



2015 Ozone in the HGB Area

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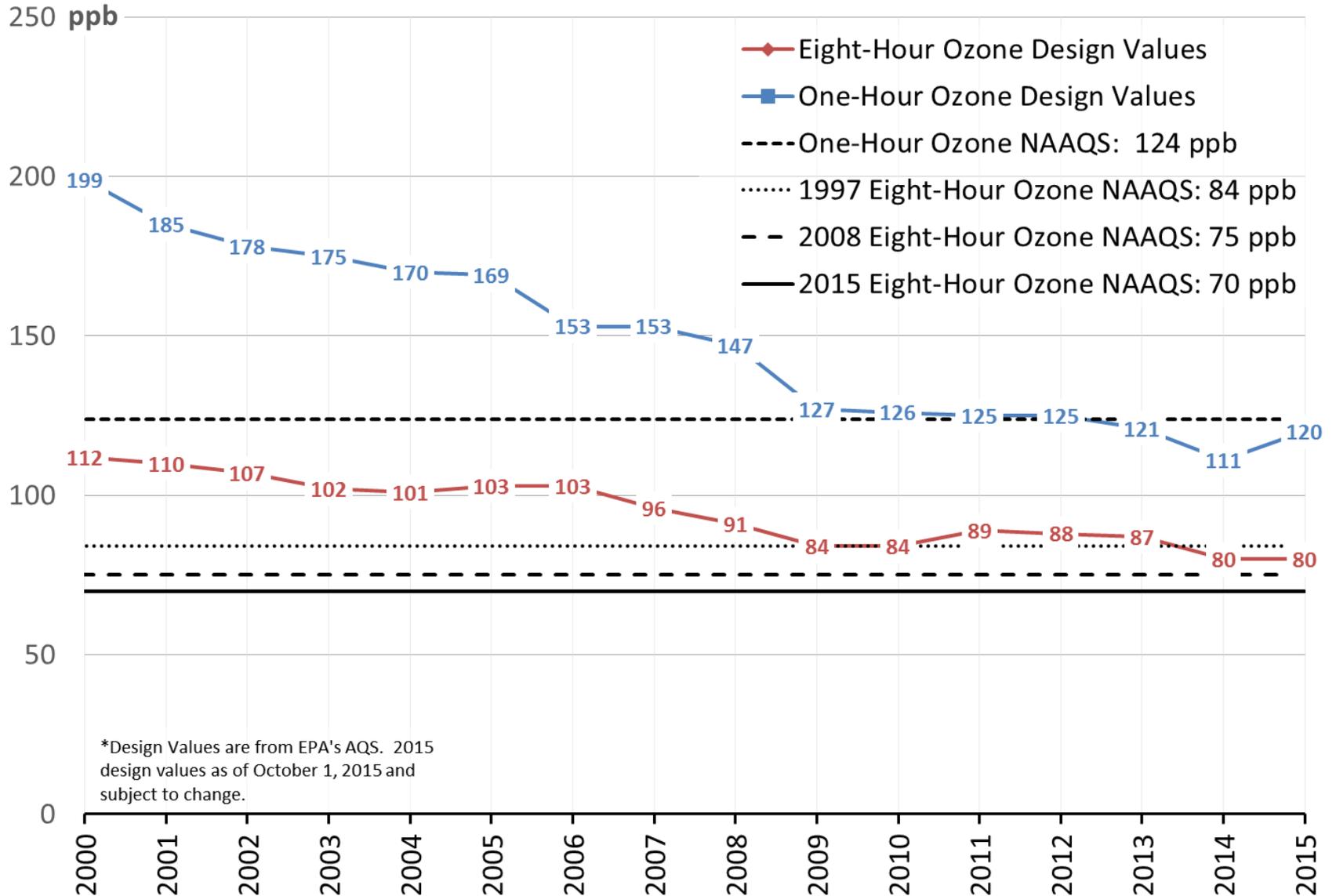


2015 Ozone in HGB

- Ozone Design Value Trends in HGB
- Eight-Hour Ozone Trends
- One-Hour Ozone Trends
- Surface Back Trajectories on High One-Hour Ozone Days
- 2015 Meteorological Data



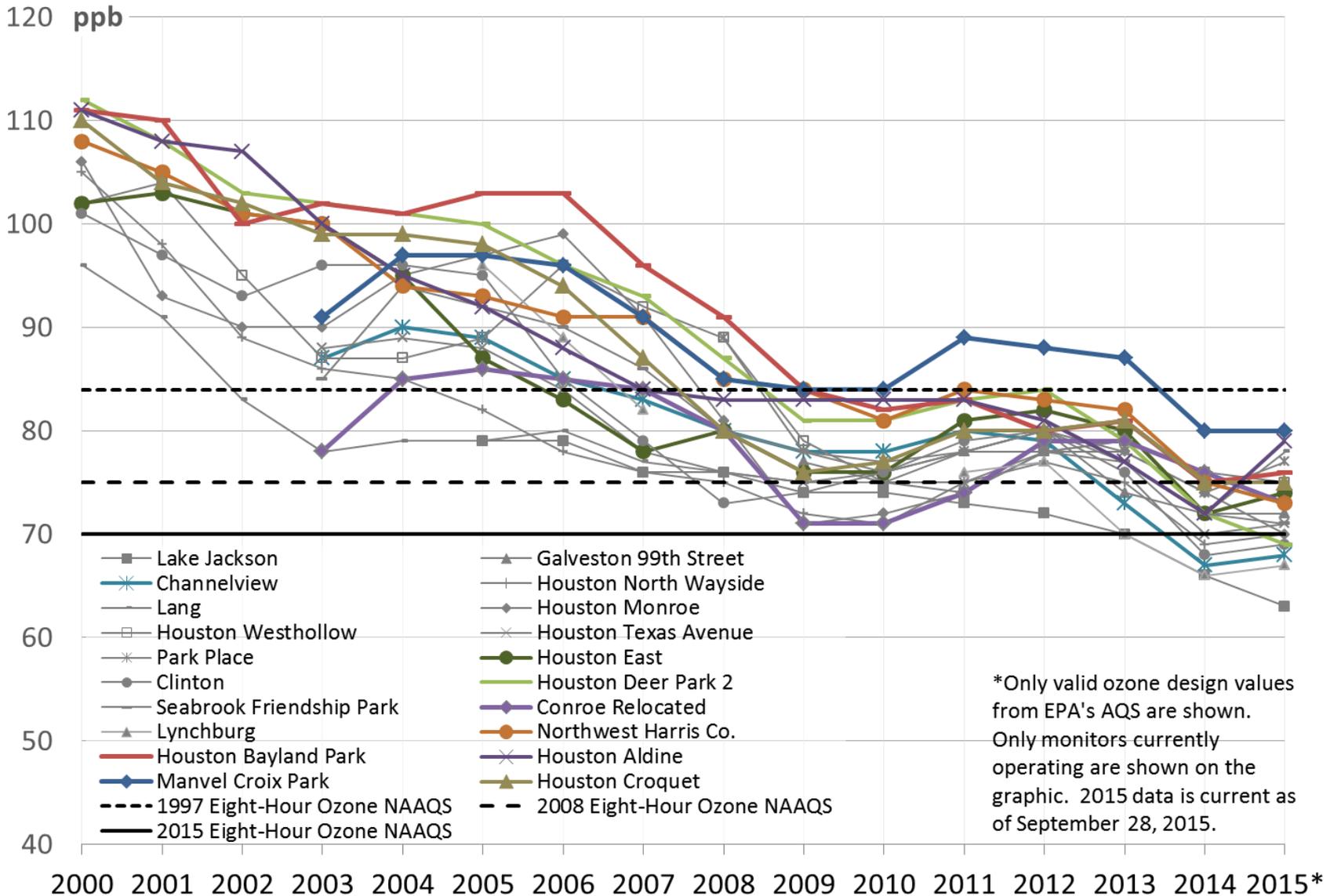
Ozone Design Value Trends in HGB



*Design Values are from EPA's AQS. 2015 design values as of October 1, 2015 and subject to change.

