2015 Ozone NAAQS Attainment Plan for the Las Vegas Valley Serious Nonattainment Area

Department of Environment and Sustainability
Clark County, Nevada

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EXECUTIVE SUMMARY

The Clark County Department of Environment and Sustainability, Division of Air Quality (DAQ) hereby submits this *2015 Ozone NAAQS Attainment Plan for the Las Vegas Valley Serious Nonattainment Area* to the U.S. Environmental Protection Agency (EPA) to fulfill its State Implementation Plan (SIP) requirements for the 2015 8-hour ozone National Ambient Air Quality Standard (NAAQS) applicable to Hydrographic Area (HA) 212. The projected 2026 ozone design values (DVs) with atypical days removed indicate that all monitoring sites will attain the standard. This attainment plan demonstrates that the modeled ozone design value for HA 212 will meet the ozone standard by the attainment date.

Over the past several decades, Clark County has experienced steady and measurable improvements in overall air quality; however, the region faces several unique and persistent challenges. Wildfire-driven exceptional events, which have increased in frequency and scale across the western United States, periodically contribute to short-term spikes in ozone levels that are outside local control. The Las Vegas Valley is also affected at times by international transport of ozone and its precursors, particularly during periods when global atmospheric circulation patterns bring elevated background concentrations into the southwestern U.S. Clark County is also influenced by pollution transported from neighboring states, where upwind emissions can add to regional background concentrations and complicate local attainment efforts. Despite these external pressures, DAQ has maintained a strong record of air quality management through data-driven planning, a robust monitoring network, and the implementation of effective emission control strategies. Through these efforts, the region continues long-term progress toward cleaner air while navigating challenges that extend beyond local emission sources.

This SIP contains all required attainment plan elements, including a comprehensive emissions inventory; an attainment modeling demonstration; and analyses addressing Reasonably Available Control Technology (RACT), Reasonably Available Control Measures, and Reasonable Further Progress. This attainment plan uses the most recently adopted planning variables (e.g., vehicle miles traveled projections and population forecasts) approved by the designated Metropolitan Planning Organization for the Las Vegas urban area, the Regional Transportation Commission of Southern Nevada. It also establishes a motor vehicle emissions budget the commission will use for future transportation conformity determinations in regional transportation plans.

As part of this attainment plan submission, DAQ certifies that certain existing Clark County Air Quality Regulations meet RACT requirements, enhanced Inspection and Maintenance Program requirements, and Nonattainment Major New Source Review SIP requirements, and submits new regulations to meet RACT, Reasonable Further Progress, and contingency measure requirements.

The included contingency plan also sets forth a control measure that applies if EPA finds that HA 212 did not reach attainment by the attainment date of August 3, 2027. After EPA approval, the attainment plan and Clark County Air Quality Regulations in this submission will become federally enforceable by EPA.

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ACRONYMS AND ABBREVIATIONS

Acronyms

Act, the Act	Clean Air Act
AEDT	Aviation Environmental Design Tool
AIM	architectural and industrial maintenance
AQR	Clark County Air Quality Regulation
AVFT	Alternative Vehicle and Fuel Technologies
BACT	best available control technology
BCC	Clark County Board of County Commissioners
BEIS	Biogenic Emission Inventory System
BELD	Biogenic Emissions Landuse Database
CAMx	Comprehensive Air quality Model with Extensions
CARB	California Air Resources Board
CFFP	Clean Fuel Fleets Program
CFR Part	Code of Federal Regulations
CGS	Clark Generating Station
CI	compression ignition
CMAQ	Community Multiscale Air Quality
CO	carbon monoxide
CTG	Control Techniques Guidelines
DAQ	Division of Air Quality
DAQEM	Clark County Department of Air Quality and Environmental Management
DES	Clark County Department of Environment and Sustainability
DLNC	dry-low NO_x combustors
DMV	Department of Motor Vehicles (Nevada)
DOA	Department of Aviation (Clark County)
DV	design value
DVBs	base year design values
DVFs	future year design values
ECS	Emissions Control System
EI	emissions inventory
EMP	Emissions Modeling Platform
EPA	U.S. Environmental Protection Agency
ERCs	Emissions Reduction Credits
EU	emission unit
EVR	Enhanced Vapor Recovery
FR	*Federal Register*
GCP	good combustion practices
GDF	gasoline dispensing facility
GHG	greenhouse gas
GMP	good maintenance practices
GVWR	gross vehicle weight rating
HA	hydrographic area
HAP	hazardous air pollutant
LVGS	Las Vegas Generating Station

LVT	Las Vegas Terminal
LVV	Las Vegas Valley
MGMRI	MGM Resorts International
MOVES	Motor Vehicle Emission Simulator
MP	modeling platform
MVEB	motor vehicle emissions budget
NAAQS	National Ambient Air Quality Standard
NAC	Nevada Administrative Code
NAFB	Nellis Air Force Base
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NEI	National Emissions Inventory
NNSR	Nonattainment New Source Review
NO_x	nitrogen oxides
NRS	Nevada Revised Statutes
NSR	New Source Review
O_2	oxygen
OBD	Onboard Diagnostic (System)
OP	Operating Permit
OTC	Ozone Transport Commission
OYW	one year's worth
PAL	plantwide applicability limit
PAMS	Photochemical Assessment Monitoring Station
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns (coarse)
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns (fine)
PSM	Performance Standard Modeling
PTE	potential to emit
QAPP	Quality Assurance Project Plan
RACM	Reasonably Available Control Measure(s)
RACT	Reasonable Available Control Technology
RFP	Reasonable Further Progress
RICE	reciprocating internal combustion engines
ROP	Rate of Progress
RTC	Regional Transportation Commission of Southern Nevada
RTP	Regional Transportation Plan
SCR	selective catalytic reduction
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SMOKE	Sparse Matrix Operator Kernel Emissions
SO_2	sulfur dioxide
SPC	Saguaro Power Company
SPGS	Sun Peak Generating Station
SPMs	special-purpose monitors
SSM	startup, shutdown, and malfunction
TCM	transportation control measure(s)
TIP	Transportation Improvement Program

tpd	temperature programmed desorption
tpd	tons per day
tpy	ton per year
TSD	Technical Support Document
U.S.C.	United States Code
VCP	volatile chemical product
VCPy	Volatile Chemical Products Framework
VMT	vehicle miles traveled
VOC	volatile organic compound(s)
WOE	weight of evidence
WRF	Weather Research and Forecasting (model)

Abbreviations

g	gram
gal	gallon
kg	kilogram
l	liter
lb	pound
hp	horsepower
ppb	parts per billion
ppm	parts per million
ppmv	parts per million by volume
ppmvd	parts per million by volume, dry

1.0 INTRODUCTION

1.1 ATTAINMENT PLAN OVERVIEW

Section 110 of the Clean Air Act (Act) (42 U.S.C. 7401 et seq.) requires states to develop and submit State Implementation Plans (SIPs) to the U.S. Environmental Protection Agency (EPA) that demonstrate how they will attain, maintain, and enforce National Ambient Air Quality Standards (NAAQS). Title 40, Part 51 of the Code of Federal Regulations (40 CFR Part 51) requires each state to submit SIPs to carry out air pollution control measures required by the Act, including the development of maintenance and attainment plans for areas previously designated as being in nonattainment with a national standard.

Chapter 445B.500 of the Nevada Revised Statutes (NRS) requires that the board of county commissioners of each county with a population of 100,000 or more establish and implement an air pollution control program. In June 2001, the governor designated the Clark County Board of County Commissioners (BCC) as the air pollution control agency for Clark County and delegated to it state responsibilities for meeting Clean Air Act requirements, including the development and submittal of SIPs. The BCC formally accepted this designation in July 2001 and delegated air quality responsibilities to the newly formed Department of Air Quality Management, approved by EPA in 40 CFR Part 52.1470, Subpart DD. Between 2004 and 2019, the department was renamed the Department of Air Quality and Environmental Management (DAQEM) and then as the Department of Air Quality.

Clark County officials responsible for administering the air pollution control program are subject to state and local ethical and conflict-of-interest requirements that ensure compliance with Section 128 of the Act. Chapter 2.42 of the Clark County Code, "Ethical Standards," establishes conflict-of-interest provisions applicable to Clark County public officers and officials—including members of the BCC and the Control Officer—and prohibits participation in governmental decisions in which an official has a financial interest. County commissioners are also subject to the Nevada Ethics in Government Law, which defines public officers and employees (NRS 281A.150; NRS 281A.160) and establishes standards governing ethical conduct, including restrictions on representing private parties before public agencies (NRS 281A.410) and requirements for both disclosure of potential conflicts of interest and abstention from voting where appropriate (NRS 281A.420). These state and local provisions ensure that individuals responsible for carrying out Clark County's air quality program perform their duties with independence and avoid conflicts between their public responsibilities and private interests, consistent with the requirements of Sections 110(a)(2)(E)(ii) and 128 of the Act.

In 2020, the Department of Air Quality became the Department of Environment and Sustainability (DES), consisting of three divisions. The Division of Air Quality (DAQ) is now responsible for administering the air pollution control program for Clark County under the provisions of the Clark County Air Quality Regulations (AQRs), as adopted in 40 CFR Part 52, Subpart DD.

The mission of DAQ is to develop and implement high-quality, effective local programs to fulfill air quality regulatory requirements and address community concerns, thereby protecting the region's quality of life while facilitating orderly growth. In accordance with this mission, DAQ

prepared this attainment plan for Hydrographic Area (HA) 212, the serious nonattainment area for the 2015 8-hour ozone NAAQS.

This introduction provides an overview of ozone health effects, the history of ozone nonattainment in Clark County, attainment plan requirements, and the attainment plan development process.

1.2 CHARACTERISTICS AND HEALTH EFFECTS OF OZONE

Ozone is a gas composed of three oxygen atoms that is found both in the upper atmosphere (stratosphere) and at ground level (troposphere). Ozone in the stratosphere, which extends upward from 6 to 30 miles above ground level, occurs naturally, and protects life from harmful ultraviolet rays. Ozone in the troposphere, however, poses a significant health risk, especially for children, the elderly, and people with chronic illnesses. It may also damage crops, trees, and other vegetation.

Ground-level ozone is not emitted directly into the air, but created by complex chemical reactions between nitrogen oxides (NO_x) and volatile organic compounds (VOCs)—and, to a lesser extent, carbon monoxide (CO)—in the presence of sunlight. While NO_x, VOCs, and CO are ozone precursors, EPA requires ozone attainment plans to address only NO_x and VOC emissions. Ground-level ozone in the Las Vegas Valley is primarily a summertime problem associated with high temperatures, intense sunlight, little to no cloud cover, light winds, and persistent high-pressure systems.

Ozone can irritate lung airways and cause an inflammation that resembles sunburn: symptoms include wheezing, coughing, pain when taking a deep breath, and difficulty breathing during exercise or outdoor activities. Children and those with respiratory problems are particularly susceptible, but ozone pollution can affect even healthy people who are active outdoors. Repeated exposure over many months may cause permanent lung damage. Even when concentrations are low, ozone pollution may aggravate asthma, reduce lung capacity, and increase susceptibility to respiratory illnesses like pneumonia and bronchitis.

Ground-level ozone concentrations may also affect plants and ecosystems. They can interfere with the ability of plants to produce and store food, making them more susceptible to disease, insects, harsh weather, and other pollutants; this in turn can impact crop and forest yields. In addition, ozone can damage the leaves of trees and other plants.

1.3 HISTORY OF THE CLARK COUNTY NONATTAINMENT AREA

Sections 108 and 109 of the Act require that EPA review the NAAQS for all criteria pollutants, including ozone, once every 5 years to determine if each standard adequately protects public health and the environment. EPA must conduct a comprehensive review of the most policy-relevant science and evaluate whether it is appropriate to maintain or revise a health standard, considering all risks and impacts on human health or the environment. EPA may establish a new NAAQS after considering information from this review process, as well as from public and agency comments.

Clark County's ozone planning efforts span five EPA NAAQS revisions. EPA's implementation rules, and federal court decisions related to those rules, frequently affected the county's SIP requirements and submittal deadlines, as described in the following sections.

1978

On March 3, 1978, EPA designated the Las Vegas Valley as a nonattainment area for the 1971 photochemical oxidant NAAQS (volume 43, page 8962 of the *Federal Register* (43 FR 8962)). Air quality monitoring data for 1975–1977 show violations of the 1-hour ozone NAAQS of 0.08 parts per million (ppm).

1979

On February 8, 1979, EPA established a primary 1-hour ozone NAAQS of 0.12 ppm and designated the Las Vegas Valley as a nonattainment area for that standard (44 FR 8202). The county required industries to implement control technologies to curb precursor pollutants after research demonstrated that industrial processes within Clark County were contributing to elevated ozone levels. By the end of 1984, Clark County had completed a SIP demonstrating attainment of the 1979 ozone NAAQS.

In April 1986, the state requested that EPA redesignate the Las Vegas Valley as an attainment area and documented the control measures and technologies resulting in compliance with the 1979 ozone NAAQS. EPA approved the SIP submission in August 1984, and on November 19, 1986, redesignated the Las Vegas Valley as an attainment area for the NAAQS effective January 20, 1987 (51 FR 41788). Clark County remained in compliance with the 1979 1-hour ozone NAAQS for over a decade.

1997

On July 18, 1997, EPA replaced the 1-hour 0.12 ppm standard with an 8-hour 0.08 ppm standard that became effective in September 1997 (62 FR 38856).

On June 27, 2003, Clark County submitted a recommendation to the Nevada Division of Environmental Protection (NDEP) that EPA designate Clark County as an attainment area for the 1997 8-hour ozone NAAQS, since the preceding three years of data (2000, 2001, and 2002) supported that designation. On July 10, 2003, pursuant to Section 107(d) of the 1990 Clean Air Act Amendments, the governor submitted this recommendation to EPA Region 9. EPA agreed with the submission, but noted it was tracking 2003 ozone monitoring data that indicated Clark County exceeded the NAAQS at one location.

On April 30, 2004, before it acted on the governor's recommendation, EPA promulgated an implementation rule for the 1997 8-hour ozone NAAQS (69 FR 23951) related to the Act, Part D, Subparts 1 and 2. Subpart 1 contains general requirements that apply to all nonattainment areas for any NAAQS; Subpart 2 contains requirements specific to ozone classifications based on EPA's 1979 1-hour ozone NAAQS. Under the final rule, EPA would designate nonattainment areas with design values above the 1997 8-hour ozone NAAQS under Subpart 2 based on their current 1-hour ozone design values. If an area's current design value was below the level of the

1979 NAAQS but above that of the 1997 NAAQS, as Clark County's was, EPA would designate that area "basic" nonattainment under Subpart 1.

The same day, EPA designated Clark County as a basic nonattainment area for the 1997 8-hour ozone NAAQS effective 45 days later (69 FR 23858). EPA based its decision on 2001, 2002, and 2003 monitoring data, which showed the area was not meeting the 1997 8-hour ozone NAAQS. On May 21, 2004, before this designation became effective, Nevada's governor submitted a request to EPA to delay the effective date until October 15, 2004, to provide Clark County time to revise its recommendation. EPA agreed and promulgated a final rule deferring the effective date to September 13, 2004 (69 FR 34076).

EPA further agreed that relevant factors for defining a nonattainment area might support a different recommendation than the one the state submitted on April 12, 2004. On August 2, 2004, the state submitted a revised recommendation to designate only a portion of Clark County as a nonattainment area for the 1997 8-hour ozone NAAQS. The recommendation encompassed the following HAs:

- Ivanpah Valley (HAs 164A, 164B, 165, and 166)
- Eldorado Valley (HA 167)
- Las Vegas Valley (HA 212)
- Colorado River Valley (HA 213)
- Paiute Valley (HA 214)
- Apex Valley (HAs 216 and 217)
- A portion of the Moapa Valley (HA 218).

EPA accepted the state's recommendations and issued a final rule on September 17, 2004, delineating the revised boundaries with the included HAs (69 FR 55956).

On December 22, 2006, a three-judge panel from the U.S. Court of Appeals for the District of Columbia Circuit vacated EPA's Phase 1 Implementation Rule for the 1997 ozone NAAQS (*South Coast AQMD v. EPA,* 472 F.3d 882 (D.C. Cir. 2006)), including use of the "basic nonattainment" classification under Part D, Subpart 1 of the Act. EPA and other organizations filed petitions for a review of the decision by the entire court. On June 8, 2007, the full court revised the decision by vacating only certain portions of the Phase I rule; however, the vacatur still included the "basic" classification determinations made under Subpart 1 for nonattainment areas like those in Clark County (*South Coast AQMD v. EPA 489,* F.3d 1245 (D.C. Cir. 2007)).

Following the D.C. Circuit Court's decision, EPA issued a memorandum on June 15, 2007, stating that nonattainment areas classified under "Subpart 1 are not currently subject to the June 15, 2007, submission date for their attainment demonstrations" (1978cEPA 2007). EPA required Clark County to develop and submit the *8-Hour Ozone Early Progress Plan for Clark County, Nevada* (DAQEM 2008a) to establish motor vehicle emission budgets (MVEBs) for maintaining transportation conformity. The BCC adopted and approved the early progress plan on June 17, 2008; EPA formally approved the MVEBs on May 14, 2009 (74 FR 22738).

On March 29, 2011, EPA determined the Clark County nonattainment area had attained the 1997 8-hour ozone NAAQS based on 2007–2009 monitoring data (76 FR 17343). DAQEM prepared and submitted a request for EPA to redesignate the area to attainment, along with a 2011 maintenance plan covering the first 10-year period following redesignation (DAQEM 2011). EPA approved the submission and formally redesignated the area as attainment for the 1997 8-hour ozone NAAQS on January 8, 2013 (78 FR 1149).

2008

In 2008, EPA revised the ozone NAAQS to 0.075 ppm, based on an area's three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration (73 FR 16436). Although it had not yet redesignated portions of the county to attainment for the 1997 ozone NAAQS, EPA designated all of Clark County as attainment for the 2008 ozone NAAQS (77 FR 30088). EPA called such areas with different designations for the two NAAQS "orphan maintenance areas."

EPA revoked the 1997 ozone NAAQS in its 2008 Ozone Implementation Rule and removed the requirement that orphan maintenance areas, such as Clark County, submit a second 10-year maintenance plan (40 CFR Part 51.1105(d)). This meant Clark County no longer needed to comply with Section 175A(b) of the Act, which requires maintenance of the NAAQS for 10 additional years following the end of the first 10-year maintenance period.

