Appendix B

Emissions Inventory

This page intentionally blank.

TABLE OF CONTENTS

TABLE OF TABLES

B. EMISSIONS INVENTORY

Emissions inventories are one of the fundamental building blocks in the development of an attainment plan. Emissions inventories serve as 1) a primary input to air quality modeling used in attainment demonstrations; 2) the emissions data used for developing control strategies; and 3) a means to track progress in meeting the emission reduction commitments. The inventories in this appendix are used to study and propose control measures, to track emissions for Reasonable Further Progress (RFP), to establish motor vehicle conformity budgets for transportation planning, and to assist in demonstrating attainment.

Emissions inventories are an estimate of the air pollution emissions that are actually released into the environment. They are not measurements of ambient concentrations. The following are examples of pollution sources by key sectors:

- Industrial or stationary point sources (e.g., power plants and oil refineries);
- Area-wide sources (e.g., consumer products and residential fuel combustion);
- On-road sources (e.g., passenger vehicles and heavy-duty trucks);
- Off-road mobile sources (e.g., aircraft, trains, ships, recreational boats, construction equipment and farm equipment); and
- Non-anthropogenic (natural) sources (e.g., biogenic or vegetation, geogenic (petroleum seeps), and wildfires).

Emissions inventories are usually developed at various geographical resolutions encompassing district, air basin, and county levels. The inventories presented in this appendix are the emissions for the San Joaquin Valley Air Basin.

This appendix includes emissions for the San Joaquin Valley Air Basin for the years 2013 through 2028.[1] The tables in this appendix include:

- Table B-1 Directly Emitted PM2.5
- Table B-2 NOx
- Table B-3 SOx
- Table B-4 VOC
- Table B-5 Ammonia

Tables B-1 through B-5 are followed by an overview of emissions inventory calculations and revisions.

[1] Emission Inventory data source is CEPAM v.1.05.

B.1 Emissions Inventory Tables

Table B-1 Directly Emitted PM2.5

SUMMARY CATEGORY NAME	PM2.5																			
	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
STATIONARY SOURCES																				
FUEL COMBUSTION																				
ELECTRIC UTILITIES	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3
COGENERATION	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
OIL AND GAS PRODUCTION (COMBUSTION)	1.7	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.7	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.2
PETROLEUM REFINING (COMBUSTION)	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	0.1	0.1	0.1	0.1
MANUFACTURING AND INDUSTRIAL	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	0.1	0.1	0.1	0.1
FOOD AND AGRICULTURAL PROCESSING	0.7	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3
SERVICE AND COMMERCIAL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**5.0**	**4.6**	**4.6**	**4.6**	**4.5**	**4.5**	**4.5**	**4.5**	**4.5**	**4.4**	**4.8**	**4.5**	**4.5**	**4.5**	**4.4**	**4.4**	**4.4**	**4.4**	**4.4**	**4.4**
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	0.0	0.0	0.0	0.0
LANDFILLS	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	0.1	0.1	0.1	0.1
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	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	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	0.0	0.0	0.0	0.0
*** TOTAL WASTE DISPOSAL**	**0.1**	**0.1**	**0.1**	**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**	**0.2**	**0.2**	**0.2**
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	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	0.0	0.0	0.0	0.0
COATINGS AND RELATED PROCESS SOLVENTS	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
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	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	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	0.0	0.0	0.0	0.0
*** TOTAL CLEANING AND SURFACE COATINGS**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.4**
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	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	0.1	0.1	0.1	0.1

PM2.5																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
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	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	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**	**0.1**	**0.1**	**0.1**	**0.1**
INDUSTRIAL PROCESSES																				
CHEMICAL	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
FOOD AND AGRICULTURE	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
MINERAL PROCESSES	1.4	1.5	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.3	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.9
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	0.1	0.1	0.1	0.1
WOOD AND PAPER	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	0.2	0.2	0.2	0.2
GLASS AND RELATED PRODUCTS	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ELECTRONICS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 (INDUSTRIAL PROCESSES)	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
*** TOTAL INDUSTRIAL PROCESSES**	**3.3**	**3.4**	**3.5**	**3.6**	**3.7**	**3.8**	**3.8**	**3.9**	**3.9**	**4.1**	**3.2**	**3.3**	**3.4**	**3.5**	**3.6**	**3.6**	**3.7**	**3.7**	**3.8**	**3.9**
**** TOTAL STATIONARY SOURCES**	**8.8**	**8.6**	**8.7**	**8.7**	**8.8**	**8.9**	**8.9**	**9.0**	**9.0**	**9.2**	**8.5**	**8.4**	**8.5**	**8.5**	**8.6**	**8.6**	**8.7**	**8.8**	**8.8**	**9.0**
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	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	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	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	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**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																				
RESIDENTIAL FUEL COMBUSTION	3.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4	7.0	6.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
FARMING OPERATIONS	13.4	13.2	13.1	13.1	13.0	13.0	12.9	12.9	12.8	12.7	12.3	12.1	12.0	12.0	11.9	11.8	11.8	11.7	11.7	11.6
CONSTRUCTION AND DEMOLITION	1.5	1.8	1.9	1.9	1.6	1.6	1.6	1.6	1.7	1.7	1.4	1.6	1.7	1.7	1.4	1.5	1.5	1.5	1.5	1.6
PAVED ROAD DUST	4.7	5.0	5.2	5.3	5.4	5.5	5.6	5.7	5.8	6.0	4.4	4.7	4.8	4.9	5.1	5.2	5.3	5.3	5.4	5.6
UNPAVED ROAD DUST	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
FUGITIVE WINDBLOWN DUST	7.5	7.4	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.0	4.8	4.7	4.6	4.6	4.5	4.5	4.5	4.5	4.4	4.4
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	0.2	0.2	0.2	0.2
MANAGED BURNING AND DISPOSAL	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.2	4.2	4.2
COOKING	3.6	3.9	4.0	4.0	4.2	4.2	4.3	4.4	4.4	4.6	3.6	3.9	4.0	4.0	4.2	4.2	4.3	4.4	4.4	4.6
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	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**41.5**	**41.5**	**41.7**	**41.8**	**41.6**	**41.7**	**41.8**	**41.9**	**42.0**	**42.2**	**41.4**	**40.9**	**41.1**	**41.2**	**41.1**	**41.1**	**41.2**	**41.3**	**41.4**	**41.6**
**** TOTAL AREA-WIDE SOURCES**	**41.5**	**41.5**	**41.7**	**41.8**	**41.6**	**41.7**	**41.8**	**41.9**	**42.0**	**42.2**	**41.4**	**40.9**	**41.1**	**41.2**	**41.1**	**41.1**	**41.2**	**41.3**	**41.4**	**41.6**

PM2.5																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
MOBILE SOURCES																				
ON-ROAD MOTOR VEHICLES																				
LIGHT DUTY PASSENGER (LDA)	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4
LIGHT DUTY TRUCKS - 1 (LDT1)	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	0.1	0.1	0.1	0.1
LIGHT DUTY TRUCKS - 2 (LDT2)	0.4	0.4	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	0.4	0.4	0.5	0.5	0.5
MEDIUM DUTY TRUCKS (MDV)	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.1	0.1	0.0	0.0	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	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	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	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	0.0	0.0	0.0	0.0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.2	0.1	0.1	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	0.1	0.1
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.1	0.0	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	0.0	0.0
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.8	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	3.2	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	3.2	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6
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	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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	0.0	0.0	0.0	0.0
SCHOOL BUSES (SB)	0.1	0.0	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	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	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	0.0	0.0	0.0	0.0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**6.4**	**3.7**	**3.5**	**3.4**	**3.3**	**3.2**	**3.2**	**3.2**	**3.3**	**3.3**	**6.4**	**3.7**	**3.5**	**3.4**	**3.3**	**3.2**	**3.2**	**3.2**	**3.3**	**3.3**
OTHER MOBILE SOURCES																				
AIRCRAFT	1.2	1.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.2	1.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
TRAINS	0.2	0.2	0.1	0.1	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	0.1
SHIPS AND COMMERCIAL 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	0.0	0.0	0.0	0.0
RECREATIONAL BOATS	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
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	0.0	0.0	0.0	0.0
OFF-ROAD EQUIPMENT	1.1	1.0	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.5	1.0	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4
FARM EQUIPMENT	2.8	2.4	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.3	1.7	1.5	1.4	1.3	1.2	1.1	1.0	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	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE SOURCES**	**5.8**	**5.1**	**5.2**	**5.1**	**4.7**	**4.5**	**4.4**	**4.2**	**4.1**	**3.8**	**4.4**	**4.0**	**4.1**	**4.0**	**3.8**	**3.6**	**3.5**	**3.4**	**3.3**	**3.2**
**** TOTAL MOBILE SOURCES**	**12.2**	**8.9**	**8.8**	**8.5**	**8.0**	**7.7**	**7.6**	**7.5**	**7.4**	**7.2**	**10.9**	**7.7**	**7.6**	**7.4**	**7.1**	**6.8**	**6.8**	**6.7**	**6.6**	**6.5**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**62.5**	**58.9**	**59.2**	**59.0**	**58.4**	**58.3**	**58.3**	**58.3**	**58.4**	**58.5**	**60.8**	**57.0**	**57.3**	**57.2**	**56.7**	**56.6**	**56.7**	**56.8**	**56.8**	**57.0**

Table B-2 NOx

NOx																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
STATIONARY SOURCES																				
FUEL COMBUSTION																				
ELECTRIC UTILITIES	4.4	4.2	4.3	4.3	4.3	4.3	4.4	4.5	4.5	4.6	4.2	4.0	4.1	4.0	4.1	4.1	4.2	4.2	4.3	4.3
COGENERATION	1.6	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	1.5	1.7	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1
OIL AND GAS PRODUCTION (COMBUSTION)	3.1	2.6	2.5	2.4	2.2	2.2	2.1	2.0	2.0	1.8	3.1	2.6	2.5	2.4	2.2	2.2	2.1	2.0	2.0	1.8
PETROLEUM REFINING (COMBUSTION)	0.2	0.2	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	0.2	0.2	0.1
MANUFACTURING AND INDUSTRIAL	5.2	5.1	5.2	5.2	5.3	5.3	5.2	5.3	5.3	5.4	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.5
FOOD AND AGRICULTURAL PROCESSING	11.5	5.6	5.2	5.0	4.6	4.4	4.2	4.0	3.8	3.5	7.9	4.0	3.7	3.6	3.3	3.2	3.0	2.9	2.8	2.6
SERVICE AND COMMERCIAL	4.6	4.6	4.6	4.6	4.6	4.6	4.5	4.5	4.5	4.5	4.9	5.0	5.0	5.0	5.0	5.0	4.9	4.9	4.8	4.8
OTHER (FUEL COMBUSTION)	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
*** TOTAL FUEL COMBUSTION**	**31.2**	**24.7**	**24.4**	**24.1**	**23.6**	**23.4**	**23.1**	**23.0**	**22.8**	**22.6**	**27.6**	**23.1**	**23.0**	**22.7**	**22.4**	**22.2**	**22.0**	**21.9**	**21.8**	**21.7**
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	0.0	0.0	0.0	0.0
LANDFILLS	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	0.2	0.2	0.2	0.2
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	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	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	0.0	0.0	0.0	0.0
*** TOTAL WASTE DISPOSAL**	**0.2**	**0.3**	**0.3**	**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**	**0.3**	**0.3**
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	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	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	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	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	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	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**	**0.0**	**0.0**	**0.0**	**0.0**
PETROLEUM PRODUCTION AND MARKETING																				
OIL AND GAS PRODUCTION	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
PETROLEUM REFINING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 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	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	0.0	0.0	0.0	0.0

NOx																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**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**
INDUSTRIAL PROCESSES																				
CHEMICAL	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
FOOD AND AGRICULTURE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERAL PROCESSES	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
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	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	6.2	3.3	3.3	3.3	3.5	3.5	3.5	3.5	3.5	3.5	6.2	3.3	3.3	3.3	3.5	3.5	3.5	3.5	3.5	3.5
ELECTRONICS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 (INDUSTRIAL 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	0.0	0.0	0.0	0.0
*** TOTAL INDUSTRIAL PROCESSES**	**6.7**	**3.8**	**3.9**	**3.9**	**4.1**	**4.1**	**4.1**	**4.2**	**4.2**	**4.2**	**6.7**	**3.8**	**3.8**	**3.9**	**4.1**	**4.1**	**4.1**	**4.1**	**4.1**	**4.2**
**** TOTAL STATIONARY SOURCES**	**38.6**	**29.1**	**28.9**	**28.6**	**28.3**	**28.1**	**27.9**	**27.7**	**27.6**	**27.4**	**35.0**	**27.6**	**27.5**	**27.2**	**27.1**	**26.9**	**26.8**	**26.7**	**26.5**	**26.5**
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	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	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	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	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**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																				
RESIDENTIAL FUEL COMBUSTION	6.4	6.3	6.3	6.2	5.9	5.8	5.8	5.7	5.7	5.6	8.9	8.8	8.7	8.6	8.2	8.1	8.0	7.9	7.8	7.7
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	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	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	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	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	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	0.0	0.0	0.0	0.0
MANAGED BURNING AND DISPOSAL	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4
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	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	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**8.1**	**8.0**	**7.9**	**7.9**	**7.6**	**7.5**	**7.4**	**7.4**	**7.3**	**7.2**	**11.5**	**11.3**	**11.3**	**11.1**	**10.7**	**10.6**	**10.5**	**10.4**	**10.3**	**10.2**
**** TOTAL AREA-WIDE SOURCES**	**8.1**	**8.0**	**7.9**	**7.9**	**7.6**	**7.5**	**7.4**	**7.4**	**7.3**	**7.2**	**11.5**	**11.3**	**11.3**	**11.1**	**10.7**	**10.6**	**10.5**	**10.4**	**10.3**	**10.2**
MOBILE SOURCES																				
ON-ROAD MOTOR VEHICLES																				
LIGHT DUTY PASSENGER (LDA)	9.6	6.1	4.9	4.5	3.8	3.5	3.3	3.1	2.9	2.6	10.5	6.7	5.4	4.9	4.2	3.9	3.6	3.4	3.2	2.9

