Appendix B

Draft Emissions Inventory

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Appendix B: Draft Emissions Inventory

B.1 Introduction

Emissions inventories provide the best available estimates of the amount of pollutants and precursors being emitted into the atmosphere. Emissions inventories undergo continuous updating and changing to improve accuracy, respond to new scientific and engineering developments, and to address changes to laws and regulations. A snapshot of the inventory is used to develop air quality plans. At the time the snapshot is taken, it reflects the best inventory available. This plan utilizes annual average and winter average daily inventories, with emissions presented as tons per day (tpd). The annual average daily inventory represents emissions across the entire year, while the winter average daily inventory represents emissions from the months of November to April, which is when PM2.5 concentrations are at their highest in the San Joaquin Valley.

The inventories in this Appendix are used to study and propose control measures, to track emissions for Rate of Progress (ROP), to track Emissions Reduction Credits (ERCs), to establish motor vehicle conformity budgets for transportation planning, and to assist in demonstrating attainment. These inventories are still considered preliminary and have the potential to be updated as this plan continues to be developed.

This Appendix includes draft emissions inventories for the San Joaquin Valley Air Basin for the years 2007, 2012, 2014, 2015, 2016, 2017, 2018, and 2019. The base year (the year from which the inventory is projected forward and backward) for these inventories is 2007. The year 2012 has been included as a reference point for the current year. Years 2014 and 2019 have been included as 2014 is the attainment deadline for the 1997 federal PM2.5 standard, and 2019 is the longest attainment timeframe allowed under the 2006 federal PM2.5 standard. Naturally, the years in between 2014 and 2019 have been included to show the progression of the inventory. Please note that the inventories included in this appendix are still draft and undergoing additional analysis and revision.

The tables in this appendix include:

- Table B-1 Directly emitted PM2.5, Annual and Winter Daily Averages
- Table B-2 NOx, Annual and Winter Daily Averages
- Table B-3 SOx, Annual and Winter Daily Averages

Tables B-1 through B-3 are followed by an overview of emissions inventory calculations and revisions.

B.2 Draft Emissions Inventory Tables

Table B-1: Directly Emitted PM2.5 (Annual and Winter Daily Averages in tons per day)

Directly Emitted PM2.5 (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
STATIONARY SOURCES																
FUEL COMBUSTION																
ELECTRIC UTILITIES	1.4	1.8	1.7	1.7	1.7	1.7	1.7	1.8	1.4	1.7	1.6	1.6	1.6	1.7	1.7	1.7
COGENERATION	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0
OIL AND GAS PRODUCTION (COMBUSTION)	1.9	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.9	1.2	1.2	1.2	1.1	1.1	1.1	1.0
PETROLEUM REFINING (COMBUSTION)	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4
MANUFACTURING AND INDUSTRIAL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
FOOD AND AGRICULTURAL PROCESSING	1.0	0.7	0.7	0.6	0.5	0.5	0.5	0.5	1.0	0.6	0.6	0.6	0.5	0.5	0.4	0.4
SERVICE AND COMMERCIAL	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
OTHER (FUEL COMBUSTION)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**5.9**	**5.5**	**5.5**	**5.4**	**5.2**	**5.2**	**5.3**	**5.4**	**5.9**	**5.3**	**5.3**	**5.3**	**5.1**	**5.2**	**5.2**	**5.1**
WASTE DISPOSAL																
SEWAGE TREATMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANDFILLS	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INCINERATORS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SOIL REMEDIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (WASTE DISPOSAL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Directly Emitted PM2.5 (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
*** TOTAL WASTE DISPOSAL**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CLEANING AND SURFACE COATINGS																
LAUNDERING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGREASING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COATINGS AND RELATED PROCESS SOLVENTS	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PRINTING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADHESIVES AND SEALANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (CLEANING AND SURFACE COATINGS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL CLEANING AND SURFACE COATINGS**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
PETROLEUM PRODUCTION AND MARKETING																
OIL AND GAS PRODUCTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PETROLEUM REFINING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PETROLEUM MARKETING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
INDUSTRIAL PROCESSES																
CHEMICAL	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
FOOD AND	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2