The South Coast Air Quality Management District, among others, challenged the Ozone Implementation Rule (*South Coast AQMD v. EPA,* 882 F.3d 1138 (D.C. Cir. 2018)). The court sided with the plaintiffs and vacated the parts of the rule that removed the second maintenance plan requirements for orphan maintenance areas; therefore, EPA once again required Clark County to submit a second 10-year maintenance plan for the 1997 ozone NAAQS. DAQ did so in January 2022, and EPA approved the plan effective May 6, 2024 (89 FR 23916). Clark County continued to maintain ambient ozone concentrations below the 1997 and 2008 8-hour ozone NAAQS.

2015

On October 26, 2015, EPA revised and lowered the standard, setting the new NAAQS at a maximum concentration of 0.070 ppm, based on a three-year average of the annual fourth-highest daily maximum 8-hour average concentration (80 FR 65292).

In 2016, NDEP recommended EPA designate HAs 164A, 165, and 212 as nonattainment for the 2015 8-hour ozone NAAQS based on 2013–2015 monitoring data. On December 20, 2017, EPA issued a 120-day letter notifying NDEP that it intended to also designate HA 216 as nonattainment after considering multiple factors and design value data from 2014–2016 (83 FR 651). NDEP responded in February 2018 with a recommendation that EPA designate HAs 164A and 165 as attainment to reflect 2015–2017 data, which demonstrated design values below the 2015 8-hour ozone NAAQS, and to designate HA 216 as attainment because meteorological conditions show the area does not contribute to ambient concentrations in the Las Vegas Valley (NDEP 2021). EPA agreed, designating only HA 212 (Figure 1-1) as a marginal nonattainment area in June 2018 (83 FR 25776) and requiring that DAQ bring the area into attainment by August 3, 2021, based on the 2018–2020 ozone design value.

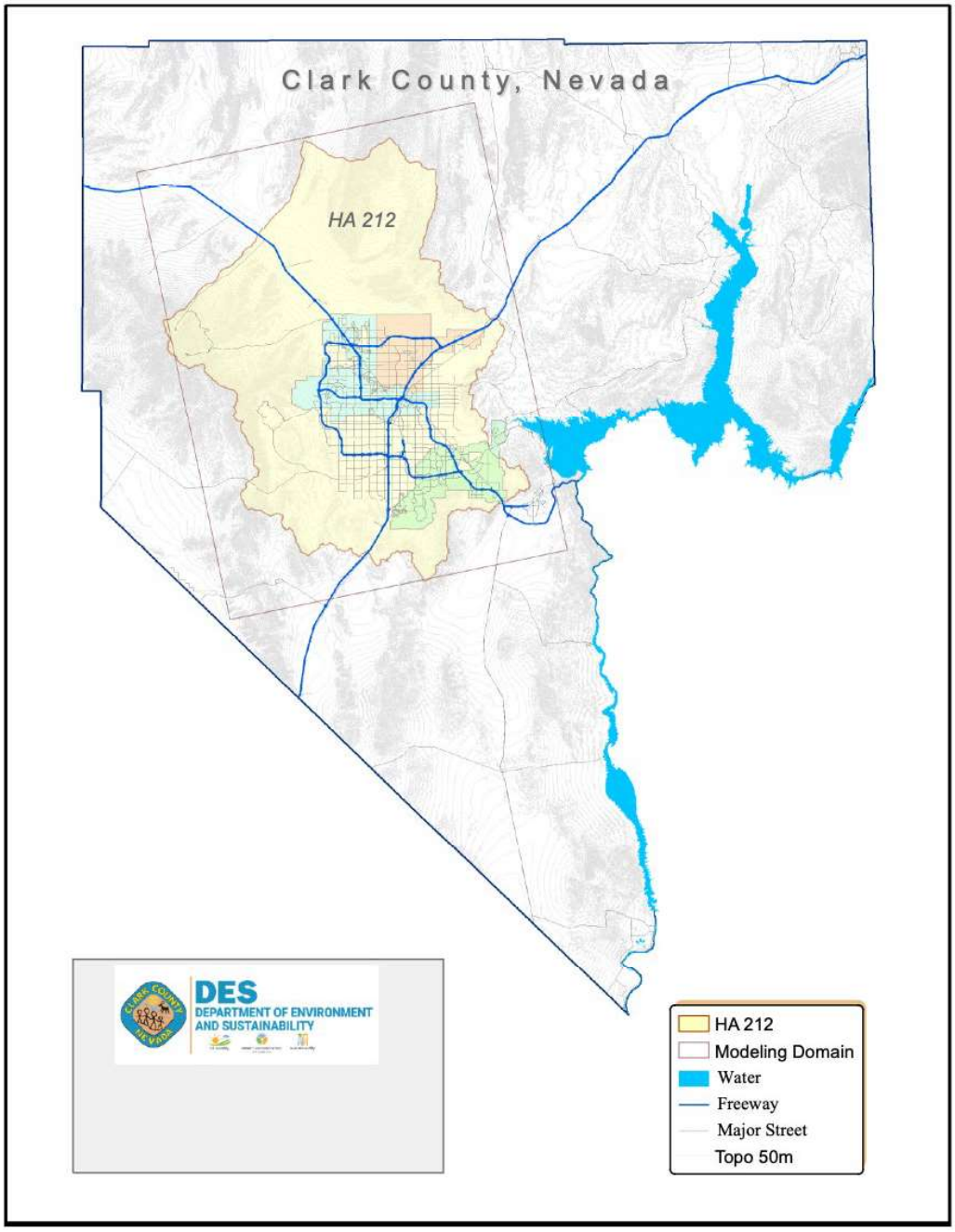


Figure 1-1. HA 212 Boundaries.

DAQ identified 28 exceedance days at area monitors between 2018 and 2020 that it maintains were caused by exceptional events (e.g., wildfires, stratospheric intrusions). In accordance with 40 CFR Part 50.14 (the Exceptional Events rule), DAQ submitted 17 exceptional event demonstrations to EPA Region 9 that included data, modeling, and other information to support excluding those exceedance days from the calculation of HA 212's 2018–2020 design value.

After reviewing the submittals, EPA Region 9 decided the weight of evidence did not support a finding that exceptional events caused exceedances in HA 212 on June 19–20, 2018; May 6, 2020; May 9, 2020; June 22, 2020; and June 26, 2020 (88 FR 775). EPA deferred reviewing data exclusion requests on all other dates after determining that any findings would not affect a decision on HA 212's attainment status or its qualification for a one-year extension to demonstrate attainment. Based on EPA's decision, HA 212's 2018–2020 design value is 0.074 ppm, above the 0.070 ppm design value required to demonstrate attainment by the specified date (40 CFR Part 50.14). EPA proposed reclassifying HA 212 to "moderate" nonattainment for the ozone NAAQS on July 22, 2022, and finalized the decision on January 5, 2023 (88 FR 775). DAQ had to demonstrate HA 212 would attain the NAAQS by August 3, 2024, based on a 2021–2023 ozone design value.

On October 18, 2023, EPA issued a final rule determining that the Las Vegas Valley had failed to submit the required moderate nonattainment plan by the submission deadline (88 FR 71757). In November 2024, DAQ submitted an attainment plan to meet the planning requirements for moderate nonattainment areas and resolve EPA's finding of failure to submit. The plan addressed emission inventories, attainment demonstration, nonattainment new source review, rate of progress (15%), reasonably available control measures (RACM), reasonably available control technology (RACT), motor vehicle inspection and maintenance, contingency measures, and a motor vehicle emissions budget to ensure transportation conformity.

On December 19, 2024, the Las Vegas Valley was reclassified as a serious nonattainment area for the 2015 ozone NAAQS, effective January 21, 2025 (89 FR 103657). As a result of this reclassification, DAQ is required to submit a revised attainment plan that addresses the planning requirements for serious nonattainment areas under Section 182(c) of the Act.

1.4 ATTAINMENT PLAN REQUIREMENTS

EPA set forth SIP requirements for the 2015 8-hour ozone NAAQS in 40 CFR Part 51, Subpart CC. The new implementation rule retained most of the requirements adopted for the 2008 8-hour ozone NAAQS (77 FR 30170), which stemmed directly from the Act. Section 172 of the Act contains general planning requirements that state or local air pollution control agencies must meet for nonattainment areas.

SIP components are fully described in Section 110(a)2 of the Act. This plan provides all the information required to satisfy SIP planning requirements for HA 212; the appendices provide additional documentation for the technical sections of the attainment plan.

1.5 ATTAINMENT PLAN DEVELOPMENT

Developing an attainment plan is an iterative process. Key steps include developing the emissions inventory, modeling air quality, and developing control strategies. To ensure broad public involvement, DAQ engages both industry representatives and clean air advocates throughout the stakeholder process. It holds public meetings to provide updates on regulatory timelines, outline actions planned to meet serious classification requirements, presents new regulations and revisions to existing ones to stakeholders, and offer opportunities for public questions. This attainment plan will also be made available to the public for review and comment.

Interagency collaboration was another key part of plan development. EPA was consulted through regularly scheduled meetings and email communication. DAQ also consulted regularly with the Regional Transportation Commission of Southern Nevada on transportation-related topics, such as motor vehicle emissions budgets, conformity, and transportation control measures.

2.0 EMISSIONS INVENTORY

2.1 INTRODUCTION

In support of the development of a serious ozone attainment plan for the 2015 ozone National Ambient Air Quality Standard (NAAQS), the Division of Air Quality (DAQ) developed 2017 (base year), 2023 (interim year), and 2026 (future year) ozone season weekday anthropogenic emissions estimates for ozone precursors within HA 212, collectively referred to as the 2015 Ozone NAAQS SIP Inventory (Appendix A).

The SIP emissions inventory is presented in tons per day (tpd) and represents emissions on a typical July weekday, not a holiday, when ambient ozone concentrations are usually higher than at other times of the year. Anthropogenic source categories include stationary point sources, stationary nonpoint (area) sources, on-road mobile sources, non-road mobile sources, airports, and locomotive sources. The nonpoint source category inventory includes emissions from railways, residential wood combustion, and agriculture/livestock. The primary data sources for the inventory include locally specific activity data, the 2017 Emissions Modeling Platform (EMP) based on the 2017 National Emissions Inventory (NEI) (EPA 2020), the 2016v3 EMP projections for 2026, and EPA's 2022v1 EMP. Appendix A contains a detailed description of SIP emissions inventory methodology and quality assurance procedures.

2.2 SOURCE CATEGORIES

2.2.1 On-Road Motor Vehicle Emissions

On-road mobile sources include automobiles, motorcycles, buses, and trucks traveling on local roads and state and national highways. Emissions estimates were developed from the EPA's Motor Vehicle Emissions Simulator, version 5 (MOVES5) (EPA 2024b), the latest release at the time of analysis. The model was run in inventory mode to generate on-road mobile source emissions estimates for a typical summer weekday in HA 212.

MOVES5 includes 13 source types and 4 roadway types. DAQ developed MOVES inputs representing Clark County for 2017, 2023, and 2026: key inputs included vehicle fleet activity data (such as vehicle miles traveled (VMT)), vehicle population by vehicle source type or class, speed distribution, fleet age distribution, fuel parameters, and inspection and maintenance (I/M) programs. Since vehicle classification is a crucial component for developing an on-road emission inventory, DAQ completed a vehicle classification study in June 2018. The study used 2014–2016 traffic-count data collected by the Nevada Department of Transportation (NDOT) and included an on-road license plate survey at selected roadway locations. The 2017 vehicle population was obtained from the *2015 O_3 NAAQS Attainment Plan for the Las Vegas Valley Moderate Nonattainment Area, Clark County, NV* ("Moderate SIP"). For the 2023 vehicle population, DAQ obtained 2022 and 2024 Nevada Department of Motor Vehicle registration data for Clark County; vehicle populations by source type were averaged between 2022 and 2024 to estimate 2023 numbers. For the 2026 vehicle population, DAQ projected from 2022 to 2026 using vehicle population growth factors derived from the 2022v1 modeling platform.

2.2.2 Non-road Mobile Source Emissions

Non-road mobile sources include a wide variety of motorized equipment types that either move under their own power off the roadway network or can be moved from site to site. Non-road mobile source emissions for 2017, 2023, and 2026 were estimated using the nonroad module of MOVES5. To develop HA 212 subcounty ozone season weekday emissions estimates, the Sparse Matrix Operator Kernel Emissions (SMOKE) model was run for the weekdays of a single non-holiday week in July on a grid covering HA 212 with 4-km grid spacing. The total emission estimates within the modeling domain were summed for nitrogen oxides (NO_x) and volatile organic compounds (VOCs) and averaged over all five weekdays.

2.2.3 Nonpoint Source Emissions

Nonpoint sources are stationary sources that fall below point source reporting levels and are too numerous or small to identify individually, i.e., small-scale industrial, commercial, or residential operations that use emission-generating materials or processes. The data used to develop the HA 212 subcounty inventory included 2017 nonpoint source emissions from the 2017 EMP, along with 2023 and 2026 emissions from 2016v3 projections (EPA 2023a).

The nonpoint source category includes locomotives, volatile chemical products (VCPs), industrial/commercial/residential fuel combustion, asphalt paving, and other such area sources. The 2016v3 EMP uses EPA's new approach and data to derive emissions for VCP sources (the 2017 EMP and previous emissions inventories reported VCP emissions based on older methodology). To obtain 2017 estimates based on a consistent methodology, VCP emissions reported in the 2016v3 EMP were linearly interpolated between 2016 and 2023 rather than using emissions from the 2017 EMP. VOC reductions from the Moderate SIP's control and contingency measures were also applied in projecting 2026 nonpoint source emissions. Using results from SMOKE, total NO_x and VOC emissions for HA 212 were summed and averaged across all five weekdays.

2.2.4 Point Source Emissions

Point sources are large stationary sources that emit pollutants above mandatory reporting levels and must have an air quality permit from DAQ. Examples include power plants, industrial boilers, and other such industrial/commercial facilities.

DAQ's point source inventory for HA 212 includes all Clean Air Act, Title V stationary sources and all minor sources with the potential to emit at least 10 tons per year (tpy) of VOCs or 25 tpy of NO_x. Point source 2017 and 2023 emissions inventories were based on annual reports submitted by individual facilities. Emissions for 2026 were estimated by projecting from the 2023 emissions using growth factors derived from the EPA 2022v1 EMP. Point source emissions inventories were developed from data either collected by direct on-site measurements or calculated using EPA emission factors and activity data. Emissions from other sources of less than 10 tpy of VOCs or less than 25 tpy of NO_x were included in the nonpoint source category.

2.2.5 Commercial Aviation Emissions

Commercial aviation within HA 212 covers emissions from three primary airports: Harry Reid International Airport, North Las Vegas Airport, and Henderson Executive Airport. The Clark County Department of Aviation (DOA) provided emissions data for 2017 and projections for 2023 and 2032. These emission inventories were developed using the Federal Aviation Administration's Aviation Environmental Design Tool (AEDT), v.3g. The design day 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 emissions inventories for all three airports.

2.2.6 Federal Aviation Emissions

Federal aviation emissions in HA 212 primarily originate from Nellis Air Force Base. The 2017 actual, 2023 projected, and 2026 projected emissions from aircraft operations were obtained from Clark County's second maintenance plan for the 1997 8-hour ozone NAAQS (DES 2021a).

2.2.7 Banked Emissions Reduction Credits

Emissions Reduction Credits (ERCs) may be granted, under strict guidelines, to an emissions source that voluntarily reduces emissions beyond required levels of control if requested. ERCs may be sold, leased, banked for future use, or traded in accordance with applicable regulations. Once used to offset emissions, they are permanently retired. ERCs are intended to provide an incentive for reducing emissions and to establish a framework to promote a market-based approach to regulating air pollution. DAQ included banked ERCs in the emissions inventory.

2.3 EMISSION INVENTORY RESULTS

2.3.1 Anthropogenic Emissions

Table 2-1 lists 2017, 2023, and 2026 HA 212 NO_x emissions estimates by source category for a typical, nonholiday June–August weekday. The 2023 NO_x emissions inventory does not include reductions from any new local control measures. DAQ projects that the total NO_x emissions inventory will decrease between 2023 and 2026 by 9.47 tpd. Emissions in the point source, nonpoint source, and airport categories are projected to increase in 2026, but DAQ projects that turnover in nonroad and on-road fleets will offset these emissions increases.

Table 2-1. Summary of HA 212 Ozone Season Weekday NO_x Emissions (tpd)

Source Category	2017 NO_x	2023 NO_x	2026 NO_x
Point source	2.92	3.22	3.25
Non-point source	6.15	6.46	6.53
On-road mobile	41.84	22.43	16.41
Nonroad mobile	36.86	22.80	18.91
Airports (commercial & federal)	11.90	15.52	15.90
Locomotives	0.80	0.66	0.62
Emissions-Reduction Credits	—	0.92	0.92
Total	**100.47**	**72.01**	**62.54**

Figure 2-1 shows that on-road and non-road mobile sectors are the dominant sources of NO_x emissions, collectively making up over half of all NO_x emissions in 2017, 2023, and 2026. Airports are the next largest source category of NO_x emissions in all emissions inventories.

