

COLORADO AIR QUALITY CONTROL COMMISSION AGENDA ITEM SUMMARY

Item Title: Review of the 2013 Ozone Season _____

Meeting Date: October 17, 2013 _____

TYPES OF ACTION		
<i>NON-HEARING ACTIONS</i>	<i>REQUEST FOR HEARING</i>	<i>HEARING</i>
<input type="checkbox"/> Administrative	<input type="checkbox"/> Rulemaking	<input type="checkbox"/> Rulemaking
<input checked="" type="checkbox"/> Briefing	<input type="checkbox"/> Public	<input type="checkbox"/> Public
<input type="checkbox"/> Policy	<input type="checkbox"/> Adjudicatory	<input type="checkbox"/> Adjudicatory
<input type="checkbox"/> Other	<input type="checkbox"/> Informational	<input type="checkbox"/> Informational
RECOMMENDED ACTION		
<input type="checkbox"/> Adoption	<input type="checkbox"/> Approval	<input type="checkbox"/> Denial
MOTION		
<input type="checkbox"/> Required	<input type="checkbox"/> Attached	<input type="checkbox"/> Not Applicable
STATUTORY AUTHORITY		
General _____	Specific _____	
EPA SUBMITTAL		
Is this issue considered a SIP revision? _____		
Which SIP? _____		
EPA submission deadline: _____		
Is this a delegated program? _____		

ISSUE STATEMENT:

The Division will present a review of the summertime ozone monitoring data from around the state and will report on any exceedances and violations of the National Ambient Air Quality Standards. Historical ozone trends will also be presented. Finally, the Division will provide an update on the status of the NCAR "FRAPPE" study.

ATTACHMENTS:

SIGNATURES:

1. *Gordon Kim* 9/27/2013
Preparer Date

2. _____
Supervisor or Program Manager Date

3. *Bill Clark* 30 Sept 2013
Division Director Date

*** **DRAFT DATA** ***

2013 8-Hour Ozone (updated through September 30, 2013)

AQS Number	Site Name	1st Max 8-Hour (ppm)	Date 1st Max 8-Hour	2nd Max 8-Hour (ppm)	Date 2nd Max 8-Hour	3rd Max 8-Hour (ppm)	Date 3rd Max 8-Hour	4th Max 8-Hour (ppm)	Date 4th Max 8-Hour	5th Max 8-Hour (ppm)	Date 5th Max 8-Hour
08-001-3001	Welby	0.082	07/17	0.082	08/29	0.077	07/18	0.077	08/17	0.076	07/11
08-005-0002	Highland	0.085	08/29	0.080	06/13	0.080	06/28	0.079	08/17	0.078	07/10
08-005-0006	Aurora East	0.081	08/29	0.078	07/18	0.074	08/17	0.073	05/31	0.073	07/12
08-013-0011	S. Boulder Creek	0.086	07/17	0.081	07/10	0.080	07/11	0.079	07/16	0.075	07/22
08-031-0002	CAMP	0.074	07/10	0.072	07/17	0.069	08/29	0.067	07/11	0.064	08/04
08-031-0026	La Casa	0.080	07/10	0.079	07/17	0.072	07/11	0.071	08/29	0.070	06/28
08-035-0004	Chatfield State Park	0.086	08/29	0.085	06/28	0.083	07/18	0.083	07/21	0.082	08/17
08-041-0013	Colo. Spgs. – USAF Academy	0.082	07/18	0.079	05/31	0.075	07/12	0.074	06/09	0.074	07/20
08-041-0016	Manitou Springs	0.078	07/18	0.077	08/29	0.075	05/31	0.072	08/17	0.071	07/12
08-045-0012	Rifle – Health	0.065	05/31	0.064	05/23	0.064	07/10	0.062	06/05	0.062	06/21
08-059-0005	Welch	0.084	07/17	0.080	07/21	0.080	08/17	0.080	08/29	0.077	08/16
08-059-0006	Rocky Flats - N	0.093	07/17	0.087	07/10	0.086	08/17	0.085	07/11	0.081	06/09
08-059-0011	NREL	0.090	07/17	0.086	07/11	0.084	08/17	0.084	08/29	0.082	07/10
08-059-0013	Aspen Park	0.080	08/29	0.078	06/12	0.078	07/17	0.077	07/18	0.077	08/17
08-069-0007	NPS - Rocky Mtn. NP	0.082	06/12	0.082	07/17	0.079	07/16	0.074	06/20	0.074	07/17
08-069-0011	Ft. Collins - West	0.091	07/17	0.087	08/17	0.085	07/11	0.082	07/10	0.080	07/03
08-069-0012	* Rist Canyon	0.070	06/12	0.068	05/25	0.067	05/17	0.066	06/02	0.066	06/09
08-069-1004	Ft. Collins - CSU	0.083	07/17	0.076	08/17	0.075	07/11	0.074	07/10	0.071	07/03
08-077-0020	Palisade - Water	0.068	07/18	0.067	07/10	0.066	06/01	0.066	07/17	0.065	05/23
08-081-0002	Lay Peak	0.067	07/10	0.066	07/19	0.066	08/16	0.065	06/11	0.065	07/09
08-083-0006	Cortez	0.065	05/31	0.064	07/10	0.064	07/17	0.064	07/18	0.062	05/05
08-123-0009	Greeley - Weld Tower	0.080	08/17	0.074	07/11	0.074	08/16	0.073	06/18	0.073	09/07

NOTE: Values above the level of the 8-hour standard (0.075 ppm) are highlighted in yellow.

NOTE: Data influenced by natural event values, if any, are included.

* Rist Canyon site shut down on 6/28/2013.

The 8-hour ozone standard is written such that attainment is met if the 3-year average of the 4th maximum value from each of the 3 years is less than or equal to 0.075 ppm. Thus, by looking at the 4th maximum values from the previous 2 years, it is possible to see what the highest 4th maximum level for the current year could be and still remain in attainment of the standard.

This table provides information on the 4th maximum values for 2011 and 2012, the current 4th maximum value for 2013, the current 3-year average, and the maximum possible level for 2013 in order to remain in attainment of the ozone standard. Based on the current values, maximum possible levels for 2014 are also included.

