

# **APPENDIX A**

## **Technical Support Document**

### **Clark County Base Year Ozone Nonattainment Area Emissions Inventory 2015 Ozone NAAQS**

**September 2020**

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## **1.0 INTRODUCTION**

This document describes the methodologies and technical details that the Clark County Department of Environment and Sustainability (DES) used to develop the base year ozone nonattainment area (NAA) emissions inventory as part of ozone state implementation plan (SIP) submittal requirements for the Clark County marginal NAA. DES selected 2017 as the inventory year because it is the most recent year for which the U.S. Environmental Protection Agency (EPA) required submittal of a comprehensive triennial inventory, and the National Emissions Inventory (NEI) for 2017 was released in April 2020. Inventory pollutants include nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs).

DES used 2017 actual emissions activities and emissions rates to develop the 2017 base year ozone NAA inventory, as recommended in the EPA guidance document “Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations” (EPA-454/B-17002, May 2017). Ozone season day emissions are required for the ozone SIP inventory, while NEIs are typically annual-based inventories. The ozone season day emissions inventory is defined as an average day emissions inventory for a typical ozone season work weekday (not a holiday).

The Clark County ozone NAA for the 2015 ozone NAAQS consists of the Las Vegas Valley, also known as Hydrographical Area 212 (HA 212). Figure 1-1 shows the Clark County boundary, as well as HA 212 inside Clark County. As recommended by EPA, this ozone SIP inventory was developed for HA 212 only; previous ozone inventories were developed for all of Clark County. The figure also shows a modeling grid boundary used to generate emissions estimates covering only HA 212.

The source categories of the 2017 ozone SIP inventory include all emissions categories: stationary point sources, stationary nonpoint (area) sources, onroad mobile sources, nonroad mobile sources, airports, and biogenic sources. Emissions from railways, residential wood combustion, and agriculture/livestock were included in the nonpoint source category. The primary data sources for the inventory were local specific activity data and the 2017 NEI.

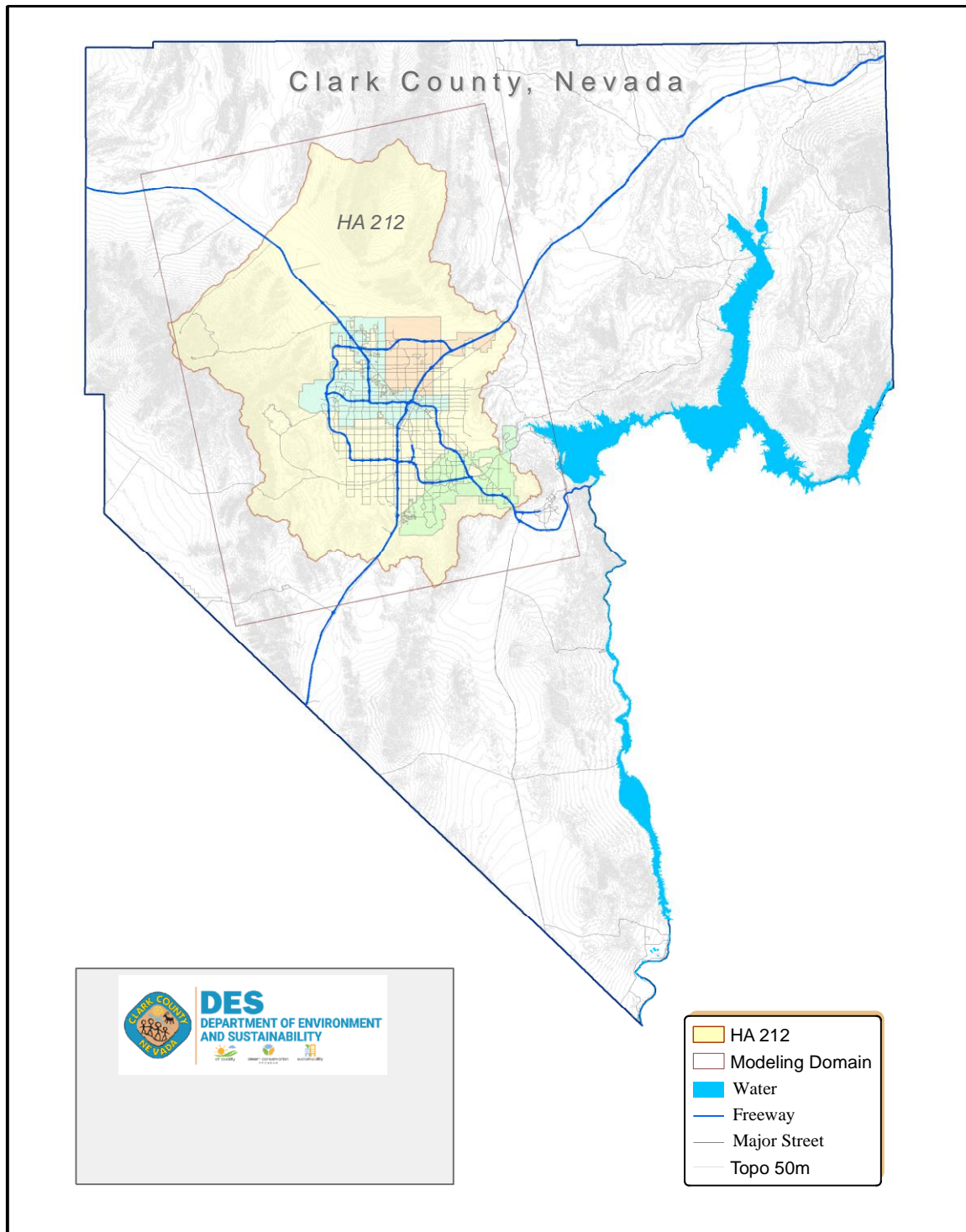


Figure 1-1. Clark County and Ozone NAA (HA 212).

## 2.0 ONROAD MOBILE SOURCE

Onroad mobile sources consist of the motor vehicles (e.g., cars, trucks, buses, and motorcycles) traveling on local and highway roads. DES has run MOVES2014b, the latest release of EPA's MOVES model, to generate the sub-county onroad emissions inventory for HA 212. The model was run in the inventory mode, not the emission rate mode.

### 2.1 MOVES INPUTS

The onroad mobile sources from MOVES2014b include onroad emissions from 13 source types (Table 2-1) and four roadway types (Table 2-2). DES has developed updated county-specific MOVES input database for 2017 with the latest information. Once the database was generated, a sub-county input database for HA 212 was also developed that was based on either actual activity data or spatial surrogates. DES then ran MOVES2014b with the database for only HA 212 to generate the ozone NAA inventory for the onroad source category.

**Table 2-1. MOVES Source Use Type**

<b>Source Type ID</b>	<b>MOVES Source Type Name</b>
11	Motorcycle
21	Passenger car
31	Passenger truck
32	Light commercial truck
41	Intercity bus
42	Transit bus
43	School bus
51	Refuse truck
52	Single unit short-haul truck
53	Single unit long-haul truck
54	Motor home
61	Combination short-haul truck
62	Combination long-haul truck

**Table 2-2. Map of HPMS Road Types to MOVES Road Type**

HPMS Road Type	MOVES Road Type
11: Rural Principal Arterial – Interstate	2: Rural Restricted Access
13: Rural Principal Arterial - Other	3: Rural Unrestricted Access
15: Rural Minor Arterial	
17: Rural Major Collector	
19: Rural Minor Collector	
21: Rural Local System	
23: Urban Principal Arterial – Interstate	4: Urban Restricted Access
25: Urban Principal Arterial – Other Freeways	5: Urban Unrestricted Access
27: Urban Principal Arterial – Other	
29: Urban Minor Arterial	
31: Urban Collector	
33: Urban Local System	

The key MOVES inputs include vehicle fleet activity data, such as vehicle miles traveled (VMT), vehicle population by vehicle source type (or vehicle class), fleet age distribution, fuel parameters, and inspection and maintenance (I/M) programs.

### 2.1.1 Clark County Vehicle Classification Study

Since vehicle classification is a crucial component for developing an onroad emission inventory, DES completed a vehicle classification study in June 2018. This study used 2014–2016 traffic count data collected by the Nevada Department of Transportation (NDOT) and included an onroad license plate survey at selected roadway locations. The collected license plate numbers were matched to the vehicle identification numbers (VINs), and then decoded to obtain vehicle attributes that allowed DES’s contractor to classify cars versus light-duty trucks. The primary products of the vehicle classification study were VMT mix and temporal profiles, which were incorporated into the 2017 MOVES input database. The MOVES temporal profiles included monthly, weekly, and hourly traffic.

2.1.1.1. VMT Mix profiles

Figure 2-1 shows the VMT mix profiles from the study by MOVES road type. Rural Restricted Access (Road Type 2) has the highest amount of heavy-duty VMT (24%), which decreases from left to right in the figure: from Road Type 2 to Rural Unrestricted Access (Road Type 3) to Urban Restricted Access (Road Type 4) to Urban Unrestricted (Road Type 5).