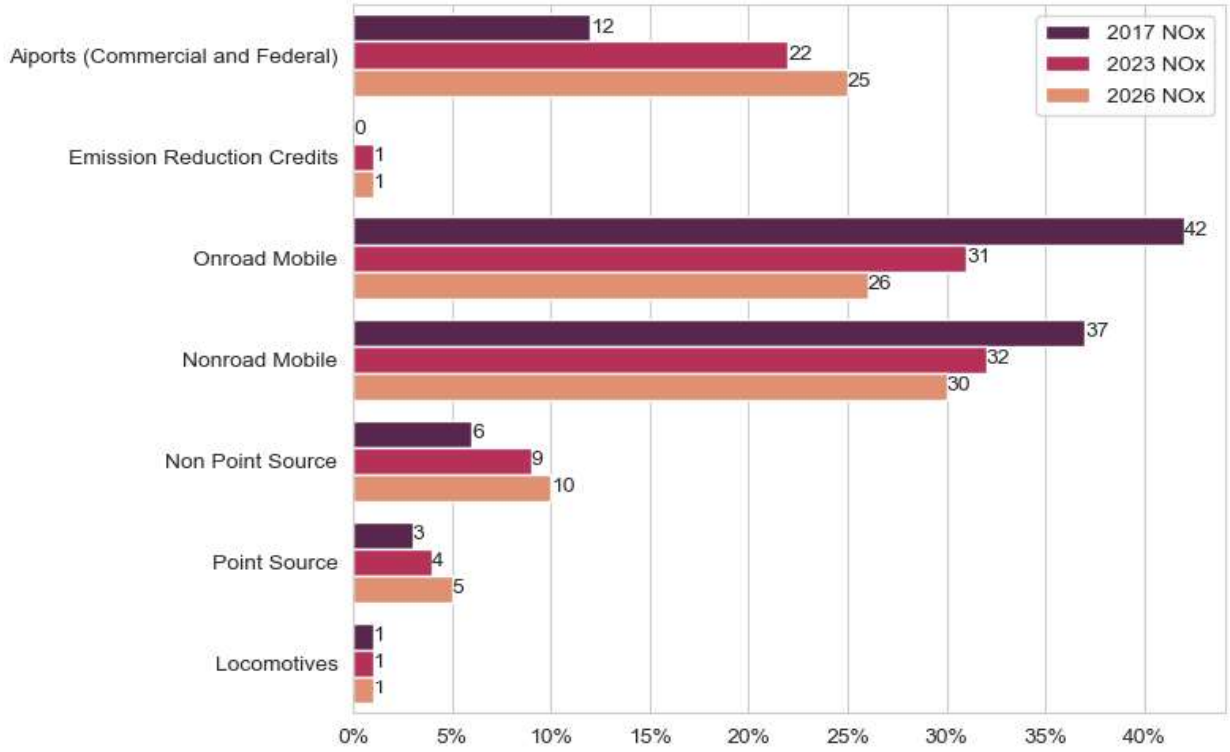


Figure 2-1. Comparison of NO_x Emissions Inventories for 2017, 2023, and 2026 by Percent for Each Emissions Category.

In contrast, as Table 2-2 shows, the nonpoint source sector is the dominant source of anthropogenic VOCs in the 2017, 2023, and 2026 emissions inventories, followed by nonroad and on-road mobile source categories. Slight emissions increases are projected for the point, nonroad mobile, and airport source categories for 2026. Emission decreases in the on-road source category will offset these emissions increases, resulting in a decrease in total emissions (14.03 tpd VOCs) between 2023 and 2026. The 2023 VOC emissions inventory does not include reductions from any new local control measures.

Table 2-2. Summary of HA 212 Ozone Season Weekday VOC Emissions (tpd)

Source Category	2017 VOCs	2023 VOCs	2026 VOCs
Point source	1.25	1.88	1.89
Nonpoint source	57.72	59.15	47.09
On-road mobile	25.89	17.95	15.79
Nonroad mobile	25.38	23.67	23.72
Airports (commercial & federal)	1.96	2.62	2.75
Locomotives	0.04	0.03	0.03
Emissions-Reduction Credits	—	0.05	0.05
Total	**112.24**	**105.35**	**91.32**

Figure 2-2 compares each source category's relative percent of total VOC emissions inventories for 2017, 2023, and 2026.

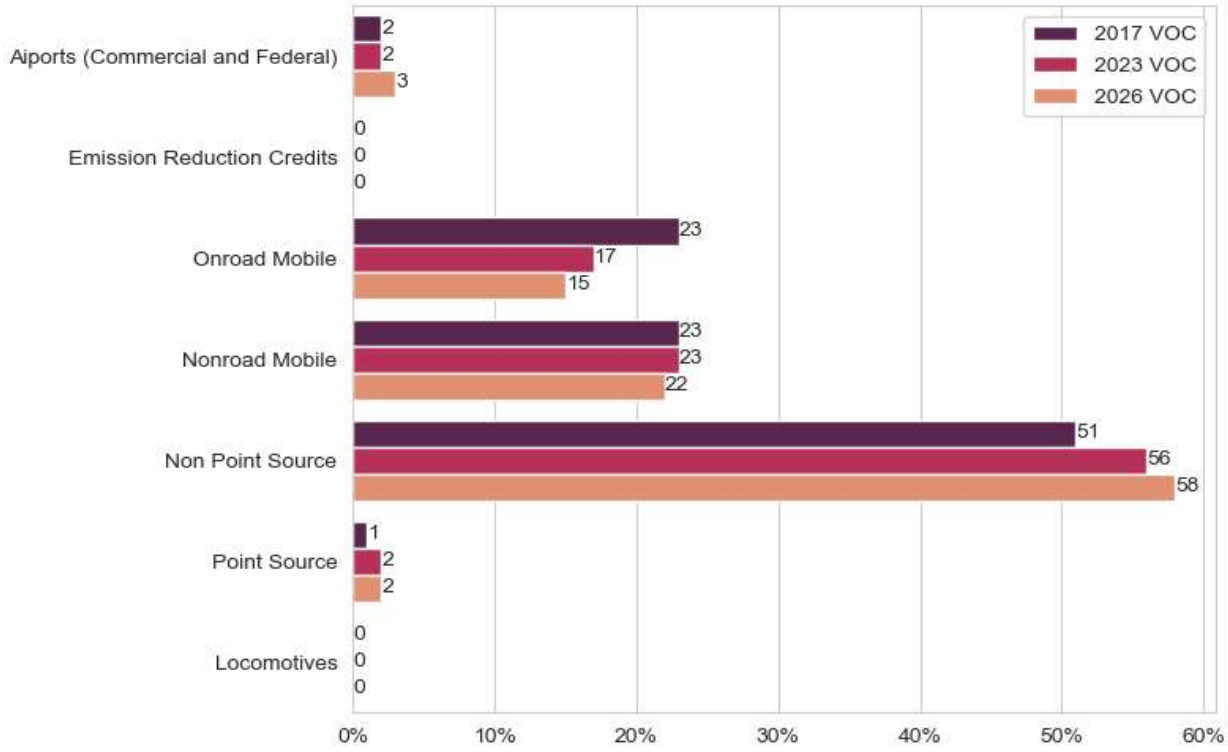


Figure 2-2. Comparison of VOC Emissions Inventories for 2017, 2023, and 2026 by Percent for Each Emissions Category.

2.3.2 Biogenic Emissions

Biogenic emission sources produce VOCs from vegetation and soils, such as trees, grass, and crops. Additionally, soils emit a nominal amount of NO_x. The Biogenic Emission Inventory System (BEIS) estimates natural VOC emissions from vegetation and NO_x from soil. Built into the SMOKE processing system, BEIS is driven by gridded, hourly ambient meteorology and land-cover data from the Biogenic Emissions Landuse Database (BELD). BELD data provide distributions of hundreds of vegetation classes at 1-km resolution over most of North America. DAQ adopted BEIS4/BELD6 and processed biogenic emissions on the 4-km-resolution modeling grid system for the period of May 25 to September 16, 2022.

Table 2-3 lists 2022 biogenic NO_x and VOC emissions for an average summer day within the HA 212 portion of the 4-km modeling domain. Emissions were held constant for 2022–2026.

Table 2-3. HA 212 Biogenic Emissions for a 2022 Average Summer Day (tpd)

Source Category	VOCs	NO_x
Biogenics	30.45	0.82

3.0 ENHANCED MONITORING NETWORK AND AIR QUALITY TRENDS

3.1 INTRODUCTION

Section 182(c)(1) of the Clean Air Act requires that all ozone nonattainment areas classified as "serious" or above implement measures to enhance monitoring for ambient concentrations of ozone, nitrogen oxides (NO_x), and volatile organic compounds (VOCs). An enhanced monitoring network for ozone is referred to as a Photochemical Assessment Monitoring Station (PAMS) network. 40 CFR Parts 58.10(a)(10) and (11), with Appendix D(5), address PAMS sites and requirements. Part 58, Appendix D(5)(a) describes the requirements for a PAMS site in any core-based statistical area (CBSA) with a population of 1 million or more, such as Las Vegas.

Part 58, Appendix D, Section 5.h requires an "Enhanced Monitoring Plan" for additional monitoring in nonattainment areas classified as "moderate" or above. This plan must include monitoring activities deemed important to understanding ozone problems—for instance, adding ozone monitors beyond the minimum required under Part 58, Appendix D, Section 4.1 and adding NO_x or reactive nitrogen (NO_y) monitors beyond those required under Part 58, Appendix D, Section 4.3. DAQ's annual monitoring network plan (DES 2025a) and 5-year monitoring network assessment (DES 2025c) describe the enhanced monitoring program, as discussed below.

This chapter describes Clark County's air quality monitoring network and summarizes ozone and ozone precursor air quality monitoring data for 2015–2025.

3.2 DESCRIPTION OF THE MONITORING NETWORK

3.2.1 Overview

DAQ will continue to characterize ambient air quality by operating a network of ambient air monitoring stations in HA 212 to comply with EPA requirements and guidance. The requirements for ambient air quality monitoring programs mandated by the Act are defined in 40 CFR Part 58, including Appendices A–E; under this rule, every state must establish a monitoring network for criteria air pollutants that meets location and operation specifications. Monitors used to satisfy these requirements are called State and Local Air Monitoring Stations (SLAMS). DAQ operates multiple SLAMS in its network that are designed to monitor ozone concentrations.

DAQ may also operate Special-Purpose Monitors (SPMs) as needed to meet short-term or specific monitoring goals. As outlined in 40 CFR Part 58.20, SPMs do not have to meet the same requirements as SLAMS monitors; they must comply with 40 CFR Part 58, Appendix A. DAQ does not operate SPMs in full compliance with 40 CFR Part 58, Appendix E, Sections 2–6 or 9 because those data cannot be used for NAAQS designations, but rather are meant to obtain specific, targeted information and maintain network flexibility.

DAQ is required to submit an annual monitoring network plan to EPA for approval. The most recent network plan was submitted in June 2025 (DES 2025a) and is awaiting EPA approval; EPA approved the 2024 network plan in October 2024.

EPA requires that a monitoring network assessment be performed every five years. At a national level, the assessments aim to optimize the air monitoring networks to provide scientific value and protect the public and environmental health and welfare with the resources available. DAQ performed the 2025 monitoring network assessment using quantitative statistical tools, qualitative analyses, department studies, and other relevant information, then submitted the plan to EPA (DES 2025c). DAQ's "Enhanced Monitoring Plan" requirement is addressed through NDEP's 5-year network assessment (2025a), and the approval mechanism is NDEP's Annual Network Plan (2025b). In recent years, DAQ has expanded its network to the southwest and southeast areas of the Las Vegas Valley as part of its commitment to enhanced ozone monitoring.

3.2.2 Monitoring Station Locations

Monitoring objectives are linked to the physical location of a site by matching the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring objective (rationale) of the station. The spatial scale therefore represents the physical dimensions of the air parcel nearest the monitor where pollutant concentrations are reasonably uniform (40 CFR Part 58, Appendix D). The combination of spatial measurement scale and station monitoring objectives dictates how and why monitoring sites are located in particular areas.

Site monitoring objectives/rationales include determining the following information:

1. The highest concentrations expected to occur in the area covered by the network.
2. Representative concentrations in areas of high population density.
3. The impact of significant sources or source categories on ambient pollution levels.
4. General background concentration levels.
5. The extent of regional pollutant transport from populated areas with regard to secondary standards (e.g., visibility impairment, effects on vegetation).
6. Population impacts in suburban and remote areas.

40 CFR Part 58, Appendix D, Section 1.2 defines spatial measurement scales as:

- Microscale: 0–100 m
- Middle Scale: 100–500 m
- Neighborhood Scale: 500 m (0.5 km)–4 km
- Urban Scale: 4–50 km
- Regional Scale: 10–100+ km

DAQ operates a network of 15 stations monitoring for ozone within Clark County. Table 3-1 lists the current monitoring sites, along with their monitoring objectives and spatial scales; the annual network plan provides additional detail (DES 2025a).

Figure 3-1 shows all the ozone monitoring stations in Clark County, color-coded by year ranges of ozone data collection between 2015 and 2025 (data from this time frame were included to provide a review of pollutant concentration trends over time). Figure 3-2 shows all ozone and ozone precursor monitoring stations in Clark County for 2024 and 2025.

The Spring Mountain Youth Camp (AQS Site ID 32-003-7771) is operated as a nonregulatory SPM monitoring site, as described in the annual plan. This monitor is not used for NAAQS concentration monitoring; it provides data on stratospheric ozone intrusions and pollutant mixing heights, as well as assisting with model validation.

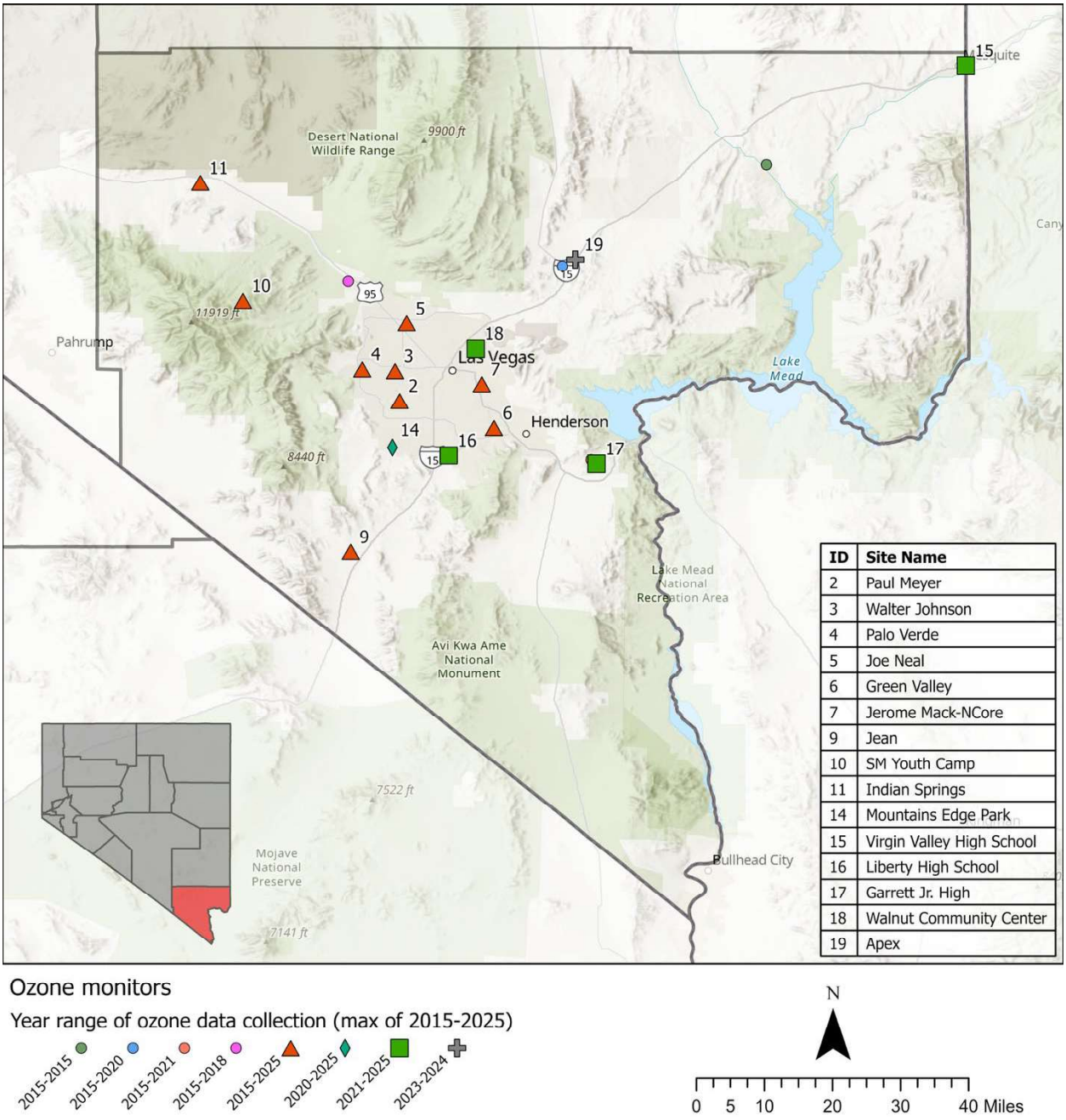
Section 182(c)(1) of the Act requires areas classified as serious, severe, or extreme for ozone nonattainment to establish PAMS sites, which provide enhanced monitoring of ozone, NO_x, VOCs, and meteorological parameters. The Jerome Mack monitoring site covers both the NCore and PAMS programs, meeting all PAMS site requirements in 40 CFR Part 58, Appendix D, Sections 5(b)(1)–(13). DAQ formally adopted the approved PAMS Quality Assurance Project Plan (QAPP), follows the approved Criteria Pollutant/NCore QAPP, and adheres to the PAMS Technical Assistance Document (EPA 2023a & b; DES 2021b) to ensure high-quality data.

DAQ operates six NO_2 SLAMS monitors, shown in Figure 3-2. Two NO_2 stations are located and operated for near-road monitoring (at Casino Center Blvd. and Rancho/Teddy Dr.), three stations are operated for area-wide purposes, and one site (Sunrise Acres) represents susceptible and vulnerable populations as part of RA40 (https://www.epa.gov/amtic/no2-monitoring-susceptible-and-vulnerable-populations).

