Appendix J

Criteria Pollutant Plots for the 4 km Grid for the 2022 Future Year Modeling

APPENDIX J – CRITERIA POLLUTANT PLOTS FOR THE 4 KM GRID FOR THE 2022 FUTURE YEAR MODELING

1.0. INTRODUCTION

In Section 4.5.3, we presented the CAMx modeling results for Criteria Air Pollutants (CAPs) in the 4 km domain. The results shown in Section 4.5.3 are two year averages over the 2005 and 2006 meteorological years. The two year averages are presented as an approximation to the form of the NAAQS, many of which are defined in terms of a multi-year averaging period. In Appendix J, we present plots of the CAPs for both the 2005 and 2006 meteorological years separately in order to show the year-to-year variability of the CAPs results.

APPENDIX J – CRITERIA POLLUTANT PLOTS FOR THE 4 KM GRID FOR THE 2022 FUTURE YEAR MODELING

Figure J-1a. CAMx model results for 1-hour NO_2. Left and center panels: 2008 and 2022 absolute model results for 1-hour NO_2 from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 1-hour NO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

2008 1-Hour Average NO_2 All Sources | **2022 1-Hour Average NO_2 All Sources** | **2022-2008 1-Hour Average NO_2 All Sources**

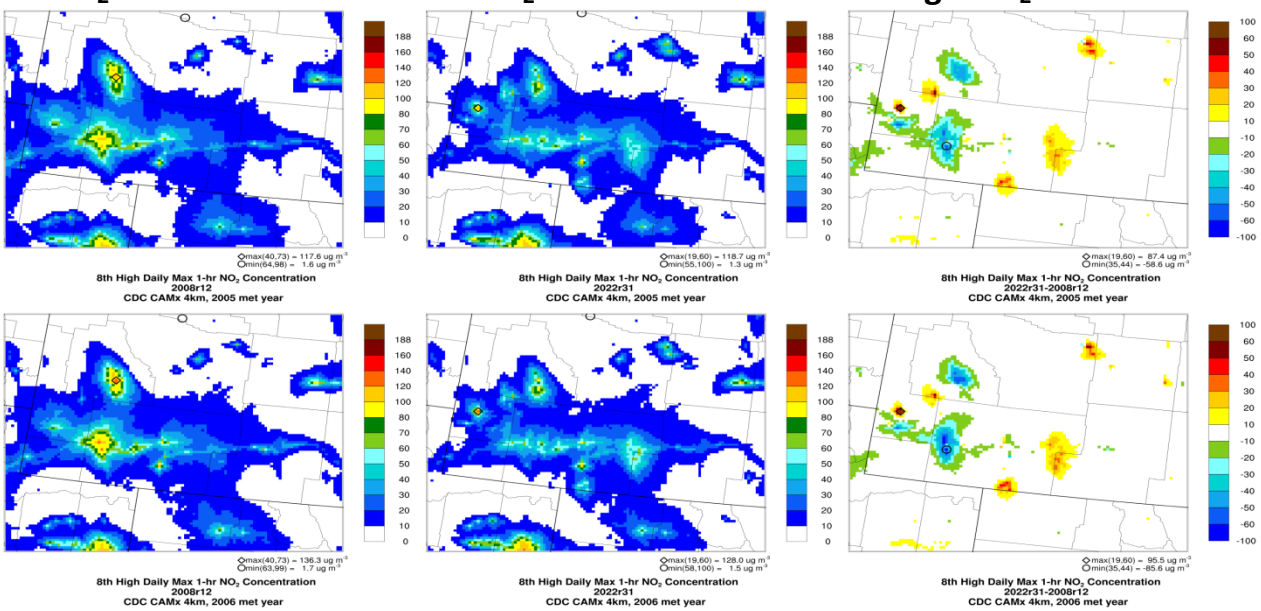
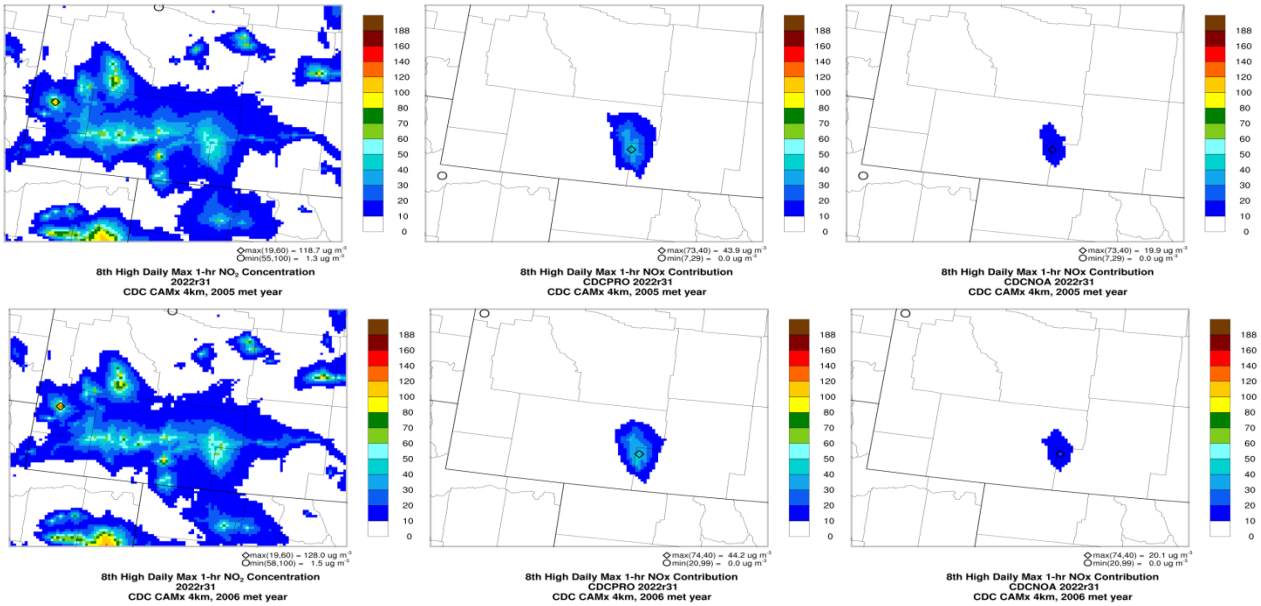


Figure J-1b. Left panel: 2022 absolute model results for 1-hour NO_2 from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 1-hour NO_X. Right panel: CD-C No Action (existing wells) contribution to the 2022 1-hour NO_X. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

2022 1-Hour Average NO_2 All Sources | **CD-C Proposed Action NO_X Contribution** | **CD-C No Action NO_X Contribution**



APPENDIX J – CRITERIA POLLUTANT PLOTS FOR THE 4 KM GRID FOR THE 2022 FUTURE YEAR MODELING

Figure J-2a. CAMx model results for annual average NO_2. Left and center panels: 2008 and 2022 absolute model results for annual average NO_2 from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in annual average NO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

2008 Annual Average NO_2 All Sources | **2022 Annual Average NO_2 All Sources** | **2022-2008 Annual Average NO_2 All Sources**

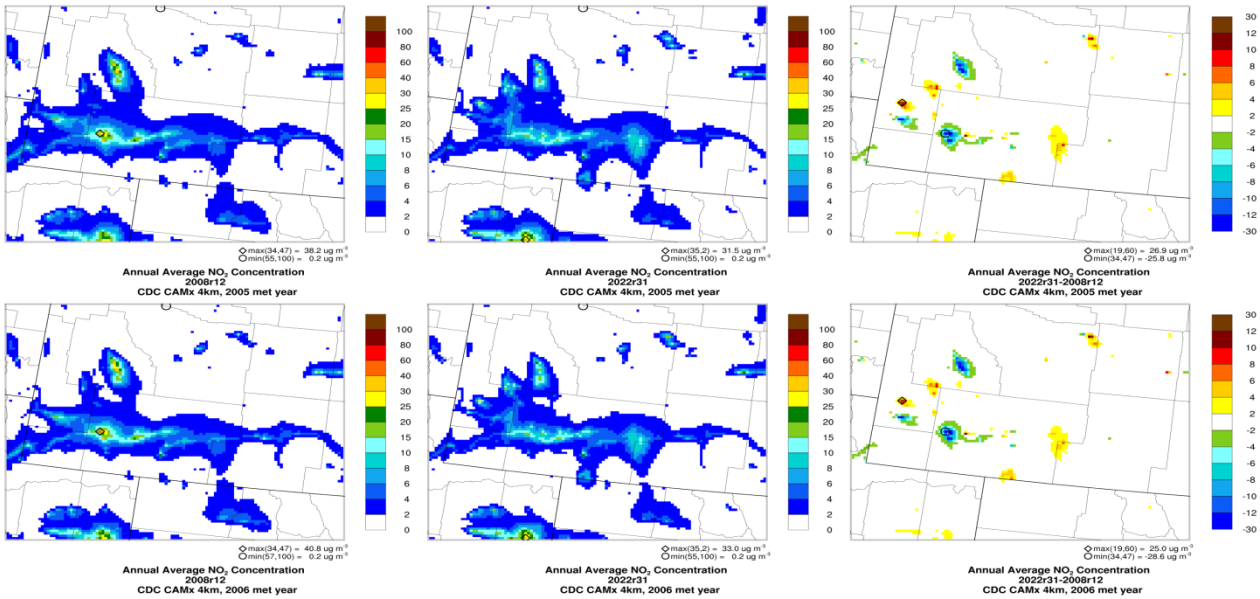


Figure J-2b. Left panel: 2022 absolute model results for annual average NO_2 from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 annual average NO_X. Right panel: CD-C No Action (existing wells) contribution to the 2022 annual average NO_X. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

