

Memo



Date: May 5, 2017
To: Kevin Stewart
From: Markus Ritsch
Subject: April 2017 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 April 1 through April 30, 2017.

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 (Table 1) quantifies the data reports received by each channel.

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	234,074	212,539	255,638	259,950									962,201
Concentrator	361,187	367,684	388,156	381,946									1,498,973
ALERT2	327,977	422,710	422,580	519,970									1,693,237
TOTAL	923,238	1,002,933	1,066,374	1,161,866	0	0	0	0	0	0	0	0	4,154,411
Conc/Leg	1.54	1.73	1.52	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
DataChron	668,091	637,926	741,413	693,903									2,741,333

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.

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	234,074	212,539	255,638	218,706									920,957
Concentrator	361,187	367,684	388,156	352,903									1,469,930
ALERT2	327,977	422,710	422,580	480,051									1,653,318
NS5B (Greenhouse)													
Legacy	234,037	211,806	255,357	259,950									961,150
Concentrator	360,898	364,788	387,844	381,946									1,495,476
ALERT2	327,807	419,042	422,268	519,970									1,689,087
Diff (NS5a-NS5b)													
Legacy (Digi One)	37	733	281	-41,244	0	0	0	0	0	0	0	0	-40,193
Concentrator (B2010)	289	2,896	312	-29,043	0	0	0	0	0	0	0	0	-25,546
ALERT2 (B2010)	170	3,668	312	-39,919	0	0	0	0	0	0	0	0	-35,769
Comments		GH network outage on Feb 8		DH network outage on Apr 8, 9, and 16									

The reception rates between Diamond Hill and Greenhouse are inconsistent. Differences are likely due to the network outages and B2010 outages experienced on the Diamond Hill Network on April 8, 9 and 16.

The daily ratio of concentrator to legacy reports is shown.

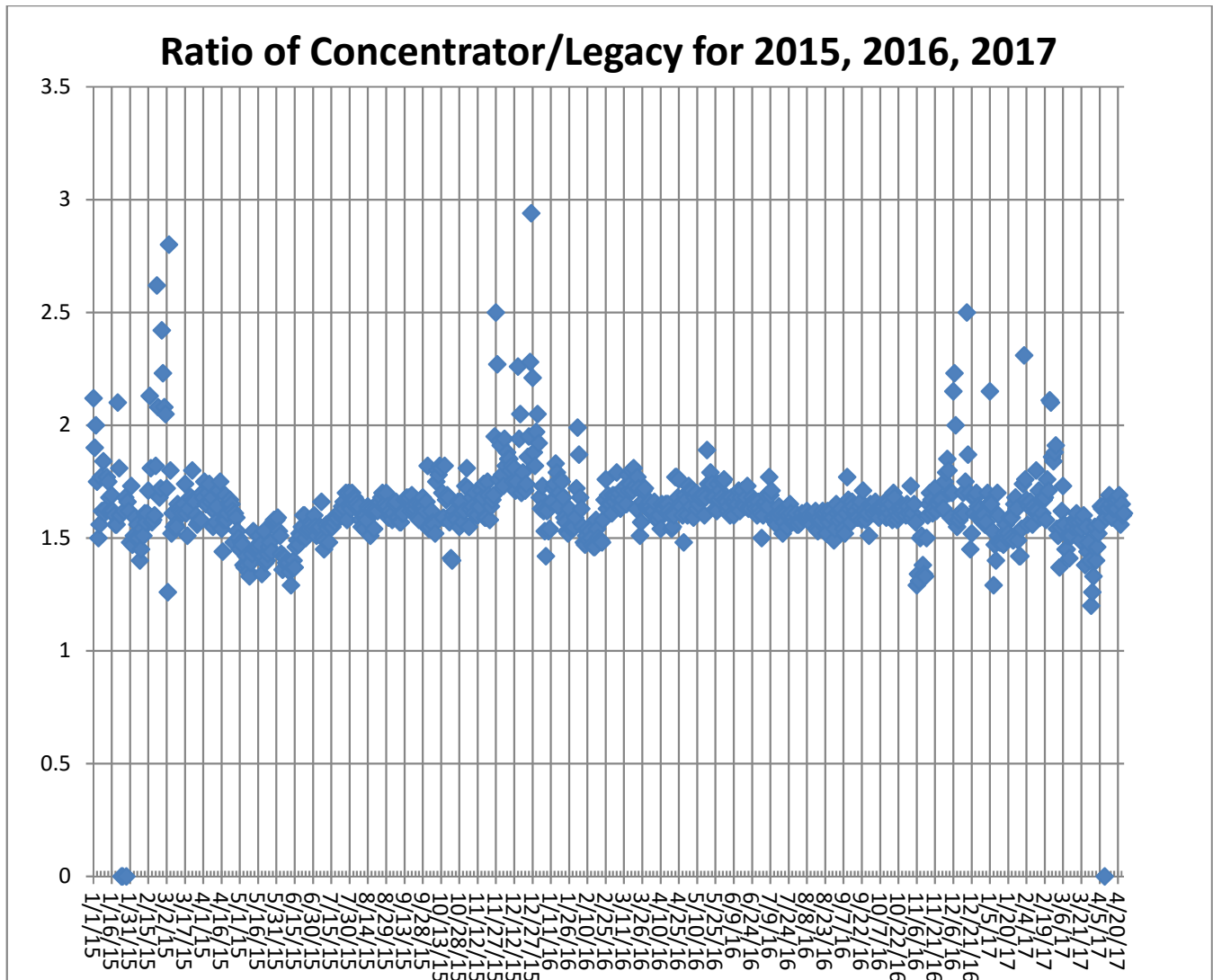


Figure 1. Daily Ratio of Concentrator Reports to Legacy Reports

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. Volatility in the ratio was experienced in March and early April as issues with the radio repeater network and the B2010 decoder are evident.

A. Continuous Operation of Base Receiver/Decoder

The base station was in continuous operation for the entire month. Data was collected on a continuous basis for a total of 720 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
2790	W. Cherry Creek - WX	Poor timer and poor event performance
1480	Third Creek at DIA	Sending unknown IDs and large amount of invalid stage
3020	West Creek WX	ALERT2 station with drifting clock (negative latency)
4100	Filter Plant	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
June-15	11,987	72,449	65,742	82,998	69,570	302,746
July-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