NOx																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
LIGHT DUTY TRUCKS - 1 (LDT1)	2.8	1.5	1.1	1.0	0.8	0.7	0.6	0.5	0.5	0.4	3.1	1.7	1.2	1.1	0.8	0.7	0.7	0.6	0.5	0.4
LIGHT DUTY TRUCKS - 2 (LDT2)	7.0	4.3	3.3	2.9	2.4	2.2	2.0	1.9	1.7	1.5	7.7	4.7	3.6	3.2	2.6	2.4	2.2	2.0	1.9	1.7
MEDIUM DUTY TRUCKS (MDV)	10.0	6.8	5.3	4.7	3.5	3.1	2.7	2.4	2.1	1.7	11.0	7.5	5.9	5.2	3.9	3.4	3.0	2.6	2.3	1.9
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	3.0	2.1	1.8	1.7	1.4	1.3	1.2	1.0	0.9	0.8	3.2	2.3	1.9	1.8	1.5	1.4	1.2	1.1	1.0	0.8
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.8	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.8	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	11.0	8.1	6.8	6.1	4.9	4.4	3.9	3.5	3.1	2.4	11.2	8.3	6.9	6.2	5.0	4.5	4.0	3.5	3.1	2.4
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	2.8	1.9	1.5	1.3	1.0	0.8	0.7	0.6	0.5	0.3	2.8	1.9	1.5	1.3	1.0	0.9	0.7	0.6	0.5	0.4
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	18.2	11.8	10.2	8.3	6.4	5.0	5.1	5.2	5.2	5.3	18.5	12.0	10.3	8.4	6.5	5.1	5.2	5.2	5.3	5.4
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	110.1	70.1	64.4	61.5	52.5	33.1	32.9	32.6	32.4	31.9	111.8	71.0	65.2	62.3	53.1	33.4	33.2	32.9	32.7	32.2
MOTORCYCLES (MCY)	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
HEAVY DUTY DIESEL URBAN BUSES (UB)	3.4	2.3	1.8	1.6	1.3	1.2	1.1	0.9	0.9	0.7	3.5	2.4	1.9	1.7	1.3	1.2	1.1	1.0	0.9	0.7
HEAVY DUTY GAS URBAN BUSES (UB)	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
SCHOOL BUSES (SB)	1.1	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.4	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.4
OTHER BUSES (OB)	1.2	0.8	0.7	0.7	0.5	0.3	0.3	0.3	0.4	0.4	1.2	0.8	0.7	0.7	0.5	0.3	0.4	0.4	0.4	0.4
MOTOR HOMES (MH)	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1
*** TOTAL ON-ROAD MOTOR VEHICLES**	**183.1**	**119.2**	**104.7**	**96.9**	**80.9**	**57.9**	**56.0**	**54.2**	**52.6**	**49.8**	**188.7**	**122.7**	**107.6**	**99.5**	**83.0**	**59.5**	**57.5**	**55.6**	**53.9**	**51.0**
OTHER MOBILE SOURCES																				
AIRCRAFT	2.5	2.5	4.6	4.6	4.6	4.6	4.5	4.5	4.5	4.5	2.4	2.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
TRAINS	12.5	11.2	10.2	9.8	9.1	8.8	8.3	7.9	7.5	6.7	12.5	11.2	10.2	9.8	9.1	8.8	8.3	7.9	7.5	6.7
SHIPS AND COMMERCIAL BOATS	1.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
RECREATIONAL BOATS	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
OFF-ROAD RECREATIONAL VEHICLES	0.1	0.2	0.2	0.2	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	0.2	0.2
OFF-ROAD EQUIPMENT	21.4	19.6	17.5	17.2	15.3	14.7	14.4	13.4	12.9	12.0	18.3	16.6	14.8	14.5	12.9	12.5	12.2	11.4	11.0	10.3
FARM EQUIPMENT	48.4	41.5	38.6	36.2	32.0	30.1	28.3	26.6	25.1	22.3	30.1	25.8	23.9	22.5	19.9	18.7	17.6	16.6	15.6	13.9
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	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE SOURCES**	**87.4**	**77.0**	**72.9**	**69.8**	**63.0**	**60.1**	**57.6**	**54.4**	**51.9**	**47.4**	**65.3**	**57.6**	**54.9**	**52.8**	**47.9**	**46.0**	**44.2**	**41.9**	**40.0**	**36.8**
**** TOTAL MOBILE SOURCES**	**270.5**	**196.2**	**177.6**	**166.8**	**143.8**	**118.0**	**113.6**	**108.6**	**104.5**	**97.2**	**254.1**	**180.2**	**162.5**	**152.3**	**130.9**	**105.5**	**101.6**	**97.4**	**94.0**	**87.8**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**317.2**	**233.3**	**214.5**	**203.3**	**179.8**	**153.6**	**148.9**	**143.7**	**139.4**	**131.8**	**300.5**	**219.1**	**201.2**	**190.7**	**168.7**	**143.0**	**138.9**	**134.5**	**130.8**	**124.5**

Table B-3 SOx

SOx																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
STATIONARY SOURCES																				
FUEL COMBUSTION																				
ELECTRIC UTILITIES	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
COGENERATION	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
OIL AND GAS PRODUCTION (COMBUSTION)	0.7	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
PETROLEUM REFINING (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	0.0	0.0	0.0	0.0
MANUFACTURING AND INDUSTRIAL	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
FOOD AND AGRICULTURAL PROCESSING	0.2	0.1	0.1	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	0.1	0.1
SERVICE AND COMMERCIAL	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	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	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**2.9**	**2.3**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.9**	**2.3**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
WASTE DISPOSAL																				
SEWAGE TREATMENT	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	0.1	0.1	0.1	0.1
LANDFILLS	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	0.1	0.1	0.1	0.1
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	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	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	0.0	0.0	0.0	0.0
*** TOTAL WASTE DISPOSAL**	**0.1**	**0.2**	**0.2**	**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**	**0.2**	**0.2**
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	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	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	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	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	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	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**	**0.0**	**0.0**	**0.0**	**0.0**
PETROLEUM PRODUCTION AND MARKETING																				
OIL AND GAS PRODUCTION	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
PETROLEUM REFINING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 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	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	0.0	0.0	0.0	0.0

SOx																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**
INDUSTRIAL PROCESSES																				
CHEMICAL	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0
FOOD AND AGRICULTURE	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
MINERAL PROCESSES	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
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	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	2.0	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	2.0	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8
ELECTRONICS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 (INDUSTRIAL PROCESSES)	0.1	0.1	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	0.0	0.0
*** TOTAL INDUSTRIAL PROCESSES**	**3.6**	**3.4**	**3.5**	**3.6**	**3.7**	**3.7**	**3.8**	**3.8**	**3.9**	**3.9**	**3.4**	**3.1**	**3.2**	**3.3**	**3.4**	**3.4**	**3.5**	**3.5**	**3.5**	**3.6**
**** TOTAL STATIONARY SOURCES**	**7.2**	**6.3**	**6.5**	**6.5**	**6.7**	**6.7**	**6.7**	**6.8**	**6.8**	**6.9**	**6.9**	**6.1**	**6.2**	**6.2**	**6.3**	**6.4**	**6.4**	**6.4**	**6.5**	**6.6**
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	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	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	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	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**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																				
RESIDENTIAL FUEL COMBUSTION	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	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	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	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	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	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	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	0.0	0.0	0.0	0.0
MANAGED BURNING AND DISPOSAL	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	0.1	0.1	0.1	0.1
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	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	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
**** TOTAL AREA-WIDE SOURCES**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
MOBILE SOURCES																				
ON-ROAD MOTOR VEHICLES																				
LIGHT DUTY PASSENGER (LDA)	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	0.2	0.2	0.2	0.1

SOx																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
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	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	0.1	0.1	0.1	0.1
MEDIUM DUTY TRUCKS (MDV)	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	0.1	0.1	0.1	0.1
LIGHT HEAVY DUTY GAS 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	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	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	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	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	0.0	0.0	0.0	0.0
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	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	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	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	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	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	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	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	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	0.0	0.0	0.0	0.0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
OTHER MOBILE SOURCES																				
AIRCRAFT	0.1	0.1	0.2	0.2	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	0.2	0.2
TRAINS	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	0.1	0.1	0.1	0.1
SHIPS AND COMMERCIAL BOATS	0.1	0.0	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	0.0	0.0
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	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	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	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	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	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE SOURCES**	**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**	**0.3**	**0.3**	**0.3**	**0.3**
**** TOTAL MOBILE SOURCES**	**1.0**	**0.9**	**1.0**	**1.0**	**1.0**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**1.0**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**8.5**	**7.6**	**7.8**	**7.8**	**7.9**	**8.0**	**8.0**	**8.0**	**8.1**	**8.2**	**8.4**	**7.4**	**7.6**	**7.6**	**7.7**	**7.8**	**7.8**	**7.8**	**7.9**	**8.0**

Table B-4 VOC

SUMMARY CATEGORY NAME	VOC																			
	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
STATIONARY SOURCES																				
FUEL COMBUSTION																				
ELECTRIC UTILITIES	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	0.2	0.2	0.2	0.2
COGENERATION	0.5	0.5	0.5	0.6	0.6	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	0.6	0.6
OIL AND GAS PRODUCTION (COMBUSTION)	1.2	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	1.2	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8
PETROLEUM REFINING (COMBUSTION)	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	0.1	0.1	0.1	0.1
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	0.2	0.2	0.2	0.2
FOOD AND AGRICULTURAL PROCESSING	1.0	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.8	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
SERVICE AND COMMERCIAL	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**3.7**	**3.3**	**3.2**	**3.2**	**3.1**	**3.1**	**3.1**	**3.0**	**3.0**	**3.0**	**3.5**	**3.1**	**3.1**	**3.1**	**3.0**	**3.0**	**3.0**	**3.0**	**2.9**	**2.9**
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	0.0	0.0	0.0	0.0
LANDFILLS	1.5	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.5	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9
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	0.0	0.0	0.0	0.0
SOIL REMEDIATION	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	0.1	0.1	0.1	0.1
OTHER (WASTE DISPOSAL)	23.1	23.8	24.6	25.0	25.9	26.3	26.7	27.2	27.6	28.5	23.1	23.8	24.6	25.0	25.8	26.3	26.7	27.2	27.6	28.5
*** TOTAL WASTE DISPOSAL**	**24.7**	**25.6**	**26.4**	**26.9**	**27.8**	**28.2**	**28.7**	**29.2**	**29.7**	**30.6**	**24.7**	**25.6**	**26.4**	**26.8**	**27.7**	**28.2**	**28.7**	**29.2**	**29.6**	**30.6**
CLEANING AND SURFACE COATINGS																				
LAUNDERING	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	0.1	0.1	0.1	0.1
DEGREASING	1.7	1.8	1.8	1.8	1.9	2.0	2.0	2.1	2.1	2.3	1.6	1.8	1.8	1.8	1.9	2.0	2.0	2.1	2.1	2.2
COATINGS AND RELATED PROCESS SOLVENTS	8.3	9.0	9.3	9.4	9.8	10.1	10.3	10.6	10.9	11.5	8.2	9.0	9.2	9.4	9.8	10.0	10.3	10.6	10.8	11.4
PRINTING	5.3	5.7	5.8	5.9	6.0	6.1	6.1	6.2	6.2	6.3	5.3	5.7	5.8	5.9	6.0	6.1	6.1	6.2	6.2	6.3
ADHESIVES AND SEALANTS	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
OTHER (CLEANING AND SURFACE COATINGS)	6.6	7.1	7.2	7.3	7.6	7.8	8.0	8.2	8.5	9.0	6.6	7.1	7.2	7.3	7.6	7.8	8.0	8.2	8.5	9.0
*** TOTAL CLEANING AND SURFACE COATINGS**	**22.5**	**24.2**	**24.8**	**25.2**	**26.2**	**26.7**	**27.3**	**27.9**	**28.5**	**29.9**	**22.5**	**24.2**	**24.8**	**25.2**	**26.1**	**26.6**	**27.2**	**27.8**	**28.5**	**29.9**
PETROLEUM PRODUCTION AND MARKETING																				
OIL AND GAS PRODUCTION	12.6	11.5	11.0	10.7	10.3	10.1	9.8	9.6	9.4	9.0	12.6	11.5	11.0	10.7	10.3	10.0	9.8	9.6	9.4	9.0
PETROLEUM REFINING	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PETROLEUM MARKETING	5.5	5.3	5.1	5.1	4.9	4.8	4.8	4.7	4.6	4.6	5.5	5.3	5.1	5.1	4.9	4.8	4.8	4.7	4.6	4.6
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	0.0	0.0	0.0	0.0