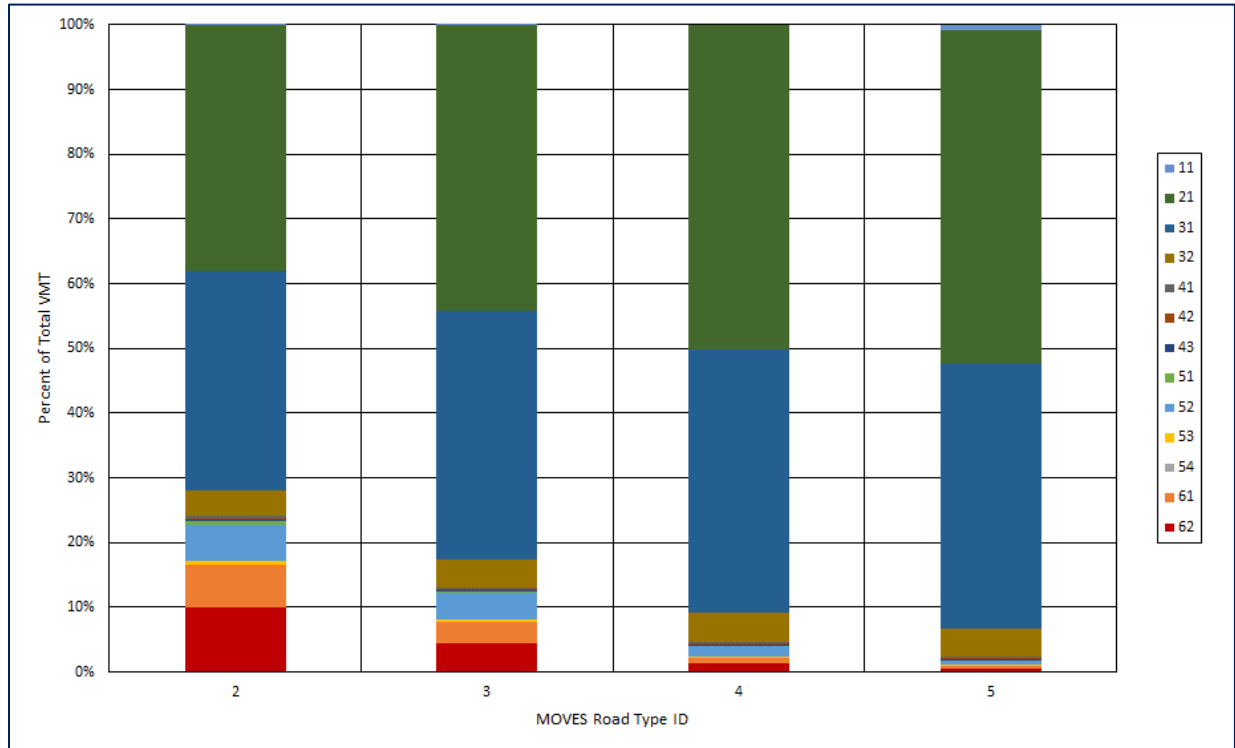


Figure 2-1. Summary of the VMT mix on each MOVES road type.



2.1.1.2. Monthly Traffic Profiles

Figure 2-2 displays the monthly VMT profiles for MOVES. The MOVES model distributes annual VMT to monthly totals using the month VMT fractions shown in Figure 2-2, and Clark County’s monthly variation does not indicate a strong influence of season on VMT. Monthly variations are based on NDOT traffic counts during 2014–2016. NDOT has continuous traffic counters operating throughout the year.

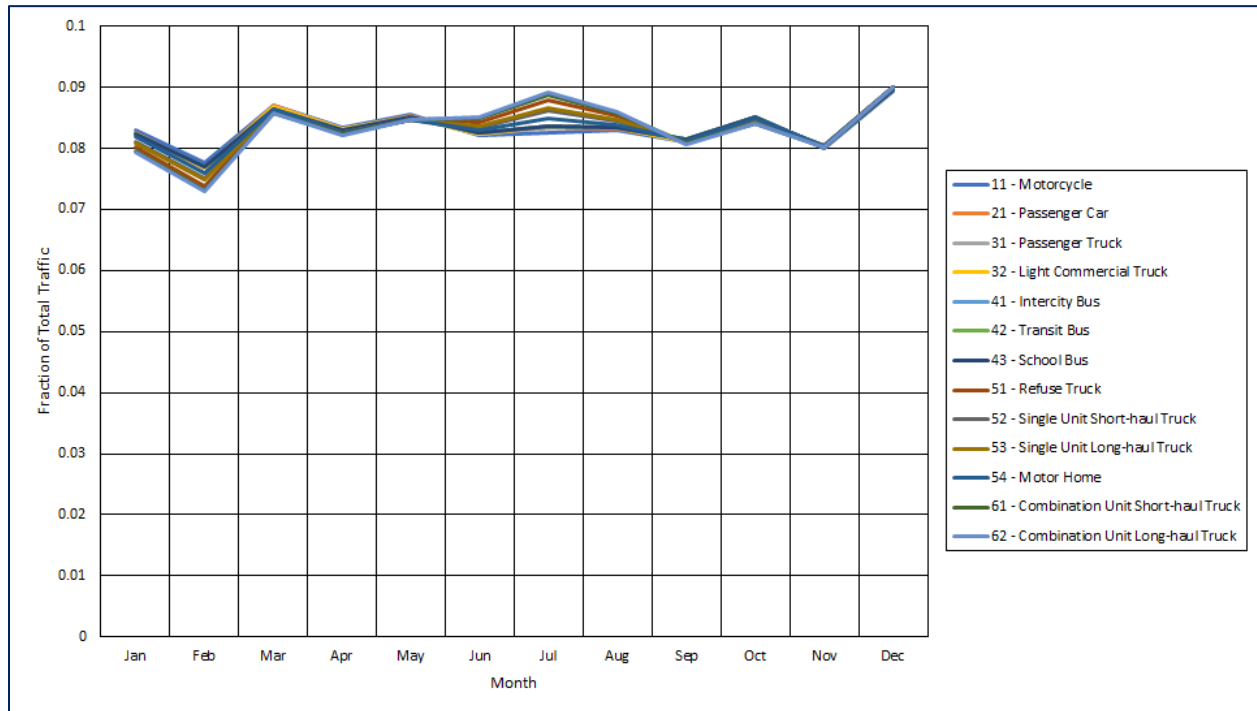


Figure 2-2. MOVES Month VMT Fractions for Clark County, NV.

2.1.1.3. Weekly Traffic Profiles

The day-of-week profiles in MOVES apportion weekly VMT to two periods of the week: “weekday,” consisting of five days, and “weekend,” consisting of two days. Figure 2-3 shows a sample of the profiles for passenger cars. The ratio of weekday to weekend VMT grows from left to right, moving from Rural (Road Types 2 & 3) to Urban (Road Types 4 & 5). This pattern of higher weekday VMT on urban roads and unrestricted roads was generally true for all source types.

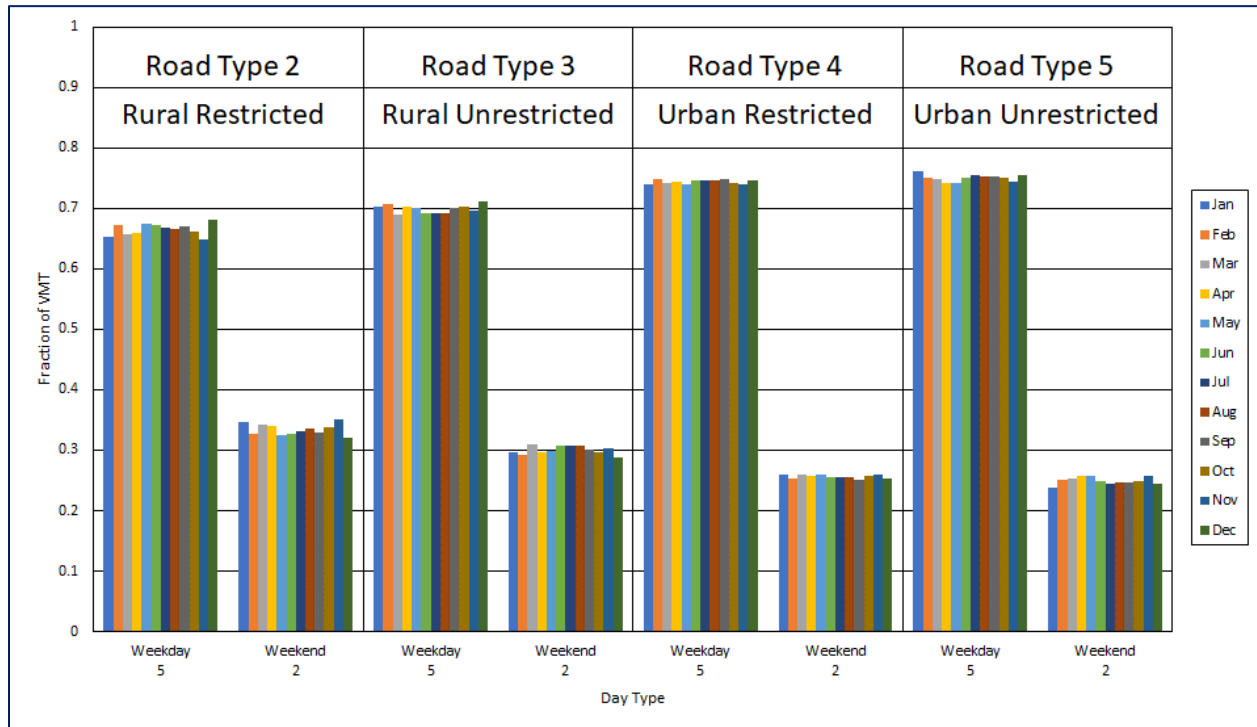


Figure 2-3. Sample MOVES Day VMT Fractions (Passenger Cars).

#### 2.1.1.4. Hourly Traffic Profiles

Figure 2-4 shows sample MOVES hour VMT fractions for passenger cars traveling on weekdays (solid line series) and weekends (broken line series) for each of the four MOVES road types in Clark County. On weekdays, the two urban road types (4 [gray] and 5 [yellow]) have prominent morning peaks in the VMT fractions. Weekend profiles on all road types reach their high point midday, i.e., between the hours of about 12:00–4:00 p.m.