3-Year Average 4th Maximum Ozone Values

Site Name	AQS #	<u>2011</u> 4 th Maximum 8-Hour Average Value (ppm)	<u>2012</u> 4 th Maximum 8-Hour Average Value (ppm)	<u>2013 (thru 9/30)</u> 4 th Maximum 8-Hour Average Value (ppm)	2011 - 2013 3-Year Average 4 th Maximum Value (ppm)	<u>2013</u> Highest Allowable 4 th Maximum 8-Hour Average Value (ppm)	<u>2014</u> Highest Allowable 4 th Maximum 8-Hour Average Value (ppm)
Welby	08-001-3001	0.075	0.077	0.077	0.076	0.075	0.073
Highland	08-005-0002	0.078	0.080	0.079	0.079	0.069	0.068
Aurora East	08-005-0006	0.077	0.074	0.073	0.074	0.076	0.080
S. Boulder Creek	08-013-0011	0.076	0.076	0.079	0.077	0.075	0.072
CAMP	08-031-0002	---	0.068	0.067	---	---	0.092
La Casa	08-031-0026	---	---	0.071	---	---	---
Chatfield State Park	08-035-0004	0.082	0.086	0.083	0.083	0.059	0.058
Colo. Spg. - USAF Academy	08-041-0013	0.074	0.075	0.074	0.074	0.078	0.078
Manitou Springs	08-041-0016	0.075	0.075	0.072	0.074	0.077	0.080
Rifle - Health	08-045-0012	0.066	0.068	0.062	0.065	0.093	0.097
Welch	08-059-0005	0.077	0.079	0.080	0.078	0.071	0.068
Rocky Flats North	08-059-0006	0.081	0.084	0.085	0.083	0.062	0.058
NREL	08-059-0011	0.083	0.081	0.084	0.082	0.063	0.062
Aspen Park	08-059-0013	0.072	0.077	0.077	0.075	0.078	0.073
NPS - Rocky Mtn. Nat'l Park	08-069-0007	0.077	0.079	0.074	0.076	0.071	0.074
Fort Collins - West	08-069-0011	0.080	0.080	0.082	0.080	0.067	0.065
* Rist Canyon	08-069-0012	0.073	0.071	0.066	0.070	0.083	---
Fort Collins - CSU	08-069-1004	0.068	0.074	0.074	0.072	0.085	0.079
Palisade - Water	08-077-0020	0.066	0.071	0.066	0.067	0.090	0.090
Lay Peak	08-081-0002	---	0.066	0.065	---	---	0.096
Cortez	08-083-0006	0.071	0.070	0.064	0.068	0.086	0.093
Greeley - Weld Tower	08-123-0009	0.077	0.080	0.073	0.076	0.070	0.074

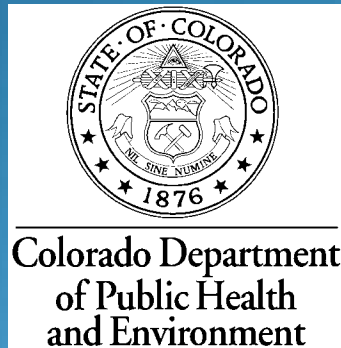
NOTE: An area is considered to be in attainment of the National Ambient Air Quality Standard when the 3-year average of the annual 4th highest daily maximum 8-hour ozone concentration at a site is less than or equal to 0.075 ppm.

NOTE: Values above the level of the 3-year average 4th maximum 8-hour standard are highlighted in red.

NOTE: Data includes values that may be influenced by natural events.

* Rist Canyon site shut down on 6/28/2013.

2013 Summer Ozone Season Review



Briefing to the
Colorado Air Quality Control Commission
and the Colorado Board of Health

10/17/2013

Review of the Monitoring Data

National Ambient Air Quality Standard (NAAQS)

0.075 ppm as the 3-year average of the
4th maximum 8-hour values

*** DRAFT DATA ***

2013 8-Hour Ozone (updated through September 30, 2013)

AQS Number	Site Name	1st Max 8-Hour (ppm)	Date 1st Max 8-Hour	2nd Max 8-Hour (ppm)	Date 2nd Max 8-Hour	3rd Max 8-Hour (ppm)	Date 3rd Max 8-Hour	4th Max 8-Hour (ppm)	Date 4th Max 8-Hour	5th Max 8-Hour (ppm)	Date 5th Max 8-Hour
08-001-3001	Welby	0.082	07/17	0.082	08/29	0.077	07/18	0.077	08/17	0.076	07/11
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08-005-0006	Aurora East	0.081	08/29	0.078	07/18	0.074	08/17	0.073	05/31	0.073	07/12
08-013-0011	S. Boulder Creek	0.086	07/17	0.081	07/10	0.080	07/11	0.079	07/16	0.075	07/22
08-031-0002	CAMP	0.074	07/10	0.072	07/17	0.069	08/29	0.067	07/11	0.064	08/04
08-031-0026	La Casa	0.080	07/10	0.079	07/17	0.072	07/11	0.071	08/29	0.070	06/28
08-035-0004	Chatfield State Park	0.086	08/29	0.085	06/28	0.083	07/18	0.083	07/21	0.082	08/17
08-041-0013	Colo. Spgs. – USAF Academy	0.082	07/18	0.079	05/31	0.075	07/12	0.074	06/09	0.074	07/20
08-041-0016	Manitou Springs	0.078	07/18	0.077	08/29	0.075	05/31	0.072	08/17	0.071	07/12
08-045-0012	Rifle – Health	0.065	05/31	0.064	05/23	0.064	07/10	0.062	06/05	0.062	06/21
08-059-0005	Welch	0.084	07/17	0.080	07/21	0.080	08/17	0.080	08/29	0.077	08/16
08-059-0006	Rocky Flats - N	0.093	07/17	0.087	07/10	0.086	08/17	0.085	07/11	0.081	06/09
08-059-0011	NREL	0.090	07/17	0.086	07/11	0.084	08/17	0.084	08/29	0.082	07/10
08-059-0013	Aspen Park	0.080	08/29	0.078	06/12	0.078	07/17	0.077	07/18	0.077	08/17
08-069-0007	NPS - Rocky Mtn. NP	0.082	06/12	0.082	07/17	0.079	07/16	0.074	06/20	0.074	07/17
08-069-0011	Ft. Collins - West	0.091	07/17	0.087	08/17	0.085	07/11	0.082	07/10	0.080	07/03
08-069-0012	* Rist Canyon	0.070	06/12	0.068	05/25	0.067	05/17	0.066	06/02	0.066	06/09
08-069-1004	Ft. Collins - CSU	0.083	07/17	0.076	08/17	0.075	07/11	0.074	07/10	0.071	07/03
08-077-0020	Palisade - Water	0.068	07/18	0.067	07/10	0.066	06/01	0.066	07/17	0.065	05/23
08-081-0002	Lay Peak	0.067	07/10	0.066	07/19	0.066	08/16	0.065	06/11	0.065	07/09
08-083-0006	Cortez	0.065	05/31	0.064	07/10	0.064	07/17	0.064	07/18	0.062	05/05
08-123-0009	Greeley - Weld Tower	0.080	08/17	0.074	07/11	0.074	08/16	0.073	06/18	0.073	09/07

NOTE: Values above the level of the 8-hour standard (0.075 ppm) are highlighted in yellow.

NOTE: Data influenced by natural event values, if any, are included.

* Rist Canyon site shut down on 6/28/2013.