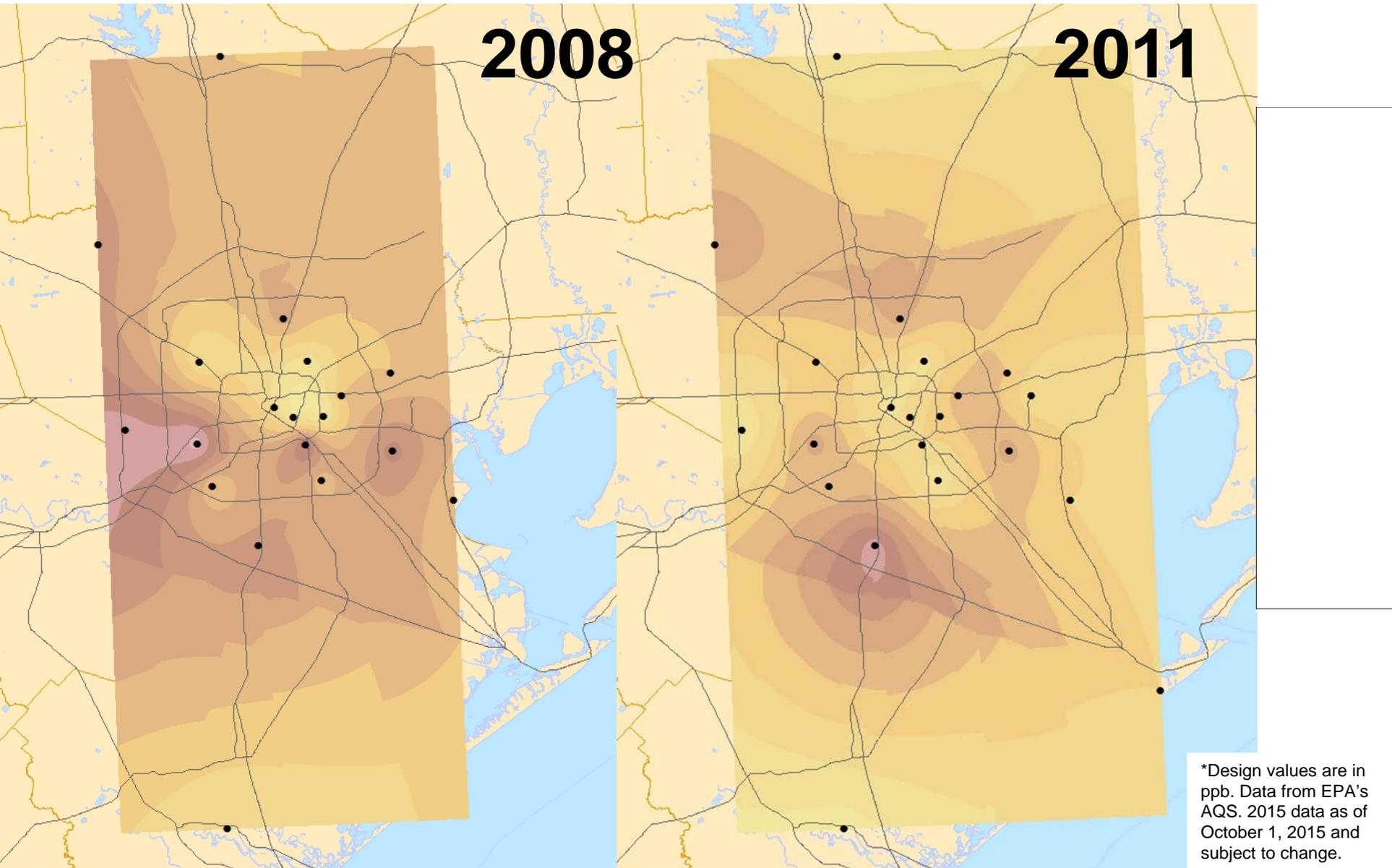


Eight-Hour Ozone Design Values in HGB





Eight-Hour Ozone Design Values in HGB



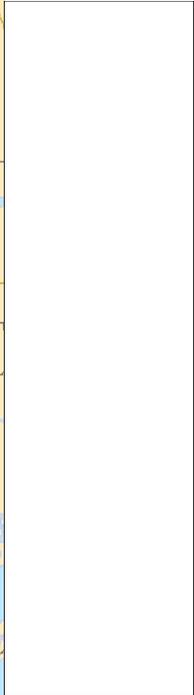


Eight-Hour Ozone Design Values in HGB

2014

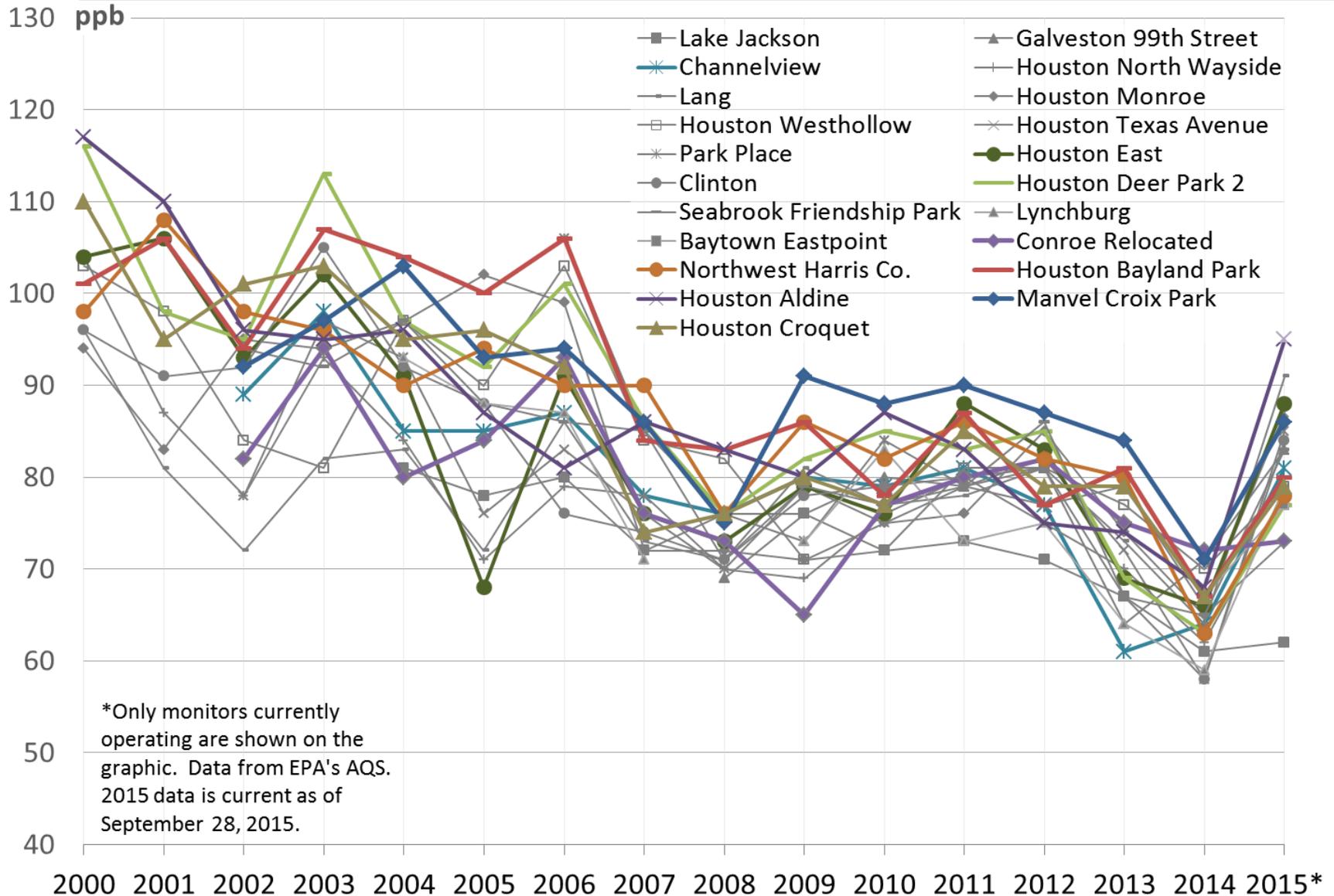
2015

*Design values are in ppb. Data from EPA's AQS. 2015 data as of October 1, 2015 and subject to change.





Fourth-Highest Eight-Hour Ozone in HGB



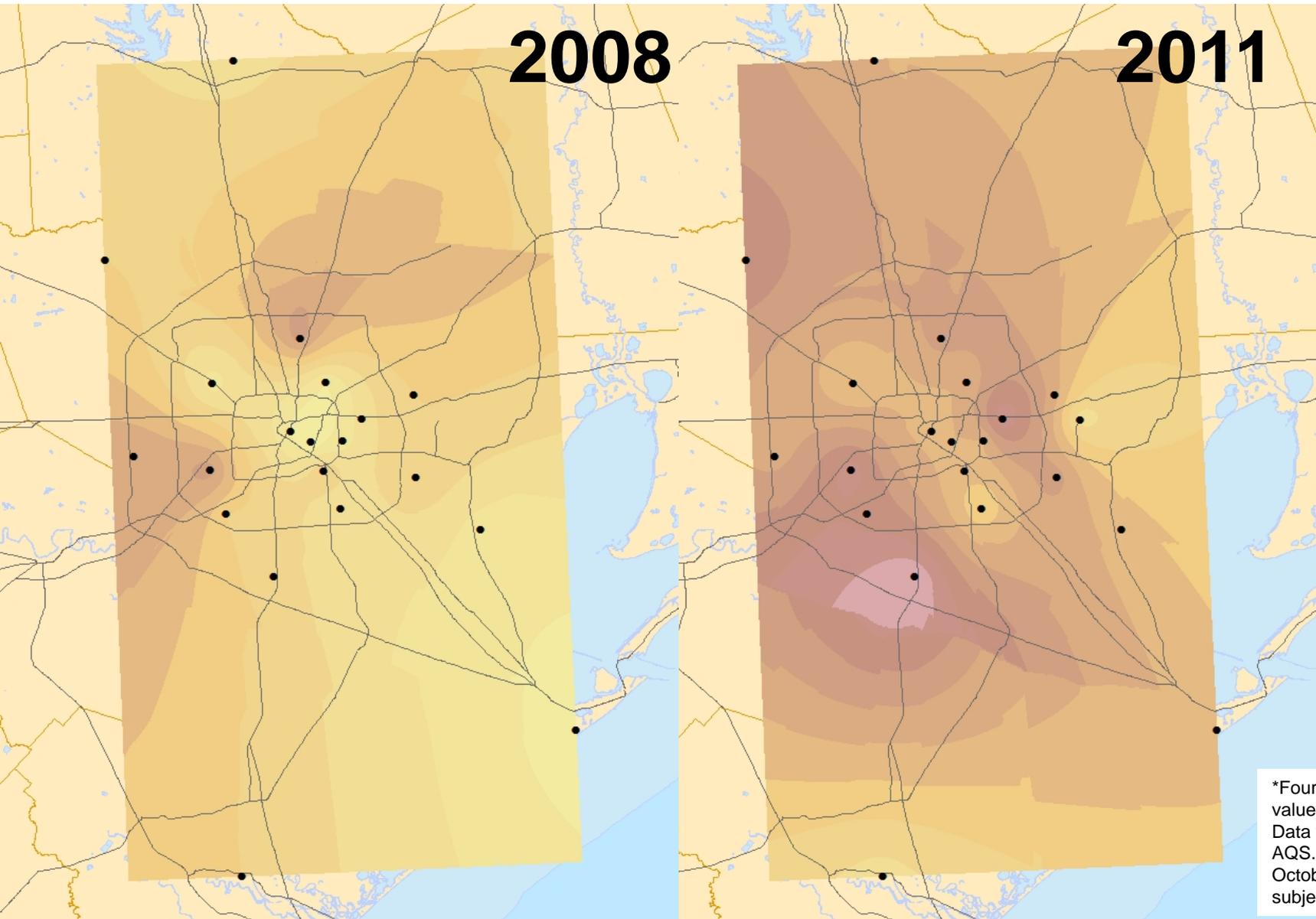


Fourth-Highest Eight-Hour Ozone to Meet NAAQS in 2016

Site Name	2014	2015*	2016 to MEET 2008 NAAQS	2016 to MEET 1997 NAAQS
Houston Aldine	68	95	64	88
Lang	64	91	72	96
Manvel Croix Park	71	86	70	94
Houston East	66	88	73	97
Park Place	66	87	74	98
Galveston 99th Street	71	83	73	97
Seabrook Friendship Park	65	83	79	103
Houston Westhollow	70	79	78	102
Houston Texas Avenue	58	85	84	108
Houston Bayland Park	67	80	80	104
Channelview	64	81	82	106
Clinton	58	84	85	109
Houston Croquet	67	79	81	105
Baytown Eastpoint	67	77	83	107
Northwest Harris Co.	63	78	86	110
Conroe Relocated	72	73	82	106
Houston North Wayside	62	78	87	111
Houston Deer Park 2	63	77	87	111
Lynchburg	59	79	89	113
Houston Monroe	65	73	89	113
Lake Jackson	61	62	104	128