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

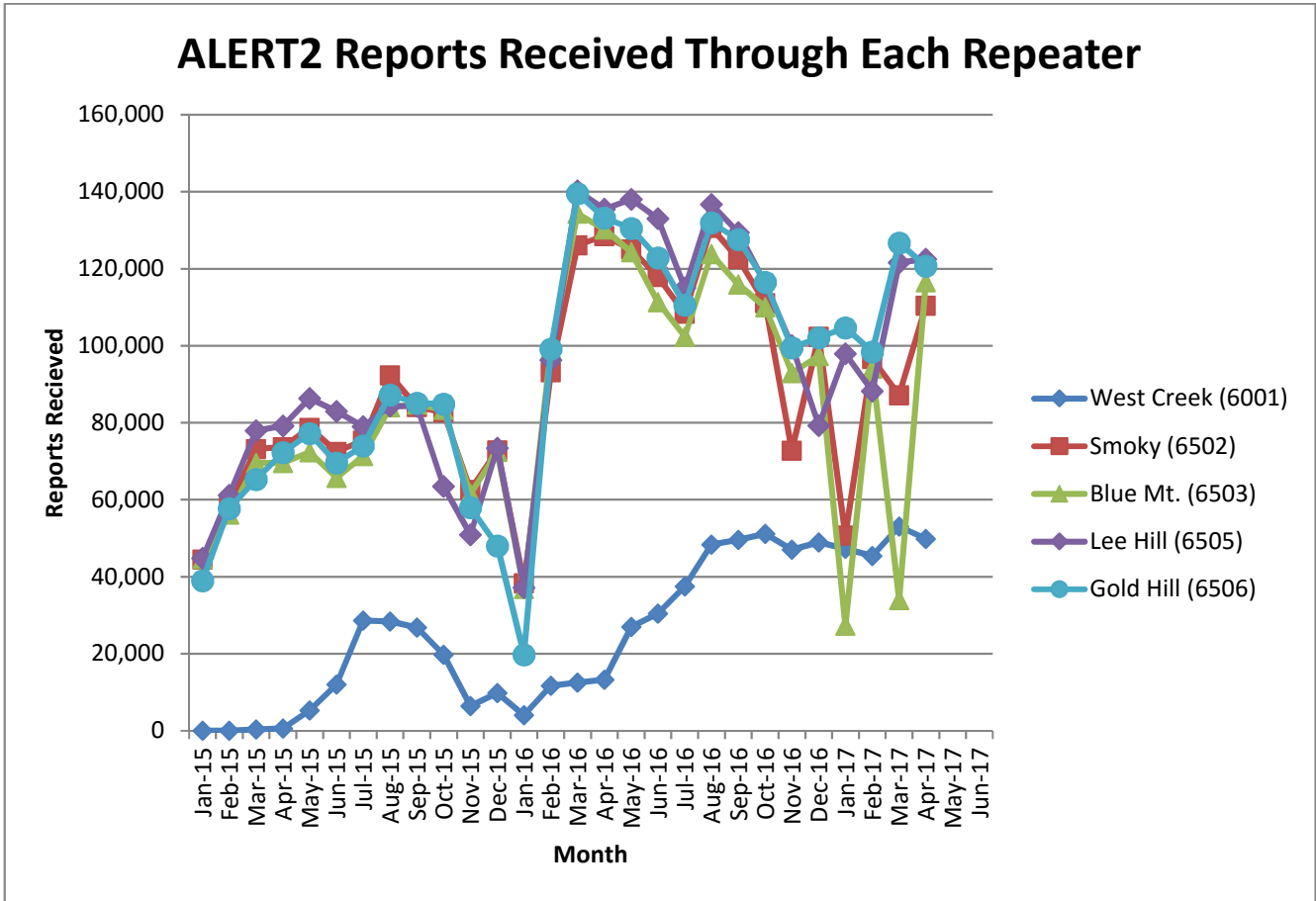


Figure 2. Reports received through each repeater (ALERT2 Only)

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.

In January of 2017 the ALERT2 reports received through Blue Mountain and through Smoky Hill showed a significant decrease. There may be a problem at these repeaters or it is possible that pass/block lists have been implemented.

In March of 2017 the ALERT2 reports received through Blue Mountain and through Smoky Hill showed a significant decrease. There may be a problem at these repeaters or it is possible that pass/block lists have been implemented.

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	61.18	The average time it took a report from the field to reach the base
Minimum	-4	The minimum time it took for a report to go from the field to the base
Maximum	43,197	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	53.1	51.39	55.86	61.18								
Minimum	-29	-23	-23	-4								
Maximum	286	12,946	43,177	43,197								
Station with Max Latency												

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. WET will service the transmitter in May when access to the site is open. The large positive latency is also from the West Creek WX.

The West Creek Repeater (6001) experienced a significant clock drift beginning on March 28, extending through March 29. WET field staff did manage to visit the repeater on March 29 to reset the repeater clock.

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	4470	2790								
5720	4100	100150	2800								
4510	4330	2360	4100								
100260	4040	2970	3050								
4870	4270	2270	920								
5940	4510	2350	1710								

*- 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	39.1	Only the 1-mm rain sensors were included in the analysis
Median	38	Only the 1-mm rain sensors were included in the analysis
Standard deviation	15.9	Only the 1-mm rain sensors were included in the analysis
Mean plus three standard deviations	86.7	Only the 1-mm rain sensors were included in the analysis
Mean minus two standard deviations	7.3	Only the 1-mm rain sensors were included in the analysis
Minimum total count	0	Many stations including Leyden Res (200), Fire Sta 12 (840), Sanderson at Xavier (1340), Flying J (850), Geer Canyon (4250), Cal Wood Ranch (4770)
Maximum total count	91	Genesee Village (2310)
Sensors showing NO rain for the month		
Sensors greater than 3 SD (over reporting)		Shanahan Ridge (4810)

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									
Ave	6.83	10.09	20.23	43.85	57.74	34.29	53.05	34.93	41.54	25.54	8.08	7.94	28.09

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

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

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

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

Sensor Description	Sensor ID	Comment
Sports Complex	320	Missing 9 tips on 4/4
Filter Plant	4100	
Bear Peak	4070	

D. Sensor-by-Sensor Incrementing Count Summary

The system-wide reception rate of incrementing, 1-mm tip reports for the month was approximately 93 percent. A total of 6,985 incrementing reports were received and a total of 7,538 reports were expected. The total loss of incrementing reports for the month was approximately 7 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*
2790	4330	2790	2790								
4870	750	1620	4270								
1920	2790	2940	4100								
3010	100260	2750	2330								
4510	4270	2980	920								
4330	4490	5900	1710								

*-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)	357	352	0
Total reports from unknown IDs	3,700	5,255	0
Unknown IDs with only a single received report (potential noise)	207	218	0
Total reports from all IDs – RecData Log entire month	381,946	259,950	519,970
Unknown reports as a fraction of total reports	0.97%	2.02%	0%

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								

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%								

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	
1481	767	1481	1,142	Third Creek at DIA sending unknown IDs
1482	727	1482	1,094	Third Creek at DIA sending unknown IDs
1486	602	1486	949	Third Creek at DIA sending unknown IDs
1487	596	1487	939	Third Creek at DIA sending unknown IDs
2272	45	0,1,2	58,58,117	Legacy reports for IDs 0, 1, 2 only
2274	46	2274	50	

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	9	11	8	5								
2810-Pine Cliff Rd.	41	32	9	9								
3010-Wx-EPC @ 105	6	7	2	4								
3050-E/W Trailhead	23	18	7	5								
4030-Red Garden	--	10	5	--								
4240-Sunset	--	9	5	2								
4790-Wx-Button Rock	--	--	5	4								

