NAAQS and Air Quality Update

AWMA Gulf Coast Chapter
Monthly Luncheon

June 3, 2014

Steve Smith

Chairman Technical Advisory Committee

Houston Regional Monitoring

NAAQS Review Process

- Planning
- Integrated Science Assessment (ISA)
- Risk / Exposure Assessment (REA)
- Policy Assessment (PA)
- Rulemaking

NAAQS Review - Planning

- **Starts with a science policy workshop**
  - Gather input regarding policy-relevant issues and questions
    - » from the scientific community
    - » from the public
- **Drawing from the workshop discussions, EPA prepares an Integrated Review Plan (IRP) that presents**
  - the schedule for the entire review
  - the process for conducting the review
  - the key policy-relevant science issues that will guide the review

NAAQS Review - ISA

Integrated Science Assessment (ISA):

A comprehensive review, synthesis, and evaluation of the most policy-relevant science, including key science judgments that are important to inform the development of the risk and exposure assessments, as well as other aspects of the NAAQS review.

NAAQS Review - REA

Risk/Exposure Assessment (REA):

- Assessment draws on information and conclusions presented in the ISA
  - develops quantitative characterizations of exposures and associated risks to human health or the environment
    - associated with current air quality conditions
    - associated with air quality estimated to meet the current standard
    - associated with air quality estimated to meet an alternative standard(s)
- The uncertainties associated with such estimates are also characterized

NAAQS Review - PA

Policy Assessment (PA):

- Assessment provides a *transparent* staff analysis of the scientific basis for alternative policy options for consideration by senior EPA management
- The evaluation of policy implications helps ‘‘bridge the gap’’ between the scientific assessments (ISA and REA), and the *judgments* required of the EPA Administrator in determining whether it is appropriate to retain or revise the NAAQS
- The PA facilitates the Clean Air Scientific Advisory Committee advice to the Agency and recommendations to the Administrator, on the adequacy of the existing standards or revisions that may be appropriate to consider
- The PA focuses on the information that is most pertinent to evaluating the basic elements of the NAAQS

NAAQS Review Schedule

As of March 2014

	Ozone	Primary NO_2	Primary SO_2	Secondary NO_2 and SO_2
Last Review Completed (final rule signed)	March 2008	January 2010	June 2010	March 2012
Recent or upcoming Major Milestones	February 2014 2nd draft REA 2nd draft PA March 2014 CASAC Review Meeting Proposed Rule January 2015	November 2013 1st draft ISA February 2014 Draft IRP March 2014 CASAC Review Meeting	March 2014 Draft IRP April 2014 CASAC Review Meeting	March 2014 Kick-off Workshop for next review Summer 2014 Draft IRP

IRP – Integrated Review Plan

ISA – Integrated Science Assessment

REA – Risk and Exposure Assessment

PA – Policy Assessment

NAAQS Review Schedule

As of March 2014

	PM	CO	Lead
Last Review Completed (final rule signed)	December 2012	August 2011	October 2008
Recent or upcoming Major Milestones	Early 2015 Kick-off Workshop for next review	Early 2015 Kick-off Workshop for next review	March/April 2014 Final PA October 2014 NPRM

