other three.

Network outages were experienced on February 22 and February 23 which decreased the reception of data at the base station from all repeaters.

The throughput at the West Creek repeater increased in June and July as the Hayman Burn stations came on-line and additional sites are converted to ALERT2.

The following tables summarize the system-wide latency of ALERT2 self-reports (Table 6 and Table 7).

Table 6. System-Wide Latency of ALERT2 Self-Reports (seconds)

Statistical Parameter	Value (sec)	Comments
Mean	54.91	The average time it took a report from the field to reach the base
Minimum	-2	The minimum time it took for a report to go from the field to the base
Maximum	3,702	The maximum time it took for a report to go from the field to the base

Table 7. Summary of ALERT2 System-Wide Latency (seconds)

Statistical Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	48.79	51.82	60.96	75.43	117.33	63.90	323.46	54.91				
Minimum	-34	-23	-23	-963	-23	-46	-3	-2				
Maximum	37,677	33,597	30,677	42,277	36,100	43,300	43,280	3,702				
Station with Minimum Latency	West Creek WX	West Creek WX	West Creek WX	West Creek WX	West Creek WX	West Creek WX	East Cherry Creek at Russellville	OneRain Weather	West Creek WX			
Station with Maximum Latency	West Creek WX	West Creek WX	West Creek WX	West Creek WX	West Creek WX	West Creek WX	Happy Canyon at North Surrey Drive	Pine Cliff Road	Columbine Open Space			

Large positive and negative latencies were observed from the station West Creek WX. A new ALERT2 board was installed in mid May 2018 at this station which resolved the issue.

D. 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 8).

Table 8. Monthly Summary of Sensors with Poor Timer Performance (Sensor ID)

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
2790	2790	2340	2790	700	420	2360	1620				
4550	3020	2360	2240	2330	2330	2340	2360				
1660	1110	2230	2340	2340	4870	330	3010				
2330	3010	2250	2330	2850	330	2330	100260				
2980	1660	2270	3020	1620	940	2320	2330				
5940	4550	2350	5720	4870	1660	2350	4510				

*- 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 9). 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 9. District-Wide Total Tip/Count Statistical Summary

Statistical Parameter	Value	Comments
Mean	24.18	Only the 1-mm rain sensors were included in the analysis
Median	20	Only the 1-mm rain sensors were included in the analysis
Standard deviation	18.36	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	79.26	Only the 1-mm rain sensors were included in the analysis
Mean minus two standard deviations	-12.5	Only the 1-mm rain sensors were included in the analysis
Minimum total count	2	SBC @ SB Road (4870)
Maximum total count	138	Temple Pond at DTC (630)
Sensors showing NO rain for the month		None
Sensors greater than 3 SD (over reporting)	3	Utah Park (430), Temple Pond at DTC (630), Granby Ditch @ 6 th (810)

B. Monthly Average Tip/Count Summary

A monthly summary of the District-wide mean total tip/count is presented (Table 10).

Table 10. 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	22.08	10.80	44.39
2016	4.68	9.91	32.30	52.10	49.40	40.50	24.20	31.00	8.86	7.51	8.56	8.74	23.23
2017	13.3	5.84	27.70	39.10	99.60	15.33	40.80	44.58	40.74	31.88	7.38	5.35	31.13
2018	4.70	8.34	29.1	24.53	64.17	30.76	58.05	24.18					
Ave	6.66	9.95	20.91	42.37	65.90	35.20	56.58	37.54	41.48	26.03	8.03	7.74	28.32

*- Only sensors that operate year-round (weather stations and stations in Boulder County) are included for the analysis in these months.
229.74 – This represents an extreme monthly value.

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

The following sensors experienced a large jump in the sequential tip count (Table 11).

Table 11. Sensors with a Jump of 6 or More in Sequential Count

Sensor Description	Sensor ID	Comment
SPR at Union Ave.	1640	All >6 tips were breaks in data
EPC at Hwy 105 WX	3010	All >6 tips were breaks in data
Powers Park	1500	All >6 tips were breaks in data

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 4,570 incrementing reports were received and a total of 4,787 reports were expected. The total loss of incrementing reports for the month was approximately 5 percent. Those sensors with the worst event transmission performance are summarized (Table 12).

Table 12. Monthly Summary of Sensors with the Worst Performance

Jan*	Feb*	Mar*	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*
1700	2810	2270	2270	4470	3090	2360	940				
2980	1110	2230	1620	2340	2340	2340	1620				
4790	540	4870	1710	2330	100260	940	650				
4320	2330	940	2240	4270	2330	100260	4490				
3010	4330	100140	4270	1620	3010	2280	1640				
3030	3020	1530	4870	100420	4040	2970	840				

*-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 13).

Table 13. Summary of Unknown IDs

Description	Concentrator	Legacy	A2
Total number of unknown IDs (IDs without a device definition)	155	114	0
Total reports from unknown IDs	8,946	498	0
Unknown IDs with only a single received report (potential noise)	105	85	0
Total reports from all IDs – RecData Log entire month	369,881	217,039	574,552
Unknown reports as a fraction of total reports	2.42%	0.23%	0.00%

The total number of reports from unknown sensors is very small relative to the total reports received for the month. Shown below (Table 14) are the total reports received from unknown sensor IDs for each month of the year.

Table 14. 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	600	619
2016	323	1,241	3,085	3,586	1,268	945	1,408	2,029	1,413	753	617	879
2017	11,875	844	1,207	3,700	2,693	642	610	6,678	780	5,097	3,532	3,282
2018	788	771	1,178	936	749	484	1,349	8,946				

The fraction of reports from unknown sensors relative to the total number of reports is shown below (Table 15).

Table 15. 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%	0.15%	0.15%
2016	0.10%	0.30%	0.69%	0.82%	0.28%	0.22%	0.33%	0.50%	0.36%	0.18%	0.17%	0.22%
2017	3.29%	0.23%	0.31%	0.97%	0.58%	0.16%	0.16%	1.16%	0.21%	1.40%	0.96%	0.87%
2018	0.21%	0.23%	0.31%	0.26%	0.23%	0.13%	0.35%	2.42%				

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 16).

Unknown data transmissions from an ALERT legacy transmitter are being received containing sensor ID 2101 as seen in the table below. These transmissions are received at the base as ALERT2 data concentration packets initiating from source address 9001. The transmissions are received through the Blue Mountain and the Gold Hill repeaters.

Table 16. Reports Received by Unknown IDs

Concentrator		Legacy ALERT		Comment
Unknown ID	Reports	Unknown ID	Reports	
2101	8,518			Large amount of invalid data from this ID
		0,1,2	62,62,110	Legacy reports for IDs 0,1,2 only
2271	63	2271	62	Cub Creek Below Blue Crk possibly sending invalid ID
2272	63	2272	62	Cub Creek Below Blue Crk possibly sending invalid ID
3047	23			East Cherry Crk at Russellville Rd possibly sending invalid ID

V. Sensors with Invalid Reports

The sensors below (Table 17 and Table 18) 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 17. Rain Sensors with the Most Invalid Reports

Sensor ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1530-Bear Cr. At Lowell	10	5	3	4	1	--	1	--				
2810-Pine Cliff Rd.	14	10	10	6	6	3	2	3				
2880-Happy Canyon	--	--	47*	--	77*	--	--	--				
3010-Wx-EPC @ 105	3	5	7	5	1	4	4	4				
3050-E/W Trailhead	7	12	3	9	--	3	4	4				
4030-Red Garden	--	3	3	--	--	7	1	--				
4330-Hansen	--	3	--	--	1	3	4	1				
4240-Sunset	1	4	2	1	1	--	--	7				
4790-Wx-Button Rock	--	--	--	1	2	--	1	2				

*-Happy Canyon (2880) All invalid data points are because this station went through maintenance to upgrade to ALERT2.