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	--	--	43	3								
213-Leyden Confluence	--	--	17	--								
723-WTG above Conf Pond	--	8	0	--								
1483-Third Creek at DIA	--	8	4	204								
1523-Marston Lake North	10	8	11	9								
1649-SPR at 19 th Street	152	--	1	1								
2813-Pine Cliff Road	16	12	11	7								
3013-EPC@Hwy 105	3	--	4	9								
4383-Eldorado Springs	16	2	2	--								
4593-Green Ditch	--	--	16	1								

VI. Rainfall Alarms and Intensity Analysis

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

Sensor	Name	Alarm Trigger	Alarm Time
2970	Rampart Range Road Precipitation-DG	2970 Rampart Range Road 0.2" in 30 Minutes Rainfall	4/2/2017 21:15
2970	Rampart Range Road Precipitation-DG	2970 Rampart Range Road 0.2" in 30 Minutes Rainfall	4/30/2017 12:30
2970	Rampart Range Road Precipitation-DG	2970 Rampart Range Road 0.4" in 1 Hour Rainfall	4/2/2017 21:15
4100	Filter Plant Precipitation-BO	Boulder County 10-minute rainfall	4/2/2017 22:39
4150	Gold Hill Precipitation-BO	FMC-BA 0.25" in 10 Min Rainfall	4/3/2017 1:30
4160	Sunshine Precipitation-BO	FMC-BA 0.25" in 10 Min Rainfall	4/18/2017 12:46
4100	Filter Plant Precipitation-BO	FMC-BA 0.50" in 30 Min Rainfall	4/2/2017 22:39
4100	Filter Plant Precipitation-BO	FMC-BA 0.75" in 1 Hour Rainfall	4/2/2017 22:42
4100	Filter Plant Precipitation-BO	Tweet Boulder County Heavy Rain 0.5"-10min	4/2/2017 22:39

General System Analysis

Database Name P:\A207-UDFCD-Data-Analysis\2017\04-2017\ALL_DATA.mdb

Summarize

First Date in Database	3/31/17 11:58 PM	Total Days	30.0
Last Date in Database	4/30/17 11:57 PM	Total Hours	720.0

Total Records Analyzed 519,970

Records by Group	Legacy	Percent	Concentrator	Percent	ALERT2	Percent
Wind Data	85,711	33%	147,480	38%	158,152	30%
Relative Humidity	35,860	14%	52,923	14%	73,148	14%
Temperature	35,747	14%	58,546	15%	74,895	14%
Barometric Pressure	20,295	8%	27,413	7%	1,228	0%
Water Level	20,135	8%	20,629	5%	56,186	11%
Battery Voltage	14,827	6%	27,122	7%	68,379	13%
Precipitation	13,678	5%	16,025	4%	45,306	9%
Solar Radiation	10,218	4%	9,556	3%	0	0%
Fuel Temperature	5,669	2%	5,283	1%	0	0%
Fuel Moisture	5,667	2%	5,299	1%	0	0%
Unknown	5,255	2%	3,700	1%	0	0%
Soil Moisture	2,862	1%	2,662	1%	0	0%
Repeater Status Report	2,305	1%	1,775	0%	0	0%
Repeater Pass List	536	0%	61	0%	0	0%
ET-Hourly	402	0%	348	0%	0	0%
12Hr Status Report	307	0%	301	0%	2,571	0%
Not Used	267	0%	258	0%	864	0%
Water Temp	113	0%	106	0%	0	0%
Handar 585 ALARM Status	64	0%	62	0%	0	0%
ET-Daily	19	0%	17	0%	0	0%
Solar Power	13	0%	12	0%	0	0%
GPS Lock	0	0%	204	0%	26,263	5%
Hayman Battery	0	0%	2,164	1%	0	0%
Flasher Status	0	0%	0	0%	5,716	1%
Dew Point Temperature	0	0%	0	0%	7,262	1%
Total	259,950	100%	381,946	100%	519,970	100%

Traffic Loading Summary	Legacy		Concentrator		ALERT2	
Alert Reports	259,950		381,946		519,970	
Average Daily Traffic	8,665		12,321		16,773	
Average Hourly Traffic	361		513		699	
Median Hourly Traffic	351	hour beginning	559	hour beginning	782	hour beginning
Peak Hourly Traffic	694	Apr 30, 12:00 PM	1,018	Apr 30, 12:00 PM	959	Apr 30, 11:00 AM
2nd Max	689	Apr 3, 1:00 AM	935	Apr 30, 11:00 AM	948	Apr 3, 1:00 AM
3rd Max	686		917		925	Apr 5, 9:00 AM
4th Max	665	Apr 3, 2:00 AM	889	Apr 3, 8:00 AM	923	Apr 30, 12:00 PM
5th Max	633	Apr 2, 9:00 AM	877	Apr 5, 10:00 AM	922	Apr 30, 2:00 PM

Rain Timer Performance

Analyze Rain Sensors

Rain Sensors	Description	Rcv	Timer	Exp	Performance
2790	Wx-W. Cherry Creek	3.00	0:00	60.00	5%
2800	Columbine Open Space	5.00	0:02	60.00	8%
4100	Filter Plant	5.00	11:59	60.00	8%
3050	East/West Trailhead	14.00	10:48	60.00	23%
920	Wx-Aurora Town Hall	22.00	23:17	60.00	37%
1710	Shop Creek	25.00	21:20	60.00	42%
2330	Morrison	28.00	22:05	60.00	47%
5720	Four Mile Creek	32.00	18:25	60.00	53%
4470	Little Narrows	35.00	18:12	60.00	58%
100140	A2-Upper Sellers Gulch Precip	443.00		720.00	62%
1620	Slaughterhouse Glch	37.00	18:10	60.00	62%
3090	A2-Highland Heritage Park	444.00		720.00	62%
2360	Indian Hills	38.00	19:47	60.00	63%
4270	Cannon Mountain	38.00	16:16	60.00	63%
4330	Hansen Rain	38.00	17:12	60.00	63%
2980	Dakan Rd	39.00	16:23	60.00	65%
4230	Golden Age	39.00	12:30	60.00	65%
4510	Pinewood Springs	39.00	18:08	60.00	65%
1360	Denver Zoo	40.00	18:10	60.00	67%
3010	WX-EPC at Hwy 105	40.00	15:36	60.00	67%
4870	SBC @ SB Road	40.00	16:33	60.00	67%
330	Van Bibber @ Hwy 93	41.00	13:14	60.00	68%
1660	SPR at Henderson	41.00	17:05	60.00	68%
2230	Bear Cr below Cub	42.00	17:12	60.00	70%
5940	Log Jumper	42.00	16:00	60.00	70%
2280	Kinney Peak	43.00	16:18	60.00	72%
2900	Russelville Gulch-Douglas	43.00	16:30	60.00	72%
400	Montview Park	44.00	14:16	60.00	73%
940	Aurora Regional Pond	44.00	16:04	60.00	73%
2820	Haskins Gulch Conf	44.00	15:29	60.00	73%
4220	Fling's	44.00	15:04	60.00	73%
4710	Wx-Ward C-1	44.00	12:51	60.00	73%
310	Guy Hill Ranch	45.00	15:07	60.00	75%
1400	Upper Sloan Det.	45.00	15:57	60.00	75%
1640	SPR at Union Ave.	45.00	14:46	60.00	75%
2270	Cub Cr below Blue	45.00	15:29	60.00	75%
2370	Red Rocks Park	45.00	15:35	60.00	75%
4180	Gold Lake	45.00	16:04	60.00	75%
5860	Cedar Mountain	45.00	15:38	60.00	75%
100150	A2-Sellers Gulch at Haystack Precip	540.00		720.00	75%
100260	Wx-A2-Trumbull (Hayman) - Precip	543.00		720.00	75%
110	Ralston Reservoir	46.00	15:12	60.00	77%
410	Kelly Dam	46.00	15:57	60.00	77%
620	Quincy/Highline	46.00	14:57	60.00	77%
700	Toll Gate @ 6th	46.00	15:25	60.00	77%
1200	Broomfield 3207	46.00	14:42	60.00	77%
1720	Cherry Cr @ Steele	46.00	15:29	60.00	77%
2320	Choke Cherry Resvr	46.00	14:44	60.00	77%
2350	Idledale	46.00	15:00	60.00	77%
2850	Cherry Cr bl Bayou Glch	46.00	14:31	60.00	77%
3040	CC @ Russelville Road Precip	46.00	15:34	60.00	77%
4030	Red Garden	46.00	14:54	60.00	77%
4080	Twin Sisters	46.00	15:25	60.00	77%
4200	Lazy Acres	46.00	14:42	60.00	77%