2022 Annual Average NO_2 All Sources | **CD-C Proposed Action NO_X Contribution** | **CD-C No Action NO_X Contribution**

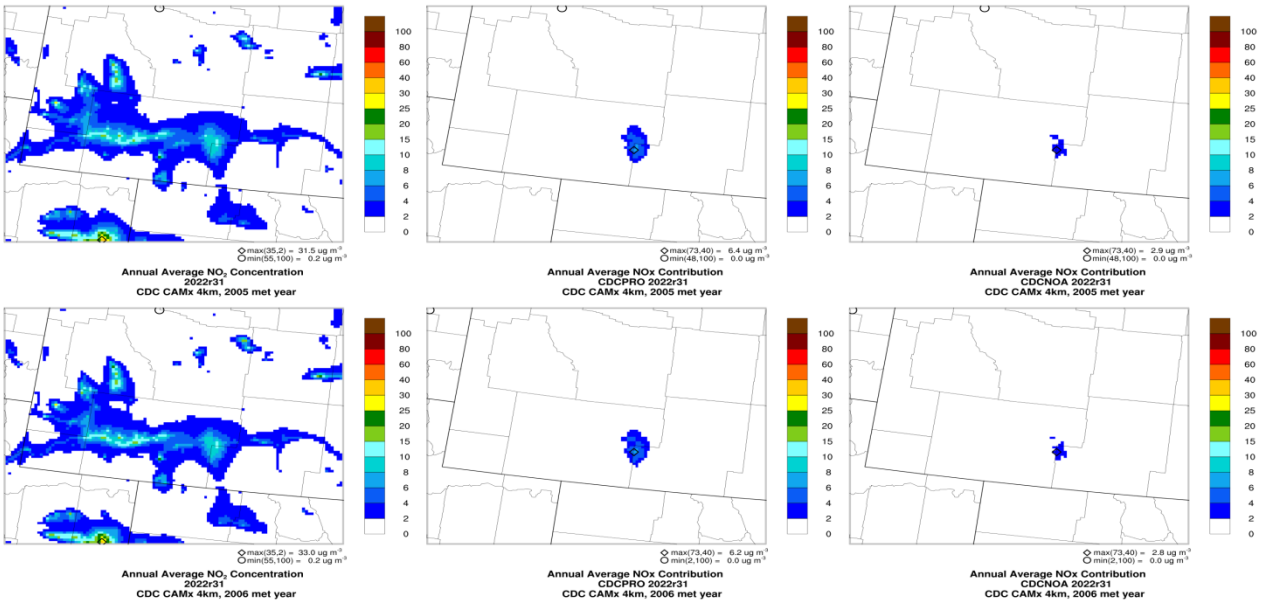


Figure J-3a. CAMx model results for 1-hour SO_2. Left and center panels: 2008 and 2022 absolute model results for 1-hour SO_2 from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 1-hour SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

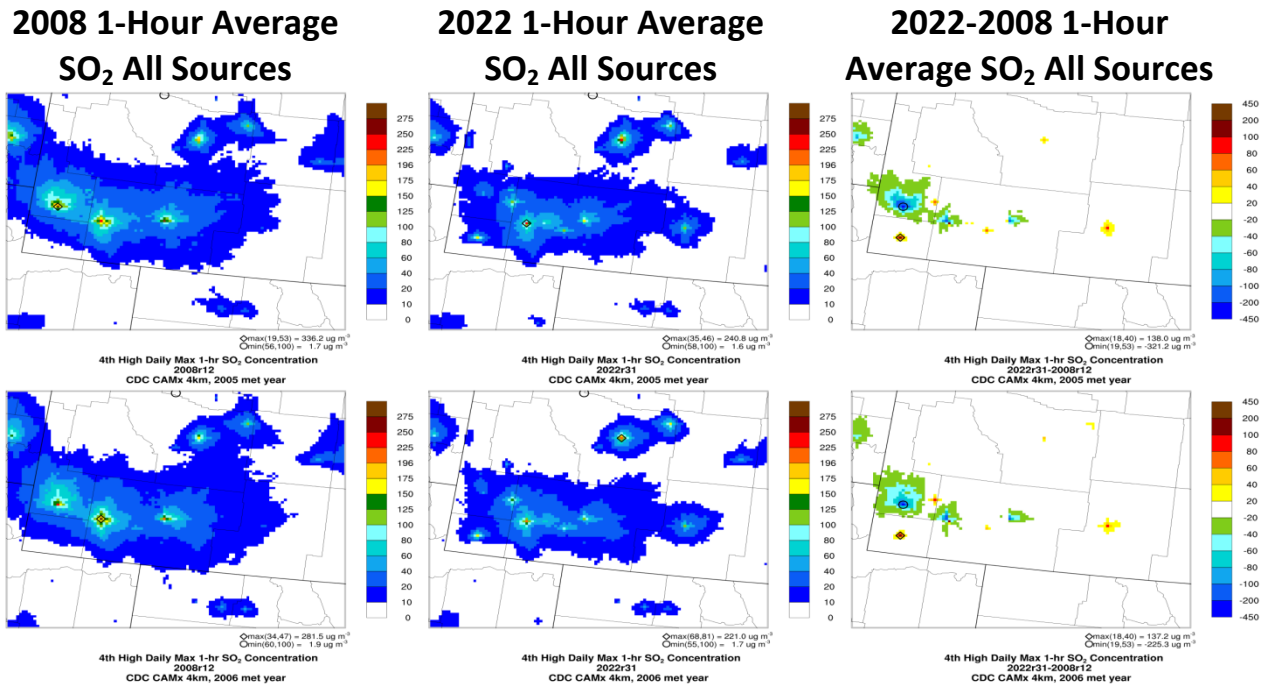


Figure J-3b. Left panel: 2022 absolute model results for 1-hour SO_2 from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 1-hour SO_2. Right panel: CD-C No Action (existing wells) contribution to the 2022 1-hour SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

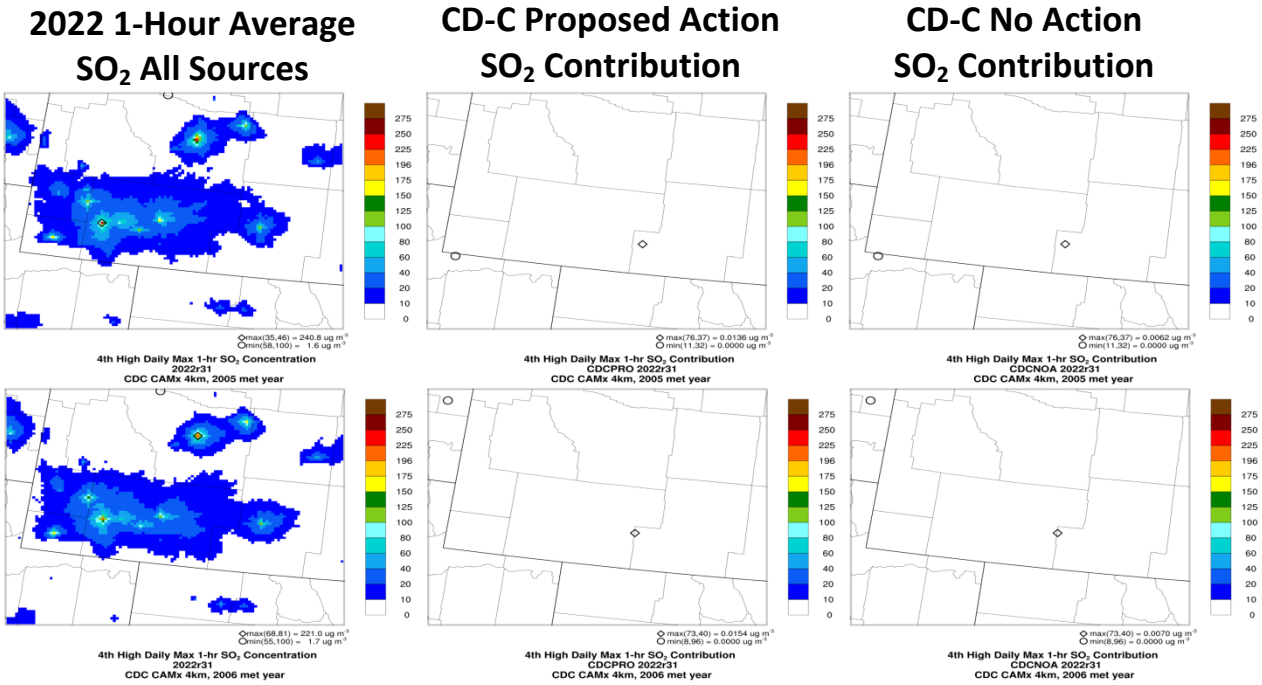


Figure J-4a. CAMx model results for 3-hour SO_2. Left and center panels: 2008 and 2022 absolute model results for 3-hour SO_2 from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 3-hour SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