(Draft data
for 2013)

Three Year Average 4th Maximum Ozone Values

For NAAQS of
0.075 ppm

*** 2013 data through 30 September ***

East Slope Sites		2011	2012	2013		2014
Site Name	AQS #	8-hr. O3 4th Max. Value (ppm)	8-hr. O3 4th Max. Value (ppm)	8-hr. O3 4th Max. Value (ppm)	3-yr. Avg. 4th Max. Value (ppm)	Highest Allowable 4th Max. (ppm)
Welby	08-001-3001	0.075	0.077	0.077	0.076	0.073
Highland	08-005-0002	0.078	0.080	0.079	0.079	0.068
Aurora East	08-005-0006	0.077	0.074	0.073	0.074	0.080
S. Boulder Creek	08-013-0011	0.076	0.076	0.079	0.077	0.072
CAMP	08-031-0002	---	0.068	0.067	---	0.092
La Casa	08-013-0026	---	---	0.071	---	---
Chatfield State Park	08-035-0004	0.082	0.086	0.083	0.083	0.058
USAF Academy	08-041-0013	0.074	0.075	0.074	0.074	0.078
Manitou	08-041-0016	0.075	0.075	0.072	0.074	0.080
Welch	08-059-0005	0.077	0.079	0.080	0.078	0.068
Rocky Flats North	08-059-0006	0.081	0.084	0.085	0.083	0.058
NREL	08-059-0011	0.083	0.081	0.084	0.082	0.062
Aspen Park	08-059-0013	0.072	0.077	0.077	0.075	0.073
Fort Collins - West	08-069-0011	0.080	0.080	0.082	0.080	0.065
Rist Canyon *	08-069-0012	0.073	0.071	0.066	0.070	--- *
Fort Collins - CSU	08-069-1004	0.068	0.074	0.074	0.072	0.079
Weld County Tower	08-123-0009	0.077	0.080	0.073	0.076	0.074
NPS - Rocky Mtn. NP	08-069-0007	0.077	0.079	0.074	0.076	0.074
NOAA - BAO Tower	n/a	0.076	0.077	0.064	0.072	0.086
NOAA - Niwot Ridge	n/a	0.067	0.076	0.070	0.071	0.081

* Rist Canyon site closed 6/28.

(NOAA thru 6/23)

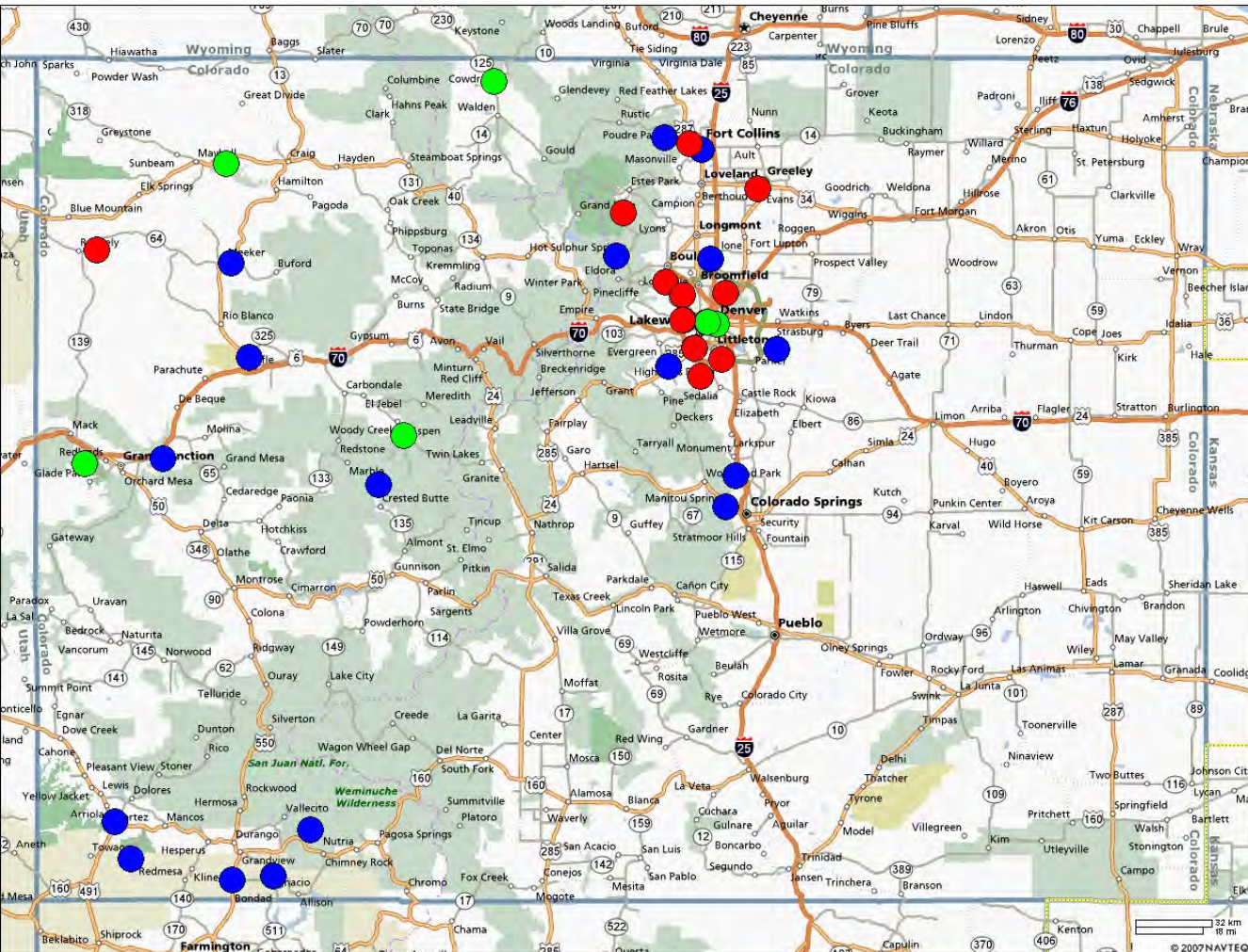
Three Year Average 4th Maximum Ozone Values

*** 2013 data through 30 September ***

West Slope Sites		2011	2012	2013		2014
Site Name	AQS #	8-hr. O3 4th Max. Value (ppm)	8-hr. O3 4th Max. Value (ppm)	8-hr. O3 4th Max. Value (ppm)	3-yr. Avg. 4th Max. Value (ppm)	Highest Allowable 4th Max. (ppm)
Rifle - Health	08-045-0012	0.066	0.068	0.062	0.065	0.097
Palisade - Water	08-077-0020	0.066	0.071	0.066	0.067	0.090
Lay Peak	08-081-0002	---	0.066	0.065	---	0.098
Cortez	08-083-0006	0.071	0.070	0.064	0.068	0.093
CASTNET - Gothic	08-051-9991	0.064	0.070	0.064	0.066	0.093
USFS - Walden	08-057-0003	---	0.059	0.064	---	---
USFS - Shamrock	08-067-1004	0.077	0.069	0.072	0.072	0.086
SUIT - Ignacio	08-067-7001	0.072	0.067	0.069	0.069	0.091
SUIT - Bondad/Hwy 550	08-067-7003	0.069	0.069	0.067	0.068	0.091
NPS - Colorado NM	08-077-0101	0.068	0.071	n/a	0.069	0.080
NPS - Mesa Verde NP	08-083-0101	0.070	0.069	0.069	0.069	0.089
Pitkin Co. - Aspen	08-097-0007	0.064	n/a	n/a	---	---
BLM - Meeker	08-103-0005	0.063	0.064	0.064	0.063	0.100
BLM - Rangely	08-103-0006	0.073	0.069	0.091	0.077	0.067

