



Texas Commission on Environmental Quality

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# HGB Modeling Update

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SETPMTC  
March 23, 2006



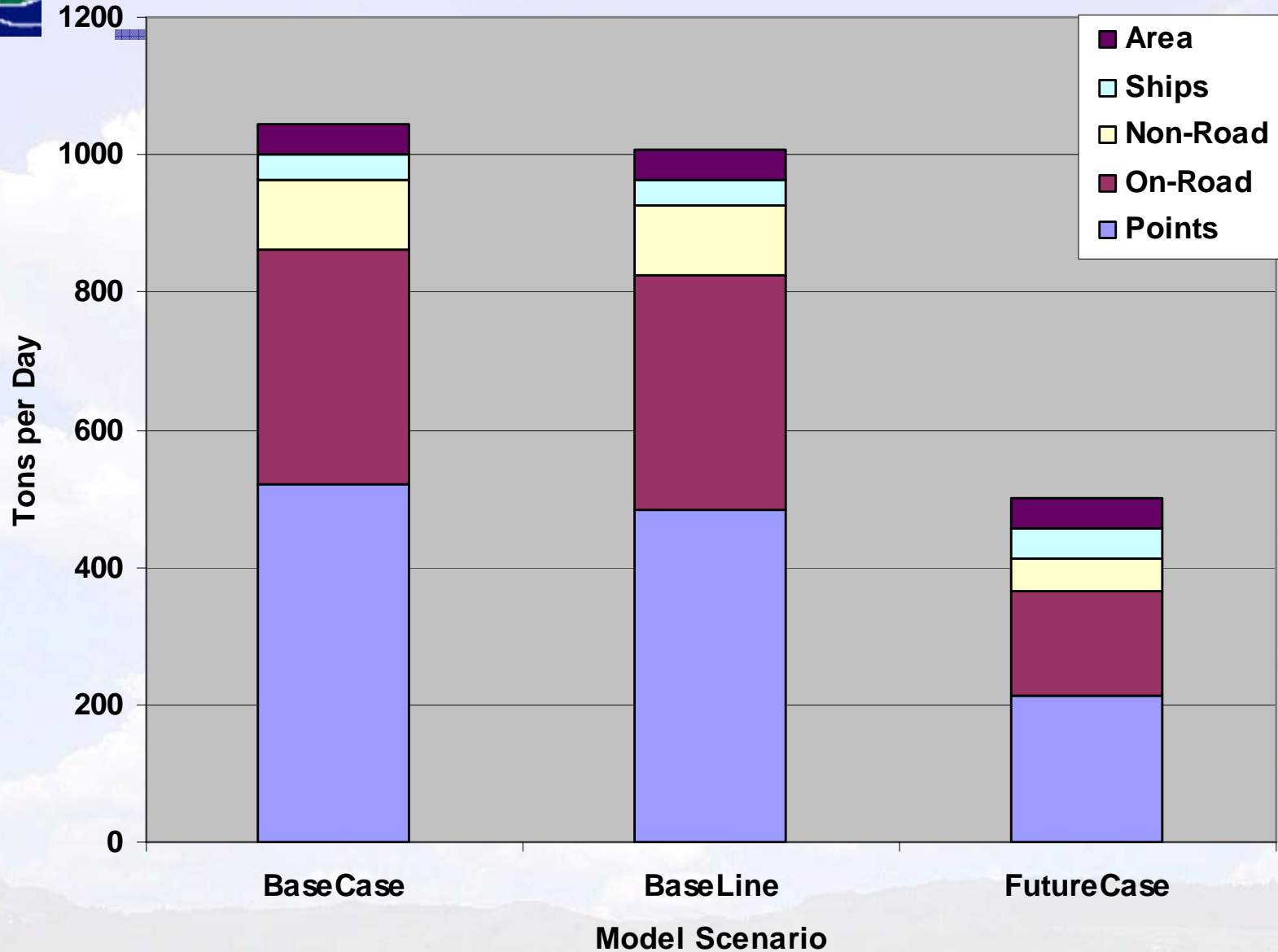
# HGB 2009 Future Case Model Results

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- Modeling for 2000 baseline completed
  - Same as Base Case except for removal of EGU, Special Inventory variability
- Modeling for 2009 future base completed
  - Includes growth and all adopted federal & state measures.

