SJVUAPCD

Appendix B

Emissions Inventory

DRAFT *2016 PLAN FOR THE 2008 8-HOUR OZONE STANDARD*

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Appendix B: Emissions Inventory

B.1 INTRODUCTION

An emissions inventory is a systematic listing of air pollution sources along with the amount of pollution emitted from each source or category over a given time period. Emissions inventories represent estimates of the air pollution emissions from given sources; they are not measurements of ambient concentrations. Emissions inventory data are used as the primary input for air quality modeling, used for developing control strategies, and provide a means to track progress in meeting emissions reduction commitments. More specifically, the inventories in this appendix are used to evaluate and propose control measures, to track emissions for Rate of Progress (ROP), to track Emissions Reduction Credits (ERCs), to establish motor vehicle conformity budgets for transportation planning, and to assist in demonstrating attainment of the NAAQS.

Pollution sources are grouped by major industry sectors. The following are examples of pollution sources by key sectors:

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

Tables B-1 and B-2 reflect anthropogenic emissions (i.e., emissions generated by human activity). Only anthropogenic emissions are subject to regulatory requirements. However, biogenic volatile organic compounds emissions (BVOC) from vegetation are evaluated and estimated for photochemical modeling. Total volatile organic compound (VOC) emissions from biogenic sources can overwhelm anthropogenic VOC emissions, particularly during the Valley's ozone season (Table B-3). Appendix D, California Air Resources Board (ARB) Photochemical Modeling Protocol, contains a more thorough discussion of BVOCs.

The U.S. Environmental Protection Agency (EPA) establishes requirements pertaining to emissions information that must be included as part of the SIP submittal package. Plans for ozone are to include emissions inventories for oxides of nitrogen (NOx) and VOCs.

As discussed in Chapter 2 and throughout the *2016 8-Hour Ozone Plan*, the Valley's attainment challenges under the national 2008 8-hour ozone standard occur in the summer months. For this reason, this plan focuses on summer (May through October) average daily emissions inventories, with emissions presented as tons per day (tpd).

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

This appendix includes emissions for the San Joaquin Valley Air Basin for the years 2012, 2015, and 2018 through 2031. The base year (the year from which the inventory is projected forward and backward) for these inventories is 2012. The year 2015 has been included as a reference point for the current year. Years 2018 through 2031 have been included, as they represent attainment milestones. 2031 is the latest possible attainment deadline for the federal 2008 8-hour ozone standard.

The tables in this appendix include:

- Table B-1 NOx Emissions (Summer Daily Averages in Tons per Day)
- Table B-2 VOC Emissions (Summer Daily Averages in Tons per Day)
- Table B-3 Valley-Wide Biogenic Emissions for 2012 in Tons per Day

B.1.1 B.1 Emissions Inventory Tables

Table B-1 NOx Emissions (Summer Daily Averages in Tons per Day)

NOx (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
STATIONARY SOURCES																
FUEL COMBUSTION																
ELECTRIC UTILITIES	4.5	4.3	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.7	4.7	4.8	4.8	4.9	4.9	5.0
COGENERATION	1.7	1.8	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4
OIL AND GAS PRODUCTION (COMBUSTION)	3.2	2.8	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.8	1.8	1.7	1.7
PETROLEUM REFINING (COMBUSTION)	0.2	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
MANUFACTURING AND INDUSTRIAL	5.2	5.2	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.4	5.4
FOOD AND AGRICULTURAL PROCESSING	15.5	10.5	6.9	6.6	6.4	6.1	5.8	5.6	5.3	5.1	4.9	4.6	4.4	4.2	4.0	3.9
SERVICE AND COMMERCIAL	4.2	4.2	4.3	4.3	4.3	4.4	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5
OTHER (FUEL COMBUSTION)	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
*** TOTAL FUEL COMBUSTION**	**35.2**	**29.4**	**26.1**	**25.9**	**25.5**	**25.3**	**24.9**	**24.7**	**24.4**	**24.3**	**24.1**	**23.9**	**23.8**	**23.6**	**23.5**	**23.4**
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
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
INCINERATORS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SOIL REMEDIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
OTHER (WASTE DISPOSAL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL WASTE DISPOSAL**	**0.2**	**0.3**	**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**
CLEANING AND SURFACE COATINGS																
LAUNDERING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGREASING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRINTING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADHESIVES AND SEALANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (CLEANING AND SURFACE COATINGS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL CLEANING AND SURFACE COATINGS**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
PETROLEUM PRODUCTION AND MARKETING																
OIL AND GAS PRODUCTION	0.4	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	0.2	0.2
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
PETROLEUM MARKETING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
INDUSTRIAL PROCESSES																
CHEMICAL	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
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