Table 18. Level Sensors with the Most Invalid Reports

Sensor ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
413-Kelly Dam	--	--	5	--	12	3	6	9				
403-Montview Park	1171**	766**	411**	--	--	--	--	--				
213-Leyden Confluence	--	--	3	--	--	--	2	8				
723-WTG above Conf Pond	--	--	3	--	2	--	--	3				
1523-Marston Lake North	9	7	10	8	4	2	1	1				
1649-SPR at 19 th Street	--	--	1	4	--	--	1	1				
2223-Evergreen Lake	--	--	2	2	--	3	2	--				
2273-Cub Cr below Blue	--	--	3	--	--	2	3	3				
2803-Columbine Open Space	--	--	--	1	3	--	--	13				
2813-Pine Cliff Road	15	13	9	10	3	--	5	5				
3013-EPC@Hwy 105	18	20	8	10	9	13	4	13				
4383-Eldorado Springs	--	4	1	--	1	3	--	1				

**-Montview Park (403) All data values are marked as questionable data values because they exceeded an allowable upper boundary. Kate Malers developed a new rating for this site which needs to be incorporated into both NovaStar5 and Contrail in 2018.

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.

Point ID	Point Name	Trigger Name	Alarm Time
3060	Fire Station #47 Precipitation-DG	Douglas County 10 minute rainfall	8/7/2018 16:15
5860	Cedar Mountain Precipitation-TL	Hayman 30 minute rainfall	8/14/2018 14:57
5860	Cedar Mountain Precipitation-TL	Hayman 1 hour rainfall	8/14/2018 15:00
5860	Cedar Mountain Precipitation-TL	Hayman 90 minute rainfall	8/14/2018 15:05
5860	Cedar Mountain Precipitation-TL	Hayman 30 minute rainfall	8/14/2018 15:10
5860	Cedar Mountain Precipitation-TL	Hayman 30 minute rainfall	8/14/2018 15:29
1040	Lena @ U.S. Highway 6 Precipitation-JF	Jefferson County 10 minute rainfall	8/14/2018 17:25
100200	OneRain Weather Station Precipitation	Plains 10 minute rainfall	8/14/2018 17:30
100200	OneRain Weather Station Precipitation	Plains 1 hour rainfall	8/14/2018 17:32
100200	OneRain Weather Station Precipitation	Plains 10 minute rainfall	8/14/2018 17:42
1520	Marston Lake North Precipitation	Plains 10 minute rainfall	8/14/2018 17:51
1520	Marston Lake North Precipitation	UDFCD 10 minute rainfall	8/14/2018 17:51
2710	Highlands Ranch WTP Precipitation-DG	Douglas County 10 minute rainfall	8/14/2018 18:06
1920	Brighton Precipitation	Plains 10 minute rainfall	8/14/2018 18:08
2710	Highlands Ranch WTP Precipitation-DG	Douglas County 1 hour-1 Inch rainfall	8/14/2018 18:09
100200	OneRain Weather Station Precipitation	Plains 2 hour rainfall	8/14/2018 18:18
100200	OneRain Weather Station Precipitation	Plains 10 minute rainfall	8/14/2018 18:22
3050	East/West Trailhead Precipitation	Douglas County 10 minute rainfall	8/14/2018 18:28
2940	Willow Creek Precipitation-DG	Douglas County 10 minute rainfall	8/14/2018 18:43
2940	Willow Creek Precipitation-DG	Douglas County 1 hour-1 Inch rainfall	8/14/2018 18:47
5940	Log Jumper Precipitation-DG	Hayman 30 minute rainfall	8/14/2018 18:49
1460	Urban Farm Precipitation	Plains 10 minute rainfall	8/14/2018 18:51
1460	Urban Farm Precipitation	UDFCD 10 minute rainfall	8/14/2018 18:51
2940	Willow Creek Precipitation-DG	Douglas County 10 minute rainfall	8/14/2018 18:57
1800	Sand Creek Park Precipitation-AD	Plains 10 minute rainfall	8/14/2018 19:00
1800	Sand Creek Park Precipitation-AD	UDFCD 10 minute rainfall	8/14/2018 19:00
700	Toll Gate @ 6th Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:00
700	Toll Gate @ 6th Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:00
810	Granby Ditch @ 6th Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:02
810	Granby Ditch @ 6th Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:02
800	Sable Ditch @ Colfax Precipitation-AD	Plains 10 minute rainfall	8/14/2018 19:03
800	Sable Ditch @ Colfax Precipitation-AD	UDFCD 10 minute rainfall	8/14/2018 19:03
820	East Toll Gate @ Buckley Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:07

820	East Toll Gate @ Buckley Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:07
810	Granby Ditch @ 6th Precipitation-AR	Plains 1 hour rainfall	8/14/2018 19:07
810	Granby Ditch @ 6th Precipitation-AR	UDFCD 1 hour rainfall	8/14/2018 19:07
800	Sable Ditch @ Colfax Precipitation-AD	Plains 1 hour rainfall	8/14/2018 19:08
800	Sable Ditch @ Colfax Precipitation-AD	UDFCD 1 hour rainfall	8/14/2018 19:08
100160	Sand Creek at Colfax Precipitation-AD	Plains 10 minute rainfall	8/14/2018 19:09
100160	Sand Creek at Colfax Precipitation-AD	UDFCD 10 minute rainfall	8/14/2018 19:09
700	Toll Gate @ 6th Precipitation-AR	Plains 1 hour rainfall	8/14/2018 19:09
700	Toll Gate @ 6th Precipitation-AR	UDFCD 1 hour rainfall	8/14/2018 19:09
2780	Antelope Creek Precipitation-DG	Douglas County 10 minute rainfall	8/14/2018 19:10
700	Toll Gate @ 6th Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:11
700	Toll Gate @ 6th Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:11
810	Granby Ditch @ 6th Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:13
810	Granby Ditch @ 6th Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:13
820	East Toll Gate @ Buckley Precipitation-AR	Plains 1 hour rainfall	8/14/2018 19:14
820	East Toll Gate @ Buckley Precipitation-AR	UDFCD 1 hour rainfall	8/14/2018 19:14
100160	Sand Creek at Colfax Precipitation-AD	Plains 1 hour rainfall	8/14/2018 19:15
100160	Sand Creek at Colfax Precipitation-AD	UDFCD 1 hour rainfall	8/14/2018 19:15
800	Sable Ditch @ Colfax Precipitation-AD	Plains 10 minute rainfall	8/14/2018 19:15
800	Sable Ditch @ Colfax Precipitation-AD	UDFCD 10 minute rainfall	8/14/2018 19:15
820	East Toll Gate @ Buckley Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:18
820	East Toll Gate @ Buckley Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:18
100160	Sand Creek at Colfax Precipitation-AD	Plains 10 minute rainfall	8/14/2018 19:23
100160	Sand Creek at Colfax Precipitation-AD	UDFCD 10 minute rainfall	8/14/2018 19:23
870	Murphy Creek Golf Course Precipitation-AR	Plains 10 minute rainfall	8/14/2018 19:23
870	Murphy Creek Golf Course Precipitation-AR	UDFCD 10 minute rainfall	8/14/2018 19:23
3010	EPC at Hwy 105 Precipitation-DG	Douglas County 10 minute rainfall	8/14/2018 19:36
5740	Trail Creek Precipitation-TL	Hayman 30 minute rainfall	8/17/2018 14:18
5740	Trail Creek Precipitation-TL	Hayman 30 minute rainfall	8/17/2018 14:36
4510	Pinewood Springs Precipitation-BO	Boulder County 10 minute rainfall	8/18/2018 21:32
4520	Eagle Ridge Precipitation-BO	Boulder County 10 minute rainfall	8/18/2018 21:47
100200	OneRain Weather Station Precipitation	Plains 10 minute rainfall	8/18/2018 22:12
4840	SBC at S. Boulder D Precipitation-BO	Boulder County 10 minute rainfall	8/18/2018 22:15
4750	Louisville Lake Precipitation-BO	Boulder County 10 minute rainfall	8/18/2018 22:20
1100	Louisville Dwy D Precipitation-BO	Boulder County 10 minute rainfall	8/18/2018 22:20
4750	Louisville Lake Precipitation-BO	Boulder County 1 hour rainfall	8/18/2018 22:27