Table 3-1. Ozone Monitoring Stations in Clark County, 2015–2025

Site Code	Site Name	Address	City	Ozone Data Year Range	Monitor Type	Monitoring Objective	Spatial Scale
320030043	Paul Meyer	4525 New Forest Dr.	Spring Valley	2015–2025	SLAMS	NAAQS	Neighborhood
320030071	Walter Johnson	7701 Ducharme Ave.	Las Vegas	2015–2025	SLAMS	NAAQS	Neighborhood
320030073	Palo Verde	333 Pavilion Center Dr.	Las Vegas	2015–2025	SLAMS	NAAQS	Neighborhood
320030075	Joe Neal	6651 W. Azure Ave.	Las Vegas	2015–2025	SLAMS	NAAQS	Neighborhood
320030298	Green Valley	298 Arroyo Grande	Henderson	2015–2025	SLAMS	NAAQS	Neighborhood
320030540	Jerome Mack-NCore	4250 Karen Ave.	Sunrise Manor	2015–2025	SLAMS	NAAQS	Neighborhood
320031019	Jean	1965 State Hwy 161	Jean	2015–2025	SLAMS	NAAQS	Neighborhood
320037772	Indian Springs	668 Gretta Ln.	Indian Springs	2015–2024	SLAMS	NAAQS	Regional
320030044	Mountains Edge Park	8101 West Mountains Edge Pkwy.	Enterprise	2020–2025	SLAMS	NAAQS	Neighborhood
320030024	Virgin Valley H.S.	820 Valley View Dr.	Mesquite	2021–2025	SLAMS	NAAQS	Neighborhood
320030299	Liberty H.S.	3700 Liberty Heights Ave.	Henderson	2021–2025	SLAMS	NAAQS	Neighborhood
320030602	Garrett Jr. High	1200 Ave. G	Boulder City	2021–2025	SLAMS	NAAQS	Neighborhood
320032003	Walnut Community Center	3075 N Walnut Rd	North Las Vegas	2021–2025	SLAMS	NAAQS	Neighborhood
320030025	Apex	Apex Valley in Section 7, T18S, R64E, Government Lot 16	Not in a city	2023–2025	SLAMS	NAAQS	Regional
320037771	SMYC	Ries Rd., Spring Mtn. Youth Camp	Mt. Charleston	2015–2025	SPM	Research	Regional
Stations No Longer Operational							
320037780	Logandale	3570 Lyman St.	Moapa Valley	2015–2015	SPM		
320038000	LV Paiute AQ Site	No Address	Not in a city	2015–2018	TRIBAL		
320030601	Boulder City	1005 Industrial Rd.	Boulder City	2015–2021	SLAMS		
320030022	Apex	12101 Hwy. 91	Not in a city	2015–2020	SLAMS		

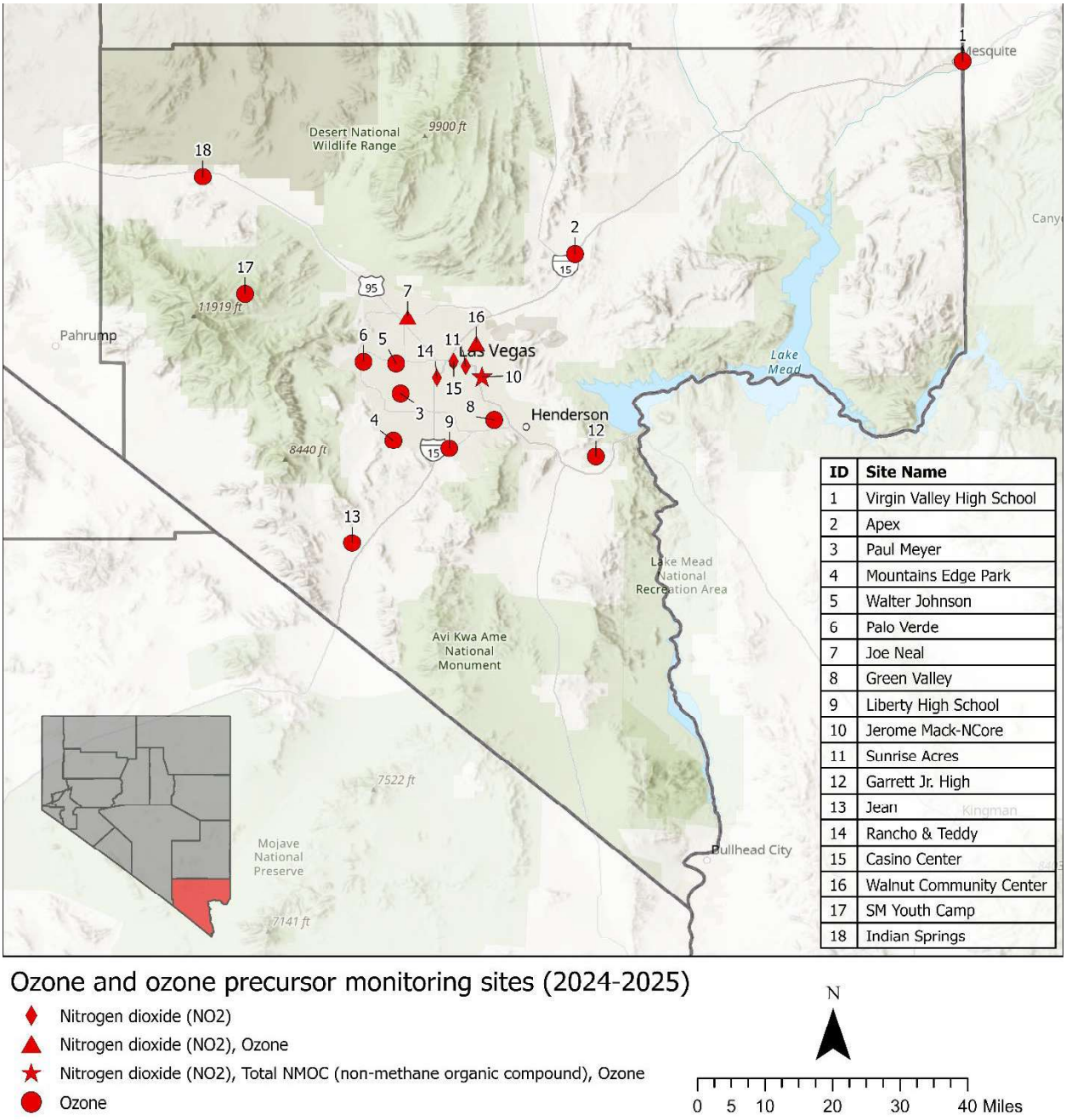
Note: Entries organized by start date.



ID	Site Name
2	Paul Meyer
3	Walter Johnson
4	Palo Verde
5	Joe Neal
6	Green Valley
7	Jerome Mack-NCore
9	Jean
10	SM Youth Camp
11	Indian Springs
14	Mountains Edge Park
15	Virgin Valley High School
16	Liberty High School
17	Garrett Jr. High
18	Walnut Community Center
19	Apex

Note: Sites are color-coded by year(s) of range of ozone data collection between 2015 and 2025.

Figure 3-1. Ozone Monitoring Stations in Clark County, 2025.



ID	Site Name
1	Virgin Valley High School
2	Apex
3	Paul Meyer
4	Mountains Edge Park
5	Walter Johnson
6	Palo Verde
7	Joe Neal
8	Green Valley
9	Liberty High School
10	Jerome Mack-NCore
11	Sunrise Acres
12	Garrett Jr. High
13	Jean
14	Rancho & Teddy
15	Casino Center
16	Walnut Community Center
17	SM Youth Camp
18	Indian Springs

Note: Sites shown collected ozone or ozone precursor data in 2024 and/or 2025.

Figure 3-2. Ozone and Ozone Precursor Monitoring Sites in Clark County, 2024–2025.

3.2.3 Data Quality and Availability

Formal quality assessments are an integral part of the DAQ monitoring plan and assure the network yields data of acceptable quality. DAQ collects and verifies ozone monitoring data under an EPA-approved Quality Management Plan and a QAPP for criteria pollutant and NCore monitoring. DAQ also follows EPA's guidance in the *Quality Assurance Handbook for Air Pollution Measurement Systems*, Volume II (EPA 2017a).

DAQ transmits its monitoring data to EPA's Air Quality System (AQS) database after ensuring the following quality control and quality assurance requirements for ozone have been met:

- 75% (average) daily maximum and 75% completeness for scheduled sampling days in a calendar year;
- 75% of hours in an 8-hour period; and
- At least 18 out of 24 running 8-hour averages.

DAQ submits all criteria pollutant data to AQS quarterly, including precision and accuracy data. Data are available for public review on EPA's Air Data website (https://www.epa.gov/outdoor-air-quality-data). Real-time data are available for viewing on DAQ's monitoring website (https://desaqmonitoring.clarkcountynv.gov/), but these are not yet reviewed to determine whether they meet air quality assurance requirements.

3.3 AIR QUALITY TRENDS

This section provides design values for each site, along with spatial and temporal summaries, to show air quality trends. Table 3-2 lists 2021–2023 ozone design values for each site with data for that time period. The 2021–2023 design value for Mountains Edge Park is the highest (0.074 ppm).

Table 3-2. 2021–2023 Design Values for Each SLAMS Site (ppm)

Site Code	Site Name	2021–2023 Design Value
320030043	Paul Meyer	0.073
320030071	Walter Johnson	0.072
320030073	Palo Verde	0.072
320030075	Joe Neal	0.072
320030298	Green Valley	0.070
320030540	Jerome Mack-NCore	0.068
320031019	Jean	0.068
320037772	Indian Springs	0.068
320030044	Mountains Edge Park	0.074
320030024	Virgin Valley High School	0.064
320030299	Liberty High School	0.071
320030602	Garrett Jr. High	0.067
320032003	Walnut Community Center	0.072

Figure 3-3 shows the 8-hour ozone design value trends for each of the ozone monitoring sites from 2015 to 2023. The ozone design values are relatively unchanged across this time period at most sites, with concentrations near, at, or above 0.070 ppm. Figure 3-4 shows the number of days that exceeded the 2015 ozone NAAQS at the monitoring sites over the same period: the greatest number of exceedances occurred mainly at Paul Meyer, Joe Neal, Walter Johnson, and Green Valley, which are to the southwest, northwest, west, and southeast of the city's center, respectively. The year-to-year differences in the number of exceedances are caused by meteorological variability and changes in concentrations of precursor emissions.

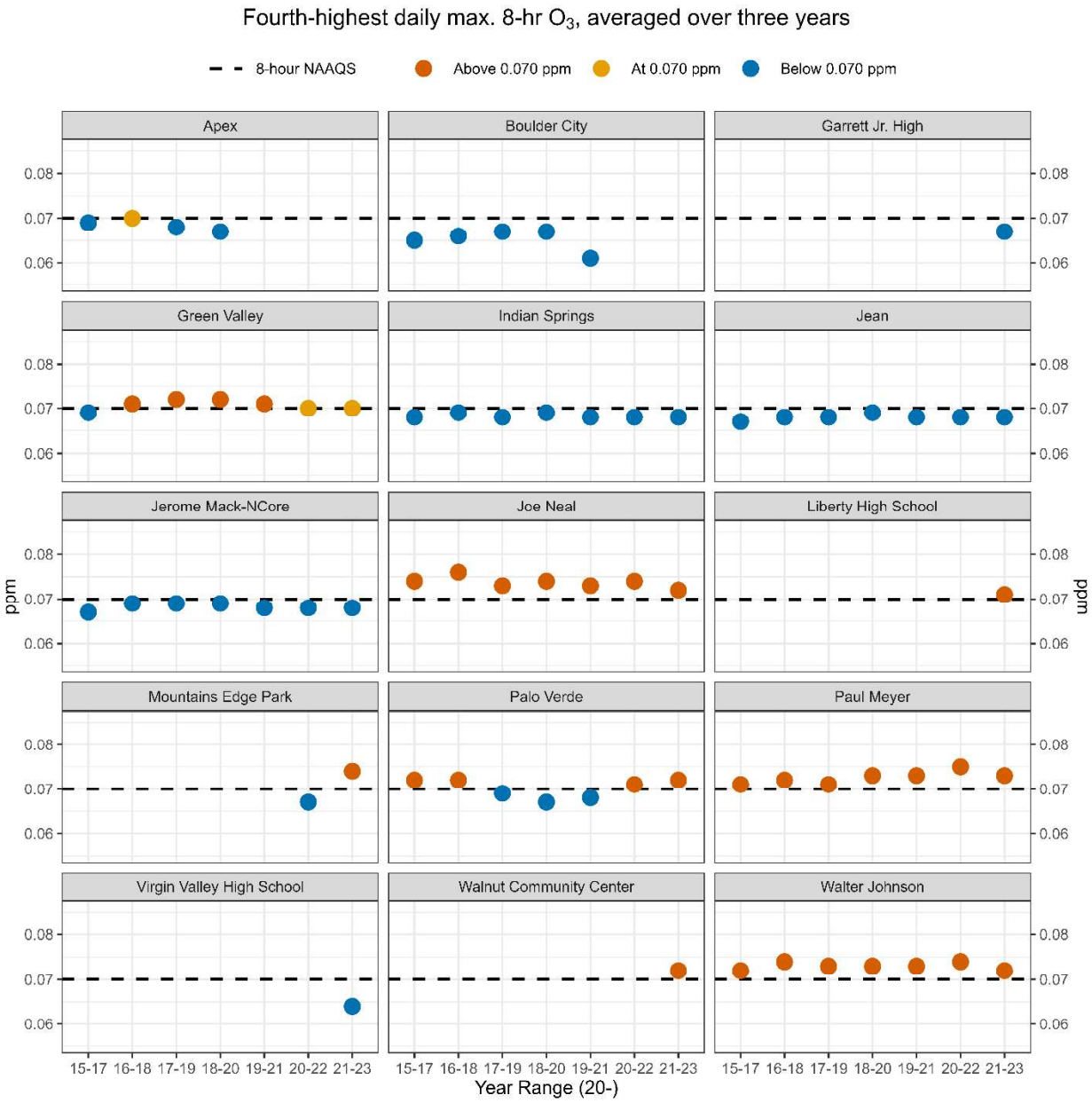


Figure 3-3. 8-hour Ozone Design Values at All Ozone Monitoring Stations in Clark County for Each 3-Year Period from 2015–2024.

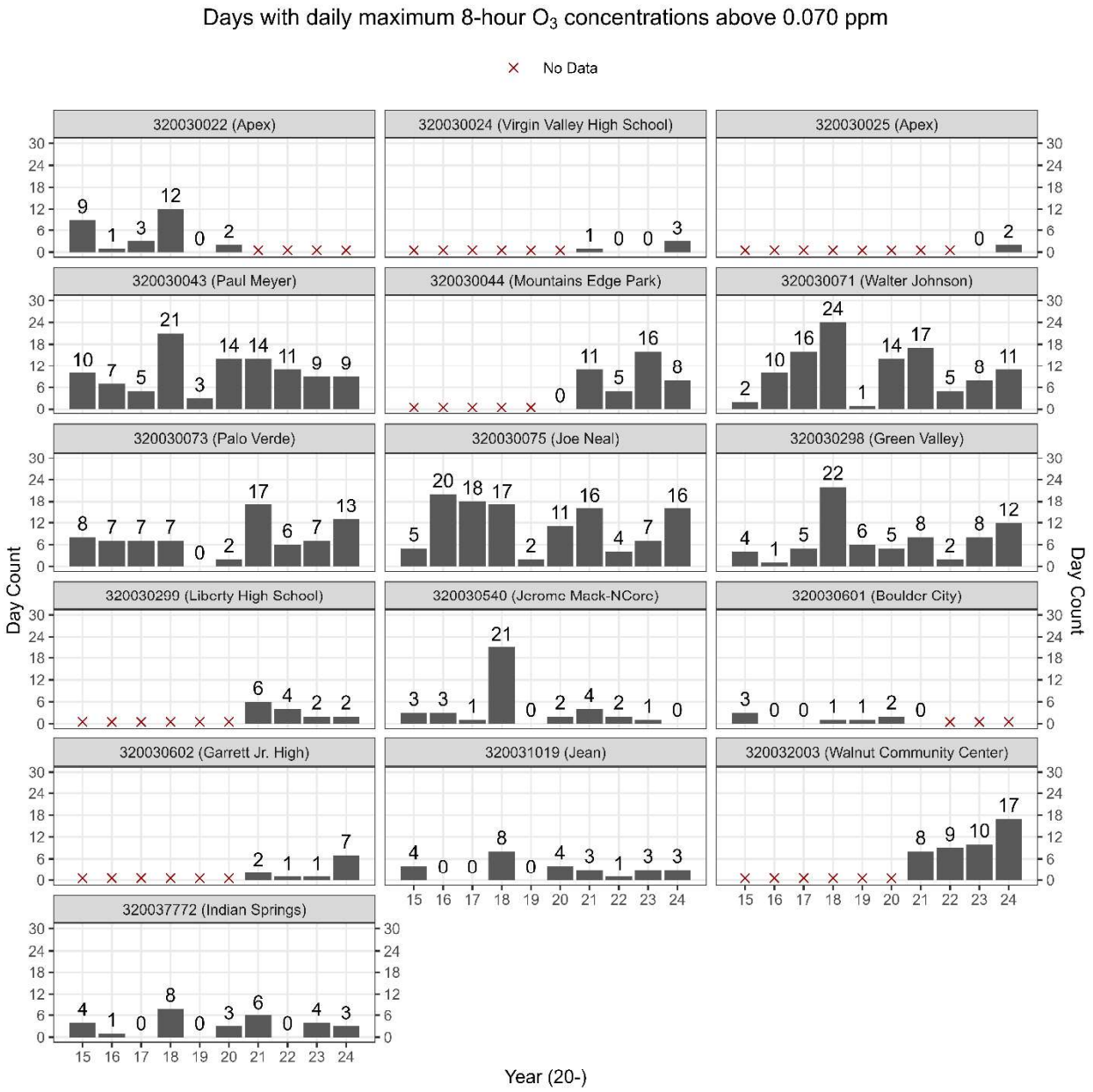
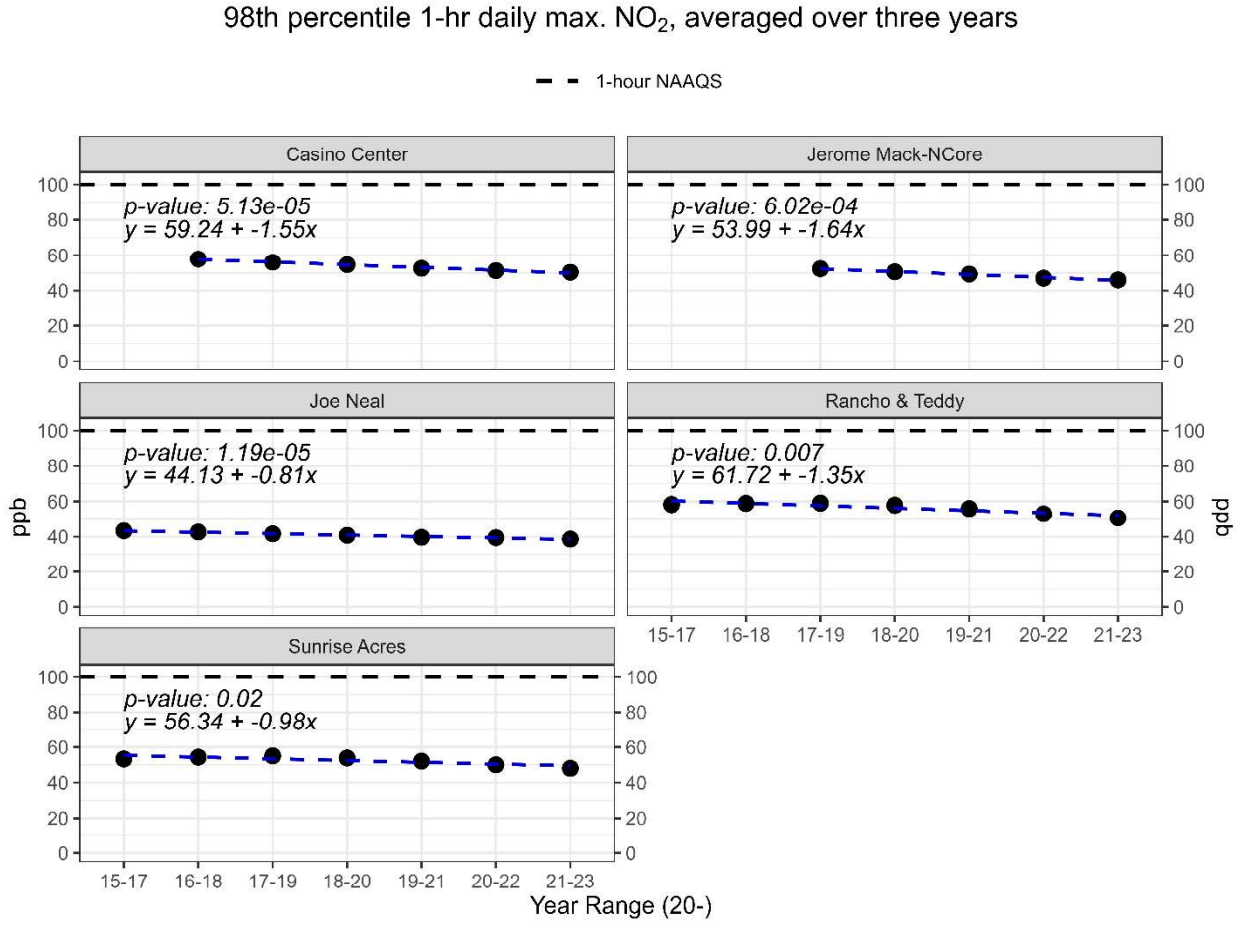