(USFS-Shamrock thru 7/31)

The Current 0.075 ppm Primary Standard



Colorado Ozone Sites

Comparison to
Federal Ozone Standard
(0.075 ppm)

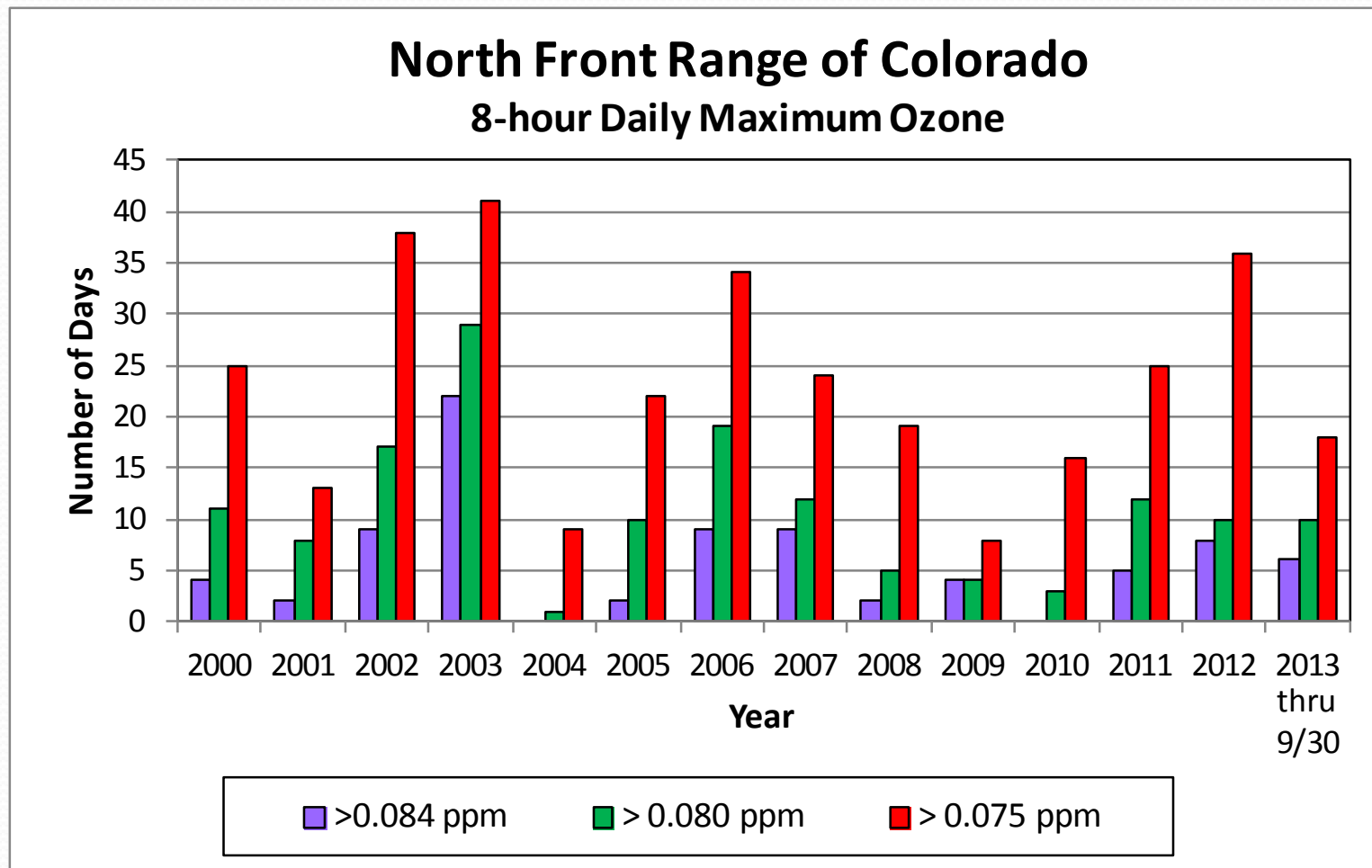
2011 - 2013

Ozone Standard:
3-year average of 4th maximum
values must be ≤ 0.075 ppm

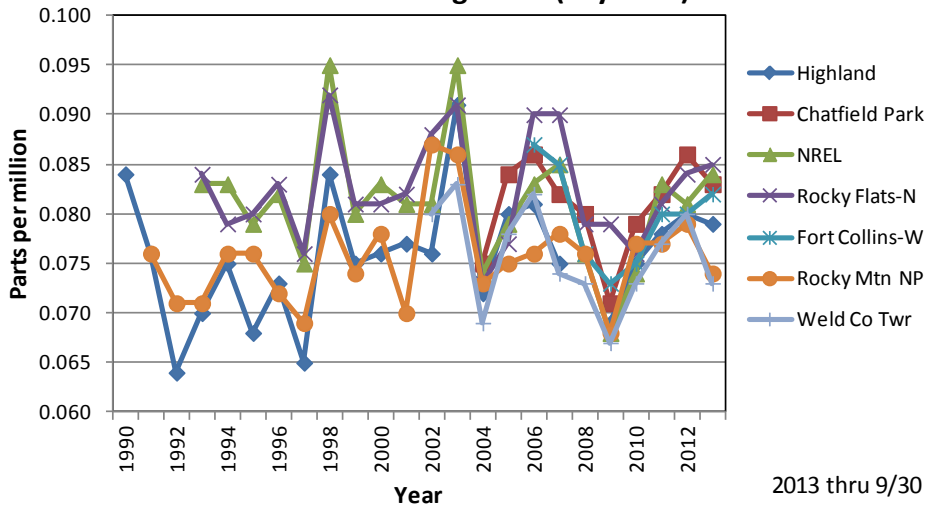
- Above level of standard
(3+ years of data available)
(Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Above level of standard
(<3 years of data available)
(Based on avg. of 4th max. for years available)
- Below level of standard
(3+ years of data available)
(Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Below level of standard
(<3 years of data available)
(Based on avg. of 4th max. for years available)

Denver/North Front Range Area

Number of days greater than 0.075 ppm 8-hour NAAQS levels (since 2000)