General System Analysis

Database Name P:\A207-UDFCD-Data-Analysis\2018\08-2018\2018Aug.mdb

Summarize

First Date in Database	8/1/18 12:00 AM	Total Days	31.0
Last Date in Database	9/1/18 12:00 AM	Total Hours	744.0

Total Records Analyzed 1,161,472

Records by Group	Legacy	%	Concentrator	%	ALERT	%
Wind Data	66,407	31%	131,035	35%	138,774	24%
Temperature	35,095	16%	62,988	17%	82,144	14%
Relative Humidity	34,312	16%	56,896	15%	62,155	11%
Water Level	17,606	8%	19,003	5%	71,767	12%
Barometric Pressure	16,032	7%	26,321	7%	1,413	0%
Battery Voltage	11,872	5%	24,625	7%	88,614	15%
Precipitation	10,912	5%	14,289	4%	62,986	11%
Fuel Temperature	5,935	3%	5,947	2%	0	0%
Fuel Moisture	5,922	3%	5,939	2%	0	0%
Solar Radiation	5,165	2%	5,169	1%	19,665	3%
Soil Moisture	2,951	1%	2,946	1%	0	0%
Repeater Status Report	2,215	1%	1,765	0%	0	0%
ET-Hourly	736	0%	740	0%	0	0%
Repeater Pass List	542	0%	62	0%	0	0%
Unknown	498	0%	8,946	2%	0	0%
12Hr Status Report	338	0%	352	0%	2,340	0%
Not Used	283	0%	298	0%	0	0%
Water Temp	123	0%	123	0%	0	0%
Handar 585 ALARM Status	64	0%	64	0%	0	0%
ET-Daily	30	0%	30	0%	0	0%
GPS Lock	1	0%	163	0%	38,569	7%
Hayman Battery	0	0%	2,180	1%	0	0%
Flasher Status	0	0%	0	0%	6,125	1%
Total	217,039		369,881		574,552	

Traffic Loading Summary	Legacy	Concentrator	ALERT
Alert Reports	217,039	369,881	574,552
Average Daily Traffic	7,001	11,932	18,534
Average Hourly Traffic	292	497	772
Median Hourly Traffic	285	489	762
Peak Hourly Traffic	757	1,092	1,333
2nd Max	700	1,049	1,321
3rd Max	699	920	1,248
4th Max	546	891	1,215
5th Max	521	805	1,200

	hour beginning	hour beginning	
	Aug 18, 11:00 PM	Aug 14, 7:00 PM	Aug 18, 10:00 PM
	Aug 14, 7:00 PM	Aug 18, 11:00 PM	Aug 14, 7:00 PM
	Aug 18, 10:00 PM	Aug 18, 10:00 PM	Aug 18, 11:00 PM
	Aug 14, 6:00 PM	Aug 14, 5:00 PM	Aug 14, 5:00 PM

Rain Timer Performance

Analyze Rain Sensors

Rain Sensors	Description	Rcv	Timer	Exp	Performance
1620	Slaughterhouse Glch	28	11:58	62	45%
2360	Indian Hills	38	17:22	62	61%
3010	WX-EPC at Hwy 105	40	16:07	62	65%
100260	Wx-A2-Trumbull (Hayman) - Precip	522	1:00	744	70%
2330	Morrison	44	14:16	62	71%
4510	Pinewood Springs	50	14:14	62	81%
1660	SPR at Henderson	52	13:31	62	84%
5940	Log Jumper	52	14:00	62	84%
100270	Wx-A2-WestCreek (Hayman) - Precip	632	1:00	744	85%
4330	Hansen Rain	53	13:39	62	85%
4490	Apple Valley	53	13:26	62	85%
5720	Four Mile Creek	53	13:02	62	85%
1710	Shop Creek	54	13:15	62	87%
2980	Dakan Rd	54	12:30	62	87%
4270	Cannon Mountain	54	12:57	62	87%
4790	Wx-Button Rock	54	13:35	62	87%
100150	A2-Sellers Gulch at Haystack Precip	651	1:00	744	88%
330	Van Bibber @ Hwy 93	55	12:12	62	89%
2230	Bear Cr below Cub	55	12:41	62	89%
4470	Little Narrows	55	13:26	62	89%
4870	SBC @ SB Road	55	12:55	62	89%
2280	Kinney Peak	56	13:16	62	90%
2820	Haskins Gulch Conf	56	13:12	62	90%
2910	East Cherry Cr-Douglas	56	12:00	62	90%
310	Guy Hill Ranch	57	12:26	62	92%
620	Quincy/Highline	57	12:12	62	92%
1200	Broomfield 3207	57	12:39	62	92%
1530	Bear Creek @ Lowell	57	12:40	62	92%
2750	Wx-Castle Rock	57	12:29	62	92%
2890	Spruce Mt - Douglas	57	12:30	62	92%
2900	Russelville Gulch-Douglas	57	12:44	62	92%
2940	Willow Creek - DougCnty	57	12:14	62	92%
2950	DC Public Works	57	12:31	62	92%
4180	Gold Lake	57	12:55	62	92%
110	Ralston Reservoir	58	12:37	62	94%
650	Iliff Pond	58	12:40	62	94%
2350	Idledale	58	12:39	62	94%
4070	Bear Peak	58	12:38	62	94%
100110	A2-ETG @ Hampden Precip	58	12:29	62	94%
410	Kelly Dam	59	12:12	62	95%
510	Virginia Court	59	12:13	62	95%
530	Fire Station #19	59	12:24	62	95%
700	Toll Gate @ 6th	59	12:00	62	95%
720	Confluence Pond	59	12:27	62	95%
1050	Jeffco Fairgrounds	59	12:11	62	95%
1360	Denver Zoo	59	12:24	62	95%
1400	Upper Sloan Det.	59	12:24	62	95%
1720	Cherry Cr @ Steele	59	12:11	62	95%
2240	Cold Sprg Glch conf	59	12:11	62	95%
2320	Choke Cherry Resvr	59	12:13	62	95%
2340	El Rancho	59	11:57	62	95%
4060	Lakeshore	59	12:23	62	95%
4110	Betasso	59	12:24	62	95%
4230	Golden Age	59	12:24	62	95%