VOC																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**18.8**	**17.6**	**16.9**	**16.6**	**16.0**	**15.7**	**15.4**	**15.1**	**14.9**	**14.4**	**18.8**	**17.6**	**16.9**	**16.6**	**16.0**	**15.7**	**15.4**	**15.1**	**14.8**	**14.4**
INDUSTRIAL PROCESSES																				
CHEMICAL	4.9	5.1	5.3	5.4	5.7	5.8	5.9	6.0	6.2	6.5	4.9	5.1	5.3	5.4	5.6	5.8	5.9	6.0	6.2	6.5
FOOD AND AGRICULTURE	11.2	12.0	12.5	12.7	13.0	13.2	13.4	13.5	13.7	14.0	11.0	11.7	12.2	12.4	12.7	12.9	13.0	13.2	13.4	13.6
MINERAL PROCESSES	0.2	0.3	0.3	0.3	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	0.3	0.3
METAL PROCESSES	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	0.2	0.2	0.2	0.2
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	0.0	0.0	0.0	0.0
GLASS AND RELATED 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	0.0	0.0	0.0	0.0
ELECTRONICS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 (INDUSTRIAL PROCESSES)	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.1	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
*** TOTAL INDUSTRIAL PROCESSES**	**17.3**	**18.5**	**19.2**	**19.5**	**20.1**	**20.5**	**20.8**	**21.1**	**21.5**	**22.1**	**17.1**	**18.2**	**18.9**	**19.2**	**19.8**	**20.2**	**20.5**	**20.8**	**21.1**	**21.8**
**** TOTAL STATIONARY SOURCES**	**87.1**	**89.2**	**90.6**	**91.3**	**93.2**	**94.2**	**95.2**	**96.4**	**97.5**	**100.0**	**86.6**	**88.7**	**90.1**	**90.9**	**92.7**	**93.7**	**94.8**	**95.9**	**97.1**	**99.5**
AREA-WIDE SOURCES																				
SOLVENT EVAPORATION																				
CONSUMER PRODUCTS	20.6	21.6	22.2	22.5	23.1	23.4	23.8	24.1	24.4	25.1	20.6	21.5	22.1	22.5	23.1	23.4	23.7	24.1	24.4	25.1
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	9.0	9.4	9.7	9.9	10.2	10.3	10.5	10.6	10.8	11.1	7.8	8.1	8.4	8.5	8.8	8.9	9.0	9.2	9.3	9.6
PESTICIDES/FERTILIZERS	19.5	16.6	16.4	16.4	16.2	16.1	16.1	16.0	15.9	15.8	19.4	16.6	16.4	16.3	16.2	16.1	16.1	16.0	15.9	15.8
ASPHALT PAVING / ROOFING	0.9	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	0.9	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4
*** TOTAL SOLVENT EVAPORATION**	**50.0**	**48.7**	**49.5**	**49.9**	**50.7**	**51.1**	**51.6**	**52.0**	**52.5**	**53.4**	**48.7**	**47.3**	**48.1**	**48.5**	**49.3**	**49.7**	**50.1**	**50.5**	**51.0**	**51.8**
MISCELLANEOUS PROCESSES																				
RESIDENTIAL FUEL COMBUSTION	4.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	7.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
FARMING OPERATIONS	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	95.9	95.9	95.9	95.9	95.9	95.9	95.9	95.9	95.9	95.9
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	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	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	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	0.0	0.0	0.0	0.0
FIRES	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	0.1	0.1	0.1	0.1
MANAGED BURNING AND DISPOSAL	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
COOKING	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
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	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	**103.4**	**102.9**	**102.9**	**103.0**	**103.0**	**103.0**	**103.0**	**103.0**	**103.0**	**103.0**	**108.1**	**107.2**	**107.3**	**107.3**	**107.3**	**107.3**	**107.3**	**107.3**	**107.3**	**107.3**
**** TOTAL AREA-WIDE SOURCES**	**153.4**	**151.6**	**152.4**	**152.8**	**153.7**	**154.1**	**154.5**	**155.0**	**155.5**	**156.4**	**156.8**	**154.6**	**155.4**	**155.7**	**156.5**	**157.0**	**157.4**	**157.8**	**158.3**	**159.1**
MOBILE SOURCES																				
ON-ROAD MOTOR VEHICLES																				
LIGHT DUTY PASSENGER (LDA)	13.6	8.3	6.7	6.2	5.5	5.2	5.0	4.9	4.8	4.6	13.6	8.1	6.5	6.1	5.4	5.2	5.0	4.9	4.8	4.6

VOC																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
LIGHT DUTY TRUCKS - 1 (LDT1)	5.0	2.9	2.3	2.0	1.7	1.6	1.4	1.3	1.2	1.1	5.3	3.1	2.4	2.1	1.7	1.6	1.5	1.4	1.3	1.1
LIGHT DUTY TRUCKS - 2 (LDT2)	7.3	4.9	4.1	3.8	3.4	3.3	3.2	3.1	3.0	2.9	7.7	5.1	4.2	3.9	3.5	3.4	3.3	3.2	3.1	3.0
MEDIUM DUTY TRUCKS (MDV)	7.8	6.4	5.7	5.3	4.5	4.2	4.0	3.8	3.6	3.2	8.2	6.6	5.8	5.4	4.6	4.3	4.1	3.8	3.6	3.2
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	2.3	1.7	1.5	1.4	1.2	1.1	1.0	0.9	0.9	0.8	2.5	1.8	1.6	1.5	1.3	1.2	1.1	1.0	0.9	0.8
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.1	0.0	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	0.0	0.0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.5	0.4	0.4	0.3	0.3	0.3	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	0.1	0.1	0.1	0.1
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	1.5	0.8	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	1.5	0.8	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	6.8	2.3	2.1	2.0	1.8	1.3	1.3	1.3	1.3	1.3	6.8	2.3	2.1	2.0	1.8	1.3	1.3	1.3	1.3	1.3
MOTORCYCLES (MCY)	3.3	2.9	2.9	2.9	2.8	2.8	2.8	2.7	2.7	2.7	3.3	2.9	2.8	2.8	2.7	2.7	2.7	2.7	2.6	2.6
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
HEAVY DUTY GAS URBAN BUSES (UB)	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
SCHOOL BUSES (SB)	0.1	0.0	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	0.0	0.0
OTHER BUSES (OB)	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
MOTOR HOMES (MH)	0.1	0.0	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	0.0	0.0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**49.8**	**31.6**	**26.8**	**24.9**	**22.0**	**20.4**	**19.5**	**18.8**	**18.3**	**17.2**	**51.1**	**32.1**	**27.1**	**25.1**	**22.2**	**20.5**	**19.7**	**19.0**	**18.4**	**17.3**
OTHER MOBILE SOURCES																				
AIRCRAFT	3.0	3.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.0	3.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
TRAINS	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
SHIPS AND COMMERCIAL BOATS	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	0.1	0.1	0.1	0.1
RECREATIONAL BOATS	7.8	6.4	5.8	5.5	4.9	4.6	4.4	4.1	3.9	3.5	4.7	3.8	3.4	3.3	2.9	2.8	2.6	2.5	2.3	2.1
OFF-ROAD RECREATIONAL VEHICLES	2.6	2.4	2.3	2.2	2.1	2.1	2.0	2.0	2.0	1.9	2.5	2.3	2.2	2.2	2.1	2.0	2.0	2.0	1.9	1.9
OFF-ROAD EQUIPMENT	9.2	8.1	7.7	7.6	7.5	7.5	7.4	7.4	7.3	7.3	8.8	7.7	7.3	7.2	7.1	7.0	7.0	6.9	6.9	6.9
FARM EQUIPMENT	8.8	7.2	6.5	6.2	5.6	5.4	5.1	4.9	4.7	4.3	6.1	4.9	4.4	4.2	3.8	3.6	3.4	3.3	3.1	2.9
FUEL STORAGE AND HANDLING	1.7	1.5	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.6	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1
*** TOTAL OTHER MOBILE SOURCES**	**33.8**	**29.1**	**28.0**	**27.2**	**25.8**	**25.1**	**24.5**	**23.9**	**23.4**	**22.4**	**27.4**	**23.6**	**23.0**	**22.3**	**21.3**	**20.9**	**20.4**	**20.0**	**19.6**	**19.0**
**** TOTAL MOBILE SOURCES**	**83.6**	**60.6**	**54.8**	**52.0**	**47.8**	**45.5**	**44.1**	**42.7**	**41.6**	**39.6**	**78.5**	**55.7**	**50.1**	**47.5**	**43.5**	**41.4**	**40.1**	**39.0**	**38.0**	**36.3**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**324.1**	**301.4**	**297.8**	**296.2**	**294.6**	**293.7**	**293.8**	**294.1**	**294.6**	**295.9**	**321.9**	**299.0**	**295.6**	**294.1**	**292.8**	**292.1**	**292.3**	**292.7**	**293.3**	**294.9**

Table B-5 Ammonia

AMMONIA																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
STATIONARY SOURCES																				
FUEL COMBUSTION																				
ELECTRIC UTILITIES	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8
COGENERATION	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
OIL AND GAS PRODUCTION (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	0.0	0.0	0.0	0.0
PETROLEUM REFINING (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	0.0	0.0	0.0	0.0
MANUFACTURING AND INDUSTRIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FOOD AND AGRICULTURAL PROCESSING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SERVICE AND COMMERCIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 (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	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**2.3**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.3**	**2.3**	**2.3**	**2.4**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.2**	**2.2**	**2.3**	**2.3**	**2.3**
WASTE DISPOSAL																				
SEWAGE TREATMENT	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
LANDFILLS	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
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	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	0.0	0.0	0.0	0.0
OTHER (WASTE DISPOSAL)	8.7	9.3	9.6	9.8	10.1	10.3	10.4	10.6	10.8	11.1	8.7	9.3	9.6	9.8	10.1	10.3	10.4	10.6	10.8	11.1
*** TOTAL WASTE DISPOSAL**	**10.0**	**10.7**	**11.0**	**11.2**	**11.6**	**11.8**	**12.0**	**12.2**	**12.4**	**12.8**	**10.0**	**10.7**	**11.0**	**11.2**	**11.6**	**11.8**	**12.0**	**12.2**	**12.4**	**12.7**
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	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	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	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	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	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	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**	**0.0**	**0.0**	**0.0**	**0.0**
PETROLEUM PRODUCTION AND MARKETING																				
OIL AND GAS PRODUCTION	0.1	0.0	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	0.0	0.0
PETROLEUM REFINING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 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	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	0.0	0.0	0.0	0.0

AMMONIA																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.1**	**0.0**	**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**	**0.0**	**0.0**
INDUSTRIAL PROCESSES																				
CHEMICAL	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.5
FOOD AND AGRICULTURE	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MINERAL 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	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	0.1	0.2	0.2	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	0.2	0.2
ELECTRONICS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 (INDUSTRIAL 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	0.0	0.0	0.0	0.0
*** TOTAL INDUSTRIAL PROCESSES**	**1.5**	**1.6**	**1.7**	**1.7**	**1.8**	**1.8**	**1.9**	**1.9**	**1.9**	**2.0**	**1.5**	**1.6**	**1.7**	**1.7**	**1.8**	**1.8**	**1.9**	**1.9**	**1.9**	**2.0**
**** TOTAL STATIONARY SOURCES**	**13.9**	**14.6**	**15.0**	**15.2**	**15.7**	**15.9**	**16.2**	**16.4**	**16.7**	**17.2**	**13.9**	**14.5**	**15.0**	**15.2**	**15.6**	**15.9**	**16.1**	**16.4**	**16.7**	**17.2**
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	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	0.0	0.0	0.0	0.0
PESTICIDES/FERTILIZERS	117.6	115.0	113.8	113.1	111.8	111.2	110.6	109.9	109.3	108.0	97.9	95.6	94.5	94.0	92.8	92.3	91.7	91.2	90.6	89.5
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	0.0	0.0	0.0	0.0
*** TOTAL SOLVENT EVAPORATION**	**117.6**	**115.0**	**113.8**	**113.1**	**111.8**	**111.2**	**110.6**	**109.9**	**109.3**	**108.0**	**97.9**	**95.6**	**94.5**	**94.0**	**92.8**	**92.3**	**91.7**	**91.2**	**90.6**	**89.5**
MISCELLANEOUS PROCESSES																				
RESIDENTIAL FUEL COMBUSTION	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
FARMING OPERATIONS	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4	186.4
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	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	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	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	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	0.0	0.0	0.0	0.0
MANAGED BURNING AND DISPOSAL	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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	0.0	0.0	0.0	0.0
OTHER (MISCELLANEOUS PROCESSES)	6.1	6.5	6.7	6.8	7.0	7.1	7.2	7.3	7.4	7.6	6.1	6.5	6.7	6.8	7.0	7.1	7.2	7.3	7.4	7.6
*** TOTAL MISCELLANEOUS PROCESSES**	**193.3**	**193.6**	**193.8**	**193.9**	**194.1**	**194.2**	**194.3**	**194.5**	**194.6**	**194.8**	**193.7**	**194.0**	**194.2**	**194.3**	**194.5**	**194.6**	**194.7**	**194.8**	**195.0**	**195.2**
**** TOTAL AREA-WIDE SOURCES**	**310.9**	**308.7**	**307.6**	**307.0**	**306.0**	**305.4**	**304.9**	**304.4**	**303.9**	**302.8**	**291.5**	**289.7**	**288.7**	**288.3**	**287.4**	**286.9**	**286.5**	**286.0**	**285.5**	**284.7**
MOBILE SOURCES																				
ON-ROAD MOTOR VEHICLES																				
LIGHT DUTY PASSENGER (LDA)	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