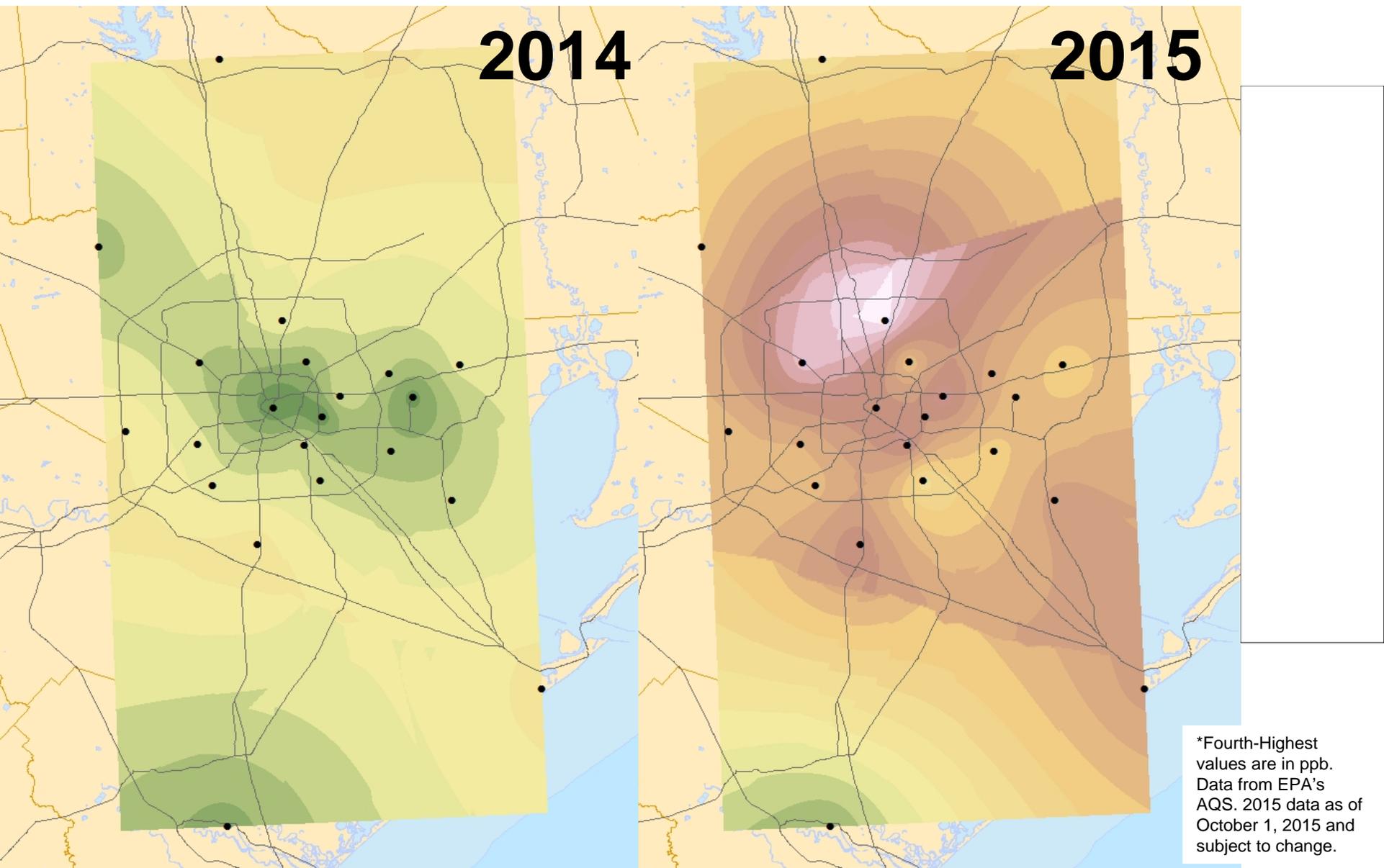
Forth-Highest Eight-Hour Ozone Values in HGB



*Fourth-Highest values are in ppb. Data from EPA's AQS. 2015 data as of October 1, 2015 and subject to change.



