Multiple Air Toxics Exposure Study (MATES IV) Preliminary Results

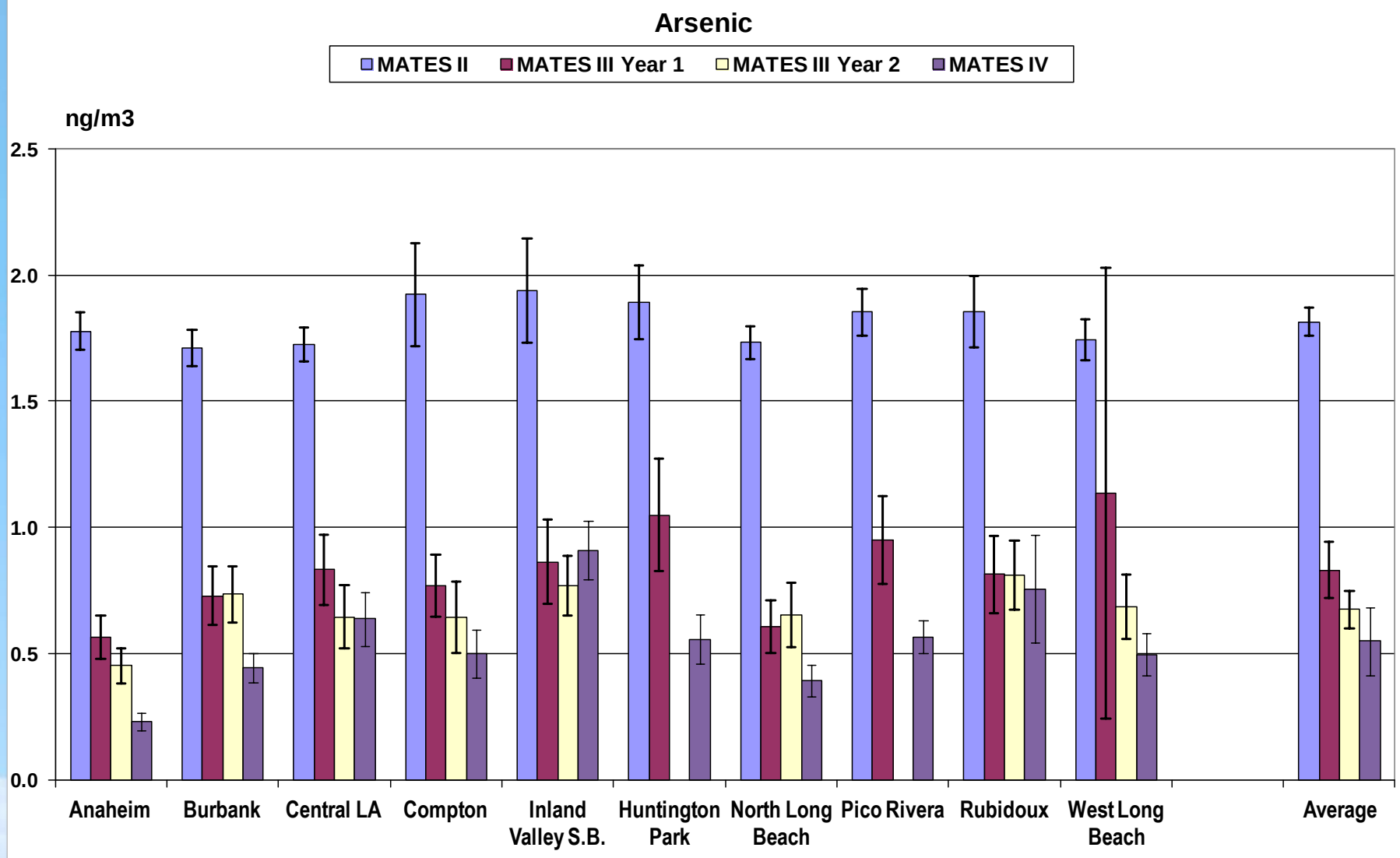
2014 NAAMC, Studies in Air Toxics
South Coast Air Quality Management District
August 13, 2014

Overall Summary

- **PRELIMINARY RESULTS**
- Trends in monitored levels air toxics continue to decline
- Modeled exposures and risks substantially lower compared to MATES III
- Diesel PM remains largest component of air toxics estimated risk

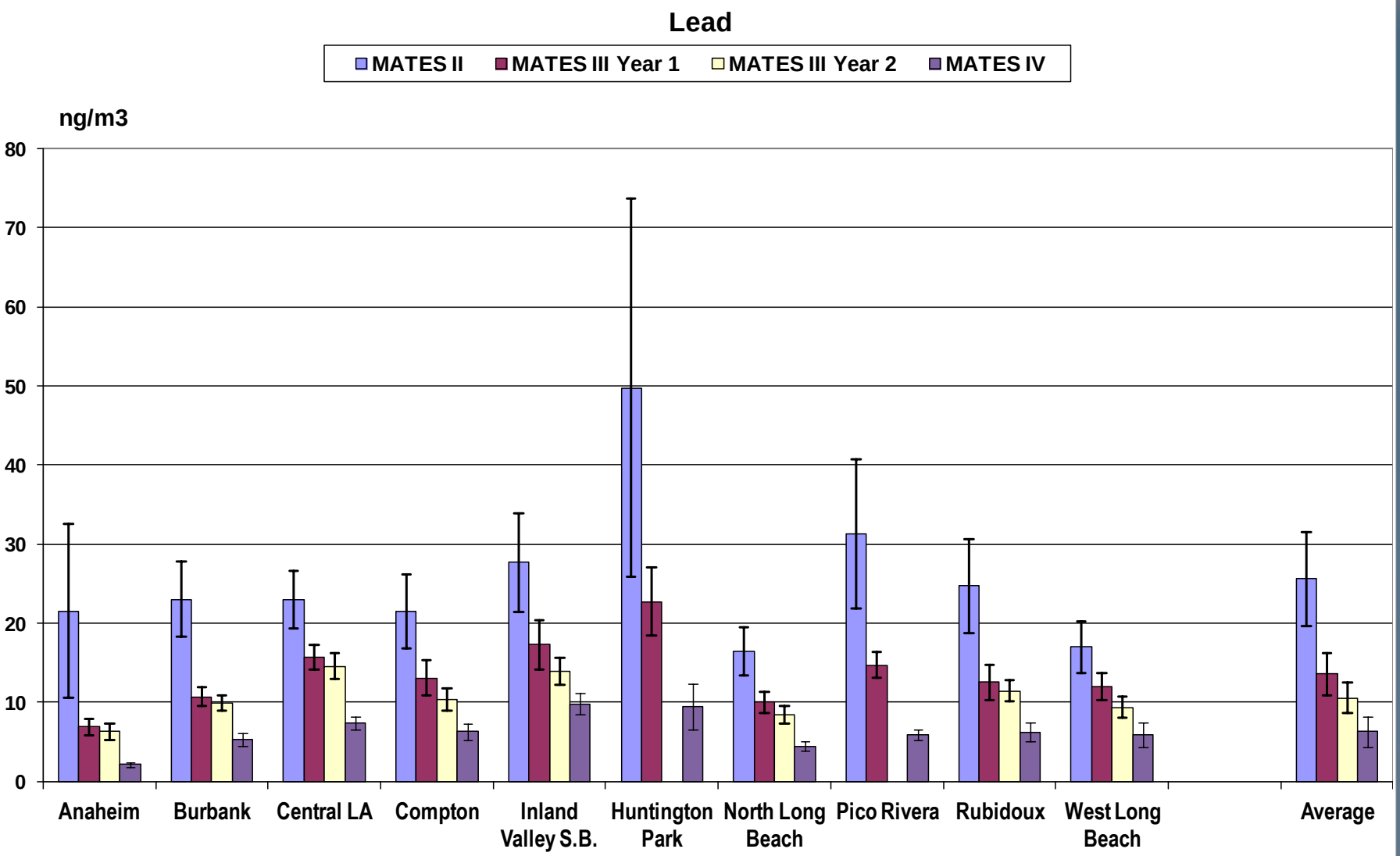
MATES IV Monitoring

- Continuation of MATES III sites for trend analysis
  - Measured species: VOCs, Carbonyls, TSP metals, Cr^{6+}, Lead, $PM_{2.5}$ speciation (metals, EC, OC), added Black Carbon & Particle Counts (Ultra-Fine Particles)
  - 10 sites, 1-in-6 day, 24-hr integrated sampling, continuous monitoring for BC & UFP
  - Utilize ongoing toxics monitoring programs
  - Duration: 07/01/2012 – 07/01/2013
- Local scale studies



