

Memo

Date: April 10, 2018
To: Kevin Stewart
From: Markus Ritsch
Subject: March 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 March 1 through March 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										593,699
Conc (line 2)	369,547	328,399	383,229										1,081,175
ALERT2 (line 4)	608,216	474,112	513,779										1,596,107
Westy ALERT2 (line 8)		472,878	513,257										986,135
Westy Conc (line 6)		327,438	382,812										710,250
TOTAL	1,185,952	1,773,765	2,007,649	0	0	0	0	0	0	0	0	0	4,967,366
Con/Leg	1.78	1.92	1.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82
DataChr	713,367	590,020	715,298										2,018,685

A new ALERT2 receiver/decoder was installed in Westminster (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).

On April 6, the data collection for the Greenhouse server was re-configured with different source lines so that a comparison of data received at each base station could be more easily quantified. The source lines configured at each base station, as of April 6, 2018, are as follows:

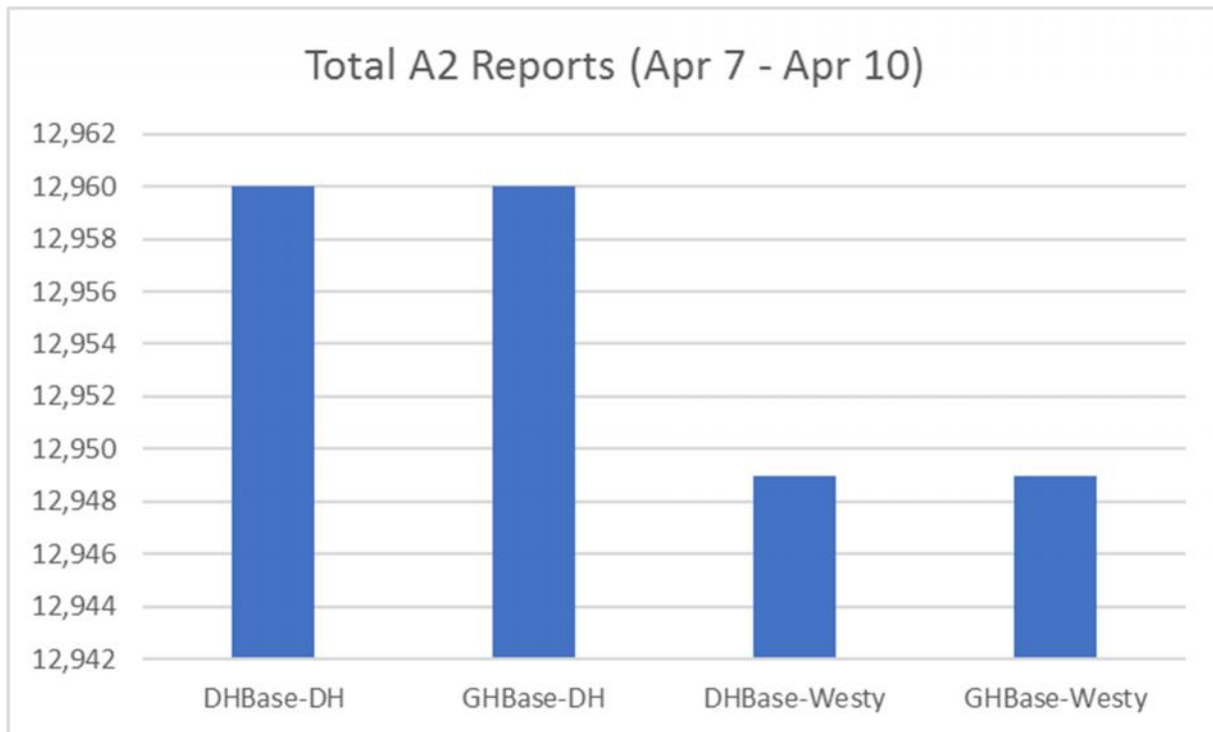
Primary Node Diamond Hill Base Station

- 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

For the period April 7 through April 10 the following total ALERT2 reports were received at each base station from the decoder at Diamond Hill and from the decoder at Westy. A small number of ALERT2 reports were received from the Diamond Hill decoder that were not received by Westy.



The twelve ALERT2 data reports not received from the new Westy decoder were primarily from the Magnolia weather station (two reports were from James Creek).

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 [1]	208,189	170,938	214,572										593,699
Concentrator [2]	369,547	328,399	383,229										1,081,175
DH (A2) [4]	608,216	474,112	513,779										1,596,107
Westy (Conc) [6]		327,438	382,812										710,250
Westy (A2) [8]		472,878	513,257										986,135
NS5B (Greenhouse)													
Legacy [1]	207,991	167,936	176,780										552,707
Concentrator [3]	369,370	297,198	289,542										956,110
DH (A2) [5]	608,348	437,957	389,787										1,436,092
Westy (Conc) [7]		304,809	292,048										596,857
Westy (A2) [9]		446,873	398,421										845,294
Diff (NS5a-NS5b)													
Legacy (Digi One)	198	3,002	37,792	0	0	0	0	0	0	0	0	0	40,992
Concentrator (B2010)	177	31,201	93,687	0	0	0	0	0	0	0	0	0	125,065
ALERT2 (B2010)	-132	36,155	123,992	0	0	0	0	0	0	0	0	0	160,015
Westy (Conc)	0	22,629	90,764										113,393
Westy (A2)	0	26,005	114,836										140,841
Comments		Network issues experienced this month at DH											