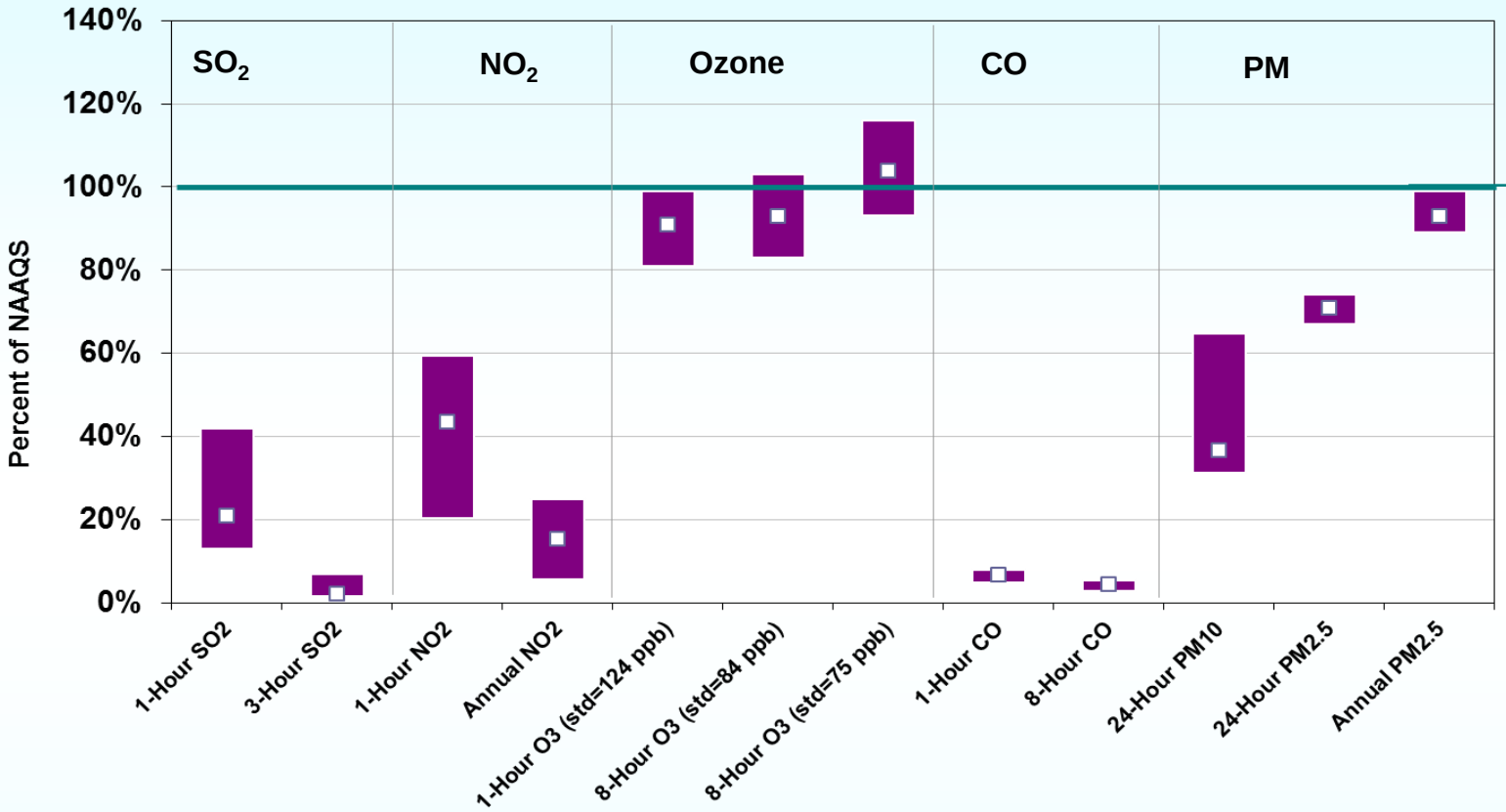
IRP – Integrated Review Plan

REA – Risk and Exposure Assessment

ISA – Integrated Science Assessment

PA – Policy Assessment

Did We Meet the NAAQS in 2013?

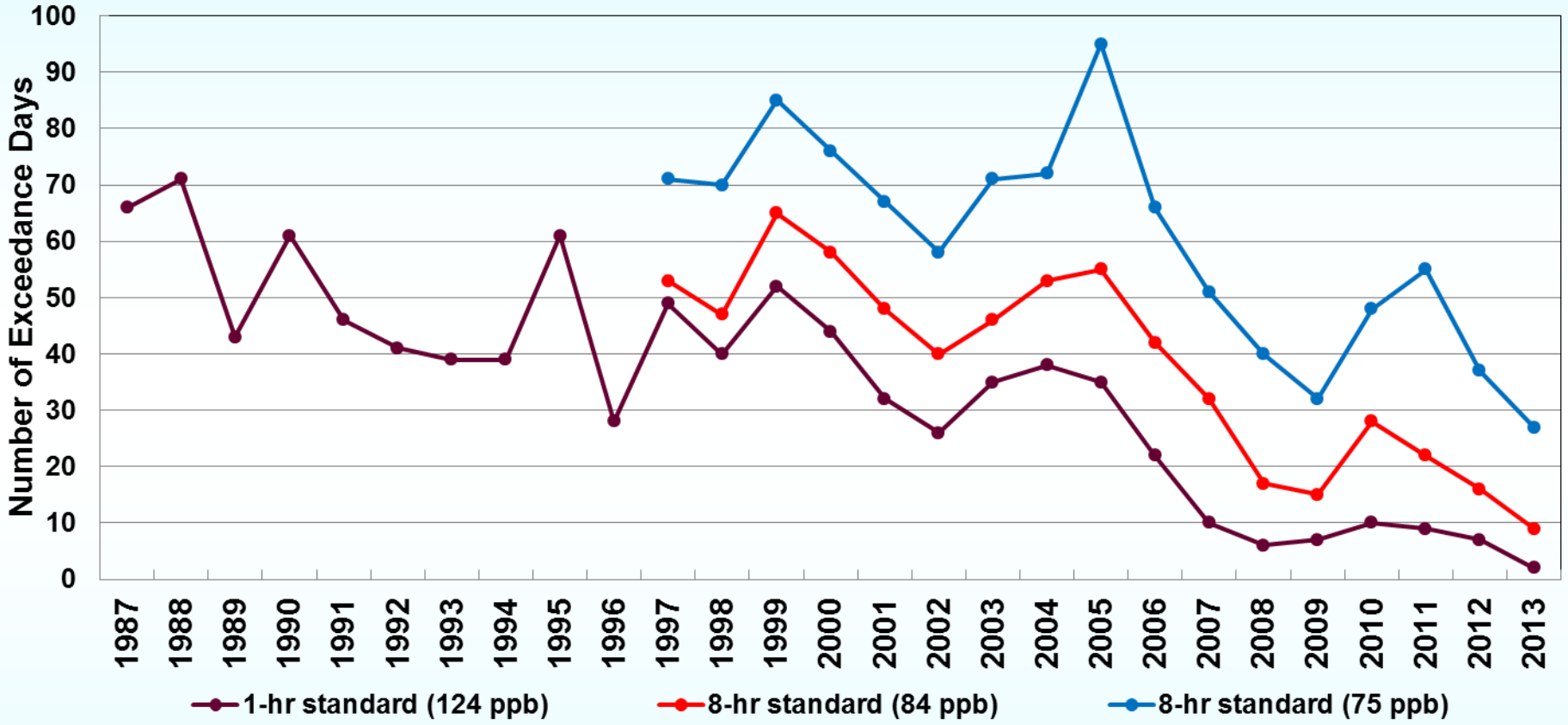


Values above the line indicate NAAQS was exceeded

1. All calculations follow the form of the 2013 National Ambient Air Quality Standards for each pollutant.
2. All analysis based on regulatory monitors

All Houston Regulatory Monitors 2013 Measurements Indicate Attainment: SO_2, NO_2, PM, and CO

