

For the 2012 modeling projection, the greatest impact anywhere in the modeling domain from Eagle Ford Emissions was 9.3 ppb on June 13<sup>th</sup> (Table 6-1). In 2018, the greatest impact was 8.7 ppb for the Eagle Ford low scenario and 14.2 ppb for the Eagle Ford high scenario. The maximum impact ranged from 3.0 ppb on June 9<sup>th</sup> to 14.2 ppb on June 13<sup>th</sup> in 2018.

Year	Scenario	6/3	6/7	6/8	6/9	6/13	6/14	6/26	6/27	6/28	6/29			
2012	Eagle Ford	4.2	3.7	3.1	2.8	9.3	8.4	3.2	4.9	4.5	3.6			
	Eagle Ford Low	3.8	3.5	3.2	3.0	8.7	7.3	3.3	4.6	4.3	3.2			
2018	Eagle Ford Moderate	5.0	4.4	4.1	3.8	11.3	9.4	4.3	6.1	5.7	4.2			
	Eagle Ford High	6.4	5.6	5.3	4.9	14.2	11.9	5.6	7.8	7.4	5.4			

Table 6-1: Maximum Predicted Change in 8-Hour Ozone in the Modeling Domain, Eagle Ford2012 and 2018, ppb.

The maximum predicted impacts of the Eagle Ford at monitors in the AACOG region are listed in Table 6-2. Predicted ozone at C23, which is one of two monitors in Bexar County that typically measures the highest ozone concentrations in the region, increased by as much as 1.89 ppb in 2012 and between 1.81 to 3.09 ppb in 2018. The 2018 results at C58 were the same as C23 with the Eagle Ford contribution being between 1.81 to 3.09 ppb at the monitor. Since the C59 monitor is in southeast Bexar County and closer to the Eagle Ford, the impact was greater in 2018: 4.45 ppb to 7.82 ppb.

Monitor	Year	Scenario	6/3	6/7	6/8	6/9	6/13	6/14	6/26	6/27	6/28	6/29	Maximum Change	Percentage of Total Ozone
	2012	Eagle Ford	0.44	1.20	1.52	1.89	0.18	1.90	0.00	0.06	0.30	1.18	1.89	1.9%
C23		Eagle Ford Low	0.44	1.30	1.46	1.81	0.24	1.70	0.00	0.06	0.30	1.16	1.81	1.8%
623	2018	Eagle Ford Moderate	0.58	1.69	1.96	2.38	0.31	2.24	0.00	0.08	0.40	1.53	2.38	2.6%
		Eagle Ford High	0.76	2.19	2.59	3.09	0.41	2.92	0.00	0.11	0.53	2.00	3.09	3.4%
	2012	Eagle Ford	0.47	0.91	1.35	1.82	0.17	1.37	0.00	0.06	0.26	1.08	1.82	1.8%
C58		Eagle Ford Low	0.46	1.02	1.19	1.81	0.20	1.35	0.00	0.06	0.27	0.90	1.81	2.0%
000	2018	Eagle Ford Moderate	0.61	1.32	1.55	2.38	0.24	1.77	0.00	0.08	0.36	1.18	2.38	2.6%
		Eagle Ford High	0.76	2.19	2.59	3.09	0.41	2.92	0.00	0.11	0.53	2.00	3.09	3.4%
	2012	Eagle Ford	2.81	2.66	3.06	2.37	3.95	3.55	0.00	0.18	2.44	2.50	3.95	4.7%
C59	2018	Eagle Ford Low	2.53	2.31	2.83	2.20	4.45	2.99	0.00	0.17	2.13	2.45	4.45	4.9%
0.59		Eagle Ford Moderate	3.34	3.02	3.77	2.90	5.99	3.90	0.00	0.22	2.84	3.23	5.99	7.7%
		Eagle Ford High	4.35	3.93	4.92	3.77	7.82	5.06	0.00	0.30	3.72	4.19	7.82	10.1%
	2012	Eagle Ford	1.87	2.73	3.06	2.37	1.24	2.73	0.00	0.15	2.16	2.19	3.06	3.4%
C622		Eagle Ford Low	1.81	2.32	2.83	2.20	1.18	2.31	0.00	0.15	1.78	2.15	2.83	2.9%
0022	2018	Eagle Ford Moderate	2.46	3.06	3.77	2.90	2.20	3.08	0.00	0.20	2.42	2.83	3.77	4.5%
		Eagle Ford High	3.26	3.98	4.92	3.77	3.44	4.05	0.00	0.26	3.22	3.67	4.92	5.9%
	2012	Eagle Ford	0.79	2.66	2.99	2.36	0.45	2.31	0.00	0.12	1.16	1.87	2.99	3.0%
C678		Eagle Ford Low	0.72	2.31	2.80	2.18	0.47	2.07	0.00	0.12	0.51	1.82	2.80	3.4%
0070	2018	Eagle Ford Moderate	0.99	3.02	3.66	2.87	0.62	2.72	0.00	0.16	0.90	2.39	3.66	4.1%
		Eagle Ford High	1.38	3.93	4.72	3.73	0.82	3.54	0.00	0.21	1.44	3.09	4.72	5.3%