AMMONIA																				
SUMMARY CATEGORY NAME	ANNUAL AVERAGE tons/day										WINTER AVERAGE tons/day									
	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028	2013	2017	2019	2020	2022	2023	2024	2025	2026	2028
LIGHT DUTY TRUCKS - 1 (LDT1)	0.2	0.1	0.1	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	0.1	0.1
LIGHT DUTY TRUCKS - 2 (LDT2)	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
MEDIUM DUTY TRUCKS (MDV)	1.3	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	1.3	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.2	0.2	0.1	0.1	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	0.1
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	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	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	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	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	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	0.1	0.1	0.1	0.1
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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	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	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	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	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	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	0.0	0.0	0.0	0.0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**4.4**	**3.9**	**3.7**	**3.6**	**3.5**	**3.5**	**3.4**	**3.4**	**3.4**	**3.4**	**4.4**	**3.9**	**3.7**	**3.6**	**3.5**	**3.5**	**3.4**	**3.4**	**3.4**	**3.4**
OTHER MOBILE SOURCES																				
AIRCRAFT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRAINS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHIPS AND COMMERCIAL 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	0.0	0.0	0.0	0.0
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	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	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	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	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	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE SOURCES**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**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 MOBILE SOURCES**	**4.4**	**3.9**	**3.7**	**3.6**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.4**	**4.4**	**3.9**	**3.7**	**3.6**	**3.5**	**3.5**	**3.5**	**3.4**	**3.4**	**3.4**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**329.2**	**327.1**	**326.3**	**325.9**	**325.2**	**324.9**	**324.6**	**324.3**	**324.0**	**323.5**	**309.8**	**308.1**	**307.4**	**307.1**	**306.5**	**306.3**	**306.1**	**305.8**	**305.6**	**305.2**

B.2 Emissions Inventory Summary and Methodology

[Section B.2 provided by California Air Resources Board]

Emissions inventories are one of the fundamental building blocks in the development of a State Implementation Plan (SIP or Plan). In simple terms, an emissions inventory is a systematic listing of the sources of air pollution along with the amount of pollution emitted from each source or category over a given time period. This document describes the emissions inventory included in the 2018 PM2.5 Plan for the San Joaquin Valley Nonattainment Area (2018 PM2.5 Plan or Plan).

The California Air Resources Board (CARB) and the San Joaquin Valley Air Pollution Control District (District) have developed a comprehensive, accurate, and current emissions inventory consistent with the requirements set forth in Section 182(a)(1) of the federal Clean Air Act. CARB and District staff conducted a thorough review of the inventory to ensure that the emission estimates reflect accurate emission reports for point sources, and that estimates for mobile and areawide sources are based on the most recent models and methodologies.

CARB also reviewed the growth profiles for point and areawide source categories and updated them as necessary to ensure that the emission projections are based on data that reflect historical trends, current conditions, and recent economic and demographic forecasts. Growth forecasts for most point and areawide sources were developed by CARB.

Emissions Inventory Overview

Emissions inventories are estimates of the amount and type of pollutants emitted into the atmosphere by industrial facilities, mobile sources, and areawide sources such as consumer products and paint. They are fundamental components of an air quality plan, and serve critical functions such as:

1) the primary input to air quality modeling used in attainment demonstrations;
2) the emissions data used for developing control strategies; and
3) a means to track progress in meeting the emission reduction commitments.

The United States Environmental Protection Agency (U.S. EPA) regulations require that the emissions inventory for a PM2.5 Plan contain emissions data for directly emitted PM2.5 and its precursors: oxides of nitrogen (NOx), sulfur oxides (SOx), volatile organic compounds (VOCs), and ammonia (NH3). The inventory included in this plan substitutes VOCs with reactive organic gases (ROG), which in general represent a slightly broader group of compounds than those in U.S. EPA's list of VOCs.

Agency Responsibilities

CARB and District staff worked jointly to develop the emissions inventory for the San Joaquin Valley (SJV) PM2.5 Nonattainment Area. The District worked closely with operators of major stationary facilities in their jurisdiction to develop the point source emission estimates. CARB staff developed the emission inventory for mobile sources, both on-road and off-road. The District and CARB shared responsibility for developing estimates for the nonpoint (areawide) sources such as paved road dust and agricultural burning. CARB worked with several State and local agencies such as the Department of Transportation (Caltrans), the Department of Motor Vehicles (DMV), the Department of Pesticide Regulation (DPR), and the California Energy Commission (CEC) to assemble activity information necessary to develop the mobile and areawide source emission estimates.

Inventory Base Year

The base year inventory forms the basis for all future year projections and also establishes the emission levels against which progress in emission reductions will be measured. U.S. EPA regulations establish that the base year inventory should be preferably consistent with the triennial reporting schedule required under the Air Emissions Reporting Requirements (AERR) rule; however, U.S. EPA allows a different year to be selected if justified by the state. CARB worked with the local air districts to determine the base year that should be used across the State. Since the South Coast Air Quality Management District typically aligns their base year inventory with the data collection period for their Multiple Air Toxics Exposure Study, which was last conducted in 2012, CARB selected 2012 as the base year to maintain consistency across the various plans being developed in the State. Note that, while 2012 is the base year for the planning emissions inventory, 2013 is the base year for the modeling emissions inventory. See Appendix L for more information on selection of the base year for modeling.

Forecasted Inventories

In addition to a base year inventory, U.S. EPA regulations also require future year inventory projections for specific milestone years. Forecasted inventories are a projection of the base year inventory that reflects expected growth trends for each source category and emission reductions due to adopted control measures. CARB develops emission forecasts by applying growth and control profiles to the base year inventory.

Growth profiles for point and areawide sources are derived from surrogates such as economic activity, fuel usage, population, housing units, etc., that best reflect the expected growth trends for each specific source category. Growth projections were obtained primarily from government entities with expertise in developing forecasts for specific sectors, or in some cases, from econometric models. Control profiles, which account for emission reductions resulting from adopted rules and regulations, are derived from data provided by the regulatory agencies responsible for the affected emission categories.

Projections for mobile source emissions are generated by models that predict activity rates and vehicle fleet turnover by vehicle model year. As with stationary sources, the mobile source models include control algorithms that account for all adopted regulatory actions.

Temporal Resolution

Planning inventories typically include annual as well as seasonal (summer and winter) emission estimates. Annual emission inventories represent the total emissions over an entire year (tons per year), or the daily emissions produced on an average day (tons per day). Seasonal inventories account for temporal activity variations throughout the year, as determined by category-specific temporal profiles. Both an annual and a winter (November through April) inventory are used in this Plan.

Geographical Scope

The inventories presented in this Plan consist of emissions for the San Joaquin Valley PM2.5 Nonattainment Area, which consists of seven full counties (Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare) and the portion of Kern County that is within the San Joaquin Valley Air Basin.

Quality Assurance and Quality Control

CARB has established a quality assurance and quality control (QA/QC) process involving CARB and District staff to ensure the integrity and accuracy of the emissions inventories used in the development of air quality plans. QA/QC occurs at the various stages of SIP emission inventory development. Base year emissions are assembled and maintained in the California Emission Inventory Development and Reporting System (CEIDARS). CARB inventory staff works with District staff, who are responsible for developing and reporting point source emission estimates, to verify these data are accurate. The locations of point sources, including stacks, are checked to ensure they are valid. Areawide source emission estimates are reviewed by CARB and District staff before their inclusion in the emission inventory. Additionally, CEIDARS is designed with automatic system checks to prevent errors such as double counting of emission sources. The system also makes various reports available to assist staff in their efforts to identify and reconcile anomalous emissions.

Future year emissions are estimated using the California Emission Projection Analysis Model (CEPAM), 2016 SIP Baseline Emission Projections, Version 1.05. Growth and control factors are reviewed for each category and year along with the resulting emission projections. Year-to-year trends are compared to similar and past datasets to ensure general consistency. Emissions for specific categories are checked to confirm they reflect the anticipated effects of applicable control measures. Mobile categories are verified with mobile source staff for consistency with the on-road and off-road emission models.

A summary of the information supporting the San Joaquin Valley PM2.5 Nonattainment Area Plan emissions inventory is presented in the sections below.

Point Sources

The inventory reflects actual emissions from industrial point sources reported to the District by the facility operators through calendar year 2012, in accordance with the requirements set forth in U.S. EPA's AERR rule. The data elements in the 2012 baseline inventory are consistent with the data elements required by the AERR rule. Estimation methods include source testing, direct measurement by continuous emissions monitoring systems, or engineering calculations. Where appropriate, the PM2.5 emissions are the sum of filtered and condensable particulates.

The point source categories that occur in the PM2.5 nonattainment area are listed below in Table 1.

Table 1
Point Source Categories

Source Category	Subcategory
Fuel Combustion	Electrical Utilities
	Cogeneration
	Oil and Gas Production (Combustion)
	Petroleum Refining (Combustion)
	Manufacturing and Industrial
	Food and Agricultural Processing
	Service and Commercial
	Other (Fuel Combustion)
Waste Disposal	Sewage Treatment
	Landfills
	Incinerators
	Soil Remediation
	Other (Waste Disposal)
Cleaning and Surface Coatings	Laundering
	Degreasing
	Coatings and Thinners
	Printing
	Adhesives and Sealants
	Other (Cleaning and Surface Coatings)
Petroleum Production and Marketing	Oil and Gas Production
	Petroleum Refining
	Petroleum Marketing
	Other (Petroleum Production and Marketing)
Industrial Processes	Chemical
	Food and Agriculture
	Mineral Processes
	Metal Processes
	Wood and Paper
	Glass and Related Products
	Electronics
	Other (Industrial Processes)

The point source inventory includes emissions from stationary area sources, which are categories such as internal combustion engines and gasoline dispensing facilities that are

not inventoried individually, but are estimated as a group and reported as an aggregated total. The District's methodologies, encompassing over sixty individual stationary source subcategories, are available at:
http://www.valleyair.org/Air_Quality_Plans/EmissionsMethods/EmissionsMethods.htm

Estimates for the following categories were developed by CARB:

Stationary Nonagricultural Diesel Engines

This category includes emissions from backup and prime generators and pumps, air compressors, and other miscellaneous stationary diesel engines that are widely used throughout the industrial, service, institutional, and commercial sectors. The emission estimates, including emission forecasts, are based on a 2003 CARB methodology derived from the OFFROAD model. Additional information on this methodology is available at:
https://www.arb.ca.gov/ei/areasrc/FULLPDF/FULL1-2.pdf

Agricultural Diesel Irrigation Pumps

This category includes emissions from the operation of diesel-fueled stationary and mobile agricultural irrigation pumps. The emission estimates are based on a 2003 CARB methodology using statewide population and include replacements due to the Carl Moyer Program. Emissions are grown based on CARB projections of irrigated farmland acreage provided by the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP). Additional information on this category is available at:
https://www.arb.ca.gov/ei/areasrc/arbfuelcombagric.htm

Waste Disposal, Composting Facilities

This category includes emissions from composting facilities that process organic materials via an open windrow composting or aerated static pile processes. Emission estimates were updated for 2012 based on a 2015 CARB methodology using facility specific emissions testing or an emission factor derived from testing at composting facilities. Growth is based on population forecasts from the California Department of Finance (DOF) and county economic forecasts from Regional Economic Models, Inc. (REMI). Additional information on this methodology is available at:
https://www.arb.ca.gov/ei/areasrc/index2.htm

Laundering

This category includes emissions from perchloroethylene (perc) dry cleaning establishments. The emission estimates are based on a 2002 CARB methodology that used nationwide perc consumption rates allocated to the county level based on population and an emission factor of 10.125 pounds per gallon used. Emissions were grown from the original estimates to 2012 using population growth trends from DOF. Additional information on this methodology is available at:
https://www.arb.ca.gov/ei/areasrc/onehtm/one3-1.htm

Degreasing

This category includes emissions from solvents in degreasing operations in the manufacturing and maintenance industries. The emissions estimates are based on a

2000 CARB methodology using survey and industry data, activity factors, emission factors and a user's fraction. Growth for this category is based on REMI county economic forecasts. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbcleandegreas.htm

Coatings and Thinners

This category includes emissions from coatings and related process solvents. Auto refinishing emissions estimates are based on a 1990 CARB methodology using production data and a composite emission factor derived from surveys. Growth is based on the projected number of vehicles from CARB's on-road mobile sources model (EMFAC). Estimates for industrial coatings emissions are based on a 1990 CARB methodology using production and survey data, and emission factors derived from surveys. Estimates for thinning and cleaning solvents are based on a 1991 CARB methodology, census data and a default emission factor developed by CARB. Growth for these categories is projected using REMI county economic forecasts. Additional information on these methodologies is available at: https://www.arb.ca.gov/ei/areasrc/arbcleancoatreproc.htm

Adhesives and Sealants

This category includes emissions from solvent-based and water-based solvents contained in adhesives and sealants. Emissions are estimated based on a 1990 CARB methodology using production data and default emission factors. Growth for this category is based on REMI county economic forecasts. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbcleanadhseal.htm

Oil and Gas Production

CARB staff updated the emission inventory for oil and natural gas production, which included the revision of emission estimates and the addition of emission categories that previously were not estimated. The revised emissions were calculated with a software tool developed by U.S. EPA that generates county-level emissions for upstream oil and gas activity. This tool uses 2011 as the base year, with activity data taken from the California Division of Oil, Gas, and Geothermal Resources (DOGGR) and an industry database, and default emission factors provided in an associated report. Staff incorporated data from CARB's 2007 Oil and Gas Industry Survey (e.g., typical component counts) and feedback from individual air districts (e.g., minimum controls required to operate in a certain district, with associated control factors) to improve these parameters and further adjust the tool's output. Emissions estimates for 2012 and other years were forecasted using the historical trend in statewide oil production from DOGGR, which assumes a 2.2 percent annual decline.