Preliminary MATES IV data

Rule 1420.1 30-Day Limit = 150 ng/m3



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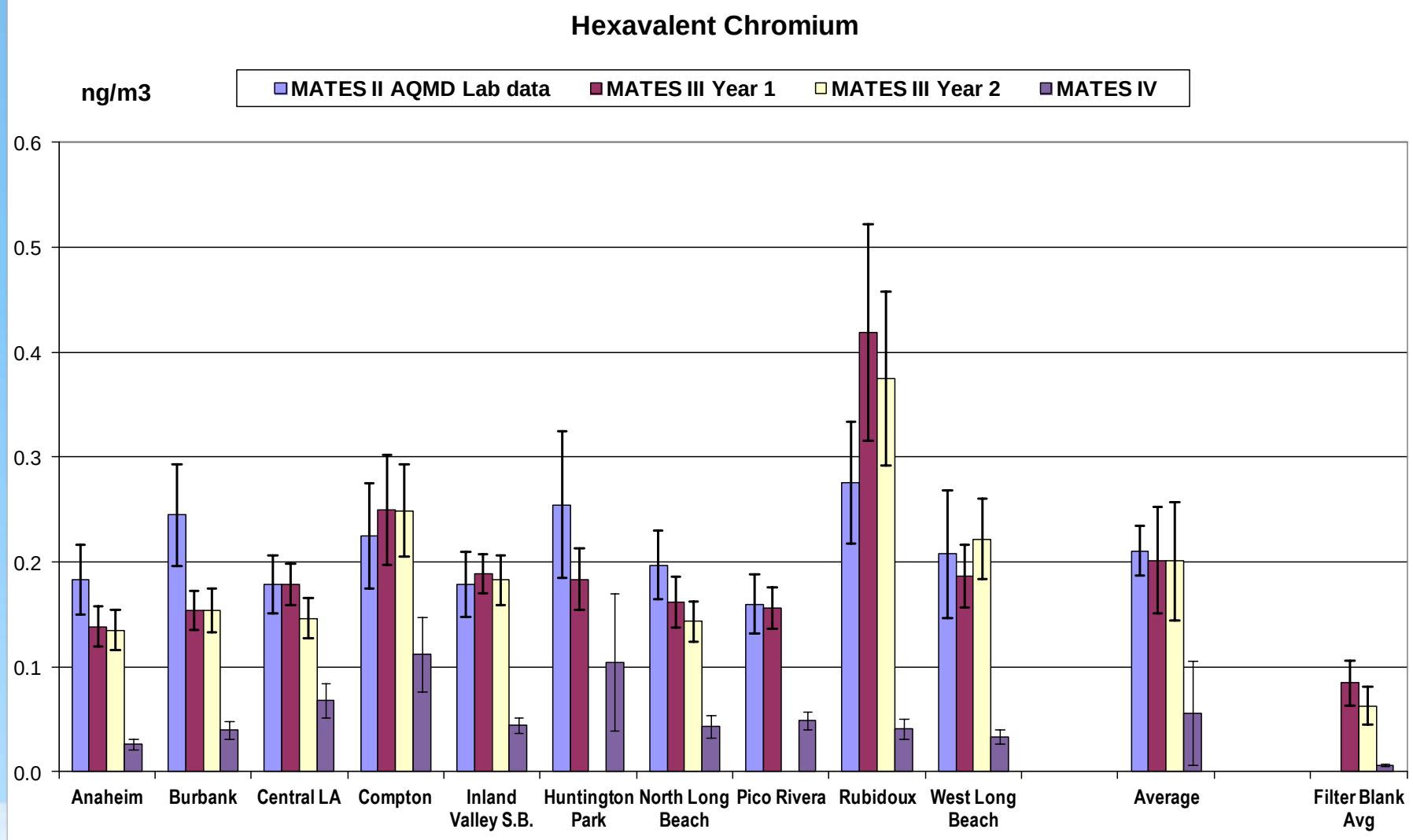

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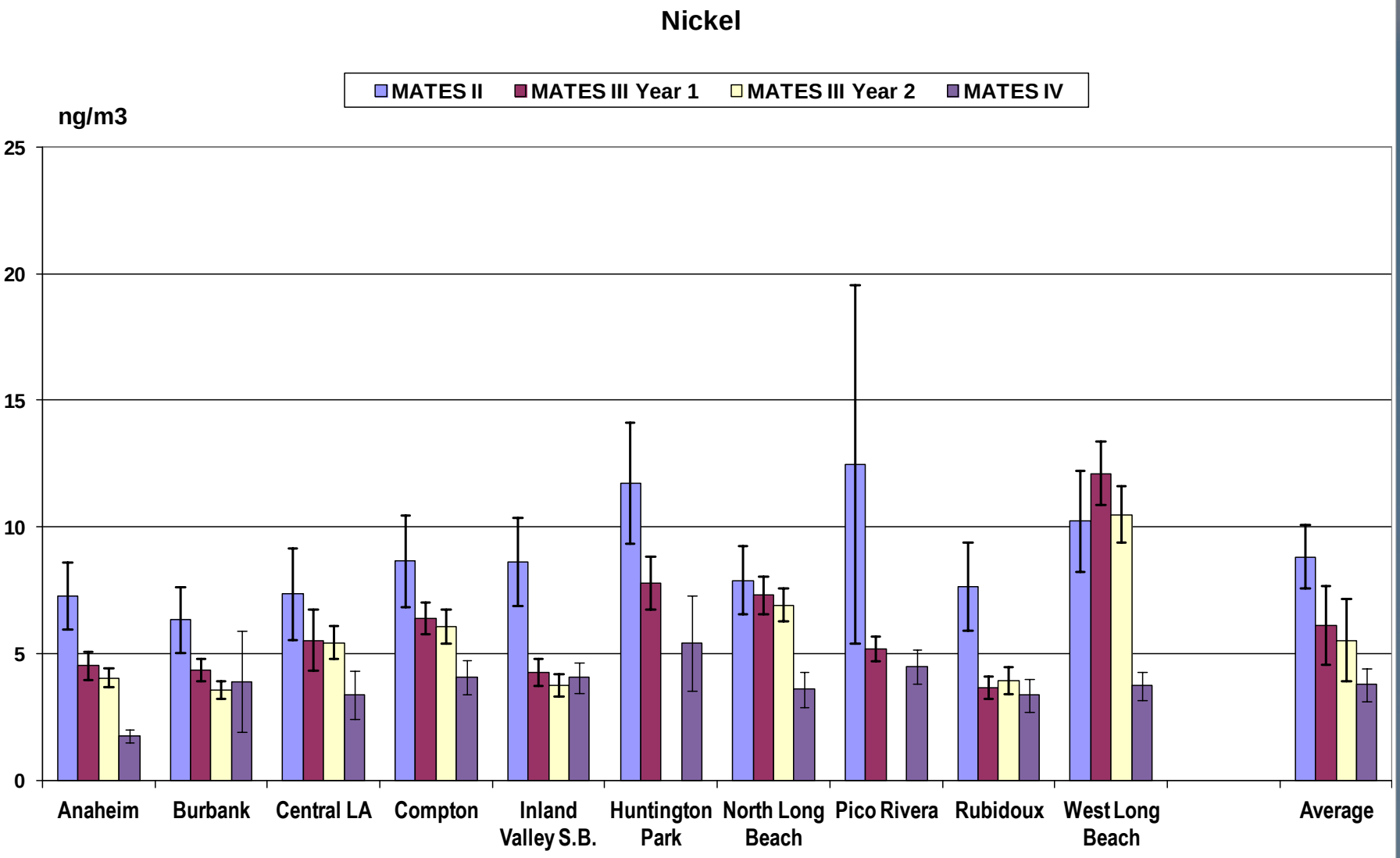