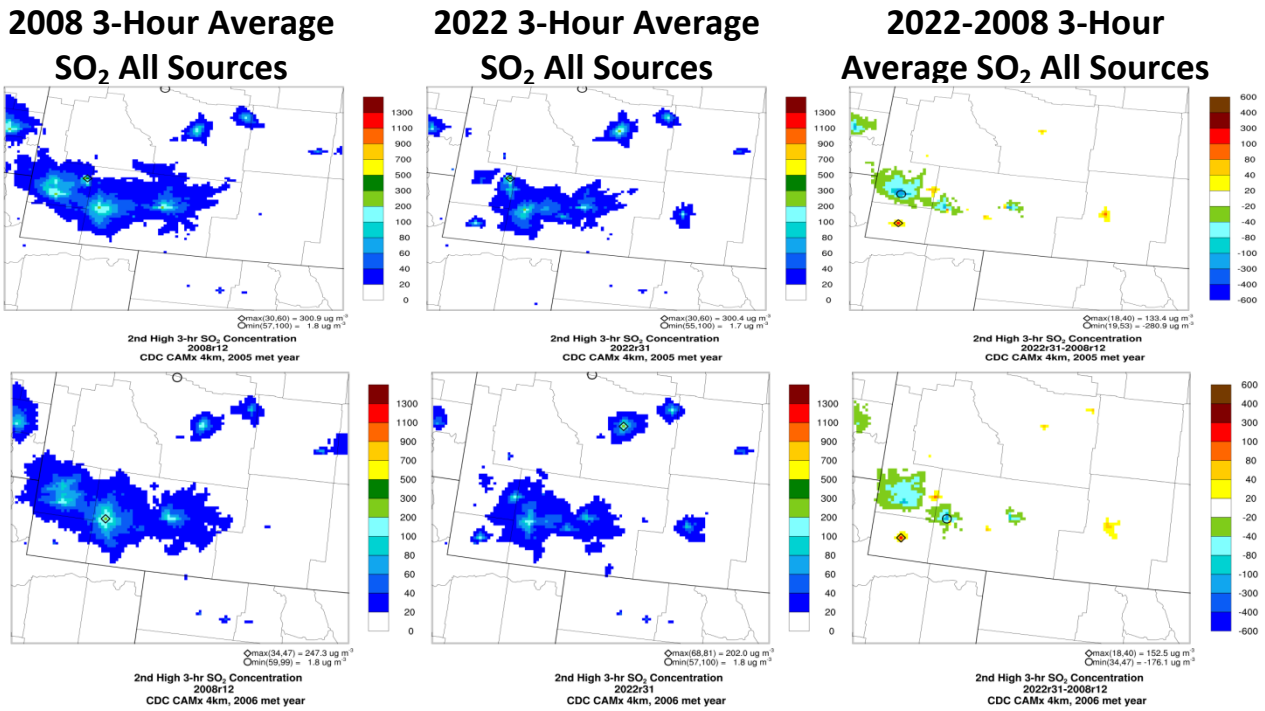


Figure J-4b. Left panel: 2022 absolute model results for 3-hour SO_2 from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 3-hour SO_2. Right panel: CD-C No Action (existing wells) contribution to the 2022 3-hour SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

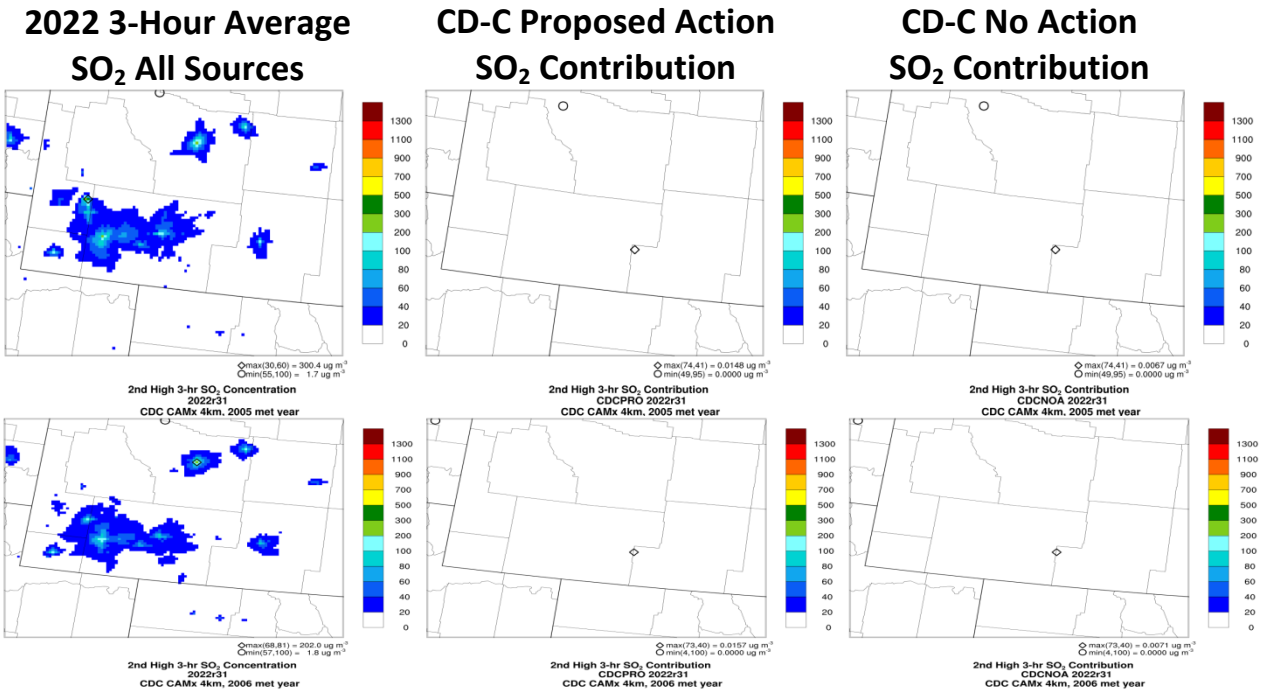


Figure J-5a. CAMx model results for 24-hour SO_2. Left and center panels: 2008 and 2022 absolute model results for 24-hour SO_2 from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 24-hour SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

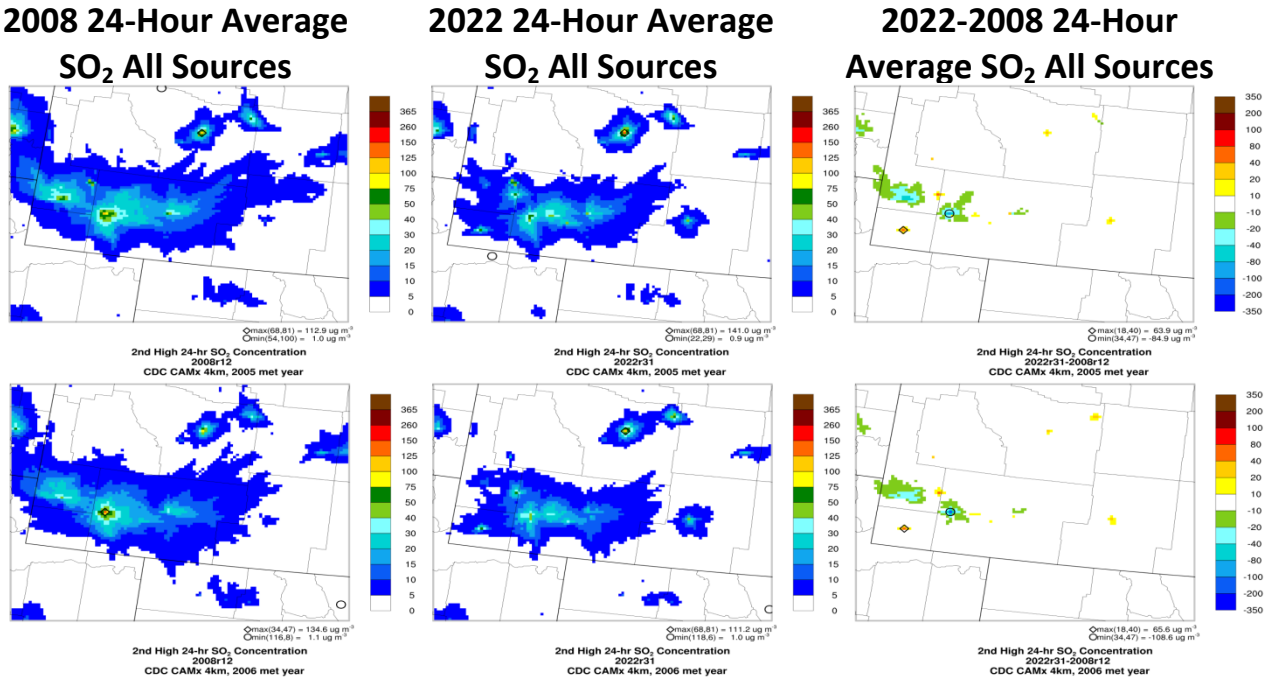


Figure J-5b. Left panel: 2022 absolute model results for 24-hour SO_2 from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 24-hour SO_2. Right panel: CD-C No Action (existing wells) contribution to the 2022 24-hour SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