Gasoline Dispensing Facilities

CARB staff developed an updated methodology to estimate emissions from fuel transfer and storage operations at gasoline dispensing facilities (GDFs). The methodology addresses emissions from underground storage tanks, vapor displacement during vehicle refueling, customer spillage, and hose permeation. The updated methodology uses emission factors developed by CARB staff that reflect more current in-use test data and also accounts for the emission reduction benefits of onboard refueling vapor recovery (ORVR) systems. The emission estimates are based on the 2012 statewide gasoline sales data from the California Board of Equalization that were apportioned to the county level using fuel consumption estimates from EMFAC. Additional information on this category is available at: https://www.arb.ca.gov/ei/areasrc/arbpetprodmarkpm.htm

Areawide Sources

Areawide sources are categories such as consumer products, unpaved road dust, fireplaces, and prescribed burning for which emissions occur over a wide geographic area. Emissions for these categories are estimated by both CARB and the local air districts using various models and methodologies. The areawide sources are listed below in Table 2.

Table 2
Areawide Sources

Source Category	Subcategory
Solvent Evaporation	Consumer Products
	Architectural Coatings and Related Solvents
	Pesticides/Fertilizers
	Asphalt Paving and Roofing
Miscellaneous Processes	Residential Fuel Combustion
	Farming Operations
	Construction And Demolition
	Paved Road Dust
	Unpaved Road Dust
	Fugitive Windblown Dust
	Fires
	Managed Burning and Disposal
	Cooking
	Other (Miscellaneous Processes)

A summary of the areawide methodologies is presented below:

Ammonia Emissions from Publicly Owned Treatment Works, Landfills, Composting, Fertilizer Application, Domestic Activity, Native Animals, and Native Soils

CARB staff updated the ammonia emissions inventory methodology for publicly owned treatment works, landfills, composting, fertilizer application, domestic activity, native animals, and native soils. Revisions for these categories consist primarily of updated activity data for the 2008 calendar year. Emission factors were revised only for fertilizer application.

Ammonia Emissions, Miscellaneous Sources

Ammonia emissions from miscellaneous domestic processes (human respiration and perspiration, smoking, pets, untreated human waste, etc.) were grown from a 2005 CARB estimate using DOF population projections. Ammonia emissions for other categories such as residential wood combustion, livestock husbandry, managed burning, and on-road motor vehicles, were estimated as part of the methodologies for those specific area source categories.

Consumer Products

The consumer products category reflects the four most recent surveys conducted by CARB staff for the years 2003, 2006, 2008, and 2010. Together these surveys collected updated product information and ingredient information for approximately 350 product categories. Based on the survey data, CARB staff determined the total product sales and total VOC emissions for the various product categories. The growth trend for most consumer product subcategories is based on the latest DOF population growth projections, except for aerosol coatings. Staff determined that a no-growth profile would be more appropriate for aerosol coatings based on survey data that show relatively flat sales of these products over the last decade. Additional information on CARB's consumer products surveys is available at: https://www.arb.ca.gov/consprod/survey/survey.htm.

Architectural Coatings

The architectural coatings category reflects emission estimates based on a comprehensive CARB survey for the 2004 calendar year. The emission estimates include benefits of the 2000 and 2007 CARB Suggested Control Measures as adopted in District Rule 4601. These emissions are grown based on DOF population projections. Additional information about CARB's architectural coatings program is available at: https://www.arb.ca.gov/coatings/arch/arch.htm

Pesticides

DPR develops month-specific emission estimates for agricultural and structural pesticides. Each calendar year, DPR updates the inventory based on the Pesticide Use Report, which provides updated information from 1990 to the most current data year available. The inventory includes estimates through the 2014 calendar year. Emission forecasts for years 2015 and beyond are based on the average of the most recent five years. Growth for agricultural pesticides is based on CARB projections of FMMP farmland acreage. Growth for structural pesticides is based on REMI forecasts of expenditures on structures.

Asphalt Paving/Roofing

Asphalt paving emissions were grown from 2008 estimates and asphalt roofing emissions were grown from a 2007 estimate. Emissions for both categories were developed using District methodologies. Emissions are estimated based on tons of asphalt applied and a default emission factor for each type of asphalt operation. The growth profile for both categories is based on CARB's REMI county economic forecasting model. The inventory reflects the reductions from District Rule 4641. Additional information on the District's asphalt paving methodology is available at: https://www.arb.ca.gov/ei/areasrc/districtmeth/sjvalley/sjvasphpav.pdf http://www.valleyair.org/Air_Quality_Plans/EmissionsMethods/MethodForms/Current/AsphaltPaving2008.pdf. Additional information on the District's asphalt roofing methodology is available at: http://www.valleyair.org/Air_Quality_Plans/EmissionsMethods/MethodForms/Current/AsphaltRoofing2007.pdf

Residential Wood Combustion

Emissions were estimated for 2012 using a 2016 District methodology. The methodology is based on CARB's 2011 methodology, with several refinements based on a 2014 District survey. The inventory reflects the regional distribution and use of wood burning devices, refined fuel usage rates for several types of devices, and emissions reductions from the District's Burn Cleaner Program. The emissions estimates reflect emission factors from U.S. EPA's National Emission Inventory. No growth is assumed for future years because of limits in new construction and the stringency of the requirements of District Rule 4901. The reduction benefits of Rule 4901 are reflected in the inventory. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocresfuelcom.htm

Residential Natural Gas Combustion

The inventory for residential natural gas combustion is based on 2006 data provided by the District. Emissions are estimated based on the percentages of total natural gas consumed by various residential uses (space heating, water heating, cooking, other) obtained from the CEC and U.S. EPA AP-42 emission factors. Emissions were grown from 2006 using CEC projections of natural gas consumption. The water heating

inventory reflects the emission reductions from District Rule 4902. The District's methodology is available at: http://www.valleyair.org/Air_Quality_Plans/EmissionsMethods/MethodForms/Current/ResidentialNG2006.pdf

Farming Operations

Emissions for Agricultural Land Preparation Operations and Agricultural Harvest Operations were updated based on 2012 harvested crop acreage from the USDA's National Agricultural Statistics Service (NASS). NASS data are based on reports compiled by County Agricultural Commissioner staff. Emission estimates for both categories are based on CARB methodologies and reflect crop and operation specific emission factors. Temporal profiles were updated based on crop specific activity profiles. Activity profiles for land preparation operations were developed by CARB, based on monthly harvesting activity for 20 representative crops. Temporal profiles for harvesting operations were developed by the District, based on monthly harvesting activity for 46 representative crops. The District expanded the number of crop profiles to more completely characterize distinctions among groups of crops.

Activity profiles for harvesting were developed by the District and reflect refinements to Harvesting Growth is based on projected FMMP farmland acreage for 2010-2020, which results in a slight annual decline. The inventory also reflects the emission reductions from District Rule 4550. The methodologies are available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocresfarmop.htm

The dairy, feedlot, and range cattle emission estimates reflect livestock population data from the USDA's 2012 Census of Agriculture and emission factors for dairy support cattle provided by District staff. The emission estimates for other livestock categories are based on the USDA's 2007 Census of Agriculture. A seasonal adjustment was added to account for the suppression of dust emissions in months in which rainfall occurs. Dairy emissions growth assumptions were set to no-growth based on an analysis of the SJV historical dairy cow population, which shows a relatively flat profile since 2007. No growth is assumed for other livestock categories, based on an analysis of livestock population trends. The emissions reflect updated District control profiles to account for control requirements, including VOC controls from District Rule 4570 and fugitive dust controls from District Rule 4550. Additional information on CARB's methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscproclivestock.htm

Construction and Demolition

Emission estimates for building construction and road construction operations are based on CARB methodologies. Emissions are estimated by applying emission factors developed by Midwest Research Institute (MRI) to the acreage disturbed by construction. The emission estimates were grown from CARB estimates developed in 2002 and 1997, respectively. The growth profile for building construction is based on the REMI county economic forecast model. Road construction emissions are grown based on road construction forecasts by SJV transportation planning agencies (TPAs). The inventory reflects emission reductions from District Regulation VIII. Additional information on these

methodologies is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocconstdem.htm

Paved Road Dust

Paved road dust emissions for 2012 were estimated using CARB methodology consistent with the current U.S. EPA AP-42 methodology (January 2011) for quantifying dust emissions. Revisions include California-specific reductions in silt loading values, updated 2012 vehicle miles traveled (VMT) provided by SJV Metropolitan Planning Organizations (MPOs), updated VMT distributions (travel fractions) from Caltrans for the year 2008, and incorporation of precipitation correction factors. Emissions were grown using VMT projections from the SJV MPOs. The inventory also reflects emission reductions from District Regulation VIII. Additional information is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocpaverddst.htm

Unpaved Road Dust – Farm Roads

Emissions for unpaved farm roads were updated based on CARB's methodology and 2012 harvested crop acreage from NASS. Emissions reflect crop-specific VMT factors and an updated emission factor of 2.0 lbs PM10/VMT, based on California test data conducted by the University of California, Davis (UC Davis), and the Desert Research Institute (DRI). An updated particle size profile (CARB PM profile #470) was used, which reduces the PM2.5 fraction by about 50%. Temporal profiles were updated based on crop-specific activity profiles. Growth is based on projected FMMP farmland acreage for 2010-2020, which results in a slight annual decline. In addition, the inventory reflects the emission reductions from District Rule 4550 and District Regulation VIII. The methodology is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocunpaverddst.htm

Unpaved Nonfarm Road Dust

Emissions from unpaved nonfarm roads were estimated from 2008 unpaved road data collected from the California Statewide Local Streets and Roads Needs Assessment, Caltrans, and the District. Dust emissions were calculated using the same emission factor (2.00 lbs PM10/VMT) and particle size fraction (CARB PM profile #470) described above for unpaved farm roads, and the addition of a rainfall adjustment factor. Temporal profiles were revised. Staff assumed no growth for this category based on the assumption that existing unpaved roads tend to get paved as vehicle traffic on them increases, which counteracts any additional emissions from new unpaved roads. The inventory includes the emission reduction benefits of District Regulation VIII. Additional information on this methodology is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocunpaverddst.htm

Fugitive Windblown Dust from Open Areas and Non-pasture Agriculture Lands

Fugitive windblown dust emissions were estimated using CARB's 1997 methodology. The methodology is based on 1993 harvested crop acreage and a wind erosion equation that incorporates climate, soil, and vegetative cover attributes. Emissions for agricultural lands were grown based on projected FMMP farmland acreage for 2010-2020, which results in a slight annual decline. No growth is assumed for non-agricultural lands. The inventory reflects emission reductions from District Regulation VIII. Additional information about CARB's methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocfugwbdst.htm

Windblown Dust from Unpaved Roads and Associated Areas

Emissions for this source category were estimated based on a 1997 CARB methodology reflecting unpaved road mileage and local parameters that affect wind erosion. The estimates assume no growth. The inventory includes the emission reduction benefits of District Regulation VIII. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocfugwbdst.htm

Fires

Emissions from structural and automobile fires were estimated using CARB's 1999 methodology. Structural fire emissions are based on rates of structural and content material loss per fire, average combustible content, and emission factors obtained from test data. Automobile fire emissions are based on the number of vehicle fires per year and composite emission factors derived from AP-42 emission factors. No growth is assumed for this category. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocfires.htm

Managed Burning & Disposal

CARB updated the emissions inventory to reflect burn data reported by District staff for 2012. Emissions are calculated using crop-specific emission factors and fuel loadings. Temporal profiles reflect monthly burn activity. Growth for agricultural burning is based on linear regression analyses of 2000-2009 FMMP farmland acreage. Staff used a no-growth assumption for forest management emissions based on analyses of District reported data that don't show a discernible trend. No-growth was also used for burning associated with weed abatement as the emission levels for this category have been fairly stable since 2005. The inventory includes the benefits of reductions from District Rules 4103 and 4550. CARB's methodology for managed burning is available at: https://www.arb.ca.gov/ei/areasrc/distmiscprocwstburndis.htm. Additional background information is available here: https://www.arb.ca.gov/ei/see/see.htm

Commercial Cooking

The commercial cooking inventory is based on emissions data reported by the District for 2008. The emissions estimates were developed from the number of restaurants, the number and types of cooking equipment, the food type, and default emission factors from U.S. EPA's 2002 National Emissions Inventory. The growth profile reflects the latest population projections provided by the California DOF. The inventory also reflects the emission reductions from District Rule 4692. Additional information on the District's methodology is available at:
https://www.arb.ca.gov/ei/areasrc/districtmeth/sjvalley/CommercialCooking2006.pdf

Point and Areawide Source Emissions Forecasting

Emission forecasts (2013 and subsequent years) are based on growth profiles that in many cases incorporate historical trends up to the base year or beyond. The growth surrogates used to forecast the emissions from these categories are presented below in Table 3.

