

## Supplementary Material

Table S1. CAAQS management levels.

Management Level	Max 8 h Daily Avg O <sub>3</sub> (ppb)		PM <sub>2.5</sub> annual (µg m <sup>-3</sup> )	PM <sub>2.5</sub> 24 h (µg m <sup>-3</sup> )	NO <sub>2</sub> annual (ppb)		NO <sub>2</sub> 1 h (ppb)		Action
	2020	2025	2020	2020	2020	2025	2020	2025	
Red (CAAQS)	>62	>60	>8.8	>27	>17	>12.0	>60	>42	Reduce pollutant levels through advanced management actions
Orange	57–62	57–60	6.5–8.8	20–27	7.1–17	7.1–17	32–60	32–60	Improve air quality through active air management and prevent exceedance
Yellow	51–56	51–56	4.1–6.4	11–19	2.1–7.0	2.1–7.0	21–31	21–31	Improve air quality using early and ongoing actions for continuous improvement
Green	≤50	≤50	≤4.0	≤0	≤2	≤2	≤20	≤20	Maintain air quality through proactive air management to keep clean areas clean

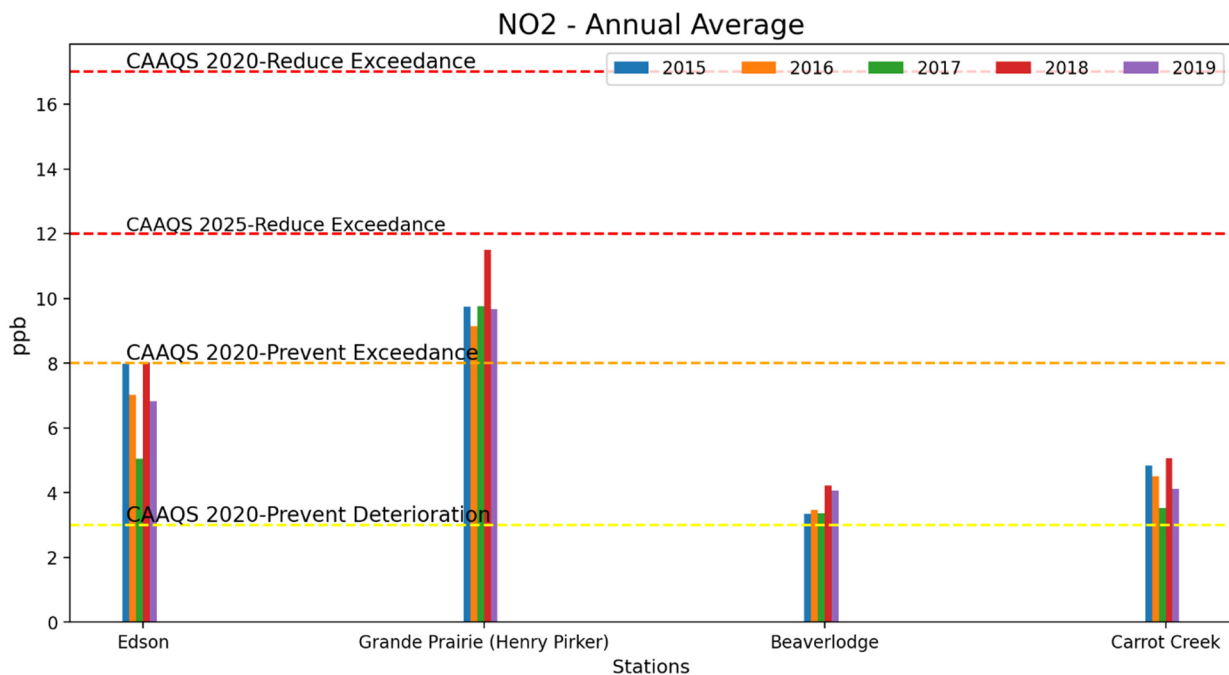
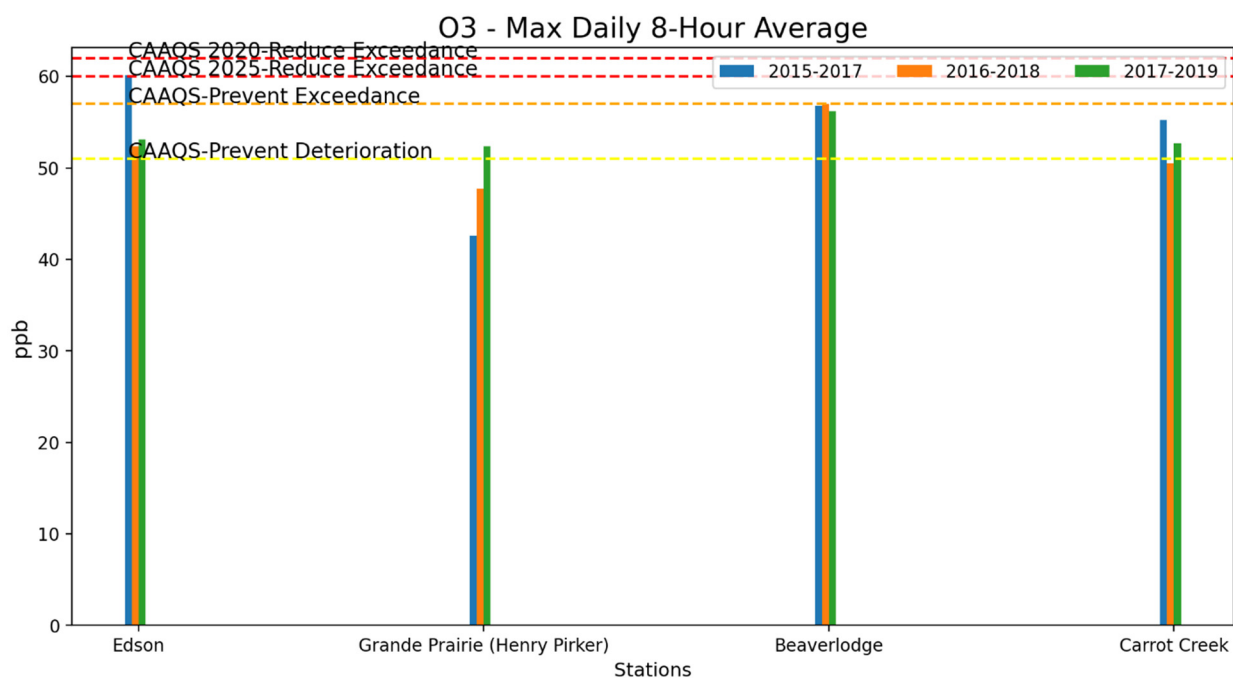
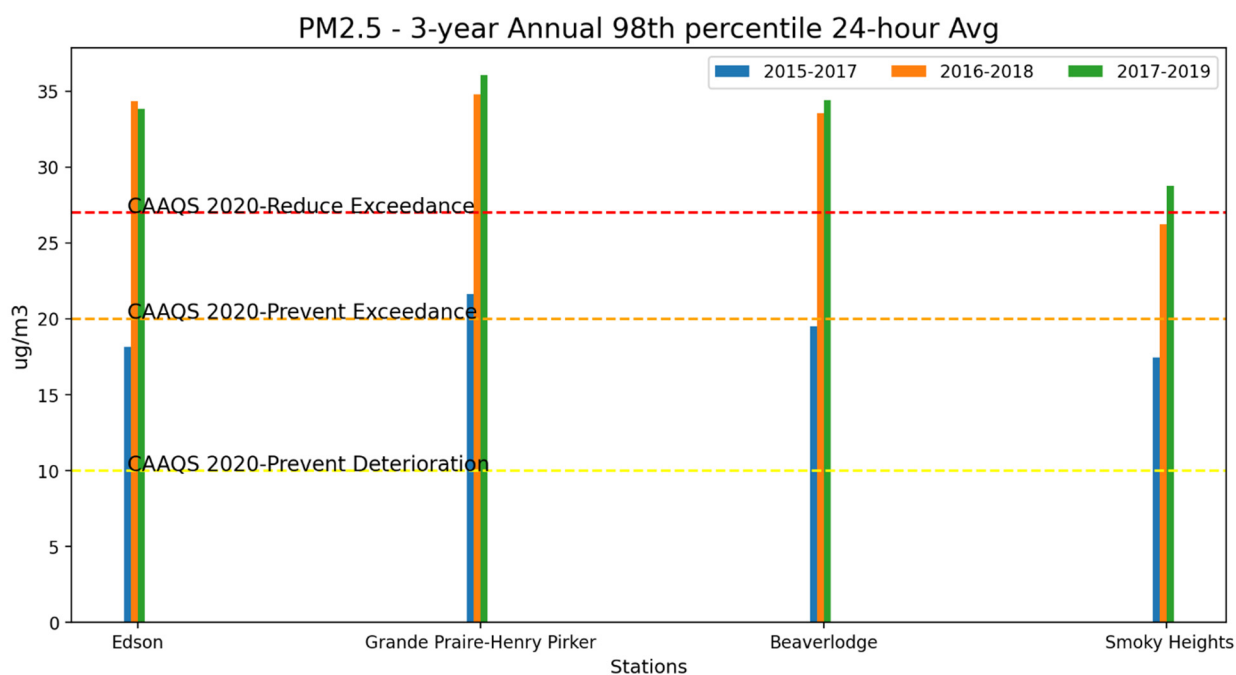