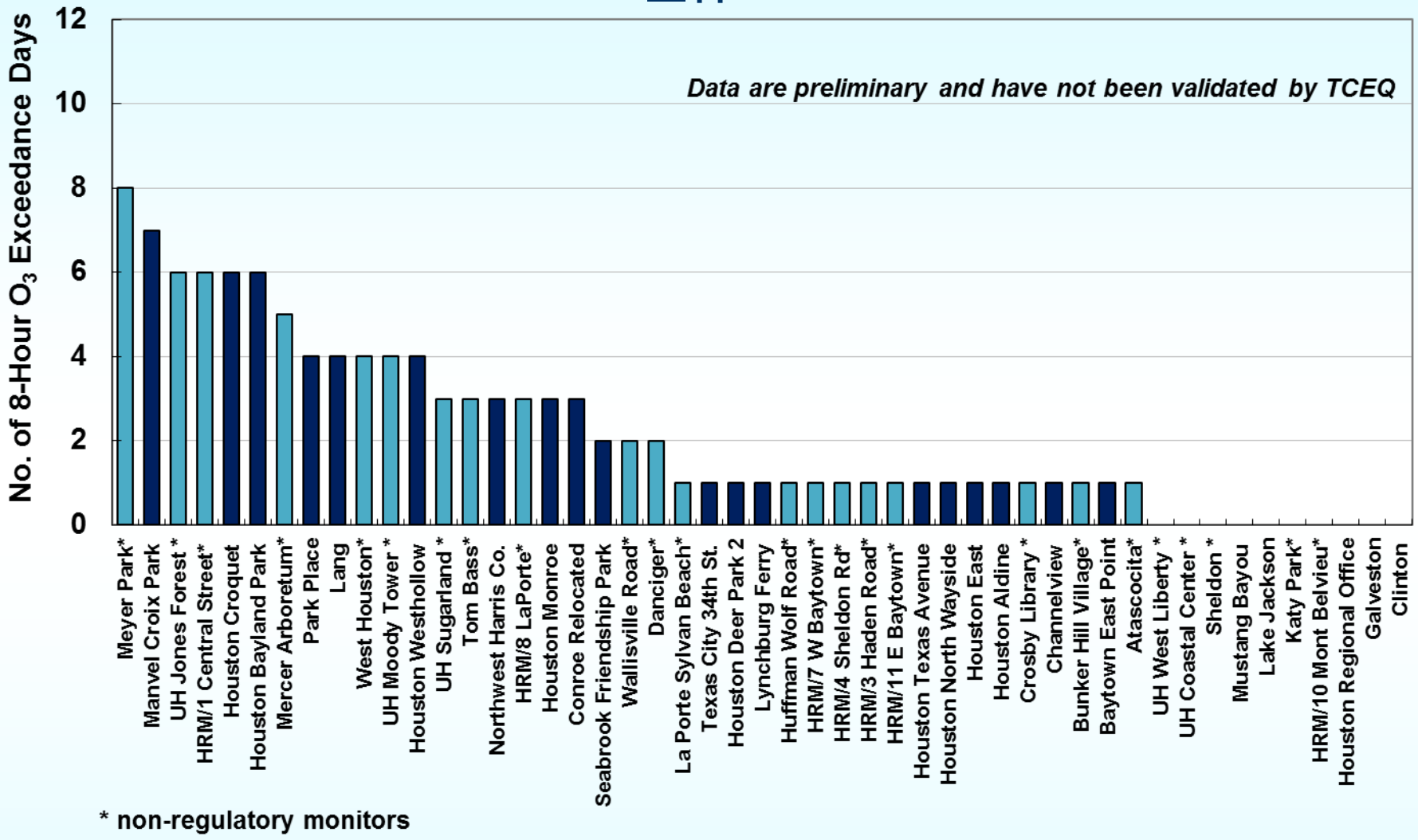
Days When Houston Area Monitors Exceeded EPA Ozone Air Quality Standard