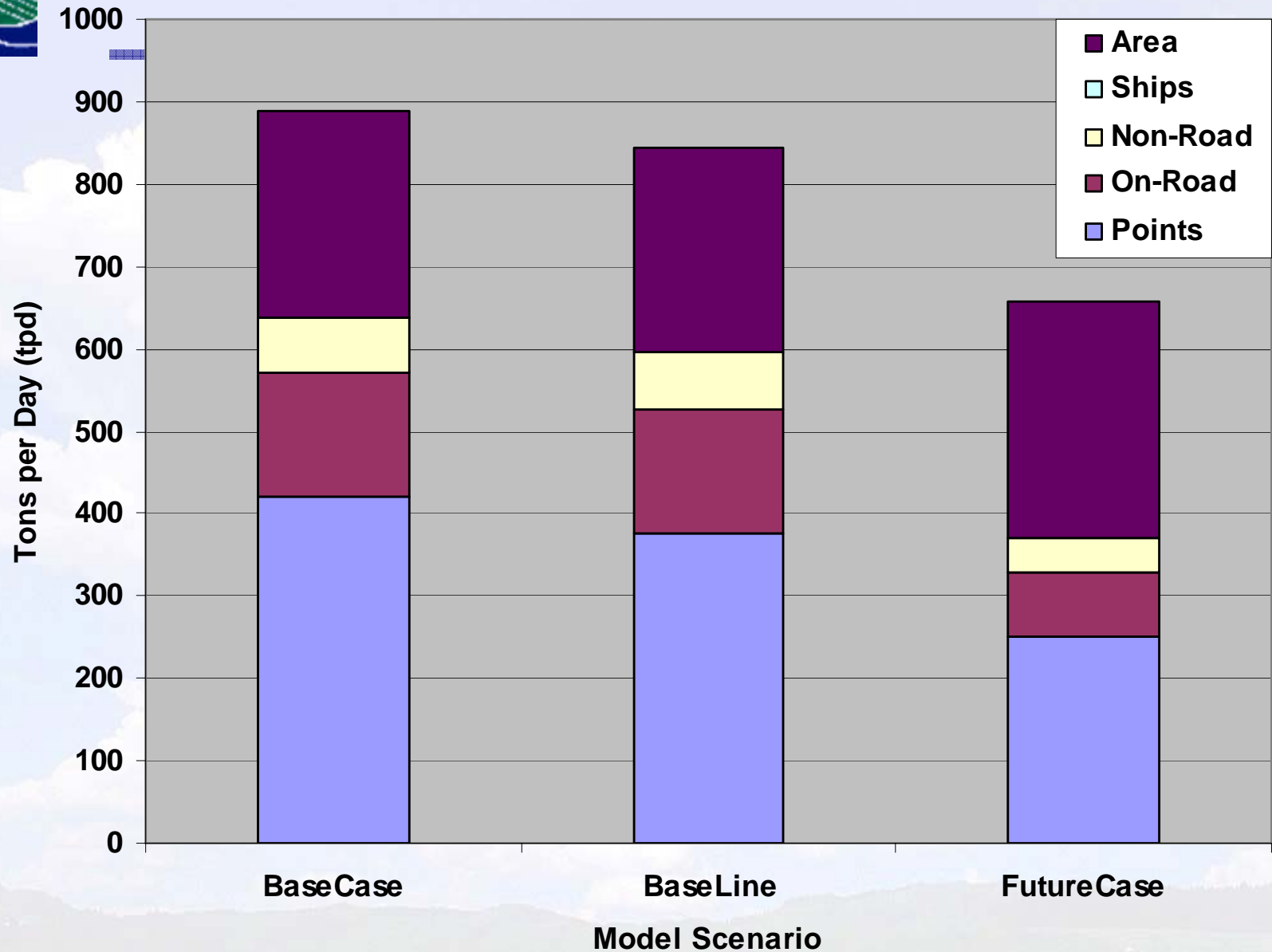


# HGB 8-County Modeled NOx Emissions



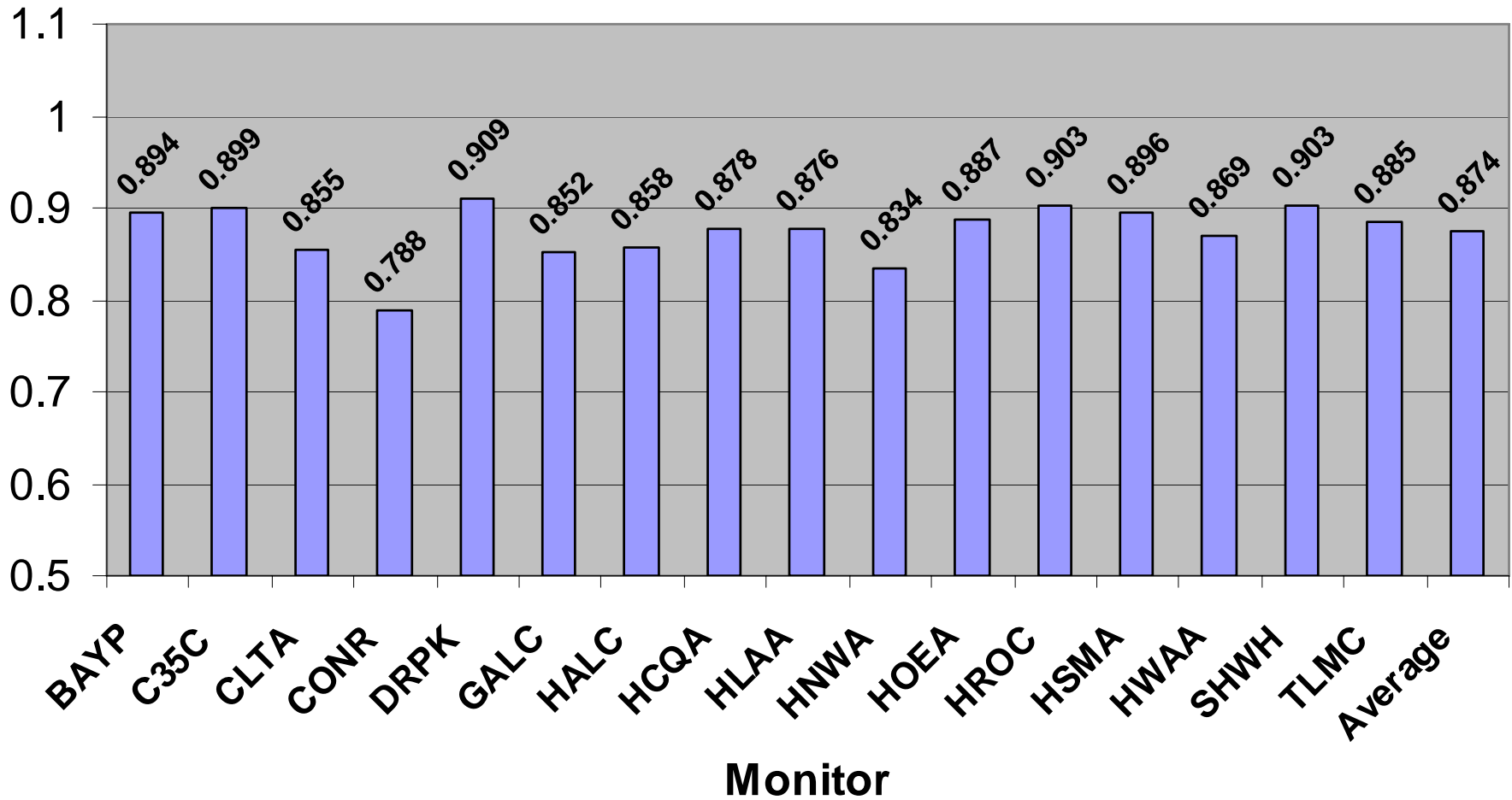