Directly Emitted PM2.5 (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
AGRICULTURE																
MINERAL PROCESSES	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.5	1.4	1.5	1.6	1.6	1.7	1.7	1.7
METAL PROCESSES	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
WOOD AND PAPER	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
GLASS AND RELATED PRODUCTS	0.6	0.9	0.9	1.0	1.0	1.0	1.0	1.0	0.6	0.9	0.9	1.0	1.0	1.0	1.0	1.0
OTHER (INDUSTRIAL PROCESSES)	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
*** TOTAL INDUSTRIAL PROCESSES**	**3.6**	**4.1**	**4.1**	**4.3**	**4.3**	**4.5**	**4.6**	**4.7**	**3.8**	**4.2**	**4.3**	**4.5**	**4.5**	**4.7**	**4.7**	**4.8**
**** TOTAL STATIONARY SOURCES**	**9.8**	**9.8**	**9.8**	**9.9**	**9.7**	**9.9**	**10.1**	**10.3**	**10.0**	**9.7**	**9.8**	**10.0**	**9.8**	**10.1**	**10.1**	**10.1**
AREA-WIDE SOURCES																
SOLVENT EVAPORATION																
CONSUMER PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PESTICIDES/FERTILIZERS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT PAVING / ROOFING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL SOLVENT EVAPORATION**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																
RESIDENTIAL FUEL COMBUSTION	6.1	4.4	4.2	4.2	4.2	4.3	4.3	4.3	11.7	8.4	8.0	8.0	8.1	8.1	8.1	8.1
FARMING OPERATIONS	13.6	14.2	14.3	14.4	14.4	14.5	14.6	14.6	10.4	11.2	11.3	11.3	11.4	11.4	11.5	11.5
CONSTRUCTION AND DEMOLITION	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.1
PAVED ROAD DUST	5.6	6.4	6.7	6.8	7.0	7.1	7.3	7.4	4.8	6.0	6.3	6.4	6.5	6.7	6.8	6.9