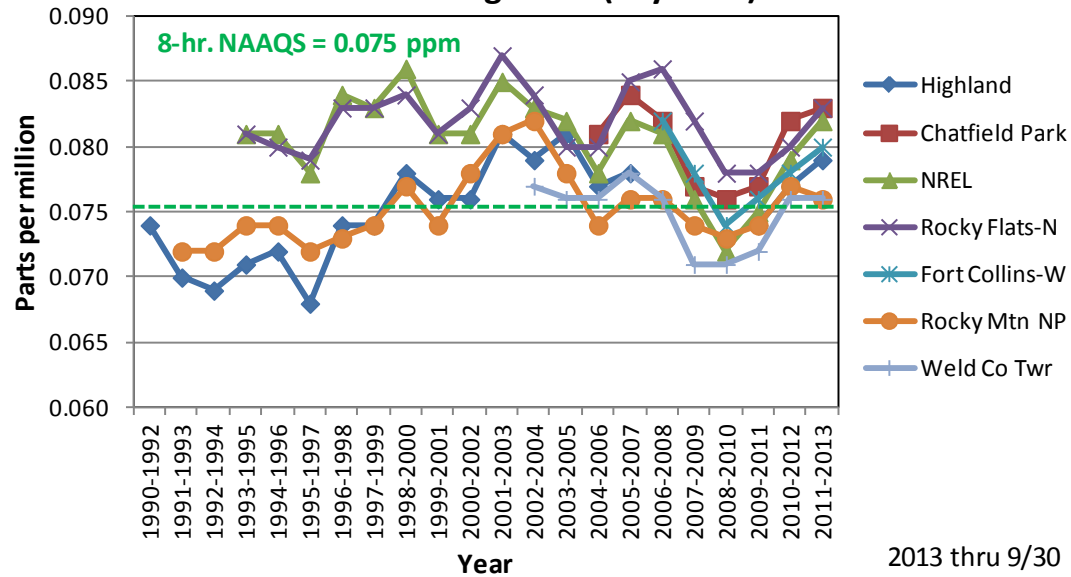


8-Hour Ozone --- 4th Maximum
North Front Range area (key sites)

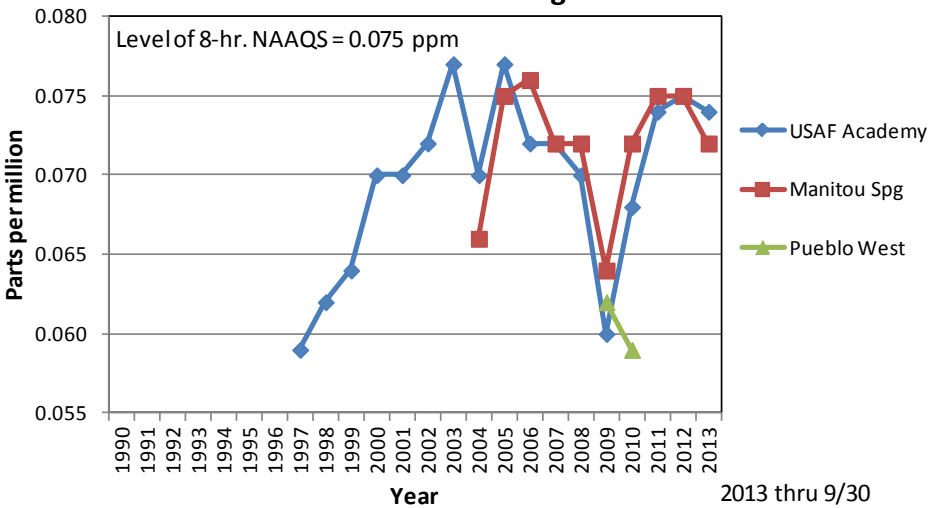


North Front Range Ozone Trends

8-Hour Ozone --- 3-year Avg. of 4th Max.
North Front Range area (key sites)