4260	Taylor Mountain	59	12:11	62	95%
4290	Red Hill	59	11:57	62	95%
4300	Big Elk Park	59	12:11	62	95%
4340	Riverside	59	12:11	62	95%
4350	Conifer Hill	59	11:57	62	95%
4770	Wx-Cal-Wood Ranch	59	12:27	62	95%
4830	SBC @ San Souci	59	12:22	62	95%
5810	Stump Bump	59	12:14	62	95%
120	West Woods	60	12:10	62	97%
220	Upper Leyden	60	12:13	62	97%
320	Sports Complex	60	12:11	62	97%
400	Montview Park	60	12:00	62	97%
420	Expo Park	60	12:16	62	97%
520	Jewell Detention	60	12:12	62	97%
540	Parker/Mississippi	60	12:10	62	97%
600	Harvard Gulch Park	60	11:58	62	97%
810	Granby Ditch @ 6th	60	12:11	62	97%
840	Fire Station 12	60	12:00	62	97%
940	Aurora Regional Pond	60	11:57	62	97%
970	Pump Sta 3	60	11:46	62	97%
1030	NREL/S. Table Mtn.	60	12:10	62	97%
1060	Heritage Square	60	11:57	62	97%
1110	Gunbarrel	60	12:10	62	97%
1300	Hidden Lake	60	11:58	62	97%
1350	Chatfield COE	60	12:13	62	97%
1500	Powers Park	60	12:23	62	97%
1520	Wx-Marston Lake North	60	12:12	62	97%
1550	Lakewood CC	60	11:57	62	97%
1600	Englewood Dam	60	12:11	62	97%
1640	SPR at Union Ave.	60	12:09	62	97%
1800	Sand Creek Park	60	12:11	62	97%
1900	Niver Detention	60	12:11	62	97%
2210	Wx-Hiwan G.C.	60	12:13	62	97%
2250	Rosedale	60	11:57	62	97%
2270	Cub Cr below Blue	60	11:58	62	97%
2310	Genesee Village	60	12:11	62	97%
2370	Red Rocks Park	60	12:11	62	97%
2840	Sulphur Gulch	60	11:59	62	97%
2860	CC at Stroh Rd	60	12:25	62	97%
4020	Rio Grande	60	12:23	62	97%
4030	Red Garden	60	12:12	62	97%
4050	Walker Ranch	60	12:09	62	97%
4160	Sunshine	60	11:58	62	97%
4190	Slaughterhouse	60	12:11	62	97%
4200	Lazy Acres	60	12:12	62	97%
4240	Sunset	60	12:11	62	97%
4250	Geer Canyon	60	12:10	62	97%
4310	Johnny Park	60	12:11	62	97%
4520	Eagle Ridge	60	12:13	62	97%
4530	Winiger Ridge	60	11:57	62	97%
4710	Wx-Ward C-1	60	12:00	62	97%
4810	Shanahan Ridge	60	12:11	62	97%
5730	West Creek	60	12:13	62	97%
5860	Cedar Mountain	60	12:00	62	97%
5880	Hackett Mountain	60	12:00	62	97%
100290	A2-PlumCr at Sedalia - Precip	723	1:00	744	97%
2800	Columbine Open Space	728	1:00	744	98%
2810	Pine Cliff Road	729	1:00	744	98%
3050	East/West Trailhead	731	1:00	744	98%

140	Wx-Blue Mountain	61	12:00	62	98%
150	Nott Creek	61	11:57	62	98%
200	Leyden Reservoir	61	11:57	62	98%
210	Leyden Confluence	61	11:58	62	98%
300	Van Bibber Park	61	12:10	62	98%
430	Utah Park	61	11:57	62	98%
440	Fire Station #7	61	12:11	62	98%
500	Havana Park	61	12:11	62	98%
630	Temple Pond at DTC	61	11:56	62	98%
640	Goldsmith @ Eastman	61	11:57	62	98%
710	Horseshoe Park Drop	61	11:58	62	98%
750	Wx-Quincy Reservoir	61	12:00	62	98%
760	Mission Viejo Park	61	11:57	62	98%
820	ETG @ Buckley	61	11:57	62	98%
830	Side Creek Park	61	12:00	62	98%
850	Flying J	61	12:00	62	98%
950	Piney at Liverpool	61	11:57	62	98%
1010	Denver West	61	11:57	62	98%
1040	Lena @ U.S. Hwy 6	61	12:11	62	98%
1370	West Metro FS13	61	11:58	62	98%
1420	Wx-A2-Diamond Hill	61	12:00	62	98%
1440	Wx-Elbert	61	12:00	62	98%
1460	Wx-Urban Farm	61	12:00	62	98%
1570	Wx-Brighton Ditch	61	12:13	62	98%
1700	Cherry Cr @ Champa	61	11:58	62	98%
2260	Brook Forest	61	11:58	62	98%
2710	Wx-Highlands Ranch WTP	61	12:13	62	98%
2850	Cherry Cr bl Bayou Glch	61	11:50	62	98%
2920	West Cherry Head-Douglas Cnty	61	12:00	62	98%
2960	Indian Creek	61	12:00	62	98%
2990	Wx-Tomah Rd-DougCnty	61	11:47	62	98%
3030	WX-Bingham Lake Park	61	11:49	62	98%
4010	Crescent	61	11:58	62	98%
4040	Martin Gulch	61	12:09	62	98%
4100	Filter Plant	61	12:00	62	98%
4130	Swiss Peaks	61	11:57	62	98%
4140	Logan Mill	61	11:58	62	98%
4150	Gold Hill	61	11:58	62	98%
4170	Pine Brook	61	11:57	62	98%
4220	Fling's	61	11:58	62	98%
4320	Lee Hill Rain 2012	61	11:58	62	98%
4360	Justice Center	61	11:57	62	98%
4550	Boulder Jail	61	11:57	62	98%
4730	Wx-Sugarloaf	61	12:00	62	98%
4840	SBC@S Boulder Ditch	61	11:57	62	98%
4860	Fairview Peak	61	12:00	62	98%
4880	Whispering Pines	61	11:57	62	98%
5740	Trail Creek	61	12:00	62	98%
100100	A2-Blackstone Precip	61	12:00	62	98%
100200	Wx-A2-OneRain Weather - Precipitation	61	12:00	62	98%
6601	Wx-A2-Magnolia WX-Precip	183	4:00	186	98%
610	Harvard @ Jackson	63	11:44	64	98%
730	No Name @ Quincy	63	11:31	64	98%
1920	Wx-Brighton	63	11:23	64	98%
3080	Tallman Gulch	63	11:34	64	98%
4750	Wx-Louisville Lake	63	12:00	64	98%
3020	Wx-West Creek WX	737	1:00	744	99%
100140	A2-Upper Sellers Gulch Precip	737	1:00	744	99%
100320	A2-Weir Gulch - Precip	739	1:00	744	99%