Significant Decline In Number of Ozone Exceedance Days

2013 Houston Area Ozone Exceedance Days

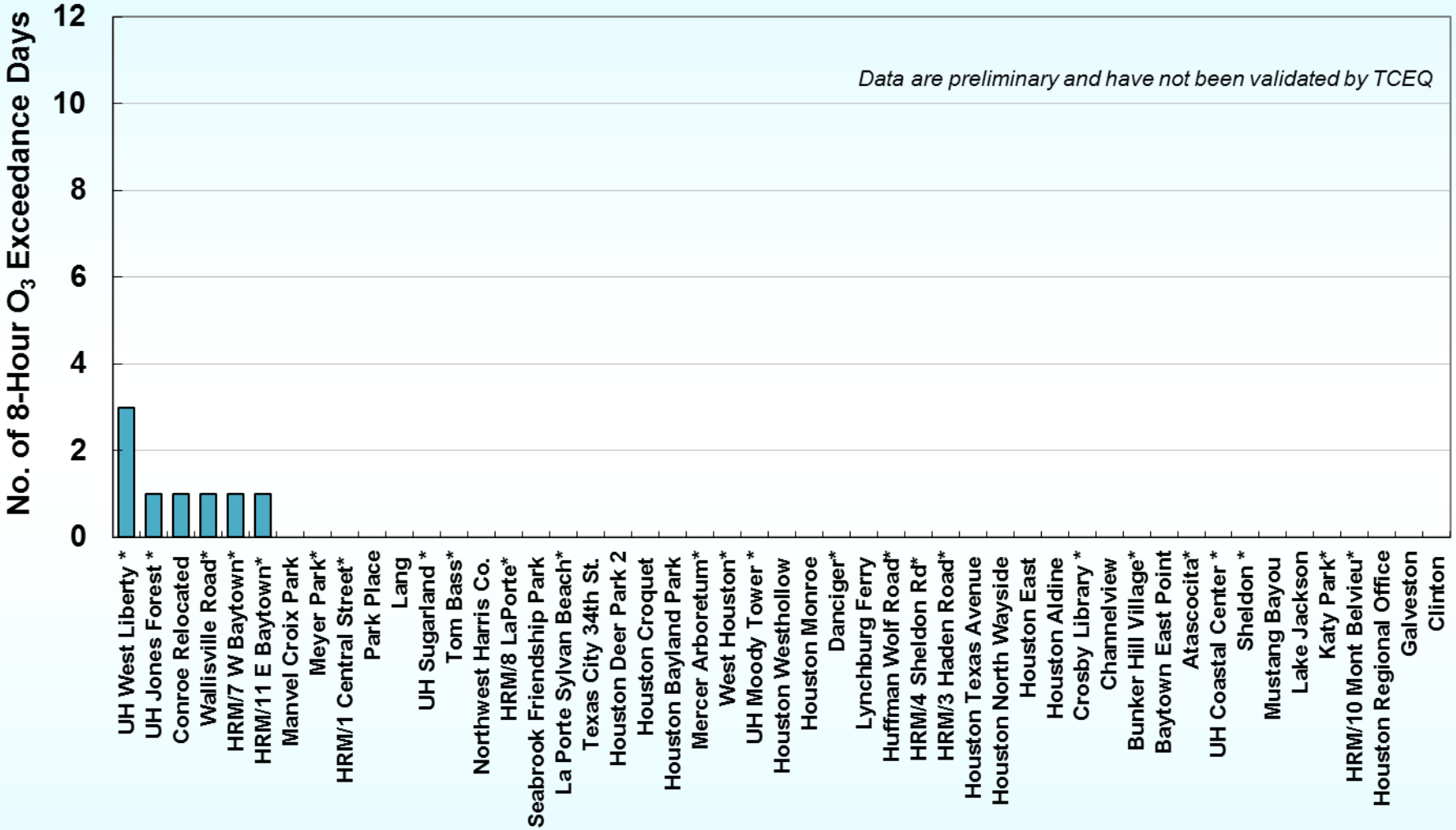
8-hour 75 ppb Standard



* non-regulatory monitors

Six of Twenty-one Regulatory Monitors Have Three or Fewer Exceedance Days

2014 YTD Ozone Statistics Exceedance Days
8-hr 75 ppb Standard

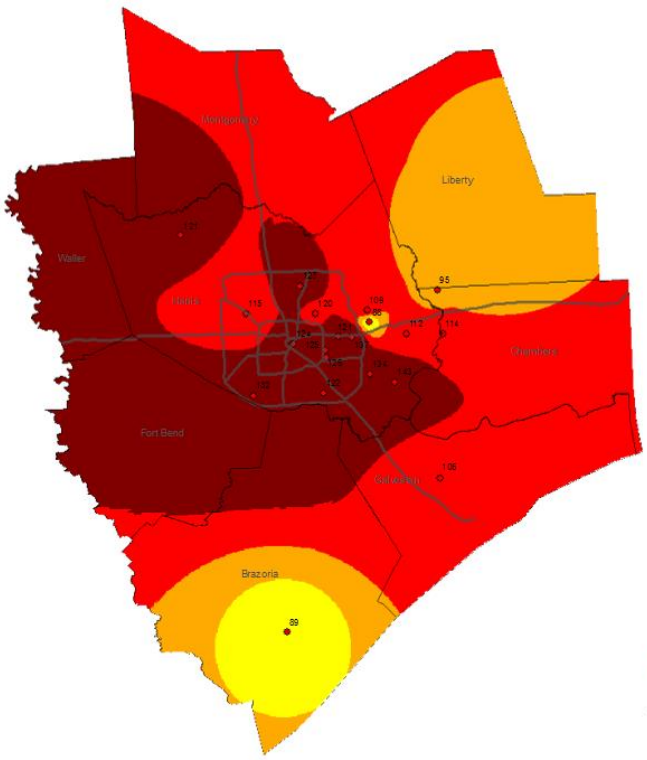


* non-regulatory monitors

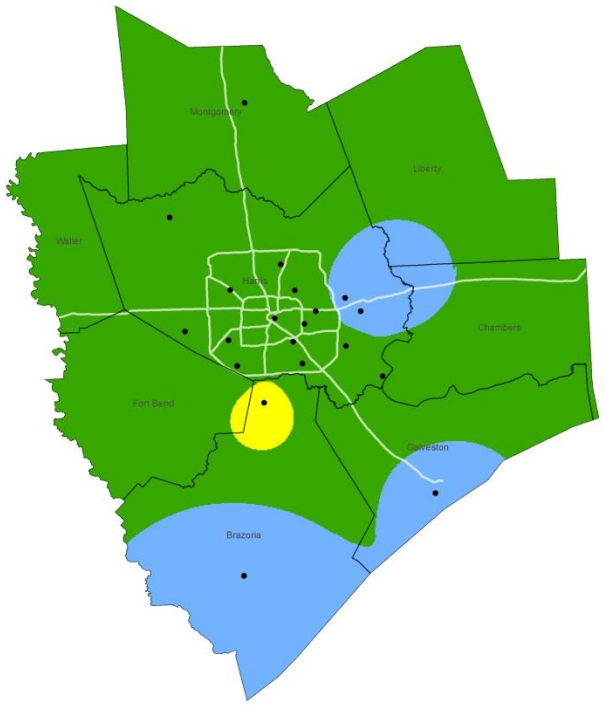