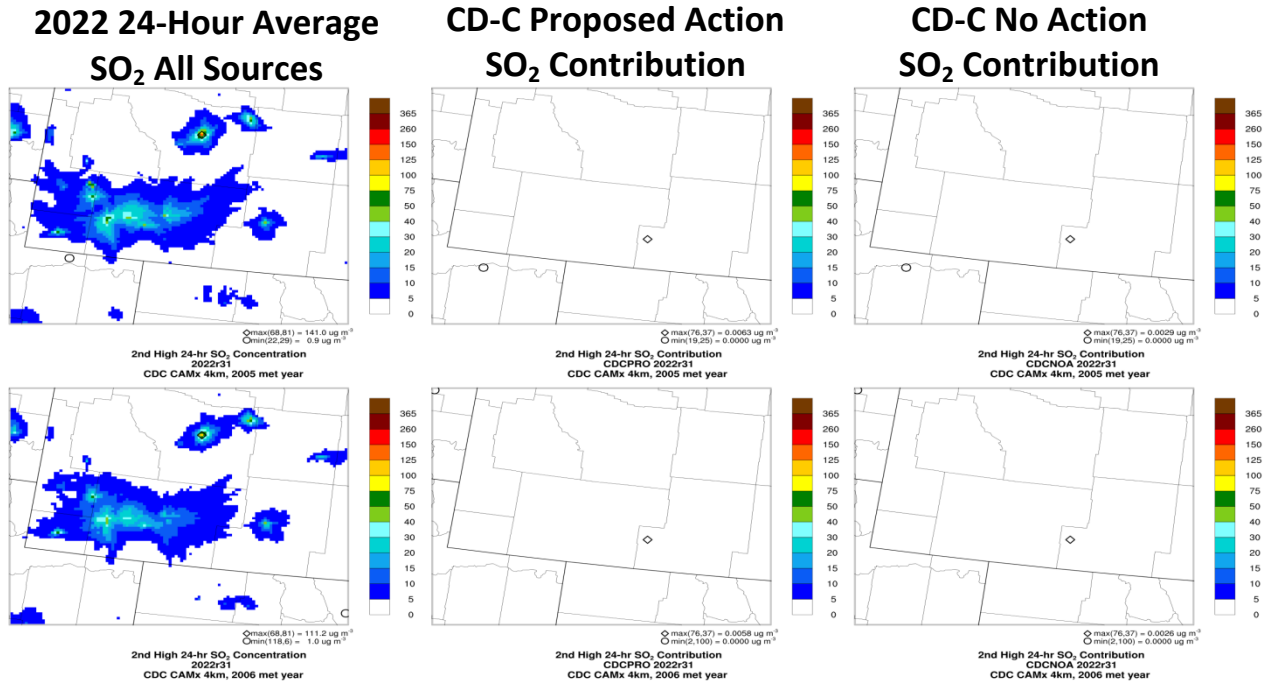


Figure J-6a. CAMx model results for annual average SO_2. Left and center panels: 2008 and 2022 absolute model results for annual average SO_2 from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in annual average SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

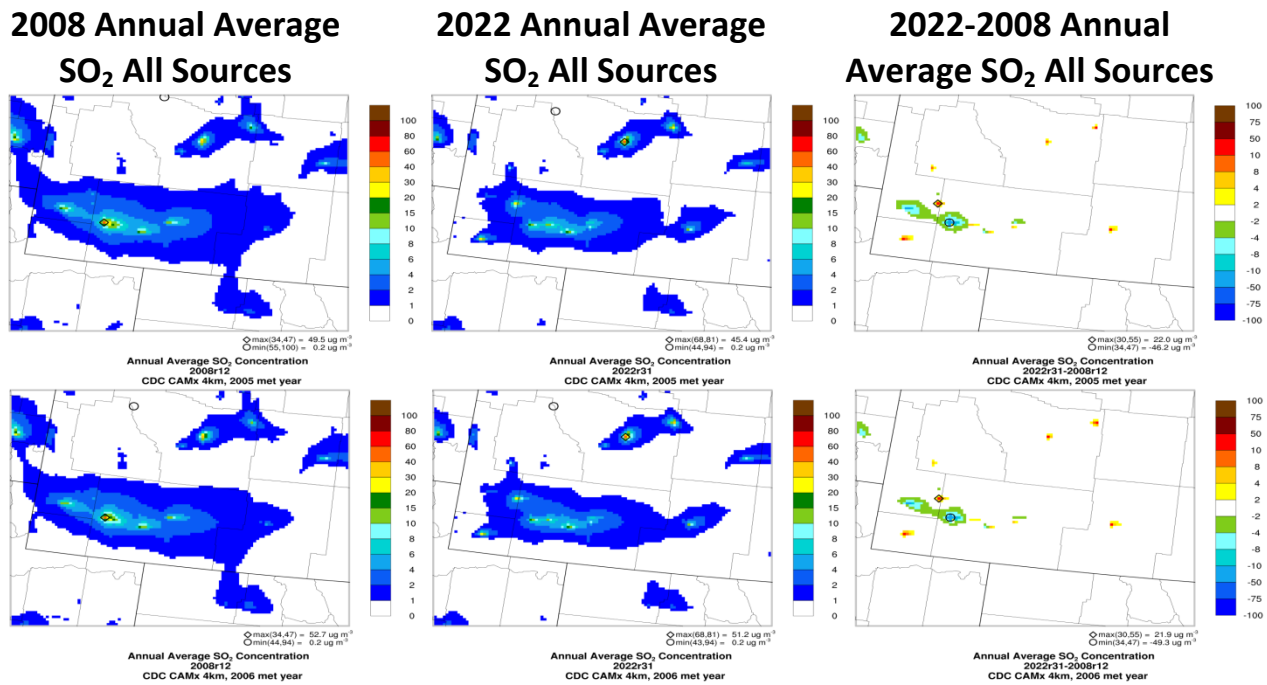


Figure J-6b. Left panel: 2022 absolute model results for annual average SO_2 from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 annual average SO_2. Right panel: CD-C No Action (existing wells) contribution to the 2022 annual average SO_2. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

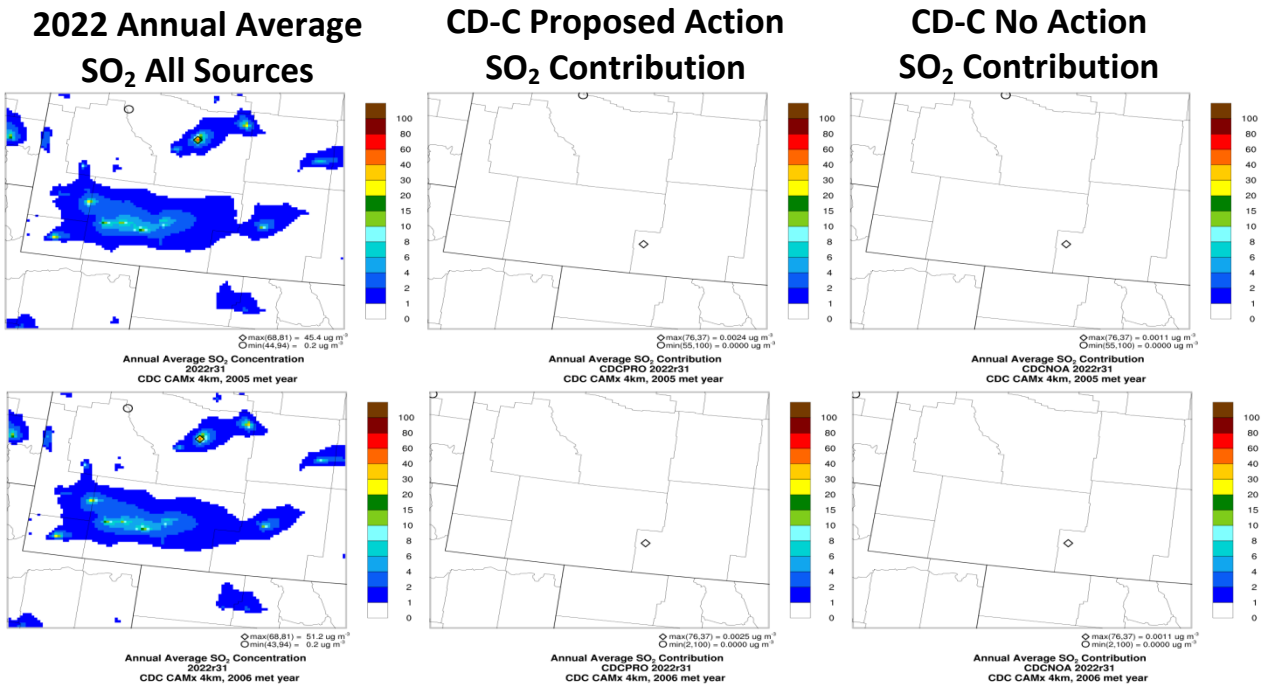


Figure J-7a. CAMx model results for 98th percentile 24-hour average $PM_{2.5}$. Left and center panels: 2008 and 2022 absolute model results for 98th percentile 24-hour average $PM_{2.5}$ from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 98th percentile 24-hour average $PM_{2.5}$. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