Directly Emitted PM2.5 (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
UNPAVED ROAD DUST	4.6	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.1	3.9	3.9	4.0	4.0	4.0	4.0	4.0
FUGITIVE WINDBLOWN DUST	7.8	7.6	7.6	7.6	7.6	7.5	7.5	7.5	5.0	4.9	4.8	4.8	4.8	4.8	4.8	4.8
FIRES	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MANAGED BURNING AND DISPOSAL	15.2	14.4	14.4	14.4	14.4	14.4	14.4	14.4	10.1	7.7	7.7	7.7	7.7	7.6	7.6	7.6
COOKING	2.1	1.7	1.7	1.7	1.7	1.8	1.8	1.8	2.1	1.7	1.7	1.7	1.7	1.8	1.8	1.8
OTHER (MISCELLANEOUS PROCESSES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**56.4**	**54.2**	**54.4**	**54.6**	**54.8**	**55.2**	**55.6**	**55.7**	**49.5**	**45.0**	**44.9**	**45.1**	**45.4**	**45.7**	**45.9**	**46.0**
**** TOTAL AREA-WIDE SOURCES**	**56.4**	**54.2**	**54.4**	**54.6**	**54.8**	**55.2**	**55.6**	**55.7**	**49.5**	**45.0**	**44.9**	**45.1**	**45.4**	**45.7**	**45.9**	**46.0**
MOBILE SOURCES																
ON-ROAD MOTOR VEHICLES																
LIGHT DUTY PASSENGER (LDA)	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1
LIGHT DUTY TRUCKS - 1 (LDT1)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LIGHT DUTY TRUCKS - 2 (LDT2)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
MEDIUM DUTY TRUCKS (MDV)LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Directly Emitted PM2.5 (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.8	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.8	0.5	0.4	0.4	0.4	0.3	0.3	0.3
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	5.8	3.9	2.0	1.7	1.5	1.4	1.4	1.5	5.8	3.9	2.0	1.7	1.5	1.4	1.5	1.5
MOTORCYCLES (MCY)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HEAVY DUTY GAS URBAN BUSES (UB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCHOOL BUSES (SB)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
OTHER BUSES (OB)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOTOR HOMES (MH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**9.3**	**7.0**	**4.9**	**4.6**	**4.4**	**4.3**	**4.4**	**4.5**	**9.3**	**7.0**	**4.9**	**4.6**	**4.4**	**4.3**	**4.5**	**4.5**
OTHER MOBILE SOURCES																
AIRCRAFT	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
TRAINS	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SHIPS AND COMMERCIAL BOATS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECREATIONAL BOATS	0.5	0.7	0.8	0.8	0.9	0.9	0.9	1.0	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4
OFF-ROAD RECREATIONAL VEHICLES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Directly Emitted PM2.5 (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
OFF-ROAD EQUIPMENT	2.3	1.6	1.4	1.3	1.3	1.2	1.1	1.0	2.3	1.5	1.4	1.3	1.2	1.2	1.1	1.0
FARM EQUIPMENT	2.6	2.0	1.6	1.5	1.4	1.2	1.1	1.0	2.1	1.6	1.3	1.2	1.1	1.0	0.9	0.8
FUEL STORAGE AND HANDLING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE SOURCES**	**7.2**	**6.0**	**5.5**	**5.4**	**5.4**	**5.1**	**4.9**	**4.8**	**6.5**	**5.1**	**4.7**	**4.6**	**4.4**	**4.3**	**4.2**	**4.0**
**** TOTAL MOBILE SOURCES**	**16.5**	**13.0**	**10.4**	**10.0**	**9.8**	**9.4**	**9.3**	**9.3**	**15.8**	**12.1**	**9.6**	**9.2**	**8.8**	**8.6**	**8.7**	**8.5**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**82.7**	**77.0**	**74.6**	**74.5**	**74.3**	**74.5**	**75.0**	**75.3**	**75.3**	**66.8**	**64.3**	**64.3**	**64.0**	**64.4**	**64.7**	**64.6**

Table B-2: NOx (Annual and Winter Daily Averages in tons per day)

NOx (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
STATIONARY SOURCES																
FUEL COMBUSTION																
ELECTRIC UTILITIES	7.1	5.6	5.5	5.3	5.5	5.6	5.6	5.7	7.1	5.6	5.4	5.3	5.4	5.5	5.6	5.6
COGENERATION	3.0	1.7	1.8	1.9	1.9	2.0	2.1	2.1	3.0	1.7	1.8	1.9	1.9	2.0	2.1	2.1
OIL AND GAS PRODUCTION (COMBUSTION)	3.5	1.5	1.2	0.9	0.9	0.9	0.9	0.8	3.5	1.5	1.2	0.9	0.9	0.9	0.8	0.8
PETROLEUM REFINING (COMBUSTION)	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.4
MANUFACTURING AND INDUSTRIAL	5.1	4.5	4.5	4.5	4.5	4.5	4.4	4.4	5.1	4.5	4.5	4.5	4.5	4.5	4.5	4.4
FOOD AND AGRICULTURAL PROCESSING	18.9	10.7	10.2	7.0	5.0	4.6	4.4	4.2	18.8	10.7	10.1	6.9	5.0	4.6	4.4	4.2
SERVICE AND COMMERCIAL	3.6	2.4	2.4	2.4	2.4	2.4	2.4	2.5	4.0	2.7	2.7	2.6	2.6	2.7	2.7	2.7
OTHER (FUEL COMBUSTION)	0.9	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8
*** TOTAL FUEL COMBUSTION**	**42.8**	**28.1**	**27.2**	**23.2**	**21.4**	**21.2**	**21.0**	**20.9**	**43.0**	**28.3**	**27.2**	**23.3**	**21.5**	**21.4**	**21.3**	**21.0**
WASTE DISPOSAL																
SEWAGE TREATMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANDFILLS	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
INCINERATORS	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
SOIL REMEDIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (WASTE DISPOSAL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL WASTE DISPOSAL**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

NOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
CLEANING AND SURFACE COATINGS																
LAUNDERING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGREASING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRINTING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADHESIVES AND SEALANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (CLEANING AND SURFACE COATINGS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL CLEANING AND SURFACE COATINGS**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
PETROLEUM PRODUCTION AND MARKETING																
OIL AND GAS PRODUCTION	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1
PETROLEUM REFINING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PETROLEUM MARKETING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.2**	**0.2**
INDUSTRIAL PROCESSES																
CHEMICAL	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
FOOD AND AGRICULTURE	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MINERAL PROCESSES	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2
METAL PROCESSES	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
WOOD AND PAPER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	7.8	5.3	3.7	3.8	3.8	3.9	3.9	4.0	7.8	5.3	3.7	3.8	3.8	3.9	3.9	4.0
OTHER (INDUSTRIAL PROCESSES)	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
*** TOTAL INDUSTRIAL PROCESSES**	**8.5**	**6.2**	**4.6**	**4.8**	**4.8**	**5.0**	**5.0**	**5.1**	**8.5**	**6.1**	**4.5**	**4.7**	**4.8**	**4.9**	**4.9**	**5.0**
**** TOTAL STATIONARY SOURCES**	**51.8**	**34.7**	**32.3**	**28.5**	**26.7**	**26.7**	**26.4**	**26.4**	**52.0**	**34.8**	**32.2**	**28.5**	**26.8**	**26.8**	**26.6**	**26.4**
AREA-WIDE SOURCES																
SOLVENT EVAPORATION																
CONSUMER PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PESTICIDES/FERTILIZERS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT PAVING / ROOFING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL SOLVENT EVAPORATION**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																
RESIDENTIAL FUEL COMBUSTION	7.1	6.6	6.6	6.7	6.7	6.7	6.7	6.8	11.1	10.4	10.4	10.5	10.5	10.6	10.6	10.7
FARMING OPERATIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONSTRUCTION AND DEMOLITION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UNPAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVE WINDBLOWN DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
FIRES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANAGED BURNING AND DISPOSAL	7.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	5.3	5.3	5.3	5.3	5.3	5.3	5.3
COOKING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (MISCELLANEOUS PROCESSES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**14.7**	**13.6**	**13.6**	**13.7**	**13.7**	**13.7**	**13.7**	**13.8**	**18.2**	**15.7**	**15.7**	**15.8**	**15.8**	**15.9**	**15.9**	**16.0**
**** TOTAL AREA-WIDE SOURCES**	**14.7**	**13.6**	**13.6**	**13.7**	**13.7**	**13.7**	**13.7**	**13.8**	**18.2**	**15.7**	**15.7**	**15.8**	**15.8**	**15.9**	**15.9**	**16.0**
MOBILE SOURCES																
ON-ROAD MOTOR VEHICLES																
LIGHT DUTY PASSENGER (LDA)	17.2	10.7	8.4	7.5	6.8	6.1	5.6	5.2	18.8	11.7	9.2	8.2	7.4	6.7	6.1	5.7
LIGHT DUTY TRUCKS - 1 (LDT1)	5.7	3.9	3.2	2.9	2.7	2.4	2.2	2.1	6.3	4.2	3.5	3.2	2.9	2.7	2.5	2.3
LIGHT DUTY TRUCKS - 2 (LDT2)	11.9	7.9	6.2	5.5	4.9	4.3	3.9	3.5	13.1	8.6	6.8	6.0	5.3	4.7	4.3	3.9
MEDIUM DUTY TRUCKS (MDV)LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	15.3	12.6	11.1	10.3	9.7	9.0	8.4	7.9	16.8	13.8	12.1	11.3	10.6	9.9	9.2	8.6
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	4.9	4.6	4.3	4.2	4.1	4.0	3.9	3.8	5.2	4.9	4.6	4.5	4.4	4.2	4.1	4.0
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	1.1	0.9	0.7	0.7	0.6	0.6	0.5	0.5	1.2	0.9	0.8	0.7	0.7	0.6	0.5	0.5
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
LIGHT HEAVY DUTY DIESEL TRUCKS - 1	15.0	12.3	11.1	10.5	9.9	9.3	8.8	8.3	15.2	12.6	11.2	10.6	10.1	9.5	9.0	8.4

NOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
(LHDV1)																
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	3.6	2.9	2.6	2.5	2.3	2.2	2.1	1.9	3.7	3.0	2.7	2.5	2.4	2.2	2.1	2.0
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	19.4	13.3	12.2	10.9	10.0	9.1	8.3	7.5	19.7	13.5	12.4	11.1	10.2	9.2	8.4	7.6
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	184.9	108.4	94.2	83.7	74.9	68.9	63.7	59.9	187.4	110.2	95.7	84.9	75.9	69.8	64.4	60.5
MOTORCYCLES (MCY)	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2
HEAVY DUTY DIESEL URBAN BUSES (UB)	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	2.1	2.2	2.0	2.0	2.0	2.0	2.0	1.9
HEAVY DUTY GAS URBAN BUSES (UB)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
SCHOOL BUSES (SB)	1.5	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.5	1.1	1.1	1.1	1.1	1.1	1.0	1.0
OTHER BUSES (OB)	2.2	1.6	1.5	1.3	1.1	1.0	0.9	0.9	2.3	1.6	1.5	1.3	1.2	1.1	1.0	0.9
MOTOR HOMES (MH)	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.5
*** TOTAL ON-ROAD MOTOR VEHICLES**	**287.7**	**185.1**	**161.4**	**145.8**	**132.8**	**122.7**	**113.8**	**107.0**	**296.5**	**191.3**	**166.7**	**150.5**	**137.1**	**126.6**	**117.5**	**110.1**
OTHER MOBILE SOURCES																
AIRCRAFT	2.7	3.4	3.5	3.6	3.6	3.7	3.7	3.8	2.7	3.4	3.5	3.6	3.6	3.7	3.7	3.8
TRAINS	21.4	20.5	20.7	20.8	20.9	21.0	21.2	21.3	21.4	20.5	20.7	20.8	20.9	21.0	21.2	21.3
SHIPS AND COMMERCIAL BOATS	1.1	0.9	0.9	0.8	0.8	0.8	0.8	0.8	1.1	0.9	0.9	0.8	0.8	0.8	0.8	0.8
RECREATIONAL BOATS	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
OFF-ROAD RECREATIONAL VEHICLES	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
OFF-ROAD EQUIPMENT	45.5	32.7	31.1	30.6	29.6	28.8	27.1	26.1	45.5	32.6	31.0	30.5	29.5	28.8	27.1	26.0
FARM EQUIPMENT	48.1	36.7	31.6	29.2	27.0	25.0	22.9	21.0	37.7	28.7	24.7	22.9	21.1	19.5	18.0	16.4
FUEL STORAGE AND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
HANDLING																
* TOTAL OTHER MOBILE SOURCES	122.5	97.8	91.4	88.7	85.6	83.1	79.5	76.8	109.9	87.6	82.3	80.1	77.4	75.3	72.3	69.8
** TOTAL MOBILE SOURCES	410.2	282.9	252.8	234.5	218.4	205.8	193.3	183.8	406.4	278.9	249.0	230.6	214.5	201.9	189.8	179.9
GRAND TOTAL FOR SAN JOAQUIN VALLEY	476.7	331.2	298.7	276.7	258.8	246.2	233.4	224.0	476.6	329.4	296.9	274.9	257.1	244.6	232.3	222.3

Table B-3: SOx (Annual and Winter Daily Averages in tons per day)

SOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
STATIONARY SOURCES																
FUEL COMBUSTION																
ELECTRIC UTILITIES	1.4	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.4	1.7	1.5	1.5	1.6	1.6	1.6	1.6
COGENERATION	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3
OIL AND GAS PRODUCTION (COMBUSTION)	2.0	0.7	0.3	0.3	0.3	0.3	0.3	0.3	2.0	0.7	0.3	0.3	0.3	0.3	0.3	0.3
PETROLEUM REFINING (COMBUSTION)	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
MANUFACTURING AND INDUSTRIAL	1.1	0.9	0.8	0.8	0.9	0.9	0.9	0.9	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
FOOD AND AGRICULTURAL PROCESSING	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
SERVICE AND COMMERCIAL	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2
OTHER (FUEL COMBUSTION)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**5.6**	**3.9**	**3.2**	**3.2**	**3.3**	**3.3**	**3.5**	**3.5**	**5.6**	**3.9**	**3.2**	**3.2**	**3.3**	**3.3**	**3.4**	**3.4**
WASTE DISPOSAL																
SEWAGE TREATMENT	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
LANDFILLS	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INCINERATORS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SOIL REMEDIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (WASTE DISPOSAL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL WASTE DISPOSAL**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**

SOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
CLEANING AND SURFACE COATINGS																
LAUNDERING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGREASING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRINTING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADHESIVES AND SEALANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (CLEANING AND SURFACE COATINGS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL CLEANING AND SURFACE COATINGS**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
PETROLEUM PRODUCTION AND MARKETING																
OIL AND GAS PRODUCTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PETROLEUM REFINING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
PETROLEUM MARKETING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**
INDUSTRIAL PROCESSES																
CHEMICAL	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2
FOOD AND AGRICULTURE	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MINERAL PROCESSES	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
METAL PROCESSES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SOx (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
WOOD AND PAPER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	3.0	1.7	1.6	1.6	1.7	1.7	1.7	1.7	3.0	1.7	1.6	1.6	1.7	1.7	1.7	1.7
OTHER (INDUSTRIAL PROCESSES)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL INDUSTRIAL PROCESSES**	**4.7**	**3.3**	**3.2**	**3.2**	**3.5**	**3.5**	**3.5**	**3.6**	**4.5**	**3.2**	**3.1**	**3.1**	**3.3**	**3.3**	**3.4**	**3.4**
**** TOTAL STATIONARY SOURCES**	**10.5**	**7.3**	**6.5**	**6.5**	**6.9**	**7.0**	**7.2**	**7.4**	**10.3**	**7.2**	**6.4**	**6.4**	**6.7**	**6.8**	**7.0**	**7.1**
AREA-WIDE SOURCES																
SOLVENT EVAPORATION																
CONSUMER PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PESTICIDES/FERTILIZERS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT PAVING / ROOFING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL SOLVENT EVAPORATION**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																
RESIDENTIAL FUEL COMBUSTION	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FARMING OPERATIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONSTRUCTION AND DEMOLITION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UNPAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVE WINDBLOWN DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FIRES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SOx (tpd)																
SUMMARY CATEGORY NAME	**ANNUAL**								**WINTER**							
	2007	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2007**	**2012**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
MANAGED BURNING AND DISPOSAL	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
COOKING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (MISCELLANEOUS PROCESSES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
**** TOTAL AREA-WIDE SOURCES**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
MOBILE SOURCES																
ON-ROAD MOTOR VEHICLES																
LIGHT DUTY PASSENGER (LDA)	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LIGHT DUTY TRUCKS - 1 (LDT1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIGHT DUTY TRUCKS - 2 (LDT2)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MEDIUM DUTY TRUCKS (MDV)LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MOTORCYCLES (MCY)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY DUTY GAS URBAN BUSES (UB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCHOOL BUSES (SB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER BUSES (OB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOTOR HOMES (MH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**0.5**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
OTHER MOBILE SOURCES																
AIRCRAFT	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TRAINS	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHIPS AND COMMERCIAL BOATS	0.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1
RECREATIONAL BOATS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OFF-ROAD RECREATIONAL VEHICLES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OFF-ROAD EQUIPMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FARM EQUIPMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUEL STORAGE AND HANDLING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE**	**1.0**	**0.4**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**1.0**	**0.4**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**