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

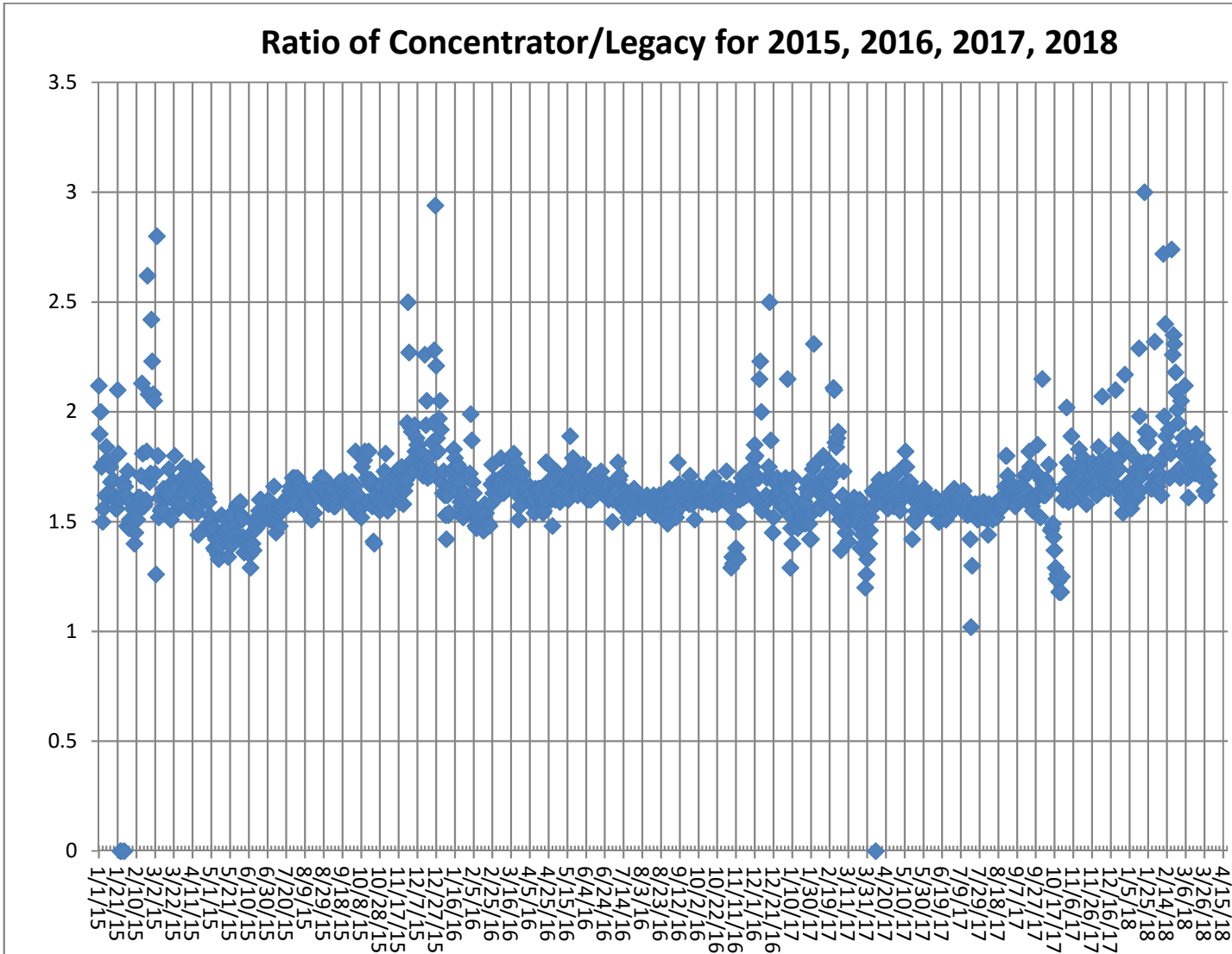


Figure 1. Daily Ratio of Concentrator Reports to Legacy Reports

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.

A. Continuous Operation of Base Receiver/Decoder

Data was collected on a continuous basis for a total of 743 hours of operation. The base station missed 1 hour, which is due to daylight savings time change. 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
2790	West Cherry Creek	Consistently poor timer performance
2810	Pine Cliff Road	Invalid data for both precipitation and water level
3020	West Creek WX	ALERT2 station with drifting clock (negative latency)
2270	Cub Creek Below Blue	Poor timer and event performance
0, 1, 2	Unknown	Unknown IDS transmitted on legacy ALERT

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

** - The number of reports coming through these repeaters declined significantly

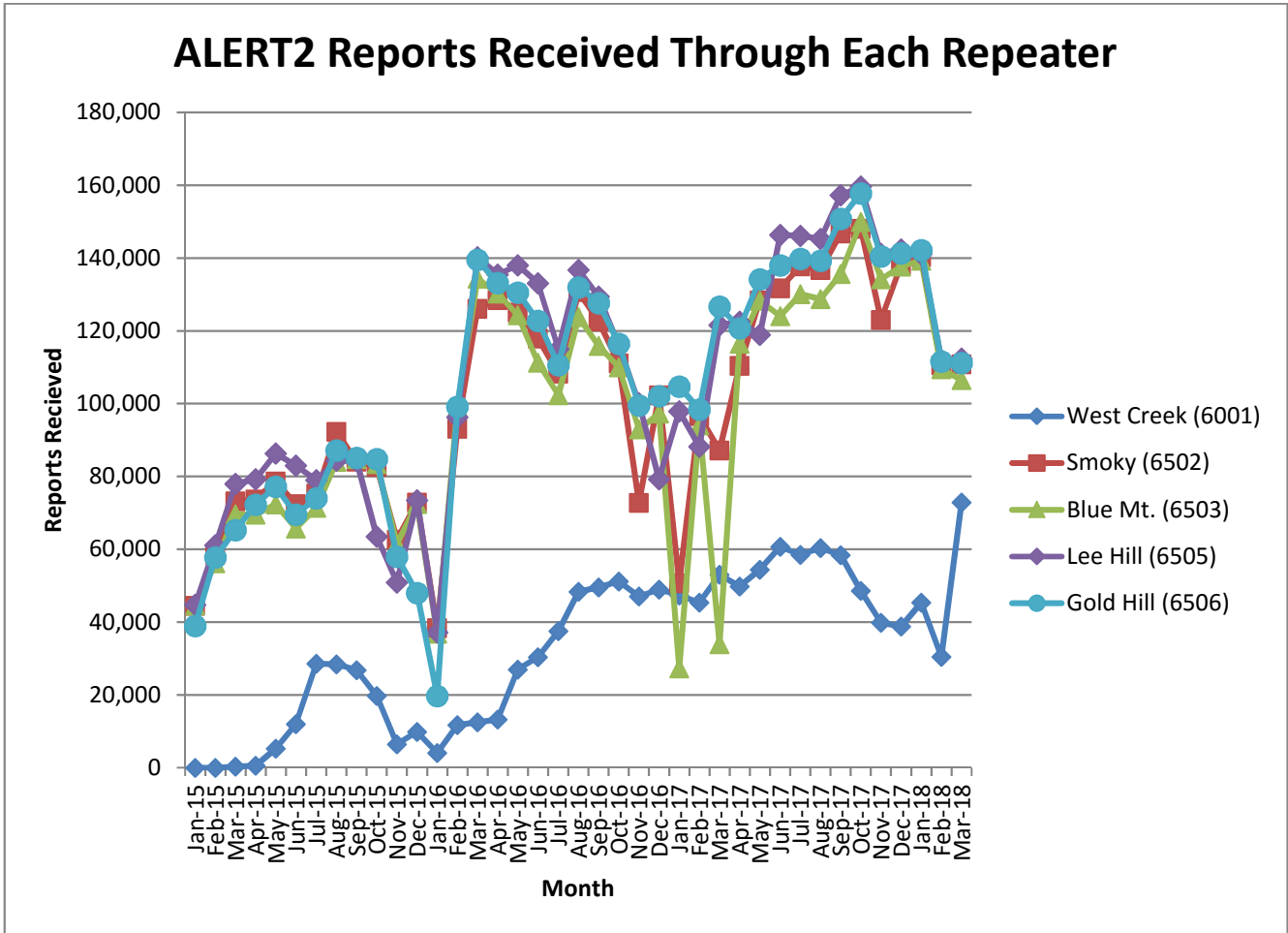


Figure 2. Reports received through each repeater (ALERT2 Only)

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 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	60.96	The average time it took a report from the field to reach the base
Minimum	-23	The minimum time it took for a report to go from the field to the base
Maximum	30677	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									
Minimum	-34	-23	-23									
Maximum	37677	33597	30677									
Station with Max Latency	West Creek WX	West Creek WX	West Creek WX									

The negative latencies are observed only from the station West Creek WX. This is a HydroLynx transmitter. It is likely that the clock on this transmitter is drifting badly. A new GPS chip and EPROM are soon to be installed to help this station.