100	A2-Carr Street	741	1:00	744	100%
870	A2-Murphy Creek GC	741	1:00	744	100%
1310	LDC at 64th	741	1:00	744	100%
3040	CC @ Russelville Road Precip	741	1:00	744	100%
3060	Fire Sta 47	742	1:00	744	100%
4850	Porphory Mtn	742	1:00	744	100%
100160	A2-Sand Creek at Colfax Precip	742	1:00	744	100%
100230	A2-Havana Pond Precip	742	1:00	744	100%
100240	A2-Westerly Cr Dam Precip	742	1:00	744	100%
100500	Upper Coal Creek at Camp Eden Rd - Precipitation	742	1:00	744	100%
1000	A2-Maple Grove Resv.	743	1:00	744	100%
1340	Sanderson at Xavier	743	1:00	744	100%
3070	A2-Newlin Gulch Precip	743	1:00	744	100%
100300	A2-CoalCreek at McCaslin - Precip	743	1:00	744	100%
100420	A2-Thorncreek - Precip	743	1:00	744	100%
100490	Coal Creek at Twin Spruce Rd - Precipitation	743	1:00	744	100%
900	Wx-Aurora Reservoir	4	12:00	4	100%
800	Sable Ditch @ 18th	62	11:57	62	100%
1100	Louisville Rec Ctr	62	11:59	62	100%
1320	SPR at 3rd Ave	62	11:58	62	100%
1480	Third Creek at DIA	62	11:59	62	100%
2870	Cottonwood (Apache)	62	12:00	62	100%
2930	Wx-Spring Valley Rd-DougCnty	62	11:46	62	100%
4080	Twin Sisters	62	11:57	62	100%
4090	Magnolia	62	11:57	62	100%
4570	St. Antons	62	11:59	62	100%
4820	Doudy Draw	62	11:57	62	100%
2730	Wx-Salisbury Park	64	11:28	64	100%
2970	Rampart Range Rd-Satellite	210		210	100%
5900	Horse Creek-Satellite	1038		1038	100%
100410	A2-Brantner Gulch - Precip	744	1:00	744	100%
3090	A2-Highland Heritage Park	745	1:00	744	100%
2880	Happy Canyon at N Surrey Dr	746	1:00	744	100%