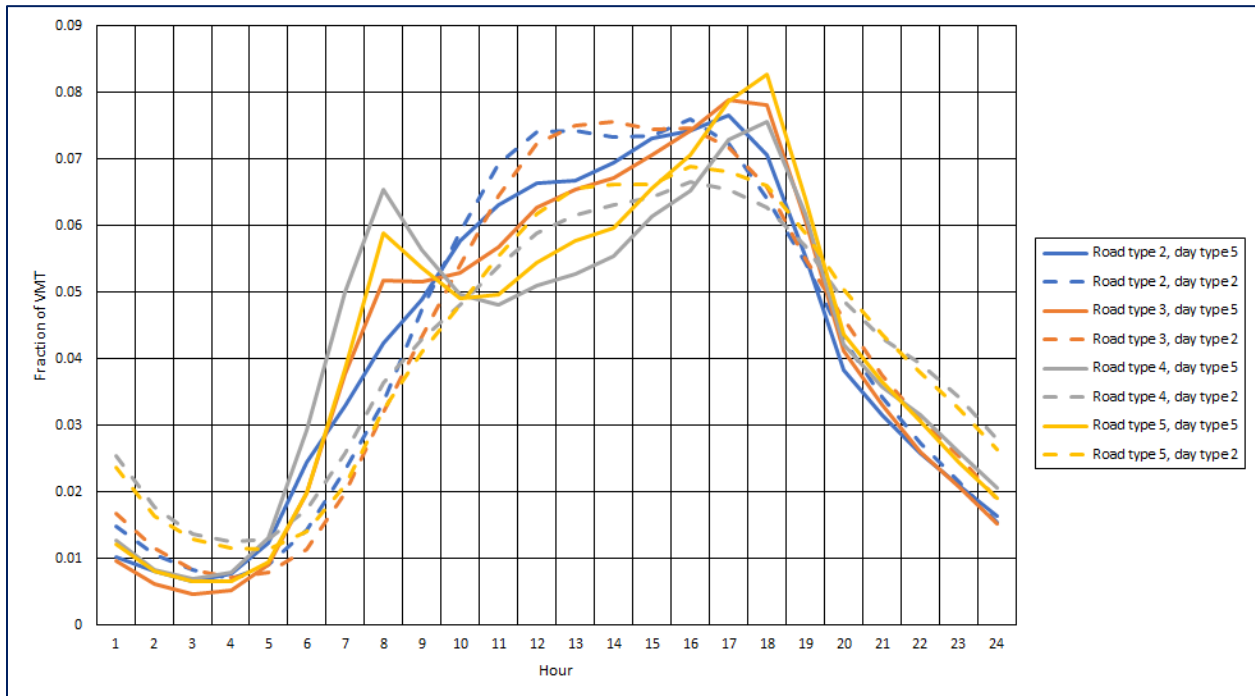


Figure 2-4. Sample MOVES Hour VMT Fractions (Passenger Cars).

#### 2.1.2 Other MOVES Inputs

Activity data for each vehicle type, such as VMT and vehicle population, are the important inputs for MOVES. VMT data for the base year (2017) inventory were derived from NDOT's 2017 annual Highway Performance Monitoring System (HPMS) reports. Per a special request, NDOT also provided DES with VMT data for the sub-county area of HA 212, which was used for NAA onroad inventory development.

The MOVES model requires annual or daily VMT by vehicle type. Using the VMT mix information developed from the Clark County Vehicle Classification Study mentioned earlier, DES generated annual VMTs for each vehicle source type for HA 212. Table 2-3 shows Clark County 2017 annual VMTs by function class within HA 212 from NDOT. Table 2-4 lists Clark County 2017 annual VMT by source type within HA 212.

**Table 2-3. Clark County 2017 Annual VMT by Function Class within HA 212**

<b>Function Class</b>	<b>2017 AVMT</b>
Rural Interstate	37,956,020
Rural Other Principal Arterial	71,177,655
Rural Minor Arterial	0
Rural Major Collector	45,745,974
Rural Minor Collector	1,218,372
Rural Local	8,512,560
Urban Interstate	3,158,264,116
Urban Other Freeways and Expressways	1,509,145,790
Urban Other Principal Arterial	2,045,321,410
Urban Minor Arterial	3,937,878,139
Urban Collector	1,617,429,935
Urban Local	4,118,471,242
<b>Annual Total</b>	<b>16,551,121,213</b>

**Table 2-4. Clark County 2017 Annual VMT by HPMS Source Type within HA 212**

<b>Source Type ID</b>	<b>Source Type Name</b>	<b>2017 AVMT</b>
11	Motorcycle	93,203,739
21	Passenger Car	8,396,862,937
31	Passenger Truck	6,754,358,072
32	Light Commercial Truck	722,814,819
41	Intercity Bus	44,283,736
42	Transit Bus	28,032,592
43	School Bus	23,000,000
51	Refuse Truck	12,033,030
52	Single Unit Short-haul Truck	202,484,000
53	Single Unit Long-haul Truck	10,078,340
54	Motor Home	1,640,285
61	Combination Short-haul Truck	140,293,750
62	Combination Long-haul Truck	122,035,913
	<b>Total</b>	<b>16,551,121,213</b>

The vehicle (source type) population data for the entire county was derived primarily from the Nevada Department of Motor Vehicle (DMV) vehicle registration database. Adjustments were made for transit buses based on data obtained from the RTC, and for school bus populations based on reports from the online magazine *SchoolBusFleet*. Vehicle population estimates for combination short-haul and long-haul trucks were based on MOVES's default database. For the NAA sub-county area, vehicle population by source type was adjusted to HA 212 using human population as a surrogate. Based on census data for human population distribution, DES assumed that the source type population within HA 212 is about 95 percent of the total source type population of Clark County. Table 2-5 lists the source type populations used in the model.

**Table 2-5. Clark County 2017 Source Type Population within HA 212**

Source Type ID	Source Type Name	Source Population
11	Motorcycle	40,367
21	Passenger Car	679,162
31	Passenger Truck	529,309
32	Light Commercial Truck	56,644
41	Intercity Bus	355
42	Transit Bus	797
43	School Bus	1,859
51	Refuse Truck	601
52	Single Unit Short-haul Truck	15,575
53	Single Unit Long-haul Truck	1,102
54	Motor Home	865
61	Combination Short-haul Truck	5,377
62	Combination Long-haul Truck	6,019
<b>Total</b>		<b>1,338,033</b>

The MOVES model also requires input from hoteling activity, which refers to the hours spent idling by drivers of diesel long-haul combination trucks during mandatory rest periods. MOVES accounts for idling and auxiliary power unit (APU) use as emission processes separate from, and in addition to, truck operation on roadways. Because there are no local specific hoteling hours available at this time, especially for HA 212, the hoteling hours in this SIP inventory were based on the MOVES2014b default.

Ambient temperature and humidity data were based on the meteorological data collected at McCarran International Airport (LAS) in 2017. Table 2-6 presents the average hourly temperature and humidity data used in the MOVES database for July 2017.

**Table 2-6. Average Hourly Temperature and Humidity at McCarran International Airport, July 2017**

Hour	Temperature	Humidity
1	90.7	25.7
2	89.4	26.8
3	88.3	28.0
4	87.0	29.7
5	86.1	31.1
6	87.5	30.0
7	90.3	27.7
8	92.3	28.5
9	94.9	25.5
10	97.3	23.9
11	99.6	22.1
12	101.7	19.5
13	103.1	18.4
14	103.7	17.9
15	104.3	16.4
16	104.1	16.5
17	104.1	16.3
18	102.8	16.6
19	100.8	18.1
20	98.8	19.9
21	96.9	21.3
22	95.2	22.1
23	93.5	23.4
24	91.9	25.6

The DMV provided vehicle registration data for Clark County by model year and vehicle type, which DES used to generate the vehicle population and vehicle age distribution inputs. The age distributions for 2017 were based on the vehicle registration data from DMV for light-duty vehicle types; age distributions for heavy-duty vehicle types were exported from the MOVES2014b default database.

However, a better source of data for age distribution may be a national project conducted by the Coordinated Research Council (CRC), which conducted VIN decoding of 2017 county-specific registration data from IHS Markit Ltd. EPA used the age distributions derived from CRC's VIN-decoding project in 2016 modeling platform and 2017 NEI development after purchasing the

county-specific data for the entire U.S. DES believes that the age distributions in the 2017 NEI are more robust, therefore we used them in Clark County’s NAA onroad inventory.

CRC has sponsored a number of projects aimed at improving the onroad portion of the NEI; for instance, vehicle speed distribution is a crucial component for onroad emission inventories. For the Clark County 2017 MOVES database, the average vehicle speed distributions in 16 MOVES speed bins for each vehicle type were based on CRC-sponsored project A-100, which used StreetLight Vehicle Telematics Data.

DES used fuel parameters from the MOVES2014b default database. Both gasoline and diesel sulfur levels are required to meet EPA requirements for low sulfur content as part of the Tier 2 standard before 2017 or the Tier 3 standard after 2017. Nevada caps the fuel Reid vapor pressure (RVP) in Clark County at 9.0 pounds per square inch (psi), with a 1.0-psi waiver for ethanol-blended fuels.

Information regarding vehicle I/M programs is another important input for the MOVES model. In the Las Vegas Valley, the state I/M program requires an annual two-speed idle test for 1995 and older vehicles and on-board diagnostics checks (exhaust and evaporative) for 1996 and newer vehicles. This information has been incorporated into MOVES modeling. Since classic vehicles in Clark County can be exempted from I/M tests, DES factored classic vehicle data obtained from the DMV into the Clark County MOVES database.

## 2.2 ONROAD MOBILE EMISSIONS ESTIMATES

Table 2-7 shows July 2017 weekday onroad emissions within HA 212. DES ran MOVES2014b only for the month of July to represent typical summertime weekday onroad NOx and VOC emissions.

**Table 2-7. Clark County 2017 Onroad Mobile Emissions in July (tpd) within HA 212**

NOx	VOC
38.76	27.25

## 3.0 NONROAD SOURCE

Nonroad mobile sources include a wide variety of equipment types that either move under their own power or can be moved from site to site, with the exception of locomotive, aircraft, and airport ground support equipment. Nonroad sources are not certified for highway use. DES used the nonroad emissions estimates from the 2017 NEI, which are based on the nonroad module of MOVES2014b, as the starting point for the Clark County ozone NAA inventory. MOVES2014b improves nonroad engine population growth rates, nonroad Tier 4 engine emissions rates, and sulfur levels of nonroad diesel fuels.

To develop HA 212 sub-county emissions estimates, the Sparse Matrix Operator Kernel Emissions (SMOKE) modeling system was run with 4-km grid spacing for July to generate ozone season weekday emissions estimates using monthly nonroad emissions data by Source Classification

Code in the FF10 flat data file. The 4-km modeling domain covering HA 212 is shown in Figure 1-1, and the total emission estimates within the modeling domain were summarized for NO<sub>x</sub> and VOC.

A number of ancillary (e.g., cross-references) data files are required when running SMOKE. DES used the ancillary files recently developed by EPA for version 1 of the 2016 modeling platform, which was a collaborative effort between EPA, state/local emissions inventory staff, multijurisdictional organizations, and others to develop an emissions modeling platform with a base year of 2016 for use in photochemical modeling (e.g., SIP modeling for 2015 ozone NAAQS implementation). Table 3-1 shows July 2017 average weekday nonroad emissions within HA 212.