Table 3
Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Electric Utilities	Natural Gas	CEC forecast
	Other Fuels	U.S. Energy Information Administration (EIA) forecast
Cogeneration	All	EIA forecast
Oil and Gas Production (Combustion)	All	DOGGR statewide total oil production (2.2% annual decline)
Petroleum Refining (Combustion)	All	No growth assumption
Manufacturing and Industrial	Natural Gas	CEC forecast
	Other Fuels	No growth assumption
Food and Agricultural Processing	Ag Irrigation I.C. Engines	FMMP irrigated farmland acreage projection
	Natural Gas	CEC forecast
	Other Fuels	EIA forecast
Service and Commercial	Natural Gas	CEC forecast
	Other Fuels	No growth assumption
Other (Fuel Combustion)	I.C. Reciprocating Engines	DOF population forecast
	Other Fuels	EIA forecast
Sewage Treatment	All	DOF population forecast
Landfills	All	DOF population forecast
Incinerators	All	DOF population forecast combined with REMI county economic forecast
Soil Remediation	All	DOF population forecast
Other (Waste Disposal)	All	DOF population forecast combined with REMI county economic forecast
Laundering	Dry Cleaning	DOF population forecast
Degreasing	All	REMI county economic forecast
Coatings & Related Process Solvents	Auto Refinishing	Vehicles from CARB EMFAC model
	Others	REMI county economic forecast
Printing	All	REMI county economic forecast
Adhesives & Sealants	All	REMI county economic forecast
Other (Cleaning and Surface Coatings)	All	REMI county economic forecast
Oil and Gas Production	All	DOGGR statewide total oil production (2.2% annual decline)

Table 3
Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Petroleum Refining	All	No growth assumption
Petroleum Marketing	Gas Dispensing Facilities	Fuel use, CARB EMFAC2014 model
	Natural Gas Transmission Losses	CEC forecast
	Point Sources	REMI county economic forecast
Other (Petroleum Production & Marketing)	All	DOGGR statewide total oil production (2.2% annual decline)
Chemical	All	REMI county economic forecast
Food & Agriculture	All	REMI county economic forecast
Mineral Processes	All	REMI county economic forecast combined with Annual Energy Outlook (AEO) forecast
Metal Processes	All	REMI county economic forecast
Wood and Paper	All	REMI county economic forecast
Glass and Related Products	Container Glass, Other Glass	No growth assumption
	Flat Glass	Construction activity forecast
Electronics	All	REMI county economic forecast
Other Industrial Processes	All	REMI county economic forecast combined with EIA Annual Energy Outlook (AEO) forecast
Consumer Products	Consumer Products	DOF population forecast
	Aerosol Coatings	No growth assumption
Architectural Coatings and Related Process Solvents	All	DOF population forecast
Pesticides/Fertilizers	Agricultural Pesticides	FMMP farmland acreage projection
	Structural Pesticides	REMI forecast on spending on structures
Asphalt Paving/Roofing	All	REMI county economic forecast
Residential Fuel Combustion	Woodstoves & Fireplaces - Wood	No growth assumption
	Natural Gas	CEC forecast
	Other Residential Fuels	EIA forecast

Table 3
Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Farming Operations	Tilling & Harvest Operations	FMMP farmland acreage projection
	Livestock, All	No growth
Construction & Demolition	Building Construction	REMI county economic forecast
	Road Construction	Road construction forecasts by TPAs
Paved Road Dust	All	VMT from MPOs
Unpaved Road Dust	Farm Roads	FMMP farmland acreage
	Others (Nonfarm)	No growth assumption
Fugitive Windblown Dust	Agricultural & Pasture Lands	FMMP farmland acreage projection
	Unpaved Roads & Associated Areas	No growth assumption
Fires	All	DOF population forecast
Managed Burning & Disposal	Agricultural Burning, Prunings & Field Crops	FMMP farmland acreage projection
	Forest Management	No growth assumption
	Weed Abatement	No growth assumption
Cooking	All	DOF population forecast

Stationary Source Control Profiles

The emissions inventory reflects emission reductions from point and areawide sources subject to District rules and CARB regulations. The rules and regulations reflected in the inventory are listed below in Table 4.

Table 4
District and CARB Stationary Source Control Rules and Regulations Included in the Inventory

Agency	Rule/Reg No.	Rule Title	Source Categories Impacted
District	4103	Open Burning	Agricultural burning
District	4204	Cotton Gins	Agricultural crop processing losses – Cotton ginning facilities
District	4305	Boilers, Process Heaters, and Steam Generators - Phase 2	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4306	Boilers, Process Heaters, and Steam Generators - Phase 3	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4307	Boilers, Process Heaters, and Steam Generators - 2.0 MMBTU/HR to 5.0 MMBTU/HR	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4308	Boilers, Process Heaters, and Steam Generators - 0.075 MMBTU/HR to Less Than 2.0 MMBTU/HR	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4309	Dryers, Dehydrators, and Ovens	Laundering; manufacturing & industrial; service & commercial
District	4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4351	Boilers, Process Heaters, and Steam Generators - Phase 1	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4352	Solid Fuel Fired Boilers, Steam Generators and Process Heaters	Fuel combustion - Boilers, Process Heaters, and Steam Generators
District	4354	Glass Melting Furnaces	Glass manufacturing
District	4401	Steam-Enhanced Crude Oil Production Wells	Oil and gas production
District	4402	Crude Oil Production Sumps	Oil and gas production
District	4408	Glycol Dehydration Systems	Oil and gas production
District	4409	Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities	Oil and gas production

Table 4
District and CARB Stationary Source Control Rules and Regulations Included in the Inventory

Agency	Rule/Reg No.	Rule Title	Source Categories Impacted
District	4455	Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants	Petroleum refining
District	4550	Conservation Management Practices	Agricultural operations, dust and managed burning
District	4565	Biosolids, Animal Manure, and Poultry Litter Operations	Composting operations
District	4566	Organic Material Composting Operations	Composting operations
District	4570	Confined Animal Facilities	Livestock operations
District	4601	Architectural Coatings	Architectural coatings and related process solvents
District	4602	Motor Vehicle and Mobile Equipment Coating Operations	Coatings and related process solvents
District	4603	Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts	Coatings and related process solvents
District	4604	Can and Coil Coating Operations	Coatings and related process solvents
District	4605	Aerospace Assembly and Component Coating Operations	Coatings and related process solvents
District	4606	Wood Coating Operations	Coatings and related process solvents
District	4607	Graphic Arts and Paper, Film, Foil and Fabric Coatings	Printing, coatings and related process solvents
District	4610	Glass Coating Operations	Coatings and related process solvents
District	4612	Automotive Coatings	Coatings and related process solvents
District	4621	Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants	Petroleum marketing
District	4622	Gas Transfer into Vehicle Storage Fuel Tanks	Petroleum marketing
District	4623	Storage of Organic Liquids	Petroleum refining; petroleum marketing, oil and gas production
District	4624	Organic Liquid Loading	Petroleum marketing

Table 4
District and CARB Stationary Source Control Rules and Regulations
Included in the Inventory

Agency	Rule/Reg No.	Rule Title	Source Categories Impacted
District	4625	Wastewater Separators	Petroleum refining – Wastewater treatment
District	4641	Cutback, Slow Cure, and Emulsified Asphalt Paving and Maintenance Operations	Asphalt paving & roofing
District	4642	Solid Waste Disposal Sites	Landfills; waste disposal
District	4651	Volatile Organic Compound Emissions from Decontaminated Soil	Waste disposal - Soil remediation
District	4653	Adhesives and Sealants	Adhesives & sealants
District	4661	Organic Solvents	Coatings and related process solvents; cleaning and surface coatings
District	4662	Organic Solvent Degreasing Operations	Degreasing; thinning and cleanup solvent uses
District	4663	Organic Solvent Cleaning, Storage and Disposal	Degreasing; thinning and cleanup solvent uses; cleaning & surface coating
District	4672	Petroleum Solvent Dry Cleaners	Laundering
District	4681	Rubber Tire Manufacturing	Chemical - Rubber and rubber products manufacturing
District	4682	Polystyrene, Polyethylene, and Polypropylene Products Manufacturing	Chemical - Plastic and plastic products manufacturing
District	4684	Polyester Resin Operations	Chemical –Fiberglass and fiberglass products manufacturing
District	4691	Vegetable Oil Processing Operations	Food and agriculture
District	4692	Commercial Charbroiling	Cooking
District	4693	Bakery Ovens	Bakeries
District	4701	Internal Combustion Engines (Phase 1)	Fuel combustion
District	4702	Internal Combustion Engines (Phase 2)	Fuel combustion
District	4703	Stationary Gas Turbines	Fuel combustion
District	4901	Wood Burning Fireplaces and Wood Burning Heaters	Residential wood combustion
District	4902	Residual Water Heaters	Residential fuel combustion – Water heating

Table 4
District and CARB Stationary Source Control Rules and Regulations Included in the Inventory

Agency	Rule/Reg No.	Rule Title	Source Categories Impacted
District	4905	Furnace Rule	Service and Commercial / Residential Fuel Combustion – Space Heating
District	REG VIII	Regulation VIII -- PM Control for Fugitive Dust	Construction and demolition; paved and unpaved road dust; fugitive windblown dust; mineral processes
CARB	CARB R003 & CARB R003_A	Consumer Product Regulations & Amendments	Consumer products
CARB	CARB R007	Aerosol Coating Regulations	Aerosol coatings
CARB	GDF HOSREG	Gasoline Dispensing Facility Hose Emission Regulation	Petroleum marketing
CARB	ORVR	Fueling emissions from ORVR systems	Petroleum marketing

Mobile Sources

CARB uses the EMFAC model to assess emissions from on-road vehicles. Off-road mobile source emissions are estimated using a new modular approach for different source categories. On-road and off-road models account for the effects of various adopted regulations, technology types, and seasonal conditions on emissions.

On-Road Mobile Sources

Emissions from on-road mobile sources, which include passenger vehicles, buses, and trucks, were estimated using outputs from CARB's EMFAC2014 model. The on-road emissions were calculated by applying EMFAC2014 emission factors to the transportation activity data provided by the local SJV TPAs from their 2014 adopted Regional Transportation Plan (2014 RTP).

EMFAC2014 includes data on California's car and truck fleets and travel activity. Light-duty motor vehicle fleet age, vehicle type, and vehicle population were updated based on 2012 DMV data. The model also reflects the emissions benefits of CARB's recent rulemakings such as the Pavley Standards and Advanced Clean Cars Program, and includes the emissions benefits of CARB's Truck and Bus Rule and previously adopted rules for other on-road diesel fleets.

EMFAC2014 utilizes a socio-econometric regression modeling approach to forecast new vehicle sales and to estimate future fleet mix. Light-duty passenger vehicle population includes 2012 DMV registration data along with updates to mileage accrual using Smog Check data. Updates to heavy-duty trucks include model year-specific emission factors

based on new test data, and population estimates using DMV data for in-state trucks and International Registration Plan (IRP) data for out-of-state trucks.

Additional information and documentation on the EMFAC2014 model is available at: https://www.arb.ca.gov/msei/categories.htm#emfac2014

Off-Road Mobile Sources

Emissions from off-road sources were estimated using a suite of category-specific models or, where a new model was not available, the OFFROAD2007 model. Many of the newer models were developed to support recent regulations, including in-use off-road equipment, ocean-going vessels and others. The sections below summarize the updates made to specific off-road categories.

Locomotives

In 2016, CARB updated California's Class I and Class II line-haul locomotive model. The new model provides the following updates: age and model year distribution based on 2011 and 2014 rail company data, activity based on Freight Analysis Framework (FAF) data, fuel growth based on Board of Equalization historical rail data, and new locomotive populations, survival rates, and Tier distributions. To estimate emissions, CARB used duty cycle, fuel consumption and activity data reported by the rail lines in 2011. These results were combined with the Class III locomotive emissions inventory from previous SIPs, which were incorporated in the 2006 locomotive inventory, to create an overall California line-haul locomotive emissions inventory for the SIP. More information may be found at https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles.