Table 6-2: Maximum Change in 8-Hour Ozone at each Monitor, Eagle Ford Emission Inventories 2012 and 2018, ppb.

Based on the maximum difference in the 7x7 4km grids around each monitor

## 6.3 **Modeled Attainment Demonstration**

The modeled attainment demonstration at San Antonio-New Braunfels MSA's regulatory sited monitors was conducted by completing a series of steps that are described in the EPA Guidance on the Use of Models.<sup>270</sup> Two procedures were used to perform the model attainment demonstration: "...analyses which estimate whether selected emissions reductions will result in ambient concentrations that meet the NAAQS and identified set of control measures which will result in the required emissions reductions".271

To determine if a regulatory monitor meets the NAAQS, three calculations were performed:

- 1. determine the baseline five year weighted modeling site-specific design value (DV),
- 2. calculate the daily relative response factor, and
- 3. calculate of the future site-specific design values.

These calculations were performed for all monitors that meet EPA regulatory sitting requirements for days when the 8-hour predicted DV is equal or greater than 70 ppb; C23, C58. C59, C622, and C678.<sup>272</sup> Non-regulatory monitors operated by AACOG were not included in the calculations.

The period that was used to determine the baseline DV is the five years that straddle the 2012 baseline inventory year. The design value for 2010-2012 was used to determine the baseline modeling DV. The 2011-2013 and 2012-2014 design values were not included because the 2013 and 2014 ozone seasons are not completed. As determined by the EPA, "the average DV methodology is weighted towards the inventory year (which is the middle year) and also takes into account the emissions and meteorological variability that occurs over the full five year period".<sup>273</sup> The baseline modeling DV was calculated for each regulatory monitor that meets EPA's modeling guideline recommendations (Table 6-3). As shown, C58 has the highest baseline modeling DV at 80 ppb. The baseline modeling DVs at the other regulatory monitors are 77 ppb at C23, 74 ppb at CAMS 622, 69 ppb at C59, and 69 ppb at C678.

Monitoring Site	2010-2012 DV, ppb	Baseline DV Used in the Modeling Attainment Test, ppb				
CAMS 23	77.3	77.3				
CAMS 58	80.0	80.0				
CAMS 59	69.3	69.3				
CAMS 622	74.0	74.0				
CAMS 678	69.6	69.6				

Table 6-3: Calculated Baseline Modeling	Site-Specific Design Value, 2012

<sup>&</sup>lt;sup>270</sup> EPA, April 2007. "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze." EPA -454/B-07-002. Research Triangle Park, North Carolina. p. 39. Available online: http://www.epa.gov/scram001/guidance/guide/final-03-pm-rh-<u>guidance.pdf</u>. Accessed 06/04/13. <sup>271</sup> <u>Ibid</u>., p. 15.

<sup>&</sup>lt;sup>272</sup> <u>Ibid</u>., p. 146.

<sup>&</sup>lt;sup>273</sup> <u>Ibid</u>., p. 22.

The model attainment test requires the calculation of a daily relative response factor (RRF). Instead of using the absolute photochemical model output, a RRF is calculated using the baseline and future case modeling. The ratio between future and baseline modeling 8-hour ozone predictions near each monitor was multiplied by the monitor-specific modeling DV. The formula used to calculate the RRF is:

Equation 6-1, Design Value Calculation  $(DVF)_{I} = (RRF)_{I} (DVB)_{I}$ 

Where.