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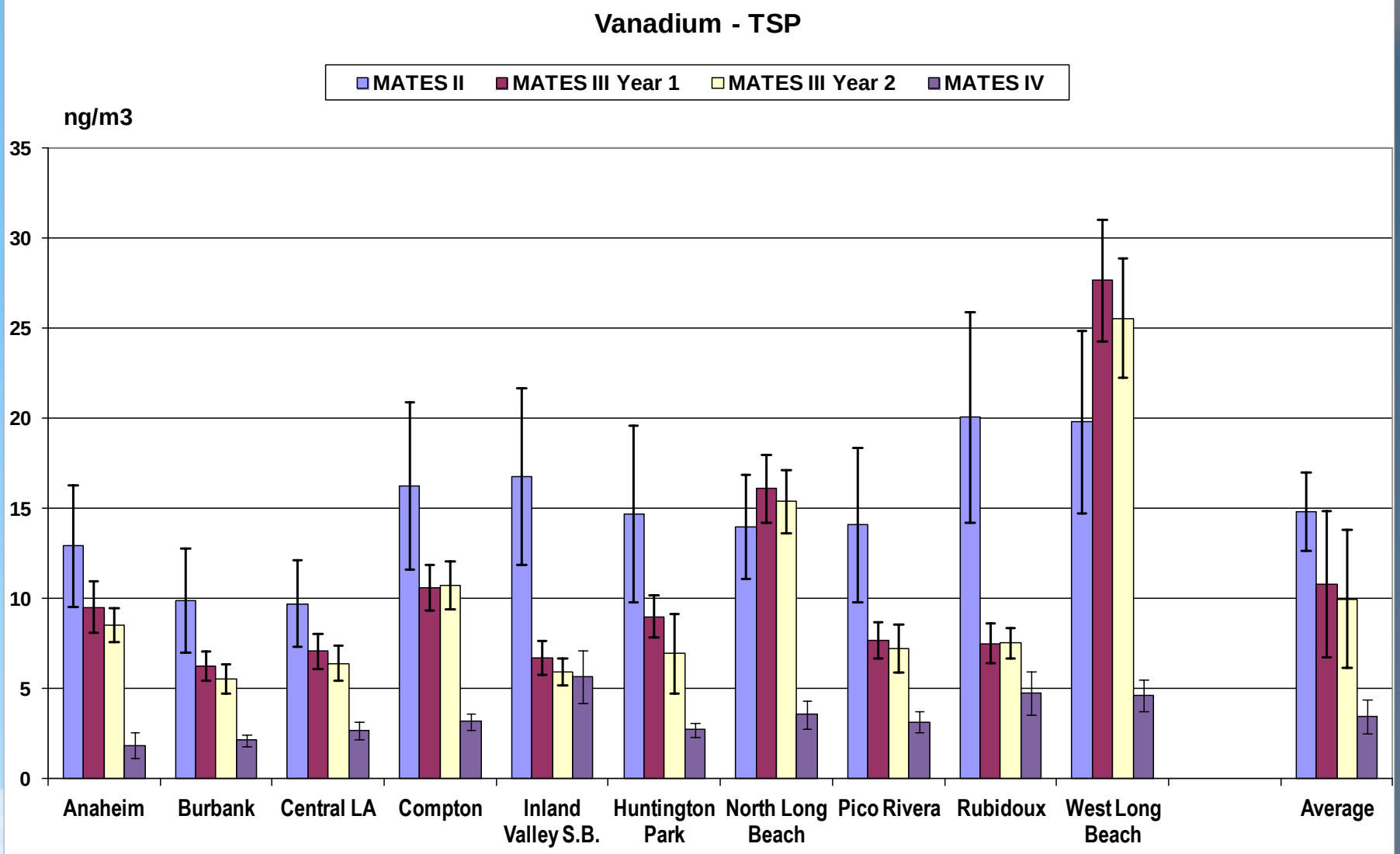

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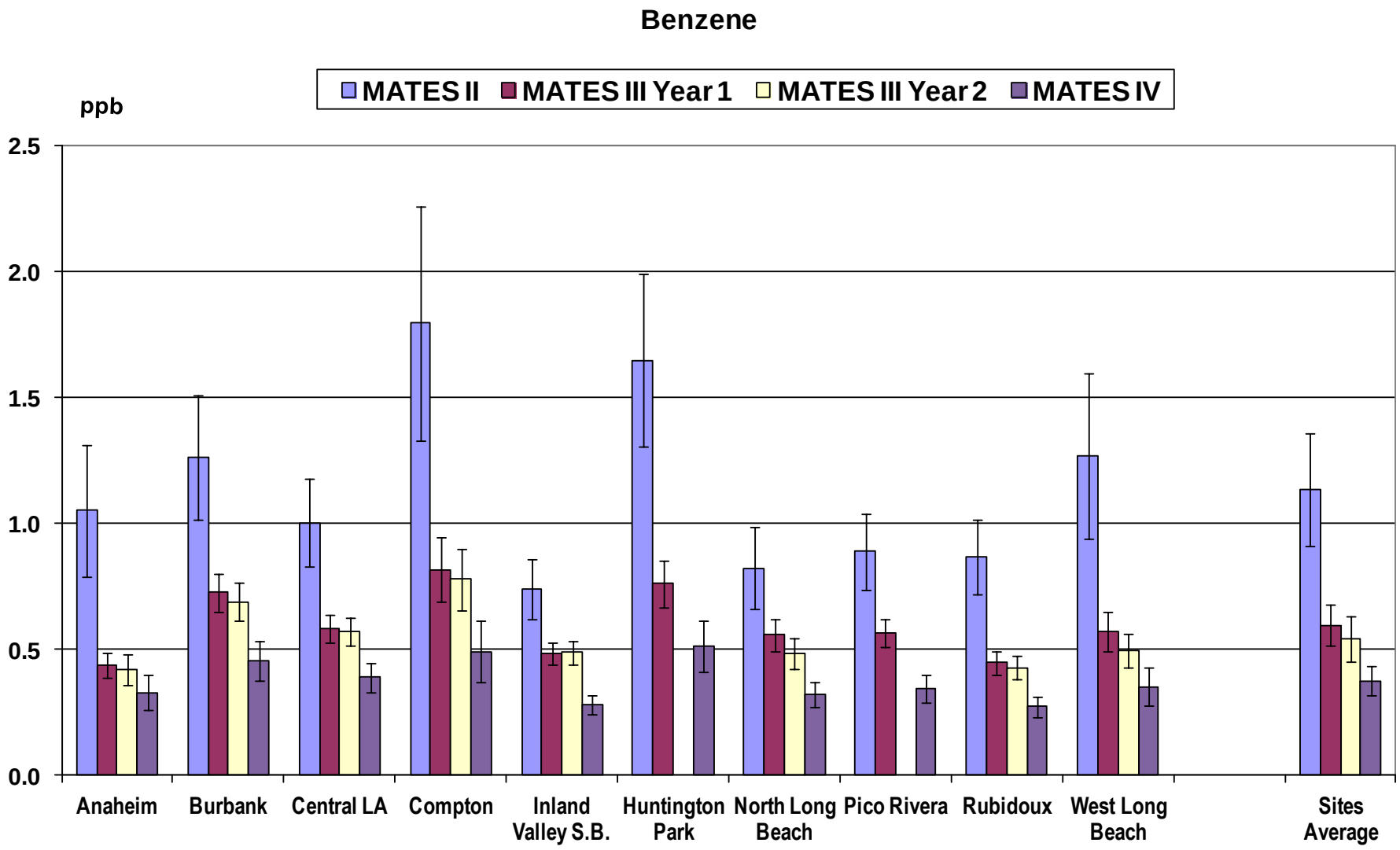

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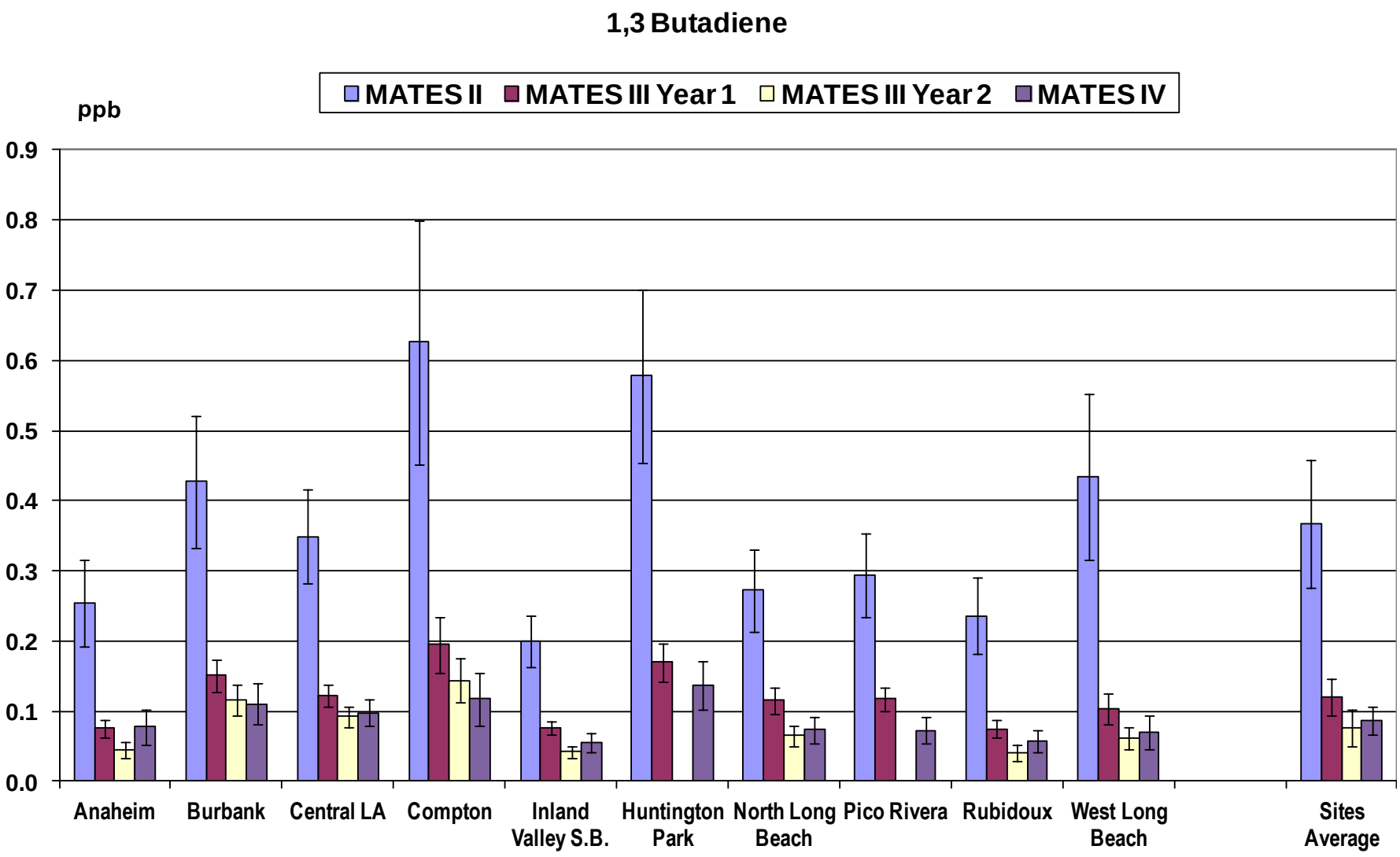