# HGB 8-County Modeled VOC Emissions





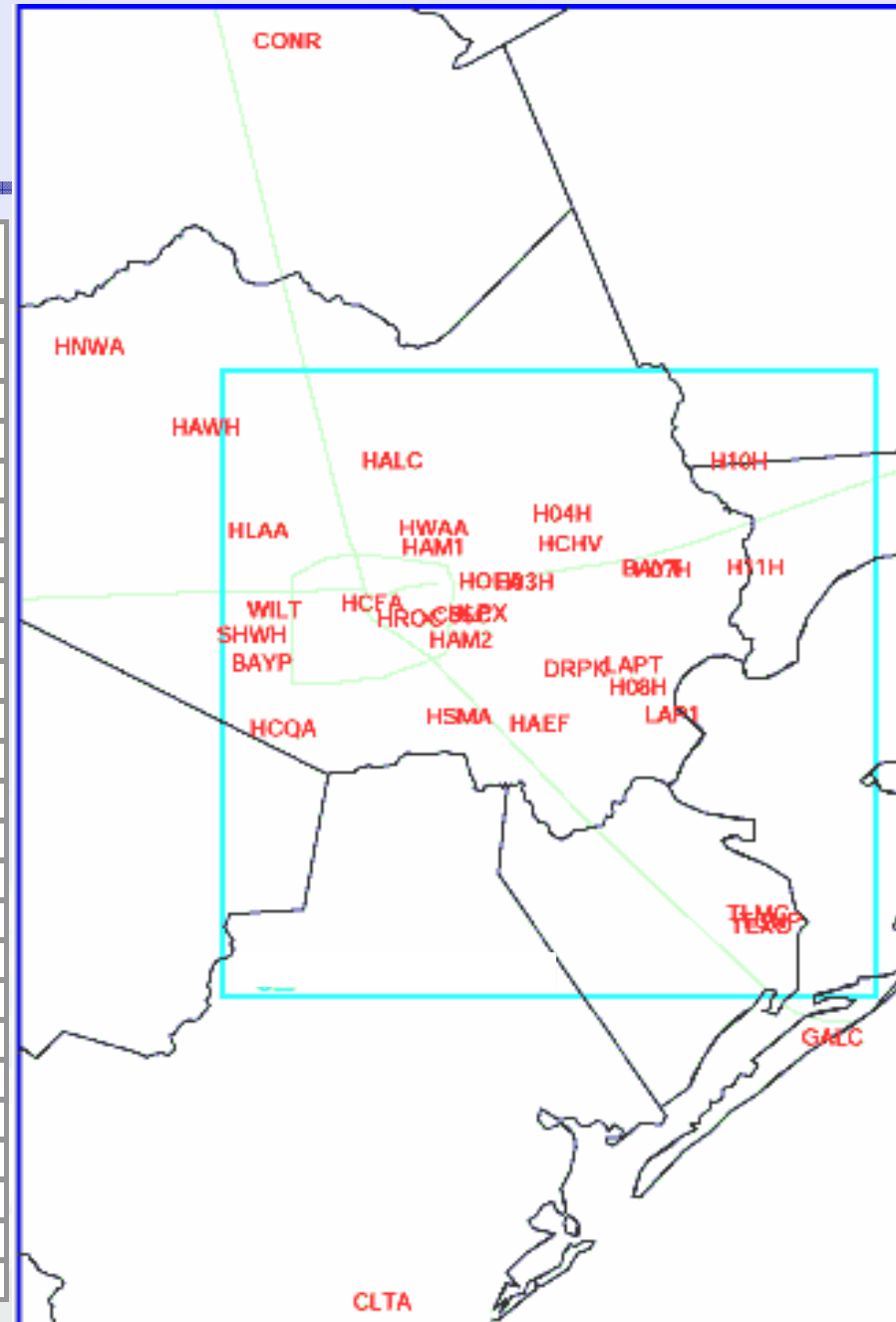
## HGB 2000 to 2009 Relative Reduction Factors