*2014 YTD through 09 May 2014

8-Hour Ozone Design Values

1985



2013



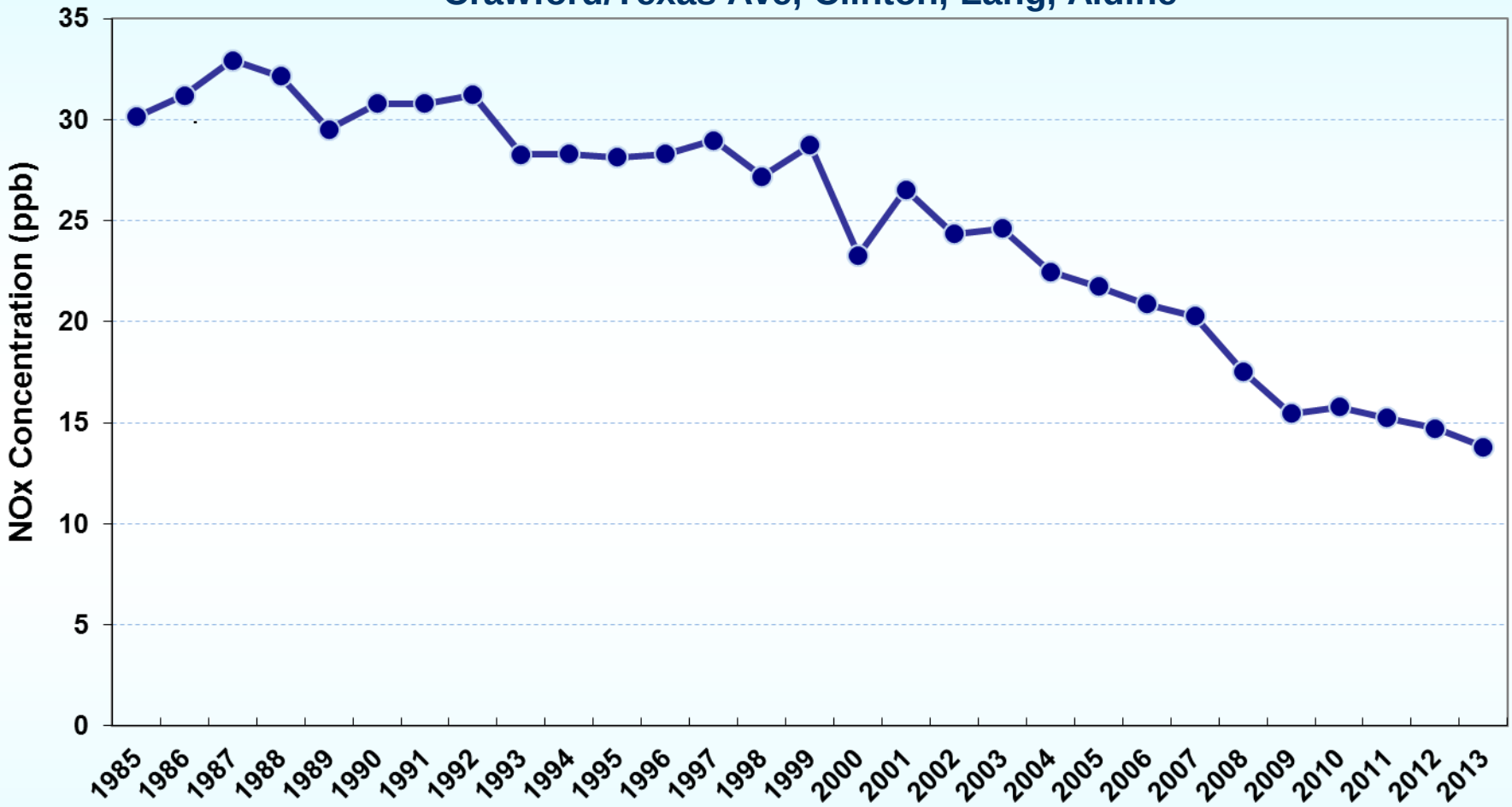
Ozone Concentration (ppb-v)

≤ 60 | 61 - 70 | 71-84 | 85 - 90 | 91 - 100 | 101 - 120 | ≥ 121

Significant Improvement in Houston Air Quiality

Annual Average NOx Concentration

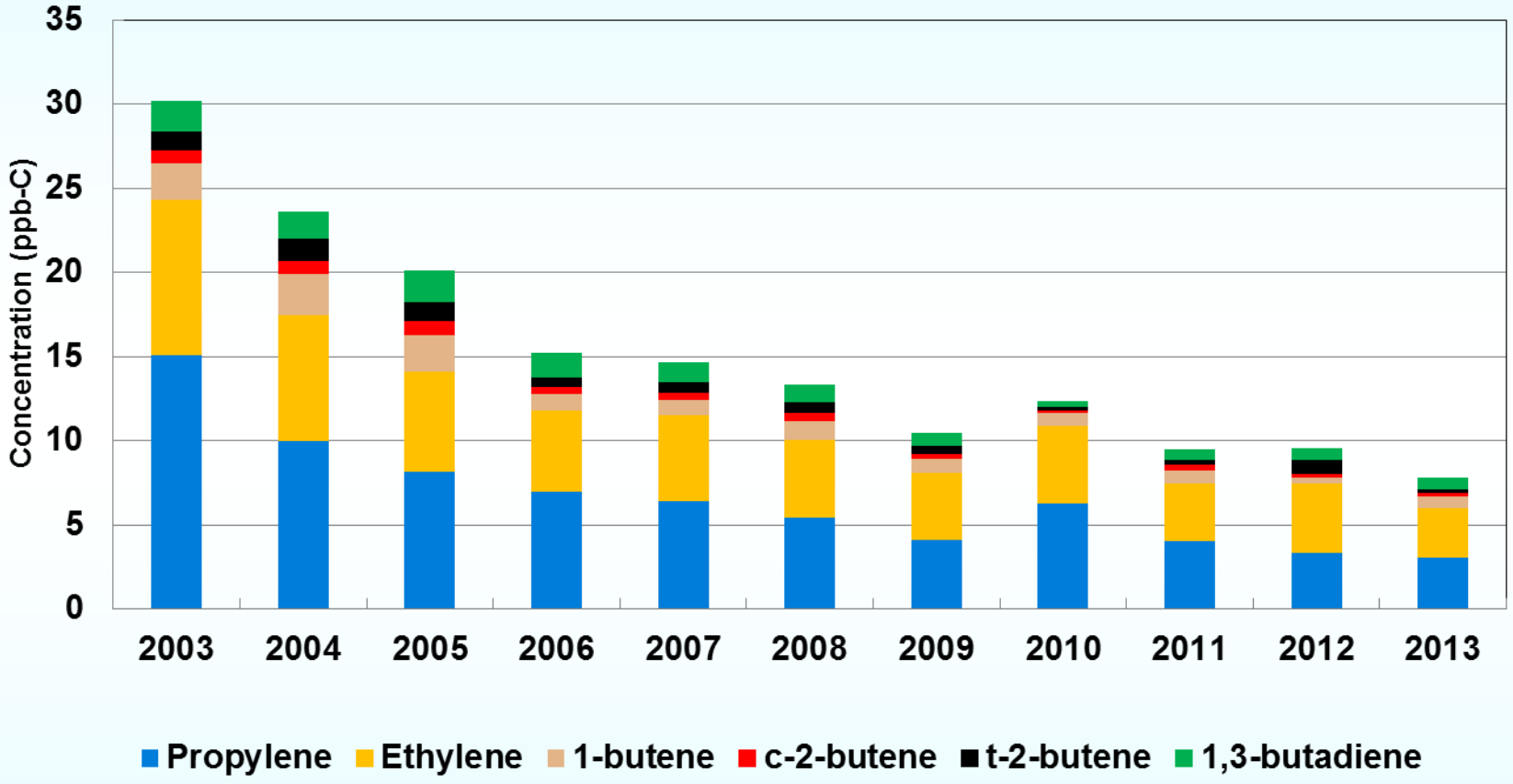
HRM and Core Houston Area Monitors -- Crawford/Texas Ave, Clinton, Lang, Aldine