Fourth-Highest Eight-Hour Ozone Values in HGB



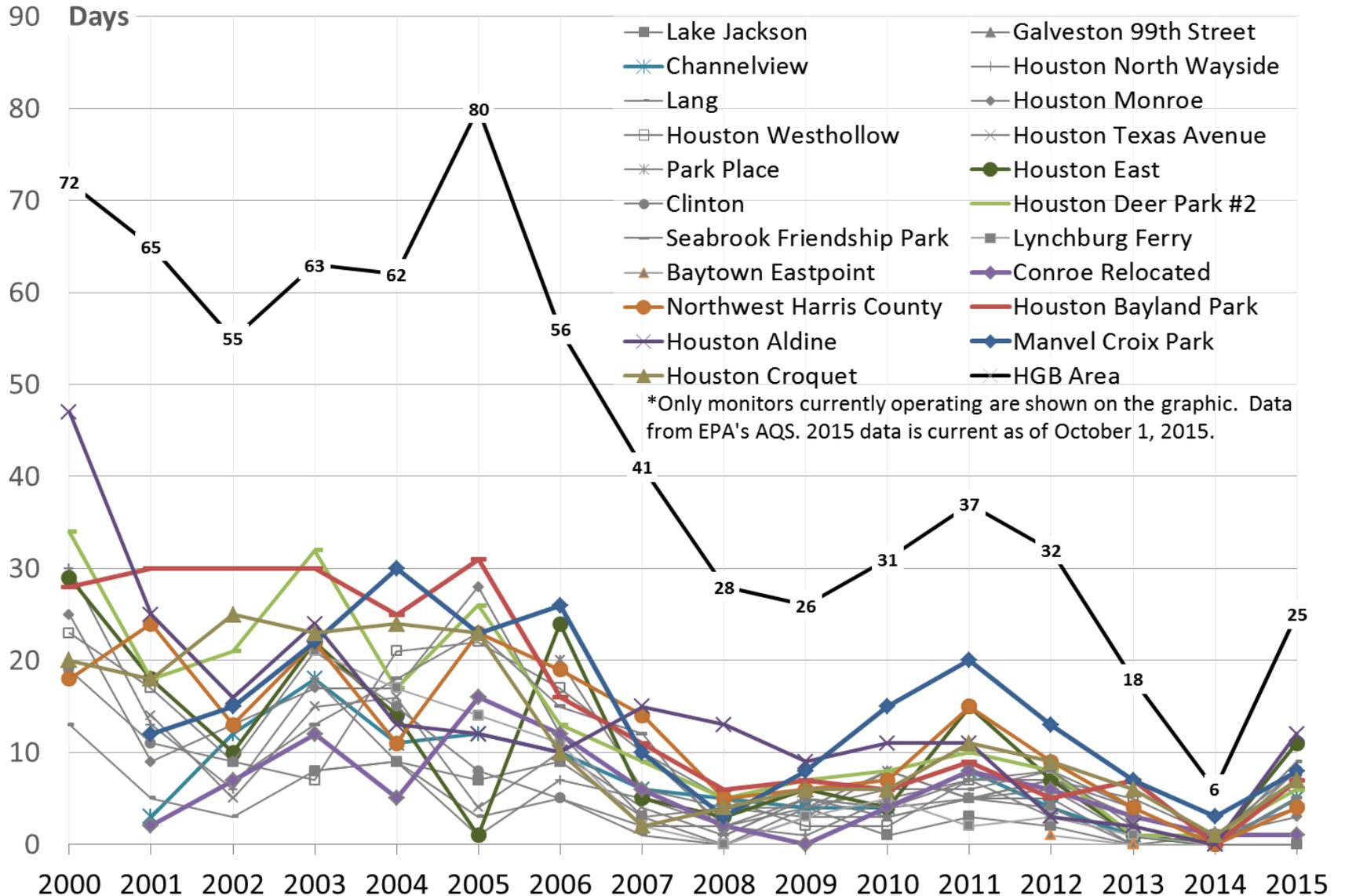
2014

2015

*Fourth-Highest values are in ppb. Data from EPA's AQS. 2015 data as of October 1, 2015 and subject to change.



Days with Eight-Hour Ozone > 75 ppb in HGB



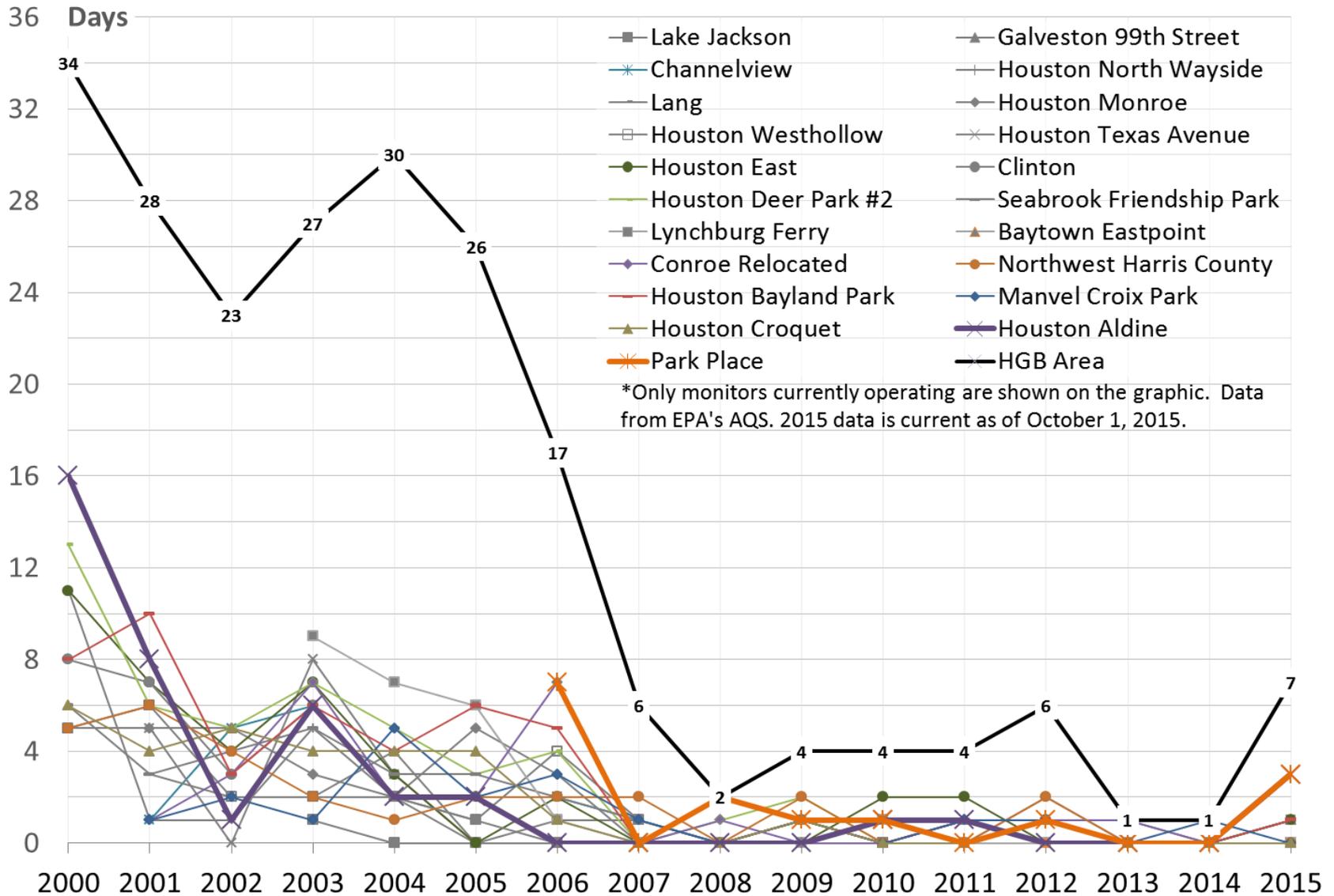


One-Hour Ozone Exceedance Days

Site Name	Number of Days > 124 ppb in 2014	Number of Days > 124 ppb in 2015*	Number of Days > 124 ppb in 2016 to MEET NAAQS
Park Place	0	3	0
Houston Aldine	0	3	0
Lang	0	1	2
Houston Texas Avenue	0	1	2
Houston Bayland Park	0	1	2
Houston East	0	1	2
Galveston 99th St	0	1	2
Manvel Croix Park	1	0	2
Seabrook Friendship Park	0	0	3
Clinton	0	0	3
Houston Monroe	0	0	3
Houston North Wayside	0	0	3
Houston Deer Park 2	0	0	3
Northwest Harris Co.	0	0	3
Houston Croquet	0	0	3
Houston Westhollow	0	0	3
Channelview	0	0	3
Conroe Relocated	0	0	3
Lynchburg	0	0	3
Lake Jackson	0	0	3
Baytown Eastpoint	0	0	3



Days with One-Hour Ozone > 124 ppb in HGB



*Only monitors currently operating are shown on the graphic. Data from EPA's AQS. 2015 data is current as of October 1, 2015.