 $(DVF)_{I}$  = the baseline ozone modeling DV at site I (ppb)  $(RRF)_{I}$  = the relative response factor, calculated near site I (DVB)<sub>I</sub> = the estimated future ozone DV for the time attainment is required (ppb)<sup>274</sup>

Since the June 2006 photochemical modeling episode uses a 4-km fine grid system, the area near a monitor was defined as the 7x7 array of grid cells surrounding the monitor.<sup>275</sup> The highest predicted 8-hour daily ozone was selected in the 7x7 array for each monitor for both the 2012 projection year and the 2018 projection year. The grid cell selected in the baseline year and the future year was not always the same cell. Once the monitor-specific RRF was calculated for each day, the RRF was averaged for days with a peak monitor value greater than 70 ppb in the 2012 base case. The future site-specific DV for each monitor is provided in Table 6-4. The gray strike-through numbers are values that fall below the EPA requirement of 70 ppb.

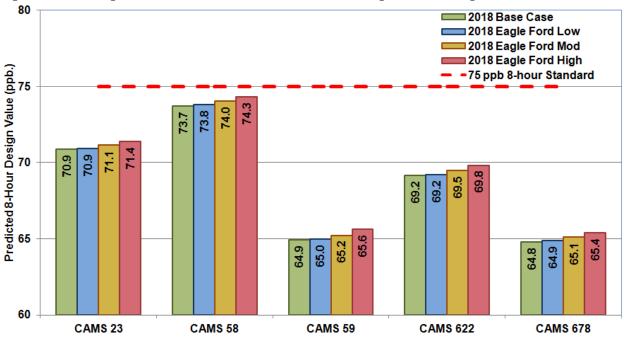
For the Eagle Ford low scenario, the 2018 design value was 70.9 ppb at C23, 73.8 ppb at C58, and 65.0 ppb at C59. Under the Eagle Ford high scenario, the design values increase to 71.4 ppb at C23, 74.3 ppb at C58, and 65.6 ppb at C59 (Figure 6-4). The design value increased 0.5 ppb at C23, 0.6 ppb at C58, and 0.7 ppb at C59 under the Eagle Ford high scenario. All regulatory-sited monitors meet the 75 ppb 8-hour ozone standard for every 2018 projection case. However, the 2018 design value at C58 is very close the current 75 ppb 8-hour ozone NAAQS. If the EPA lowers the 8-hour ozone standard, it would be difficult for the San Antonio-New Braunfels MSA to attain the new standard.

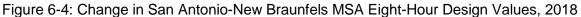
<sup>&</sup>lt;sup>274</sup> EPA. April 2007. "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze." EPA -454/B-07-002. Research Triangle Park. North Carolina. p. 20. Available online: http://www.epa.gov/scram001/guidance/guide/final-03-pm-rh-<u>guidance.pdf</u>. Accessed 06/04/13. <sup>275</sup> <u>Ibid</u>., p. 26.