50% Reduction in Ambient NOx Concentrations Since 1985

Total HRVOC Network Average Concentrations

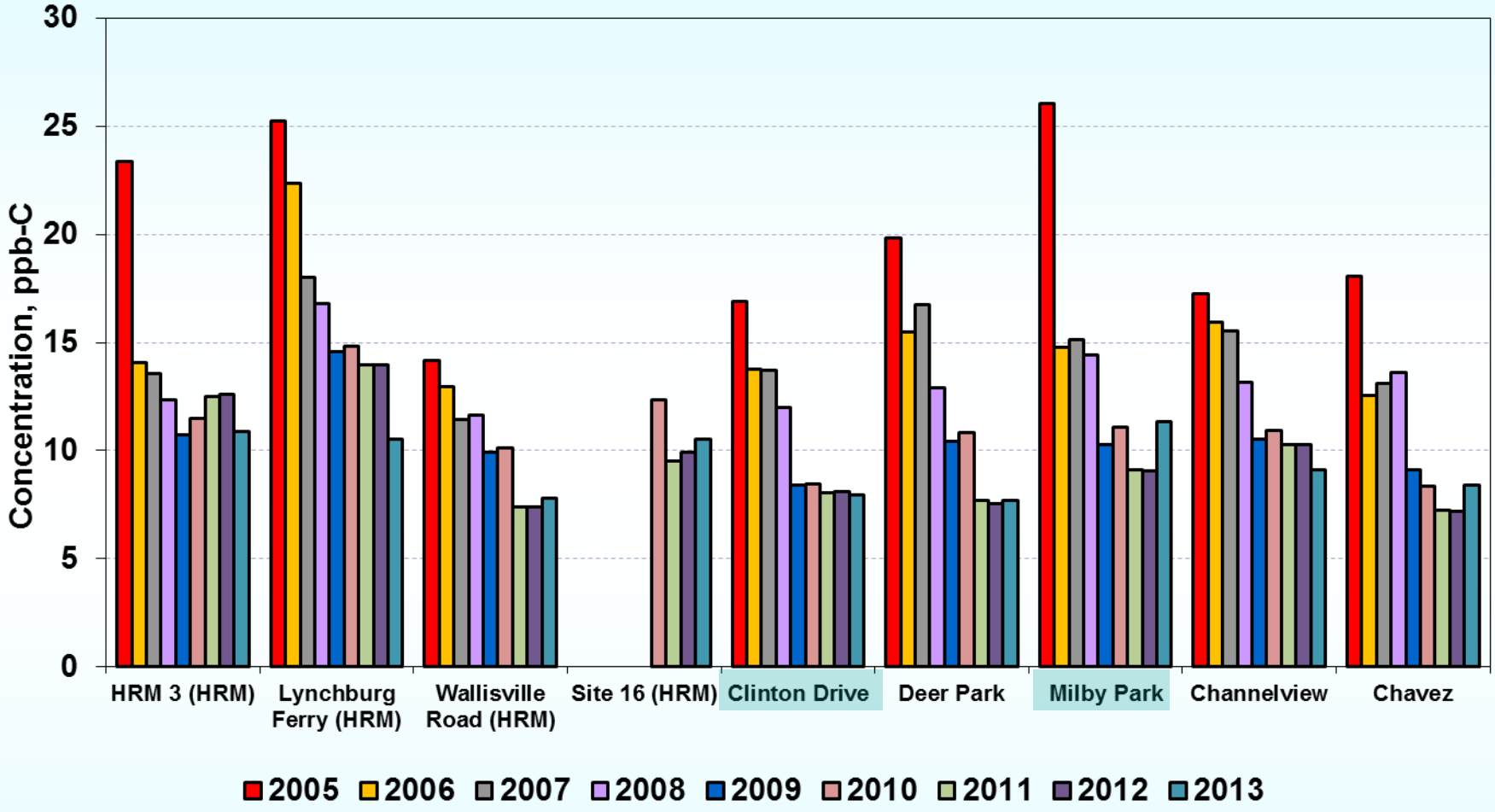
Houston Ship Channel PAMS-GC Monitoring Sites