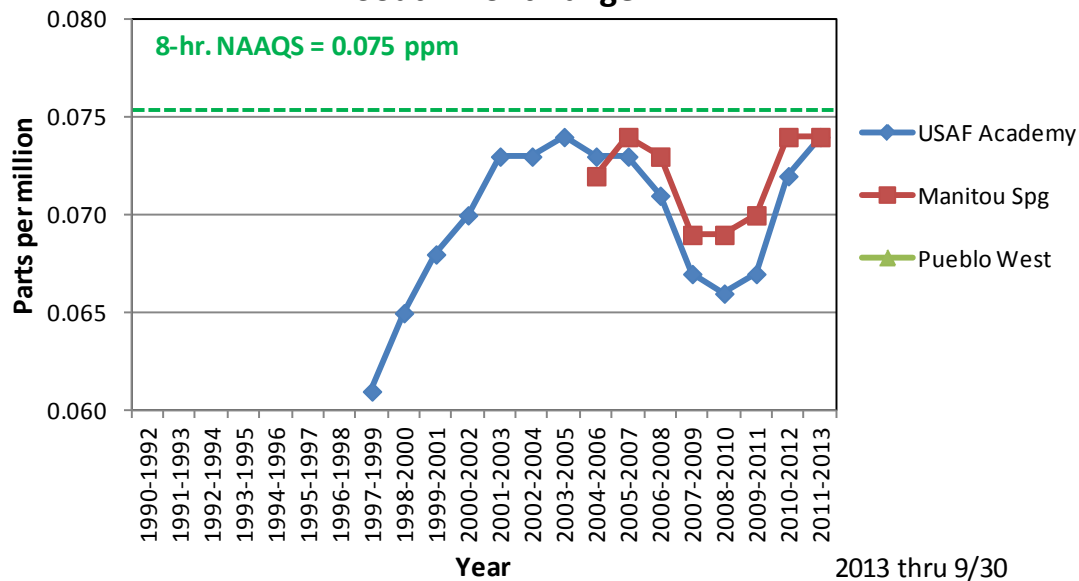


8-Hour Ozone --- 4th Maximum South Front Range



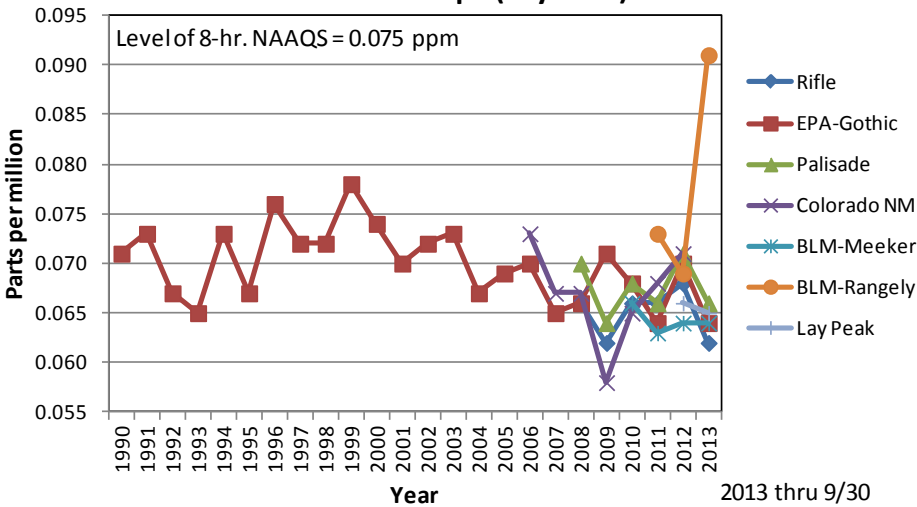
South Front Range Ozone Trends

8-Hour Ozone --- 3-year Avg. of 4th Max. South Front Range

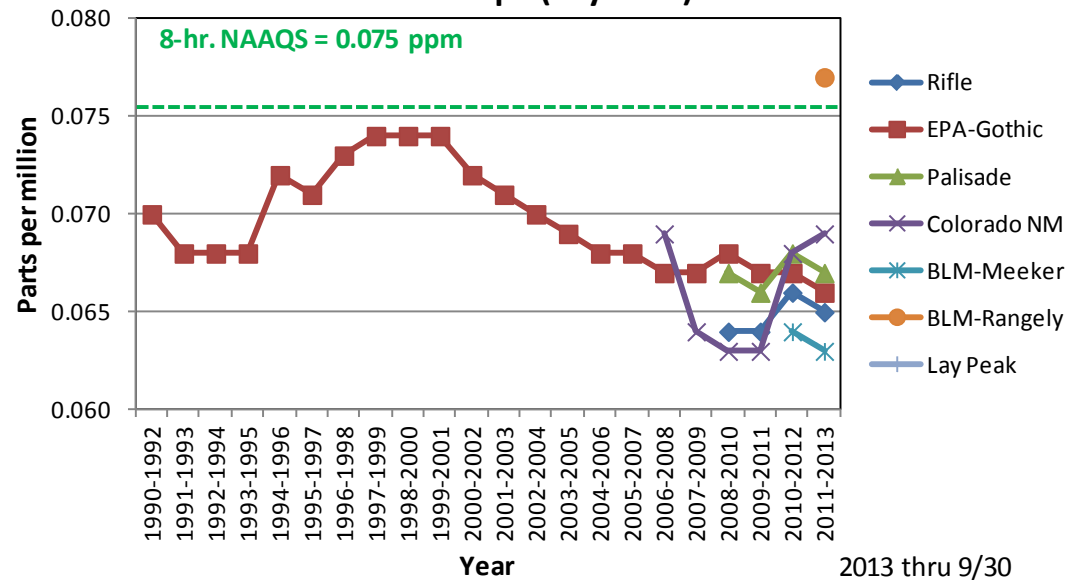


Western Slope Ozone Trends

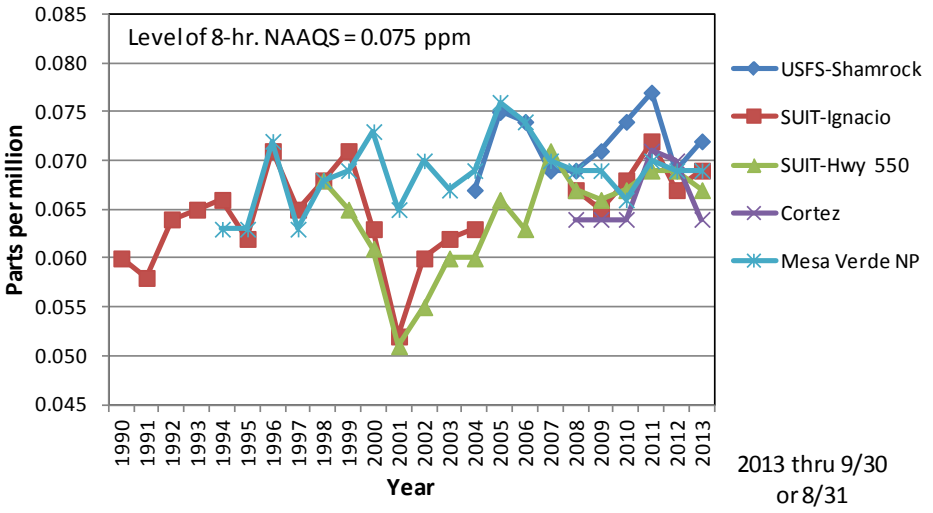
**8-Hour Ozone --- 4th Maximum
Western Slope (key sites)**