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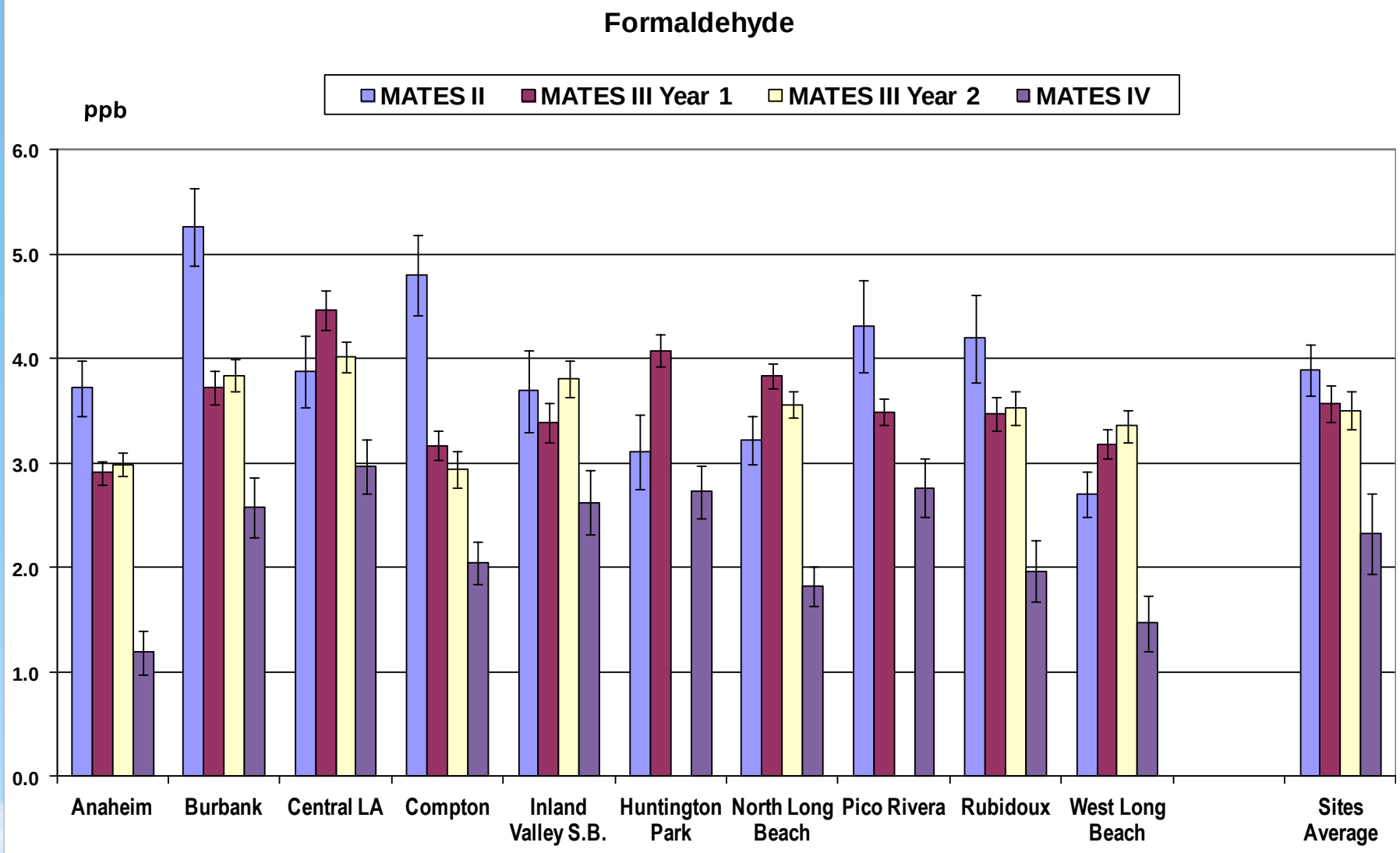