**Table 3-1. Clark County 2017 Nonroad Emissions in July (tpd) within HA 212**

NO <sub>x</sub>	VOC
36.58	23.96

#### 4.0 NONPOINT SOURCE EMISSIONS

Nonpoint sources are stationary sources that fall below point source reporting levels and are too numerous or small to identify individually, e.g., small-scale industrial or residential operations that use emission-generating materials or processes. DES used the nonpoint emissions estimates from the 2017 NEI as the starting point for the Clark County ozone NAA inventory. The SMOKE model was run with 4-km grid spacing for July to generate ozone season weekday emissions estimates using annual nonpoint emissions data by Source Classification Code in the FF10 flat data files. The 4-km modeling domain covering HA 212 is shown in Figure 1-1, and the total emission estimates within the modeling domain were summarized for NO<sub>x</sub> and VOC. The nonpoint inventory includes different emission sectors: rail, residential wood combustion, agriculture livestock, and other nonpoint sources.

When running SMOKE, a number of ancillary (e.g., cross-references) data files are required. DES used the ancillary files recently developed by EPA for version 1 of the 2016 modeling platform, which will be used by federal, state, and local agencies for their photochemical modeling efforts (e.g., SIP modeling for the 2015 ozone NAAQS implementation). Table 4-1 shows July 2017 average weekday nonpoint emissions within HA 212.

**Table 4-1. Clark County 2017 Nonpoint Emissions in July (tpd) within HA 212**

NO <sub>x</sub>	VOC
6.94	59.49

#### 5.0 BIOGENIC EMISSIONS

Biogenic emissions from vegetation and soil can have a substantial impact on regional air quality. Biogenic sources include crops, lawn grass, and forests, which produce isoprene, mono-terpene, alpha-pinene, and other VOCs; soils produce a small amount of NO<sub>x</sub> emissions as well. For the



base year inventory, DES ran Biogenic Emissions Inventory System Version 3.61 (BEIS3.61) embedded in the SMOKE 4.7 model for the month of July; this generated the average ozone season day emissions by averaging the daily emissions for the entire month using the modeling grids covering HA 212 (Figure 1-1).

The input data files for BEIS3.61, including gridded meteorological data from the Weather Research and Forecasting (WRF) model, are based on the 2016 version 1 of the modeling platform using 12-km grid spacing. DES planned to run WRF with 4-km grids, but no 4-km WRF data were available at the time. Therefore, the 12-km WRF data were used when running BEIS3.61.

Another major input dataset, the Biogenic Emissions Landcover Database version 4.1 (BELD4.1), was used in the 2016 modeling platform as well as the 2014 NEI estimates. For the 2017 NEI, however, EPA made an important update to the BEIS3.61 model: the development of the Biogenic Emissions Landcover Database version 5 (BELD5). BELD5 includes version 8.0 of the Forest Inventory and Analysis, which has a better agreement with measured foliage biomass; this in turn can significantly improve biogenic VOC emissions estimates. DES ran the BEIS3.61 model with the newly released BELD5 dataset to generate biogenic emissions estimates for Clark County and HA 212. Table 5-1 shows the biogenic emissions of VOC and NO<sub>x</sub> for HA 212 from the BEIS3.61 model with the BELD5 dataset.

**Table 5-1. Clark County Biogenic Emissions (tpd) within HA 212**

<b>NO<sub>x</sub></b>	<b>VOC</b>
0.86	124.19

## 6.0 POINT SOURCE EMISSIONS

Point sources are large, stationary sources of emissions that release pollutants into the atmosphere. Examples include power plants, industrial boilers, and industrial plants. Clark County's point source inventory includes all Title V stationary sources, and all minor sources with the potential to emit at least 10 tons of VOCs or 25 tons of NO<sub>x</sub> in 2017, that were located within HA 212. Point source emission inventories were obtained from annual reports submitted by individual stationary sources. Actual emission inventories were either developed from data collected by direct on-site measurements or calculated using EPA emission factors and activities data. Emissions from all minor sources emitting less than 10 tons of VOCs or 25 tons of NO<sub>x</sub> were included in the nonpoint source category.

Table 6-1 provides the overall NO<sub>x</sub> and VOC point source emissions for 2017. Point source details, including location and North American Industry Classification System code, are provided in Table A-1 of Appendix A-1. Unit-level emissions are listed in Tables A-2 and A-3 of Appendix A-1.

**Table 6-1. Clark County HA 212 Point Source Emissions (tons per summer day)**

	<b>2017</b>
<b>NO<sub>x</sub></b>	2.94
<b>VOC</b>	1.25

## 7.0 COMMERCIAL AVIATION

Commercial aviation within HA 212 covers emissions from three facilities: McCarran International Airport, North Las Vegas Airport, and Henderson Executive Airport.

Table 7-1 presents 2017 actual emissions for commercial aviation as provided by the Clark County Department of Aviation (DOA). The emission inventories were developed using the Federal Aviation Administration's Aviation Environmental Design Tool (AEDT), Version 3b.

**Table 7-1. 2017 Commercial Aviation Emissions (tons per summer day)**

Airport	NO <sub>x</sub>	VOC
McCarran International Airport	10.97	1.06
North Las Vegas Airport	0.26	0.41
Henderson Executive Airport	0.22	0.23
<b>TOTAL</b>	<b>11.45</b>	<b>1.70</b>

DOA calculated design day emissions using the default meteorology in AEDT. The design day in 2017 was in October, so DOA developed correction factors to account for the differences in meteorology between the design day and a typical summer weekday. These correction factors were applied to the emission inventories for all the airports, and emissions for McCarran were further adjusted to account for the change in airport activity between the design day and a summer day.

## 8.0 FEDERAL AVIATION

This section presents federal aviation emissions in HA 212, which consist entirely of emissions from Nellis Air Force Base. Table 8-1 presents the actual emissions from aircraft operations obtained from EPA's 2017 NEI data.

**Table 8-1. Federal Aviation Emissions for 2017 (Actual)**

NO <sub>x</sub>		VOC	
2017 tpy	2017 tpd	2017 tpy	2017 tpd
181.12	0.50	88.06	0.24

## 9.0 EMISSION SUMMARY FOR ALL SOURCE CATEGORIES

Table 9-1 shows 2017 base year emissions estimates for the Clark County NAA (HA 212) by major source category. The table indicates that onroad and nonroad mobile sources were the dominant emission sources for NO<sub>x</sub> in 2017, and nonpoint was the dominant anthropogenic emission source for VOCs. However, the most VOC emissions are from biogenic sources, which in 2017 accounted for more than 50% of total VOC inventory in HA 212.

**Table 9-1. Summary of Clark County NAA Summer Weekday Emissions (tpd)**

<b>Source Category</b>	<b>2017 NO<sub>x</sub></b>	<b>2017 VOC</b>
Point	2.94	1.25
Nonpoint	6.94	59.49
Commercial aviation	11.45	1.70
Federal aviation	0.50	0.24
On-road mobile	38.76	27.25
Nonroad mobile	36.58	23.96
Biogenic	0.86	124.19
<b>Total</b>	<b>98.03</b>	<b>238.07</b>

**APPENDIX A-1:**

**Point Source Emissions by Emissions Unit in  
Clark County**

## Point Source Emissions by Emissions Unit in Clark County

Table A-1 presents the facility name, ID, NAICS code, and location details of the point sources in HA 212. Actual NO<sub>x</sub> and VOC emissions for 2017 are listed in Tables A-2 and A-3.

**Table A-1. Point Source Details**

Facility Name	Facility ID	NAICS	Street Address	City/State/Zip	Latitude	Longitude
Certain Teed Gypsum	4	327420	13500 Blue Diamond Hwy	Las Vegas, NV 89161	36.0553917	-115.3843364
NV Energy (Clark Station)	7	221112	5640 Stephanie St	Las Vegas, NV 89122	36.0878298	-115.0501582
Olin Chlor Alkali Products	9	325180	350 Fourth St	Henderson, NV 89015	36.0404244	-115.0123150
Wells Cargo	12	212321	7770 W Spring Mountain Rd	Las Vegas, NV 89117	36.1256255	-115.2564484
Kinder Morgan	13	424710	5049 N Sloan Ave	Las Vegas, NV 89115	36.2510772	-115.0447733
Titanium Metals Corp.	19	331410	181 N Water St	Henderson, NV 89015	36.0413762	-114.9937001
Northwind Alladin	26	221122	3667 S Las Vegas Blvd	Las Vegas, NV 89109	36.1102753	-115.1701361
Circus Circus Hotel and Casino	47	721120	2880 S Las Vegas Blvd	Las Vegas, NV 89109	36.1396321	-115.1652314
CCWRD Flamingo Center	54	221320	5857 E Flamingo Rd	Las Vegas, NV 89122	36.1650193	-115.1426284
BKEP Materials	67	324121	3901 W Ponderosa Way	Las Vegas, NV 89118	36.0800809	-115.1911581
Las Vegas Paving - Blue Diamond	70	212321	9325 S Jones Blvd	Las Vegas, NV 89139	36.0144336	-115.2289427
Golden Nugget Hotel and Casino	81	721120	129 E Fremont St	Las Vegas, NV 89101	36.1699806	-115.1451795
Horseshoe Club	85	721120	128 E Fremont St	Las Vegas, NV 89101	36.1715348	-115.1442534
Tronox	95	325180	560 W Lake Mead Pkwy	Henderson, NV 89015	36.0437807	-115.0027406
Westgate Las Vegas	101	721120	3000 Paradise Rd	Las Vegas, NV 89109	36.1358729	-115.1523170
Las Vegas Paving - 5th Street	104	324121	3401 N 5Th St	N Las Vegas, NV 89032	36.2202077	-115.1324245
Las Vegas Paving - Lone Mountain	105	324121	Lone Mountain Road	Las Vegas, NV 89129	36.2496739	-115.3330462
McCarran International Airport	108	488119	5757 Wayne Newton Blvd	Las Vegas, NV 89119	36.0826904	-115.1524521
Nellis AFB	114	928110	4430 Grissom Ave	Nellis AFB, NV 89191	36.2442153	-114.9950918
SLS Las Vegas	133	721120	2535 S Las Vegas Blvd	Las Vegas, NV 89109	36.1422474	-115.1565018
University Medical Center	142	622110	1800 W Charleston Blvd	Las Vegas, NV 89102	36.1599564	-115.1679814