Figure S1. Historical annual average NO<sub>2</sub>.



**Figure S2.** Historical 3-year annual average 4<sup>th</sup> highest daily max 8 h O<sub>3</sub>.



**Figure S3.** Historical daily average PM<sub>2.5</sub>.

**Table S2.** Model species and their descriptions.

Model Species	Description	Molecular Weight
ASO <sub>4</sub>	Sulfate	96
ANO <sub>3</sub>	Nitrate	62
ANH <sub>4</sub>	Ammonium	18
AEC	Elemental Carbon	12
ANA	Sodium	23
ACL	Chloride	35.5
AXYL1	Semivolatile High-NO <sub>x</sub> SOA product from Xylene	174

AXYL2	Semivolaitle High-NOx SOA product from Xylene	185
AXYL3	Low-Volatility Low-NOx SOA product from Xylene	218
ATOL1	Semivolatile High-NOx SOA product from Toluene	163
ATOL2	Semivolaitle High-NOx SOA product from Toluene	175
ATOL3	Low-Volatility Low-NOx SOA product from Toluene	194
ABNZ1	Semivolatile High-NOx SOA product from Benzene	161
ABNZ2	Semivolatile High-NOx SOA product from Benzene	134
ABNZ3	Low-Volatility Low-NOx SOA product from Benzene	180
AISO1	Semivolatile SOA product from Isoprene	132
AISO2	High-Volatility SOA product from Isoprene	133
AISO3	Acid-catalyzed Isoprene Epoxydiol SOA	168.2
ATRP1	Semivolatile SOA product from Monoterpenes	177
ATRP2	High-Volatility SOA product from Monoterpenes	198
ASQT	Semivolatile SOA product from Sesquiterpenes	273
AOLGA	Oligomer products of anthropogenic SOA compounds	206
AOLGB	Oligomer products of biogenic SOA compounds	248
AORGC	Glyoxal and methylglyoxal SOA produced in cloud water	177

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