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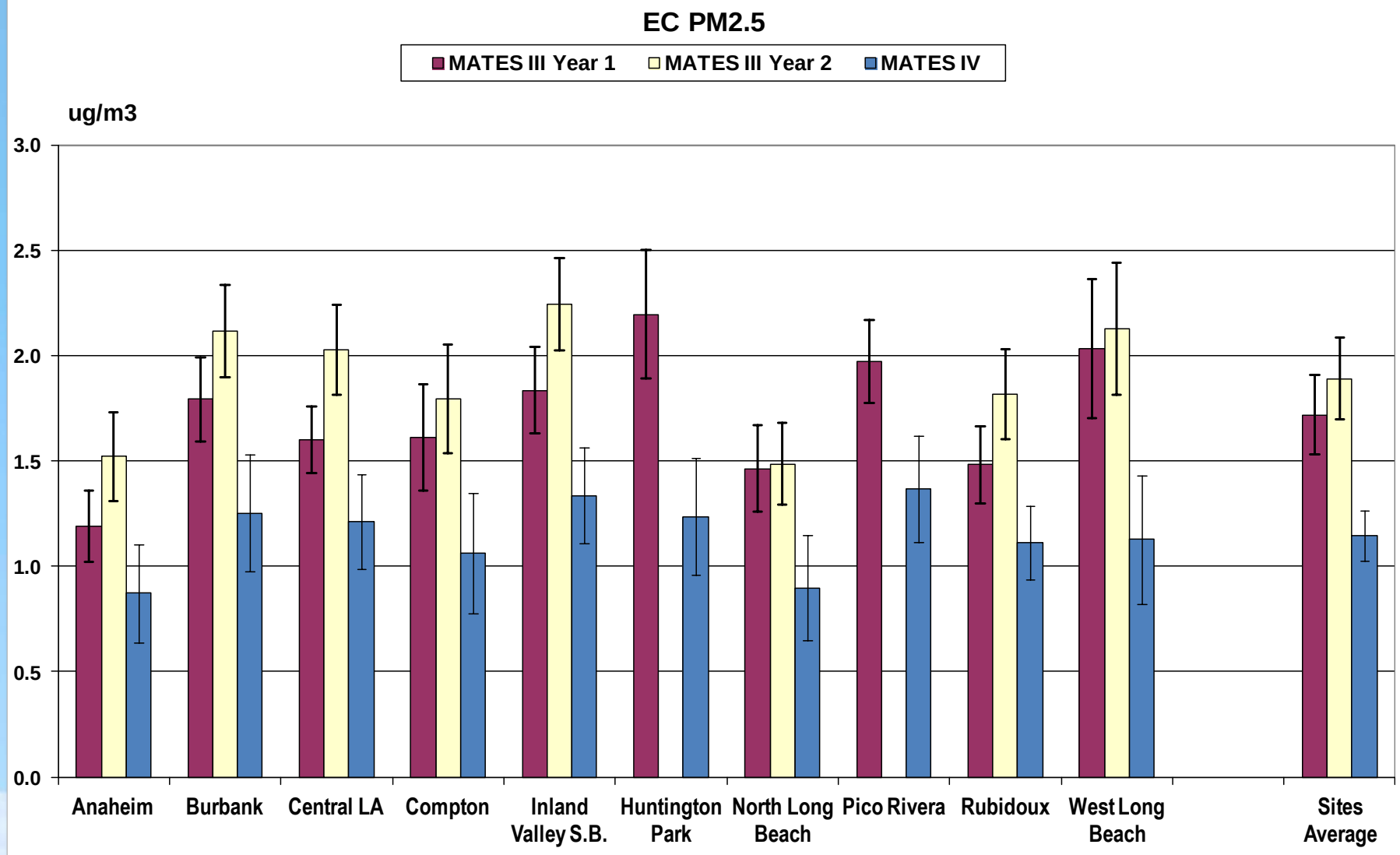
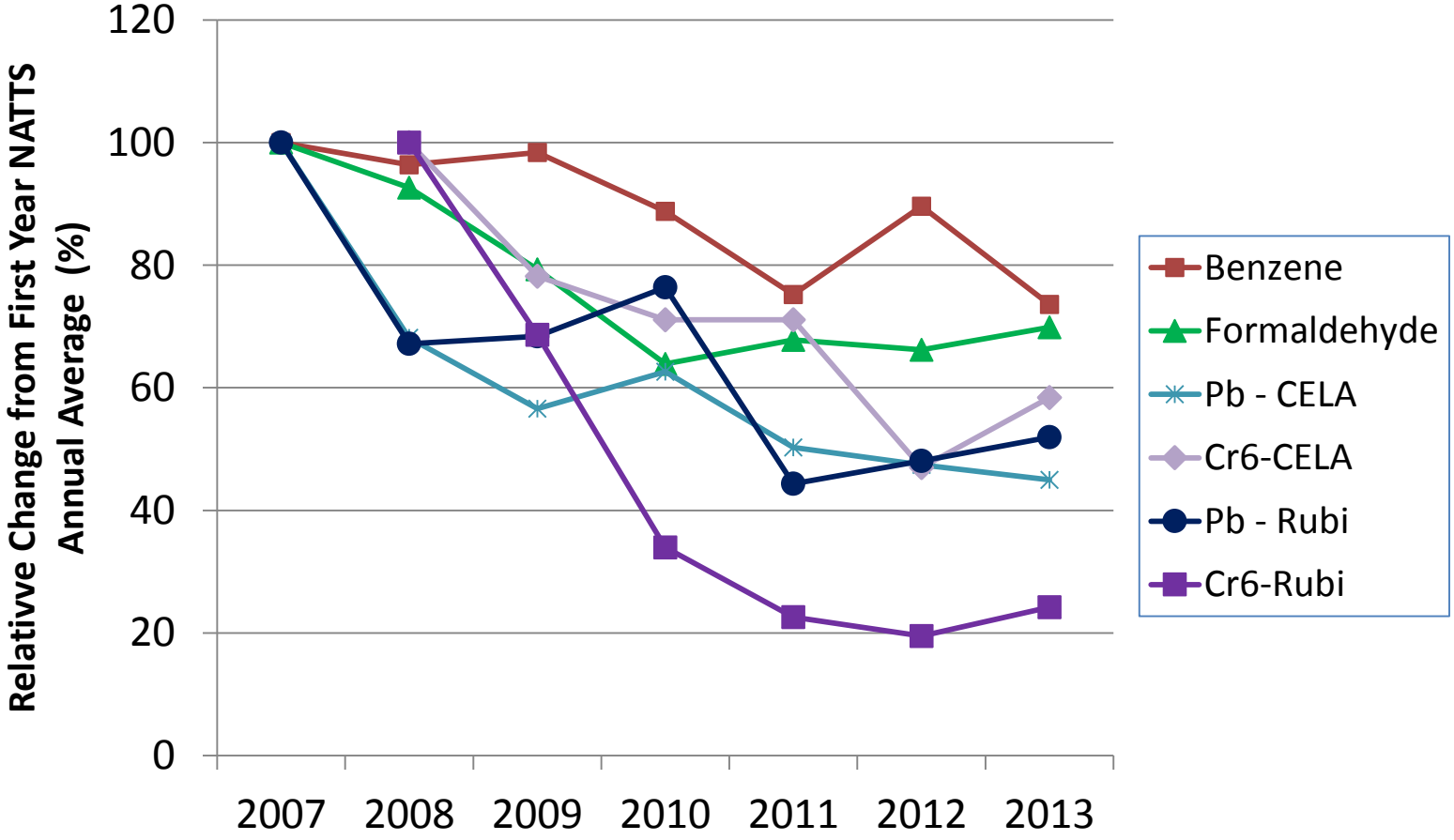


Preliminary MATES IV data