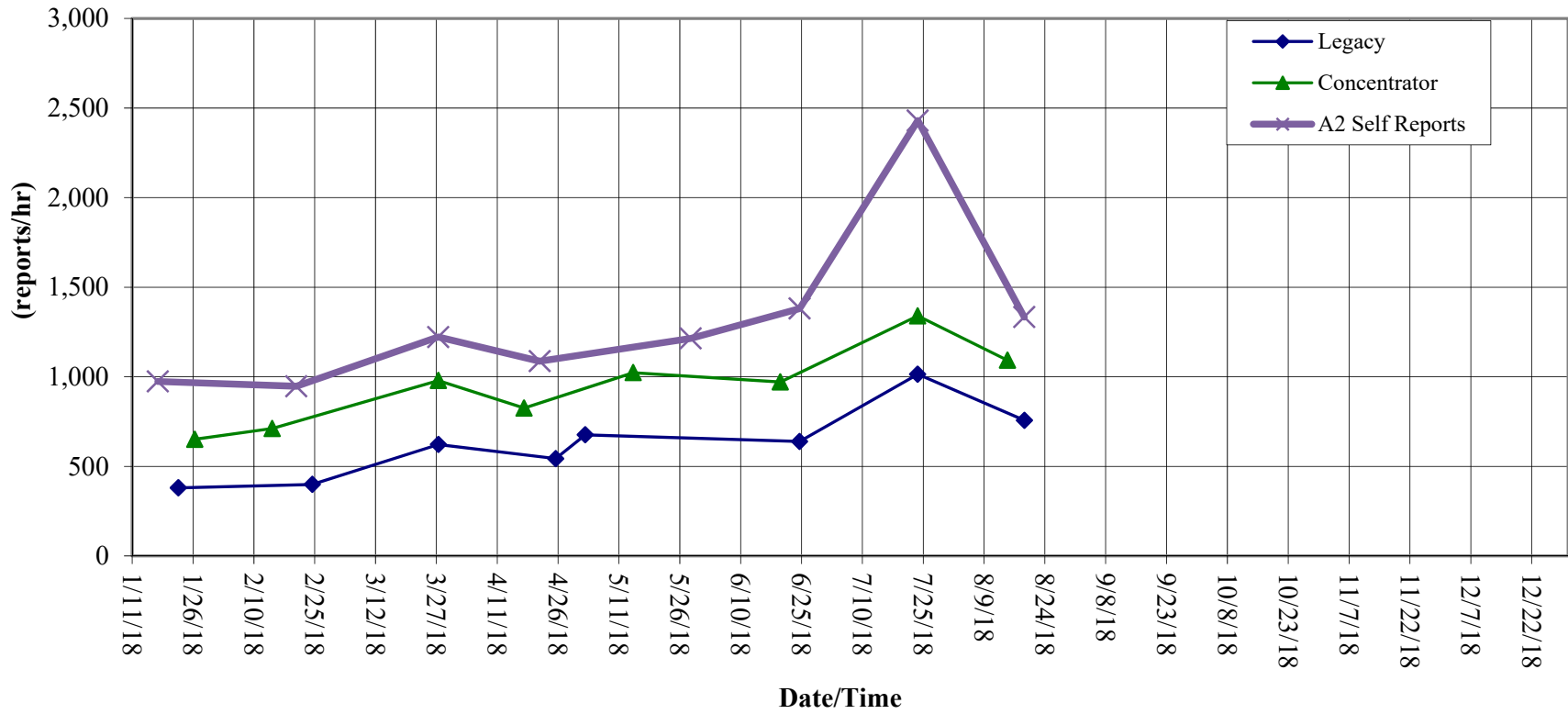
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	Rain Event Performance				Analyze Rain Sensors					0	<<show stations with zero rain (1=yes, 0=no)							
2		Reports Received	Reports Received	4,570														
3		Systemwide Avg	Total Tips	4,787														
4		95.29%	Data Loss	4.53%														
5	Description	Sensor	Performance	1-tips	2-tips	3-tips	4-tips	5-tips	6-tips	>6-tips	Rcv	Exp	Miss	Hold	Bucket			
6	Aurora Regional Pond	940	63%	12	1	0	1	0	1	0	15	24	9	0	0.0393701			
7	Slaughterhouse Glch	1620	67%	2	2	0	0	0	0	0	4	6	2	0	0.0393701 Mean	24.18		
8	Iliff Pond	650	77%	7	3	0	0	0	0	0	10	13	3	0	0.0393701 Median	20		
9	Apple Valley	4490	77%	7	3	0	0	0	0	0	10	13	3	0	0.0393701 St. Dev	18.36		
10	SPR at Union Ave.	1640	78%	6	0	1	0	0	0	3	7	9	2	0	0.0393701 Mean plus 3 SD	79.26		
11	Fire Station 12	840	79%	16	6	0	0	0	0	0	22	28	6	0	0.0393701 Mean minus 2 SD	-12.55		
12	Morrison	2330	79%	9	1	1	0	0	0	0	11	14	3	0	0.0393701 Min	2		
13	Wx-A2-Trumbull (Hayman) - Precip	100260	80%	39	8	0	0	1	0	0	48	60	12	0	0.0393701 Max	138		
14	Indian Hills	2360	80%	9	3	0	0	0	0	0	12	15	3	0	0.0393701			
15	Wx-Louisville Lake	4750	81%	19	6	0	0	0	0	0	25	31	6	0	0.0393701			
16	Dakan Rd	2980	81%	23	7	0	0	0	0	0	30	37	7	0	0.0393701			
17	A2-Havana Pond Precip	100230	83%	17	1	0	1	0	0	0	19	23	4	0	0.0393701			
18	Wx-Highlands Ranch WTP	2710	83%	36	9	0	0	0	0	0	45	54	9	0	0.0393701			
19	Rampart Range Rd-Satellite	2970	83%	17	2	1	0	0	0	0	20	24	4	0	0.0393701			
20	Nott Creek	150	83%	4	1	0	0	0	0	0	5	6	1	0	0.0393701			
21	SPR at Henderson	1660	83%	4	1	0	0	0	0	0	5	6	1	0	0.0393701			
22	Red Garden	4030	83%	4	1	0	0	0	0	0	5	6	1	0	0.0393701			
23	Upper Coal Creek at Camp Eden Rd - Precipitation	100500	83%	4	1	0	0	0	0	0	5	6	1	0	0.0393701			
24	Broomfield 3207	1200	85%	18	4	0	0	0	0	0	22	26	4	0	0.0393701			
25	Spruce Mt - Douglas	2890	85%	39	6	1	0	0	0	0	46	54	8	0	0.0393701			
26	Powers Park	1500	86%	5	1	0	0	0	0	1	6	7	1	0	0.0393701			
27	Rosedale	2250	86%	10	2	0	0	0	0	0	12	14	2	0	0.0393701			
28	Confluence Pond	720	86%	16	3	0	0	0	0	0	19	22	3	0	0.0393701			
29	Cub Cr below Blue	2270	86%	16	3	0	0	0	0	0	19	22	3	0	0.0393701			
30	Red Hill	4290	87%	11	2	0	0	0	0	0	13	15	2	0	0.0393701			
31	Pinewood Springs	4510	88%	26	2	1	0	0	0	0	29	33	4	1	0.0393701			
32	A2-Thorncreek - Precip	100420	88%	13	2	0	0	0	0	0	15	17	2	0	0.0393701			
33	Parker/Mississippi	540	88%	13	2	0	0	0	0	0	15	17	2	0	0.0393701			
34	Tallman Gulch	3080	88%	14	0	1	0	0	0	0	15	17	2	0	0.0393701			
35	Bear Creek @ Lowell	1530	89%	14	2	0	0	0	0	0	16	18	2	0	0.0393701			
36	Indian Creek	2960	89%	14	2	0	0	0	0	0	16	18	2	0	0.0393701			
37	Eagle Ridge	4520	89%	15	2	0	0	0	0	0	17	19	2	0	0.0393701			
38	Havana Park	500	90%	32	2	1	0	0	0	0	35	39	4	0	0.0393701			
39	Idledale	2350	90%	8	1	0	0	0	0	0	9	10	1	0	0.0393701			
40	Cannon Mountain	4270	90%	8	1	0	0	0	0	0	9	10	1	0	0.0393701			
41	Little Narrows	4470	90%	8	1	0	0	0	0	0	9	10	1	0	0.0393701			
42	LDC at 64th	1310	91%	18	2	0	0	0	0	0	20	22	2	0	0.0393701			
43	Choke Cherry Resvr	2320	91%	9	1	0	0	0	0	0	10	11	1	0	0.0393701			
44	Taylor Mountain	4260	91%	9	1	0	0	0	0	0	10	11	1	0	0.0393701			
45	Jewell Detention	520	91%	19	2	0	0	0	0	0	21	23	2	0	0.0393701			
46	WX-Bingham Lake Park	3030	91%	29	3	0	0	0	0	0	32	35	3	0	0.0393701			
47	WX-EPC at Hwy 105	3010	91%	39	4	0	0	0	0	1	43	47	4	0	0.0393701			
48	Doudy Draw	4820	92%	10	1	0	0	0	0	0	11	12	1	0	0.0393701			
49	Haskins Gulch Conf	2820	92%	31	3	0	0	0	0	0	34	37	3	0	0.0393701			
50	Willow Creek - DougCnty	2940	92%	63	6	0	0	0	0	0	69	75	6	0	0.0393701			
51	A2-Upper Sellers Gulch Precip	100140	92%	45	0	0	0	1	0	0	46	50	4	0	0.0393701			
52	Horse Creek-Satellite	5900	92%	32	3	0	0	0	0	0	35	38	3	0	0.0393701			
53	Toll Gate @ 6th	700	92%	56	3	1	0	0	0	0	60	65	5	0	0.0393701			
54	Russelville Gulch-Douglas	2900	93%	23	2	0	0	0	0	0	25	27	2	0	0.0393701			
55	CC at Stroh Rd	2860	93%	24	2	0	0	0	0	0	26	28	2	0	0.0393701			
56	Sulphur Gulch	2840	93%	12	1	0	0	0	0	0	13	14	1	0	0.0393701			
57	Leyden Confluence	210	93%	26	2	0	0	0	0	0	28	30	2	0	0.0393701			
58	Sports Complex	320	94%	14	1	0	0	0	0	0	15	16	1	0	0.0393701			
59	Genesee Village	2310	94%	14	1	0	0	0	0	0	15	16	1	0	0.0393701			
60	Four Mile Creek	5720	94%	14	1	0	0	0	0	0	15	16	1	0	0.0393701			
61	Granby Ditch @ 6th	810	94%	71	5	0	0	0	0	0	76	81	5	3	0.0393701			
62	Slaughterhouse	4190	94%	15	1	0	0	0	0	0	16	17	1	0	0.0393701			
63	A2-Sellers Gulch at Haystack Precip	100150	94%	32	2	0	0	0	0	0	34	36	2	0	0.0393701			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
64	Fire Station #7	440	94%	16	1	0	0	0	0	0	0	17	18	1	0	0.0393701	
65	SPR at 3rd Ave	1320	94%	16	1	0	0	0	0	0	0	17	18	1	0	0.0393701	
66	Shop Creek	1710	94%	16	1	0	0	0	0	0	0	17	18	1	0	0.0393701	
67	Cherry Cr @ Steele	1720	94%	16	1	0	0	0	0	0	0	17	18	1	0	0.0393701	
68	Englewood Dam	1600	95%	17	1	0	0	0	0	0	0	18	19	1	0	0.0393701	
69	A2-Weir Gulch - Precip	100320	95%	18	1	0	0	0	0	0	0	19	20	1	0	0.0393701	
70	ETG @ Buckley	820	95%	55	3	0	0	0	0	0	0	58	61	3	1	0.0393701	
71	Cherry Cr @ Champa	1700	95%	20	1	0	0	0	0	0	0	21	22	1	0	0.0393701	
72	Kinney Peak	2280	95%	20	1	0	0	0	0	0	0	21	22	1	0	0.0393701	