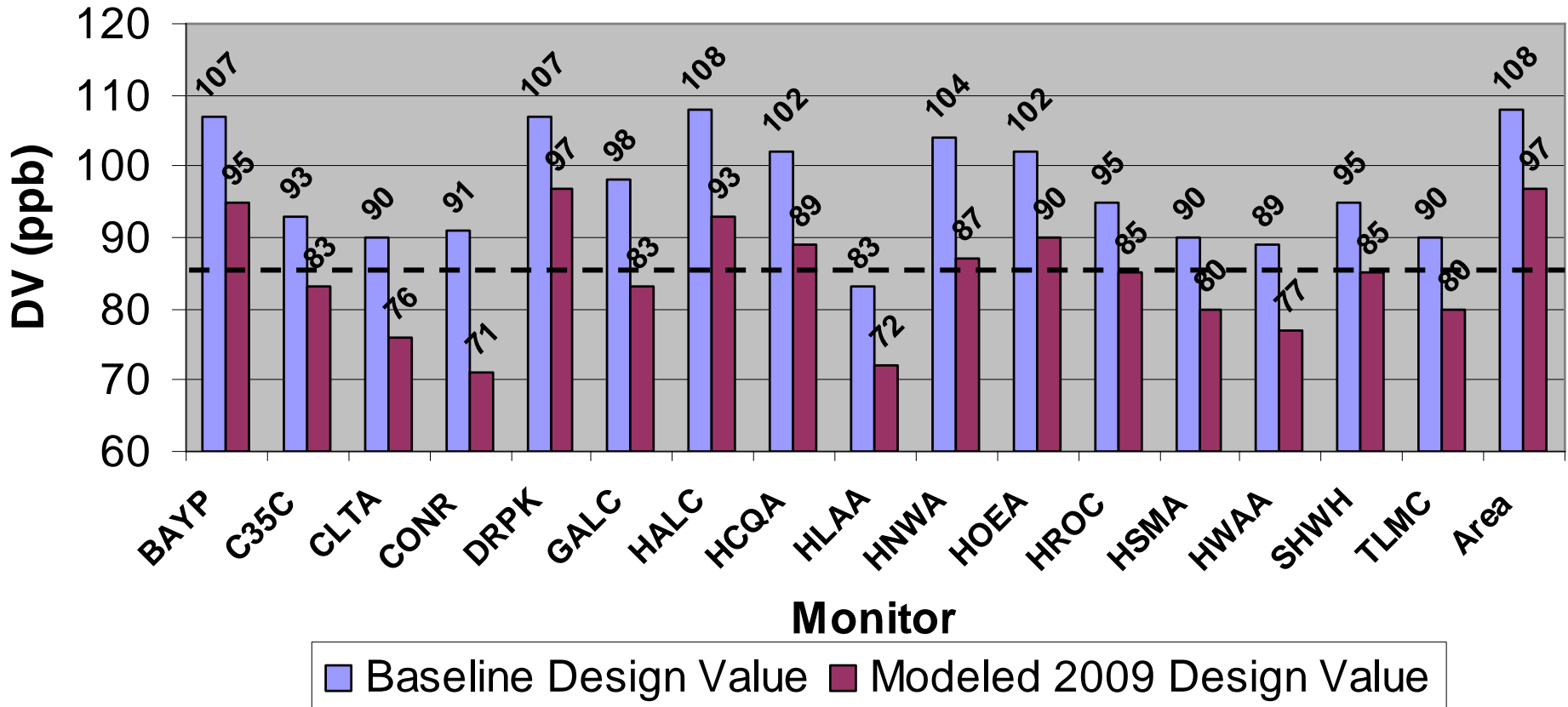
# Monitor Site Codes and Locations

Site Code	Site Info
BAYP	Bayland Park, Harris Co., TX
C35C	Clinton, Harris Co., TX
CLTA	Clute, Brazoria Co., TX
CONR	Conroe, Montgomery Co., TX
DRPK	Deer Park, Harris Co., TX
GALC	Galveston, Galveston Co., TX
H03H	HRM Site 3, Houston, Harris Co., TX
H04H	HRM Site 4, Houston, Harris Co., TX
H07H	HRM Site 7, West Baytown, Harris Co., TX
H08H	HRM Site 8, Houston, Harris Co., TX
H10H	HRM Site 10, Mont Belvieu, Chambers Co., TX
H11H	HRM Site 11, Chambers Co., TX
HALC	Aldine, Houston, Harris Co., TX
HCFA	Crawford, Houston, Harris Co., TX
HCQA	Croquet, Houston, Harris Co., TX
HLAA	Lang, Houston, Harris Co., TX
HNWA	NW Harris, Tomball, Harris Co., TX
HOEA	Houston East, Houston, Harris Co., TX
HROC	TCEQ Houston Regional Office, Harris Co., TX
HSMA	Swiss & Monroe, Houston, Harris Co., TX
HWAA	North Wayside, Houston, Harris Co., TX
SHWH	Westhollow, Houston, Harris Co., TX
TLMC	Texas City, Galveston Co., TX
LAPT	La Porte, Harris Co., TX
WILT	Top of Williams Tower (254m AGL), Harris Co., TX