Facility Name	Facility ID	NAICS	Street Address	City/State/Zip	Latitude	Longitude
Las Vegas Paving	186	212321	Eastgate Rd At Cape Horn Dr	Henderson, NV 89011	36.0585730	-115.0168542
Caesars Consolidated	257	721120	One Caesars Palace Dr	Las Vegas, NV 89109	36.1159046	-115.1727829
Mirage/Treasure Island	282	721120	3400 S Las Vegas Blvd	Las Vegas, NV 89109	36.1218009	-115.1752017
Brady Linen Services	322	812331	2501 Losee Rd	N Las Vegas, NV 89030	36.2055010	-115.1373343
Catalina Plastic and Coating	323	322220	4855 W Harmon Ave	Las Vegas, NV 89103	36.1072168	-115.2063104
Las Vegas Cogeneration	329	221112	1701 E Alexander Rd	N Las Vegas, NV 89030	36.2315987	-115.1230301
Boral Roofing	346	327390	430 S Eastgate Rd	Henderson, NV 89011	36.0573887	-115.0188267
Aggregate Industries	372	212321	5300 Sloan Rd	Las Vegas, NV 89124	35.9485038	-115.2145621
Saguaro Power Company	393	221112	435 Fourth St	Henderson, NV 89015	36.0430447	-115.0099738
City of Las Vegas WPCF	402	221320	6005 E Vegas Valley Dr	Las Vegas, NV 89142	36.1333358	-115.0409208
Nikkiso Cryo	404	333914	4661 Eaker St	N Las Vegas, NV 89081	36.2447066	-115.0827670
Nevada Sun Peak Partnerships	423	221112	6360 Vegas Valley Dr	Las Vegas, NV 89142	36.1389938	-115.0368906
Hard Rock Hotel and Casino	510	721120	4455 Paradise Rd	Las Vegas, NV 89169	36.1096635	-115.1537645
Texas Station Casino	531	721120	2101 Texas Star Ln	N Las Vegas, NV 89032	36.1990112	-115.1932076
Citibank The Lakes	546	522110	8725 W Sahara Ave	Las Vegas, NV 89117	36.1423173	-115.2855863
Rio All Suites Hotel and Casino	555	721120	3700 W Flamingo Rd	Las Vegas, NV 89103	36.1181381	-115.1862857
Kurt Segler Water Reclamation	558	221320	450 E Galleria Dr	Henderson, NV 89011	36.0767709	-114.9972427
Stratosphere Hotel and Casino	564	721120	2000 S Las Vegas Blvd	Las Vegas, NV 89104	36.1481063	-115.1564758
Aggregate Industries - Gowan	587	324121	413 E Gowan Rd	N Las Vegas, NV 89030	36.2240720	-115.1374501
Las Vegas Review Journal	588	511110	1111 W Bonanza Rd	Las Vegas, NV 89106	36.1759708	-115.1571573
Berry Plastics Corporation	597	326199	800 E Horizon Dr	Henderson, NV 89015	36.0111575	-114.9577427
Palace Station Hotel and Casino	605	721120	2411 W Sahara Ave	Las Vegas, NV 89102	36.1423565	-115.1753925
Gold Coast Hotel and Casino	606	721120	4000 W Flamingo Rd	Las Vegas, NV 89103	36.1167386	-115.1920951
Sams Town Hotel and Casino	616	721120	5111 Boulder Hwy	Las Vegas, NV 89122	36.1116665	-115.0609002

Facility Name	Facility ID	NAICS	Street Address	City/State/Zip	Latitude	Longitude
Santa Fe Station	621	721120	4949 N Rancho Dr	Las Vegas, NV 89130	36.2498453	-115.2442324
University of Nevada, Las Vegas	634	611310	4505 S Maryland Pkwy	Las Vegas, NV 89154	36.1068172	-115.1416672
Orleans Hotel and Casino	641	721120	4500 W Tropicana Ave	Las Vegas, NV 89103	36.1045310	-115.2015393
Venetian Hotel and Casino	697	721120	3355 S Las Vegas Blvd	Las Vegas, NV 89109	36.1218224	-115.1677570
Verizon Business	726	517312	4428 E Sahara Ave	Las Vegas, NV 89104	36.1447021	-115.0775914
Nevada Color Litho	754	323111	4151 N Pecos Rd	Las Vegas, NV 89115	36.2351027	-115.0994690
JW Marriott Las Vegas	755	721120	221 N Rampart Blvd	Las Vegas, NV 89145	36.1756522	-115.2905862
Suncoast Hotel and Casino	775	721120	9090 Alta Dr	Las Vegas, NV 89145	36.1686793	-115.2915159
Viawest	777	518210	304 E Carson Ave	Las Vegas, NV 89101	36.1686392	-115.1435435
Cancun Resort	788	561599	8335 S Las Vegas Blvd	Las Vegas, NV 89123	36.0378673	-115.1745879
Clearwater Paper	807	322121	3901 N Donna St	N Las Vegas, NV 89030	36.2304609	-115.1309567
MGM Grand/New York New York	825	721120	2730 S Las Vegas Blvd	Las Vegas, NV 89158	36.1001435	-115.1737034
Univeral Urethane	859	326150	4201 E Lone Mountain Rd	N Las Vegas, NV 89081	36.2465448	-115.0821657
Sunset Station	869	721120	1301 W Sunset Rd	Henderson, NV 89014	36.0608532	-115.0403885
Yesco	974	339950	5119 S Cameron St	Las Vegas, NV 89118	36.0963338	-115.2049362
West Rock	1055	323111	4545 W Diablo Dr	Las Vegas, NV 89118	36.0889439	-115.2020612
Republic Services Transfer Station	1087	562111	315 Cheyenne Ave	N Las Vegas, NV 89030	36.2160642	-115.1442032
Las Vegas Color Graphics	1149	323111	4265 W Sunset Rd	Las Vegas, NV 89118	36.0711707	-115.1974803
St Rose Dominican Siena	1500	622110	3001 E Saint Rose Pkwy	Henderson, NV 89052	36.0045852	-115.1151141
Green Valley Ranch Resort	1501	721120	2300 Paseo Verde Pkwy	Henderson, NV 89052	36.0205920	-115.0898770
Palms Casino Resort	1522	721120	4321 W Flamingo Rd	Las Vegas, NV 89103	36.1144968	-115.1958683
Boulder Station Hotel and Casino	1524	721120	4111 Boulder Hwy	Las Vegas, NV 89121	36.1343664	-115.0851222
Mountain View Hospital	1569	622110	3100 N Tenaya Way	Las Vegas, NV 89128	36.2159360	-115.2493291
Lasfuel McCarran Tank Farm	1589	424710	5757 Wayne Newton Blvd	Las Vegas, NV 89119	36.0907789	-115.1508745

Facility Name	Facility ID	NAICS	Street Address	City/State/Zip	Latitude	Longitude
Wynn Las Vegas	1624	721120	3131 S Las Vegas Blvd	Las Vegas, NV 89109	36.1269681	-115.1653040
North Las Vegas Airport	9596	481211	2730 Airport Dr	N Las Vegas, NV 89032	36.2104069	-115.1927231
Henderson Executive Airport	9603	481211	3500 Executive Terminal Dr	Henderson, NV 89052	35.9742559	-115.1355757
Brady Linen Services	10201	812331	1 W Mayflower Ave	N Las Vegas, NV 89030	36.2111509	-115.1383683
Republic Services (Sunrise)	15033	562212	7901 Vegas Valley Dr	Las Vegas, NV 89142	36.1388432	-115.0005553
CPP Acquisition	15193	323111	6330 W Sunset Rd	Las Vegas, NV 89118	36.0720519	-115.2299833
McCarran Rent a Car Center	15409	532111	7135 Gilespe St	Las Vegas, NV 89119	36.0600882	-115.1657481
Metl Span	15422	332311	4700 Engineers Way	N Las Vegas, NV 89031	36.2454951	-115.1028228
Artesian Spas	15426	326191	4720 N Lamb Blvd	Las Vegas, NV 89115	36.2460507	-115.0783385
Red Rock Casino Resort	15487	721120	11011 W Charleston Blvd	Las Vegas, NV 89135	36.1561096	-115.3334732
South Point Hotel and Casino	15515	721120	9777 S Las Vegas Blvd	Las Vegas, NV 89183	36.0116545	-115.1758584
World Market Center	15541	423210	495 S Grand Central Pkwy	Las Vegas, NV 89106	36.1688385	-115.1564349
CDW Logistics	15634	493190	3201 E Alexander Rd	N Las Vegas, NV 89030	36.2309595	-115.1053549
Manheim Nevada	15839	811121	6600 Auction Ln	N Las Vegas, NV 89165	36.2897214	-115.0158622
City of Henderson Downtown	15847	921190	240 S Water St	Henderson, NV 89015	36.0299253	-114.9827822
Centennial Hills Hospital	15873	622110	6900 N Durango Dr	Las Vegas, NV 89149	36.2863211	-115.2855028
Plasticard Locktech	15876	323111	1220 Trade Dr	N Las Vegas, NV 89030	36.2169149	-115.1584220
Veterans Administration	15970	622110	6900 N Pecos Rd	N Las Vegas, NV 89086	36.2854893	-115.0936827
2755 Las Vegas	15999	721120	2755 S Las Vegas Blvd	Las Vegas, NV 89109	36.1375108	-115.1591686
Cosmopolitan Las Vegas	16101	721120	3708 S Las Vegas Blvd	Las Vegas, NV 89109	36.1099027	-115.1752549
Biodiesel of Las Vegas	16118	325199	5233 E El Campo Grande Ave	N Las Vegas, NV 89115	36.2648410	-115.0596793
Ritchie Brothers	16172	425120	10500 Clark Petersen Blvd	Las Vegas, NV 89165	36.3140401	-114.9401783
Switch	16258	517919	4475 E Sahara Ave	Las Vegas, NV 89104	36.1432065	-115.0770722
Beltway Complex	16290	221122	7155 Lindell Rd	Las Vegas, NV 89118	36.0594900	-115.2187186