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									
4550	3020	2360									
1660	1110	2230									
2330	3010	2250									
2980	1660	2270									
5940	4550	2350									

*- 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	29.05	Only the 1-mm rain sensors were included in the analysis
Median	29	Only the 1-mm rain sensors were included in the analysis
Standard deviation	14.16	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	71.53	Only the 1-mm rain sensors were included in the analysis
Mean minus two standard deviations	0.73	Only the 1-mm rain sensors were included in the analysis
Minimum total count	2	El Rancho (2340), Kinney Peak (2280), Rosedale (2250)
Maximum total count	77	Denver Zoo (1360)
Sensors showing NO rain for the month		None
Sensors greater than 3 SD (over reporting)	1	Denver Zoo (1360)

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	29.05										
Ave	6.66	9.95	20.91	40.48	60.96	32.83	52.11	35.68	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.

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

No 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
Elbert	1440	All >6 tips were breaks in the data
Cub Crk Blw Blue Crk	2270	All >6 tips were breaks in the data

D. Sensor-by-Sensor Incrementing Count Summary

The system-wide reception rate of incrementing, 1-mm tip reports for the month was approximately 96 percent. A total of 5,483 incrementing reports were received and a total of 5,694 reports were expected. The total loss of incrementing reports for the month was approximately 4 percent. Those sensors with the worst event transmission performance are summarized (Table 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									
2980	1110	2230									
4790	540	4870									
4320	2330	940									
3010	4330	100140									
3030	3020	1530									

*-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)	322	247	0
Total reports from unknown IDs	1,178	952	0
Unknown IDs with only a single received report (potential noise)	151	125	0
Total reports from all IDs – RecData Log entire month	383,229	214,572	513,779
Unknown reports as a fraction of total reports	0.31%	0.44%	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									

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%									

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).

Table 16. Reports Received by Unknown IDs

Concentrator		Legacy ALERT		Comment
Unknown ID	Reports	Unknown ID	Reports	
		0,1,2	61,61,101	Legacy reports for IDs 0,1,2 only
3071	43			E Cherry Creek at Russellville possibly sending invalid ID
129	33	129	33	Simms Street possibly sending invalid ID
3044	28			Newlin Gulch at Jordan Rd possibly sending invalid ID
1470	23	1470	23	Urban Farm 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									
2810-Pine Cliff Rd.	14	10	10									
2880-Happy Canyon	--	--	47*									
3010-Wx-EPC @ 105	3	5	7									
3050-E/W Trailhead	7	12	3									
4030-Red Garden	--	3	3									
4330-Hansen	--	3	--									
4240-Sunset	1	4	2									
4790-Wx-Button Rock	--	--	--									

*Happy Canyon (2880) Station was in maintenance mode from 03/09 to 03/27. It was placed back into service on the NovaStar5 base station on March 27, 2018.

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									
403-Montview Park	1171*	766*	411*									
213-Leyden Confluence	--	--	3									
723-WTG above Conf Pond	--	--	3									
1523-Marston Lake North	9	7	10									
1649-SPR at 19 th Street	--	--	1									
2223-Evergreen Lake	--	--	2									
2273-Cub Cr below Blue	--	--	3									
2803-Columbine Open Space	--	--	--									
2813-Pine Cliff Road	15	13	9									
3013-EPC@Hwy 105	18	20	8									
4383-Eldorado Springs	--	4	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. Stations and Sensors Out of Service on the Base Station

The following sensors are currently out of service on the NovaStar5 base station.

-) 746 – Quincy Reservoir Handar 585 ALARM Status
-) 1330 – Roslyn DN

VII. Rainfall Alarms and Intensity Analysis

No rainfall rate alarms from the Urban Drainage and Flood Control District NovaStar 5.0 Web Server were identified this month.

General System Analysis

Database Name P:\A207-UDFCD-Data-Analysis\2018\03-2018\2018Mar.mdb

Summarize

First Date in Database	3/1/18 12:00 AM	Total Days	31.0
Last Date in Database	4/1/18 12:00 AM	Total Hours	744.0

Total Records Analyzed

Records by Group	Legacy		Concentrator		ALERT	
Wind Data	81,008	38%	164,524	43%	130,416	25%
Temperature	32,967	15%	62,685	16%	76,237	15%
Relative Humidity	32,941	15%	55,545	14%	57,994	11%
Barometric Pressure	15,658	7%	26,110	7%	660	0%
Precipitation	9,590	4%	12,530	3%	46,766	9%
Water Level	9,308	4%	10,919	3%	50,180	10%
Battery Voltage	8,610	4%	23,585	6%	68,160	13%
Fuel Moisture	5,786	3%	5,990	2%	0	0%
Fuel Temperature	5,783	3%	5,973	2%	0	0%
Solar Radiation	4,941	2%	5,204	1%	45,976	9%
Soil Moisture	2,829	1%	2,972	1%	0	0%
Repeater Status Report	2,461	1%	2,102	1%	0	0%
Unknown	952	0%	1,178	0%	0	0%
ET-Hourly	739	0%	741	0%	0	0%
Repeater Pass List	551	0%	71	0%	0	0%
12Hr Status Report	198	0%	212	0%	346	0%
Water Temp	115	0%	122	0%	0	0%
Not Used	75	0%	78	0%	0	0%
ET-Daily	31	0%	31	0%	0	0%
Handar 585 ALARM Status	19	0%	19	0%	0	0%
Solar Power	10	0%	10	0%	0	0%
Hayman Battery	0	0%	2,350	1%	0	0%
GPS Lock	0	0%	276	0%	32,214	6%
ALERT/A2 Testing	0	0%	2	0%	0	0%
Flasher Status	0	0%	0	0%	4,830	1%
Total	214,572	100%	383,229	100%	513,779	100%

Traffic Loading Summary	Legacy		Concentrator		ALERT	
Alert Reports	214,572		383,229		513,779	
Average Daily Traffic	6,922		12,362		16,574	
Average Hourly Traffic	288		515		691	
Median Hourly Traffic	284	hour beginning	501	hour beginning	677	hour beginning
Peak Hourly Traffic	622	Mar 27, 12:00 PM	979	Mar 27, 12:00 PM	1,222	Mar 27, 11:00 AM
2nd Max	608	Mar 27, 11:00 AM	884	Mar 27, 1:00 PM	1,210	Mar 27, 12:00 PM
3rd Max	523	Mar 27, 1:00 PM	878		1,017	
4th Max	494	Mar 23, 3:00 PM	855	Mar 23, 3:00 PM	1,005	Mar 19, 12:00 PM
5th Max	488	Mar 19, 12:00 PM	812	Mar 23, 11:00 AM	997	Mar 27, 1:00 PM