4490	Apple Valley	46.00	15:44	60.00	77%
4770	Wx-Cal-Wood Ranch	46.00	15:12	60.00	77%
4830	SBC @ San Souci	46.00	15:23	60.00	77%
140	Wx-Blue Mountain	47.00	14:44	60.00	78%
440	Fire Station #7	47.00	13:27	60.00	78%
500	Havana Park	47.00	15:31	60.00	78%
520	Jewell Detention	47.00	14:29	60.00	78%
650	Iloff Pond	47.00	14:35	60.00	78%
840	Fire Station 12	47.00	15:07	60.00	78%
1110	Gunbarrel	47.00	15:23	60.00	78%
1350	Chatfield COE	47.00	15:20	60.00	78%
1370	West Metro FS13	47.00	14:37	60.00	78%
1460	Wx-Urban Farm	47.00	15:20	60.00	78%
1900	Niver Detention	47.00	15:02	60.00	78%
2240	Cold Sprg Glch conf	47.00	15:35	60.00	78%
2250	Rosedale	47.00	14:57	60.00	78%
2310	Genesee Village	47.00	14:57	60.00	78%
2750	Wx-Castle Rock	47.00	14:55	60.00	78%
2840	Sulphur Gulch	47.00	15:39	60.00	78%
2890	Spruce Mt - Douglas	47.00	15:05	60.00	78%
2910	East Cherry Cr-Douglas	47.00	15:25	60.00	78%
3080	Tallman Gulch	47.00	14:50	60.00	78%
4060	Lakeshore	47.00	14:20	60.00	78%
4070	Bear Peak	47.00	14:20	60.00	78%
4310	Johnny Park	47.00	15:13	60.00	78%
4320	Lee Hill Rain 2012	47.00	14:35	60.00	78%
4790	Wx-Button Rock	47.00	16:06	60.00	78%
6601	Wx-A2-Magnolia WX-Precip	71.00	9:41	90.00	79%
120	West Woods	48.00	15:17	60.00	80%
220	Upper Leyden	48.00	15:00	60.00	80%
540	Parker/Mississippi	48.00	15:20	60.00	80%
610	Harvard @ Jackson	48.00	15:01	60.00	80%
710	Horseshoe Park Drop	48.00	15:02	60.00	80%
820	ETG @ Buckley	48.00	14:52	60.00	80%
970	Pump Sta 3	48.00	14:55	60.00	80%
1100	Louisville Rec Ctr	48.00	15:10	60.00	80%
1300	Hidden Lake	48.00	15:12	60.00	80%
1440	Wx-Elbert	48.00	14:20	60.00	80%
1500	Powers Park	48.00	14:42	60.00	80%
1800	Sand Creek Park	48.00	14:52	60.00	80%
2730	Wx-Salisbury Park	48.00	14:55	60.00	80%
2880	Happy Canyon at N Surrey Dr	48.00	15:00	60.00	80%
2920	West Cherry Head-Douglas Cnty	48.00	14:16	60.00	80%
2930	Wx-Spring Valley Rd-DougCnty	48.00	14:40	60.00	80%
2940	Willow Creek - DougCnty	48.00	14:50	60.00	80%
2960	Indian Creek	48.00	14:44	60.00	80%
3030	WX-Bingham Lake Park	48.00	14:31	60.00	80%
4010	Crescent	48.00	14:04	60.00	80%
4020	Rio Grande	48.00	14:30	60.00	80%
4040	Martin Gulch	48.00	14:40	60.00	80%
4130	Swiss Peaks	48.00	15:07	60.00	80%
4140	Logan Mill	48.00	14:57	60.00	80%
4190	Slaughterhouse	48.00	15:16	60.00	80%
4260	Taylor Mountain	48.00	15:48	60.00	80%
4340	Riverside	48.00	13:29	60.00	80%
4350	Conifer Hill	48.00	15:02	60.00	80%
4730	Wx-Sugarloaf	48.00	15:05	60.00	80%
5880	Hackett Mountain	48.00	14:16	60.00	80%
200	Leyden Reservoir	49.00	14:12	60.00	82%