04440	Veee	Dura Lahal	-						Ep	isode da	ays						
CAMS	Year	Run Label	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>	12 <sup>th</sup>	13 <sup>th</sup>	14 <sup>th</sup>	15 <sup>th</sup>
	2012	Base Case	<del>51.9</del>	<del>61.4</del>	72.5	<del>66.4</del>	<del>60.0</del>	<del>64.3</del>	76.1	73.5	79.8	76.2	<del>63.6</del>	76.0	101.6	89.9	64.1
	2012	Eagle Ford	<del>52.0</del>	<del>61.5</del>	72.9	<del>67.4</del>	<del>61.3</del>	<del>65.3</del>	76.6	74.4	81.4	77.0	<del>64.7</del>	76.9	101.7	91.1	<u>64.8</u>
C23	2018	Base Case	-	-	67.2	-	-	-	69.9	67.5	72.9	70.0	-	69.5	91.1	82.0	-
023	2018	Eagle Ford Low	-	-	67.6				70.5	68.4	74.5	70.9		70.4	91.3	83.3	
	2018	Eagle Ford Mod	-	-	67.7	-	-	I	70.7	68.7	75.1	71.2	-	70.7	91.3	83.7	-
	2018	Eagle Ford High	-	-	67.8	-	-	-	70.9	69.0	75.7	71.6	-	71.1	91.4	84.2	-
	2012	Base Case	<del>51.3</del>	61.4	<del>69.1</del>	<u>67.2</u>	<del>60.5</del>	69.0	77.1	74.1	79.7	79.7	<del>65.5</del>	75.6	100.6	88.8	<u>64.9</u>
	2012	Eagle Ford	<del>51.4</del>	<del>61.5</del>	<del>69.5</del>	<del>68.2</del>	<del>61.9</del>	70.2	77.6	74.9	81.2	80.4	<del>66.6</del>	76.4	100.7	90.1	<del>65.7</del>
C58	2018	Base Case	-	I	-	I	-	64.5	70.3	68.0	72.7	73.1	-	69.3	90.6	81.8	-
0.50	2018	Eagle Ford Low	-	-	-	-	-	65.7	70.9	68.8	74.2	73.9		70.3	90.8	83.1	-
	2018	Eagle Ford Mod	-	-	-	-	-	66.0	71.0	69.1	74.7	74.1	-	70.6	90.8	83.5	-
	2018	Eagle Ford High	-	-	-	-	-	66.5	71.3	69.4	75.3	74.5	-	71.0	90.9	84.0	-
	2012	Base Case	<del>51.6</del>	<del>54.5</del>	71.2	<del>60.7</del>	<del>54.0</del>	<del>52.5</del>	<del>57.3</del>	<del>62.8</del>	69.8	70.9	<del>54.1</del>	<del>55.1</del>	83.7	76.3	<del>63.7</del>
	2012	Eagle Ford	<del>51.8</del>	<del>54.7</del>	71.7	<del>62.3</del>	<del>55.4</del>	<del>54.5</del>	<del>59.0</del>	<del>64.5</del>	71.8	72.4	<del>55.9</del>	<del>57.0</del>	83.9	77.7	<del>64.5</del>
C59	2018	Base Case	-	I	67.0	I	-	1	I	-	66.5	66.7	-	I	77.1	71.6	-
039	2018	Eagle Ford Low	-	-	67.5	-	-	-	-	-	68.3	68.3	-	-	77.3	72.9	-
	2018	Eagle Ford Mod	-	-	67.7	-	-	-	-	-	68.8	68.8	-	-	77.4	73.3	-
	2018	Eagle Ford High	-	-	67.9	-	-	-	-	-	69.6	69.4	-	-	77.5	74.2	-
	2012	Base Case	<del>51.6</del>	<del>54.5</del>	71.2	<del>62.3</del>	<del>54.5</del>	<del>53.8</del>	<del>61.6</del>	<del>62.8</del>	71.1	73.7	<del>56.8</del>	<del>59.5</del>	90.8	79.6	<del>63.7</del>
	2012	Eagle Ford	<del>51.8</del>	<del>54.7</del>	71.7	<del>63.8</del>	<del>55.9</del>	<del>55.7</del>	<del>63.0</del>	<del>64.5</del>	73.1	75.4	<del>58.5</del>	<del>60.8</del>	91.0	80.4	<del>64.5</del>
C622	2018	Base Case	-	-	67.0	-	-	-	-	-	67.5	69.6	-	-	82.6	74.1	-
0022	2018	Eagle Ford Low	-	-	67.5	-	-	-	-	-	69.4	71.3	-	-	82.8	75.0	-
	2018	Eagle Ford Mod	-	-	67.7	-	-	-	-	-	69.9	71.8	-	-	82.9	75.3	-
	2018	Eagle Ford High	-	-	67.9	-	-	-	-	-	70.7	72.5	-	-	83.0	75.7	-
	2012	Base Case	<del>51.8</del>	<del>57.6</del>	71.8	<del>64.6</del>	<del>56.0</del>	<del>57.5</del>	<del>66.0</del>	<u>64.8</u>	74.1	75.2	<del>60.3</del>	<del>67.8</del>	98.6	85.4	<del>63.</del> 4
	2012	Eagle Ford	<del>52.0</del>	<del>57.8</del>	72.2	<del>65.9</del>	<del>57.4</del>	<del>59.5</del>	<del>66.8</del>	<del>66.0</del>	75.9	76.6	<del>61.6</del>	<u>68.7</u>	98.7	86.7	<del>64.4</del>
C678	2018	Base Case	-	-	67.3	-	-	-	-	-	69.8	71.0	-	-	89.5	79.5	-
010	2018	Eagle Ford Low	-	-	67.7	-	-	I	-	-	71.5	72.6	-	-	89.6	80.8	-
	2018	Eagle Ford Mod	-	-	67.8	-	-	-	-	-	72.0	73.0	-	-	89.7	81.2	-
	2018	Eagle Ford High	-	-	67.8			66.0	71.0	69.1	75.1	74.1		70.7	91.3	83.7	-