Rain Timer Performance

Analyze Rain Sensors

Rain Sensors	Description	Rcv	Timer	Exp	Performance
2340	El Rancho	3	12:00	62	5%
2360	Indian Hills	5	11:58	62	8%
2230	Bear Cr below Cub	6	11:58	62	10%
2250	Rosedale	6	11:57	62	10%
2270	Cub Cr below Blue	6	11:58	62	10%
2350	Idleale	6	11:59	62	10%
1060	Heritage Square	7	11:57	62	11%
2260	Brook Forest	7	11:58	62	11%
2280	Kinney Peak	7	11:58	62	11%
2310	Genesee Village	7	11:58	62	11%
320	Sports Complex	8	15:57	62	13%
1040	Lena @ U.S. Hwy 6	8	11:58	62	13%
100	A2-Carr Street	106	1:01	744	14%
220	Upper Leyden	9	12:00	62	15%
300	Van Bibber Park	9	11:58	62	15%
310	Guy Hill Ranch	9	11:58	62	15%
330	Van Bibber @ Hwy 93	9	11:58	62	15%
1010	Denver West	9	11:57	62	15%
1030	NREL/S. Table Mtn.	9	11:58	62	15%
1050	Jeffco Fairgrounds	9	11:57	62	15%
2370	Red Rocks Park	9	11:58	62	15%
2880	Happy Canyon at N Surrey Dr	9	12:00	62	15%
150	Nott Creek	10	14:21	62	16%
2240	Cold Sprg Glch conf	10	7:59	62	16%
110	Ralston Reservoir	11	11:58	62	18%
120	West Woods	11	9:34	62	18%
2790	Wx-W. Cherry Creek	11	12:17	62	18%
1600	Englewood Dam	15	11:57	62	24%
1720	Cherry Cr @ Steele	15	11:57	62	24%
1100	Louisville Rec Ctr	16	13:19	62	26%
1370	West Metro FS13	16	11:57	62	26%
1500	Powers Park	16	11:57	62	26%
2810	Pine Cliff Road	203	1:00	744	27%
210	Leyden Confluence	17	10:46	62	27%
1350	Chatfield COE	17	13:12	62	27%
1620	Slaughterhouse Glch	17	11:58	62	27%
440	Fire Station #7	18	11:57	62	29%
610	Harvard @ Jackson	18	11:57	62	29%
630	Temple Pond at DTC	18	11:57	62	29%
1200	Broomfield 3207	18	10:52	62	29%
640	Goldsmith @ Eastman	19	11:57	62	31%
650	Iliff Pond	19	11:04	62	31%
620	Quincy/Highline	20	11:57	62	32%
1400	Upper Sloan Det.	20	12:45	62	32%
1530	Bear Creek @ Lowell	20	11:57	62	32%
600	Harvard Gulch Park	21	12:45	62	34%
100110	A2-ETG @ Hampden	21	12:00	62	34%
1550	Lakewood CC	22	11:57	62	35%
1340	Sanderson at Xavier	271	1:00	744	36%
940	Aurora Regional Pond	23	13:22	62	37%
1320	SPR at 3rd Ave	24	11:58	62	39%
1710	Shop Creek	26	15:10	62	42%
950	Piney at Liverpool	31	11:57	62	50%
730	No Name @ Quincy	32	11:30	62	52%

100320	A2-Weir Gulch	390	1:00	744	52%
720	Confluence Pond	36	11:58	62	58%
410	Kelly Dam	37	11:58	62	60%
500	Havana Park	37	12:25	62	60%
1800	Sand Creek Park	37	12:23	62	60%
430	Utah Park	38	11:31	62	61%
520	Jewell Detention	38	11:57	62	61%
100240	A2-Westerly Cr Dam	463	1:00	744	62%
100140	A2-Upper Sellers Gulch	464	1:00	744	62%
5720	Four Mile Creek	40	16:37	62	65%
1660	SPR at Henderson	41	17:05	62	66%
2850	Cherry Cr bl Bayou Gich	42	13:03	62	68%
820	ETG @ Buckley	43	11:59	62	69%
710	Horseshoe Park Drop	44	12:19	62	71%
840	Fire Station 12	44	12:37	62	71%
5940	Log Jumper	44	15:30	62	71%
3090	A2-Highland Heritage Park	534	1:00	744	72%
100160	A2-Sand Creek at Colfax	535	1:00	744	72%
800	Sable Ditch @ 18th	45	11:59	62	73%
1480	Third Creek at DIA	45	12:22	62	73%
100150	A2-Sellers Gulch at Haystack	540	1:00	744	73%
810	Granby Ditch @ 6th	46	11:39	62	74%
3080	Tallman Gulch	46	12:01	62	74%
2800	Columbine Open Space	553	1:00	744	74%
2860	CC at Stroh Rd	47	11:59	62	76%
3070	A2-Newlin Gulch Precip	568	1:00	744	76%
2870	Cottonwood (Apache)	48	12:01	62	77%
4790	Wx-Button Rock	48	13:13	62	77%
3060	Fire Sta 47	585	1:00	744	79%
2330	Morrison	49	13:46	62	79%
2980	Dakan Rd	50	13:46	62	81%
870	A2-Murphy Creek GC	606	1:00	744	81%
100230	A2-Havana Pond	607	1:00	744	82%
1310	LDC at 64th	610	1:00	744	82%
2890	Spruce Mt - Douglas	51	13:37	62	82%
420	Expo Park	52	7:59	62	84%
1300	Hidden Lake	52	11:59	62	84%
1900	Niver Detention	52	12:16	62	84%
2820	Haskins Gulch Conf	52	14:01	62	84%
2840	Sulphur Gulch	52	10:23	62	84%
3010	WX-EPC at Hwy 105	52	14:15	62	84%
100260	Wx-A2-Trumbull (Hayman)	638	1:00	744	86%
2900	Russelville Gulch-Douglas	55	13:01	62	89%
2910	East Cherry Cr-Douglas	56	12:30	62	90%
2930	Wx-Spring Valley Rd-DougCnty	56	12:30	62	90%
4870	SBC @ SB Road	56	11:30	62	90%
2710	Wx-Highlands Ranch WTP	57	12:15	62	92%
2730	Wx-Salisbury Park	57	12:57	62	92%
3020	Wx-West Creek WX	684	1:00	744	92%
2750	Wx-Castle Rock	58	12:42	62	94%
2920	West Cherry Head-Douglas Cnty	58	12:43	62	94%
2950	DC Public Works	58	12:14	62	94%
2990	Wx-Tomah Rd-DougCnty	58	12:29	62	94%
3030	WX-Bingham Lake Park	58	12:43	62	94%
4270	Cannon Mountain	58	12:12	62	94%
5810	Stump Bump	58	12:28	62	94%
3050	East/West Trailhead	706	1:00	744	95%
2960	Indian Creek	59	12:15	62	95%
5730	West Creek	59	12:01	62	95%