NOx (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
MINERAL PROCESSES	0.2	0.2	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
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
WOOD AND PAPER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	6.0	4.1	4.3	4.3	4.4	4.5	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
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
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
*** TOTAL INDUSTRIAL PROCESSES**	**6.6**	**4.6**	**4.9**	**4.9**	**5.0**	**5.2**	**5.3**	**5.3**	**5.4**	**5.4**	**5.4**	**5.4**	**5.4**	**5.4**	**5.5**	**5.5**
**** TOTAL STATIONARY SOURCES**	**42.4**	**34.7**	**31.7**	**31.5**	**31.1**	**31.1**	**30.9**	**30.7**	**30.4**	**30.3**	**30.1**	**29.9**	**29.8**	**29.7**	**29.5**	**29.5**
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
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PESTICIDES/FERTILIZERS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT PAVING / ROOFING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL SOLVENT EVAPORATION**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
MISCELLANEOUS PROCESSES																
RESIDENTIAL FUEL COMBUSTION	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.0
FARMING OPERATIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONSTRUCTION AND DEMOLITION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UNPAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
FUGITIVE WINDBLOWN DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FIRES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANAGED BURNING AND DISPOSAL	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
COOKING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (MISCELLANEOUS PROCESSES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL MISCELLANEOUS PROCESSES**	4.7	4.8	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.9
**** TOTAL AREA-WIDE SOURCES**	4.7	4.8	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.9
MOBILE SOURCES																
ON-ROAD MOTOR VEHICLES																
LIGHT DUTY PASSENGER (LDA)	9.7	7.1	5.1	4.6	4.2	3.9	3.6	3.3	3.1	2.9	2.7	2.6	2.5	2.3	2.2	2.1
LIGHT DUTY TRUCKS - 1 (LDT1)	2.9	1.9	1.2	1.0	0.9	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.3
LIGHT DUTY TRUCKS - 2 (LDT2)	7.1	5.2	3.5	3.0	2.7	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.4	1.4	1.3	1.2
MEDIUM DUTY TRUCKS (MDV)	9.9	7.8	5.6	5.0	4.4	3.8	3.3	2.9	2.5	2.2	2.0	1.8	1.6	1.5	1.3	1.2
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	2.8	2.3	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.7	0.6	0.5
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.8	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.2	0.2	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

NOx (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	11.2	9.1	7.1	6.4	5.8	5.2	4.7	4.2	3.7	3.3	2.9	2.6	2.3	2.0	1.8	1.6
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	2.9	2.2	1.6	1.4	1.2	1.1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	17.3	13.4	10.5	9.7	7.9	6.2	6.1	4.8	4.9	5.0	5.1	5.1	5.1	5.2	5.2	5.2
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	115.2	78.4	63.1	61.6	59.0	54.9	50.5	32.0	31.8	31.6	31.4	31.0	30.9	30.7	30.6	30.5
MOTORCYCLES (MCY)	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
HEAVY DUTY DIESEL URBAN BUSES (UB)	3.5	2.7	2.0	1.7	1.6	1.4	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.6	0.5	0.4
HEAVY DUTY GAS URBAN BUSES (UB)	0.2	0.2	0.2	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
SCHOOL BUSES (SB)	1.1	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3
OTHER BUSES (OB)	1.2	0.9	0.7	0.7	0.6	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
MOTOR HOMES (MH)	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
*** TOTAL ON-ROAD MOTOR VEHICLES**	**187.7**	**134.4**	**104.9**	**99.4**	**92.2**	**84.0**	**77.2**	**55.3**	**53.6**	**52.0**	**50.5**	**49.0**	**47.8**	**46.7**	**45.8**	**45.1**
OTHER MOBILE SOURCES																
AIRCRAFT	2.6	2.5	2.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
TRAINS	12.8	14.0	13.8	13.5	13.2	12.9	12.6	12.3	11.9	11.6	11.3	11.0	10.7	10.4	10.1	9.8
SHIPS AND COMMERCIAL BOATS	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.1	1.0
RECREATIONAL BOATS	2.2	2.0	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5
OFF-ROAD RECREATIONAL VEHICLES	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
OFF-ROAD EQUIPMENT	24.7	23.9	21.2	20.2	19.9	19.1	17.7	17.0	16.7	15.4	14.8	14.2	13.8	13.4	13.1	12.8