2015* Days with One-Hour Ozone > 124 ppb in HGB

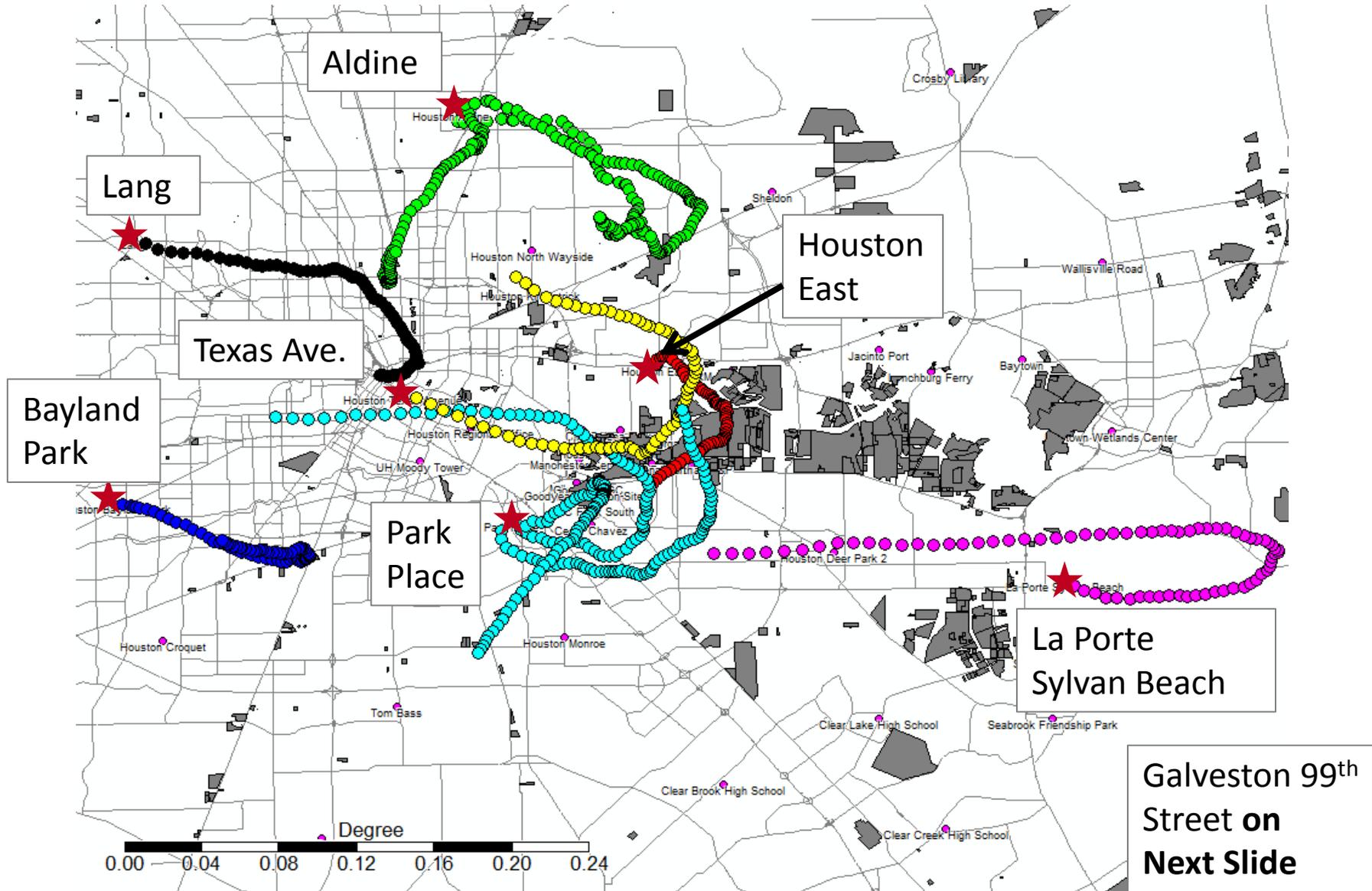
- 7 days had one-hour ozone > 124 ppb.
- Eight different sites, including non-regulatory sites, recorded those high concentrations.
- Days with high one-hour ozone also observed high eight-hour ozone.

Date	Site Name	Maximum One-Hour Ozone (ppb)	Time of Maximum One-Hour Ozone (LST)	Maximum Eight-Hour Ozone (ppb)
6/3/2015	Aldine	135	15:00	108
6/3/2015	Houston East	130	14:00	102
8/3/2015	Lang	131	15:00	95
8/10/2015	Park Place	135	15:00	85
8/10/2015	La Porte Sylvan Beach	138	14:00	86
8/10/2015	Houston Texas Avenue	125	16:00	79
8/12/2015	Park Place	131	16:00	100
8/12/2015	Galveston 99 th Street	126	16:00	101
8/13/2015	Park Place	132	15:00	87
8/13/2015	Aldine	125	13:00	95
8/28/2015	Bayland Park	128	17:00	97
8/29/2015	Aldine	136	14:00	105

*As of October 1, 2015.