5740	Trail Creek	59	12:27	62	95%
100100	A2-Blackstone	59	12:14	62	95%
100410	A2-Brantner Gulch	713	1:00	744	96%
1000	A2-Maple Grove Resv.	714	1:00	744	96%
100420	A2-Thorncreek	715	1:00	744	96%
6601	Wx-A2-Magnolia WX	179	4:00	186	96%
100300	A2-CoalCreek at McCaslin	717	1:00	744	96%
100290	A2-PlumCr at Sedalia	718	1:00	744	97%
400	Montview Park	60	12:01	62	97%
750	Wx-Quincy Reservoir	60	12:15	62	97%
1420	Wx-A2-Diamond Hill	60	12:15	62	97%
2940	Willow Creek - DougCnty	60	12:17	62	97%
4100	Filter Plant	60	12:15	62	97%
4240	Sunset	60	11:58	62	97%
4310	Johnny Park	60	11:45	62	97%
4820	Doudy Draw	60	12:14	62	97%
5860	Cedar Mountain	60	12:14	62	97%
5880	Hackett Mountain	60	12:14	62	97%
100200	Wx-A2-OneRain Weather	60	12:15	62	97%
830	Side Creek Park	61	12:01	62	98%
850	Flying J	61	12:01	62	98%
1520	Wx-Marston Lake North	61	11:47	62	98%
4020	Rio Grande	61	11:44	62	98%
4060	Lakeshore	61	11:45	62	98%
4070	Bear Peak	61	11:58	62	98%
4490	Apple Valley	61	11:58	62	98%
4570	St. Antons	61	12:00	62	98%
100500	Upper Coal Creek at Camp Eden Rd	733	1:00	744	99%
4850	Porphory Mtn	736	1:00	744	99%
140	Wx-Blue Mountain	62	12:01	62	100%
4220	Fling's	62	11:45	62	100%
2970	Rampart Range Rd-Satellite	233		233	100%
2320	Choke Cherry Resvr	63	11:20	62	100%
4080	Twin Sisters	63	11:31	62	100%
4110	Betasso	63	11:46	62	100%
4320	Lee Hill Rain 2012	63	11:32	62	100%
4350	Conifer Hill	63	11:31	62	100%
540	Parker/Mississippi	64	11:31	62	100%
700	Toll Gate @ 6th	64	11:07	62	100%
1360	Denver Zoo	64	11:31	62	100%
1570	Wx-Brighton Ditch	64	11:35	62	100%
4050	Walker Ranch	64	11:06	62	100%
4150	Gold Hill	64	11:32	62	100%
4250	Geer Canyon	64	11:32	62	100%
4260	Taylor Mountain	64	11:21	62	100%
4340	Riverside	64	11:19	62	100%
4360	Justice Center	64	11:02	62	100%
4510	Pinewood Springs	64	11:39	62	100%
4750	Wx-Louisville Lake	64	11:21	62	100%
920	Wx-Aurora Town Hall	65	11:13	62	100%
1440	Wx-Elbert	65	11:35	62	100%
1460	Wx-Urban Farm	65	11:09	62	100%
1920	Wx-Brighton	65	11:11	62	100%
4130	Swiss Peaks	65	11:18	62	100%
4230	Golden Age	65	10:59	62	100%
4290	Red Hill	65	11:10	62	100%
4300	Big Elk Park	65	11:20	62	100%
4520	Eagle Ridge	65	11:11	62	100%
4830	SBC @ San Souci	65	11:06	62	100%

4860	Fairview Peak	65	11:06	62	100%
1110	Gunbarrel	66	10:57	62	100%
1640	SPR at Union Ave.	66	10:55	62	100%
1700	Cherry Cr @ Champa	66	11:10	62	100%
4040	Martin Gulch	66	10:41	62	100%
4160	Sunshine	66	11:12	62	100%
4180	Gold Lake	66	10:39	62	100%
4200	Lazy Acres	66	11:00	62	100%
4330	Hansen Rain	66	10:53	62	100%
530	Fire Station #19	67	10:42	62	100%
760	Mission Viejo Park	67	10:58	62	100%
4010	Cresent	67	10:46	62	100%
4090	Magnolia	67	10:42	62	100%
4170	Pine Brook	67	10:58	62	100%
4550	Boulder Jail	67	10:54	62	100%
200	Leyden Reservoir	68	10:44	62	100%
510	Virginia Court	68	10:43	62	100%
4030	Red Garden	68	10:33	62	100%
4140	Logan Mill	68	10:45	62	100%
4730	Wx-Sugarloaf	68	10:49	62	100%
4880	Whispering Pines	68	10:43	62	100%
2210	Wx-Hiwan G.C.	69	10:40	62	100%
4190	Slaughterhouse	69	10:37	62	100%
4530	Winiger Ridge	69	10:35	62	100%
4710	Wx-Ward C-1	69	10:11	62	100%
4770	Wx-Cal-Wood Ranch	69	10:34	62	100%
4840	SBC@S Boulder Ditch	69	10:28	62	100%
4810	Shanahan Ridge	70	10:24	62	100%
970	Pump Sta 3	71	10:25	62	100%
3040	CC @ Russelville Road Precip	89	0:57	62	100%