NATTS Trends for Selected Pollutants



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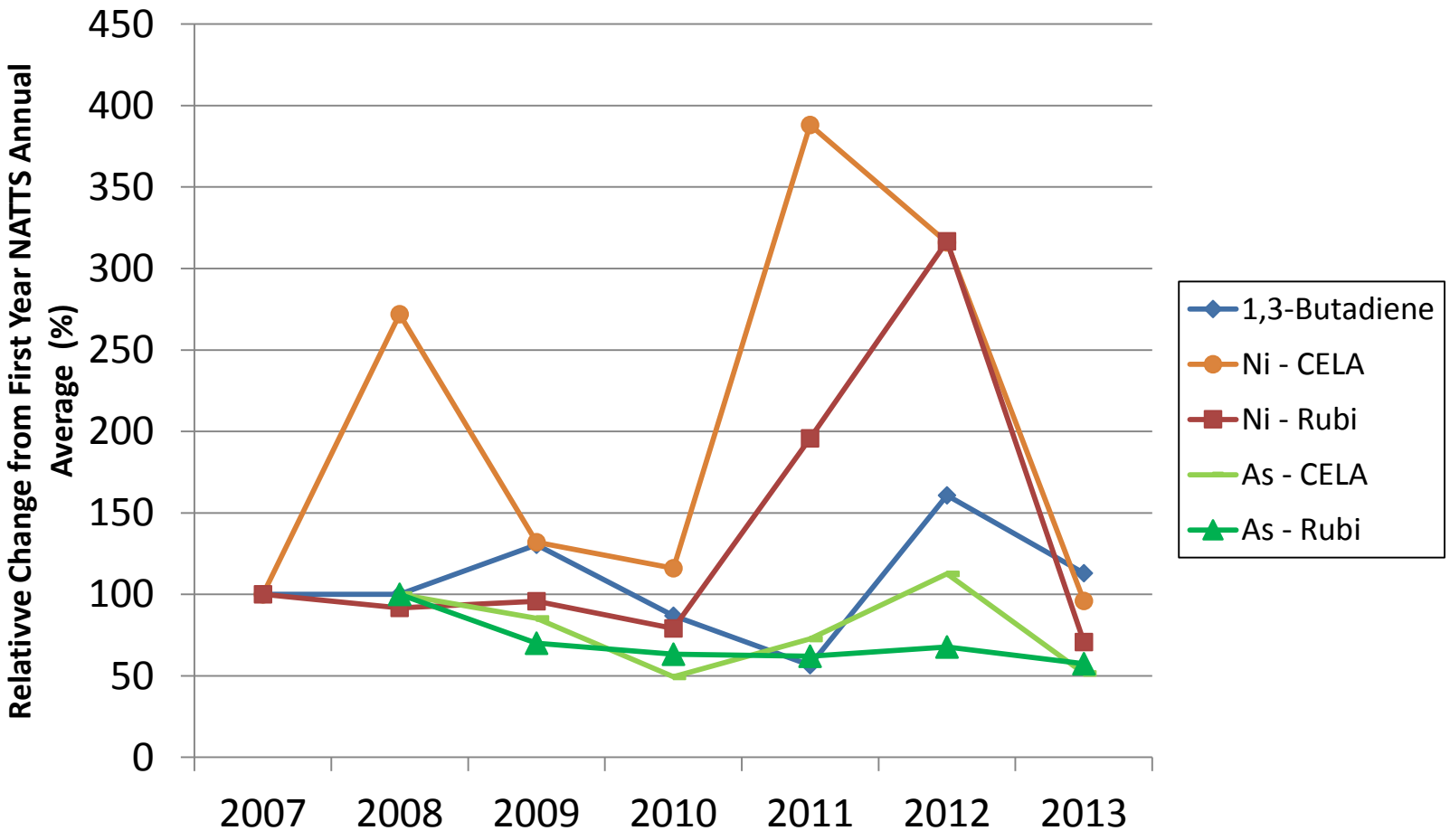
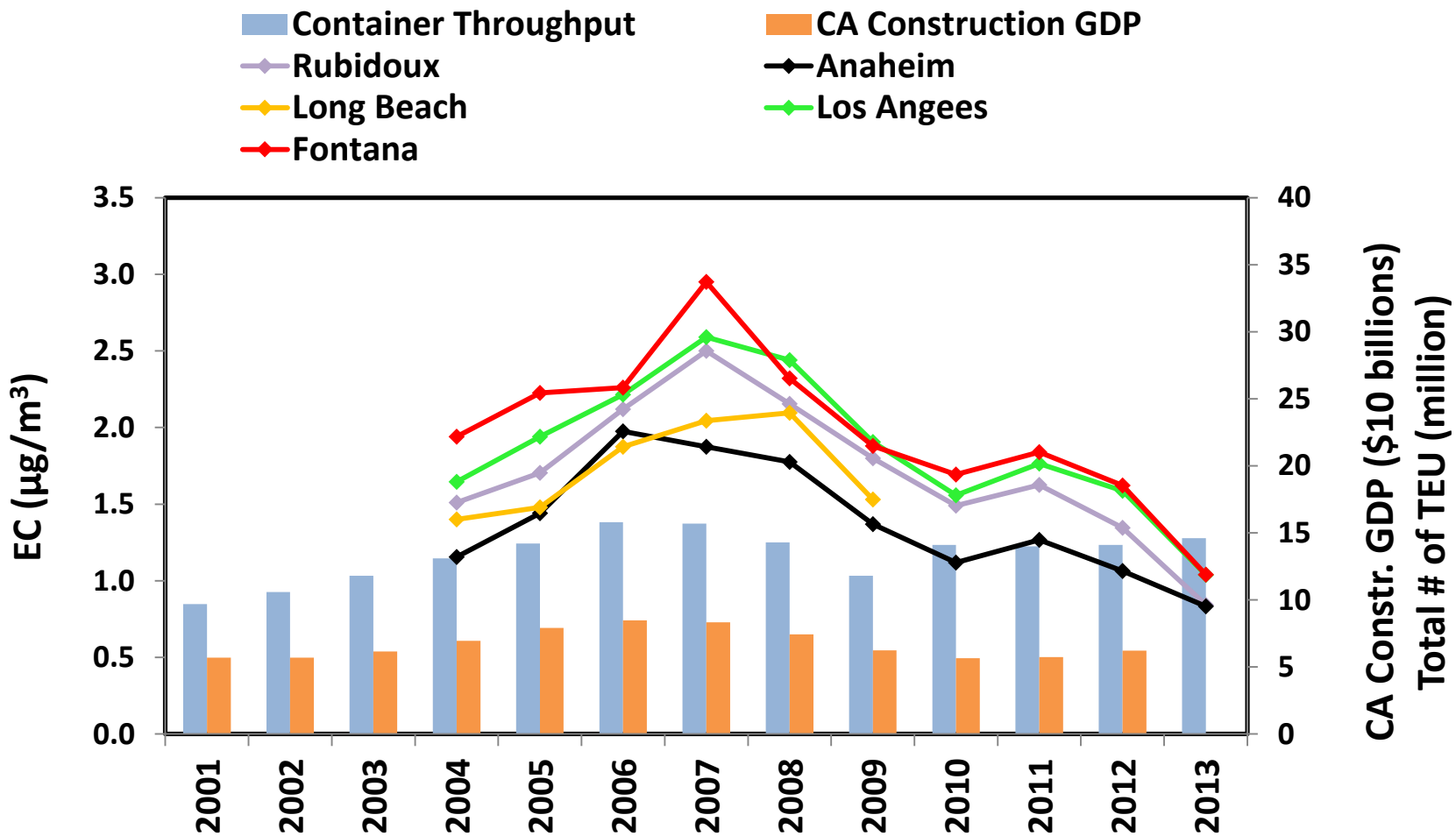