510	Virginia Court	49.00	14:43	60.00	82%
720	Confluence Pond	49.00	14:17	60.00	82%
750	Wx-Quincy Reservoir	49.00	14:43	60.00	82%
800	Sable Ditch @ 18th	49.00	14:37	60.00	82%
950	Piney at Liverpool	49.00	14:43	60.00	82%
1520	Wx-Marston Lake North	49.00	14:35	60.00	82%
1530	Bear Creek @ Lowell	49.00	15:01	60.00	82%
1600	Englewood Dam	49.00	15:08	60.00	82%
1700	Cherry Cr @ Champa	49.00	14:54	60.00	82%
2260	Brook Forest	49.00	14:13	60.00	82%
2710	Wx-Highlands Ranch WTP	49.00	14:24	60.00	82%
2870	Cottonwood (Apache)	49.00	14:50	60.00	82%
2950	DC Public Works	49.00	14:06	60.00	82%
2990	Wx-Tomah Rd-DougCnty	49.00	14:20	60.00	82%
4110	Betasso	49.00	15:44	60.00	82%
4150	Gold Hill	49.00	14:21	60.00	82%
4160	Sunshine	49.00	15:13	60.00	82%
4250	Geer Canyon	49.00	14:27	60.00	82%
4290	Red Hill	49.00	14:01	60.00	82%
4300	Big Elk Park	49.00	14:51	60.00	82%
4750	Wx-Louisville Lake	49.00	14:28	60.00	82%
4860	Fairview Peak	49.00	14:49	60.00	82%
5730	West Creek	49.00	14:50	60.00	82%
5740	Trail Creek	49.00	14:09	60.00	82%
5810	Stump Bump	49.00	14:27	60.00	82%
100100	A2-Blackstone Precip	49.00	14:00	60.00	82%
100270	Wx-A2-WestCreek (Hayman) - Precip	597.00		720.00	83%
150	Nott Creek	50.00	14:10	60.00	83%
210	Leyden Confluence	50.00	14:18	60.00	83%
320	Sports Complex	50.00	14:21	60.00	83%
530	Fire Station #19	50.00	14:39	60.00	83%
730	No Name @ Quincy	50.00	14:25	60.00	83%
830	Side Creek Park	50.00	14:06	60.00	83%
850	Flying J	50.00	14:27	60.00	83%
900	Wx-Aurora Reservoir	50.00	14:17	60.00	83%
1050	Jeffco Fairgrounds	50.00	14:10	60.00	83%
1320	SPR at 3rd Ave	50.00	14:48	60.00	83%
1570	Wx-Brighton Ditch	50.00	14:38	60.00	83%
1920	Wx-Brighton	50.00	14:24	60.00	83%
2210	Wx-Hiwan G.C.	50.00	14:24	60.00	83%
2340	El Rancho	50.00	14:11	60.00	83%
2810	Pine Cliff Road	50.00	14:35	60.00	83%
2860	CC at Stroh Rd	50.00	14:33	60.00	83%
4050	Walker Ranch	50.00	14:36	60.00	83%
4240	Sunset	50.00	14:52	60.00	83%
4360	Justice Center	50.00	14:33	60.00	83%
4810	Shanahan Ridge	50.00	13:57	60.00	83%
4840	SBC@S Boulder Ditch	50.00	14:32	60.00	83%
100110	A2-ETG @ Hampden Precip	50.00	14:12	60.00	83%
100290	A2-PlumCr at Sedalia - Precip	606.00		720.00	84%
3020	Wx-West Creek WX	609.00		720.00	85%
3070	A2-Newlin Gulch Precip	609.00		720.00	85%
4850	Porphory Mtn	610.00		720.00	85%
100320	A2-Weir Gulch - Precip	610.00		720.00	85%
100410	A2-Brantner Gulch - Precip	610.00		720.00	85%
100160	A2-Sand Creek at Colfax Precip	611.00		720.00	85%
300	Van Bibber Park	51.00	14:25	60.00	85%
600	Harvard Gulch Park	51.00	14:39	60.00	85%
640	Goldsmith @ Eastman	51.00	14:43	60.00	85%

760	Mission Viejo Park	51.00	14:14	60.00	85%
810	Granby Ditch @ 6th	51.00	14:06	60.00	85%
870	A2-Murphy Creek GC	612.00		720.00	85%
1010	Denver West	51.00	14:18	60.00	85%
1060	Heritage Square	51.00	14:21	60.00	85%
1310	LDC at 64th	612.00		720.00	85%
1340	Sanderson at Xavier	612.00		720.00	85%
1420	Wx-A2-Diamond Hill	51.00	14:24	60.00	85%
4520	Eagle Ridge	51.00	14:16	60.00	85%
4570	St. Antons	51.00	14:23	60.00	85%
100200	Wx-A2-OneRain Weather - Precipitation	51.00	14:44	60.00	85%
100	A2-Carr Street	613.00		720.00	85%
1000	A2-Maple Grove Resv.	613.00		720.00	85%
100230	A2-Havana Pond Precip	613.00		720.00	85%
100240	A2-Westerly Cr Dam Precip	613.00		720.00	85%
100420	A2-Thorncreek - Precip	613.00		720.00	85%
100300	A2-CoalCreek at McCaslin - Precip	615.00		720.00	85%
420	Expo Park	52.00	14:14	60.00	87%
430	Utah Park	52.00	14:03	60.00	87%
630	Temple Pond at DTC	52.00	14:25	60.00	87%
1030	NREL/S. Table Mtn.	52.00	14:18	60.00	87%
1040	Lena @ U.S. Hwy 6	52.00	13:51	60.00	87%
4090	Magnolia	52.00	14:17	60.00	87%
4530	Winiger Ridge	52.00	14:32	60.00	87%
4550	Boulder Jail	52.00	14:33	60.00	87%
4820	Doudy Draw	52.00	13:54	60.00	87%
3060	Fire Sta 47	628.00		720.00	87%
1550	Lakewood CC	53.00	14:21	60.00	88%
1480	Third Creek at DIA	54.00	12:58	60.00	90%
4170	Pine Brook	54.00	13:23	60.00	90%
4880	Whispering Pines	54.00	13:42	60.00	90%
2970	Rampart Range Rd-Satellite	220.00		220.00	100%
5900	Horse Creek-Satellite	1199.00		720.00	100%