Ocean-Going Vessels (OGV)

CARB extensively revised and updated the OGV inventory in 2016. Activity data was updated through 2014. Emissions for all vessels were revised to incorporate efficiency changes for fuel slide valves. Emissions for bulk carriers, containerships, and oil tankers were revised to reflect reduced fuel consumption due to the recent widespread adoption of slower shipping speeds. Growth rates for containerships were updated to reflect the trend of larger ships visiting California. The inventory also reflects the delayed introduction of Tier 3 engines in California waters to 2020 through 2040, depending on the vessel type. Additional information is available at: https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

Pleasure Craft and Recreational Vehicles

A new model was developed in 2011 to estimate emissions from pleasure craft and recreational vehicles. In both cases, population, activity, and emission factors were re-assessed using new surveys, registration information, and emissions testing. Additional information is available at:
https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

In-Use Off-Road Equipment

CARB developed this model in 2010 to support the analysis for amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation. Staff updated the underlying activity forecast to reflect more recent economic forecast data, which suggests a slower rate of recovery through 2024 than previously anticipated. Additional information is available at:
https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

Transport Refrigeration Units (TRU)

This model reflects updates to activity, population, growth and turn-over data, and emission factors developed to support the 2011 amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units. Additional information is available at:
https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

Cargo Handling Equipment (CHE)

The emissions inventory for the Cargo Handling Equipment category has been updated to reflect new information on equipment population, activity, recessionary impacts on growth, and engine load. The new information includes regulatory reporting data which provide an accounting of all the cargo handling equipment in the State including their model year, horsepower and activity. Background and supporting documents for the Cargo Handling Equipment Regulation are available here:
https://www.arb.ca.gov/ports/cargo/cheamd2011.htm

Oil and Gas Wells: Workover Rigs, Drill Rigs and Support Equipment Allocation

The allocation of drill and workover rigs and support equipment (such as pumps) for oil and gas wells was updated within the SJV Air Basin to reflect the physical location of wells instead of the registration location. This allocation was done at the county level, where the number of wells within a county in the SJV Air Basin was used to determine that county's share of emissions from specified equipment. The physical location and count of wells was updated using DOGGR Well Finder data from September 2013, supplied to CARB by the District. (DOGGR data are available at:
https://www.conservation.ca.gov/dog/Pages/Wellfinder.aspx)

Diesel Agricultural Equipment

The inventory for agricultural diesel equipment (such as tractors, harvesters, combines, sprayers and others) was revised based on a voluntary 2009 survey of farmers, custom operators, and first processors. The survey data, along with information from the 2007 USDA Farm Census, was used to revise almost every aspect of the agricultural inventory, including population, activity, age distribution, fuel use, and allocation. This updated inventory replaces general information on farm equipment in the United States with one specific to California farms and practices. The updated inventory was compared against other available data sources such as Board of Equalization fuel reports, USDA tractor populations and age, and Eastern Research Group tractor ages and activity, to ensure the results were reasonable and compared well against outside data sources. Agricultural growth rates through 2050 were developed through a contract with URS Corp. Additional information is available at: https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

Fuel Storage and Handling

Emissions for fuel storage and handling were estimated using the OFFROAD2007 model. Additional information is available at: https://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

Mobile Source Forecasting

Table 5 below summarizes the data and methods used to forecast future-year mobile source emissions by broad source category groupings.

Table 5
Growth Surrogates for Mobile Sources

Category	Growth Methodology
On-Road Sources	
All	Match total VMT projections provided by MPOs
Off-Road Gasoline Fueled Equipment	
Lawn & Garden	Household growth projection
Off-Road Equipment	Employment growth projection
Recreational Boats	Housing starts (short-term) and human population growth (long-term)
Recreational Vehicles	Housing starts (short-term) and human population growth (long-term)
Off-Road Diesel-Fueled Equipment	
Commercial Harbor Craft	Growth rates provided by District, except for tugs and fishing vessels. Fishing fleet growth rates were adjusted to reflect a decline in fish landings. Assumed no growth for tugboats.
Construction and Mining	California construction employment data from U.S. Bureau of Labor Statistics
Farm Equipment	2011 study of forecasted growth by URS Corp.
Industrial Equipment	California construction employment data from Bureau of Labor Statistics
Oil Drilling	California oil and gas extraction gross domestic product from the U.S. Bureau of Economic Analysis, oil company diesel fuel use published by the U.S. Energy Information Administration, California rotary rig counts from Baker Hughes, and California oil and gas extraction employment from the U.S. Bureau of Labor Statistics
Ocean-Going Vessels	Projected commodity tonnage in the FAF Model developed by the Federal Highway Administration. Containership projection includes ship size breakdown from the 2013 San Pedro Bay Fleet Forecast Project.
Trains (line haul)	FAF 2015 growth projections and historical Bureau of Transportation Statistics locomotive fuel trends (1990-2013 data).
Transport Refrigeration Units	Projection of historical Truck/Trailer TRU sales from ACT Research, adjusted for recession.
Off-Road Equipment (Other Fuels)	
Aircraft	Forecast by CSU Fullerton for all aircraft except for Lemoore NAS in Kings County, which uses District estimates.

Condensable Particulate Matter

Background

Condensable particulate matter (PM) is "material that is vapor phase at stack conditions, but which condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid PM immediately after discharge from the stack."[2] Condensable PM is a component of primary PM, which is the sum of condensable and filterable PM. Filterable PM comprises "particles that are directly emitted by a source as a solid or liquid [aerosol] at stack or release conditions."[3] All condensable PM is assumed to be smaller than 2.5 microns (µm) in diameter; therefore, PM2.5 primary is the sum of condensable PM and filterable PM less than 2.5µm, while PM10 primary is the sum of condensable PM and filterable PM less than 10µm.

The AERR requires states to report annual emissions of filterable and condensable components of PM2.5 and PM10, "as applicable," for large sources every inventory year and for all sources every third inventory year, beginning with 2011.[4] Subsequent emissions inventory guidance[5] from the U.S. EPA clarifies the meaning of the phrase "as applicable" by providing a list of source types "for which condensable PM is expected by the AERR." These source types are stationary point and nonpoint combustion sources that are expected to generate condensable PM and include, for instance, commercial cooking, fuel combustion at electric generating utilities, industrial processes like cement or chemical manufacturing, and flares or incinerators associated with waste disposal. The District reports condensable PM from stationary and area sources using the methodology outlined below.

Mobile sources emit PM in both filterable and condensable form; however, the AERR does not require states to report filterable and condensable PM separately for mobile sources. Thus, emissions from mobile sources are reported in the emissions inventory in this Appendix as primary PM, e.g. the sum of filterable and condensable PM.

Methodology

For the current inventory, the District has collected data on primary PM only, containing both filterable and condensable components without distinguishing between the two. Consequently, to be able to report emissions of the condensable component of PM2.5 separately as required by the AERR, the District must use conversion factors to convert primary PM2.5 to condensable PM.

U.S. EPA has published an augmentation tool[6] which contains conversion factors for each source classification code (SCC) to convert filterable PM10 (PM10FIL) to condensable PM (PMCON). In this form, these conversion factors ($CF_{PM10FIL \rightarrow PMCON}$) are

[2] 40 CFR §51.50
[3] Ibid.
[4] 40 CFR §51.15(a)(1) and §51.30(b)(1)
[5] U.S. EPA. *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations*. May 2017. https://www.epa.gov/sites/production/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf
[6] U.S. EPA. *PM Augmentation*. Air Emissions Inventories. May 20, 2016. https://www.epa.gov/air-emissions-inventories/pm-augmentation

not useful because the District does not directly collect PM10FIL data. But, the following formula adjusts U.S. EPA's existing conversion factors to obtain new conversion factors for each SCC that convert from primary PM10 (PM10PRI)—data which the District does collect—to condensable PM ($CF_{PM10PRI \rightarrow PMCON}$):

$$CF_{PM10PRI \rightarrow PMCON} = \frac{CF_{\mathrm{PM10FIL \rightarrow PMCON}}}{(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})}$$

The formula was derived as follows:

$$PM10PRI = PM10FIL + PMCON$$

and

$$PMCON = PM10FIL\ (CF_{\mathrm{PM10FIL \rightarrow PMCON}})$$

and

$$PMCON = PM10PRI(CF_{\mathrm{PM10PRI \rightarrow PMCON}})$$

$$\therefore \quad PM10PRI = PM10FIL + PM10FIL\ (CF_{\mathrm{PM10FIL \rightarrow PMCON}})$$
$$= PM10FIL(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})$$

and

$$CF_{\mathrm{PM10PRI \rightarrow PMCON}} = \frac{PMCON}{PM10PRI} = \frac{PMCON}{PM10FIL(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})}$$
$$= \frac{PM10FIL\ (CF_{\mathrm{PM10FIL \rightarrow PMCON}})}{PM10FIL(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})} = \frac{CF_{\mathrm{PM10FIL \rightarrow PMCON}}}{(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})}$$

Since condensable PM is typically smaller than 2.5µm, a 1:1 ratio between PM10 and PM2.5 may be assumed, and the same conversion factors can likewise be applied to convert primary PM2.5 (PM25PRI) to condensable PM using the same method. That is, $CF_{PM10PRI \rightarrow PMCON} = CF_{PM25PRI \rightarrow PMCON}$ where $CF_{PM25PRI \rightarrow PMCON}$ represents the conversion factors that convert from primary PM2.5—again, data the District does collect—to condensable PM.

In the table below, these calculated conversion factors ($CF_{PM25PRI \rightarrow PMCON}$), derived from the U.S. EPA conversion factors, are used to determine the condensable PM component of primary PM2.5 for applicable source types located in the District. Note that numbers reported in this table are represented in tons per *year* (tons/yr) rather than tons per day as in the emissions inventory tables at the beginning of this Appendix.

In the tables below, these calculated conversion factors ($CF_{PM25PRI \rightarrow PMCON}$), derived from the U.S. EPA conversion factors, are used to determine the condensable PM component of primary PM2.5 for applicable source types located in the District.

Condensable PM Tables (tons per year)

Source Category	2013			2017			2019			2020		
	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)
STATIONARY SOURCES												
FUEL COMBUSTION												
ELECTRIC UTILITIES	487.5	153.0	334.5	447.6	127.0	320.6	452.7	127.0	325.6	441.2	119.0	322.2
COGENERATION	206.6	65.1	141.5	243.7	69.1	174.6	261.7	71.1	190.5	267.7	72.0	195.7
OIL AND GAS PRODUCTION (COMBUSTION)	609.7	373.8	235.9	557.8	342.0	215.8	533.4	327.1	206.4	521.7	319.8	201.9
PETROLEUM REFINING (COMBUSTION)	28.4	16.3	12.1	28.4	16.3	12.1	28.4	16.3	12.1	28.4	16.3	12.1
MANUFACTURING AND INDUSTRIAL	46.8	14.9	31.9	46.7	14.9	31.8	47.7	15.1	32.6	47.8	15.2	32.6
FOOD AND AGRICULTURAL PROCESSING	256.6	72.6	184.0	183.2	69.1	114.0	177.3	69.5	107.9	173.3	68.9	104.4
SERVICE AND COMMERCIAL	170.6	36.9	133.7	172.7	38.3	134.4	178.1	39.9	138.2	179.6	40.3	139.3
OTHER (FUEL COMBUSTION)	5.8	0.1	5.6	4.5	0.1	4.3	4.5	0.1	4.3	3.3	0.1	3.1
WASTE DISPOSAL												
SEWAGE TREATMENT	2.4	0.8	1.6	2.4	0.8	1.6	2.5	0.8	1.7	2.6	0.8	1.7
LANDFILLS	41.4	19.3	22.1	43.2	20.1	23.1	44.3	20.6	23.7	44.9	20.9	24.0
INCINERATORS	4.6	1.0	3.6	4.9	1.1	3.8	4.9	1.1	3.9	5.0	1.1	3.9
SOIL REMEDIATION	0.3	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.3
OTHER (WASTE DISPOSAL)	2.2	0.3	2.0	2.3	0.3	2.1	2.4	0.3	2.1	2.4	0.3	2.1
CLEANING AND SURFACE COATINGS												
LAUNDERING	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5
DEGREASING	9.1	0.0	9.1	10.4	0.0	10.4	11.0	0.0	11.0	11.3	0.0	11.3
COATINGS AND RELATED PROCESS SOLVENTS	81.6	0.0	81.6	88.1	0.0	88.1	90.7	0.0	90.7	92.2	0.0	92.2
PRINTING	2.6	0.0	2.6	3.0	0.0	3.0	3.2	0.0	3.2	3.4	0.0	3.4
ADHESIVES AND SEALANTS	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
OTHER (CLEANING AND SURFACE COATINGS)	2.8	0.0	2.8	3.1	0.0	3.1	3.1	0.0	3.1	3.1	0.0	3.1
PETROLEUM PRODUCTION AND MARKETING												
OIL AND GAS PRODUCTION	15.5	8.5	7.1	14.2	7.7	6.5	13.6	7.4	6.2	13.4	7.3	6.1
PETROLEUM REFINING	31.5	0.6	30.9	31.5	0.6	30.9	31.5	0.6	30.9	31.5	0.6	30.9
PETROLEUM MARKETING	1.1	0.0	1.1	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2
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
INDUSTRIAL PROCESSES												
CHEMICAL	78.9	4.7	74.3	83.2	5.0	78.2	86.2	5.1	81.1	88.1	5.3	82.8
FOOD AND AGRICULTURE	308.3	19.3	289.0	326.4	20.6	305.8	338.3	21.3	317.0	343.0	21.6	321.4
MINERAL PROCESSES	502.2	5.9	496.3	564.0	6.6	557.4	592.5	6.9	585.6	603.3	7.1	596.2
METAL PROCESSES	20.2	6.5	13.7	21.8	7.0	14.8	22.2	7.1	15.0	22.4	7.2	15.2
WOOD AND PAPER	83.0	1.1	81.8	83.1	1.1	82.0	83.1	1.1	82.0	82.9	1.1	81.8
GLASS AND RELATED PRODUCTS	125.6	27.6	98.1	65.3	14.6	50.7	66.5	14.9	51.6	67.1	15.0	52.0
ELECTRONICS	1.5	0.0	1.5	1.4	0.0	1.4	1.3	0.0	1.3	1.3	0.0	1.3
OTHER (INDUSTRIAL PROCESSES)	86.3	1.3	85.1	94.3	1.4	92.9	98.5	1.5	97.0	100.0	1.5	98.5
TOTAL STATIONARY SOURCE	3,213.6	829.5	2,384.1	3,129.2	763.6	2,365.5	3,181.7	754.9	2,426.8	3,182.7	741.4	2,441.3
AREAWIDE 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
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
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
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
MISCELLANEOUS PROCESSES												
RESIDENTIAL FUEL COMBUSTION	1,362.5	0.0	1,362.5	1,209.4	0.0	1,209.4	1,214.8	0.0	1,214.8	1,215.7	0.0	1,215.7
FARMING OPERATIONS	4,892.1	1.9	4,890.3	4,827.1	1.9	4,825.2	4,794.6	1.9	4,792.8	4,778.5	1.9	4,776.6
CONSTRUCTION AND DEMOLITION	553.9	0.0	553.9	641.5	0.0	641.5	675.8	0.0	675.8	689.5	0.0	689.5
PAVED ROAD DUST	1,716.2	0.0	1,716.2	1,834.3	0.0	1,834.3	1,893.6	0.0	1,893.6	1,924.1	0.0	1,924.1
UNPAVED ROAD DUST	1,364.9	0.0	1,364.9	1,358.1	0.0	1,358.1	1,354.7	0.0	1,354.7	1,353.1	0.0	1,353.1
FUGITIVE WINDBLOWN DUST	2,752.9	0.0	2,752.9	2,701.5	0.0	2,701.5	2,675.9	0.0	2,675.9	2,663.1	0.0	2,663.1
FIRES	65.6	0.0	65.6	69.0	0.0	69.0	71.1	0.0	71.1	72.2	0.0	72.2
MANAGED BURNING AND DISPOSAL	1,105.5	0.0	1,105.5	1,098.2	0.0	1,098.2	1,094.5	0.0	1,094.5	1,092.6	0.0	1,092.6
COOKING	1,328.9	1,321.2	7.7	1,407.6	1,399.2	8.4	1,451.1	1,442.4	8.7	1,473.2	1,464.3	8.9
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
TOTAL AREAWIDE SOURCE	15,142.5	1,323.0	13,819.5	15,146.8	1,401.1	13,745.7	15,226.2	1,444.3	13,781.9	15,262.0	1,466.2	13,795.8
MOBILE SOURCES *												
ON-ROAD	2,351.5	0.0	0.0	1,356.7	0.0	0.0	1,287.1	0.0	0.0	1,248.1	0.0	0.0
OFF-ROAD	2,113.1	0.0	0.0	1,876.1	0.0	0.0	1,905.3	0.0	0.0	1,841.5	0.0	0.0
TOTAL MOBILE SOURCE	4,464.5	0.0	0.0	3,232.8	0.0	0.0	3,192.4	0.0	0.0	3,089.6	0.0	0.0