Facility Name	Facility ID	NAICS	Street Address	City/State/Zip	Latitude	Longitude
Erickson International	16295	326130	3135 Marco St	Las Vegas, NV 89115	36.2158567	-115.0684542
GE Transport	16300	336510	5406 E El Campo Grande Ave	Las Vegas, NV 89115	36.2678503	-115.0562654
Switch Communications	16304	517919	7135 S Decatur Blvd	Las Vegas, NV 89118	36.0598600	-115.2102727
Pro Terminal Operators	16376	424710	4985 N Sloan Ln	Las Vegas, NV 89115	36.2499846	-115.0468593
Treasure Island	16452	721120	3300 S Las Vegas Blvd	Las Vegas, NV 89109	36.1246590	-115.1734689
Clark County Downtown Campus	16665	922110	200 Lewis Ave	Las Vegas, NV 89101	36.1669616	-115.1458065
CTC Crushing	16673	212321	Wagon Wheel And US 95	Henderson, NV 89002	35.9794278	-114.9236265
Freeman	16684	561910	6555 W Sunset Rd	Las Vegas, NV 89118	36.0697121	-115.2363648
Terra Firma Organics	16706	325314	5355 Beesley Dr	Las Vegas, NV 89115	36.2576866	-115.0410470
Resorts World	16925	721120	3000 S Las Vegas Blvd	Las Vegas, NV 89109	36.1325583	-115.1712856
Preferred Laminations	17220	326130	4701 Cameron St	Las Vegas, NV 89103	36.1047968	-115.2054323
Viawest Lone Mountain Data Center	17272	518210	3330 E Lone Mountain Rd	N Las Vegas, NV 89081	36.2482035	-115.1013774
Blue Diamond Hill Gypsum	17286	212399	8360 N Highway 159	Blue Diamond, NV 89004	36.0739140	-115.3941736
Shelby American	17347	336390	6405 Ensworth St	Las Vegas, NV 89119	36.0718308	-115.1791330
NBC Fourth Realty	17439	493190	4100 E Lone Mountain Rd	N Las Vegas, NV 89081	36.2510536	-115.0822780
Wells Cargo Lone Mountain	17749	212321	9127 W Russell Rd	Las Vegas, NV 89148	36.2540748	-115.3448615
Progress Rail	17918	488210	860 Wigwam Pkwy	Henderson, NV 89014	36.0368577	-115.0201181

Table A-2. 2017 Actual NO<sub>x</sub> Emissions

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 NO <sub>x</sub> Emissions (tons/year)	2017 NO <sub>x</sub> Emissions (tons/day)	2017 NO <sub>x</sub> Summer Emissions (tons/day)
Certain Teed Gypsum	4	4-E11	25	7.45	0.0204	0.0204
Certain Teed Gypsum	4	4-G1	25	1.87	0.0051	0.0051
Certain Teed Gypsum	4	4-J3	25	11.53	0.0316	0.0316
Certain Teed Gypsum	4	4-L4	25	1.67	0.0046	0.0046
Certain Teed Gypsum	4	B8	25	0.03	0.0001	0.0001
NV Energy (Clark Station)	7	4	27	8.70	0.0238	0.0257
NV Energy (Clark Station)	7	5	27	10.20	0.0279	0.0302
NV Energy (Clark Station)	7	6	27	10.40	0.0285	0.0308
NV Energy (Clark Station)	7	7	27	7.90	0.0216	0.0234
NV Energy (Clark Station)	7	8	27	11.20	0.0307	0.0331
NV Energy (Clark Station)	7	21	27	0.01	0.0000	0.0000
NV Energy (Clark Station)	7	22	27	0.01	0.0000	0.0000
NV Energy (Clark Station)	7	27	27	2.95	0.0081	0.0087
NV Energy (Clark Station)	7	28	27	4.68	0.0128	0.0138
NV Energy (Clark Station)	7	29	27	3.24	0.0089	0.0096
NV Energy (Clark Station)	7	30	27	5.33	0.0146	0.0158
NV Energy (Clark Station)	7	31	27	3.39	0.0093	0.0100
NV Energy (Clark Station)	7	32	27	3.70	0.0101	0.0109
NV Energy (Clark Station)	7	33	27	3.22	0.0088	0.0095
NV Energy (Clark Station)	7	34	27	4.25	0.0116	0.0126
NV Energy (Clark Station)	7	35	27	3.13	0.0086	0.0093
NV Energy (Clark Station)	7	36	27	4.19	0.0115	0.0124
NV Energy (Clark Station)	7	37	27	3.08	0.0084	0.0091
NV Energy (Clark Station)	7	38	27	3.25	0.0089	0.0096
NV Energy (Clark Station)	7	45	27	0.01	0.0000	0.0000
NV Energy (Clark Station)	7	46	27	0.01	0.0000	0.0000
Olin Chlor Alkali Products	9	1	25	0.86	0.0024	0.0024
Wells Cargo	12	1	25	7.12	0.0195	0.0195
Wells Cargo	12	2	25	0.62	0.0017	0.0017
Kinder Morgan	13	B10	25	0.03	0.0001	0.0001
Kinder Morgan	13	D02	25	0.07	0.0002	0.0002
Kinder Morgan	13	SR04	25	0.23	0.0006	0.0006
Titanium Metals Corp.	19	A01	25	12.41	0.0340	0.0340
Titanium Metals Corp.	19	B06	25	8.33	0.0228	0.0228
Titanium Metals Corp.	19	B09	25	1.31	0.0036	0.0036

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 NO <sub>x</sub> Emissions (tons/year)	2017 NO <sub>x</sub> Emissions (tons/day)	2017 NO <sub>x</sub> Summer Emissions (tons/day)
Titanium Metals Corp.	19	B10	25	0.10	0.0003	0.0003
Titanium Metals Corp.	19	C05	25	1.07	0.0029	0.0029
Titanium Metals Corp.	19	E03	25	0.01	0.0000	0.0000
Northwind Alladin	26	1	25	2.07	0.0057	0.0057
Circus Circus Hotel and Casino	47	1	25	4.52	0.0124	0.0124
CCWRD Flamingo Center	54	1	25	7.53	0.0206	0.0206
BKEP Materials	67	1	25	0.45	0.0012	0.0012
Las Vegas Paving - Blue Diamond	70	B12	25	2.98	0.0082	0.0082
Golden Nugget Hotel and Casino	81	1	25	0.89	0.0024	0.0024
Horseshoe Club	85	1	25	17.45	0.0478	0.0478
Tronox	95	A01	25	0.04	0.0001	0.0001
Tronox	95	A02	25	0.10	0.0003	0.0003
Tronox	95	A03	25	0.10	0.0003	0.0003
Tronox	95	A04	25	0.37	0.0010	0.0010
Tronox	95	A05	25	5.14	0.0141	0.0141
Tronox	95	A07	25	0.70	0.0019	0.0019
Tronox	95	A10	25	6.07	0.0166	0.0166
Tronox	95	A15	25	1.20	0.0033	0.0033
Westgate Las Vegas	101	All	25	3.37	0.0092	0.0092
Las Vegas Paving - 5th Street	104	All	25	5.80	0.0159	0.0159
Las Vegas Paving - Lone Mountain	105	All	25	50.95	0.1396	0.1396
McCarran International Airport	108	All	25	8.01	0.0219	0.0219
Nellis AFB	114	All	25	19.81	0.0543	0.0543
SLS Las Vegas	133	1	25	3.42	0.0094	0.0094
University Medical Center	142	All	25	4.03	0.0110	0.0110
Las Vegas Paving	186	All	25	1.86	0.0051	0.0051
Caesars Consolidated	257	1	25	19.90	0.0545	0.0545
Mirage/Treasure Island	282	1	25	7.81	0.0214	0.0214
Brady Linen Services	322	1	25	26.74	0.0733	0.0733
Catalina Plastic and Coating	323	1	25	2.34	0.0064	0.0064
Las Vegas Cogeneration	329	1	51	5.33	0.0146	0.0298
Las Vegas Cogeneration	329	3	51	2.00	0.0055	0.0112
Las Vegas Cogeneration	329	4	51	2.75	0.0075	0.0154
Las Vegas Cogeneration	329	5	51	2.72	0.0075	0.0152
Las Vegas Cogeneration	329	6	51	2.86	0.0078	0.0160
Las Vegas Cogeneration	329	10	51	0.04	0.0001	0.0002

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 NO <sub>x</sub> Emissions (tons/year)	2017 NO <sub>x</sub> Emissions (tons/day)	2017 NO <sub>x</sub> Summer Emissions (tons/day)
Las Vegas Cogeneration	329	11	51	0.08	0.0002	0.0004
Boral Roofing	346	All	25	0.29	0.0008	0.0008
Aggregate Industries	372	1	25	4.01	0.0110	0.0110
Aggregate Industries	372	2	25	0.23	0.0006	0.0006
Aggregate Industries	372	3	25	0.23	0.0006	0.0006
Aggregate Industries	372	5	25	0.01	0.0000	0.0000
Aggregate Industries	372	6	25	2.80	0.0077	0.0077
Aggregate Industries	372	9	25	0.38	0.0010	0.0010
Aggregate Industries	372	10	25	0.51	0.0014	0.0014
Saguaro Power Company	393	1	27	51.92	0.1423	0.1536
Saguaro Power Company	393	2	27	49.45	0.1355	0.1463
Saguaro Power Company	393	3	27	0.06	0.0002	0.0002
Saguaro Power Company	393	4	27	0.08	0.0002	0.0002
Saguaro Power Company	393	5	27	0.36	0.0010	0.0011
Saguaro Power Company	393	6	27	0.92	0.0025	0.0027
City of Las Vegas WPCF	402	2	25	1.01	0.0028	0.0028
City of Las Vegas WPCF	402	3	25	0.10	0.0003	0.0003
City of Las Vegas WPCF	402	5	25	5.74	0.0157	0.0157
City of Las Vegas WPCF	402	6	25	13.05	0.0358	0.0358
City of Las Vegas WPCF	402	7	25	3.91	0.0107	0.0107
Nikkiso Cryo	404	1	25	8.90	0.0244	0.0244
Nevada Sun Peak Partnerships	423	1	37	6.73	0.0184	0.0273
Nevada Sun Peak Partnerships	423	2	37	5.10	0.0140	0.0207
Nevada Sun Peak Partnerships	423	3	37	4.06	0.0111	0.0165
Hard Rock Hotel and Casino	510	1	25	1.48	0.0041	0.0041
Texas Station Casino	531	1	25	3.26	0.0089	0.0089
Citibank The Lakes	546	1	25	0.28	0.0008	0.0008
Rio All Suites Hotel and Casino	555	1	25	24.41	0.0669	0.0669
Kurt Segler Water Reclamation	558	1	25	7.70	0.0211	0.0211
Stratosphere Hotel and Casino	564	1	25	6.84	0.0187	0.0187
Aggregate Industries - Gowan	587	All	25	6.26	0.0172	0.0172
Las Vegas Review Journal	588	All	25	1.35	0.0037	0.0037
Berry Plastics Corporation	597	All	25	0.09	0.0002	0.0002
Palace Station Hotel and Casino	605	1	25	9.38	0.0257	0.0257
Gold Coast Hotel and Casino	606	1	25	2.33	0.0064	0.0064
Sams Town Hotel and Casino	616	1	25	4.98	0.0136	0.0136