Rain Event Performance																
	Reports Received	Reports Received	6,985		Analyze Rain Sensors						1	<<show stations with zero rain (1=yes, 0=no)				
	Systemwide Avg	Total Tips	7,538													
	92.66%	Data Loss	7.34%													
Description	Sensor	Performance	1-tips	2-tips	3-tips	4-tips	5-tips	6-tips	>6-tips	Rcv	Exp	Miss	Hold	Bucket		
Leyden Reservoir	200	0%	0	0	0	0	0	0	0	0	0	0	0	0.03937		
Fire Station 12	840	0%	0	0	0	0	0	0	0	0	0	0	0	0.03937	Mean 39.1	
Sanderson at Xavier	1340	0%	0	0	0	0	0	0	0	0	0	0	0	0.03937	Median 38	
Columbine Open Space	2800	0%	0	0	0	0	0	0	0	0	0	0	0	0.03937	St. Dev 15.9	
Geer Canyon	4250	0%	0	0	0	0	0	0	0	0	0	0	0	0.03937	Mean plus 3 SD 86.7	
Wx-Cal-Wood Ranch	4770	0%	0	0	0	0	0	0	0	0	0	0	0	0.03937	Min 0	
Wx-W. Cherry Creek	2790	27%	0	0	2	0	1	0	0	3	11	8	0	0.03937	Max 91	
Cannon Mountain	4270	57%	17	4	3	0	0	2	0	26	46	20	0	0.03937		
Filter Plant	4100	62%	10	3	2	1	0	0	2	16	26	10	2	0.03937		
Morrison	2330	62%	23	9	4	2	0	0	0	38	61	23	0	0.03937		
Wx-Aurora Town Hall	920	65%	9	1	0	0	0	1	0	11	17	6	0	0.03937		
Shop Creek	1710	66%	19	3	0	2	1	0	0	25	38	13	0	0.03937		
Niver Detention	1900	68%	12	2	0	0	0	1	0	15	22	7	0	0.03937		
East/West Trailhead	3050	73%	17	4	0	0	1	0	0	22	30	8	0	0.03937		
SPR at Henderson	1660	74%	14	1	1	1	0	0	0	17	23	6	0	0.03937		
Wx-A2-Trumbull (Hayman) - Precip	100260	76%	16	2	0	0	1	0	0	19	25	6	0	0.03937		
Wx-Highlands Ranch WTP	2710	81%	20	4	1	0	0	0	0	25	31	6	0	0.03937		
Cub Cr below Blue	2270	82%	43	5	1	0	1	0	0	50	61	11	0	0.03937		
Pinewood Springs	4510	84%	49	4	2	1	0	0	0	56	67	11	0	0.03937		
Indian Creek	2960	84%	35	6	1	0	0	0	0	42	50	8	0	0.03937		
SBC @ SB Road	4870	84%	32	3	2	0	0	0	1	37	44	7	0	0.03937		
Upper Leyden	220	84%	30	1	0	0	0	1	0	32	38	6	0	0.03937		
Dakan Rd	2980	85%	37	6	1	0	0	0	0	44	52	8	0	0.03937		
East Cherry Cr-Douglas	2910	85%	25	2	0	1	0	0	0	28	33	5	0	0.03937		
Wx-Brighton	1920	85%	22	0	0	0	1	0	0	23	27	4	0	0.03937		
A2-Havana Pond Precip	100230	85%	22	0	0	0	1	0	0	23	27	4	0	0.03937		
A2-Brantner Gulch - Precip	100410	85%	28	0	0	0	0	1	0	29	34	5	0	0.039371		
Spruce Mt - Douglas	2890	86%	21	2	1	0	0	0	0	24	28	4	0	0.03937		
Eagle Ridge	4520	86%	31	6	0	0	0	0	0	37	43	6	0	0.03937		
Toll Gate @ 6th	700	86%	22	2	1	0	0	0	0	25	29	4	0	0.03937		
Cherry Cr @ Champa	1700	86%	24	0	0	0	1	0	0	25	29	4	0	0.03937		
Little Narrows	4470	86%	44	6	1	0	0	0	0	51	59	8	0	0.03937		
Golden Age	4230	86%	29	1	2	0	0	0	0	32	37	5	0	0.03937		
Wx-Ward C-1	4710	87%	42	1	1	0	1	0	0	45	52	7	0	0.03937		
Twin Sisters	4080	87%	38	1	0	0	0	1	0	40	46	6	0	0.03937		
West Cherry Head-Douglas Cnty	2920	88%	26	1	0	1	0	0	0	28	32	4	0	0.03937		
Aurora Regional Pond	940	88%	32	3	1	0	0	0	0	36	41	5	0	0.03937		
SPR at Union Ave.	1640	88%	20	1	1	0	0	0	0	22	25	3	0	0.03937		
Sunshine	4160	88%	48	1	3	0	0	0	0	52	59	7	0	0.03937		
Granby Ditch @ 6th	810	88%	26	4	0	0	0	0	0	30	34	4	0	0.03937		
WX-EPC at Hwy 105	3010	89%	38	0	0	0	0	1	0	39	44	5	0	0.03937		
Cold Sprng Glch conf	2240	89%	52	1	1	0	1	0	0	55	62	7	0	0.03937		
Bear Peak	4070	89%	49	5	1	0	0	0	1	55	62	7	0	0.03937		
Bear Cr below Cub	2230	89%	58	4	2	0	0	0	0	64	72	8	0	0.03937		
Red Rocks Park	2370	89%	42	6	0	0	0	0	0	48	54	6	0	0.03937		
Virginia Court	510	89%	28	4	0	0	0	0	0	32	36	4	0	0.03937		
Gunbarrel	1110	89%	32	0	0	0	1	0	0	33	37	4	0	0.03937		
Hansen Rain	4330	89%	52	5	1	0	0	0	1	58	65	7	0	0.03937		
Lee Hill Rain 2012	4320	89%	54	3	2	0	0	0	0	59	66	7	0	0.03937		
Wx-Button Rock	4790	90%	47	6	0	0	0	0	0	53	59	6	0	0.03937		