Rain Event Performance	Reports Received	Reports Received	5,483	Analyze Rain Sensors							<<show stations with zero rain (1=yes, 0=no)							
	Systemwide Avg	Total Tips	5,694															
	96.30%	Data Loss	3.71%															
Description	Sensor	Performance	1-tips	2-tips	3-tips	4-tips	5-tips	6-tips	>6-tips	Rcv	Exp	Miss	Hold	Bucket				
Cub Cr below Blue	2270	50%	3	0	0	0	1	0	2	4	8	4	1	0.0393701				
Bear Cr below Cub	2230	71%	4	0	1	0	0	0	0	5	7	2	0	0.0393701	Mean		29.05	
SBC @ SB Road	4870	75%	30	10	2	0	0	0	0	42	56	14	0	0.0393701	Median		29	
Aurora Regional Pond	940	77%	24	3	3	0	0	0	0	30	39	9	0	0.0393701	St. Dev		14.16	
A2-Upper Sellers Gulch Precip	100140	77%	14	1	2	0	0	0	0	17	22	5	0	0.0393701	Mean plus 3 SD		71.53	
Bear Creek @ Lowell	1530	83%	26	2	0	0	1	0	0	29	35	6	0	0.0393701	Mean minus 2 SD		0.734	
Guy Hill Ranch	310	83%	9	0	1	0	0	0	0	10	12	2	0	0.0393701	Min		2	
Wx-Hiwan G.C.	2210	85%	26	1	0	0	1	0	0	28	33	5	2	0.0393701	Max		77	
Pinewood Springs	4510	85%	20	2	1	0	0	0	0	23	27	4	0	0.0393701				
Iliff Pond	650	85%	25	3	1	0	0	0	0	29	34	5	0	0.0393701				
Morrison	2330	85%	29	6	0	0	0	0	0	35	41	6	0	0.0393701				
Slaughterhouse Gich	1620	86%	20	4	0	0	0	0	0	24	28	4	1	0.0393701				
SPR at Henderson	1660	86%	15	3	0	0	0	0	0	18	21	3	0	0.0393701				
Wx-A2-Trumbull (Hayman) - Precip	100260	86%	15	3	0	0	0	0	0	18	21	3	0	0.0393701				
Van Bibber @ Hwy 93	330	87%	12	0	1	0	0	0	0	13	15	2	0	0.0393701				
Van Bibber Park	300	88%	6	1	0	0	0	0	0	7	8	1	0	0.0393701				
Four Mile Creek	5720	88%	13	0	1	0	0	0	0	14	16	2	0	0.0393701				
WX-EPC at Hwy 105	3010	88%	20	3	0	0	0	0	0	23	26	3	0	0.0393701				
Dakan Rd	2980	89%	29	2	1	0	0	0	0	32	36	4	0	0.0393701				
Upper Leyden	220	89%	23	1	1	0	0	0	0	25	28	3	1	0.0393701				
Wx-Button Rock	4790	90%	24	3	0	0	0	0	0	27	30	3	0	0.0393701				
Expo Park	420	90%	44	2	0	1	0	0	0	47	52	5	0	0.0393701				
A2-Thorncreek - Precip	100420	91%	48	0	0	0	0	1	0	49	54	5	0	0.0393701				
Quincy/Highline	620	91%	27	3	0	0	0	0	0	30	33	3	0	0.0393701				
Brook Forest	2260	91%	9	1	0	0	0	0	0	10	11	1	0	0.0393701				
Red Rocks Park	2370	91%	9	1	0	0	0	0	0	10	11	1	0	0.0393701				
Eagle Ridge	4520	91%	18	2	0	0	0	0	0	20	22	2	1	0.0393701				
West Creek	5730	91%	9	1	0	0	0	0	0	10	11	1	0	0.0393701				
Lee Hill Rain 2012	4320	91%	29	1	1	0	0	0	0	31	34	3	0	0.0393701				
Lakeshore	4060	91%	19	2	0	0	0	0	0	21	23	2	0	0.0393701				
Hansen Rain	4330	92%	31	3	0	0	0	0	0	34	37	3	0	0.0393701				
Bear Peak	4070	92%	32	3	0	0	0	0	0	35	38	3	0	0.0393701				
Confluence Pond	720	92%	22	2	0	0	0	0	0	24	26	2	0	0.0393701				
Toll Gate @ 6th	700	93%	35	3	0	0	0	0	0	38	41	3	0	0.0393701				
Louisville Rec Ctr	1100	93%	36	1	1	0	0	0	0	38	41	3	0	0.0393701				
Temple Pond at DTC	630	93%	24	2	0	0	0	0	0	26	28	2	0	0.0393701				
Wx-Brighton Ditch	1570	93%	12	1	0	0	0	0	0	13	14	1	0	0.0393701				
West Woods	120	93%	26	2	0	0	0	0	0	28	30	2	0	0.0393701				
Denver Zoo	1360	94%	67	5	0	0	0	0	0	72	77	5	0	0.0393701				
West Metro FS13	1370	94%	30	2	0	0	0	0	0	32	34	2	0	0.0393701				
Walker Ranch	4050	94%	15	1	0	0	0	0	0	16	17	1	0	0.0393701				
A2-Westerly Cr Dam Precip	100240	94%	32	0	1	0	0	0	0	33	35	2	1	0.0393701				
Fire Station #19	530	94%	48	3	0	0	0	0	0	51	54	3	0	0.0393701				
Sanderson at Xavier	1340	94%	33	0	1	0	0	0	0	34	36	2	0	0.0393701				
A2-Murphy Creek GC	870	95%	36	0	1	0	0	0	0	37	39	2	1	0.0393701				
Taylor Mountain	4260	95%	18	1	0	0	0	0	0	19	20	1	0	0.0393701				
Fling's	4220	95%	19	1	0	0	0	0	0	20	21	1	0	0.0393701				
Cannon Mountain	4270	95%	19	1	0	0	0	0	0	20	21	1	0	0.0393701				
Havana Park	500	95%	39	2	0	0	0	0	0	41	43	2	0	0.0393701				
Jewell Detention	520	96%	41	2	0	0	0	0	0	43	45	2	0	0.0393701				
Parker/Mississippi	540	96%	43	2	0	0	0	0	0	45	47	2	0	0.0393701				
Granby Ditch @ 6th	810	96%	43	2	0	0	0	0	0	45	47	2	0	0.0393701				
Utah Park	430	96%	44	2	0	0	0	0	0	46	48	2	0	0.0393701				
Goldsmith @ Eastman	640	96%	23	1	0	0	0	0	0	24	25	1	0	0.0393701				
Broomfield 3207	1200	96%	23	1	0	0	0	0	0	24	25	1	0	0.0393701				
Englewood Dam	1600	96%	23	1	0	0	0	0	0	24	25	1	0	0.0393701				
Tallman Gulch	3080	96%	23	1	0	0	0	0	0	24	25	1	0	0.0393701				