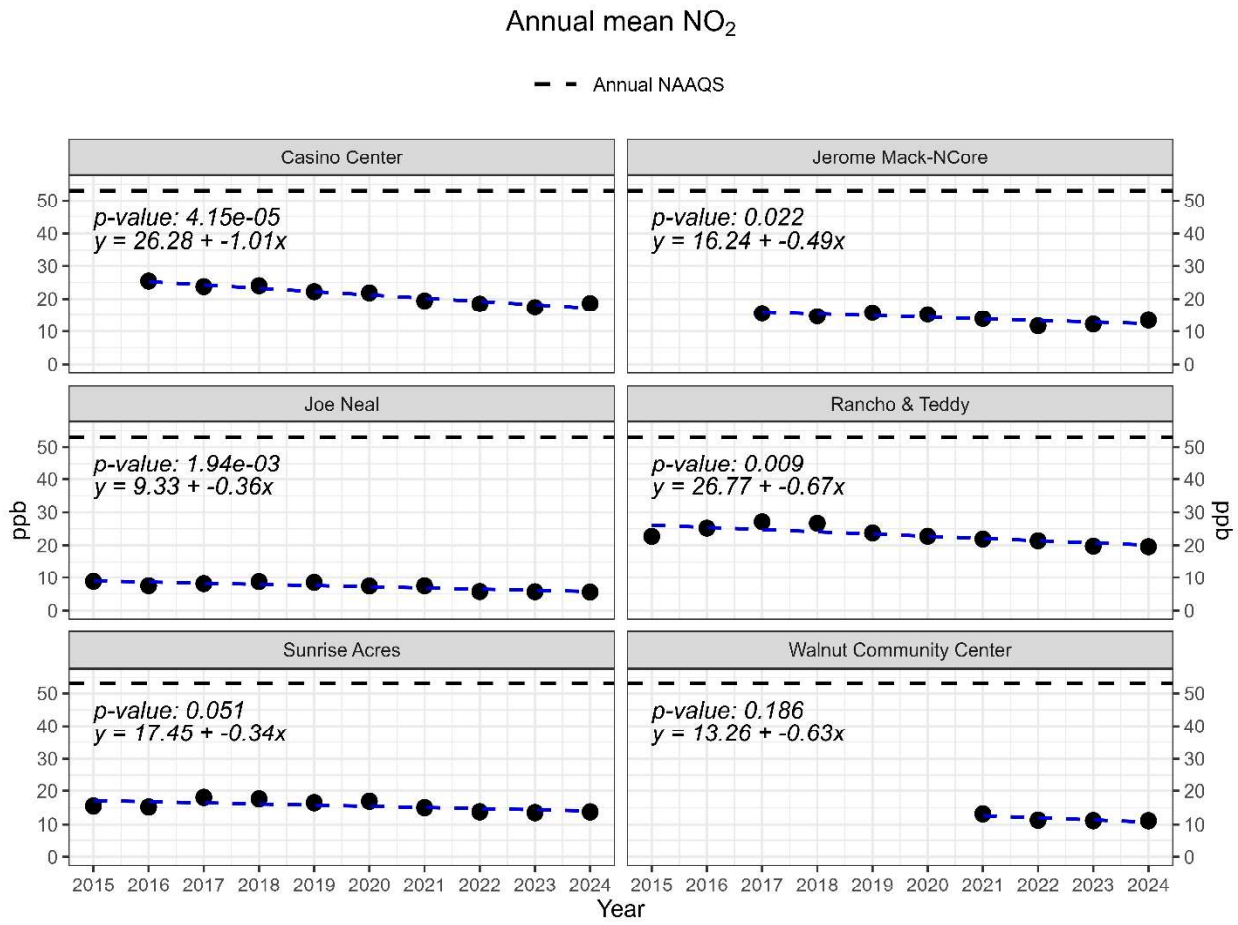
Figure 3-4. Number of Days with Maximum 8-Hour Daily Max. Ozone Concentrations Above 0.070 ppm, 2015–2024.

Figure 3-5 shows the trend in 98th percentile of 1-hour daily maximum NO_2 concentrations, averaged over three years, at each site measuring this parameter. The dashed blue line indicates the predicted concentration based on the linear equation shown in the figure. The trend at each of these sites is statistically significant ($p < 0.05$) and corresponds to a decrease in this NO_2 metric over time. Similarly, Figure 3-6 shows the annual mean of 1-hour NO_2 concentrations at each site. The trends are statistically significant and correspond to a decrease over time.



Note: The dashed blue line indicates the predicted concentration based on the linear equation shown in each panel.

Figure 3-5. 98th Percentile of 1-Hour Daily Maximum NO_2 Concentrations, Averaged Over 3 Years for the Period 2015–2023.



Note: The dashed blue line indicates the predicted concentration based on the linear equation shown in each panel.

Figure 3-6. Annual Mean of 1-Hour NO_2 Concentrations for the Period 2015–2024.

One common type of analysis with air monitoring network data is to compare population density and its changes with monitoring site locations. Figure 3-7 shows population density for 2020, and Figure 3-8 shows the increase in number of people by census tract between 2010 and 2020. The ozone monitoring sites are well distributed to cover typical upwind and downwind directions, urban and rural areas, moderate-to-high population densities, and population growth.

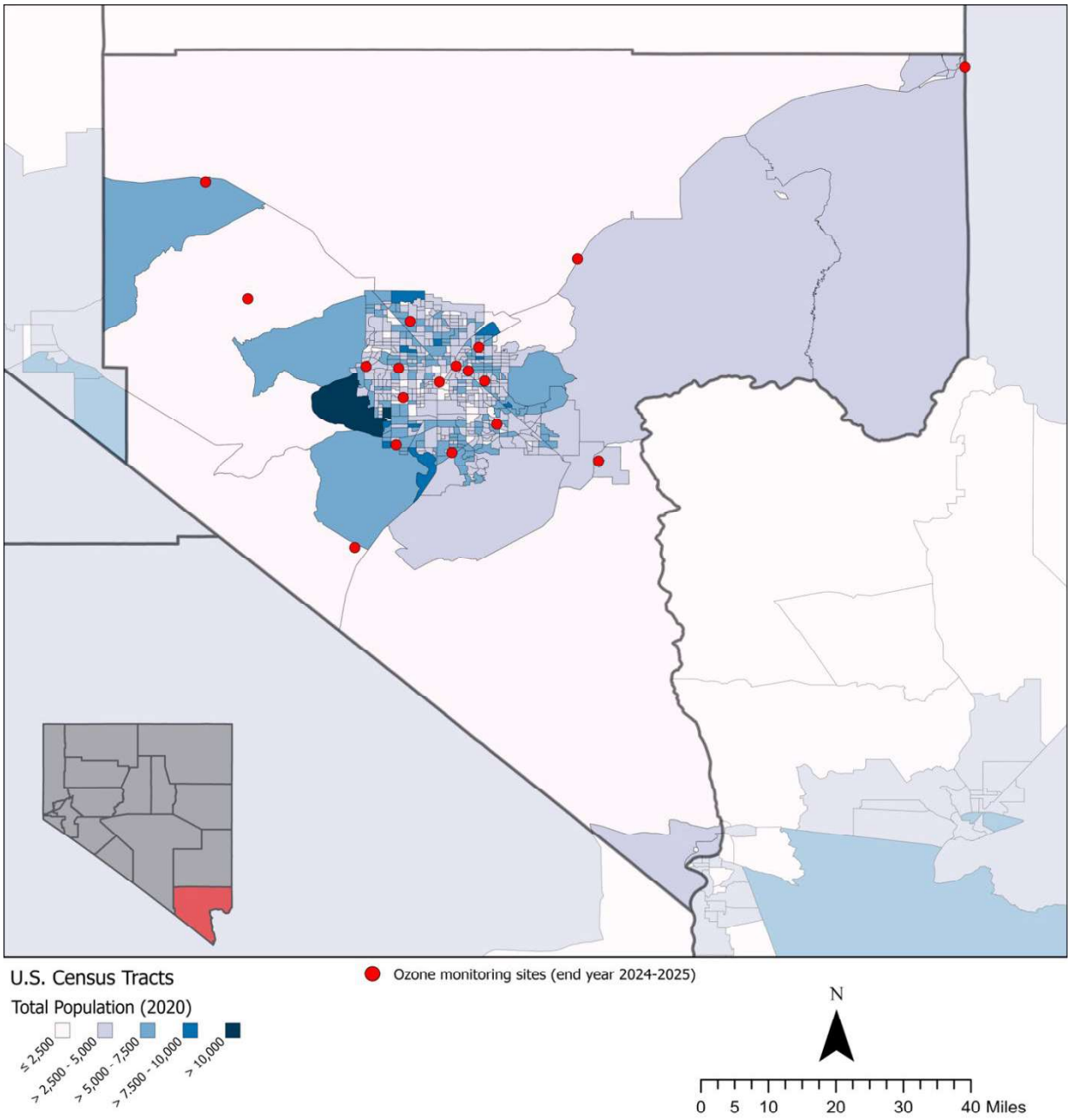


Figure 3-7. Total Population in 2020 by Census Tract, Overlaid with Ozone Monitoring Sites in Clark County in 2025.

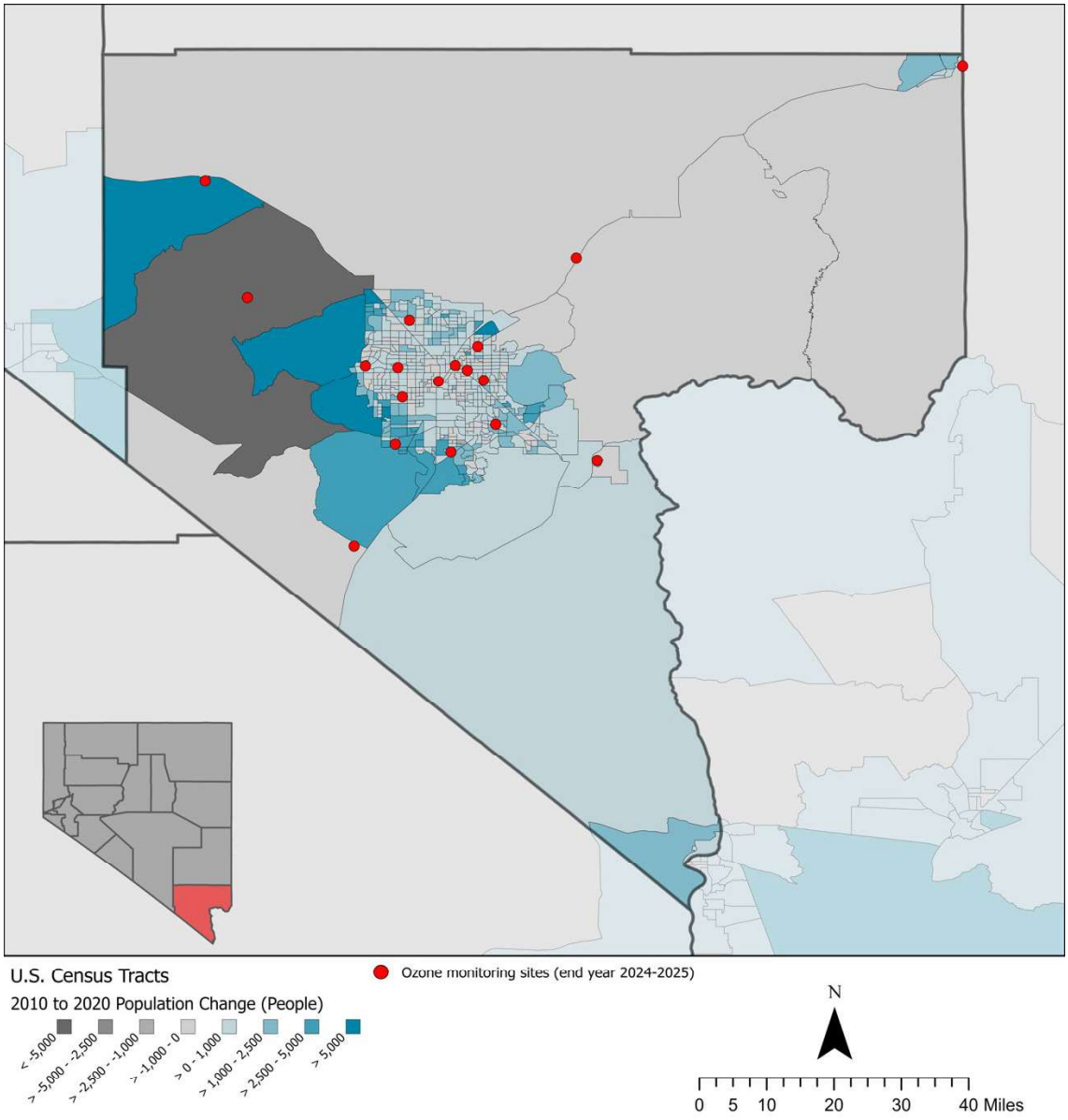


Figure 3-8. Absolute Population Change Between 2010 and 2020 Census Tracts.

3.4 MONITORING NETWORK ADEQUACY

DAQ operates more than the minimum number of ozone monitoring sites and meets or exceeds the monitoring requirements for NO_2, PAMS, and NCore measurements in 40 CFR Part 58, Appendix D. Monitor siting follows EPA requirements, and DAQ follows all quality assurance guidance. In summary:

- **The Number of Ozone Sites Exceeds Requirements.** The minimum number of required ozone monitoring sites in the Las Vegas Metropolitan Statistical Area is *two*, based on 40 CFR Part 58, Table D-2, with a design value that exceeds 85% of the 8-hour ozone NAAQS and a population between 350,000 and 4 million. DAQ operates 15 ozone monitoring sites to support the basic monitoring objectives of public data reporting, air quality mapping, compliance, and understanding ozone-related atmospheric processes. All ozone monitoring sites have been located with considerations of population distribution and expansion in the Las Vegas Valley, occurrences of higher ozone concentrations, and the aim of improved understanding of weather patterns and external influences that might cause higher concentrations of ozone.

- **DAQ Has Implemented the Required PAMS Program Measurements**. PAMS measurement devices must be located in a CBSA with a population of 1 million or more. The Jerome Mack site serves as both the PAMS and NCore program site.

- **NO_2 and NO_y Sites Meet or Exceed Requirements.** Appendix D specifies there must be *one* monitoring station in each CBSA with a population of 1 million or more within the NO_2 network to monitor the expected highest NO_2 concentrations at neighborhood-or-larger spatial scales. DAQ operates two near-road, one NCore, and two area-wide NO_2 monitoring sites. The Jerome Mack NO_2 measurements meet the "true NO_2" requirements for the area. NO/NO_y measurements are included within the NCore multipollutant site requirements and the PAMS program.

4.0 CONTROL STRATEGY

Section 172(c)(1) of the Act requires nonattainment areas to implement all reasonably available control measures as expeditiously as practicable. DAQ has implemented a comprehensive control strategy that incorporates all federal, state, and local control measures providing meaningful emissions reductions necessary for attainment of the 2015 ozone National Ambient Air Quality Standard (NAAQS). The control strategy includes EPA's vehicle and fuel standards, Nevada's vehicle inspection programs, Control Techniques Guidelines (CTGs), reasonably available control technology (RACT) for major stationary sources, enhanced vapor recovery for gasoline dispensing facilities (GDFs), and sector-specific controls.

For the serious ozone nonattainment area classification, Clark County is adopting a new CTG RACT regulation, updating major source RACT for sources with a potential to emit equal to or greater than 50 tons per year (tpy) of volatile organic compounds (VOCs) or nitrogen oxides (NO_x), and an emulsified asphalt contingency measure. Sensitivity analyses confirm that additional VOC or NO_x reductions beyond adopted measures would provide negligible air quality benefits, demonstrating that the control strategy described in this section achieves all emission reductions necessary and practicable for attainment.

4.1 BACKGROUND

EPA's 2015 Ozone Implementation Rule requires areas classified as "serious nonattainment" to submit an attainment demonstration that provides for emissions reductions (i.e., a control strategy) as necessary to attain the NAAQS by the attainment date: in other words, all control measures needed for attainment must be implemented as expeditiously as practicable, but no later than the beginning of the ozone season in the attainment year (40 CFR Part 51.1308(d)).

A control strategy is the suite of existing and future control measures leading to permanent and enforceable emissions reductions that DAQ will implement in the nonattainment area to comply with national, regional, state, and local regulations. The attainment demonstration shows that HA 212 will meet the 2015 ozone NAAQS by the attainment year. Projected 2026 design values (DVs) at all monitoring sites are at or below 70 parts per billion (ppb). Future-year modeling incorporates VOC reductions from all the Moderate SIP control measures, including the existing local control measures listed in Section 4.4. The control strategy also includes Nevada and federal motor vehicle emissions standards.