2008 98th Percentile 24-Hour Average $PM_{2.5}$ All Sources | **2022 98th Percentile 24-Hour Average $PM_{2.5}$ All Sources** | **2022-2008 98th Percentile 24-Hour Average $PM_{2.5}$ All Sources**

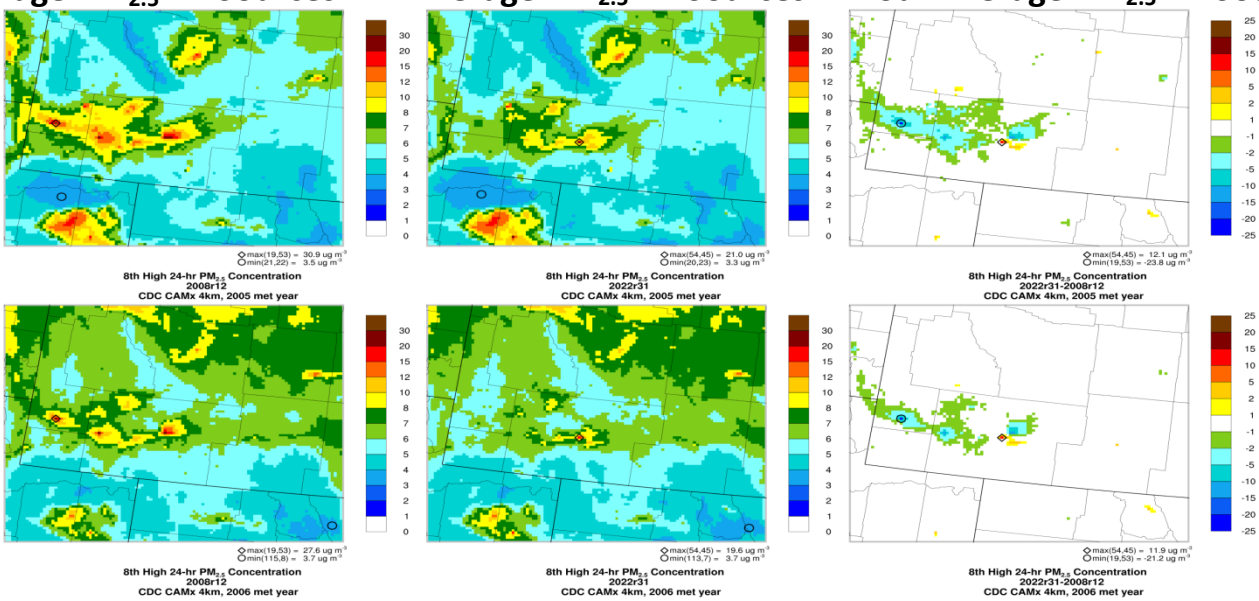


Figure J-7b. Left panel: 2022 absolute model results for 98th percentile 24-hour average $PM_{2.5}$ from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 98th percentile 24-hour average $PM_{2.5}$. Right panel: CD-C No Action (existing wells) contribution to the 2022 98th percentile 24-hour average $PM_{2.5}$. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

2022 98th Percentile 24-Hour Average $PM_{2.5}$ All Sources | **CD-C Proposed Action $PM_{2.5}$ Contribution** | **CD-C No Action $PM_{2.5}$ Contribution**

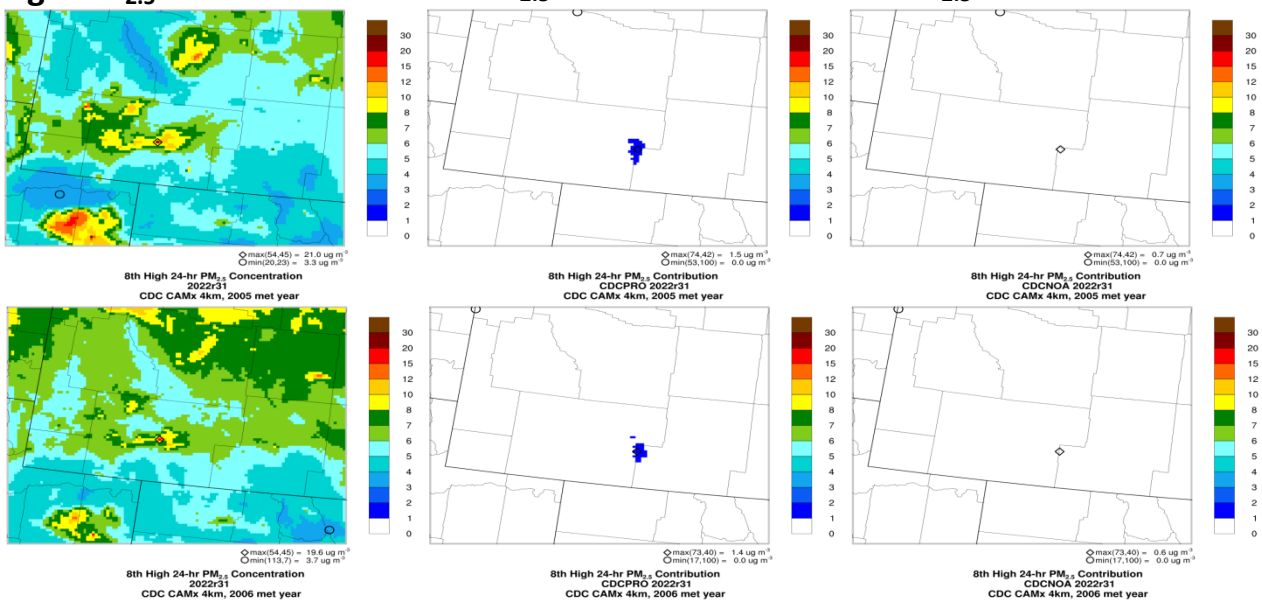


Figure J-8a. CAMx model results for highest 24-hour average $PM_{2.5}$. Left and center panels: 2008 and 2022 absolute model results for highest 24-hour average $PM_{2.5}$ from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in highest 24-hour average $PM_{2.5}$. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

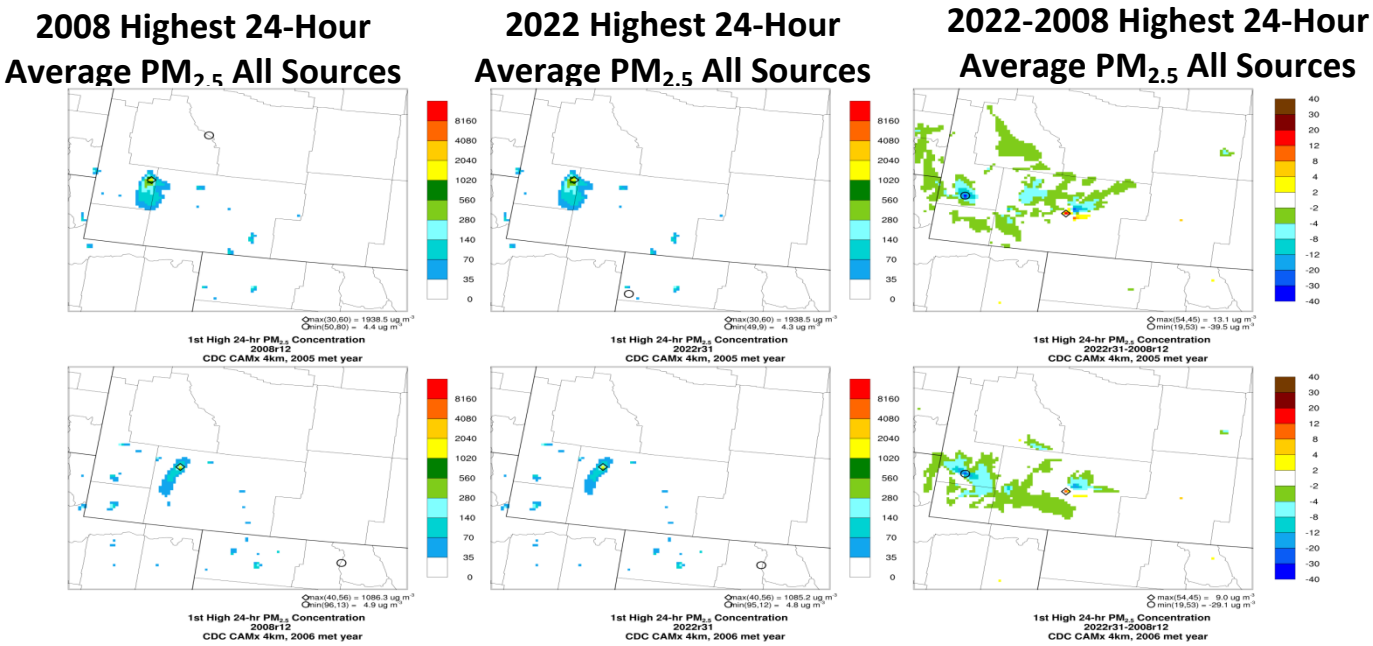


Figure J-8b. Left panel: 2022 absolute model results for highest 24-hour average $PM_{2.5}$ from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 highest 24-hour average $PM_{2.5}$. Right panel: CD-C No Action (existing wells) contribution to the 2022 highest 24-hour average $PM_{2.5}$. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