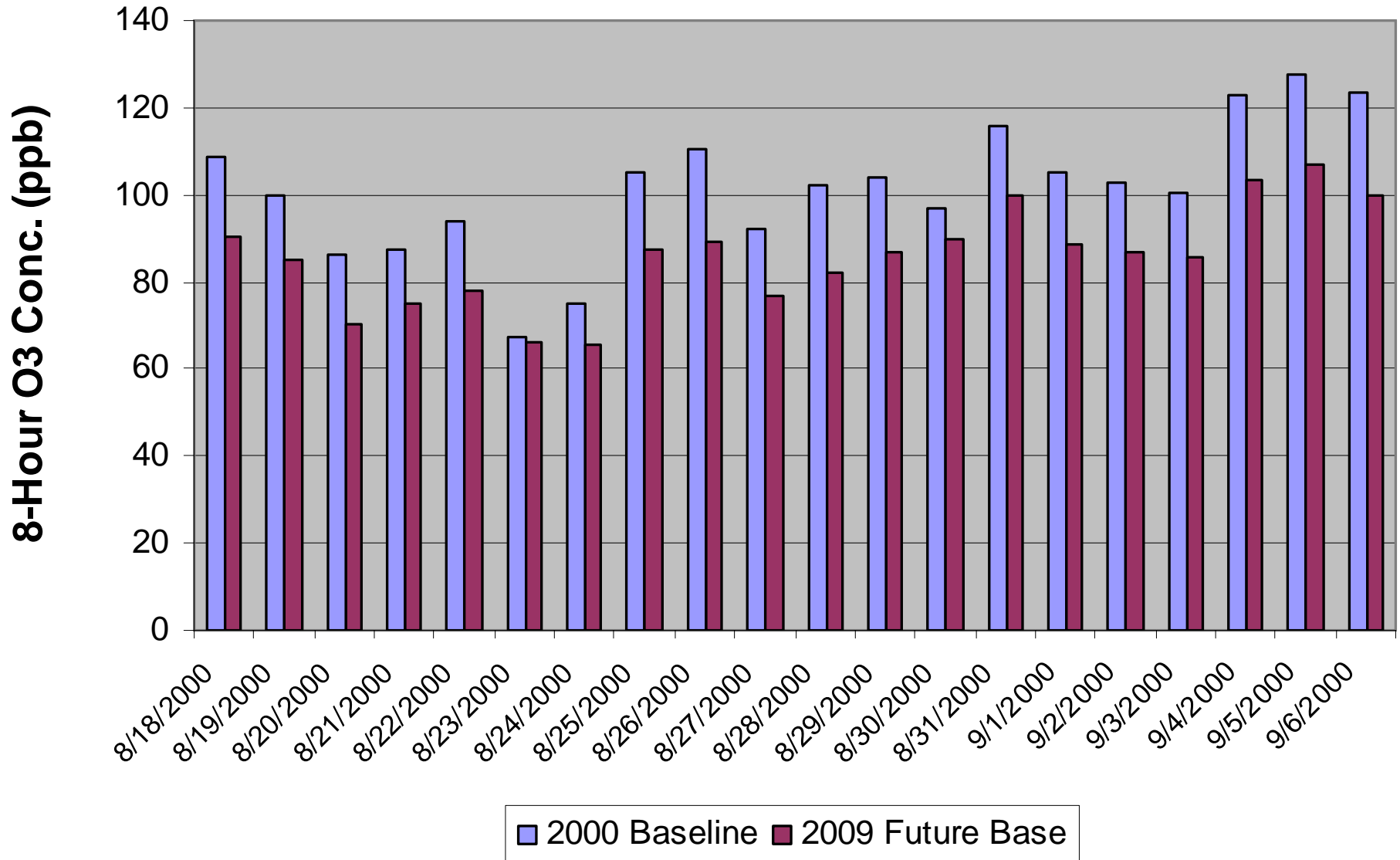




## Base & Future Year Design Values

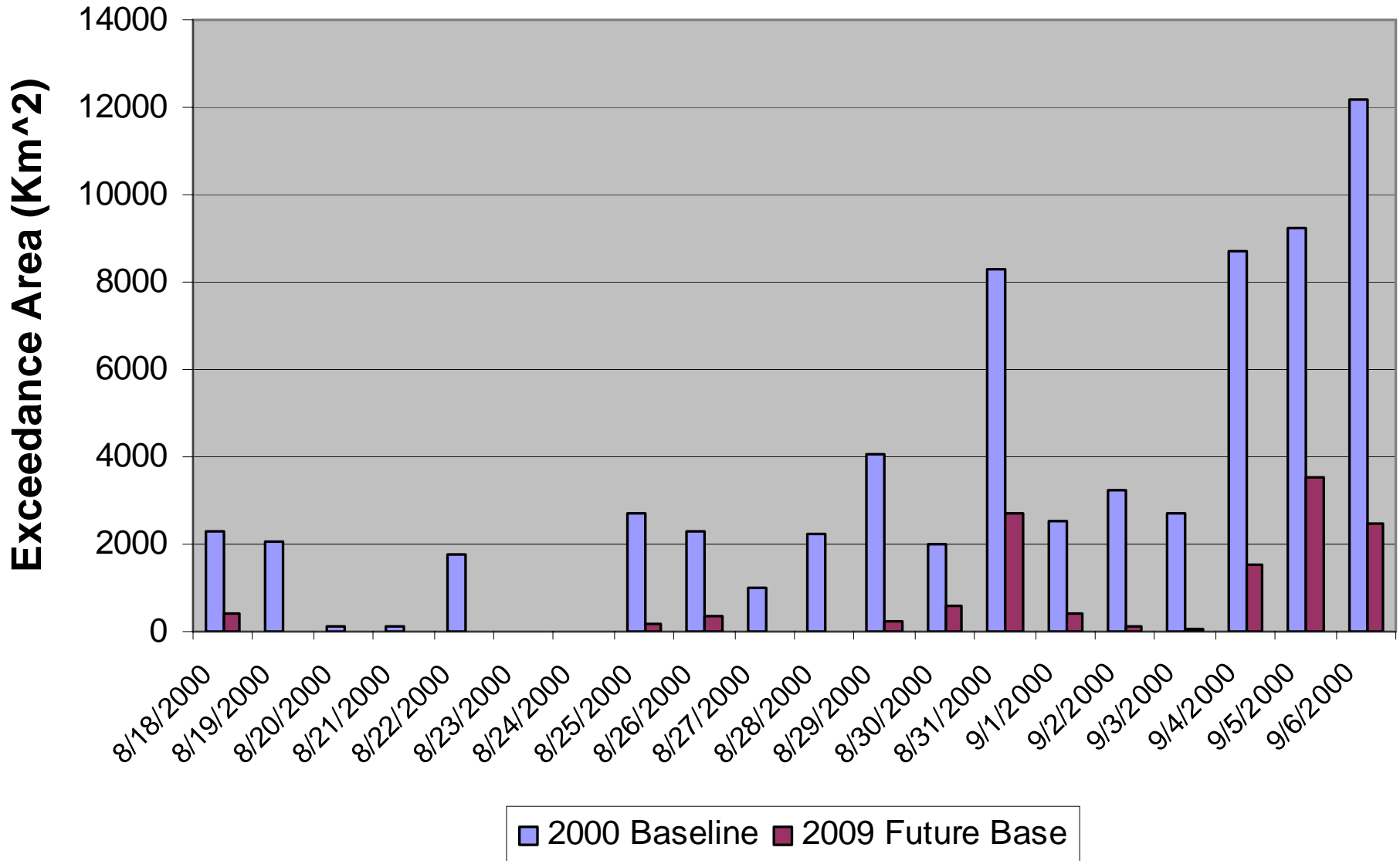


# HGB Modeled Peak 8-Hour Ozone

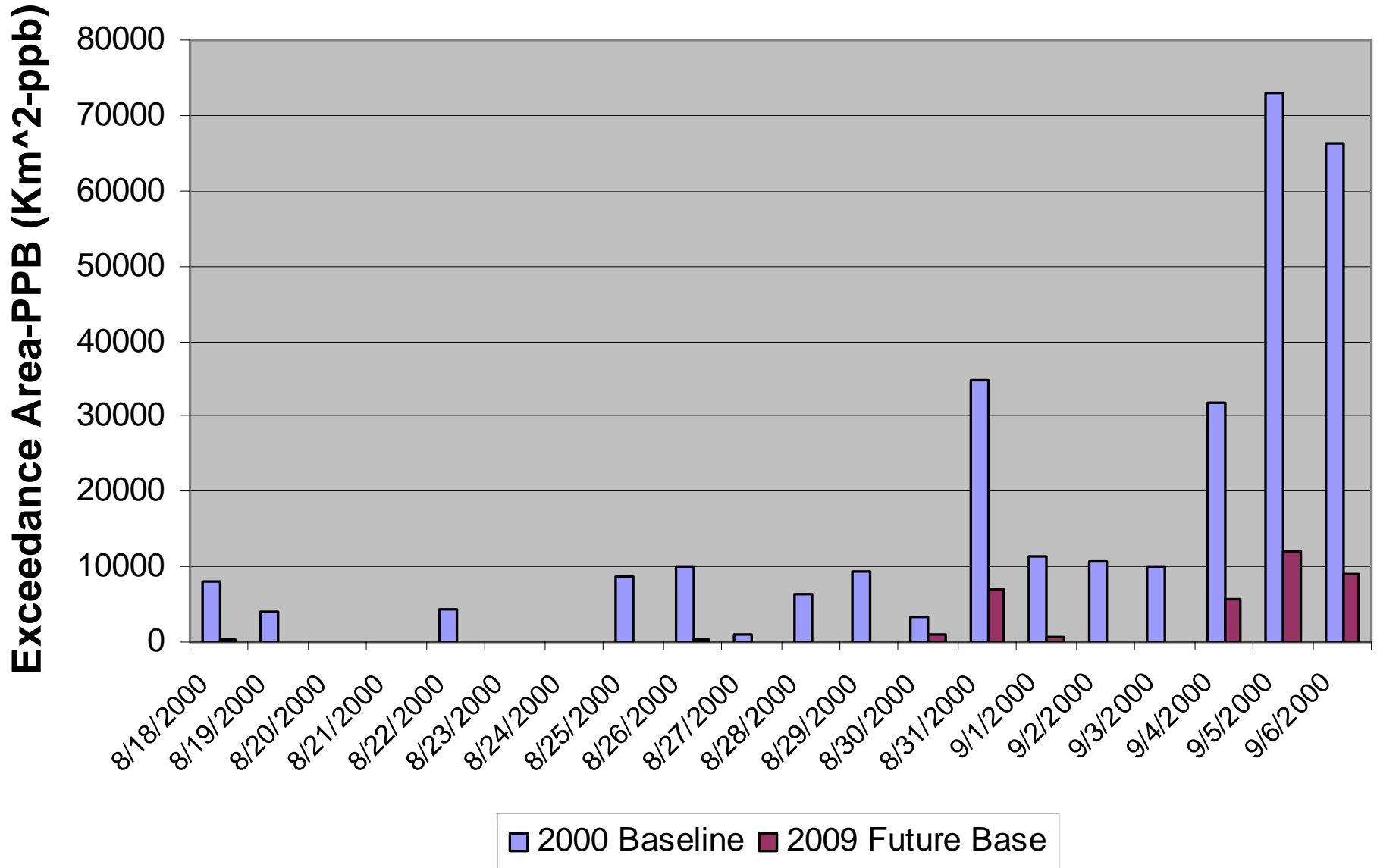