Modeling sensitivity analyses indicate that additional VOC or NO_x reductions beyond these adopted measures would provide negligible ozone benefits, demonstrating that the modeled control strategy achieves the reductions needed for attainment. Specifically, attainment demonstration modeling predicts that 2026 DVs, without additional control measures, are below 70 ppb at all monitoring stations. Table 4-1 shows that the highest predicted 2026 three-year average DV is 70 ppb, at the Mountains Edge Park and Walnut Community Center monitoring stations.

Table 4-1. 2026 Predicted Future DVs Based on Existing Control Measures

Monitoring Site ID	Site Name	2026 Modeled DV (ppb) with Existing Control Measures (base case)
320030024	Virgin Valley H.S.	62
320030043	Paul Meyer	69
320030044	Mountains Edge Park	70
320030071	Walter Johnson	69
320030073	Palo Verde	68
320030075	Joe Neal	69
320030298	Green Valley	67
320030299	Liberty H.S.	67
320030540	Jerome Mack-NCore	64
320030602	Garrett Jr. H.S.	66
320031019	Jean	66
320032003	Walnut Community Center	70
320037772	Indian Springs	64

This chapter outlines the existing, permanent, and enforceable control requirements that form DAQ's control strategy for the HA 212 nonattainment area. Existing federal, state, and local controls are discussed first, followed by a description of new local controls. New federal rules that do not result in emissions reductions until 2027 are not addressed.

4.2 FEDERAL CONTROLS

EPA has adopted several national rules that require VOC and NO_x emissions reductions from stationary and mobile sources. These rules provide emissions reductions between 2017 (base year) and 2026 (attainment year), resulting in ambient air quality benefits to HA 212.

4.2.1 Tier 3 Emission Standards for Vehicles and Gasoline Sulfur Standards

In April 2014, EPA finalized the Tier 3 Motor Vehicle Emissions and Fuel Standards Rule, which required production of cleaner vehicles and lower-sulfur fuel. The rule, which phased in between 2017 and 2025 (79 FR 23414), reduces emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. Tier 3 requires all passenger vehicles to meet an average standard of 0.03 gram/mile of NO_x. These standards for light-duty vehicles were projected to reduce NO_x and VOC emissions by approximately 80% nationwide. Tier 3 also includes evaporative standards using onboard diagnostics systems that reduce VOC emissions by 50% compared to Tier 2 requirements (79 FR 23414).

4.2.2 Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements

In January 2001, EPA issued a final rule for highway heavy-duty engines, a program that includes low-sulfur diesel fuel standards, requiring reductions beginning in 2004 (66 FR 5002). This rule applies to heavy-duty gasoline and diesel trucks and buses. Fleet turnover will continue

to reduce emissions from these mobile sources, and EPA's MOtor Vehicle Emission Simulator (MOVES) model accounts for continued emissions reductions from this program in future years.

EPA estimates the rule will result in a 40% reduction in NO_x from diesel trucks and buses nationwide. In December 2022, EPA issued a new rule (the "Clean Trucks Plan") that lowered the NO_x standard for heavy-duty engines to 0.035 milligrams/horsepower-hour beginning with model year 2027. Since the emissions reductions occur beyond the attainment date, this rule does not provide creditable emissions reductions for this SIP; however, it will contribute to continued air quality improvements and maintenance of the ozone standard in subsequent years.

4.2.3 Safer Affordable Fuel Efficient Vehicles Final Rule

In April 2020, EPA and the National Highway Traffic Safety Administration issued a final rule that requires automakers to improve fuel efficiency by 1.5% beginning in model year 2021 and continuing through model year 2026 (85 FR 24174). While the rule targets reductions in carbon dioxide emissions, it will reduce NO_x and VOC emissions as a co-benefit.

4.2.4 Clean Air Non-road Diesel Rule

In June 2004, EPA issued the Clean Air Non-Road Diesel Rule (69 FR 38958), which applies to diesel engines used in such industries as construction, agriculture, and mining. The rule contains cleaner fuel standards and Tier 4 engine emission standards that were phased in from 2008 to 2015. With the phase-in complete, equipment turnover continues to reduce emissions as older, higher-emission equipment is replaced by Tier 4-compliant equipment. EPA estimates emissions reductions will continue through 2030.

4.2.5 Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2

In October 2016, EPA finalized changes to a federal rule to reduce greenhouse gas (GHG) emissions from medium- and heavy-duty engines and vehicles (81 FR 73478). The rule sets GHG emissions standards for heavy-duty vehicles covering model years 2018–2027 for certain trailers, and model years 2021–2027 for semitrailer trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. Although this rule primarily targets GHG emissions, it will lower NO_x and VOC emissions over time due to fleet turnover.

4.2.6 Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards

In December 2021, EPA finalized changes to existing federal rules to reduce GHG emissions from cars and light-duty trucks, including sport utility vehicles (86 FR 74434). The rule requires GHG emissions reductions starting with model year 2023, which will reduce NO_x and VOC emissions as a co-benefit. This rule applies nationwide and will ensure continued emissions reductions as the vehicle fleet turns over.

EPA published a proposed rule on August 1, 2025, "Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards" (90 FR 36288), proposing to reconsider GHG

emissions standards for light-duty vehicles. The existing rule remained final and effective as of January 1, 2025, so is included in this attainment demonstration. Should EPA finalize changes to this rule, DAQ will assess the impacts and take necessary action.

4.2.7 Control of Emissions for Nonroad Spark-Ignition Engines and Equipment

In October 2008, EPA set emission standards for new non-road spark-ignition engines (73 FR 59034). Starting in 2011/2012, exhaust emissions standards apply for different sizes of new land-based, spark-ignition engines at or below 19 kilowatts. These small engines are used primarily in lawn and garden applications, and emissions reductions will continue as engines are replaced.

4.2.8 Reciprocating Internal Combustion Engines Standards

EPA has issued multiple regulations that cover different types of reciprocating internal combustion engines (RICE):

- Existing, new, and reconstructed stationary RICE of 500 horsepower (hp) or more located at major sources (69 FR 33474).
- New and reconstructed stationary RICE located at area sources of hazardous air pollutant (HAP) emissions, and new and reconstructed stationary RICE with a site rating of 500 hp or less located at major sources of HAP emissions (73 FR 3568).
- Existing stationary compression ignition (CI) RICE with a site rating of 500 hp or less located at major sources, existing nonemergency CI engines with a site rating higher than 500 hp located at major sources, and existing stationary CI RICE of any site rating located at area sources (75 FR 9648).
- Stationary spark-ignition RICE located at area sources of HAP emissions, or with a site rating of 500 brake-hp or less located at major sources of HAP emissions (75 FR 51570).

These regulations will continue to produce emissions reductions as old engines are rebuilt or replaced.

4.2.9 Emissions Standards for Locomotive Engines

On June 30, 2008, EPA promulgated regulations to reduce NO_x emissions from locomotive engines (73 FR 37096). The controls apply to all types of locomotives, including line-haul, switch, and passenger. Emissions standards for newly built engines phased in starting in 2009; longer-term standards for newly built locomotives took effect in 2015. EPA projects this rule will continue to reduce NO_x emissions through 2030.

4.2.10 NO_x Emission Standard for New Commercial Aircraft Engines

On June 18, 2012, EPA adopted emission standards for aircraft gas turbine engines with rated thrusts greater than 26.7 kilonewtons (77 FR 36342), used in commercial passenger and freight aircraft. The rule includes two new tiers of NO_x emissions standards, referred to as Tier 6 standards and Tier 8 standards. The Tier 6 standards became effective for newly manufactured aircraft

engines beginning in 2013. EPA projected cumulative NO_x reductions associated with these standards to be about 100,000 tons from 2014–2030 (77 FR 36346).

4.2.11 National Volatile Organic Compound Emissions Standards for Consumer Products

In 1998, EPA finalized 40 CFR Part 59, Subpart C under Section 183(e) of the Act. The rule requires manufacturers, importers, and distributors to limit the VOC content of consumer products. EPA estimated the final rule would reduce VOC emissions by 90,000 tpy nationwide (63 FR 48819).

4.3 EXISTING STATE CONTROL MEASURES

4.3.1 Nevada Revised Statutes, Chapter 445B.780: Heavy-Duty Vehicle Program

The Nevada Division of Environmental Protection (NDEP) and the Nevada Department of Motor Vehicles (DMV) jointly developed this rule to reduce motor vehicle-related pollution by limiting excessive tailpipe or smokestack emissions from any gasoline- or diesel-powered vehicle with a manufacturer's gross vehicle weight rating (GVWR) of 14,001 pounds (lb) or more.

Heavy-duty vehicles are pulled over for random roadside testing to determine if the exhaust from their vehicle exceeds state opacity standards. Violators are notified and required to repair and retest the vehicle within 30 days. Fleets may request opacity testing in their fleet yard; if violations are found, fleet managers are notified and vehicles are voluntarily repaired and retested.

4.3.2 Nevada Revised Statutes, Chapters 445B.700-835: Inspection and Maintenance Program

The Inspection and Maintenance Program was developed by NDEP and the Nevada DMV in coordination with local air quality jurisdictions (including Clark and Washoe counties) and other stakeholders (through the Advisory Committee on the Control of Emissions from Motor Vehicles). The program, administered by the DMV, reduces motor vehicle-related NO_x and VOC emissions through vehicle inspections and emissions-related repairs. Emissions testing is required annually in Clark County before renewing a vehicle's registration. All gasoline-powered vehicles must be tested (with limited exceptions), as well as diesel-powered vehicles weighing up to 14,000 lb GVWR.

4.4 EXISTING LOCAL CONTROL MEASURES: CLARK COUNTY AIR QUALITY REGULATIONS

4.4.1 Section 0, "Definitions"

This section defines key terms used throughout the AQRs. For development of the Moderate SIP, DAQ amended it to include definitions for implementing local control measures. The amendments were submitted by NDEP to EPA on January 10, 2025, and are awaiting EPA approval.

4.4.2 Section 12.0, "Applicability and General Requirements for Permitting Stationary Sources"

This section contains general requirements for permitted stationary sources, including a requirement for permitting a stationary source that is subject to a SIP regulation. DAQ proposed amendments to Section 12.0 to address EPA concerns regarding conflicts between its summary applicability provisions and specific applicability criteria in individual Section 12 series AQRs. The amendments removed the summary applicability provisions from Section 12.0 but retained the general permitting requirements. The Clark County Board of County Commissioners (BCC) approved these amendments on March 17, 2026, and DAQ will submit them as part of this SIP. Specific applicability criteria will remain in the individual Section 12 series AQRs.

4.4.3 Section 12.1, "Permit Requirements for Minor Sources"

This section requires all minor stationary sources to obtain a permit to construct and operate if they have the potential to emit 5 tpy or more of VOC or NO_x. Some emission units at these minor stationary sources must comply with reasonable RACT requirements.

As part of the 2024 Moderate SIP, DAQ added a requirement to obtain a minor source permit if another AQR section requires the stationary source to obtain that permit. Section 102, which regulates GDFs in moderate or higher ozone nonattainment areas, requires certain owners or operators to obtain a minor source permit even if their potential to emit is less than 5 tpy. DAQ added a requirement that minor stationary sources located within a nonattainment area may be subject to additional requirements imposed to reduce the targeted pollutant(s).

These Moderate SIP amendments to Section 12.1 were submitted to EPA on January 10, 2025. EPA provided feedback identifying approvability issues, and DAQ proposed additional amendments to Section 12.1 to resolve those concerns. The BCC approved those revisions on December 2, 2025, and DAQ will submit them separately from this SIP.

Section 12.11 requires owners or operators of a minor source that is a member of a specific source class and is subject to the permit requirements of Section 12.1 to obtain an authority to operate under a general permit issued by the Control Officer. Revisions to Section 12.11 were submitted to EPA on January 10, 2025, and are pending final action.

4.4.4 Sections 12.3–12.5, Permit Requirements for Major and Part 70 Stationary Sources

These sections require all major and Part 70 stationary sources to obtain a permit to construct and operate. Section 12.3 requires some stationary sources in HA 212 to comply with the more stringent lowest achievable emission reduction requirement; Section 12.4 requires some emission units to comply with RACT requirements; and Section 12.5 collects the requirements of Sections 12.3 and 12.4 into those for an operating permit.

Amendments to Sections 12.3 and 12.4 were submitted to EPA on January 31, 2022 (NDEP 2022). Based on EPA feedback, DAQ will propose additional amendments to resolve approvability issues and to incorporate federal major sources thresholds and offset requirements for serious

ozone nonattainment areas (40 CFR Part 51.165). The rule revisions will go before the BCC on May 19, 2026, then be submitted to EPA if approved as part of this SIP.

4.4.5 Sections 101–107, 13.3, and 14.2

This section covers all AQRs that were previously implemented to meet CTG RACT requirements for the Moderate SIP.

After BCC approval and adoption, these CTG RACT rules were submitted to EPA on March 7, 2025, as part of the Moderate SIP submittal and remain pending with EPA for approval. No amendments to these sections are planned for this SIP submittal except to Section 102, on which EPA provided feedback. The BCC approved amendments to Section 102 on December 2, 2025, which will be submitted for EPA approval separately from this SIP.

Sections 101–107 are generally structured alike, with similar applicability provisions. Section 107 (cutback asphalt operations) applies throughout Clark County; Sections 101–106 apply to owners or operators of stationary sources with certain specified operations when that source is located in an area EPA has designated as ozone nonattainment and has classified as moderate or higher after January 5, 2023, the date EPA published the notice classifying HA 212 as a moderate ozone nonattainment area. These regulations will continue to apply to stationary sources in such an area even after EPA redesignates the area to attainment, i.e., they will still apply during the maintenance period. Sections 13.3 and 14.2 will become federally enforceable in all areas of Clark County after they are incorporated into the SIP.

Sections 101 and 103–106 have similar applicability thresholds: stationary sources with projected maximum emissions of VOCs from specified operations equal to or greater than 3.0 tons per calendar year must meet specific emissions standards and work practice requirements. Stationary sources with emissions below this threshold must meet work practice requirements only. Rule applicability is based on total calendar year emissions, from the beginning of January to the end of December. Owners or operators of these sources are not required to calculate a rolling 12-month total of emissions.

Applicability thresholds for Sections 102 and 107 are structured differently. Section 102 applies to all GDFs, though it provides for exemptions based on throughput. For the Moderate SIP, Section 102 included California Air Resources Board-certified enhanced vapor recovery (EVR) requirements as a contingency measure. These were triggered when EPA reclassified HA 212 as a "serious" ozone nonattainment area effective January 21, 2025; the Control Officer provided written notice activating the EVR requirements on January 21, 2025 (DES 2025c). GDFs with throughput equal to or greater than 120,000 gallons in any consecutive 12-month period must install and operate certified EVR systems that achieve 98% vapor control efficiency for underground storage tanks and 95% for aboveground storage tanks.

Section 107 has the same applicability threshold as the other 100 series rules—based on projected maximum VOC emissions equal to or greater than 3.0 tons per calendar year—but requires the owner or operator to compare maximum emissions from all worksites combined, rather than from a single stationary source, to the threshold. A worksite includes any location in Clark County where asphalt is manufactured, sold, mixed, used, and/or stored by the same owner

or operator. The applicability of Section 107 extends beyond the boundaries of HA 212 to ensure the rule remains at least as stringent as the existing SIP-approved regulation, Section 60.4. As part of the Moderate SIP submission, NDEP requested removal of Section 60.4 from the SIP. That request is still pending EPA approval.

In Sections 13.3 and 14.2, DAQ adopted, through incorporation by reference, federal New Source Performance Standards regulations (40 CFR Part 60, Subparts K, Ka, Kb, XX, and XXa) and National Emission Standards for Hazardous Air Pollutants regulations (40 CFR Part 63, Subpart BBBBBB). These meet or exceed the presumptive RACT requirement for bulk gasoline plants and terminals, petroleum storage, and associated equipment leaks. Along with the incorporation of these regulations and Section 102, DAQ requested the removal of Sections 50–52 and 60.1 from the SIP because the newly incorporated rules are at least as stringent as the existing rules. In addition, removing the existing rules will streamline compliance obligations under the more thorough requirements in the federal rules. This recission request was submitted to EPA on March 7, 2025, as part of the Moderate SIP and is pending approval.

All owners or operators subject to Sections 101 and 103–107 are required to meet registration, notification, recordkeeping, and reporting requirements, as applicable. Owners or operators subject to Section 102 must comply with registration requirements unless the GDF is required to obtain a stationary source permit. Sections 101 and 103–107 became effective between April 2, 2024, and May 21, 2024. These sections provided existing owners or operators 6 months to submit registrations and begin complying with the emissions standards and work practices requirements; owners or operators electing to install a new emissions control system were provided up to 18 months after the effective date to comply. New sources must comply with the new emission standards upon beginning normal operations, and with the registration requirements within 45 days of becoming subject to the regulation. Existing sources that become newly subject to the rule after the first compliance date must comply upon meeting the applicability threshold.

Some activities are exempt under the rules; these exemptions are tailored to specific types of equipment in each individual rule. Also, operations that use less than 500 gallons (5,000 lb in Section 106) of materials per calendar year are exempt from Sections 101 and 103–106.

Section 102 has different compliance dates than the other rules, which are included in individual provisions in the emissions standards rather than gathered into a single compliance date section. Some provisions were immediately effective upon adoption because Section 102 replaced existing SIP-approved Section 52, which already required compliance with those provisions. New Section 102 provisions provided owners and operators up to one year to comply.

The new sections that set minimum VOC content requirements on materials allowed an owner or operator to continue to use existing material inventory until 12 months after the effective date of the rule or 12 months after first becoming subject to the rule, whichever was later. During this time, an owner or operator could use existing material inventory without complying with the emissions standards, but could not purchase new, noncompliant material without using a compliant emissions control system. The two exceptions are Section 101, which allows a total volume of less than 55 gallons per calendar year of noncomplying materials, and Section 106, which

allows a total volume of 110 gallons per calendar year of noncomplying cleaning materials, but only in offset lithographic and letterpress printing operations.

4.4.6 Section 28, "Fuel Burning Equipment"

This section applies to fuel burned for the primary purpose of producing heat or power by indirect heat transfer. It regulates the burning of coke, coal, lignite, coke breeze, fuel oil, and wood, but not refuse. The rule targets reductions in coarse particulate matter (PM_{10}) emissions, but by promoting good combustion practices, the rule produces NO_x and VOC emissions reduction co-benefits.