**8-Hour Ozone --- 3-year Avg. of 4th Max.
Western Slope (key sites)**

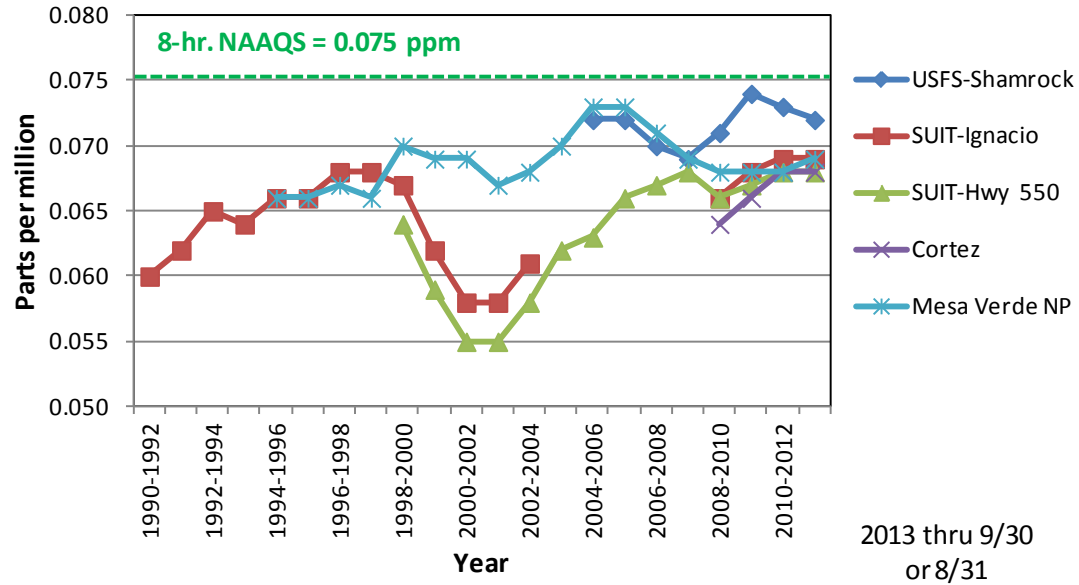


8-Hour Ozone --- 4th Maximum Southwest area



Southwest Area Ozone Trends

8-Hour Ozone --- 3-year Avg. of 4th Max. Southwest area



Conclusions

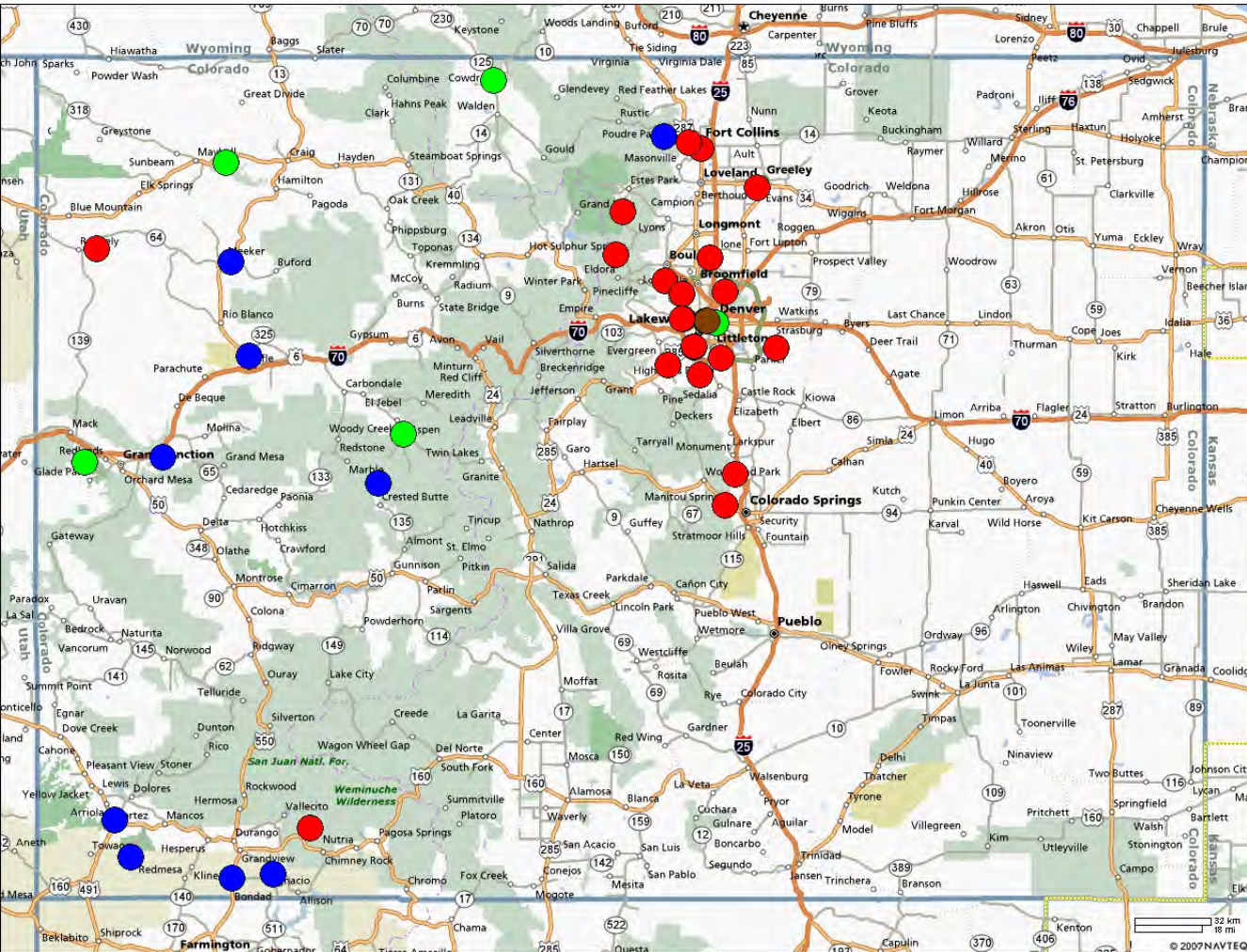
- Number of sites violating the 0.075 ppm NAAQS is up to 10
- All but one violating sites are still in the North Front Range existing non-attainment area
- Now a new violating site in Northwest Colorado (Rangely) due to wintertime ozone in the Uinta Basin
- Number of days over 0.075 ppm is less than in 2012, though the concentrations are similar
- 2013 – 2015 3-year period is important for compliance with the NAAQS

Future Ozone Standard

- EPA was planning on proposing a new ozone NAAQS by the end of 2013 and issuing a final NAAQS in Sep 2014
- Expectation is that a new standard is likely to be lower than current 0.075 ppm NAAQS as the previous EPA CASAC recommendation was “in the range of 0.060 to 0.070 ppm”
- On 6/19/2013, EPA issued a memo proposing to issue the 2nd drafts of the Risk and Exposure Assessment (REA) and Policy Assessment (PA) documents for CASAC and public review in early Dec 2013, with the next CASAC review panel meeting 3-months later in Mar 2014
- This delay would mean that the documents would likely not be finalized until sometime in the fall of 2014
- A NAAQS proposal would then likely not come out until spring of 2015, and a final rule not be issued until late 2015 or spring of 2016...about a 15 to 18-month delay from the original schedule
- Also on 6/19/2013, EarthJustice (including other environmental groups) filed a lawsuit to compel EPA to follow the original schedule

If future NAAQS set at 0.070 ppm...

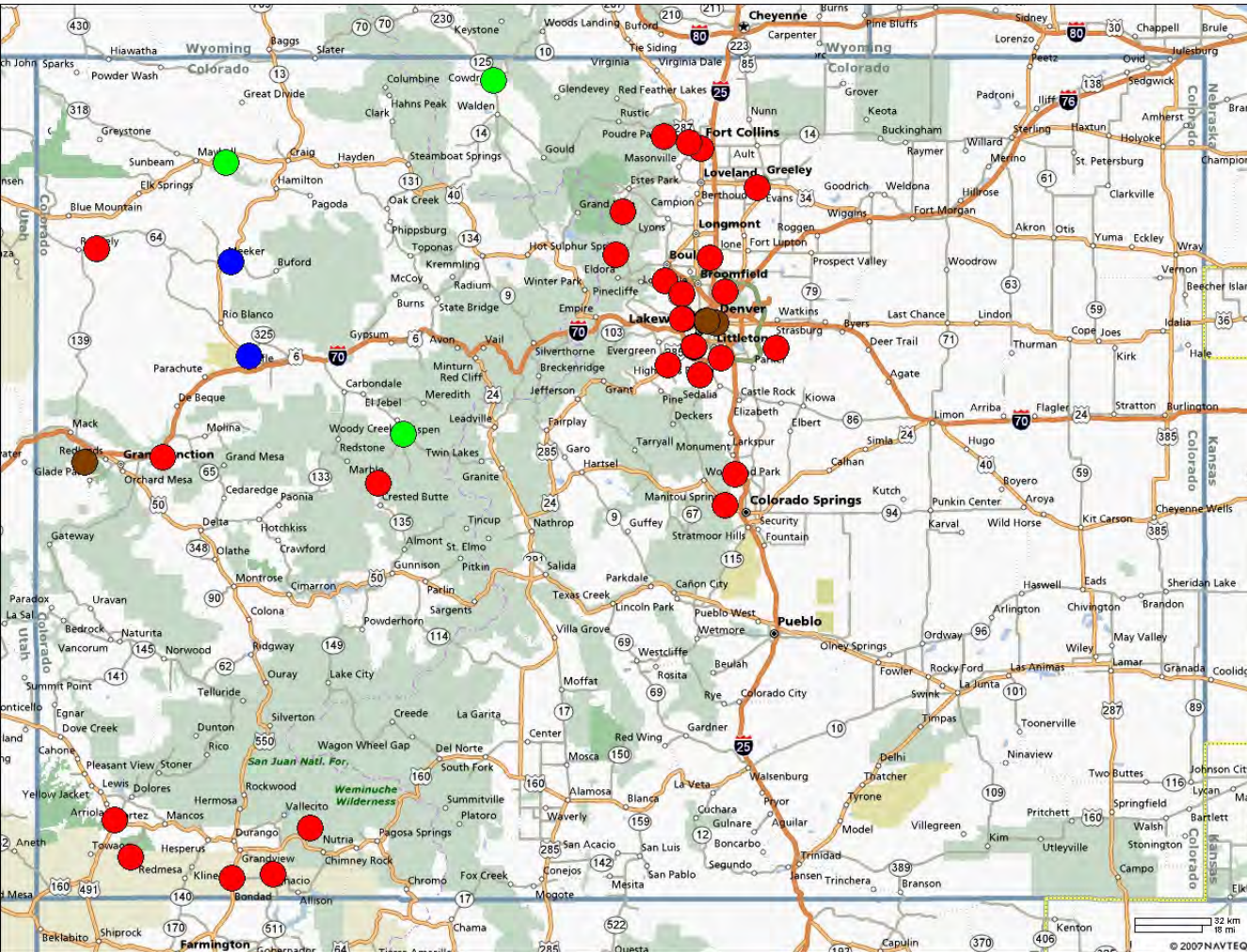
Colorado Ozone Sites Comparison to **possible** 0.070 ppm Federal Ozone Standard 2011 - 2013