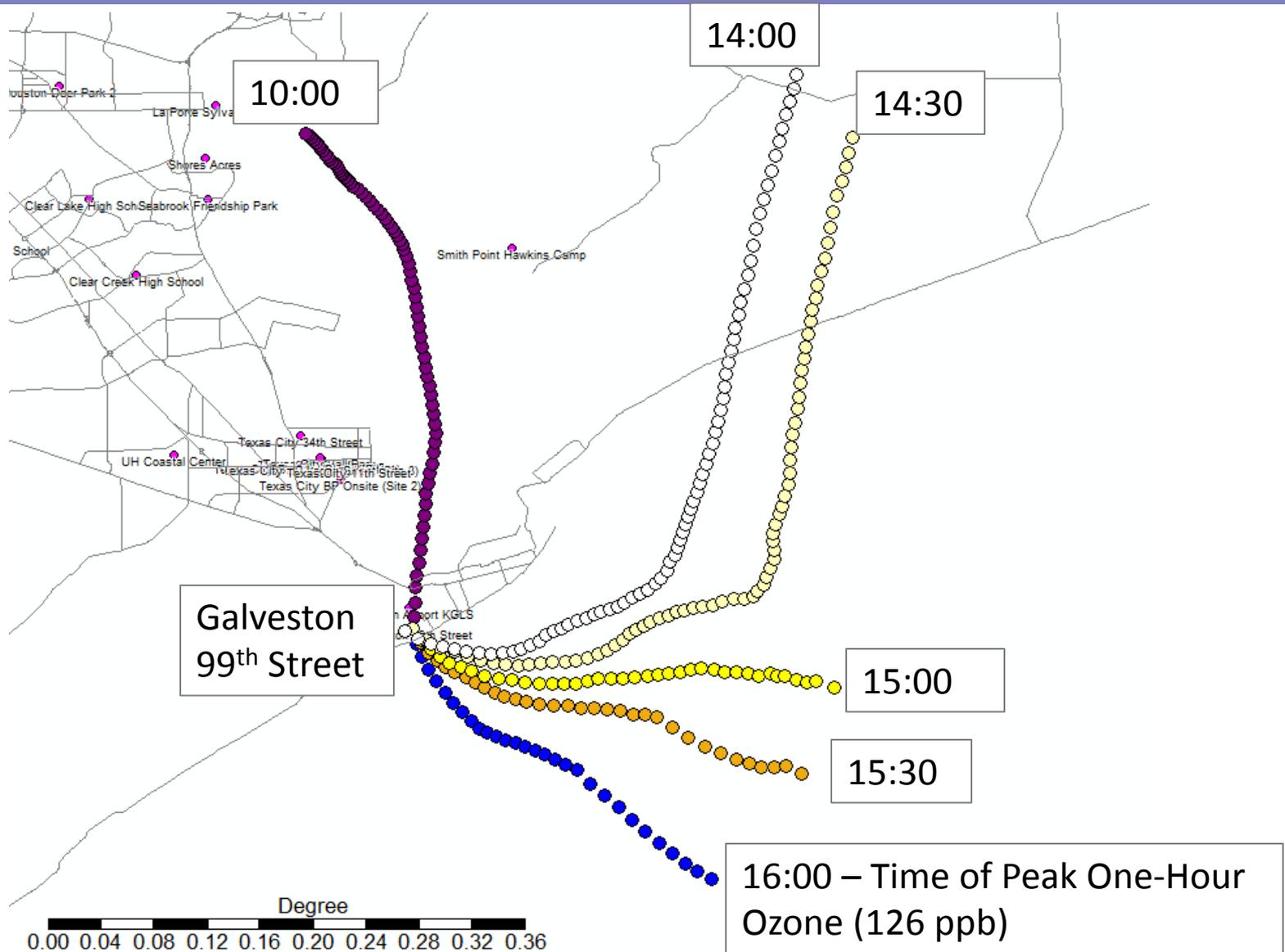


Surface Back Trajectories on Days with One-Hour Ozone > 124 ppb



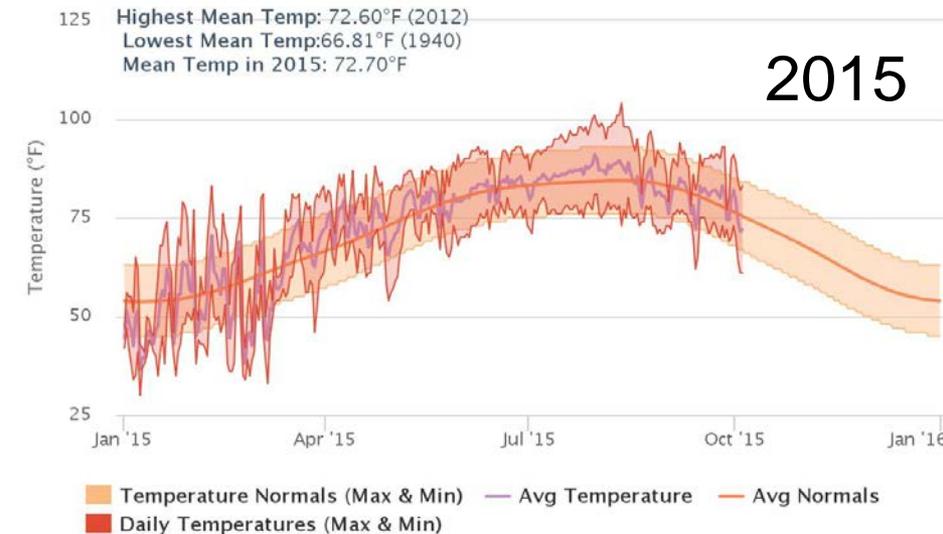
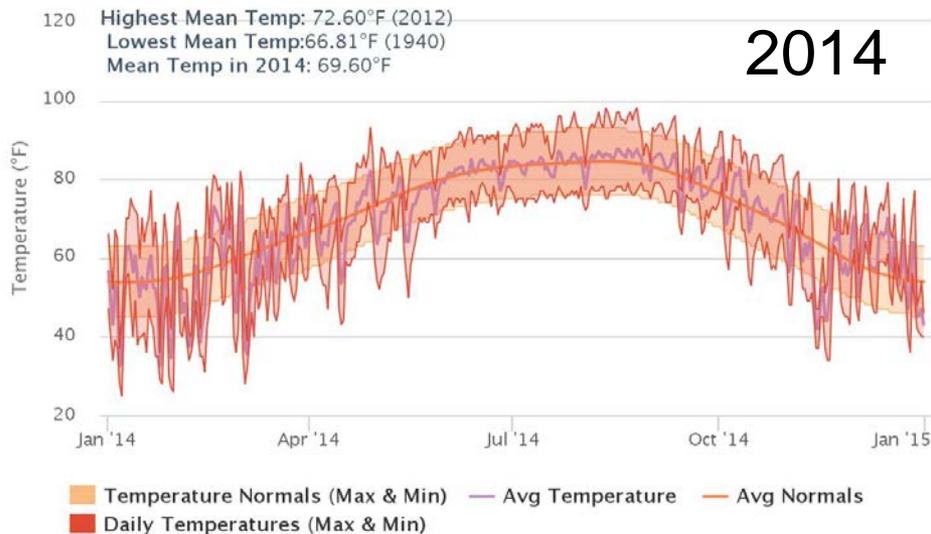
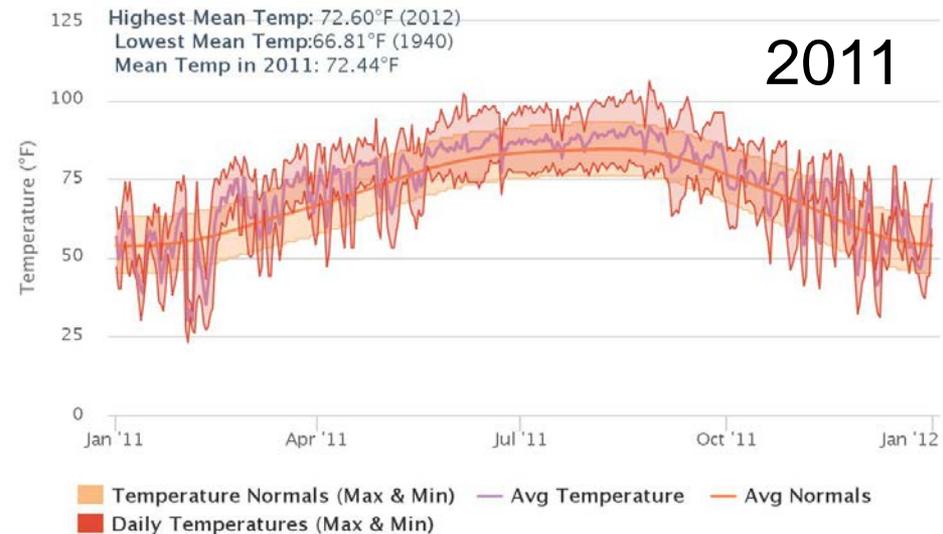
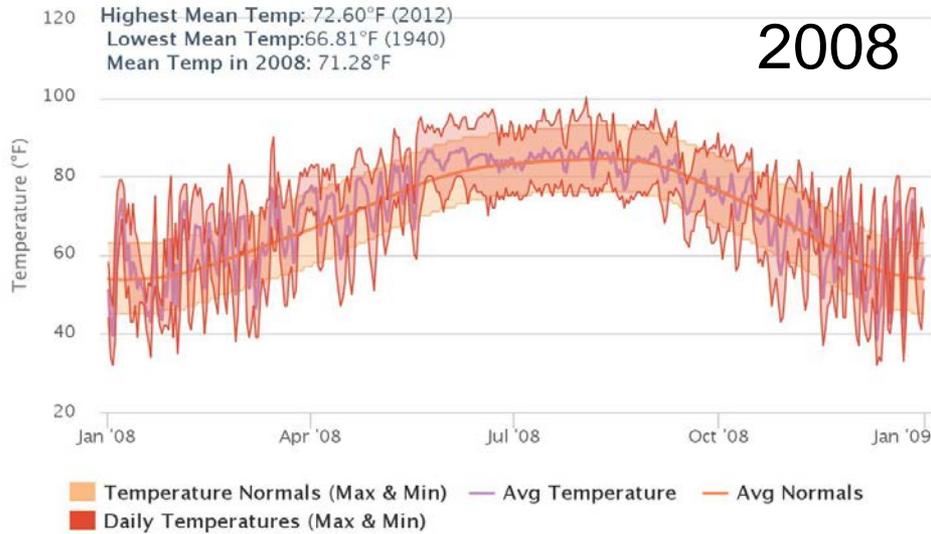