74% Reduction in HRVOC Concentrations from 2003 through 2013

Average Annual HRVOC Concentrations

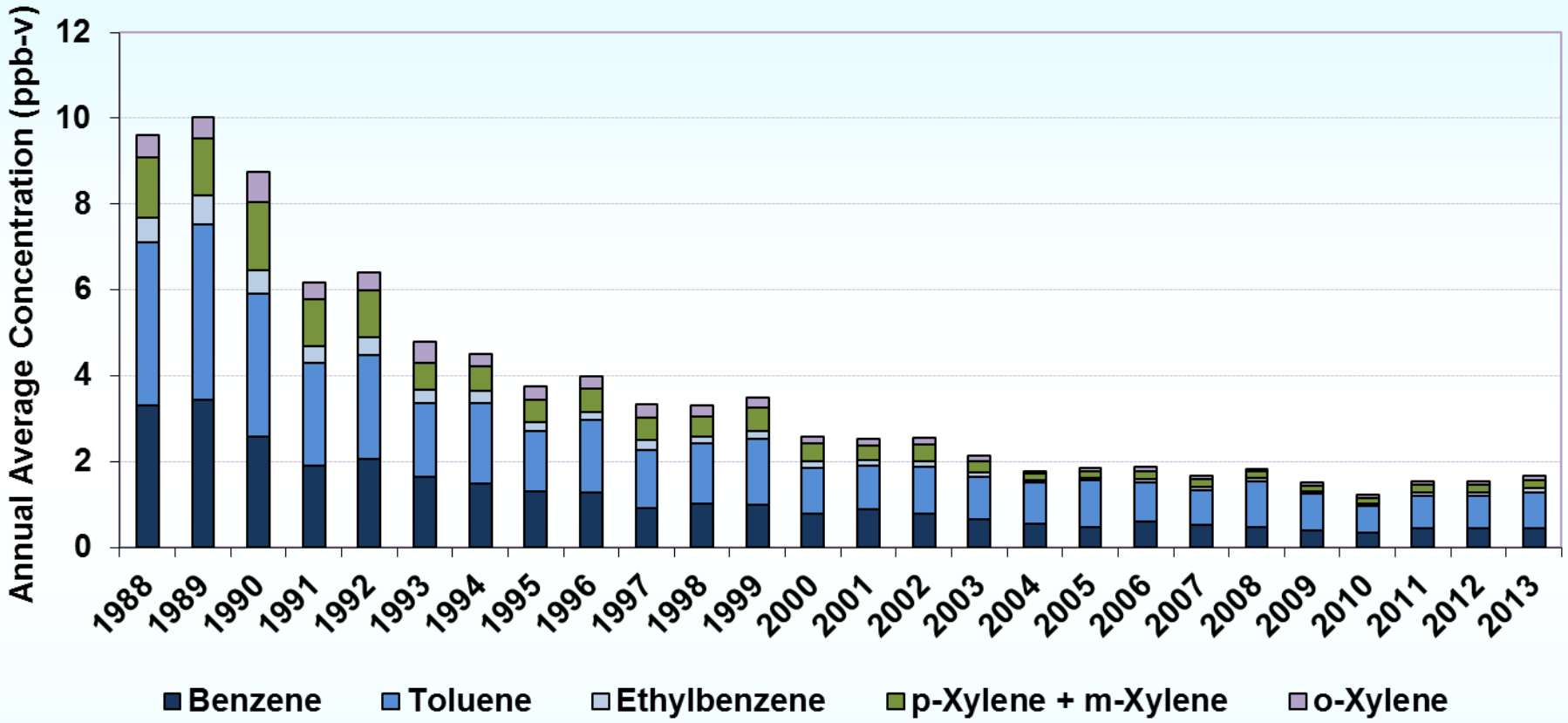
Houston Ship Channel PAMS-GC Monitoring Sites