Source Category	2022			2023			2024			2025			2026			2028		
	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)	Total $PM_{2.5}$ (tons/yr)	Condensable $PM_{2.5}$ (tons/yr)	Filterable $PM_{2.5}$ (tons/yr)
STATIONARY SOURCES																		
FUEL COMBUSTION																		
ELECTRIC UTILITIES	446.5	119.6	326.8	448.8	119.8	329.0	454.4	120.3	334.1	460.6	120.8	339.8	465.2	121.2	344.0	472.2	121.8	350.4
COGENERATION	273.8	73.6	200.2	278.6	74.5	204.1	282.4	75.4	207.0	286.2	76.2	210.0	290.0	77.1	213.0	295.6	78.8	216.8
OIL AND GAS PRODUCTION (COMBUSTION)	499.1	306.0	193.1	488.1	299.3	188.9	477.3	292.6	184.7	466.8	286.2	180.6	456.6	279.9	176.7	436.7	267.7	169.0
PETROLEUM REFINING (COMBUSTION)	28.4	16.3	12.1	28.4	16.3	12.1	28.4	16.3	12.1	28.4	16.3	12.1	28.4	16.3	12.1	28.4	16.3	12.1
MANUFACTURING AND INDUSTRIAL	48.7	15.4	33.3	48.7	15.4	33.3	48.5	15.3	33.1	48.7	15.4	33.3	49.0	15.5	33.5	50.0	15.8	34.2
FOOD AND AGRICULTURAL PROCESSING	165.9	68.4	97.5	161.0	67.4	93.7	156.8	66.6	90.3	153.5	66.1	87.4	150.3	65.8	84.5	145.8	66.1	79.7
SERVICE AND COMMERCIAL	180.6	41.0	139.6	181.5	41.3	140.3	182.0	41.4	140.6	181.9	41.4	140.5	182.0	41.5	140.5	183.9	41.9	142.0
OTHER (FUEL COMBUSTION)	3.3	0.1	3.2	3.3	0.1	3.2	3.3	0.1	3.2	3.3	0.1	3.2	3.3	0.1	3.2	3.3	0.1	3.2
WASTE DISPOSAL																		
SEWAGE TREATMENT	2.6	0.8	1.7	2.6	0.9	1.8	2.7	0.9	1.9	2.8	0.9	1.9	2.8	0.9	1.9	2.9	0.9	1.9
LANDFILLS	46.2	21.5	24.7	46.8	21.8	25.0	47.5	22.1	25.4	48.3	22.5	25.8	49.0	22.8	26.1	50.6	23.6	27.0
INCINERATORS	5.1	1.1	4.0	5.1	1.1	4.0	5.2	1.2	4.0	5.2	1.2	4.1	5.4	1.2	4.2	5.5	1.2	4.3
SOIL REMEDIATION	0.3	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.3
OTHER (WASTE DISPOSAL)	2.4	0.3	2.1	2.5	0.3	2.2	2.6	0.3	2.2	2.6	0.3	2.2	2.6	0.3	2.2	2.7	0.3	2.3
CLEANING AND SURFACE COATINGS																		
LAUNDERING	0.5	0.0	0.5	0.6	0.0	0.6	0.6	0.0	0.6	0.6	0.0	0.6	0.6	0.0	0.6	0.6	0.0	0.6
DEGREASING	12.2	0.0	12.2	12.5	0.0	12.5	12.8	0.0	12.8	13.1	0.0	13.1	13.4	0.0	13.4	13.9	0.0	13.9
COATINGS AND RELATED PROCESS SOLVENTS	96.4	0.0	96.4	98.4	0.0	98.4	100.6	0.0	100.6	103.2	0.0	103.2	105.6	0.0	105.6	110.8	0.0	110.8
PRINTING	3.6	0.0	3.6	3.7	0.0	3.7	3.8	0.0	3.8	3.9	0.0	3.9	4.0	0.0	4.0	4.3	0.0	4.3
ADHESIVES AND SEALANTS	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
OTHER (CLEANING AND SURFACE COATINGS)	3.2	0.0	3.2	3.3	0.0	3.3	3.4	0.0	3.4	3.4	0.0	3.4	3.5	0.0	3.5	3.6	0.0	3.6
PETROLEUM PRODUCTION AND MARKETING																		
OIL AND GAS PRODUCTION	12.8	6.9	5.8	12.4	6.8	5.7	12.2	6.6	5.6	11.9	6.5	5.4	11.6	6.3	5.3	11.1	6.0	5.1
PETROLEUM REFINING	31.5	0.6	30.9	31.5	0.6	30.9	31.5	0.6	30.9	31.5	0.6	30.9	31.5	0.6	30.9	31.5	0.6	30.9
PETROLEUM MARKETING	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2
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	0.0	0.0
INDUSTRIAL PROCESSES																		
CHEMICAL	92.1	5.5	86.6	94.1	5.6	88.5	96.3	5.7	90.5	98.4	5.9	92.5	101.0	6.0	95.0	106.2	6.3	99.9
FOOD AND AGRICULTURE	352.9	22.2	330.7	357.7	22.5	335.2	362.3	22.8	339.5	366.8	23.0	343.8	371.5	23.4	348.1	381.7	24.0	357.7
MINERAL PROCESSES	625.1	7.3	617.7	636.6	7.5	629.1	648.2	7.6	640.6	660.8	7.8	653.0	673.6	7.9	665.7	703.5	8.3	695.2
METAL PROCESSES	23.1	7.5	15.7	23.5	7.6	15.9	24.0	7.7	16.3	24.5	7.9	16.6	25.0	8.1	16.9	26.1	8.4	17.7
WOOD AND PAPER	82.4	1.1	81.3	82.3	1.1	81.2	82.3	1.1	81.2	82.3	1.1	81.2	82.4	1.1	81.3	83.3	1.1	82.2
GLASS AND RELATED PRODUCTS	71.6	16.1	55.6	71.6	16.1	55.6	71.6	16.1	55.6	71.6	16.1	55.6	71.6	16.1	55.6	71.6	16.1	55.6
ELECTRONICS	1.3	0.0	1.3	1.2	0.0	1.2	1.2	0.0	1.2	1.2	0.0	1.2	1.1	0.0	1.1	1.1	0.0	1.1
OTHER (INDUSTRIAL PROCESSES)	103.2	1.5	101.6	104.8	1.6	103.2	106.5	1.6	104.9	108.0	1.6	106.4	109.7	1.6	108.0	113.5	1.7	111.8
TOTAL STATIONARY SOURCE	3,215.8	732.9	2,482.8	3,231.3	727.5	2,503.8	3,249.8	722.4	2,527.4	3,271.1	717.8	2,553.3	3,292.2	713.7	2,578.5	3,342.0	707.2	2,634.9
AREAWIDE 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	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	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	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	0.0	0.0
MISCELLANEOUS PROCESSES																		
RESIDENTIAL FUEL COMBUSTION	1,218.2	0.0	1,218.2	1,219.5	0.0	1,219.5	1,220.2	0.0	1,220.2	1,220.8	0.0	1,220.8	1,221.6	0.0	1,221.6	1,223.8	0.0	1,223.8
FARMING OPERATIONS	4,745.9	1.9	4,744.1	4,729.7	1.9	4,727.8	4,713.5	1.9	4,711.6	4,697.2	1.9	4,695.3	4,681.0	1.9	4,679.1	4,648.6	1.9	4,646.7
CONSTRUCTION AND DEMOLITION	569.8	0.0	569.8	578.5	0.0	578.5	587.9	0.0	587.9	598.9	0.0	598.9	610.7	0.0	610.7	635.7	0.0	635.7
PAVED ROAD DUST	1,988.8	0.0	1,988.8	2,022.0	0.0	2,022.0	2,053.6	0.0	2,053.6	2,085.9	0.0	2,085.9	2,114.2	0.0	2,114.2	2,172.1	0.0	2,172.1
UNPAVED ROAD DUST	1,349.7	0.0	1,349.7	1,347.9	0.0	1,347.9	1,346.3	0.0	1,346.3	1,344.6	0.0	1,344.6	1,342.9	0.0	1,342.9	1,339.5	0.0	1,339.5
FUGITIVE WINDBLOWN DUST	2,637.3	0.0	2,637.3	2,624.5	0.0	2,624.5	2,611.7	0.0	2,611.7	2,598.8	0.0	2,598.8	2,586.1	0.0	2,586.1	2,560.4	0.0	2,560.4
FIRES	74.4	0.0	74.4	75.6	0.0	75.6	76.7	0.0	76.7	77.7	0.0	77.7	78.9	0.0	78.9	81.1	0.0	81.1
MANAGED BURNING AND DISPOSAL	1,088.8	0.0	1,088.8	1,086.9	0.0	1,086.9	1,085.1	0.0	1,085.1	1,083.2	0.0	1,083.2	1,081.3	0.0	1,081.3	1,077.6	0.0	1,077.6
COOKING	1,518.8	1,509.6	9.2	1,542.3	1,532.9	9.4	1,566.2	1,556.6	9.5	1,590.1	1,580.4	9.7	1,614.2	1,604.3	9.9	1,662.5	1,652.3	10.2
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	0.0	0.0
TOTAL AREAWIDE SOURCE	15,191.7	1,511.5	13,680.2	15,226.9	1,534.8	13,692.1	15,261.1	1,558.5	13,702.6	15,297.3	1,582.3	13,715.0	15,330.8	1,606.2	13,724.6	15,401.2	1,654.2	13,747.1
MOBILE SOURCES *																		
ON-ROAD	1,207.0	0.0	0.0	1,161.2	0.0	0.0	1,173.1	0.0	0.0	1,184.7	0.0	0.0	1,196.3	0.0	0.0	1,213.6	0.0	0.0
OFF-ROAD	1,709.3	0.0	0.0	1,650.5	0.0	0.0	1,599.5	0.0	0.0	1,538.0	0.0	0.0	1,486.7	0.0	0.0	1,397.6	0.0	0.0
TOTAL MOBILE SOURCE	2,916.3	0.0	0.0	2,811.7	0.0	0.0	2,772.6	0.0	0.0	2,722.6	0.0	0.0	2,682.9	0.0	0.0	2,611.2	0.0	0.0

* EPA does not require condensable or filterable emissions data to be reported for mobile sources.

** U.S. EPA developed a separate augmentation tool specifically for commercial cooking, containing updated conversion factors from PM25PRI to PMCON for four commercial cooking source types. These conversion factors were applied to PM25PRI emissions to obtain PMCON for commercial cooking specific SCCs.]

This page intentionally blank.