Table 6-4: Peak 8-hour Ozone (ppb) Predictions at C23, C58, C59, C622, and C678: 2012 and 2018 Modeled Cases

0.110	V								Ep	isode da	ays							Design
CAMS	Year	Run Label	16 <sup>th</sup>	17 <sup>th</sup>	18 <sup>th</sup>	19 <sup>th</sup>	20 <sup>th</sup>	21 <sup>st</sup>	22 <sup>nd</sup>	23 <sup>rd</sup>	24 <sup>th</sup>	25 <sup>th</sup>	26 <sup>th</sup>	27 <sup>th</sup>	28 <sup>th</sup>	29 <sup>th</sup>	30 <sup>th</sup>	Value
	2012	Base Case	4 <del>3.6</del>	<del>37.2</del>	42.0	<del>55.2</del>	<del>36.4</del>	<del>38.2</del>	44.6	4 <del>6.9</del>	4 <del>5.2</del>	<u>54.9</u>	<del>63.3</del>	73.8	90.1	75.8	73.0	77.3
	2012	Eagle Ford	44 <del>.0</del>	<del>38.2</del>	43.1	<del>55.6</del>	<del>37.6</del>	<u>38.9</u>	45.4	47.5	4 <del>5.5</del>	<del>55.3</del>	<del>63.3</del>	73.9	90.3	76.6	73.3	77.3
C23	2018	Base Case	-	-	-	-	-	-	-	-	-	-	-	67.3	82.2	71.0	67.8	70.9
623	2018	Eagle Ford Low	-	-	-	-	-	-	-	-	-	-	-	67.4	82.4	71.7	68.1	70.9
	2018	Eagle Ford Mod	-	-	-	-	-	-	-	-	-	-	-	67.4	82.5	72.0	68.2	71.1
	2018	Eagle Ford High	-	-	-	-	-	-	-	-	-	-	-	67.4	82.6	72.3	68.3	71.4
	2012	Base Case	44 <u>.8</u>	<del>39.0</del>	42.0	<del>54.4</del>	<del>36.3</del>	41.7	4 <del>5.2</del>	4 <del>6.9</del>	42.7	<del>51.8</del>	<del>59.1</del>	70.2	83.9	74.4	71.7	80.0
	2012	Eagle Ford	4 <del>5.3</del>	4 <del>0.3</del>	43.1	<del>54.8</del>	37.5	42.5	4 <del>6.0</del>	47.4	43.1	<del>51.9</del>	<del>59.1</del>	70.2	84.1	75.3	72.0	80.0
050	2018	Base Case	-	-	-	-	-	-	-	-	-	-	-	64.7	78.3	70.3	67.1	73.7
C58	2018	Eagle Ford Low	-	-	-	-	-	-	-	-	-	-	-	64.7	78.5	71.1	67.4	73.8
	2018	Eagle Ford Mod	-	-	-	-	-	-	-	-	-	-	-	64.7	78.6	71.3	67.5	74.0
	2018	Eagle Ford High	-	-	-	-	-	-	-	-	-	-	-	64.8	78.7	71.7	67.6	74.3
	2012	Base Case	<del>38.1</del>	<u>32.8</u>	34.4	<del>56.6</del>	<del>33.2</del>	35.0	40.1	4 <del>0.6</del>	51.1	<del>61.6</del>	<del>66.2</del>	74.2	80.4	74.1	<del>62.1</del>	69.3
	2012	Eagle Ford	<del>38.7</del>	<del>34.1</del>	<del>36.5</del>	<del>57.0</del>	<del>34.4</del>	<del>36.1</del>	<del>40.8</del>	42.3	<del>51.2</del>	<del>61.9</del>	<del>66.2</del>	74.3	80.8	75.9	<del>63.5</del>	69.3
050	2018	Base Case	-	-	-	-	-	-	-	-	-	-	-	67.1	75.6	71.1		64.9
C59	2018	Eagle Ford Low	-	-	-	-	-	-	-	-	-	-	-	67.2	76.0	72.9		65.0
	2018	Eagle Ford Mod	-	-	-	-	-	-	-	-	-	-	-	67.2	76.1	73.4		65.2
	2018	Eagle Ford High	-	-	-	-	-	-	-	-	-	-	-	67.2	76.3	74.1		65.6
	2012	Base Case	<del>38.1</del>	<u>32.8</u>	35.4	<del>56.9</del>	<del>33.2</del>	<del>35.1</del>	<del>39.8</del>	4 <del>0.6</del>	<del>50.1</del>	61.1	<del>65.8</del>	74.2	80.4	74.1	<del>64.3</del>	74.0
	2012	Eagle Ford	<del>38.7</del>	34.1	37.4	<del>57.3</del>	34.4	<del>36.1</del>	4 <del>0.8</del>	42.3	<del>50.2</del>	<del>61.4</del>	<del>65.8</del>	74.3	80.8	75.9	<del>64.7</del>	74.0
C622	2018	Base Case	-	-	-	-	-	-	-	-	-	-	-	67.2	75.6	71.1		69.2
0022	2018	Eagle Ford Low	-	-	-	-	-	-	-	-	-	-	-	67.3	76.0	72.9		69.2
	2018	Eagle Ford Mod	-	-	-	-	-	-	-	-	-	-	-	67.3	76.1	73.4		69.5
	2018	Eagle Ford High	-	-	-	-	-	-	-	-	-	-	-	67.4	76.3	74.1		69.8
	2012	Base Case	<u>39.9</u>	<del>33.3</del>	4 <del>0.2</del>	<del>56.9</del>	<del>33.8</del>	<del>35.7</del>	4 <del>0.5</del>	41.3	48.4	<u>58.9</u>	<del>66.5</del>	77.0	83.9	76.7	<del>69.6</del>	69.6
	2012	Eagle Ford	4 <del>0.5</del>	<del>34.6</del>	41.7	<del>57.3</del>	<del>35.0</del>	<del>36.8</del>	41.5	42.3	4 <del>8.6</del>	<u>59.2</u>	<del>66.5</del>	77.0	84.1	78.3	<del>69.8</del>	69.6
C678	2018	Base Case	-	-	-	-	-	-	-	-	-	-	-	69.5	78.3	73.6		64.8
C0/8	2018	Eagle Ford Low	-	-	-	-	-	-	-	-	-	-	-	69.5	78.5	75.2		64.9
	2018	Eagle Ford Mod	-	-	-	-	-	-	-	-	-	-	-	69.6	78.6	75.7		65.1
	2018	Eagle Ford High	-	-	-	-	-	-	-	-	-	-	-	69.6	78.7	76.3		65.4