NOx (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
AGRICULTURAL CONSTRUCTION EQUIPMENT	5.8	5.1	4.5	4.33	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.0
AGRICULTURAL TRACTORS	47.2	42.1	37.8	36.5	34.4	32.4	30.5	28.7	27.1	25.6	24.1	22.8	21.5	20.3	19.2	18.2
OTHER FARM EQUIPMENT	8.3	7.2	6.3	6.1	5.6	5.2	4.8	4.4	4.1	3.8	3.5	3.3	3.1	2.9	2.7	2.5
FUEL STORAGE AND HANDLING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL OTHER MOBILE SOURCES**	**104.7**	**98.0**	**89.0**	**88.1**	**84.6**	**80.7**	**76.5**	**73.1**	**70.2**	**66.6**	**63.7**	**61.1**	**58.7**	**56.4**	**54.4**	**52.4**
**** TOTAL MOBILE SOURCES**	**292.4**	**232.4**	**193.9**	**187.5**	**176.8**	**164.7**	**153.7**	**128.5**	**123.8**	**118.6**	**114.2**	**110.0**	**106.5**	**103.2**	**100.2**	**97.5**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**339.6**	**271.8**	**230.4**	**223.8**	**212.7**	**200.5**	**189.4**	**163.9**	**159.0**	**153.6**	**149.1**	**144.8**	**141.1**	**137.7**	**134.6**	**131.9**

Table B-2 VOC Emissions (Summer Daily Averages in Tons per Day)

VOC (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
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
COGENERATION	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	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	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	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
MANUFACTURING AND INDUSTRIAL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
FOOD AND AGRICULTURAL PROCESSING	1.3	1.1	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
SERVICE AND COMMERCIAL	0.5	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 (FUEL COMBUSTION)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL FUEL COMBUSTION**	**4.1**	**3.7**	**3.4**	**3.4**	**3.3**	**3.3**	**3.3**	**3.2**	**3.2**	**3.2**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**
WASTE DISPOSAL																
SEWAGE TREATMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANDFILLS	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0
INCINERATORS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SOIL REMEDIATION	0.1	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)	21.4	22.1	22.7	23.0	23.4	23.7	24.1	24.8	25.2	25.5	25.9	26.2	27.0	27.4	27.7	28.0
*** TOTAL WASTE DISPOSAL**	**23.0**	**23.9**	**24.5**	**24.9**	**25.2**	**25.6**	**26.0**	**26.8**	**27.2**	**27.6**	**27.9**	**28.3**	**29.2**	**29.5**	**29.9**	**30.2**
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
DEGREASING	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
COATINGS AND RELATED PROCESS SOLVENTS	7.8	8.5	9.0	9.1	9.2	9.4	9.5	9.7	9.9	10.0	10.2	10.3	10.5	10.6	10.8	10.8
PRINTING	4.9	5.1	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.6