Lakeshore	4060	90%	40	5	0	0	0	0	0	0	45	50	5	0	0.03937
Side Creek Park	830	90%	26	0	0	1	0	0	0	0	27	30	3	0	0.03937
A2-Murphy Creek GC	870	90%	25	1	1	0	0	0	0	0	27	30	3	0	0.03937
Iliff Pond	650	90%	33	4	0	0	0	0	0	0	37	41	4	0	0.03937
Wx-Salisbury Park	2730	90%	17	2	0	0	0	0	0	0	19	21	2	0	0.03937
A2-Thorncreek - Precip	100420	90%	17	2	0	0	0	0	0	0	19	21	2	0	0.039371
Wx-Urban Farm	1460	91%	28	0	0	1	0	0	0	0	29	32	3	0	0.03937
Slaughterhouse Glch	1620	91%	35	4	0	0	0	0	0	0	39	43	4	0	0.03937
Genesee Village	2310	91%	58	1	0	0	0	0	1	0	60	66	6	0	0.03937
Haskins Gulch Conf	2820	91%	38	1	0	1	0	0	0	0	40	44	4	0	0.03937
Wx-A2-WestCreek (Hayman) - Precip	100270	91%	27	3	0	0	0	0	0	0	30	33	3	0	0.03937
SBC @ San Souci	4830	91%	48	2	0	1	0	0	0	0	51	56	5	0	0.03937
Sulphur Gulch	2840	91%	28	3	0	0	0	0	0	0	31	34	3	0	0.03937
Louisville Rec Ctr	1100	91%	29	3	0	0	0	0	0	0	32	35	3	0	0.03937
WX-Bingham Lake Park	3030	91%	29	3	0	0	0	0	0	0	32	35	3	0	0.03937
A2-Highland Heritage Park	3090	91%	30	1	1	0	0	0	0	0	32	35	3	0	0.03937
Bear Creek @ Lowell	1530	91%	39	4	0	0	0	0	0	0	43	47	4	0	0.03937
Wx-Sugarloaf	4730	92%	53	1	0	0	1	0	0	0	55	60	5	0	0.03937
A2-Carr Street	100	92%	42	0	2	0	0	0	0	0	44	48	4	0	0.03937
Jewell Detention	520	92%	30	3	0	0	0	0	0	0	33	36	3	0	0.03937
ETG @ Buckley	820	92%	21	0	1	0	0	0	0	0	22	24	2	0	0.03937
Guy Hill Ranch	310	92%	21	2	0	0	0	0	0	0	23	25	2	0	0.03937
Parker/Mississippi	540	92%	32	3	0	0	0	0	0	0	35	38	3	0	0.03937
Gold Hill	4150	92%	45	0	2	0	0	0	0	1	47	51	4	1	0.03937
Brook Forest	2260	92%	47	0	0	0	1	0	0	0	48	52	4	0	0.03937
Apple Valley	4490	92%	33	3	0	0	0	0	0	0	36	39	3	0	0.03937
Betasso	4110	93%	72	1	1	1	0	0	0	0	75	81	6	0	0.03937
NREL/S. Table Mtn.	1030	93%	24	0	1	0	0	0	0	0	25	27	2	0	0.03937
Johnny Park	4310	93%	59	3	1	0	0	0	0	0	63	68	5	0	0.03937
Quincy/Highline	620	93%	36	3	0	0	0	0	0	0	39	42	3	0	0.03937
Walker Ranch	4050	93%	36	3	0	0	0	0	0	0	39	42	3	0	0.03937
Flying J	850	93%	25	0	1	0	0	0	0	0	26	28	2	0	0.03937
Sand Creek Park	1800	93%	25	0	1	0	0	0	0	0	26	28	2	0	0.03937
Idledale	2350	93%	24	2	0	0	0	0	0	0	26	28	2	0	0.03937
Wx-Castle Rock	2750	93%	12	1	0	0	0	0	0	0	13	14	1	0	0.03937
Temple Pond at DTC	630	93%	38	1	1	0	0	0	0	0	40	43	3	0	0.03937
Denver West	1010	93%	37	3	0	0	0	0	0	0	40	43	3	0	0.03937
Red Garden	4030	93%	63	3	1	0	0	0	0	0	67	72	5	0	0.03937
A2-Upper Sellers Gulch Precip	100140	93%	25	2	0	0	0	0	0	0	27	29	2	0	0.03937
Fling's	4220	93%	52	2	1	0	0	0	0	0	55	59	4	0	0.03937
Sable Ditch @ 18th	800	93%	27	0	1	0	0	0	0	0	28	30	2	0	0.03937
Pine Brook	4170	93%	42	0	0	1	0	0	0	0	43	46	3	0	0.03937
Crescent	4010	94%	43	0	0	1	0	0	0	0	44	47	3	0	0.03937
Choke Cherry Resvr	2320	94%	42	3	0	0	0	0	0	1	45	48	3	0	0.03937
Denver Zoo	1360	94%	45	1	1	0	0	0	0	0	47	50	3	0	0.03937
Rio Grande	4020	94%	45	1	1	0	0	0	0	0	47	50	3	0	0.03937
CC @ Russelville Road Precip	3040	94%	15	1	0	0	0	0	0	0	16	17	1	0	0.03937
Justice Center	4360	94%	62	2	1	0	0	0	0	0	65	69	4	0	0.03937
West Woods	120	94%	46	3	0	0	0	0	0	0	49	52	3	0	0.03937
Cherry Cr @ Steele	1720	94%	46	3	0	0	0	0	0	0	49	52	3	0	0.03937
Wx-Marston Lake North	1520	94%	31	2	0	0	0	0	0	1	33	35	2	0	0.03937
Van Bibber @ Hwy 93	330	95%	34	2	0	0	0	0	0	0	36	38	2	0	0.03937
Conifer Hill	4350	95%	53	3	0	0	0	0	0	1	56	59	3	0	0.03937
Wx-Aurora Reservoir	900	95%	18	1	0	0	0	0	0	0	19	20	1	0	0.03937
Swiss Peaks	4130	95%	56	1	1	0	0	0	0	0	58	61	3	0	0.03937

Fire Sta 47	3060	95%	39	2	0	0	0	0	0	0	41	43	2	0	0.03937
Shanahan Ridge	4810	96%	83	4	0	0	0	0	0	0	87	91	4	0	0.03937
Sunset	4240	96%	43	0	1	0	0	0	0	1	44	46	2	0	0.03937
SPR at 3rd Ave	1320	96%	43	2	0	0	0	0	0	0	45	47	2	0	0.03937
Utah Park	430	96%	44	2	0	0	0	0	0	0	46	48	2	0	0.03937
Gold Lake	4180	96%	45	0	1	0	0	0	0	0	46	48	2	0	0.03937
Boulder Jail	4550	96%	46	0	1	0	0	0	0	0	47	49	2	0	0.03937
Martin Gulch	4040	96%	69	3	0	0	0	0	0	0	72	75	3	0	0.03937
Ralston Reservoir	110	96%	24	1	0	0	0	0	0	0	25	26	1	0	0.03937
Whispering Pines	4880	96%	52	2	0	0	0	0	0	0	54	56	2	0	0.03937
Horseshoe Park Drop	710	96%	26	1	0	0	0	0	0	0	27	28	1	0	0.03937
Willow Creek - DougCnty	2940	96%	26	1	0	0	0	0	0	0	27	28	1	0	0.03937
Wx-West Creek WX	3020	96%	26	1	0	0	0	0	0	1	27	28	1	0	0.03937
A2-ETG @ Hampden Precip	100110	96%	26	1	0	0	0	0	0	0	27	28	1	0	0.03937
A2-Sand Creek at Colfax Precip	100160	96%	26	1	0	0	0	0	0	0	27	28	1	0	0.03937
El Rancho	2340	97%	27	1	0	0	0	0	0	0	28	29	1	0	0.03937
Indian Hills	2360	97%	55	2	0	0	0	0	0	0	57	59	2	0	0.03937
Lazy Acres	4200	97%	56	2	0	0	0	0	0	1	58	60	2	0	0.03937
Riverside	4340	97%	56	2	0	0	0	0	0	0	58	60	2	0	0.03937
Van Bibber Park	300	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.03937
Heritage Square	1060	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.03937
Cherry Cr bl Bayou Glch	2850	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.03937
DC Public Works	2950	97%	28	1	0	0	0	0	0	0	29	30	1	0	0.03937
A2-Newlin Gulch Precip	3070	97%	29	1	0	0	0	0	0	0	30	31	1	0	0.03937
Jeffco Fairgrounds	1050	97%	30	1	0	0	0	0	0	0	31	32	1	0	0.03937
Wx-Quincy Reservoir	750	97%	31	1	0	0	0	0	0	0	32	33	1	0	0.03937
Chatfield COE	1350	97%	31	1	0	0	0	0	0	0	32	33	1	0	0.03937
Goldsmith @ Eastman	640	97%	32	1	0	0	0	0	0	0	33	34	1	0	0.03937
Kelly Dam	410	97%	33	1	0	0	0	0	0	0	34	35	1	0	0.03937
No Name @ Quincy	730	97%	34	1	0	0	0	0	0	0	35	36	1	0	0.03937
Tallman Gulch	3080	97%	34	1	0	0	0	0	0	0	35	36	1	0	0.03937
Wx-Louisville Lake	4750	97%	34	1	0	0	0	0	0	0	35	36	1	0	0.03937
Englewood Dam	1600	97%	35	1	0	0	0	0	0	0	36	37	1	0	0.03937
Happy Canyon at N Surrey Dr	2880	97%	36	1	0	0	0	0	0	0	37	38	1	0	0.03937
Logan Mill	4140	97%	36	1	0	0	0	0	0	0	37	38	1	0	0.03937
LDC at 64th	1310	97%	37	1	0	0	0	0	0	0	38	39	1	0	0.03937
Upper Sloan Det.	1400	97%	37	1	0	0	0	0	0	0	38	39	1	0	0.03937
Pine Cliff Road	2810	98%	39	1	0	0	0	0	0	0	40	41	1	0	0.03937
Fire Station #19	530	98%	41	1	0	0	0	0	0	0	42	43	1	0	0.03937
Cottonwood (Apache)	2870	98%	42	1	0	0	0	0	0	0	43	44	1	0	0.03937
Magnolia	4090	98%	43	1	0	0	0	0	0	1	44	45	1	0	0.03937
A2-PlumCr at Sedalia - Precip	100290	98%	44	1	0	0	0	0	0	0	45	46	1	0	0.03937
Big Elk Park	4300	98%	45	1	0	0	0	0	0	0	46	47	1	0	0.03937
A2-Maple Grove Resv.	1000	98%	46	1	0	0	0	0	0	0	47	48	1	0	0.03937
Kinney Peak	2280	98%	46	1	0	0	0	0	0	0	47	48	1	0	0.03937
Leyden Confluence	210	98%	48	1	0	0	0	0	0	0	49	50	1	0	0.03937
Nott Creek	150	98%	49	1	0	0	0	0	0	0	50	51	1	0	0.03937
Powers Park	1500	98%	49	1	0	0	0	0	0	0	50	51	1	0	0.03937
A2-Weir Gulch - Precip	100320	98%	50	1	0	0	0	0	0	0	51	52	1	0	0.03937
Rampart Range Rd-Satellite	2970	98%	51	1	0	0	0	0	0	0	52	53	1	0	0.03937
St. Antons	4570	98%	51	1	0	0	0	0	0	0	52	53	1	1	0.03937
SBC@S Boulder Ditch	4840	98%	51	1	0	0	0	0	0	1	52	53	1	0	0.03937
Lena @ U.S. Hwy 6	1040	98%	52	1	0	0	0	0	0	0	53	54	1	0	0.03937
Slaughterhouse	4190	98%	52	1	0	0	0	0	0	0	53	54	1	0	0.03937
Doudy Draw	4820	98%	54	1	0	0	0	0	0	0	55	56	1	0	0.03937