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 NO <sub>x</sub> Emissions (tons/year)	2017 NO <sub>x</sub> Emissions (tons/day)	2017 NO <sub>x</sub> Summer Emissions (tons/day)
Santa Fe Station	621	1	25	4.67	0.0128	0.0128
University of Nevada, Las Vegas	634	All	25	7.57	0.0207	0.0207
Orleans Hotel and Casino	641	1	25	8.03	0.0220	0.0220
Venetian Hotel and Casino	697	1	25	17.84	0.0489	0.0489
Verizon Business	726	All	25	0.96	0.0026	0.0026
Nevada Color Litho	754	All	25	0.00	0.0000	0.0000
JW Marriott Las Vegas	755	1	25	2.53	0.0069	0.0069
Suncoast Hotel and Casino	775	1	25	2.64	0.0072	0.0072
Viawest	777	All	25	1.11	0.0030	0.0030
Cancun Resort	788	1	25	3.32	0.0091	0.0091
Clearwater Paper	807	All	25	37.65	0.1032	0.1032
MGM Grand/New York New York	825	1	25	65.07	0.1783	0.1783
Univeral Urethane	859	All	25	0.00	0.0000	0.0000
Sunset Station	869	1	25	2.51	0.0069	0.0069
Yesco	974	All	25	0.00	0.0000	0.0000
West Rock	1055	All	25	0.00	0.0000	0.0000
Republic Services Transfer Station	1087	All	25	0.29	0.0008	0.0008
Las Vegas Color Graphics	1149	All	25	0.00	0.0000	0.0000
St Rose Dominican Siena	1500	All	25	7.24	0.0198	0.0198
Green Valley Ranch Resort	1501	1	25	1.87	0.0051	0.0051
Palms Casino Resort	1522	1	25	3.32	0.0091	0.0091
Boulder Station Hotel and Casino	1524	1	25	2.74	0.0075	0.0075
Mountain View Hospital	1569	All	25	2.09	0.0057	0.0057
Lasfuel McCarran Tank Farm	1589	All	25	0.85	0.0023	0.0023
Wynn Las Vegas	1624	All	25	9.86	0.0270	0.0270
North Las Vegas Airport	9596	All	25	0.06	0.0002	0.0002
Henderson Executive Airport	9603	All	25	0.10	0.0003	0.0003
Brady Linen Services	10201	All	25	23.96	0.0656	0.0656
Republic Services (Sunrise)	15033	1	25	4.68	0.0128	0.0128
CPP Acquisition	15193	All	25	12.87	0.0353	0.0353
McCarran Rent a Car Center	15409	All	25	0.13	0.0004	0.0004
Metl Span	15422	All	25	0.00	0.0000	0.0000
Artesian Spas	15426	All	25	0.10	0.0003	0.0003
Red Rock Casino Resort	15487	1	25	5.63	0.0154	0.0154
South Point Hotel and Casino	15515	1	25	3.84	0.0105	0.0105
World Market Center	15541	All	25	2.66	0.0073	0.0073

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 NO <sub>x</sub> Emissions (tons/year)	2017 NO <sub>x</sub> Emissions (tons/day)	2017 NO <sub>x</sub> Summer Emissions (tons/day)
CDW Logistics	15634	All	25	0.52	0.0014	0.0014
Manheim Nevada	15839	All	25	5.01	0.0137	0.0137
City of Henderson Downtown	15847	All	25	1.99	0.0055	0.0055
Centennial Hills Hospital	15873	All	25	2.80	0.0077	0.0077
Plasticard Locktech	15876	All	25	0.91	0.0025	0.0025
Veterans Administration	15970	All	25	4.88	0.0134	0.0134
2755 Las Vegas	15999	All	25	0.71	0.0019	0.0019
Cosmopolitan Las Vegas	16101	1	25	2.64	0.0072	0.0072
Biodiesel of Las Vegas	16118	All	25	0.02	0.0001	0.0001
Ritchie Brothers	16172	All	25	0.03	0.0001	0.0001
Switch	16258	All	25	1.83	0.0050	0.0050
Beltway Complex	16290	All	25	1.05	0.0029	0.0029
Erickson International	16295	All	25	0.10	0.0003	0.0003
GE Transport	16300	All	25	0.00	0.0000	0.0000
Switch Communications	16304	All	25	33.23	0.0910	0.0910
Pro Terminal Operators	16376	All	25	0.07	0.0002	0.0002
Treasure Island	16452	1	25	4.66	0.0128	0.0128
Clark County Downtown Campus	16665	All	25	6.65	0.0182	0.0182
CTC Crushing	16673	All	25	11.35	0.0311	0.0311
Freeman	16684	All	25	0.11	0.0003	0.0003
Terra Firma Organics	16706	All	25	3.34	0.0092	0.0092
Preferred Laminations	17220	All	25	0.00	0.0000	0.0000
Viawest Lone Mountain Data Center	17272	All	25	0.40	0.0011	0.0011
Blue Diamond Hill Gypsum	17286	All	25	74.18	0.2032	0.2032
Shelby American	17347	All	25	0.18	0.0005	0.0005
NBC Fourth Realty	17439	All	25	5.92	0.0162	0.0162
Wells Cargo Lone Mountain	17749	All	25	39.53	0.1083	0.1083
Progress Rail	17918	All	25	0.00	0.0000	0.0000
<b>TOTAL</b>				<b>1033.50</b>	<b>2.83</b>	<b>2.94</b>

Table A-3. 2017 Actual VOC Emissions

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 VOC Emissions (tons/year)	2017 VOC Emissions (tons/day)	2017 VOC Summer Emissions (tons/day)
Certain Teed Gypsum	4	4-E11	25	0.290	0.0008	0.0008
Certain Teed Gypsum	4	4-F1	25	0.310	0.0008	0.0008
Certain Teed Gypsum	4	4-G1	25	0.100	0.0003	0.0003
Certain Teed Gypsum	4	4-J3	25	0.700	0.0019	0.0019
Certain Teed Gypsum	4	4-L4	25	0.190	0.0005	0.0005
Certain Teed Gypsum	4	B8	25	0.010	0.0000	0.0000
NV Energy (Clark Station)	7	4	27	0.520	0.0014	0.0015
NV Energy (Clark Station)	7	5	27	2.290	0.0063	0.0068
NV Energy (Clark Station)	7	6	27	2.530	0.0069	0.0075
NV Energy (Clark Station)	7	7	27	1.830	0.0050	0.0054
NV Energy (Clark Station)	7	8	27	2.440	0.0067	0.0072
NV Energy (Clark Station)	7	21	27	0.010	0.0000	0.0000
NV Energy (Clark Station)	7	27	27	0.260	0.0007	0.0008
NV Energy (Clark Station)	7	28	27	0.440	0.0012	0.0013
NV Energy (Clark Station)	7	29	27	0.340	0.0009	0.0010
NV Energy (Clark Station)	7	30	27	0.540	0.0015	0.0016
NV Energy (Clark Station)	7	31	27	0.390	0.0011	0.0012
NV Energy (Clark Station)	7	32	27	0.440	0.0012	0.0013
NV Energy (Clark Station)	7	33	27	0.330	0.0009	0.0010
NV Energy (Clark Station)	7	34	27	0.470	0.0013	0.0014
NV Energy (Clark Station)	7	35	27	0.300	0.0008	0.0009
NV Energy (Clark Station)	7	36	27	0.360	0.0010	0.0011
NV Energy (Clark Station)	7	37	27	0.320	0.0009	0.0009
NV Energy (Clark Station)	7	38	27	0.300	0.0008	0.0009
NV Energy (Clark Station)	7	45	27	0.010	0.0000	0.0000
Olin Chlor Alkali Products	9	1	25	0.290	0.0008	0.0008
Wells Cargo	12	1	25	8.760	0.0240	0.0240
Wells Cargo	12	2	25	0.030	0.0001	0.0001
Wells Cargo	12	3	25	5.360	0.0147	0.0147
Kinder Morgan	13	B10	25	0.028	0.0001	0.0001
Kinder Morgan	13	D02	25	0.005	0.0000	0.0000
Kinder Morgan	13	SR04	25	59.300	0.1625	0.1625
Titanium Metals Corp.	19	A01	25	2.141	0.0059	0.0059
Titanium Metals Corp.	19	B06	25	0.170	0.0005	0.0005
Titanium Metals Corp.	19	C05	25	0.059	0.0002	0.0002