## 6.4 Minimum Threshold Analysis:

The methodology used above follows the EPA's guidance on calculating future design values. However, other methodologies may be used to calculate future design values, so that model sensitivity can be tested.<sup>276</sup> The minimum threshold used in the design value calculation was based on EPA's recommended lowest threshold of 70 ppb. The change in 2018 RRFs, the future design values, and the number of days that meet each criterion are provided in Table 6-5.

By raising the minimum threshold from 70 ppb, used in the above attainment demonstration, to 75 ppb and 80 ppb, the applicable days drop below EPA's guidance that suggests at least 10 days be included in the analysis. While the calculation then uses days that modeled higher baseline ozone concentrations, the calculation becomes less statistically robust. When the minimum threshold was raised to 75 ppb, the maximum design value at C58 was lowered 0.1 ppb. Under the minimum threshold of 80 ppb, the maximum design value was lowered 0.4 ppb to 73.6 ppb, though there are only five days included in the calculation. A similar reduction in the future design value occurred for the other monitors when the minimum threshold was increased to 80 ppb.

<sup>&</sup>lt;sup>276</sup> TCEQ. "Appendix C: Photochemical Modeling for the DFW Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard". Austin, Texas. p. c-127. Available online: http://www.tceq.texas.gov/assets/public/implementation/air/sip/dfw/ad\_2011/AppC\_CAMx\_ado.pdf.

Accessed 06/20/13.