VOC (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
ADHESIVES AND SEALANTS	0.6	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 (CLEANING AND SURFACE COATINGS)	6.2	6.6	7.1	7.2	7.3	7.5	7.6	7.8	7.9	8.0	8.2	8.3	8.4	8.6	8.7	8.7
*** TOTAL CLEANING AND SURFACE COATINGS**	**21.0**	**22.5**	**23.7**	**24.1**	**24.4**	**24.8**	**25.2**	**25.6**	**26.0**	**26.4**	**26.8**	**27.2**	**27.6**	**28.0**	**28.4**	**28.4**
PETROLEUM PRODUCTION AND MARKETING																
OIL AND GAS PRODUCTION	13.1	12.2	11.4	11.2	10.9	10.7	10.5	10.2	10.0	9.8	9.6	9.4	9.2	9.0	8.8	8.6
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
PETROLEUM MARKETING	6.1	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.7
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**20.0**	**18.7**	**17.8**	**17.5**	**17.3**	**17.0**	**16.8**	**16.6**	**16.3**	**16.1**	**15.9**	**15.8**	**15.6**	**15.4**	**15.3**	**15.1**
INDUSTRIAL PROCESSES																
CHEMICAL	4.8	5.0	5.2	5.3	5.4	5.5	5.7	5.8	5.9	6.0	6.2	6.4	6.5	6.7	6.8	7.0
FOOD AND AGRICULTURE	11.2	11.7	12.5	12.7	12.9	13.1	13.3	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.5	14.6
MINERAL PROCESSES	0.3	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
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
WOOD AND PAPER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	0.0	0.0	0.0	0.0	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
OTHER (INDUSTRIAL PROCESSES)	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
*** TOTAL INDUSTRIAL PROCESSES**	**17.2**	**18.0**	**19.1**	**19.4**	**19.8**	**20.1**	**20.4**	**20.8**	**21.1**	**21.4**	**21.7**	**22.1**	**22.4**	**22.7**	**23.0**	**23.3**
**** TOTAL STATIONARY SOURCES**	**85.3**	**86.7**	**88.5**	**89.3**	**90.0**	**90.8**	**91.6**	**92.9**	**93.8**	**94.7**	**95.5**	**96.5**	**97.9**	**98.8**	**99.7**	**100.0**
AREA-WIDE SOURCES																
SOLVENT EVAPORATION																
CONSUMER PRODUCTS	21.5	20.8	21.7	22.0	22.3	22.6	22.9	23.2	23.6	23.9	24.2	24.6	24.9	25.2	25.6	25.9
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	10.2	10.4	10.9	11.0	11.2	11.4	11.6	11.7	11.9	12.1	12.3	12.5	12.6	12.8	13.0	13.2
PESTICIDES/FERTILIZERS	15.8	15.1	14.9	14.8	14.7	14.7	14.6	14.5	14.5	14.4	14.3	14.3	14.2	14.1	14.0	14.0

VOC (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
ASPHALT PAVING / ROOFING	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
*** TOTAL SOLVENT EVAPORATION**	**48.4**	**47.2**	**48.3**	**48.7**	**49.1**	**49.5**	**49.9**	**50.4**	**50.8**	**51.3**	**51.7**	**52.2**	**52.6**	**53.1**	**53.5**	**54.0**
MISCELLANEOUS PROCESSES																
RESIDENTIAL FUEL COMBUSTION	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
FARMING OPERATIONS	95.9	95.9	95.9	95.9	95.9	95.9	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
PAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UNPAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVE WINDBLOWN DUST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FIRES	0.1	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	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
COOKING	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	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
*** TOTAL MISCELLANEOUS PROCESSES**	**98.6**	**98.5**	**98.6**	**98.6**	**98.6**	**98.6**	**98.6**	**98.6**	**98.6**	**98.7**	**98.7**	**98.7**	**98.7**	**98.7**	**98.7**	**98.7**
**** TOTAL AREA-WIDE SOURCES**	**147.0**	**145.7**	**146.9**	**147.3**	**147.7**	**148.1**	**148.6**	**149.0**	**149.5**	**149.9**	**150.4**	**150.9**	**151.3**	**151.8**	**152.2**	**152.7**
MOBILE SOURCES																
ON-ROAD MOTOR VEHICLES																
LIGHT DUTY PASSENGER (LDA)	17.8	13.0	9.0	8.2	7.5	7.1	6.7	6.3	6.1	5.9	5.8	5.6	5.5	5.3	5.2	5.0
LIGHT DUTY TRUCKS - 1 (LDT1)	6.3	4.6	3.1	2.7	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.1	0.9
LIGHT DUTY TRUCKS - 2 (LDT2)	8.8	7.0	5.2	4.8	4.4	4.2	4.0	3.9	3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.1
MEDIUM DUTY TRUCKS (MDV)	8.7	8.1	6.9	6.5	6.1	5.7	5.3	4.9	4.6	4.4	4.2	4.0	3.8	3.6	3.5	3.3
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	2.4	2.0	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.8	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