SOx (tpd)																
SUMMARY CATEGORY NAME	ANNUAL								WINTER							
	2007	2012	2014	2015	2016	2017	2018	2019	2007	2012	2014	2015	2016	2017	2018	2019
SOURCES																
** TOTAL MOBILE SOURCES	1.5	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.5	1.0	1.1	1.1	1.1	1.1	1.1	1.1
GRAND TOTAL FOR SAN JOAQUIN VALLEY	13.4	9.7	9.0	9.0	9.4	9.5	9.7	9.9	12.5	8.9	8.2	8.2	8.5	8.6	8.8	8.9

B.3 Emissions Inventory Calculations and Revisions

Emissions are estimated in a variety of ways. Some point and mobile sources may have emissions source tests or continuous emissions monitoring, which can provide direct tabulation of emission rates. Data from source-specific emission tests or continuous emission monitors are usually preferred for estimating a source's emissions because those data provide the best representation of the source's emissions.

Typically, the mobile source inventory is based on population, activity rates, fuel specifications, and emissions of typical vehicles. For area sources, estimates are made based on 'surrogate' data that is assumed to be proportional to emissions, such as population, employment, economic data or some type of human activity. If no emissions data are available for a particular source, the District may send a survey to businesses that are identified as producing emissions form that source. The survey typically requests data that are used to estimate emissions. Each of the local air districts estimates the emissions for the stationary sources within its jurisdiction.

Emissions from natural sources are typically estimated by conducting a scientific study. The Air Resources Board (ARB) estimates emissions of biogenic volatile organic compounds (BVOCs) from vegetation for natural areas, crops, and urban vegetation. BVOC emissions are functions of the species leaf mass, emission factors, temperature, and light conditions. Other pollutants (e.g. NOx) also have biogenic sources.

B.3.1 Emission Factors and Emission Equations

The general equation for emission estimation is:

$$E = A \times EF \times (1-ER/100)$$

where:

E = emissions
A = activity rate
EF = emission factor
ER = overall emission reduction efficiency, percent

An emission factor relates the quantity of a pollutant emitted into the atmosphere to an activity associated with the pollutant's release. Such factors may be used in equations to estimate emissions from a process where source specific data is not available. Emission factors are typically expressed as the weight of pollutant divided by a unit weight, area, volume, distance, or duration of the activity emitting the pollutant. In most cases, these factors are simply averages of all available data of acceptable quality, and are generally assumed to be representative of long-term averages for all facilities in the source category.

Once an emission factor is determined, the next step is to determine the population (number of sources) and extent of each source. Population data is collected directly and indirectly. For example, vehicle registration data are gathered by the state.

Stationary sources must obtain a permit from the District; therefore, populations of permitted equipment are directly obtained and are reasonably accurate. The number of fireplaces is not reported and must be estimated indirectly using housing statistics and surveys. Each source category has its own methodology.

The next step is to determine an activity rate. Activity data is reported in hours of operation, gallons of fuel used, miles traveled, and other units. Stationary sources of emissions permitted by the District are required to report actual emissions to ensure that they remain below their emission limits. This provides detailed activity data that is used in the emissions inventory. In other cases, facility operators can inform the District of their actual production figures or fuel burned. A survey is often carried out to determine usage rates.

B.3.2 Emissions Inventory Updates

The District, in cooperation with the ARB, is committed to continually updating the emissions inventory as research, emission factor updates, and other information become available. When emissions data change dramatically, the District is committed to revising the inventory and ensuring that any impact is reflected in the control strategy and the attainment demonstration.

The District re-evaluates the emissions inventory on a regular basis to ensure that the inventory is accurate and current. Major point sources are typically re-evaluated every year. Area sources are scheduled to be re-evaluated every one to five years. The District updates emissions growth estimates on a periodic basis and revises emissions estimates based on the effects of District prohibitory rules on an emissions source category.