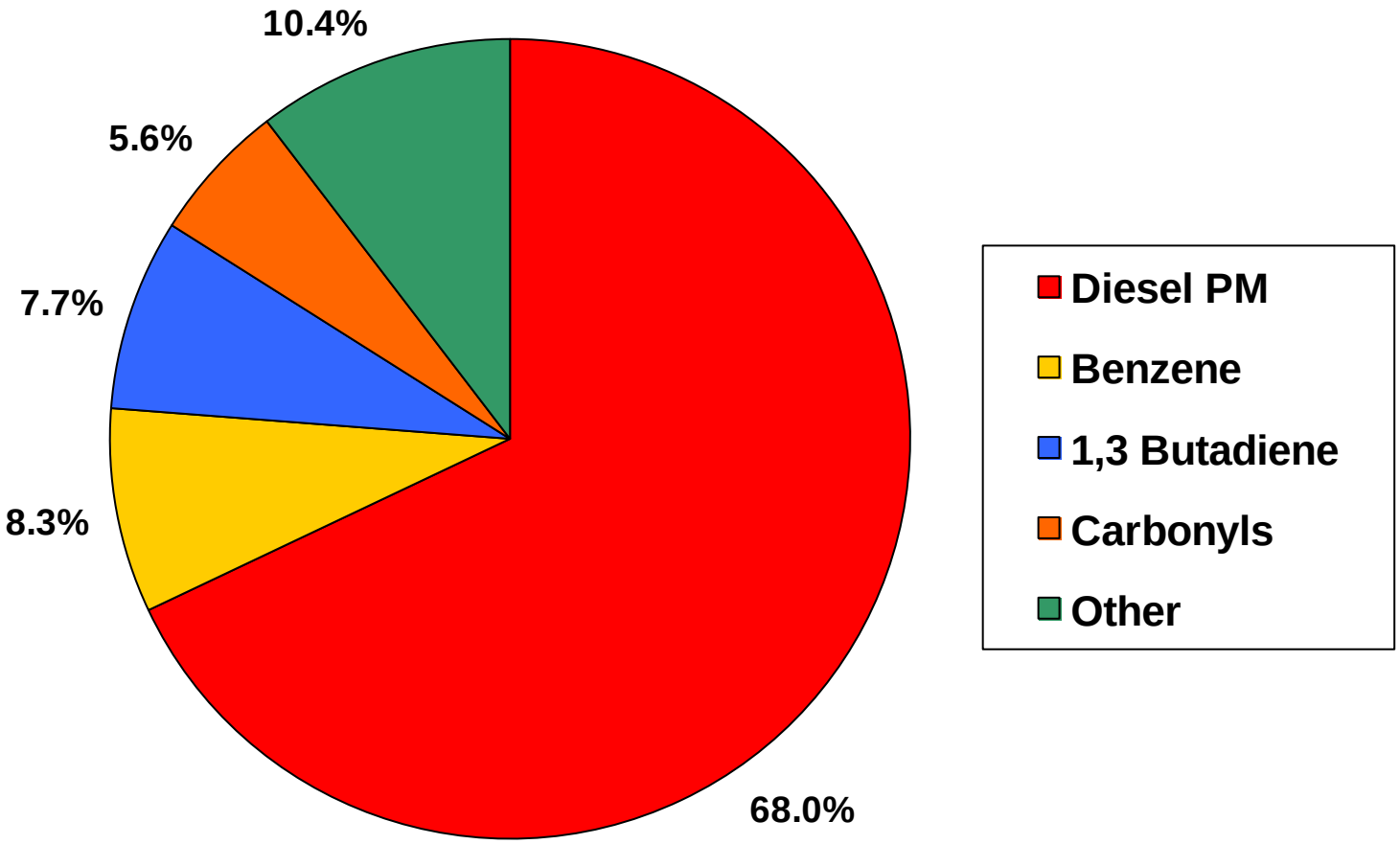
Elemental Carbon Trends and the Economy



Preliminary MATES IV data

2103 shows Q1 & Q2 EC data only. 2013 GDP value not yet available

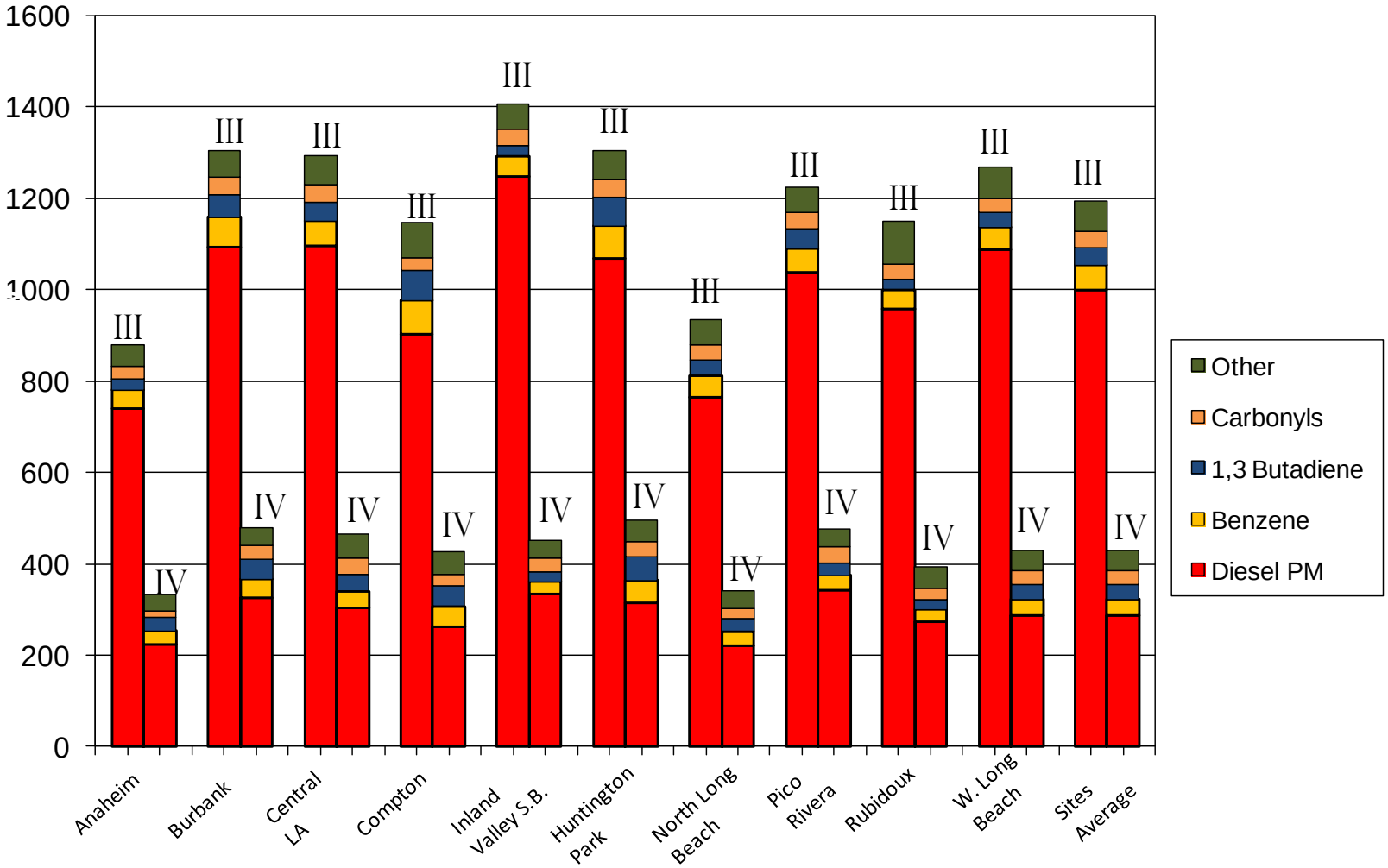
MATES IV Monitored Air Toxics Risk



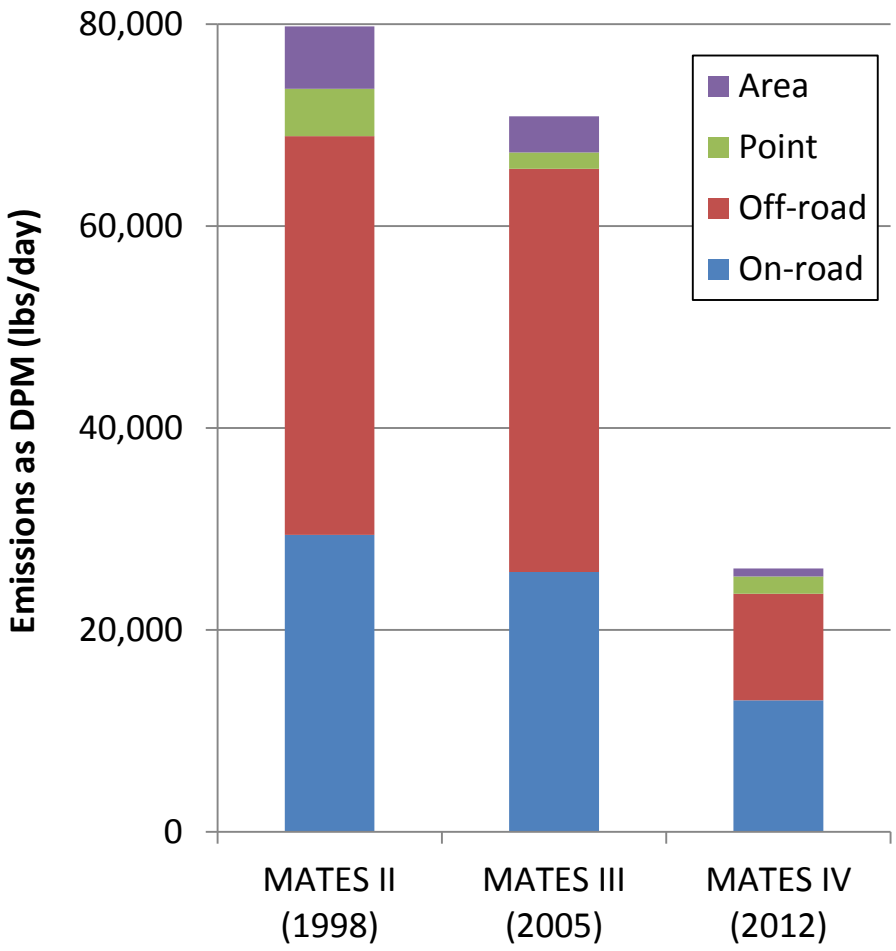
Basinwide Risk: 422 per million
Based on Average at 10 Fixed Monitoring sites

Preliminary MATES IV data

MATES IV Monitored Air Toxics Risk 65% Lower than MATES III



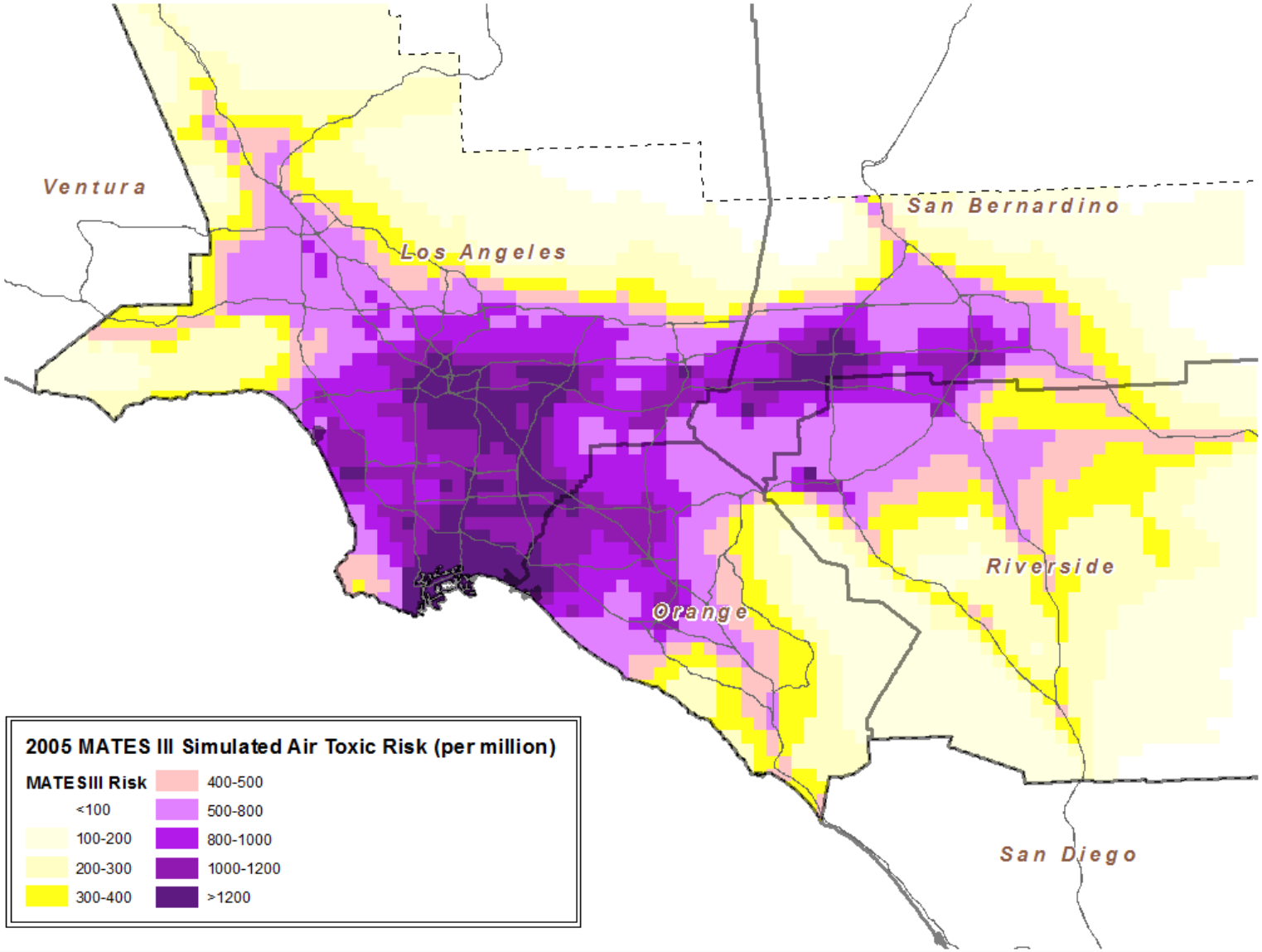
Emissions Inventory Weighted by Cancer Potency