4.4.7 Section 42, "Open Burning"

This section prohibits open burning except as expressly authorized by the Control Officer. It particularly prohibits open burning during ozone events.

4.4.8 Section 130, "VOC Emissions Control for Architectural and Industrial Maintenance Coatings"

DAQ adopted this regulation to control the VOC content in architectural and industrial maintenance coatings, including paint, primers, varnishes, or lacquers, as well as solvents used as thinners and for cleanup. The term "architectural coating" refers to a coating applied to such things as stationary structures, portable buildings, pavements, and curbs. This rule will not apply to (1) coatings applied in shop applications or to nonstationary structures (e.g., airplanes, ships, railcars, automobiles), (2) adhesives, and (3) containers of 1 liter or less.

DAQ based its rule on the Ozone Transport Commission model rule (Phases I–II), which recommends reducing VOC emissions by regulating the VOC content of architectural and industrial maintenance coatings sold, supplied, offered for sale, applied, solicited for the application of, or manufactured for use in Clark County. Section 130 was submitted to EPA on March 7, 2025, as part of the Moderate SIP and is pending approval.

Section 130 was submitted to EPA on March 7, 2025, as part of the moderate area SIP submittal and is pending EPA approval.

4.5 NEW LOCAL CONTROL MEASURES: CLARK COUNTY AIR QUALITY REGULATIONS

As part of serious nonattainment area 2015 ozone NAAQS requirements, DAQ will adopt new regulations to further reduce VOC emissions. These regulations will implement CTG RACT for applicable stationary source categories that commenced operation after the initial CTG RACT analysis was conducted for the Moderate SIP submittal, establish VOC and/or NO_x RACT for all major sources, and include an additional contingency measure consistent with Section 172(c)(9) of the Act. The contingency measure will take effect automatically if the area fails to attain the NAAQS by the attainment date or fails to meet required milestones, without further action from the state or EPA. Once approved, this SIP will include the following new regulations:

- Section 108, "VOC Emissions Control for Paper, Film, Foil, Fabric, and Vinyl Coating Operations" (CTG RACT).
- Section 122, "Reasonably Available Control Technology for Major Stationary Sources in HA 212" (existing major source RACT).
- Section 131, "VOC Emissions Control for Emulsified Asphalt" (contingency measure).

The BCC approved the adoption of Section 131 on March 17, 2026. Sections 108 and 122 will be brought before the BCC for approval on June 2, 2026. Under 40 CFR Part 51.1308(d), only emissions reductions from control measures implemented before the beginning of the attainment year ozone season may be credited in the attainment demonstration; therefore, emission reductions associated with these regulations were not included in the attainment modeling analysis. However, these rules will continue to protect air quality in the future as part of the ongoing control strategy.

These rules are summarized below and discussed in greater detail in Chapter 6, "RACT Analysis," and Chapter 9, "Contingency Measures," and will be submitted as part of this SIP.

4.5.1 Section 108, "VOC Emissions Control for Paper, Film, Foil, Fabric, and Vinyl Coating Operations"

DAQ will adopt a regulation to control VOC emissions from paper, film, foil, fabric, and vinyl coating operations, in accordance with EPA's CTG. This rule limits the amount of VOC emissions by requiring the owner or operator to use compliant low-VOC coating or an approved emission control system for paper, film, foil, fabric, and vinyl coating. It applies to all paper, film, foil, fabric, and vinyl coating operations with projected maximum VOC emissions from specified operations equal to or greater than 3.0 tons per calendar year.

This new rule will apply to two stationary sources: one fabric coating source and one paper coating source. The fabric coating operation was newly permitted in 2025, and the paper coating operations are located at an existing source.

4.5.2 Section 122, "Reasonably Available Control Technology for Major Stationary Sources in HA 212"

Section 122 establishes emissions standards that fulfill major source RACT requirements for the "serious" classification, consistent with Section 182(c) of the Act. This rule applies to affected major stationary sources of VOC and/or NO_x in the area with actual or potential emissions at or above 50 tpy, requiring them to comply with specified equipment-based emissions limitations. DAQ determined that existing control requirements satisfied RACT for each affected source, so no additional emissions reductions are expected from this regulation.

This rule will replace locally effective Section 121, which was adopted and submitted to EPA to implement major source RACT requirements for the moderate ozone nonattainment area. EPA raised approvability concerns with the rule and, rather than revise it, DAQ developed Section 122 to satisfy serious nonattainment area major source RACT requirements. On BCC approval, Section 121 will be repealed and Section 122 will replace it.

4.5.3 Section 131, "VOC Emissions Control for Emulsified Asphalt"

Section 131 controls the VOC content in emulsified asphalt. This rule establishes a maximum VOC content limit of 3% by volume for the manufacture, sale, mixing, storage, supply, or use of emulsified asphalt within HA 212.

The BCC approved Section 131 on March 17, 2026, and it became effective April 1, 2026. However, the control requirements will not be triggered unless EPA finds HA 212 failed to achieve attainment by the attainment date, failed to meet Reasonable Further Progress requirements, or failed to meet a milestone required under 40 CFR Part 51.1310(c). Also, the Control Officer must provide written notice that the contingency measure applies. This automatic triggering mechanism ensures that additional VOC emission reductions will be achieved without further state or EPA rulemaking action, as Section 172(c)(9) of the Act requires.

Once triggered and enforceable, Section 131 will reduce VOC emissions associated with emulsified asphalt paving and maintenance operations throughout HA 212.

5.0 REASONABLY AVAILABLE CONTROL MEASURES

5.1 INTRODUCTION

Section 172(c)(1) of the Clean Air Act (Act) requires states to implement Reasonably Available Control Measures (RACM) to support attainment of the National Ambient Air Quality Standards (NAAQS) as expeditiously as practicable. Specifically, the Act states:

> **(1) IN GENERAL**
> Such plan provisions shall provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and shall provide for attainment of the national primary ambient air quality standards. [42 U.S.C. 7502(c)]

EPA has not identified a specific set of control measures that qualify as RACM: "Under EPA's policy concerning RACM, there are no measures that are automatically deemed RACM" (70 FR 71612). Instead, the agency recognizes that the requirement for RACM relates to the requirement to attain the NAAQS: EPA determined that it may approve any SIP submittal lacking specific RACM control measures if the state demonstrates "(a) that reasonable further progress and attainment of the NAAQS are assured, and (b) that application of all RACM would not result in attainment any faster" (44 FR 20372). EPA's interpretation of the RACM requirement has been litigated and upheld by several courts (e.g., *Sierra Club v. EPA,* 314 F.3d 735 (5th Cir. 2002); *Sierra Club v. EPA,* 294 F.3d 155 (D.C. Cir. 2002)).

This section briefly explains the control technologies considered for RACM and DAQ's conclusions on whether any control measures qualify as RACM for this attainment plan. Appendix E contains the complete RACM list and analysis.

5.2 CONTROL MEASURE EVALUATION

DAQ developed a list of potential control measures using EPA's "Menu of Control Measures" (EPA 2022b). This menu provides a broad list of potential measures for reducing nitrogen oxide (NO_x) and volatile organic compound (VOC) emissions. DAQ also consulted with the Regional Transportation Commission of Southern Nevada (RTC) to identify potential transportation control measures that could be applied to reduce mobile source emissions and considered transportation and non-transportation control measures from other state and local RACM plans, including those from New Jersey, California, Maryland, New York, and Arizona's Maricopa County.

After a thorough evaluation of control measures available for HA 212, DAQ found that none qualified as RACM under EPA's established criteria. Attainment modeling results and supporting weight of evidence findings demonstrate that ambient ozone air quality levels in HA 212 will reach attainment without additional local VOC or NO_x control measures. Sensitivity modeling further demonstrated that adoption of additional local measures provided little change in the predicted 2026 design value (DV), and some NO_x emissions reductions could even increase ambient ozone concentrations near some monitors. Chapter 8 further describes attainment modeling,

weight of evidence, and sensitivity modeling efforts; Appendix E provides technical and methodological details.

DAQ cannot implement any potential control measure identified in the RACM analysis (Appendix B) in time to advance the attainment date by 1 year. EPA requires implementation of ozone control measures before the last full ozone season preceding the attainment date, which for HA 212 is August 3, 2027. To advance that date to August 3, 2026, DAQ would have had to adopt control measures and put them into effect by December 31, 2025, which would have meant a SIP planning period of less than a year—not enough time to complete the evaluation, rule development, adoption, and implementation processes necessary for the control measure to achieve creditable emission reductions for the 2026 ozone season.

In summary, existing federal and local ozone control measures, along with reductions in transported pollution, are projected to bring HA 212 into attainment with the 2015 8-hour ozone NAAQS by August 3, 2027. Therefore, no additional control measures are needed. It was also not feasible to implement additional control measures to advance the attainment date by at least 1 year because such measures could not have been adopted and put into effect by the end of 2025. Therefore, there are no control measures that satisfy the RACM criteria.

6.0 REASONABLY AVAILABLE CONTROL TECHNOLOGY

6.1 INTRODUCTION

EPA's implementation rule for the 2015 ozone standard (40 CFR Part 51.1312(a)) requires air pollution control agencies to submit a SIP revision that meets the Clean Air Act's volatile organic compounds (VOC) and nitrogen oxides (NO_x) reasonable available control technology (RACT) requirements for any nonattainment area classified as "moderate" or higher. Specifically, Sections 172(c)(1), 182(b), and 182(f) of the Act require that RACT apply to VOC emissions from each source category for which EPA has issued Control Techniques Guidelines (CTGs) and from all major sources of VOCs or NO_x. For a serious nonattainment area such as HA 212, "major stationary source" is defined as a stationary source that emits, or has the potential to emit (PTE), at least 50 tons per year (tpy) of either VOC or NO_x (see Section 302(j) of the Act; Section 182 of the Act uses the terms "major stationary source" and "major source" interchangeably).

The Clark County Air Quality Regulations (AQRs) require stationary sources to comply with RACT under Sections 12.1.3.6 and 12.4.3 for significant permitting changes and under Section 120 for all major sources within an ozone nonattainment area. Section 0, "Definitions," defines RACT as:

> the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economical feasibility.

Sections 12.1.3.6 and 12.4.3 apply when a stationary source proposes to construct or modify an emissions unit and the change will cause either (1) a significant increase in the PTE of a minor stationary source, or (2) an emissions increase greater than the minor New Source Review (NSR) significant level for a pollutant at a major source. For NO_x and VOC emissions increases in a serious ozone nonattainment area, the minor NSR significant levels are 12.5 tpy for Part 70 sources and the significant levels are 20 tpy for minor sources (Sections 12.1.1 and 12.4.2.1).

Section 120 requires owners and operators of affected major sources in certain ozone nonattainment areas to submit a major source RACT demonstration within 120 days, following notification from the Control Officer. Therefore, when areas are reclassified and EPA requires states to reevaluate previously applied RACT to determine whether it still meets current requirements, major sources must perform a new RACT analysis under Section 120.

For the Moderate SIP, DAQ requested that specific major sources voluntarily submit a VOC and/or NO_x RACT analysis. Using the information submitted, DAQ made final RACT determinations and codified RACT requirements in Section 121 for those major sources. After EPA reclassified HA 212 to serious nonattainment, DAQ notified major sources with a VOC and/or NO_x PTE of 50 tpy or more that they must comply with Section 120. A RACT demonstration was required for all affected emissions units at the affected major sources (emission units [EUs] with a VOC or NO_x PTE of 5 tpy or more). For this SIP, DAQ reevaluated RACT for these sources. SIP Chapter 6.32 summarizes the findings, and Appendix D provides full documentation.

DAQ also reviewed CTG applicability to local sources. For the Moderate SIP, DAQ identified 11 CTG source categories operating within HA 212 and promulgated rules covering 10. The existing rules ensure at least the presumptive RACT level of control for each covered CTG source category. As part of this SIP submittal, DAQ conducted an updated CTG applicability review and will promulgate one new rule to cover CTG categories identified as present in HA 212, but for which DAQ had not yet promulgated rules (see Section 6.2.1 for more information). This chapter summarizes CTG RACT analysis and documentation; Appendix C provides details.

6.2 CONTROL TECHNIQUES GUIDELINES FOR REASONABLY AVAILABLE CONTROL TECHNOLOGY

Sections 108 and 183 of the Act direct EPA to issue CTGs that provide air pollution control agencies with information on reducing VOC emissions from certain source categories. These CTGs include information on emissions reduction benefits, installation costs of emissions controls, and environmental impacts associated with using control technologies.

Most CTGs provide the "presumptive norm" of VOC control requirements ("presumptive RACT") for specific source categories (44 FR 53761). EPA recommends that air pollution control agencies adopt regulations consistent with the applicability thresholds and control levels in the CTGs; however, agencies have the freedom to "judge the feasibility of imposing the recommended controls on particular sources and adjust the controls accordingly" (44 FR 53761).

Section 182(b)(2) of the Act requires that air pollution control agencies implement CTG RACT requirements for each category of VOC stationary sources covered by an EPA-issued CTG when the source operates in a moderate nonattainment area. Section 182(c) of the Act extends this requirement to serious ozone nonattainment areas. EPA has not issued CTGs for NO_x emissions from source categories, but has issued Alternative Control Techniques (ACT) guidance for some NO_x source categories. Unlike CTGs, ACTs do not establish a presumptive level of emissions control; rather, they provide information on potential control measures and costs. They are a resource for determining RACT for individual major sources and for Reasonably Available Control Measures (RACM) requirements, which are separate under Section 172(c) of the Act.

The CTG RACT analysis in Appendix C describes DAQ's search methodology and identifies potential CTG sources (i.e., sources that might fall into a CTG source category) operating within HA 212. As summarized in this subsection, the analysis establishes presumptive RACT equivalency for some existing SIP-approved regulations; provides negative declarations for source categories with no CTG sources operating in HA 212; identifies source categories for which new CTG RACT regulations are needed; and calculates potential emissions reductions from new CTG RACT rules.

6.2.1 Identification of Source Categories

DAQ searched for CTG sources operating within HA 212 by reviewing the emission inventory, business license databases, and source permits, and by searching the internet using key terms.

Through these searches, DAQ identified 12 source categories under which stationary sources may be operating within HA 212:

1. Miscellaneous metal and plastic parts surface coating
2. Fabric coating
3. Paper, film, and foil coatings
4. Metal solvent cleaning (degreasing)
5. Industrial cleaning solvents
6. Industrial adhesives
7. Graphic arts
8. Cutback asphalt
9. Gasoline service stations
10. Gasoline loading terminals
11. Bulk gasoline plants and trucks
12. Petroleum storage.

6.2.2 Existing Rules for Source Categories

For the Moderate SIP, DAQ promulgated rules covering 10 of the 12 CTG source categories identified as present in HA 212. This subsection describes the existing rules that ensure at least the presumptive RACT level of control for each covered CTG source category. As part of this SIP submittal, DAQ promulgated one new rule that will cover CTG categories identified as present in HA 212 but for which DAQ had not yet promulgated rules.

6.2.2.1 Section 101, "VOC Emissions Control for Industrial Adhesives Operations"

Adhesives are compounds that allow two surfaces to join. This CTG (EPA 2008) recommends emissions control requirements for adhesive and adhesive primer applications used in a variety of different industrial operations. Presumptive RACT includes several compliance options: EPA recommends that a CTG source use either low-VOC adhesives with good adhesive transfer application methods, or a combination of low-VOC adhesives and add-on controls. Alternatively, EPA recommends CTG sources meet an 85% control efficiency standard.

Section 101 follows EPA's presumptive RACT recommendations and includes work practices requirements to ensure proper handling and disposal of adhesive materials.

6.2.2.2 Section 102, "Gas Dispensing Facilities"

This CTG (EPA 1975) suggests Stage I vapor recovery systems to control VOC emissions when dispensing gasoline from tanker trucks into storage tanks. These systems capture the gas vapors displaced during the filling process and return them into the tank of the delivery truck. This CTG recommends a Stage I vapor recovery system for gasoline stations exceeding 10,000 gallons a month.

Section 102 includes the requirements of the existing SIP-approved regulation (Section 52) and sets forth design and operating specifications for a vapor recovery system that meets Stage I requirements with more clarity and firmer compliance obligations.

6.2.2.3 Section 103, "VOC Emissions Control for Miscellaneous Metal or Plastic Parts Coating Operations"

This CTG (EPA 1978a) applies to miscellaneous metal and plastic parts manufacturers with VOC emissions higher than 3 tpy from use of paints, sealants, caulks, inks, and maskants from coating parts. Presumptive RACT recommends specific limits (in lb VOC/gallon) for different coating types. EPA provides additional options for compliance through add-on emissions controls and work practice requirements, estimating that compliance with CTG recommendations would result in a 35% VOC emissions reduction.

Section 103 follows the CTG guidelines and their limits specific to different coatings within the category of miscellaneous metal or plastic parts. It also allows facilities to comply using an emissions control system (ECS) with at least a 90% emissions control efficiency. The rule imposes work practices requirements at least equivalent to presumptive RACT.

6.2.2.4 Section 104, "VOC Emissions Control for Industrial Cleaning Solvent Operations"

This CTG (EPA 2006c) regulates consumer and commercial products used to remove such compounds as dirt, adhesives, inks, coatings, and other unwanted materials. Industrial operations across all types of source categories may use these products. Presumptive RACT includes work practice requirements, an emissions limitation, and an alternative emissions standard that applies to facilities exceeding a 15 lb/day VOC emissions threshold. EPA estimated these controls would result in an 85% emissions reduction.

Section 104 adopts EPA's presumptive RACT VOC emissions limitation of 0.42 lb/gal (50 g/L) or at least 85% emissions control efficiency using an ECS, or the alternative composite vapor pressure standard of 8.0 mm mercury measured at 68°F (20°C). The rule imposes work practices requirements at least equivalent to presumptive RACT.

6.2.2.5 Section 105, "VOC Emissions Control for Metal Solvent Degreaser Operations"

This CTG (EPA 1977a) establishes presumptive RACT to control VOC emissions from cold cleaners, open top vapor degreasers, and conveyorized degreasers that use volatile solvents to clean metal parts.

EPA based presumptive RACT for this source category on equipment specifications and operating requirements, rather than compliance with a specific emissions limitation. This CTG recommends either of two compliance options, equipment/operation specifications or work practices, for each type of degreaser system; states typically adopt both options as RACT.

Section 105 imposes EPA's presumptive RACT equipment specifications, operating requirements, and recommended work practice requirements.