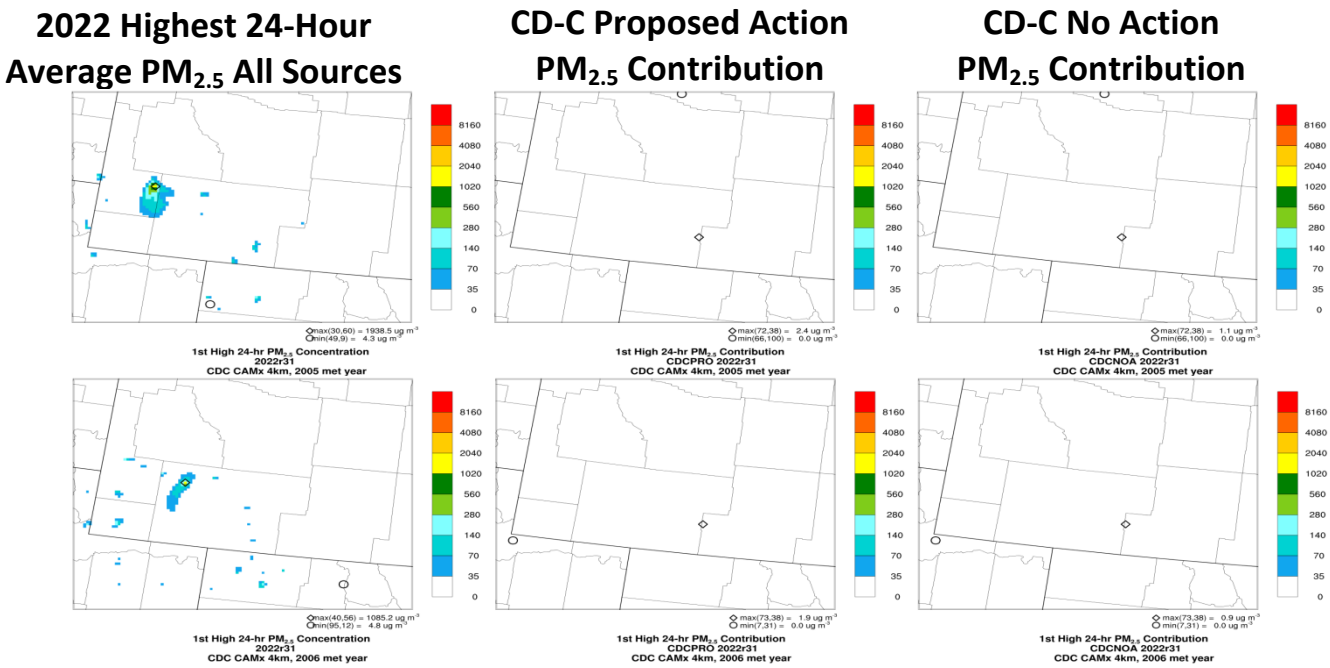


Figure J-9a. CAMx model results for annual average $PM_{2.5}$. Left and center panels: 2008 and 2022 absolute model results for annual average $PM_{2.5}$ from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in annual average $PM_{2.5}$. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

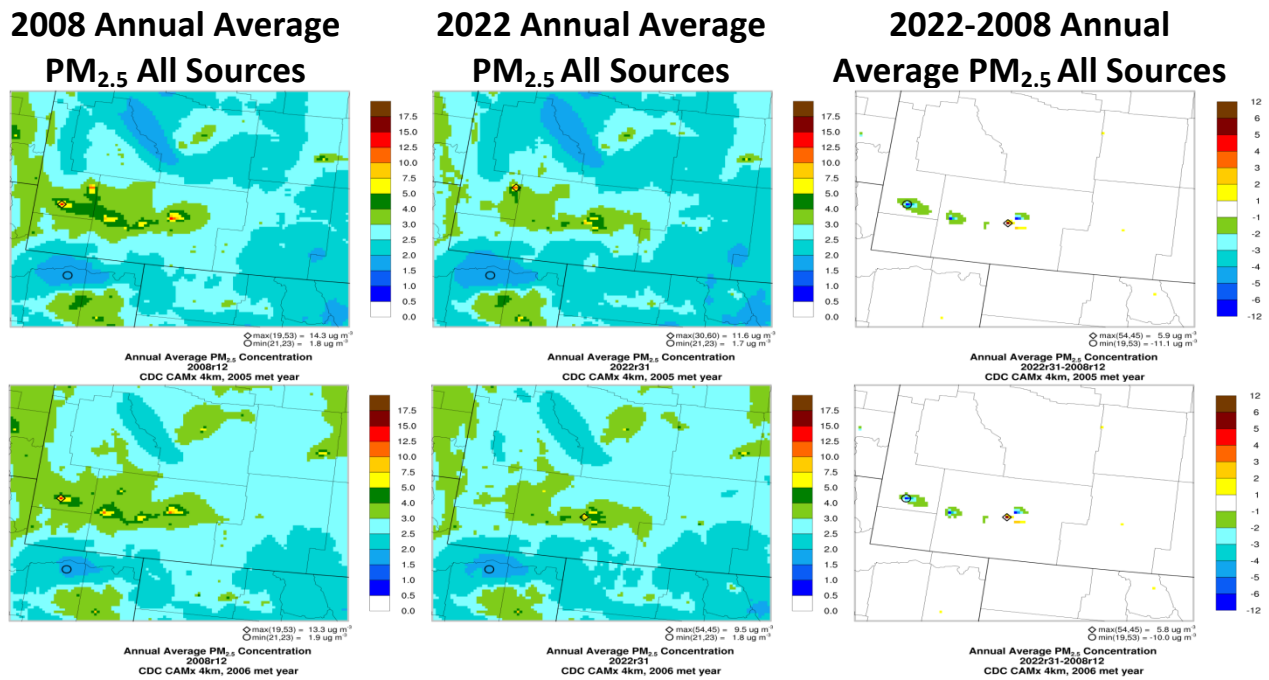


Figure J-9b. Left panel: 2022 absolute model results for annual average $PM_{2.5}$ from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 annual average $PM_{2.5}$. Right panel: CD-C No Action (existing wells) contribution to the 2022 annual average $PM_{2.5}$. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

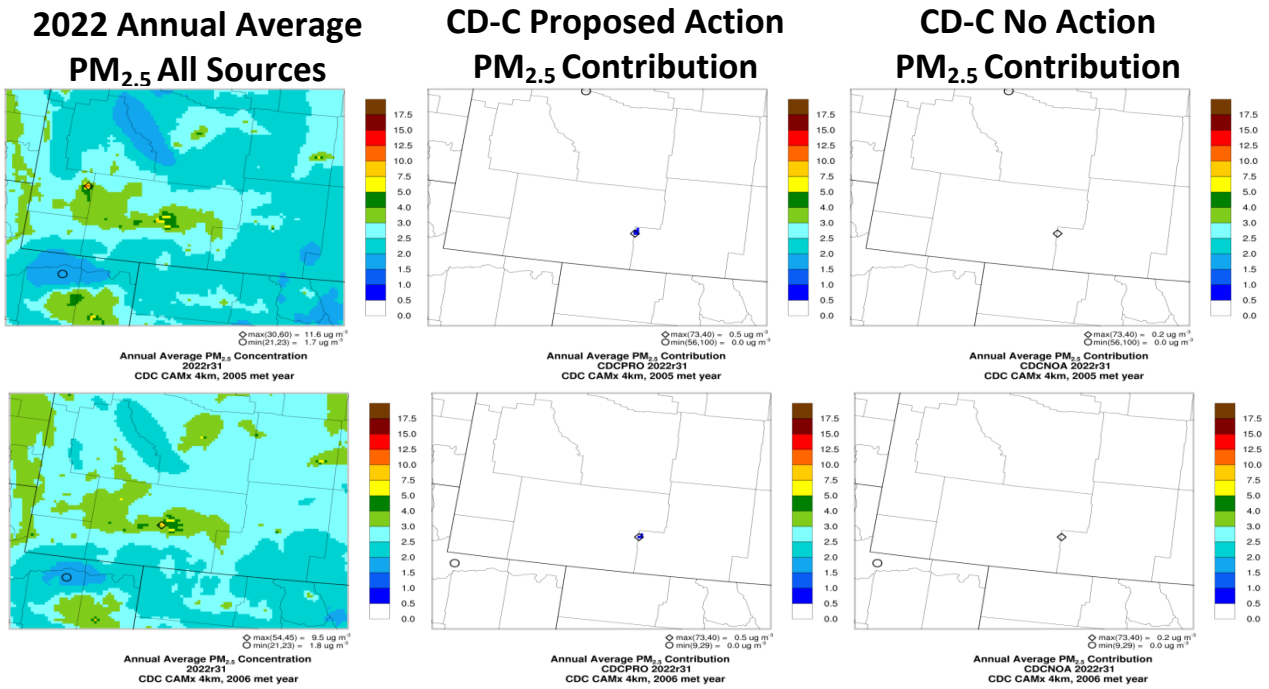


Figure J-10a. CAMx model results for 24-hour average PM_{10}. Left and center panels: 2008 and 2022 absolute model results for 24-hour average PM_{10} from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 24-hour average PM_{10}. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