Surface Back Trajectories on 8/12/2015 at Galveston 99th Street





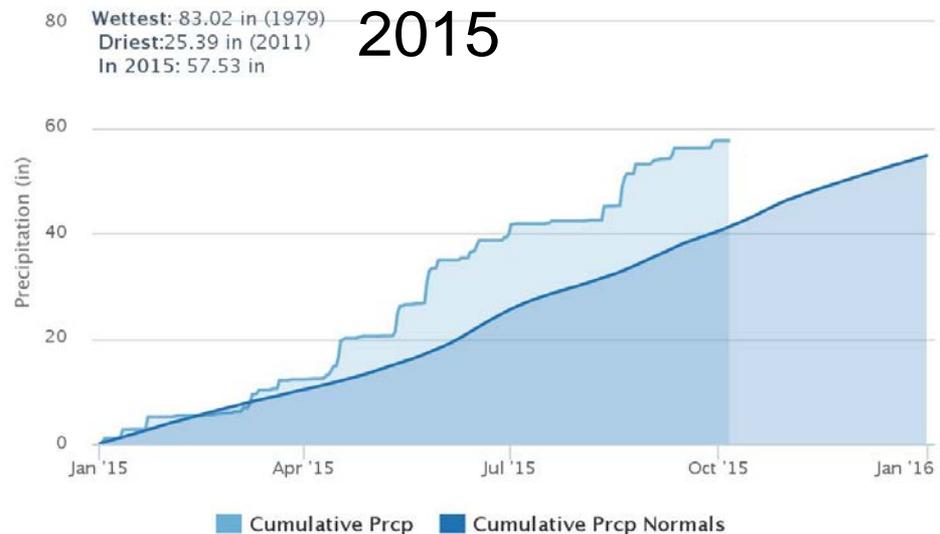
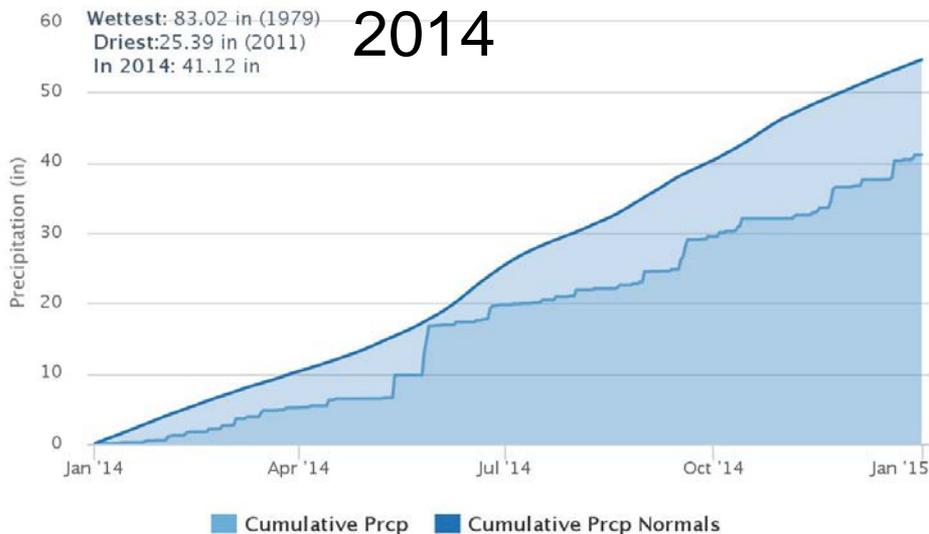
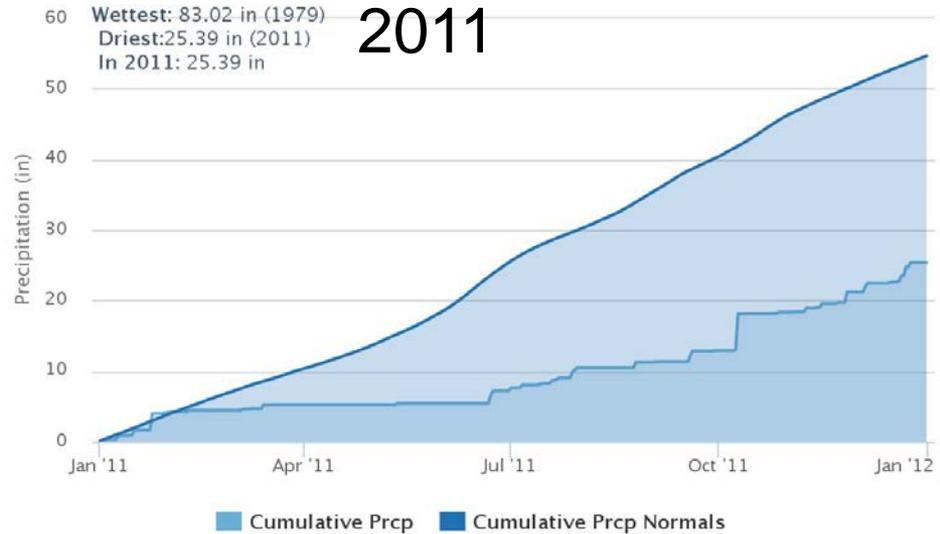
Temperature Profiles at Houston Hobby



*Charts from the Southern Regional Climate Center



Rain Totals at Houston Hobby



*Charts from the Southern Regional Climate Center



Summary

- 2015 ozone in the HGB area was at levels that have not been observed for several years.
- Manvel Croix Park has observed the highest eight-hour ozone design values over the past several years, but Aldine may have the highest design value in 2016.
- Aldine and Park Place cannot have any more one-hour ozone exceedance days through 2017 or the area will exceed the one-hour ozone NAAQS.



Summary

- Surface level back trajectories show high one-hour ozone in 2015 occurring during periods of very slow winds coupled with a flow reversal.
- Preliminary meteorological data show 2015 was hotter than average and had a dry period around August, the peak of the ozone season in HGB.



Questions?

- Thanks to Timothy Janke for the surface trajectory slides

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