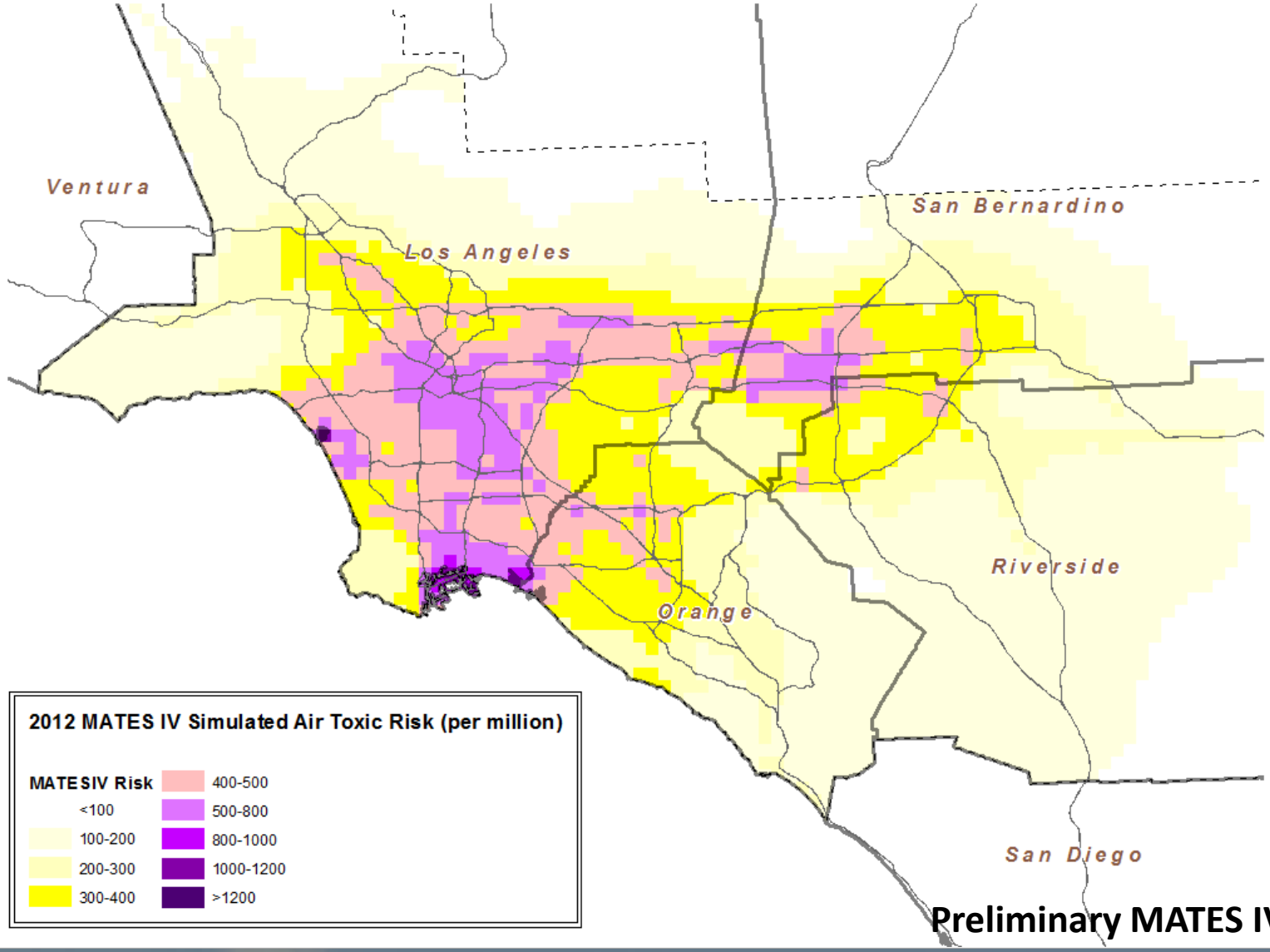
Category	Change from MATES III (%)	Change from MATES II (%)
Area	-77.2	-86.8
Point	+4.9	-64.0
Off-road	-73.5*	-73.2
On-road	-49.4	-55.7

**about half of Off-road reduction is due to a change in emissions estimation methods*

Modeled Air Toxics Risk – MATES III

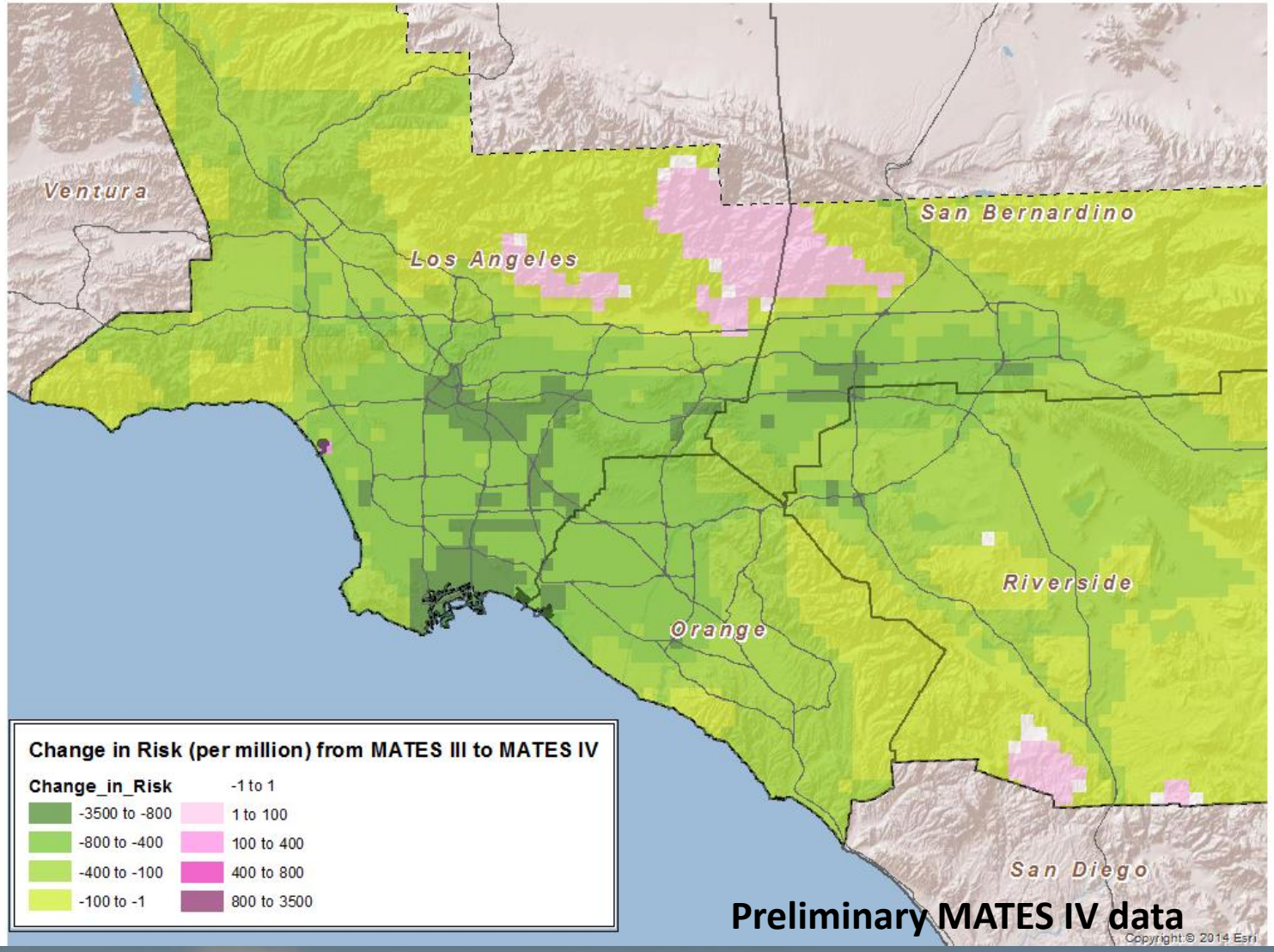


Modeled Air Toxics Risk – MATES IV



Preliminary MATES IV data

Modeled Air Toxics Risk
MATES III to MATES IV Difference



Preliminary MATES IV data

Preliminary Conclusions

- Monitored data, emissions inventory and modeling all show similar and significant cancer risk reductions between 2005/06 and 2012/13
- Diesel Particulate Matter accounts for 68% of the cancer risk
- All results are preliminary and are undergoing further validation and review

Questions?

- Jean Ospital (jospital@aqmd.gov)
- Jason Low (jlow@aqmd.gov)