Rosedale	2250	98%	59	1	0	0	0	0	0	60	61	1	0	0.03937
Taylor Mountain	4260	100%	50	0	0	0	0	0	0	50	50	0	0	0.03937
Lakewood CC	1550	100%	48	0	0	0	0	0	0	48	48	0	0	0.03937
Harvard @ Jackson	610	100%	44	0	0	0	0	0	0	44	44	0	0	0.03937
Wx-Tomah Rd-DougCnty	2990	100%	43	0	0	0	0	0	0	43	43	0	0	0.03937
A2-CoalCreek at McCaslin - Precip	100300	100%	41	0	0	0	0	0	1	41	41	0	0	0.03937
Wx-Blue Mountain	140	100%	39	0	0	0	0	0	0	39	39	0	0	0.03937
Harvard Gulch Park	600	100%	38	0	0	0	0	0	0	38	38	0	0	0.03937
Winiger Ridge	4530	100%	38	0	0	0	0	0	0	38	38	0	0	0.03937
Wx-A2-Diamond Hill	1420	100%	37	0	0	0	0	0	0	37	37	0	0	0.03937
Wx-Hiwan G.C.	2210	100%	35	0	0	0	0	0	0	35	35	0	0	0.03937
Havana Park	500	100%	34	0	0	0	0	0	0	34	34	0	0	0.03937
Mission Viejo Park	760	100%	34	0	0	0	0	0	0	34	34	0	0	0.03937
Piney at Liverpool	950	100%	34	0	0	0	0	0	0	34	34	0	0	0.03937
West Metro FS13	1370	100%	34	0	0	0	0	0	0	34	34	0	0	0.03937
Russelville Gulch-Douglas	2900	100%	33	0	0	0	0	0	0	33	33	0	0	0.03937
Hidden Lake	1300	100%	31	0	0	0	0	0	0	31	31	0	0	0.03937
Sports Complex	320	100%	30	0	0	0	0	0	1	30	30	0	0	0.03937
Expo Park	420	100%	30	0	0	0	0	0	0	30	30	0	0	0.03937
Wx-Spring Valley Rd-DougCnty	2930	100%	28	0	0	0	0	0	0	28	28	0	0	0.03937
A2-Westerly Cr Dam Precip	100240	100%	28	0	0	0	0	0	0	28	28	0	0	0.03937
Montview Park	400	100%	27	0	0	0	0	0	0	27	27	0	0	0.03937
Wx-Brighton Ditch	1570	100%	27	0	0	0	0	0	0	27	27	0	0	0.03937
A2-Sellers Gulch at Haystack Precip	100150	100%	25	0	0	0	0	0	0	25	25	0	0	0.03937
Broomfield 3207	1200	100%	24	0	0	0	0	0	1	24	24	0	0	0.03937
Confluence Pond	720	100%	23	0	0	0	0	0	0	23	23	0	0	0.03937
Third Creek at DIA	1480	100%	19	0	0	0	0	0	0	19	19	0	0	0.03937
Fire Station #7	440	100%	18	0	0	0	0	0	0	18	18	0	0	0.03937
A2-Blackstone Precip	100100	100%	18	0	0	0	0	0	0	18	18	0	0	0.03937
Pump Sta 3	970	100%	16	0	0	0	0	0	0	16	16	0	0	0.03937
Wx-Elbert	1440	100%	13	0	0	0	0	0	0	13	13	0	1	0.03937
CC at Stroh Rd	2860	100%	13	0	0	0	0	0	0	13	13	0	0	0.03937
Red Hill	4290	100%	4	0	0	0	0	0	0	4	4	0	0	0.03937
	TOTALS	TOTALS	6600	286	61	16	13	9	18	6985	7538	553	5	
Porphory Mtn	4850	96%	117	2	0	1	0	0	0	120	125	5	0	0.01
Fairview Peak	4860	98%	142	3	0	0	0	0	1	145	148	3	1	0.01
Wx-A2-Magnolia WX-Precip	6601	100%	180	0	0	0	0	0	1	180	180	0	0	0.01
Wx-A2-OneRain Weather - Precipitation	100200	98%	145	1	1	0	0	0	0	147	150	3	0	0.01
Four Mile Creek	5720	53%	7	1	0	1	0	1	0	10	19	9	0	0.03937
West Creek	5730	85%	16	0	0	1	0	0	0	17	20	3	0	0.03937
Trail Creek	5740	93%	24	2	0	0	0	0	0	26	28	2	0	0.03937
Stump Bump	5810	81%	18	3	1	0	0	0	0	22	27	5	0	0.03937
Cedar Mountain	5860	84%	25	0	0	0	0	1	0	26	31	5	0	0.03937
Hackett Mountain	5880	93%	26	2	0	0	0	0	0	28	30	2	0	0.03937
Horse Creek-Satellite	5900	88%	14	0	1	0	0	0	1	15	17	2	0	0.03937
Log Jumper	5940	93%	25	0	1	0	0	0	1	26	28	2	0	0.03937

2017 Monthly Peak Hour ALERT Radio Traffic Summary