Upper Sloan Det.	1400	96%	24	1	0	0	0	0	0	0	25	26	1	0	0.0393701		
Gold Lake	4180	96%	24	1	0	0	0	0	0	0	25	26	1	0	0.0393701		
Cherry Cr @ Steele	1720	96%	25	1	0	0	0	0	0	0	26	27	1	0	0.0393701		
WX-Bingham Lake Park	3030	96%	25	1	0	0	0	0	0	0	26	27	1	0	0.0393701		
Chatfield COE	1350	96%	26	1	0	0	0	0	0	0	27	28	1	0	0.0393701		
Lakewood CC	1550	96%	26	1	0	0	0	0	0	0	27	28	1	0	0.0393701		
Red Hill	4290	97%	27	1	0	0	0	0	0	0	28	29	1	0	0.0393701		
Doudy Draw	4820	97%	54	2	0	0	0	0	0	0	56	58	2	0	0.0393701		
Red Garden	4030	97%	55	2	0	0	0	0	0	0	57	59	2	0	0.0393701		
Cherry Cr bl Bayou Glch	2850	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.0393701		
Harvard Gulch Park	600	97%	29	1	0	0	0	0	0	0	30	31	1	0	0.0393701		
Choke Cherry Resvr	2320	97%	29	1	0	0	0	0	0	0	30	31	1	0	0.0393701		
Russelville Gulch-Douglas	2900	97%	29	1	0	0	0	0	0	0	30	31	1	0	0.0393701		
Rio Grande	4020	97%	29	1	0	0	0	0	0	0	30	31	1	0	0.0393701		
Johnny Park	4310	97%	29	1	0	0	0	0	0	0	30	31	1	0	0.0393701		
Shanahan Ridge	4810	97%	59	2	0	0	0	0	0	0	61	63	2	0	0.0393701		
Wx-Highlands Ranch WTP	2710	97%	30	1	0	0	0	0	0	0	31	32	1	0	0.0393701		
A2-Havana Pond Precip	100230	97%	30	1	0	0	0	0	0	0	31	32	1	0	0.0393701		
Harvard @ Jackson	610	97%	31	1	0	0	0	0	0	0	32	33	1	0	0.0393701		
Piney at Liverpool	950	97%	31	1	0	0	0	0	0	0	32	33	1	0	0.0393701		
Powers Park	1500	97%	31	1	0	0	0	0	0	0	32	33	1	0	0.0393701		
Rampart Range Rd-Satellite	2970	97%	32	1	0	0	0	0	0	0	33	34	1	0	0.0393701		
Leyden Confluence	210	97%	33	1	0	0	0	0	0	0	34	35	1	0	0.0393701		
No Name @ Quincy	730	97%	33	1	0	0	0	0	0	0	34	35	1	0	0.0393701		
Haskins Gulch Conf	2820	97%	34	1	0	0	0	0	0	0	35	36	1	0	0.0393701		
Mission Viejo Park	760	97%	35	1	0	0	0	0	0	0	36	37	1	0	0.0393701		
ETG @ Buckley	820	97%	35	1	0	0	0	0	0	0	36	37	1	0	0.0393701		
A2-Sand Creek at Colfax Precip	100160	97%	36	1	0	0	0	0	0	0	37	38	1	0	0.0393701		
Fire Station 12	840	97%	37	1	0	0	0	0	0	0	38	39	1	0	0.0393701		
Slaughterhouse	4190	97%	37	1	0	0	0	0	0	0	38	39	1	0	0.0393701		
Virginia Court	510	98%	41	1	0	0	0	0	0	0	42	43	1	0	0.0393701		
Sand Creek Park	1800	98%	41	1	0	0	0	0	0	0	42	43	1	0	0.0393701		
Cottonwood (Apache)	2870	98%	41	1	0	0	0	0	0	0	42	43	1	0	0.0393701		
Wx-Louisville Lake	4750	98%	41	1	0	0	0	0	0	0	42	43	1	0	0.0393701		
Hidden Lake	1300	98%	42	1	0	0	0	0	0	0	43	44	1	0	0.0393701		
Leyden Reservoir	200	98%	44	1	0	0	0	0	0	0	45	46	1	0	0.0393701		
A2-Weir Gulch - Precip	100320	98%	45	1	0	0	0	0	0	0	46	47	1	0	0.0393701		
Kelly Dam	410	98%	47	1	0	0	0	0	0	0	48	49	1	0	0.0393701		
Justice Center	4360	98%	47	1	0	0	0	0	0	0	48	49	1	0	0.0393701		
SBC @ San Souci	4830	98%	52	1	0	0	0	0	0	0	53	54	1	0	0.0393701		
Betasso	4110	98%	53	1	0	0	0	0	0	0	54	55	1	0	0.0393701		
Martin Gulch	4040	98%	55	1	0	0	0	0	0	0	56	57	1	0	0.0393701		
A2-Brantner Gulch - Precip	100410	100%	33	0	0	0	0	0	0	0	33	33	0	1	0.0393701		
A2-Carr Street	100	100%	14	0	0	0	0	0	0	0	14	14	0	0	0.0393701		
Ralston Reservoir	110	100%	28	0	0	0	0	0	0	0	28	28	0	0	0.0393701		
Wx-Blue Mountain	140	100%	29	0	0	0	0	0	0	0	29	29	0	0	0.0393701		
Nott Creek	150	100%	25	0	0	0	0	0	0	0	25	25	0	0	0.0393701		
Sports Complex	320	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701		
Montview Park	400	100%	43	0	0	0	0	0	0	0	43	43	0	0	0.0393701		
Fire Station #7	440	100%	27	0	0	0	0	0	0	0	27	27	0	0	0.0393701		
Horseshoe Park Drop	710	100%	34	0	0	0	0	0	0	0	34	34	0	0	0.0393701		
Wx-Quincy Reservoir	750	100%	29	0	0	0	0	0	0	0	29	29	0	0	0.0393701		
Sable Ditch @ 18th	800	100%	55	0	0	0	0	0	0	0	55	55	0	0	0.0393701		
Side Creek Park	830	100%	30	0	0	0	0	0	0	0	30	30	0	0	0.0393701		
Flying J	850	100%	33	0	0	0	0	0	0	0	33	33	0	0	0.0393701		
Wx-Aurora Town Hall	920	100%	10	0	0	0	0	0	0	0	10	10	0	0	0.0393701		
Pump Sta 3	970	100%	6	0	0	0	0	0	0	0	6	6	0	0	0.0393701		
A2-Maple Grove Resv.	1000	100%	36	0	0	0	0	0	0	0	36	36	0	0	0.0393701		
Denver West	1010	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701		
Lena @ U.S. Hwy 6	1040	100%	8	0	0	0	0	0	0	0	8	8	0	0	0.0393701		
Jeffco Fairgrounds	1050	100%	7	0	0	0	0	0	0	0	7	7	0	0	0.0393701		
Heritage Square	1060	100%	6	0	0	0	0	0	0	0	6	6	0	0	0.0393701		