73	Kelly Dam	410	96%	21	1	0	0	0	0	0	0	22	23	1	0	0.0393701	
74	Gold Lake	4180	96%	21	1	0	0	0	0	0	0	22	23	1	0	0.0393701	
75	Denver Zoo	1360	96%	22	1	0	0	0	0	0	0	23	24	1	0	0.0393701	
76	SBC@S Boulder Ditch	4840	96%	23	1	0	0	0	0	0	0	24	25	1	0	0.0393701	
77	No Name @ Quincy	730	96%	24	1	0	0	0	0	0	0	25	26	1	0	0.0393701	
78	Wx-Marston Lake North	1520	96%	25	1	0	0	0	0	0	0	26	27	1	7	0.0393701	
79	DC Public Works	2950	96%	25	1	0	0	0	0	0	0	26	27	1	0	0.0393701	
80	Sable Ditch @ 18th	800	96%	51	2	0	0	0	0	0	0	53	55	2	1	0.0393701	
81	Log Jumper	5940	97%	55	2	0	0	0	0	0	0	57	59	2	0	0.0393701	
82	Wx-Brighton	1920	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.0393701	
83	A2-ETG @ Hampden Precip	100110	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.0393701	
84	Stump Bump	5810	97%	30	1	0	0	0	0	0	0	31	32	1	0	0.0393701	
85	Sand Creek Park	1800	97%	32	1	0	0	0	0	0	0	33	34	1	0	0.0393701	
86	Lena @ U.S. Hwy 6	1040	97%	33	1	0	0	0	0	0	0	34	35	1	0	0.0393701	
87	Cherry Cr bl Bayou Glch	2850	97%	33	1	0	0	0	0	0	0	34	35	1	0	0.0393701	
88	A2-PlumCr at Sedalia - Precip	100290	97%	33	1	0	0	0	0	0	0	34	35	1	0	0.0393701	
89	Virginia Court	510	97%	36	1	0	0	0	0	0	0	37	38	1	0	0.0393701	
90	Wx-West Creek WX	3020	97%	36	1	0	0	0	0	0	0	37	38	1	0	0.0393701	
91	Hidden Lake	1300	97%	37	1	0	0	0	0	0	0	38	39	1	1	0.0393701	
92	Wx-Castle Rock	2750	97%	37	1	0	0	0	0	0	0	38	39	1	0	0.0393701	
93	Wx-Urban Farm	1460	98%	39	1	0	0	0	0	0	0	40	41	1	0	0.0393701	
94	Wx-Brighton Ditch	1570	98%	39	1	0	0	0	0	0	0	40	41	1	0	0.0393701	
95	A2-Murphy Creek GC	870	98%	42	1	0	0	0	0	0	0	43	44	1	5	0.0393701	
96	Utah Park	430	98%	95	2	0	0	0	0	0	0	97	99	2	0	0.0393701	
97	A2-Sand Creek at Colfax Precip	100160	98%	50	1	0	0	0	0	0	0	51	52	1	4	0.0393701	
98	Cedar Mountain	5860	98%	51	1	0	0	0	0	0	0	52	53	1	0	0.0393701	
99	West Cherry Head-Douglas Cnty	2920	98%	60	1	0	0	0	0	0	0	61	62	1	0	0.0393701	
100	Temple Pond at DTC	630	100%	138	0	0	0	0	0	0	0	138	138	0	0	0.0393701	
101	East Cherry Cr-Douglas	2910	100%	64	0	0	0	0	0	0	0	64	64	0	0	0.0393701	
102	Harvard Gulch Park	600	100%	63	0	0	0	0	0	0	0	63	63	0	0	0.0393701	
103	Expo Park	420	100%	60	0	0	0	0	0	0	0	60	60	0	0	0.0393701	
104	Wx-Spring Valley Rd-DougCnty	2930	100%	54	0	0	0	0	0	0	0	54	54	0	0	0.0393701	
105	Fire Sta 47	3060	100%	50	0	0	0	0	0	0	0	50	50	0	0	0.0393701	
106	East/West Trailhead	3050	100%	47	0	0	0	0	0	0	0	47	47	0	0	0.0393701	
107	Trail Creek	5740	100%	43	0	0	0	0	0	0	0	43	43	0	0	0.0393701	
108	A2-Highland Heritage Park	3090	100%	40	0	0	0	0	0	0	0	40	40	0	0	0.0393701	
109	West Metro FS13	1370	100%	36	0	0	0	0	0	0	0	36	36	0	0	0.0393701	
110	Wx-Tomah Rd-DougCnty	2990	100%	36	0	0	0	0	0	0	0	36	36	0	0	0.0393701	
111	Hackett Mountain	5880	100%	35	0	0	0	0	0	0	0	35	35	0	0	0.0393701	
112	Pump Sta 3	970	100%	34	0	0	0	0	0	0	0	34	34	0	0	0.0393701	
113	Flying J	850	100%	33	0	0	0	0	0	0	0	33	33	0	0	0.0393701	
114	Brook Forest	2260	100%	33	0	0	0	0	0	0	0	33	33	0	0	0.0393701	
115	Chatfield COE	1350	100%	32	0	0	0	0	0	0	0	32	32	0	0	0.0393701	
116	CC @ Russelville Road Precip	3040	100%	32	0	0	0	0	0	0	0	32	32	0	0	0.0393701	
117	Montview Park	400	100%	29	0	0	0	0	0	0	0	29	29	0	0	0.0393701	
118	Horseshoe Park Drop	710	100%	29	0	0	0	0	0	0	0	29	29	0	1	0.0393701	
119	Happy Canyon at N Surrey Dr	2880	100%	28	0	0	0	0	0	0	0	28	28	0	0	0.0393701	
120	Louisville Rec Ctr	1100	100%	27	0	0	0	0	0	0	0	27	27	0	1	0.0393701	
121	Wx-Quincy Reservoir	750	100%	26	0	0	0	0	0	0	0	26	26	0	0	0.0393701	
122	Side Creek Park	830	100%	26	0	0	0	0	0	0	0	26	26	0	0	0.0393701	
123	Pine Cliff Road	2810	100%	26	0	0	0	0	0	0	0	26	26	0	1	0.0393701	
124	A2-Blackstone Precip	100100	100%	26	0	0	0	0	0	0	0	26	26	0	0	0.0393701	
125	Lakewood CC	1550	100%	25	0	0	0	0	0	0	0	25	25	0	0	0.0393701	
126	A2-Westerly Cr Dam Precip	100240	100%	25	0	0	0	0	0	0	0	25	25	0	0	0.0393701	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
127	Sunshine	4160	100%	24	0	0	0	0	0	0	0	24	24	0	0	0.0393701	
128	Heritage Square	1060	100%	23	0	0	0	0	0	0	0	23	23	0	0	0.0393701	
129	Mission Viejo Park	760	100%	22	0	0	0	0	0	0	0	22	22	0	0	0.0393701	
130	A2-Carr Street	100	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701	
131	Guy Hill Ranch	310	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701	
132	Jeffco Fairgrounds	1050	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701	
133	Gunbarrel	1110	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701	
134	Wx-Elbert	1440	100%	21	0	0	0	0	0	0	0	21	21	0	1	0.0393701	
135	Wx-Ward C-1	4710	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701	
136	Van Bibber @ Hwy 93	330	100%	20	0	0	0	0	0	0	0	20	20	0	0	0.0393701	
137	Bear Cr below Cub	2230	100%	20	0	0	0	0	0	0	0	20	20	0	0	0.0393701	
138	Gold Hill	4150	100%	20	0	0	0	0	0	0	0	20	20	0	0	0.0393701	
139	Johnny Park	4310	100%	20	0	0	0	0	0	0	0	20	20	0	0	0.0393701	
140	A2-CoalCreek at McCaslin - Precip	100300	100%	20	0	0	0	0	0	0	0	20	20	0	0	0.0393701	
141	Columbine Open Space	2800	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701	
142	Cottonwood (Apache)	2870	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701	
143	A2-Newlin Gulch Precip	3070	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701	