VOC (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.1	0.1	0.0	0.0	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)	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	1.5	1.0	0.7	0.6	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	8.5	3.2	2.0	2.0	1.9	1.9	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
MOTORCYCLES (MCY)	3.8	3.6	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.2	0.2	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
HEAVY DUTY GAS URBAN BUSES (UB)	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	0.0
SCHOOL BUSES (SB)	0.2	0.0	0.0	0.0	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)	0.2	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
MOTOR HOMES (MH)	0.1	0.1	0.0	0.0	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**	**60.5**	**44.2**	**33.2**	**30.8**	**28.7**	**26.9**	**25.5**	**23.7**	**22.8**	**22.0**	**21.4**	**20.7**	**20.1**	**19.5**	**18.9**	**18.3**
OTHER MOBILE SOURCES																
AIRCRAFT	3.0	3.0	3.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
TRAINS	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4
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
RECREATIONAL BOATS	11.5	9.9	8.5	8.1	7.6	7.2	6.8	6.5	6.1	5.8	5.4	5.1	4.9	4.6	4.4	4.2
OFF-ROAD RECREATIONAL VEHICLES	3.5	3.1	3.0	3.0	2.9	2.8	2.7	2.7	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.3
OFF-ROAD EQUIPMENT	11.5	10.3	9.3	9.2	9.0	9.1	9.0	8.9	8.9	8.8	8.8	8.8	8.8	8.8	8.8	8.9
AGRICULTURAL CONSTRUCTION EQUIPMENT	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3

VOC (tpd)																
SUMMARY CATEGORY NAME	**SUMMER AVERAGE**															
	2012	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
AGRICULTURAL TRACTORS	7.4	6.6	5.9	5.6	5.4	5.2	4.9	4.7	4.5	4.3	4.2	4.0	3.8	3.7	3.5	3.3
OTHER FARM EQUIPMENT	3.1	2.4	1.9	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0	1.0	1.0	0.9
FUEL STORAGE AND HANDLING	2.8	2.4	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.3
*** TOTAL OTHER MOBILE SOURCES**	**44.5**	**39.3**	**35.2**	**34.9**	**33.8**	**32.9**	**31.9**	**31.1**	**30.3**	**29.5**	**28.8**	**28.1**	**27.6**	**27.1**	**26.6**	**25.7**
**** TOTAL MOBILE SOURCES**	**105.0**	**83.5**	**68.3**	**65.7**	**62.5**	**59.8**	**57.4**	**54.8**	**53.1**	**51.5**	**50.1**	**48.8**	**47.7**	**46.5**	**45.5**	**43.9**
GRAND TOTAL FOR SAN JOAQUIN VALLEY	**337.3**	**315.9**	**303.7**	**302.2**	**300.2**	**298.8**	**297.6**	**296.7**	**296.3**	**296.1**	**296.1**	**296.1**	**296.8**	**297.1**	**297.4**	**296.7**

B.2 EMISSION STATEMENTS

According to Section 182 (a)(3)(B) of the Clean Air Act (CAA), States with areas designated as nonattainment for ozone must require emission statement data from sources of volatile organic compounds (VOC) or oxides of nitrogen (NOx) in those areas. This requirement applies to all ozone nonattainment areas regardless of the classification (Marginal, Moderate, etc.). Emission statements should be submitted by November 15, 1993, and annually thereafter. Section 182 (a)(3)(B) (ii) of the CAA allows the State to waive the requirement for emission statements for classes or categories of sources with less than 25 tons per year of actual plant-wide NOx or VOC emissions if the State provides an inventory of emissions from the class or category based on the use of emission factors established by EPA or other methods acceptable to EPA.

The District adopted Rule 1160 “Emission Statements” on November 18, 1992 that applies to all owners and operators of any stationary source category which emits or may emit nitrogen oxides or reactive organic compounds and submits all information to the state as required by Section 182 (a)(3)(B) of the CAA. The District has been submitting emissions inventory data to the state since 1993 and has continued to do so each year thereafter. Unlike other inventory systems that are static, the District not only submits the required information, but looks to enhance its inventory system each year as new requirements are known or foreseen. This ensures that future information and data requirements are able to be collected, processes are streamlined, and data is managed in an efficient manner.

The District requests annual emissions inventories from all permitted sources in the San Joaquin Valley. This process starts in January of each year; the District sends (paper or email) each permitted facility an inventory statement or inventory survey form. An emissions inventory statement is required for those facilities that have actual emissions of greater than or equal to 25 tons and an emissions inventory survey form is required for sources that have potential emissions less than 25 tons. It should be noted that the 25 ton threshold is not only applied to NOx and VOC, but to CO, SOx, and PM10 / PM2.5 as well. The District processes approximately 4,500 facilities annually. This data is submitted to ARB by August of each year.

B.3 EMISSIONS INVENTORY SUMMARY AND METHODOLOGY (TO BE PROVIDED BY CALIFORNIA AIR RESOURCES BOARD)