# HGB Modeled 8-Hour Exceedance Area



# HGB Modeled 8-Hour Exceedance Area-PPB



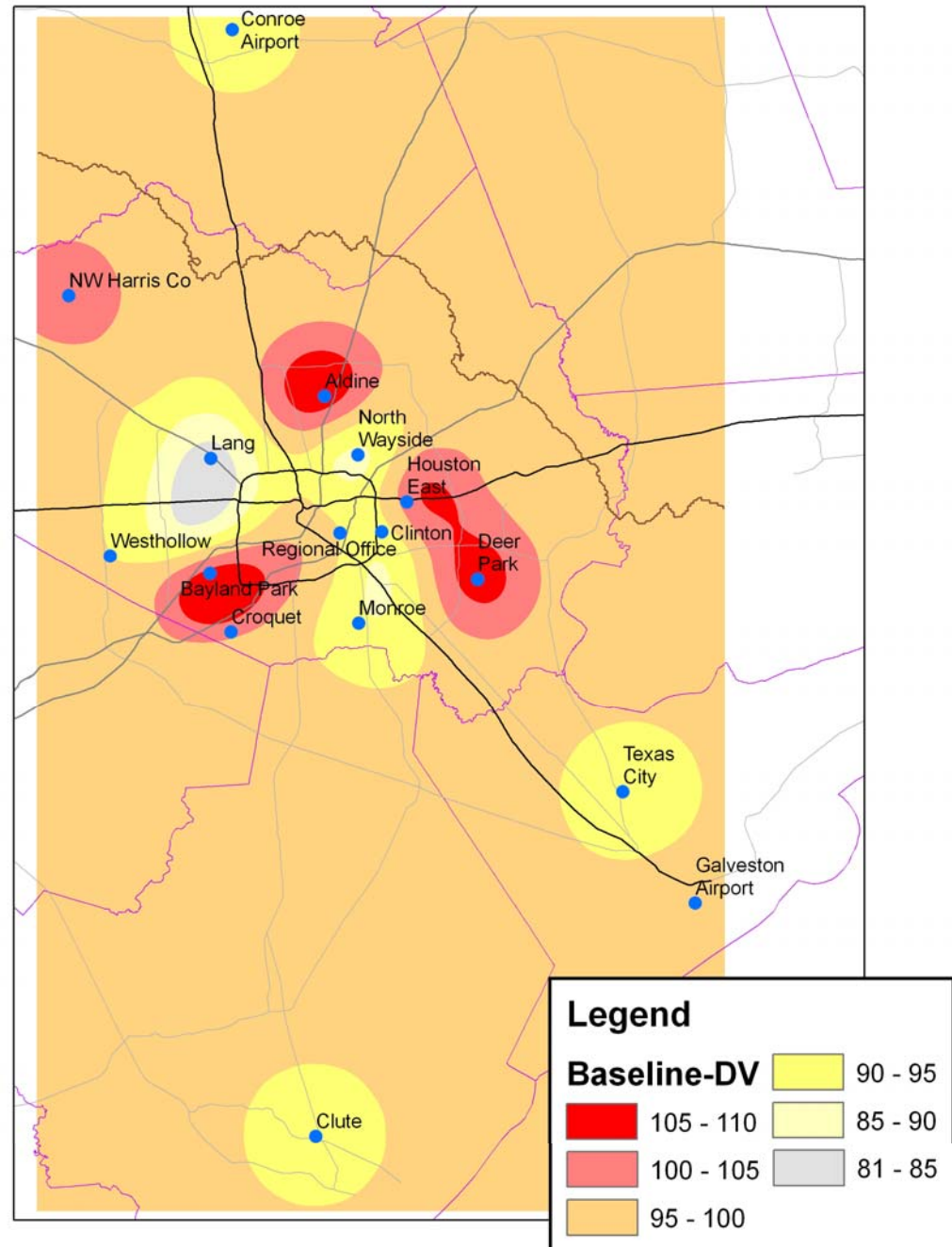


# Comparison of Preliminary 2010 & New 2009 Modeling Results

Monitoring Site	Future Design Values	
	Preliminary 2010 Modeling	New 2009 Modeling
BAYP	107	95
C35C	94	83
CLTA	85	76
CONR	73	71
DRPK	100	97
GALC	92	83
HALC	93	93
HCQA	90	89
HLAA	71	72
HNWA	89	87
HOEA	94	90
HROC	93	85
HSMA	81	80
HWAA	75	77
SHWH	90	85
TLMC	85	80
<b>Area-Wide Peak</b>	<b>107</b>	<b>97</b>