144	West Creek	5730	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701	
145	West Woods	120	100%	18	0	0	0	0	0	0	0	18	18	0	0	0.0393701	
146	Sanderson at Xavier	1340	100%	18	0	0	0	0	0	0	0	18	18	0	0	0.0393701	
147	Whispering Pines	4880	100%	18	0	0	0	0	0	0	0	18	18	0	0	0.0393701	
148	Wx-A2-WestCreek (Hayman) - Precip	100270	100%	17	0	0	0	0	0	0	0	17	17	0	0	0.0393701	
149	Harvard @ Jackson	610	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.0393701	
150	Quincy/Highline	620	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.0393701	
151	Denver West	1010	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.0393701	
152	Wx-Cal-Wood Ranch	4770	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.0393701	
153	Piney at Liverpool	950	100%	15	0	0	0	0	0	0	0	15	15	0	0	0.0393701	
154	Lazy Acres	4200	100%	15	0	0	0	0	0	0	0	15	15	0	0	0.0393701	
155	Fling's	4220	100%	15	0	0	0	0	0	0	0	15	15	0	0	0.0393701	
156	Ralston Reservoir	110	100%	14	0	0	0	0	0	0	0	14	14	0	0	0.0393701	
157	Fire Station #19	530	100%	14	0	0	0	0	0	0	0	14	14	0	0	0.0393701	
158	Wx-Salisbury Park	2730	100%	14	0	0	0	0	0	0	0	14	14	0	0	0.0393701	
159	Riverside	4340	100%	14	0	0	0	0	0	0	0	14	14	0	0	0.0393701	
160	Leyden Reservoir	200	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701	
161	Wx-A2-Diamond Hill	1420	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701	
162	Third Creek at DIA	1480	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701	
163	Red Rocks Park	2370	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701	
164	Niver Detention	1900	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701	
165	Big Elk Park	4300	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701	
166	Lee Hill Rain 2012	4320	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701	
167	Hansen Rain	4330	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701	
168	Boulder Jail	4550	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701	
169	Pine Brook	4170	100%	11	0	0	0	0	0	0	0	11	11	0	0	0.0393701	
170	Shanahan Ridge	4810	100%	11	0	0	0	0	0	0	0	11	11	0	0	0.0393701	
171	A2-Maple Grove Resv.	1000	100%	10	0	0	0	0	0	0	0	10	10	0	0	0.0393701	
172	Bear Peak	4070	100%	10	0	0	0	0	0	0	0	10	10	0	0	0.0393701	
173	Conifer Hill	4350	100%	10	0	0	0	0	0	0	0	10	10	0	0	0.0393701	
174	A2-Brantner Gulch - Precip	100410	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
175	NREL/S. Table Mtn.	1030	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
176	Cold Sprg Glich conf	2240	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
177	El Rancho	2340	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
178	Betasso	4110	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
179	Logan Mill	4140	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
180	SBC @ San Souci	4830	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
181	Coal Creek at Twin Spruce Rd - Precipitation	100490	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701	
182	Van Bibber Park	300	100%	8	0	0	0	0	0	0	0	8	8	0	0	0.0393701	
183	Geer Canyon	4250	100%	8	0	0	0	0	0	0	0	8	8	0	0	0.0393701	
184	Goldsmith @ Eastman	640	100%	7	0	0	0	0	0	0	0	7	7	0	0	0.0393701	
185	Golden Age	4230	100%	7	0	0	0	0	0	0	0	7	7	0	0	0.0393701	
186	Wx-Blue Mountain	140	100%	6	0	0	0	0	0	0	0	6	6	0	0	0.0393701	
187	Wx-Hiwan G.C.	2210	100%	6	0	0	0	0	0	0	0	6	6	0	0	0.0393701	
188	Twin Sisters	4080	100%	6	0	0	0	0	0	0	0	6	6	0	0	0.0393701	
189	Filter Plant	4100	100%	6	0	0	0	0	0	0	0	6	6	0	0	0.0393701	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
190	Swiss Peaks	4130	100%	6	0	0	0	0	0	0	0	6	6	0	0		0.0393701
191	Justice Center	4360	100%	6	0	0	0	0	0	0	0	6	6	0	0		0.0393701
192	St. Antons	4570	100%	6	0	0	0	0	0	0	0	6	6	0	0		0.0393701
193	Upper Sloan Det.	1400	100%	5	0	0	0	0	0	0	0	5	5	0	0		0.0393701
194	Magnolia	4090	100%	5	0	0	0	0	0	0	0	5	5	0	1		0.0393701
195	Sunset	4240	100%	5	0	0	0	0	0	0	0	5	5	0	0		0.0393701
196	Winiger Ridge	4530	100%	5	0	0	0	0	0	0	0	5	5	0	0		0.0393701
197	Wx-Sugarloaf	4730	100%	5	0	0	0	0	0	0	0	5	5	0	0		0.0393701
198	Upper Leyden	220	100%	4	0	0	0	0	0	0	0	4	4	0	0		0.0393701
199	Cresent	4010	100%	4	0	0	0	0	0	0	0	4	4	0	0		0.0393701
200	Rio Grande	4020	100%	3	0	0	0	0	0	0	0	3	3	0	0		0.0393701
201	Martin Gulch	4040	100%	3	0	0	0	0	0	0	0	3	3	0	0		0.0393701
202	Walker Ranch	4050	100%	2	0	0	0	0	0	0	0	2	2	0	0		0.0393701
203	Lakeshore	4060	100%	2	0	0	0	0	0	0	0	2	2	0	0		0.0393701
204			Total Tips	4375	182	8	2	2	1								
205																	
206	Wx-A2-OneRain Weather - Precipitation	100200	53%	104	62	35	5	6	4	1	216	407	191	13			0.01
207	Fairview Peak	4860	94%	41	3	0	0	0	0	0	44	47	3	1			0.01
208	Wx-A2-Magnolia WX-Precip	6601	95%	19	1	0	0	0	0	0	20	21	1	0			0.01
209	Porphyry Mtn	4850	98%	47	1	0	0	0	0	0	48	49	1	0			0.01

2018 Monthly Peak Hour ALERT Radio Traffic Summary



Sunburst Plot

Inner Ring: Displays the ratio of ALERT2 data reports between the Diamond Hill and Westy decoders

Second Ring: Displays the ratio of ALERT2 data reports between the five repeaters

Third Ring: Displays the event performance for each ALERT2 site

Outer Ring: Displays the timer performance for each ALERT2 site