Site	2012		70 ppb			75 ppb		80 ppb			
Sile	DV	RRF	DVF	# Days	RRF	DVF	# Days	RRF	DVF	# Days	
C23	77.3	0.920	71.1	12	0.932	72.0	8	0.912	70.5	4	
C58	80.0	0.925	74.0	12	0.923	73.9	8	0.920	73.6	5	
C59	69.3	0.941	65.2	8	0.943	65.4	4	0.932	64.6	2	
C622	74.0	0.939	69.5	8	0.941	69.6	5	0.929	68.7	3	
C678	69.6	0.935	65.1	8	0.935	65.1	7	0.926	64.4	3	

Table 6-5: Minimum Threshold Analysis, 2012-2018.

## 6.5 Grid Cell Array Size Analysis

"The grid cell array size is chosen as an area around a monitor to be spatially representative of that site. For the RRF calculation the maximum concentration in the grid cell array around a monitor from the baseline and future case modeling is used, which may not be at the cell where the monitor is located. The EPA guidance states that this method is beneficial for many reasons, including that the model may displace the peak around a monitor."<sup>277</sup>

The 3X3, 5X5, and 7X7 grid cell arrays used in the alternative DV calculations for the regulatory sited monitors in the San Antonio-New Braunfels MSA are shown in Figure 6-5. A 5x5 or 7x7 grid cell array shows overlap among several of San Antonio monitors. The maximum DV at C58 increases from 74.0 ppb to 75.0 ppb when a 3X3 grid cell array is used (Table 6-6). For the other four monitors, the design value decreases from 0.8 ppb to 6.2 ppb when using the 3X3 grid cell array. The model is more sensitive to changes in predicted ozone nearer to the monitoring sites.

Site	2012 DV	3X3 Grid	Cell Array	5X5 Grid	Cell Array	7X7 Grid Cell Array			
	2012 0 0	RRF	DV	RRF	DV	RRF	DV		
Area Max	80.0	0.938	75.0	0.923	73.8	0.941	74.0		
C23	77.3	0.908	70.2	0.901	69.7	0.920	71.1		
C58	80.0	0.938	75.0	0.923	73.8	0.925	74.0		
C59	69.3	0.891	61.7	0.877	60.8	0.941	65.2		
C622	74.0	0.928	68.7	0.910	67.4	0.939	69.5		
C678	69.6	0.847	58.9	0.826	57.5	0.935	65.1		

Table 6-6: RRFs and DVFs using 3X3, 5X5, and 7X7 Grid Cell Arrays, 2012-2018

<sup>&</sup>lt;sup>277</sup> TCEQ. "Appendix C: Photochemical Modeling for the DFW Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard". Austin, Texas. p. c-127. Available online: http://www.tceq.texas.gov/assets/public/implementation/air/sip/dfw/ad\_2011/AppC\_CAMx\_ado.pdf. Accessed 06/20/2013.

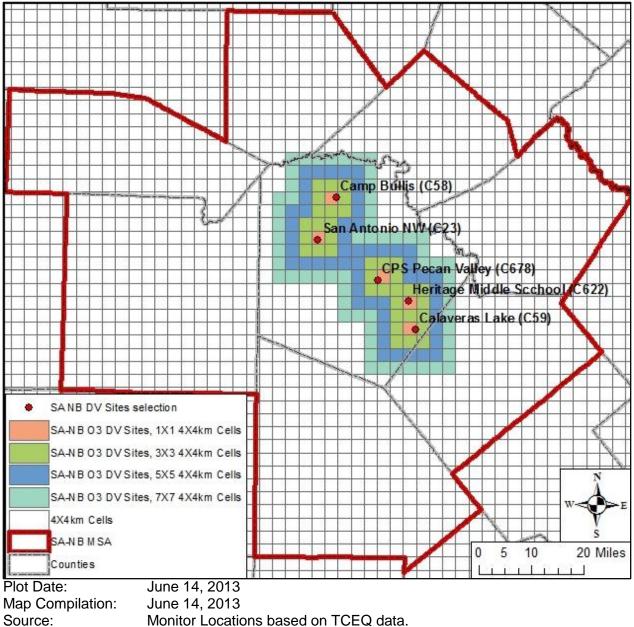


Figure 6-5: Grid Cell Array Size around Regulatory Sited San Antonio-New Braunfels Ozone Monitors