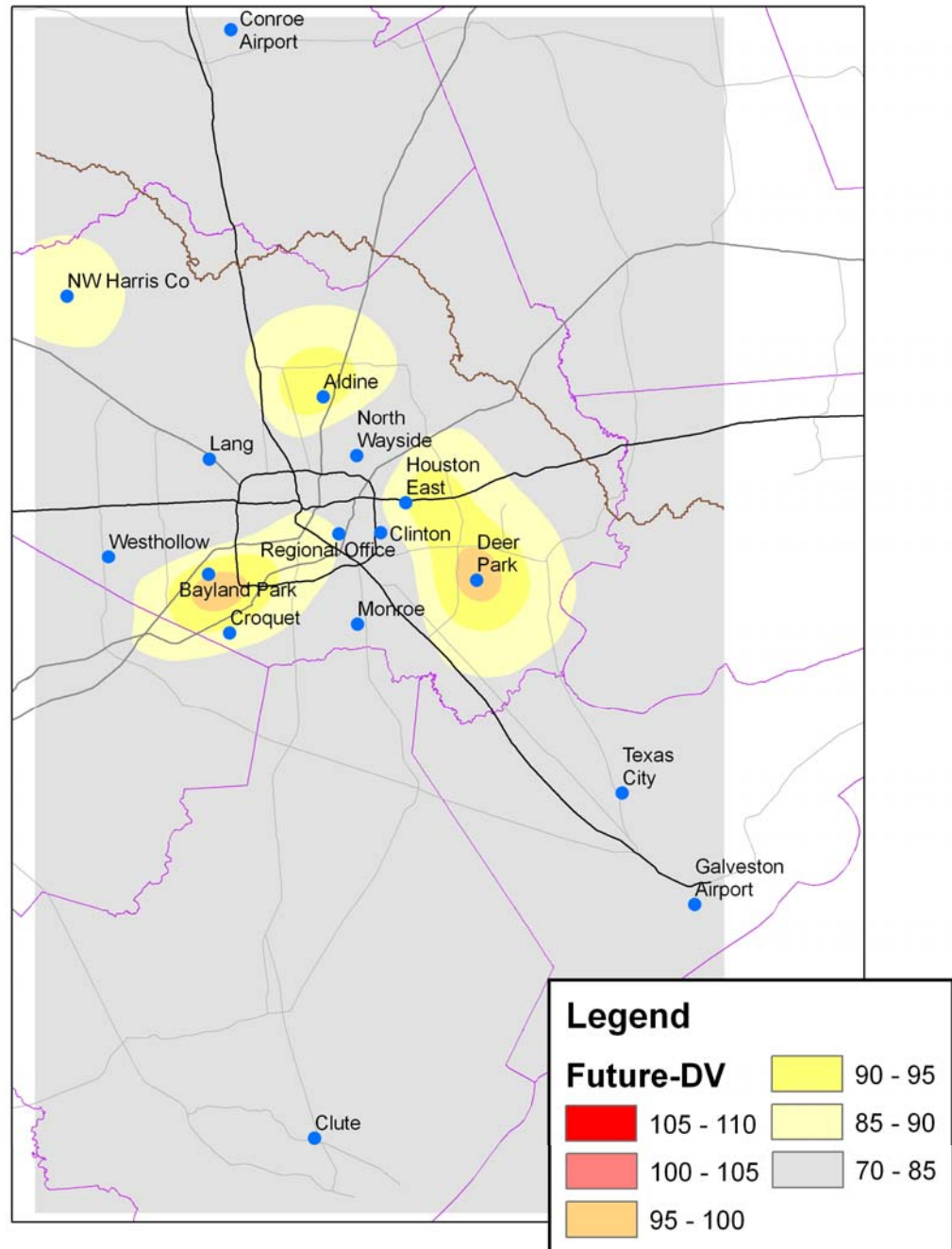


# Spatially Interpolated HGB Baseline Design Values (2000)





# Spatially Interpolated HGB Future Design Values (2009)



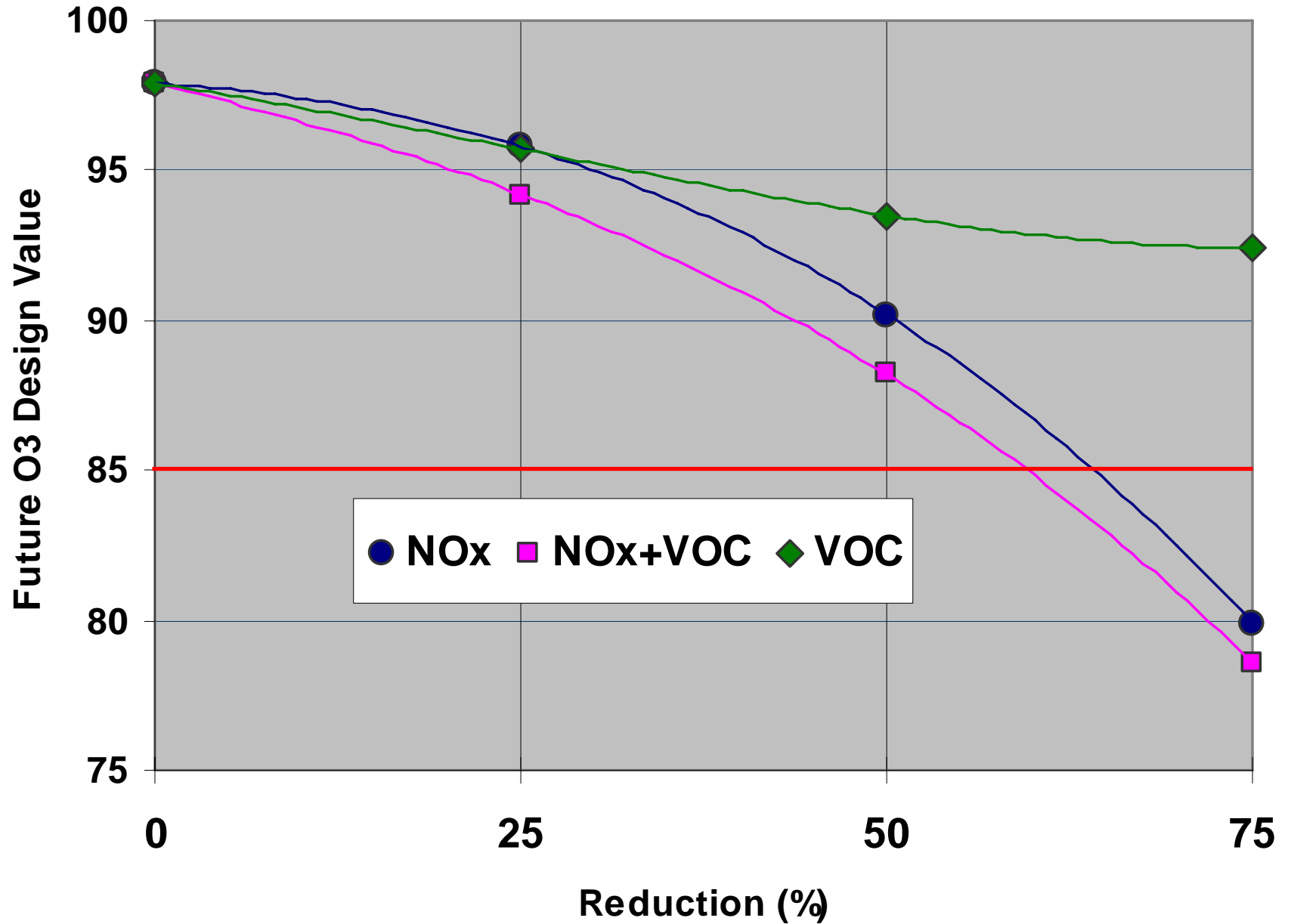


# Across-the-board Sensitivity Runs

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- The 2009 future case was run with a series of across-the-board VOC & NO<sub>x</sub> reductions.
- The following chart shows modeled future design values assuming:
  - No reductions beyond the future base case,
  - 25%, 50% and 75% reduction of VOC only beyond the future base case,
  - 25%, 50% and 75% reduction of NO<sub>x</sub> only beyond the future base case, and
  - 25%, 50% and 75% reduction of each VOC and NO<sub>x</sub> beyond the future base case.

# 2009 Modeled O3





# Summary

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- New model configuration is much more responsive to emission reductions than modeling used in earlier 2010 sensitivity runs.
- Modeled 2009 future design value for HGB is 97 ppb (at Deer Park), before any additional control measures.





## Summary (Cont.)

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- Modeling estimates that attainment could be reached with ~60% reduction in each  $\text{NO}_x$  & VOC emissions, or ~65% reduction in  $\text{NO}_x$  emissions only.
- The model responds better to  $\text{NO}_x$  reductions than to VOC reductions. The modeling indicates that VOC reductions alone cannot bring the area into attainment of the 8-hour standard.