Significant HRVOC Reductions At All Sites

Annual Average BTEX Trends

HRM Network - 1988 through 2013

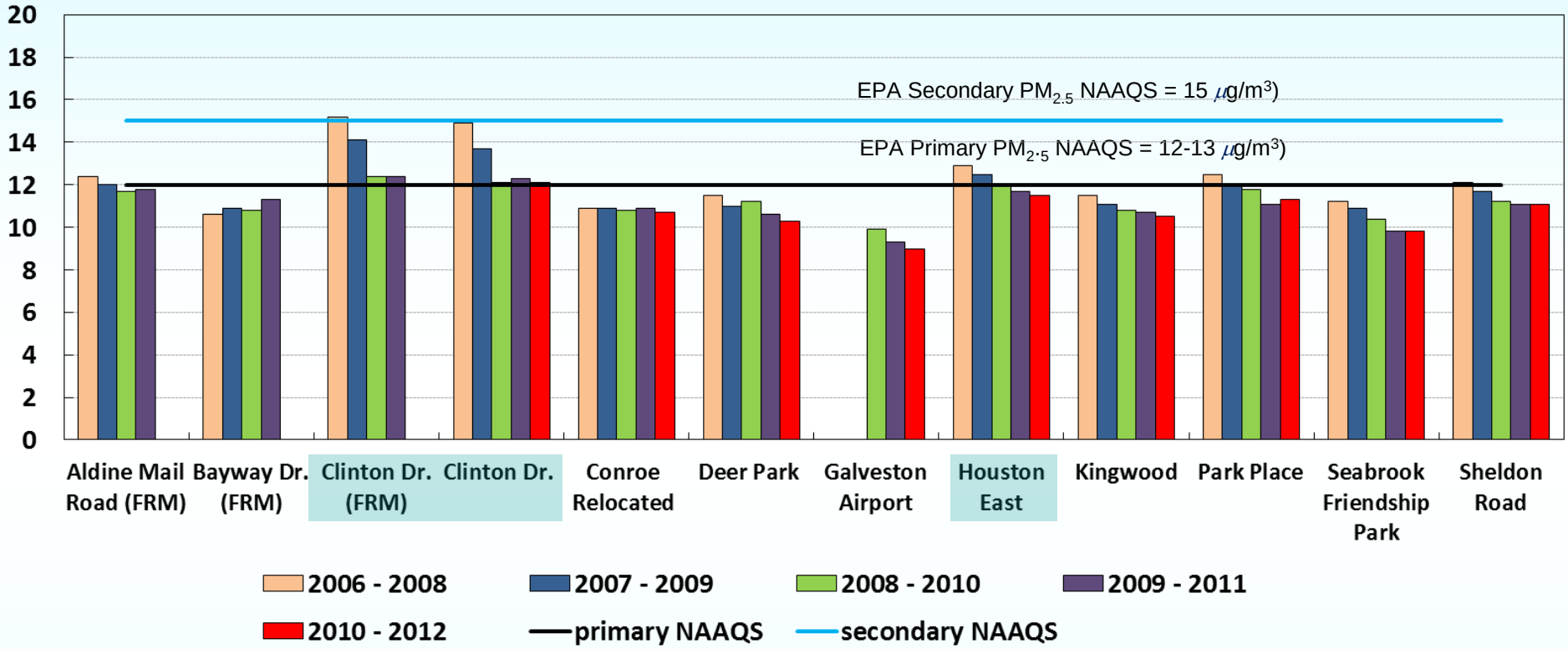


BTEX – Benzene, Toluene, Ethylbenzene, Xylene
HRM every sixth day 24-hour composite canister sampling data

85% Reduction in BTEX Concentrations Since 1988

Houston Area Annual $PM_{2.5}$ Statistics ($\mu g/m^3$)

3-Year Average Design Value

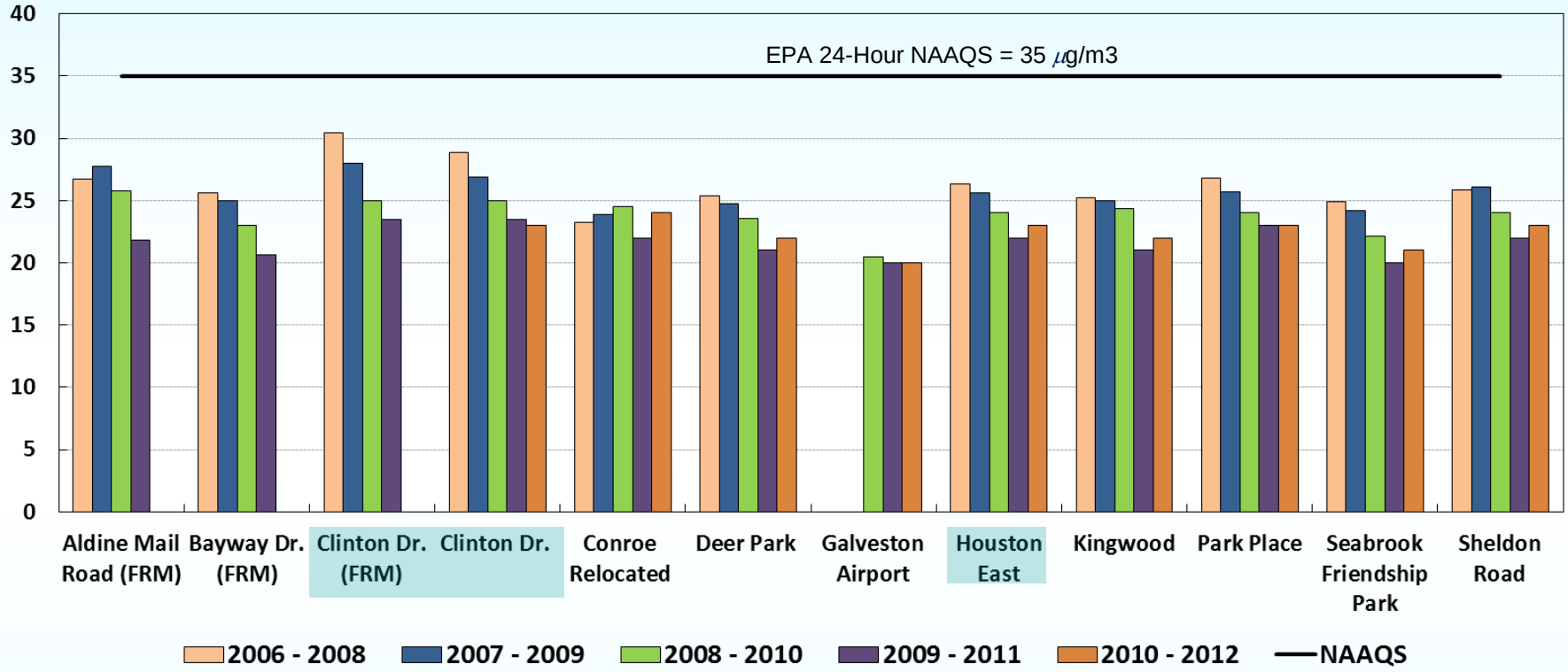


1. To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
2. Data source: EPA Air Data, TCEQ TAMIS data base and TCEQ LEADS data base.

All Area Monitors Below Annual Standard

Houston Area 24-Hour $PM_{2.5}$ Statistics ($\mu g/m^3$)

3-Year Average Design Value



1. To attain this standard, the 3-year average of the 98th percentile averaged over three years from single or multiple community-oriented monitors must not exceed 35 µg/m3.
2. Data source: EPA Air Data, TCEQ TAMIS data base and TCEQ LEADS data base. (FRM monitors not updated for 2012)

All Area Monitors Below 24-Hour Standard

Questions?