- Above level of possible standard (3+ years of data available) (Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Above level of possible standard (<3 years of data available) (Based on avg. of 4th max. for years available)
- Below level of possible standard (3+ years of data available) (Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Below level of possible standard (<3 years of data available) (Based on avg. of 4th max. for years available)

If future NAAQS set at 0.065 ppm...

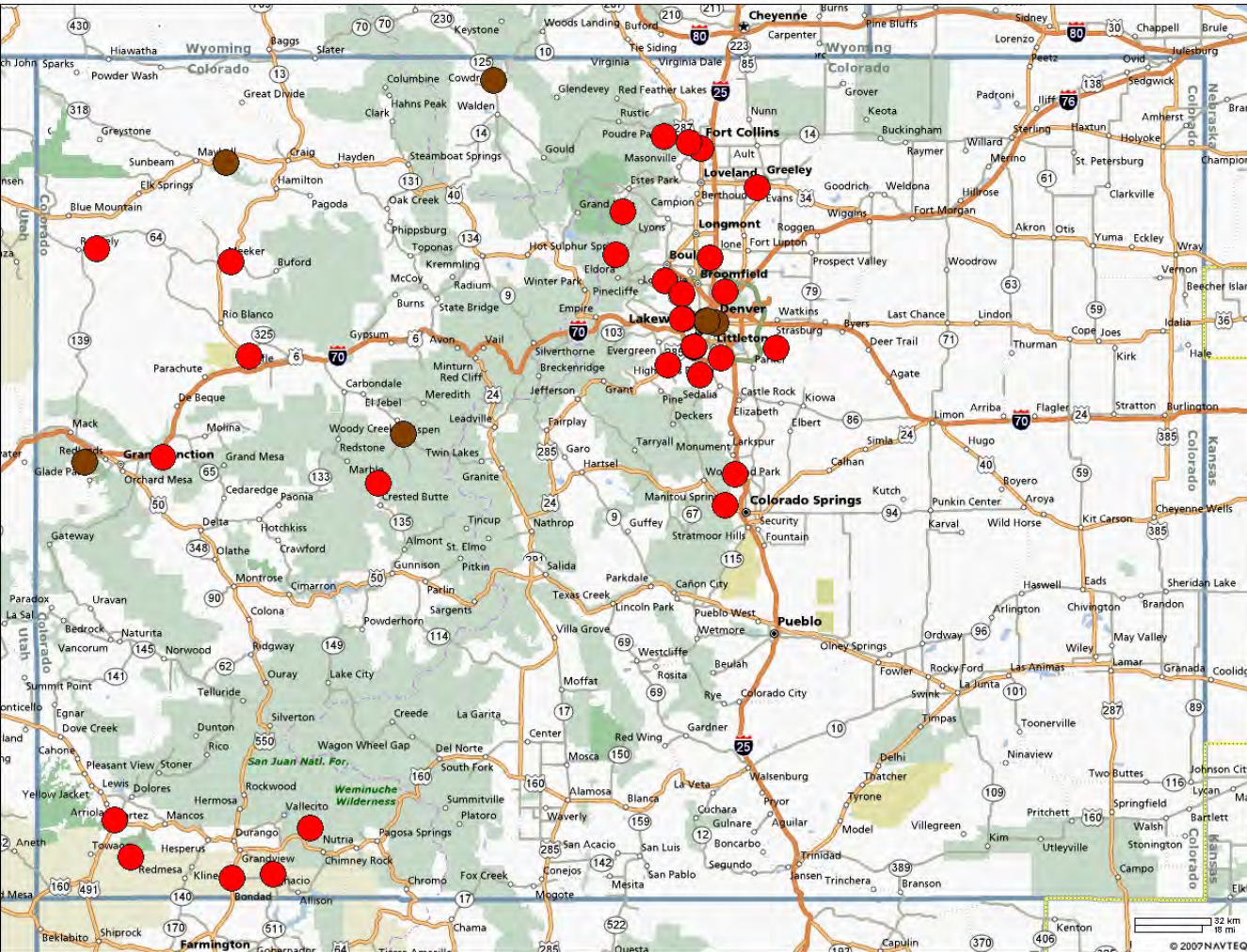
Colorado Ozone Sites Comparison to **possible 0.065 ppm** Federal Ozone Standard 2011 - 2013



- Above level of possible standard (3+ years of data available) (Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Above level of possible standard (<3 years of data available) (Based on avg. of 4th max. for years available)
- Below level of possible standard (3+ years of data available) (Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Below level of possible standard (<3 years of data available) (Based on avg. of 4th max. for years available)

If future NAAQS set at 0.060 ppm...

Colorado Ozone Sites Comparison to **possible 0.060 ppm** Federal Ozone Standard 2011 - 2013



- Above level of possible standard (3+ years of data available) (Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Above level of possible standard (<3 years of data available) (Based on avg. of 4th max. for years available)
- Below level of possible standard (3+ years of data available) (Based on 3-yr. avg. of 4th max. for 2011 - 2013)
- Below level of possible standard (<3 years of data available) (Based on avg. of 4th max. for years available)

FRAPPÉ Update

- NCAR – FRAPPÉ (Front Range Air Pollution and Photochemistry Experiment) study is going forward
- Goal is to characterize and understand summertime air quality in the Northern Front Range, in particular for ozone
- Will occur in conjunction with the NASA – DISCOVER-AQ (Deriving Information on Surface Conditions from Column and Vertically Resolved Observations Relevant to Air Quality) mission
- Aircraft study period will occur July – August 2014
- CDPHE has received a supplemental budget amendment for \$2 million to support FRAPPÉ through additional equipment
- Have received proposals to add aircraft and ground-based equipment, which will be reviewed and selections made in the next month



Questions?