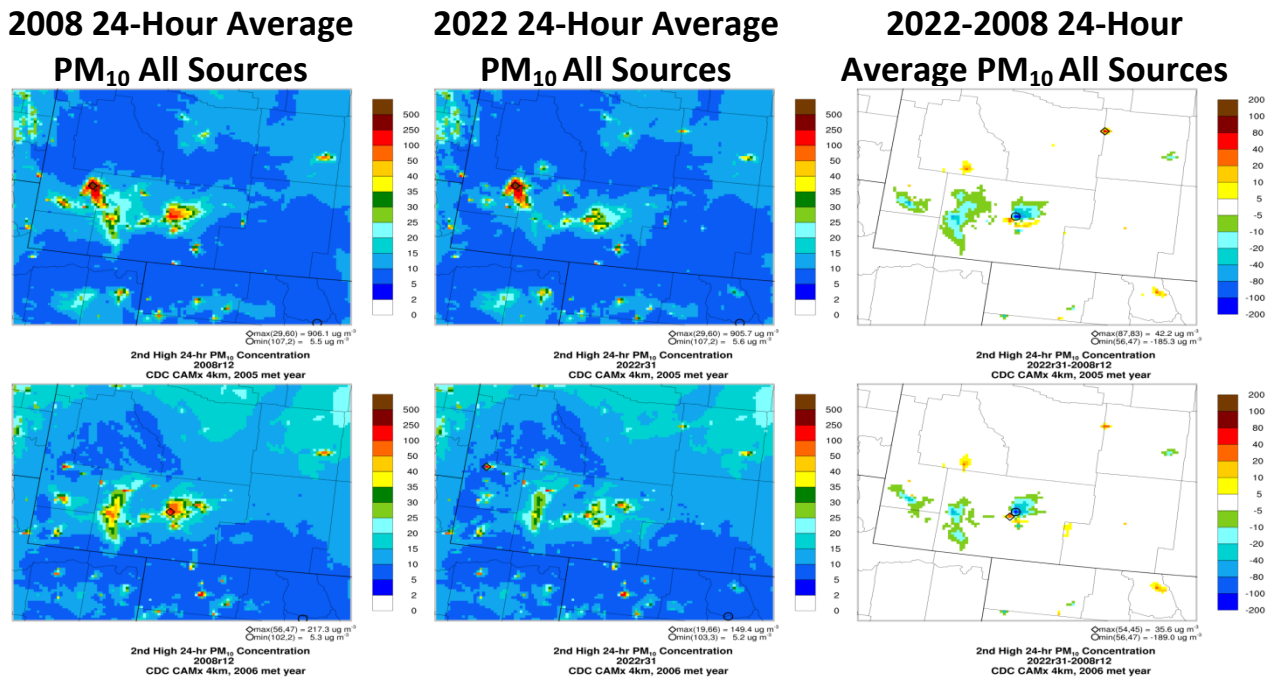


Figure J-10b. Left panel: 2022 absolute model results for 24-hour average PM_{10} from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 24-hour average PM_{10}. Right panel: CD-C No Action (existing wells) contribution to the 2022 24-hour average PM_{10}. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

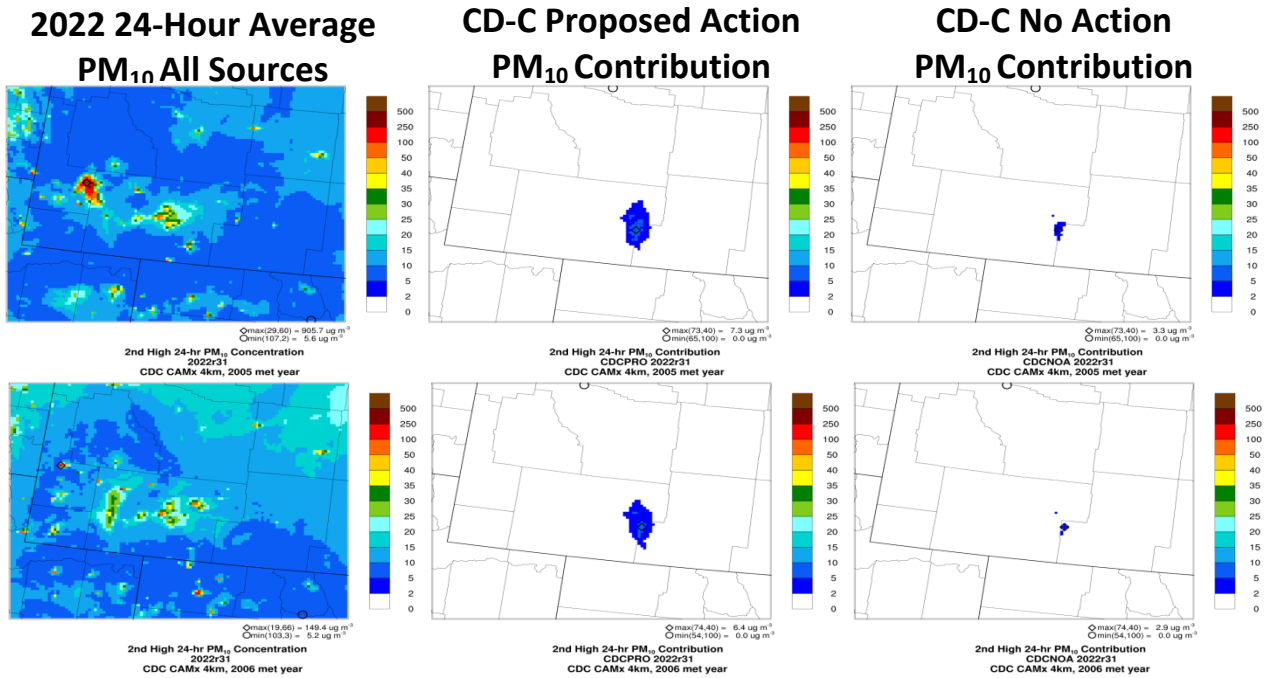


Figure J-11a. CAMx model results for annual average PM_{10}. Left and center panels: 2008 and 2022 absolute model results for annual average PM_{10} from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in annual average PM_{10}. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

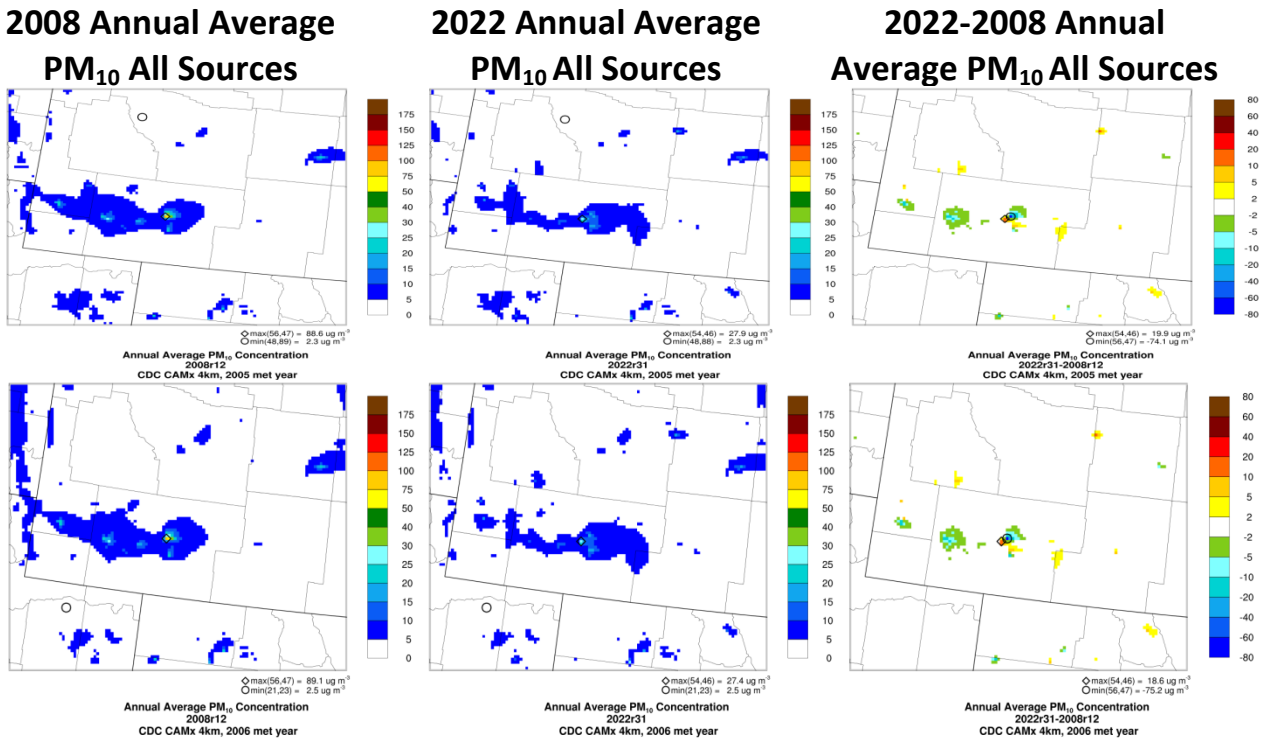


Figure J-11b. Left panel: 2022 absolute model results for annual average PM_{10} from all regional emissions sources, including CD-C Project. Center panel: CD-C Proposed Action contribution to 2022 annual average PM_{10}. Right panel: CD-C No Action (existing wells) contribution to the 2022 annual average PM_{10}. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