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 VOC Emissions (tons/year)	2017 VOC Emissions (tons/day)	2017 VOC Summer Emissions (tons/day)
Northwind Alladin	26	1	25	0.210	0.0006	0.0006
Circus Circus Hotel and Casino	47	1	25	0.610	0.0017	0.0017
CCWRD Flamingo Center	54	1	25	3.390	0.0093	0.0093
BKEP Materials	67	1	25	0.720	0.0020	0.0020
Las Vegas Paving - Blue Diamond	70	B12	25	4.970	0.0136	0.0136
Golden Nugget Hotel and Casino	81	1	25	0.150	0.0004	0.0004
Horseshoe Club	85	1	25	0.960	0.0026	0.0026
Tronox	95	A01	25	0.001	0.0000	0.0000
Tronox	95	A02	25	0.010	0.0000	0.0000
Tronox	95	A03	25	0.010	0.0000	0.0000
Tronox	95	A04	25	0.030	0.0001	0.0001
Tronox	95	A05	25	0.930	0.0025	0.0025
Tronox	95	A07	25	0.040	0.0001	0.0001
Tronox	95	A10	25	0.330	0.0009	0.0009
Tronox	95	A15	25	0.070	0.0002	0.0002
Westgate Las Vegas	101	All	25	0.590	0.0016	0.0016
Las Vegas Paving - 5th Street	104	All	25	8.700	0.0238	0.0238
Las Vegas Paving - Lone Mountain	105	All	25	5.110	0.0140	0.0140
McCarran International Airport	108	All	25	1.310	0.0036	0.0036
Nellis AFB	114	All	25	14.280	0.0391	0.0391
SLS Las Vegas	133	1	25	0.300	0.0008	0.0008
University Medical Center	142	All	25	0.490	0.0013	0.0013
Las Vegas Paving	186	All	25	2.370	0.0065	0.0065
Caesars Consolidated	257	1	25	2.000	0.0055	0.0055
Mirage/Treasure Island	282	1	25	1.010	0.0028	0.0028
Brady Linen Services	322	1	25	1.480	0.0041	0.0041
Catalina Plastic and Coating	323	1	25	11.130	0.0305	0.0305
Las Vegas Cogeneration	329	1	51	0.680	0.0019	0.0038
Las Vegas Cogeneration	329	3	51	0.980	0.0027	0.0055
Las Vegas Cogeneration	329	4	51	1.410	0.0039	0.0079
Las Vegas Cogeneration	329	5	51	1.340	0.0037	0.0075
Las Vegas Cogeneration	329	6	51	1.350	0.0037	0.0075
Las Vegas Cogeneration	329	10	51	0.010	0.0000	0.0001
Las Vegas Cogeneration	329	11	51	0.020	0.0001	0.0001
Boral Roofing	346	All	25	2.870	0.0079	0.0079
Aggregate Industries	372	1	25	3.290	0.0090	0.0090



Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 VOC Emissions (tons/year)	2017 VOC Emissions (tons/day)	2017 VOC Summer Emissions (tons/day)
Aggregate Industries	372	2	25	0.015	0.0000	0.0000
Aggregate Industries	372	3	25	0.015	0.0000	0.0000
Aggregate Industries	372	4	25	0.000	0.0000	0.0000
Aggregate Industries	372	5	25	0.010	0.0000	0.0000
Aggregate Industries	372	10	25	0.120	0.0003	0.0003
Aggregate Industries	372	13	25	0.030	0.0001	0.0001
Saguaro Power Company	393	1	27	3.875	0.0106	0.0115
Saguaro Power Company	393	2	27	3.881	0.0106	0.0115
Saguaro Power Company	393	3	27	0.005	0.0000	0.0000
Saguaro Power Company	393	4	27	0.006	0.0000	0.0000
Saguaro Power Company	393	5	27	0.276	0.0008	0.0008
Saguaro Power Company	393	6	27	0.137	0.0004	0.0004
Saguaro Power Company	393	7	27	0.050	0.0001	0.0001
City of Las Vegas WPCF	402	2	25	0.070	0.0002	0.0002
City of Las Vegas WPCF	402	3	25	0.010	0.0000	0.0000
City of Las Vegas WPCF	402	5	25	0.340	0.0009	0.0009
City of Las Vegas WPCF	402	6	25	3.640	0.0100	0.0100
City of Las Vegas WPCF	402	7	25	0.210	0.0006	0.0006
City of Las Vegas WPCF	402	8	25	0.110	0.0003	0.0003
Nikkiso Cryo	404	1	25	0.390	0.0011	0.0011
Nevada Sun Peak Partnerships	423	1	37	0.110	0.0003	0.0004
Nevada Sun Peak Partnerships	423	2	37	0.080	0.0002	0.0003
Nevada Sun Peak Partnerships	423	3	37	0.060	0.0002	0.0002
Hard Rock Hotel and Casino	510	1	25	0.250	0.0007	0.0007
Texas Station Casino	531	1	25	0.420	0.0012	0.0012
Citibank The Lakes	546	1	25	0.010	0.0000	0.0000
Rio All Suites Hotel and Casino	555	1	25	1.630	0.0045	0.0045
Kurt Segler Water Reclamation	558	1	25	1.140	0.0031	0.0031
Stratosphere Hotel and Casino	564	1	25	0.500	0.0014	0.0014
Aggregate Industries - Gowan	587	All	25	7.430	0.0204	0.0204
Las Vegas Review Journal	588	All	25	8.090	0.0222	0.0222
Berry Plastics Corporation	597	All	25	5.640	0.0155	0.0155
Palace Station Hotel and Casino	605	1	25	0.510	0.0014	0.0014
Gold Coast Hotel and Casino	606	1	25	0.330	0.0009	0.0009
Sams Town Hotel and Casino	616	1	25	0.240	0.0007	0.0007
Santa Fe Station	621	1	25	0.680	0.0019	0.0019

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 VOC Emissions (tons/year)	2017 VOC Emissions (tons/day)	2017 VOC Summer Emissions (tons/day)
University of Nevada, Las Vegas	634	All	25	0.800	0.0022	0.0022
Orleans Hotel and Casino	641	1	25	0.510	0.0014	0.0014
Venetian Hotel and Casino	697	1	25	3.290	0.0090	0.0090
Verizon Business	726	All	25	0.020	0.0001	0.0001
Nevada Color Litho	754	All	25	18.860	0.0517	0.0517
JW Marriott Las Vegas	755	1	25	0.360	0.0010	0.0010
Suncoast Hotel and Casino	775	1	25	0.260	0.0007	0.0007
Viawest	777	All	25	0.030	0.0001	0.0001
Cancun Resort	788	1	25	0.180	0.0005	0.0005
Clearwater Paper	807	All	25	22.070	0.0605	0.0605
MGM Grand/New York New York	825	1	25	10.600	0.0290	0.0290
Univeral Urethane	859	All	25	22.250	0.0610	0.0610
Sunset Station	869	1	25	0.340	0.0009	0.0009
Yesco	974	All	25	4.820	0.0132	0.0132
West Rock	1055	All	25	10.860	0.0298	0.0298
Republic Services Transfer Station	1087	All	25	5.660	0.0155	0.0155
Las Vegas Color Graphics	1149	All	25	7.300	0.0200	0.0200
St Rose Dominican Siena	1500	All	25	0.790	0.0022	0.0022
Green Valley Ranch Resort	1501	1	25	0.230	0.0006	0.0006
Palms Casino Resort	1522	1	25	0.400	0.0011	0.0011
Boulder Station Hotel and Casino	1524	1	25	0.180	0.0005	0.0005
Mountain View Hospital	1569	All	25	0.250	0.0007	0.0007
Lasfuel McCarran Tank Farm	1589	All	25	14.810	0.0406	0.0406
Wynn Las Vegas	1624	All	25	1.820	0.0050	0.0050
North Las Vegas Airport	9596	All	25	1.400	0.0038	0.0038
Henderson Executive Airport	9603	All	25	0.860	0.0024	0.0024
Brady Linen Services	10201	All	25	3.630	0.0099	0.0099
Republic Services (Sunrise)	15033	1	25	1.190	0.0033	0.0033
CPP Acquisition	15193	All	25	21.160	0.0580	0.0580
McCarran Rent a Car Center	15409	All	25	8.400	0.0230	0.0230
Metl Span	15422	All	25	4.900	0.0134	0.0134
Artesian Spas	15426	All	25	6.970	0.0191	0.0191
Red Rock Casino Resort	15487	1	25	0.520	0.0014	0.0014
South Point Hotel and Casino	15515	1	25	0.560	0.0015	0.0015
World Market Center	15541	All	25	0.080	0.0002	0.0002
CDW Logistics	15634	All	25	0.040	0.0001	0.0001

Facility Name	Facility ID	Emission Unit ID	Summer Proportion (%)	2017 VOC Emissions (tons/year)	2017 VOC Emissions (tons/day)	2017 VOC Summer Emissions (tons/day)
Manheim Nevada	15839	All	25	5.720	0.0157	0.0157
City of Henderson Downtown	15847	All	25	0.260	0.0007	0.0007
Centennial Hills Hospital	15873	All	25	0.340	0.0009	0.0009
Plasticard Locktech	15876	All	25	10.740	0.0294	0.0294
Veterans Administration	15970	All	25	0.870	0.0024	0.0024
2755 Las Vegas	15999	All	25	0.030	0.0001	0.0001
Cosmopolitan Las Vegas	16101	1	25	0.910	0.0025	0.0025
Biodiesel of Las Vegas	16118	All	25	0.040	0.0001	0.0001
Ritchie Brothers	16172	All	25	0.960	0.0026	0.0026
Switch	16258	All	25	0.130	0.0004	0.0004
Beltway Complex	16290	All	25	0.330	0.0009	0.0009
Erickson International	16295	All	25	2.010	0.0055	0.0055
GE Transport	16300	All	25	1.040	0.0028	0.0028
Switch Communications	16304	All	25	0.510	0.0014	0.0014
Pro Terminal Operators	16376	All	25	27.570	0.0755	0.0755
Treasure Island	16452	1	25	0.920	0.0025	0.0025
Clark County Downtown Campus	16665	All	25	0.820	0.0022	0.0022
CTC Crushing	16673	All	25	0.610	0.0017	0.0017
Freeman	16684	All	25	0.670	0.0018	0.0018
Terra Firma Organics	16706	All	25	0.160	0.0004	0.0004
Resorts World	16925	1	25	0.000	0.0000	0.0000
Preferred Laminations	17220	All	25	4.410	0.0121	0.0121
Viawest Lone Mountain Data Center	17272	All	25	0.030	0.0001	0.0001
Blue Diamond Hill Gypsum	17286	All	25	4.280	0.0117	0.0117
Shelby American	17347	All	25	1.670	0.0046	0.0046
NBC Fourth Realty	17439	All	25	0.160	0.0004	0.0004
Wells Cargo Lone Mountain	17749	All	25	0.170	0.0005	0.0005
Progress Rail	17918	All	25	0.000	0.0000	0.0000
				<b>447.08</b>	<b>1.22</b>	<b>1.25</b>