Gunbarrel	1110	100%	43	0	0	0	0	0	0	0	43	43	0	0	0.0393701		
LDC at 64th	1310	100%	51	0	0	0	0	0	0	0	51	51	0	0	0.0393701		
SPR at 3rd Ave	1320	100%	27	0	0	0	0	0	0	0	27	27	0	0	0.0393701		
Wx-A2-Diamond Hill	1420	100%	38	0	0	0	0	0	0	0	38	38	0	0	0.0393701		
Wx-Elbert	1440	100%	7	0	0	0	0	0	0	1	7	7	0	0	0.0393701		
Wx-Urban Farm	1460	100%	40	0	0	0	0	0	0	0	40	40	0	0	0.0393701		
Third Creek at DIA	1480	100%	26	0	0	0	0	0	0	0	26	26	0	0	0.0393701		
Wx-Marston Lake North	1520	100%	48	0	0	0	0	0	0	0	48	48	0	0	0.0393701		
SPR at Union Ave.	1640	100%	40	0	0	0	0	0	0	0	40	40	0	0	0.0393701		
Cherry Cr @ Champa	1700	100%	31	0	0	0	0	0	0	0	31	31	0	0	0.0393701		
Shop Creek	1710	100%	6	0	0	0	0	0	0	0	6	6	0	1	0.0393701		
Niver Detention	1900	100%	30	0	0	0	0	0	0	0	30	30	0	0	0.0393701		
Wx-Brighton	1920	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701		
Cold Sprg Glch conf	2240	100%	8	0	0	0	0	0	0	0	8	8	0	0	0.0393701		
Rosedale	2250	100%	2	0	0	0	0	0	0	0	2	2	0	0	0.0393701		
Kinney Peak	2280	100%	2	0	0	0	0	0	0	0	2	2	0	0	0.0393701		
Genesee Village	2310	100%	8	0	0	0	0	0	0	0	8	8	0	0	0.0393701		
El Rancho	2340	100%	2	0	0	0	0	0	0	0	2	2	0	0	0.0393701		
Idledale	2350	100%	5	0	0	0	0	0	0	0	5	5	0	0	0.0393701		
Indian Hills	2360	100%	7	0	0	0	0	0	0	0	7	7	0	0	0.0393701		
Wx-Salisbury Park	2730	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701		
Wx-Castle Rock	2750	100%	11	0	0	0	0	0	0	0	11	11	0	0	0.0393701		
Columbine Open Space	2800	100%	30	0	0	0	0	0	0	0	30	30	0	1	0.0393701		
Pine Cliff Road	2810	100%	24	0	0	0	0	0	0	0	24	24	0	0	0.0393701		
Sulphur Gulch	2840	100%	30	0	0	0	0	0	0	0	30	30	0	0	0.0393701		
CC at Stroh Rd	2860	100%	35	0	0	0	0	0	0	0	35	35	0	0	0.0393701		
Happy Canyon at N Surrey Dr	2880	100%	15	0	0	0	0	0	0	0	15	15	0	0	0.0393701		
Spruce Mt - Douglas	2890	100%	9	0	0	0	0	0	0	0	9	9	0	0	0.0393701		
East Cherry Cr-Douglas	2910	100%	15	0	0	0	0	0	0	0	15	15	0	0	0.0393701		
West Cherry Head-Douglas Cnty	2920	100%	12	0	0	0	0	0	0	0	12	12	0	0	0.0393701		
Wx-Spring Valley Rd-DougCnty	2930	100%	10	0	0	0	0	0	0	0	10	10	0	0	0.0393701		
Willow Creek - DougCnty	2940	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701		
DC Public Works	2950	100%	25	0	0	0	0	0	0	0	25	25	0	0	0.0393701		
Indian Creek	2960	100%	40	0	0	0	0	0	0	0	40	40	0	0	0.0393701		
Wx-Tomah Rd-DougCnty	2990	100%	41	0	0	0	0	0	0	0	41	41	0	0	0.0393701		
Wx-West Creek WX	3020	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.0393701		
CC @ Russelville Road Precip	3040	100%	3	0	0	0	0	0	0	0	3	3	0	0	0.0393701		
East/West Trailhead	3050	100%	21	0	0	0	0	0	0	0	21	21	0	0	0.0393701		
Fire Sta 47	3060	100%	36	0	0	0	0	0	0	0	36	36	0	1	0.0393701		
A2-Newlin Gulch Precip	3070	100%	28	0	0	0	0	0	0	0	28	28	0	0	0.0393701		
A2-Highland Heritage Park	3090	100%	35	0	0	0	0	0	0	0	35	35	0	0	0.0393701		
Crescent	4010	100%	32	0	0	0	0	0	0	0	32	32	0	0	0.0393701		
Twin Sisters	4080	100%	20	0	0	0	0	0	0	0	20	20	0	0	0.0393701		
Magnolia	4090	100%	28	0	0	0	0	0	0	0	28	28	0	0	0.0393701		
Filter Plant	4100	100%	45	0	0	0	0	0	0	0	45	45	0	0	0.0393701		
Swiss Peaks	4130	100%	23	0	0	0	0	0	0	0	23	23	0	0	0.0393701		
Logan Mill	4140	100%	26	0	0	0	0	0	0	0	26	26	0	0	0.0393701		
Gold Hill	4150	100%	31	0	0	0	0	0	0	0	31	31	0	0	0.0393701		
Sunshine	4160	100%	4	0	0	0	0	0	0	0	4	4	0	0	0.0393701		
Pine Brook	4170	100%	28	0	0	0	0	0	0	0	28	28	0	0	0.0393701		
Lazy Acres	4200	100%	27	0	0	0	0	0	0	0	27	27	0	0	0.0393701		
Golden Age	4230	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701		
Sunset	4240	100%	17	0	0	0	0	0	0	0	17	17	0	0	0.0393701		
Geer Canyon	4250	100%	42	0	0	0	0	0	0	0	42	42	0	0	0.0393701		
Big Elk Park	4300	100%	13	0	0	0	0	0	0	0	13	13	0	0	0.0393701		
Riverside	4340	100%	23	0	0	0	0	0	0	0	23	23	0	0	0.0393701		
Conifer Hill	4350	100%	32	0	0	0	0	0	0	0	32	32	0	0	0.0393701		
Apple Valley	4490	100%	19	0	0	0	0	0	0	0	19	19	0	0	0.0393701		
Winiger Ridge	4530	100%	16	0	0	0	0	0	0	0	16	16	0	0	0.0393701		
Boulder Jail	4550	100%	47	0	0	0	0	0	0	0	47	47	0	0	0.0393701		
St. Antons	4570	100%	24	0	0	0	0	0	0	0	24	24	0	0	0.0393701		
Wx-Ward C-1	4710	100%	27	0	0	0	0	0	0	0	27	27	0	0	0.0393701		

Wx-Sugarloaf	4730	100%	26	0	0	0	0	0	0	26	26	0	0	0.0393701		
Wx-Cal-Wood Ranch	4770	100%	25	0	0	0	0	0	0	25	25	0	0	0.0393701		
SBC@S Boulder Ditch	4840	100%	56	0	0	0	0	0	0	56	56	0	0	0.0393701		
Whispering Pines	4880	100%	37	0	0	0	0	0	0	37	37	0	0	0.0393701		
Trail Creek	5740	100%	15	0	0	0	0	0	0	15	15	0	0	0.0393701		
Stump Bump	5810	100%	15	0	0	0	0	0	0	15	15	0	0	0.0393701		
Cedar Mountain	5860	100%	10	0	0	0	0	0	0	10	10	0	0	0.0393701		
Hackett Mountain	5880	100%	10	0	0	0	0	0	0	10	10	0	0	0.0393701		
Log Jumper	5940	100%	17	0	0	0	0	0	0	17	17	0	0	0.0393701		
A2-Blackstone Precip	100100	100%	20	0	0	0	0	0	0	20	20	0	0	0.0393701		
A2-ETG @ Hampden Precip	100110	100%	24	0	0	0	0	0	0	24	24	0	0	0.0393701		
A2-Sellers Gulch at Haystack Precip	100150	100%	23	0	0	0	0	0	0	23	23	0	0	0.0393701		
A2-PlumCr at Sedalia - Precip	100290	100%	40	0	0	0	0	0	0	40	40	0	0	0.0393701		
A2-CoalCreek at McCaslin - Precip	100300	100%	59	0	0	0	0	0	0	59	59	0	0	0.0393701		
Upper Coal Creek at Camp Eden Rd - Precipitation	100500	100%	31	0	0	0	0	0	0	31	31	0	0	0.0393701		
		Total Tips	5307	151	20	1	3	1								
Porphory Mtn	4850	100%	49	0	0	0	0	0	0	49	49	0	0	0.01		
Fairview Peak	4860	98%	63	1	0	0	0	0	0	64	65	1	0	0.01		
Wx-A2-OneRain Weather - Precipitation	100200	87%	110	20	0	0	0	0	0	130	150	20	0	0.01		

2018 Monthly Peak Hour ALERT Radio Traffic Summary