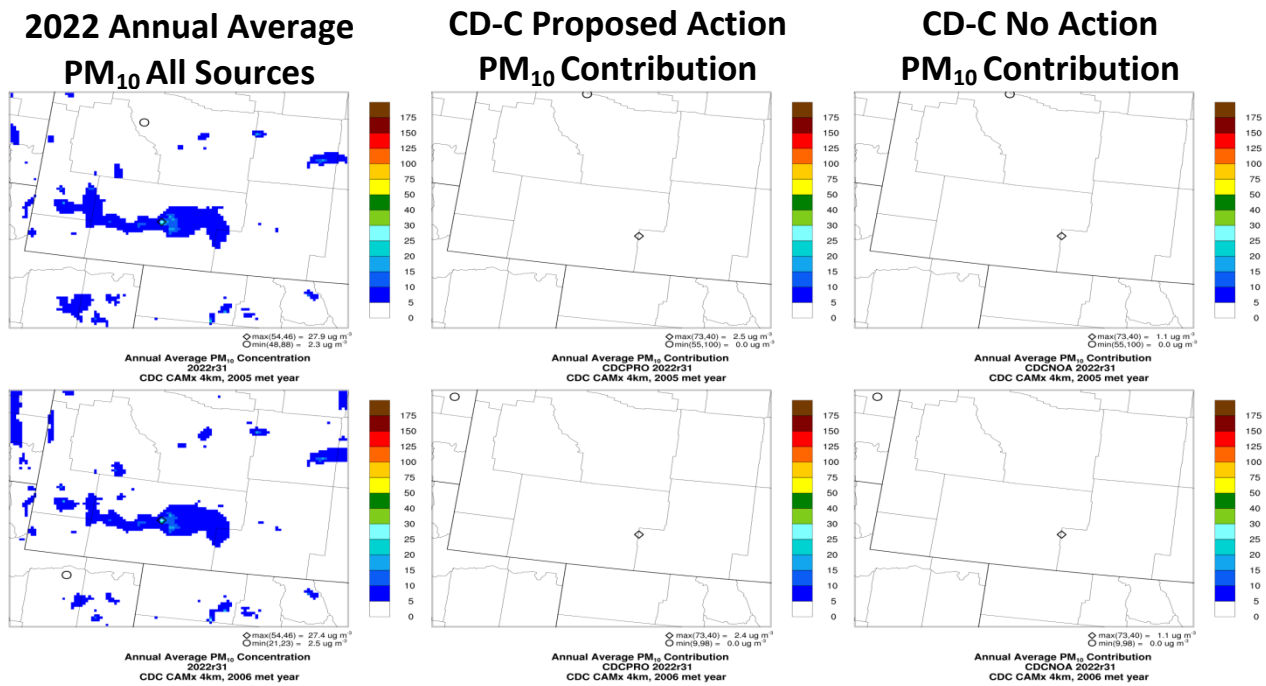


Figure J-12. CAMx model results for 1-hour CO. Left and center panels: 2008 and 2022 absolute model results for 1-hour CO from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 1-hour CO. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.

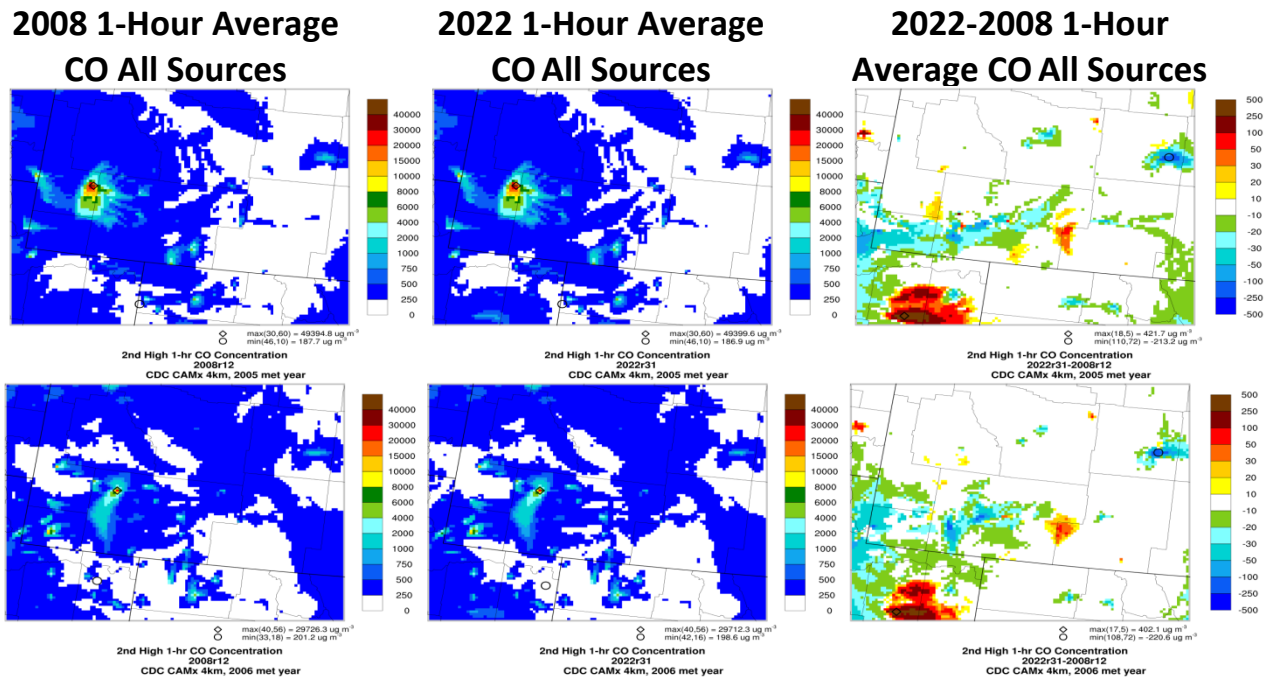
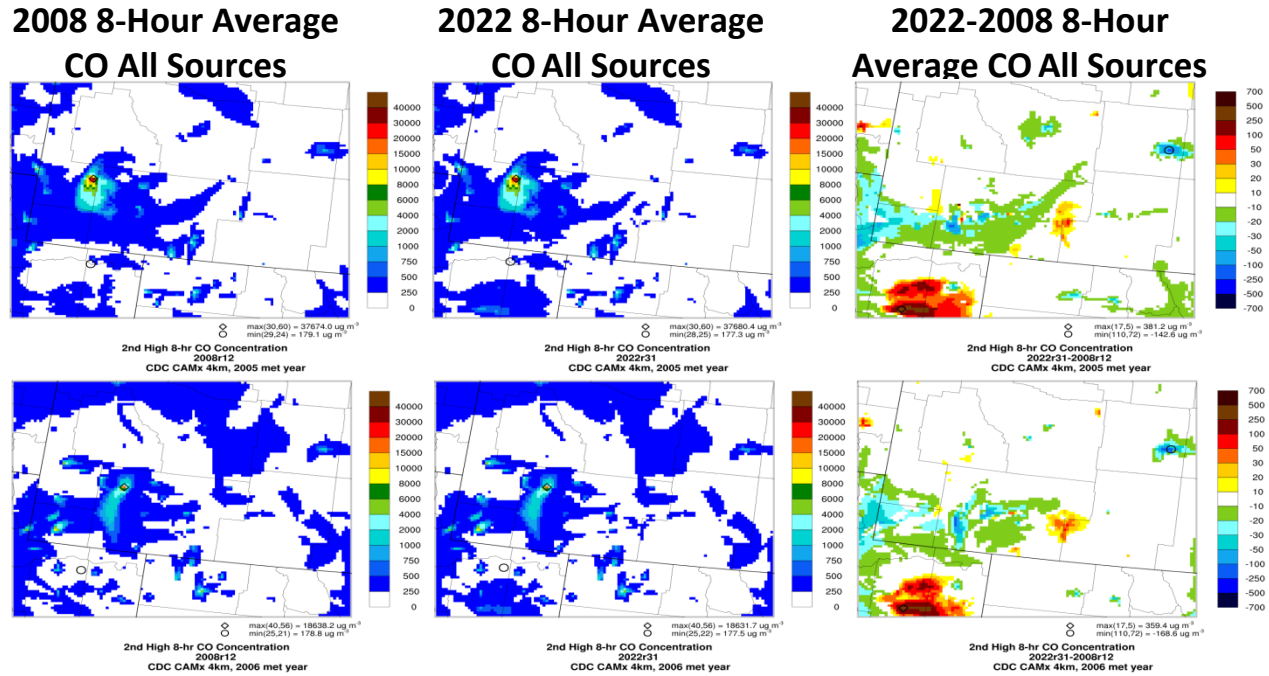



Figure J-13. CAMx model results for 8-hour CO. Left and center panels: 2008 and 2022 absolute model results for 8-hour CO from all regional emissions sources, including CD-C Project. Right panel: 2022-2008 difference in 8-hour CO. Upper panels show 2005 meteorological year. Lower panels show 2006 meteorological year.