6.2.2.6 Section 106, "VOC Emissions Control for Offset Lithographic, Letterpress, and Flexible Package Printing and Other Graphic Arts Operations"

EPA issued three CTGs (EPA 1978b, 2006b, 2006a) affecting graphic art operations that cover flexographic and rotogravure printing, offset and letter press printing, and flexible packaging. These CTGs identify a variety of options for controlling VOC emissions from the inks, coatings, adhesives, and cleaning materials used in such printing operations, including add-on controls (e.g., carbon absorbers, incinerators), waterborne materials, and work practices requirements. The CTGs also recommend VOC material content limits or add-on ECSs to meet presumptive RACT requirements. EPA recommends different ECS control efficiency performance standards, depending on the date of installation.

Section 106 regulates only flexible packaging, offset lithographic, and letterpress printing, since DAQ identified no flexographic and rotogravure printing operations within the source category in HA 212. The rule follows EPA's presumptive RACT approach for emissions reduction requirements and includes work practices requirements for handling and disposing of graphic arts material.

6.2.2.7 Section 107, "VOC Emissions Control for Cutback Asphalt Operations"

Cutback asphalt is used in road construction and other paving operations. This CTG (EPA 1977b) recommends substituting emulsified asphalt for cutback asphalt, which EPA estimated would lead to nearly 100% VOC emissions reductions. In subsequent years, EPA issued additional guidance (Rhoads 1978, 1979a, 1979b) explaining that a complete prohibition on cutback asphalt was impractical and recommending either VOC content limits ranging from 3–12% (depending on the application) or an across-the-board VOC content limit of 5–7%. Several states adopted CTG RACT rules with an across-the-board lower VOC content restriction.

Section 107 restricts the VOC content of cutback asphalt to 0.5% or less by volume throughout Clark County.

6.2.2.8 Sections 13.3 and 14.2 for Petroleum Storage

These subsections incorporate by reference the federal New Source Performance Standards at 40 CFR Part 60, Subparts K, Ka, and Kb, and National Emission Standards for Hazardous Air Pollutants at 40 CFR Part 63, Subpart BBBBBB, to meet CTG RACT requirements.

6.2.2.9 Sections 13.3 and 14.2 for Bulk Gasoline Plants and Terminals

These subsections incorporate by reference the federal New Source Performance Standards at 40 CFR Part 60, Subparts XX and XXa, and National Emission Standards for Hazardous Air Pollutants at 40 CFR Part 63, Subpart BBBBBB, to meet CTG RACT requirements.

6.2.3 New Rule for Source Categories

The CTG analysis identified a newly permitted source in HA 212 for fabric coating operations. Based on this finding, DAQ opted to address this source category by promulgating a new regulation covering fabric and paper coating. DAQ identified one stationary source with operations falling into the paper coatings CTG source category in the Moderate SIP, but declined to promulgate a CTG RACT rule because the source was already subject to RACT requirements that exceeded presumptive RACT. Now that an additional stationary source operating a fabric coating operation has been identified, DAQ opted to promulgate a new CTG RACT rule to cover both fabric and paper coating operations. This rule ensures compliance with EPA's CTG recommendations and establishes RACT-level controls for affected facilities within HA 212.

6.2.3.1 Section 108, "VOC Emissions Control for Paper, Film, Foil, Fabric or Vinyl Coating Operations"

In 1977, EPA issued a CTG for surface coating of cans, coils, paper, fabrics, automobiles, and light-duty trucks. For fabric and vinyl coatings, the 1977 CTG recommended a RACT VOC limit of 0.35 kg/L (2.9 lb/gal) applied for fabric coatings and 0.45 kg/L (3.8 lb/gal) for vinyl coatings. In 2007, EPA issued an updated CTG for paper, film, and foil coatings that recommended control approaches and defined applicability thresholds. This CTG recommends that RACT emission controls only apply to coating lines with a PTE of at least 25 tpy of VOCs, before control and work practice standards, for facilities with actual VOC emissions above 15 lb/day. Emissions standards are 0.4 kg VOCs/1 kg solids (lb VOCs/lb solids) for paper, film, and foil surface coating or using an ECS with at least 90% emissions control efficiency. DAQ decided to include film, foil, and vinyl coating operations in its new rule.

Section 108 applies to facilities engaged in paper, film, foil, fabric, or vinyl coating operations in HA 212, and follows the CTG guidelines by establishing limits specific to different paper, film, foil, fabric, or vinyl coating operations or allowing facilities to comply with the section using an ECS that achieves as least a 90% emissions control efficiency. The rule also imposes work practices requirements at least equivalent to presumptive RACT.

6.3 MAJOR SOURCE REASONABLY AVAILABLE CONTROL TECHNOLOGY

6.3.1 Introduction

This section explains DAQ's methodology for making major source RACT determinations and summarizes the findings of a series of case-by-case RACT analyses for individual VOC and NO_x major sources in HA 212 ("affected sources"). DAQ determined RACT for each affected source based on (1) source-provided RACT demonstrations, and (2) supplemental information and

additional analyses conducted by DAQ. The resulting RACT determinations for the affected sources are based on technically feasible and cost-effective control technologies available in 2025.

Due to the limited number of affected sources in HA 212's emissions inventory, DAQ determined that conducting a case-by-case analysis for each affected source was the most efficient method for establishing RACT. In most cases, DAQ determined that the affected sources' existing control requirements qualified as RACT; however, in some cases, DAQ determined RACT based on additional operating or emissions restrictions proposed by the affected source.

DAQ anticipates these major source RACT requirements will result in minimal emission reductions in HA 212, since most affected sources already operate with controls equivalent to RACT.

6.3.2 Methodology

DAQ established RACT for each affected unit (EUs with a VOC and/or NO_x PTE of 5 tpy or more) at the affected source. A summary of the methodology is provided here; Appendix D provides a complete RACT analysis for each of the affected units.

Section 120 requires that major sources submit a RACT demonstration for affected units no later than 120 days after the Control Officer provides written notice, regardless of prior RACT determination. In April 2025, DAQ issued such notice to VOC and NO_x major sources in HA 212 requesting RACT demonstrations for EUs with a PTE of 5 tpy or greater of VOC or NO_x (Appendix D, Attachment 1), then reviewed the RACT demonstrations received.

In submitting RACT demonstrations, Section 120 requires that affected sources:

1. Identify all available control technologies pertaining to the affected unit.
2. Determine the technical feasibility of the available control technologies.
3. Determine the cost-effectiveness of technically feasible control technologies.
4. Identify other pollutants that will be emitted when using the proposed control technologies.
5. Discuss the environmental, energy, and other impacts (benefits and disbenefits).
6. Identify a control technology that is proposed as major source RACT for each affected unit.
7. Propose a RACT emissions limitation that the affected unit can achieve using the proposed major source RACT.
8. Identify a proposed schedule for complying with RACT.
9. Propose testing, monitoring, recordkeeping, and reporting that meet periodic or compliance assurance monitoring requirements, including during periods of startup, shutdown, and malfunction.

To ensure consistency in cost estimates for RACT analyses, Section 120 requires that affected sources use a 6% interest rate and a 30-year life expectancy for either the affected unit or the control technology, with baseline emissions based on the unit's PTE. Affected sources were allowed to propose alternative values for the interest rate or life expectancy, provided they submitted a supporting rationale to the Control Officer.

DAQ reviewed each RACT demonstration for completeness and reliability in accordance with Section 120, issuing letters to any affected source initially found deficient to provide them an opportunity to submit supplemental information. Next, DAQ performed a technical evaluation of each RACT demonstration, verifying reported data, cost assumptions, and the reasonableness of key analytical parameters. Once DAQ determined the appropriate control technologies qualifying as RACT, emissions limitations were established. (Appendix D contains the affected source demonstrations, along with further RACT analyses and conclusions.)

The RACT emissions limitations derived from this process represent the lowest achievable emissions level with which affected unit(s) can continuously comply using the proposed RACT control option. RACT also includes requirements for startup, shutdown, and malfunction (SSM) periods in a single RACT emissions limitation, or as separate emissions limitations when including the emissions in a generally applicable emissions limitation would cause the proposed limitation to be too lax during normal operations. DAQ also considered using work practice requirements to regulate SSM emissions.

Finally, DAQ developed a source-specific RACT regulation (Section 122) establishing emission limitations on affected units for each affected source, which will be submitted as part of this SIP.

6.3.3 Major VOC and NO_x Sources in HA 212

DAQ evaluated a total of eight NO_x major sources and three VOC major sources within HA 212, with two of those stationary sources being major for both pollutants. Three major NO_x sources (Switch, Ltd. (Source IDs: 16304 & 18024) and Jasmin Development, LLC (Source ID: 17982)) were not included in the RACT determinations because they do not operate affected units.

Table 6-1 presents each source's current permitted PTE, as well as its reported actual emissions from the 2023 emission inventory (EI) (DES 2025b). These major sources reflect a range of industrial and commercial sectors, four electric utility facilities, one bulk petroleum distribution terminal, and one gypsum manufacturing plant. The remaining three sources are classified as miscellaneous and consist of two multi-location casino chains (each covered under a single permit) and Nellis Air Force Base (NAFB), with typical equipment such as engines, small boilers, and other miscellaneous EUs.

Table 6-1. Affected Sources in HA 212

Facility ID	Facility Name	Total Facility NO_x PTE (tpy)	2023 EI Emissions (tpy)	2023 EI Emissions (tpd)
NO_x Major Source				
4	CertainTeed	84.86	26.57	0.073
7	Clark Generating Station	2,467.22	97.14	0.250
114	Nellis AFB	188.01	19.97	0.055

Facility ID	Facility Name	Total Facility NO_x PTE (tpy)	2023 EI Emissions (tpy)	2023 EI Emissions (tpd)
257	Caesars Consolidated Properties	439.96	88.95	0.244
329	Las Vegas Generating Station	94.66	20.15	0.055
393	Saguaro Power Company	135.18	32.45	0.089
423	Sun Peak Generating Station	249.42	26.32	0.072
825	MGM Resorts International	784.60	65.04	0.178
VOC Major Sources				
7	Clark Generating Station	217.24	17.85	0.049
13	Calnev Pipeline LLC	188.01	98.00	0.269
114	Nellis AFB	66.52	7.30	0.020

6.3.4 RACT Summaries for Individual Affected Sources

DAQ conducted RACT analyses for affected units at the nine affected sources in HA 212.

6.3.4.1 Nellis Air Force Base

NAFB is classified as a major source of NO_x and VOCs; a synthetic minor for course particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), and hazardous air pollutants (HAPs); and a minor source for sulfur dioxide (SO_2). All the activities and EUs at NAFB are classified as Standard Industrial Code (SIC) 9711 and North American Industry Classification System (NAICS) code 928110, "National Security."

The affected units at NAFB consist of eight diesel engines, two gasoline dispensing storage tanks, and a hush house with two aircraft engine test cells. DAQ considered 14 controls technologies for the engines, two control technologies for the gasoline dispensing storage tanks, and one control for the hush house.

DAQ determined the emergency engines are already meeting RACT with current controls (turbochargers and aftercoolerss). These units will continue to follow good combustion practices (GCP) and good maintenance practices (GMP). The RACT emissions limitation consists of design standards rather than numerical limits for these technologies, and no additional NO_x reductions are expected beyond current levels. DAQ determined the two storage tanks were already meeting RACT, with current controls of Phase I vapor recovery systems at 95% control efficiency.

For the hush house, selective catalytic reduction (SCR) was the only available control technology. Information on SCR costs, feasibility, and level of control for installation on a hush house were unavailable, but given the nature of the unit (intermittent testing of aircraft engines) and the fact that SCR is not suited for intermittent operations, DAQ concluded that SCR would be neither technically feasible for intermittent operations nor cost-effective. Therefore, RACT for these units consists of the existing control technologies; emissions limits; monitoring, reporting, and recordkeeping; and SSM provisions already contained in the NAFB Part 70 operating permit (OP).

6.3.4.2 Caesars

Caesars Entertainment, Inc., Caesars Consolidated Properties operates multiple gaming and lodging facilities in HA 212. The company owns and manages a group of adjacent and contiguous hotels and casinos classified under SIC code 7011 ("Hotels and Motels") and NAICS code 721120 ("Casino Hotels"). According to its current OP, revised September 25, 2024, Caesars is classified as a major source for NO_x, CO, and greenhouse gases, and as a minor source for all other regulated pollutants.

Caesars operates five boilers (EUs: CP01–CP05) subject to NO_x RACT review, all classified as commercial boilers. DAQ evaluated 23 control technologies for these units and identified several options as technically feasible and potentially cost-effective, including oxygen trim, burner tuning, fuel-induced recirculation, and overfire air. DAQ requested that Caesars review these technologies. After further evaluation, Caesars determined that these options are not technically feasible for the existing boiler configuration or would require a burner replacement, which was determined to be not cost-effective. Based on this review, DAQ concludes that the current emission limitations for these boilers satisfy RACT requirements.

Caesars also operates 27 emergency engines, all with a NO_x PTE below the 5 tpy RACT applicability threshold for this Serious SIP. However, these emission units remain subject to the requirements in the Moderate SIP.

6.3.4.3 MGM Resorts International

MGM Resorts International (MGMRI) operates multiple facilities under SIC codes 7011, "Hotels and Motels," and 7999, "Amusement and Recreation Services, Not Elsewhere Classified," and NAICS codes 721120, "Casino Hotels," and 7113310, "Promoters of Performing Arts, Sports, and Similar Events with Facilities." MGMRI is a major source of NO_x and CO, a synthetic minor source for VOCs, and a minor source for all other regulated pollutants.

MGMRI operates 49 emergency engines subject to NO_x RACT review. DAQ evaluated the current configuration and determined that the following conditions satisfy RACT:

- Follow GCP and GMP.
- Equip affected units with and use turbochargers and aftercoolers, except for seven units (EX007–EX010, NY027–NY029) that are not required to have aftercoolers and four units (TM01, CO07–CO09) that are not required to have turbochargers or aftercoolers.
- Meet the applicable emission limits and Tier certification under 40 CFR Part 60, Subpart IIII for EUs TM01, LX024, LX025, and CO07–CO09.

DAQ concludes that these control techniques, including GCP, GMP, turbocharging, and aftercoolers (except as noted), constitute RACT for all emergency engines except TM01 and CO07–CO09, to which Tier certification emission limits apply. No additional NO_x reductions are expected beyond current levels.

6.3.4.4 Calnev Pipe Line

Calnev Pipe Line, LLC, a Kinder Morgan subsidiary, owns and operates the Las Vegas Terminal (LVT), a petroleum products distribution terminal facility in HA 212. Operations include receiving petroleum fuel products via pipeline or truck and transferring gasoline, diesel, and biodiesel from storage tanks into trucks via loading racks.

LVT is a major source for VOC pollutants and a minor source for all regulated pollutants. Its current OP, revised on September 24, 2025, reflects a VOC PTE of 188.01 tpy. Most individual EUs have a VOC PTE below 5 tpy. However, where LVT grouped individual EUs and the group PTE exceeded 5 tpy, Cal Nev conducted RACT analyses as identified below:

1. Storage tanks (total PTE of 61.3 tpy VOC) (Attachment D, Table 3-1).[1]
2. A vapor recovery unit (14.5 tpy VOC).[2]
3. Loading racks (65.7 tpy VOC).[3]
4. A remediation system (37.7 tpy VOC).[4]
5. Fugitive components, such as valves, flanges, fittings, and pump seals (6.6 tpy VOC).

DAQ conducted a RACT analysis for each of these and determined they are well-controlled and no additional control technologies are cost-effective, so the existing controls and compliance measures (specified in the Part 70 OP (Source ID: 13)) constitute RACT. DAQ also reviewed the monitoring, reporting, and recordkeeping requirements in the OP and determined they are effective in ensuring compliance with RACT.

6.3.4.5 CertainTeed Manufacturing

CertainTeed Gypsum Manufacturing operates a gypsum wallboard manufacturing facility. The facility's SIC code is 3275 ("Gypsum Products") and its NAICS code is 327420 ("Gypsum Product Manufacturing"). CertainTeed is a major source of NO_x emissions and CO; a synthetic minor source of PM_{10}; and a minor source of $PM_{2.5}$, SO_2, VOCs, and HAPs. CertainTeed operates three units subject to NO_x RACT review: CP mill, AKI board dryer, and one portable diesel engine.

The CP mill and AKI board dryer are built uniquely for the process of gypsum manufacturing, and therefore not all typical controls are technically feasible. Both are equipped with low NO_x burners. DAQ reviewed other control technologies, including SCR, flue gas recirculation, and ultra-low NO_x burners, and concluded that current controls are the only technically feasible control option for these.

[1] No tank has a PTE of 5 tpy of VOCs or more.
[2] The vapor recovery unit is itself a control device that LVT says is considered Best Available Control Technology.
[3] There are 15 loading racks. Most of the 65.7 tpy PTE of VOCs is from gasoline dispensing. Assuming each rack has the same PTE, 65.7÷15 = 4.38 tpy per rack, less than the 5-tpy PTE threshold for RACT review.
[4] This system is also considered Best Available Control Technology per LVT.

The portable diesel engine moves about the manufacturing area. DAQ reviewed potential add-on controls for this engine, but determined that no additional technologies are technically feasible or cost-effective. The engine is certified to U.S. EPA Tier 3 standards, subject to Section 14.2, and limited to 2,400 hours of operation in any consecutive 12-month period. DAQ finds that compliance with Tier 3 and Section 14.2 standards satisfies RACT for this engine.

6.3.4.6 Las Vegas Generating Station

NV Energy owns and operates the Las Vegas Generating Station (LVGS), located in North Las Vegas. LVGS is an electric power generating facility (SIC code 4911, NAICS code 221112) that is a major source of NO_x emissions and a minor source for all other regulated pollutants. It operates five turbine generator packages (Units 1–5) subject to NO_x RACT review.

All LVGS units are equipped with SCR and water injection, and the OP requires both controls to be operated in accordance with the manufacturer's operations and maintenance manual. Unit 1 has a NO_x emission limit of 10 parts per million by volume, dry (ppmvd) at 15% oxygen (O_2); Units 2–5 have a NO_x emission limit of 2 ppmvd at 15% O_2. DAQ reviewed possible additional controls for all units, and found that current controls for Units 2–5 in the OP satisfy RACT.

For Unit 1, NV Energy incorporated annual emission caps as part of its RACT submittal in lieu of installing additional physical controls. To ensure that capping emissions qualifies as RACT compared to the next most effective control technology, DAQ requires Unit 1 to emit no more than 42 tpy of NO_x. With this cap, the cost-effectiveness of SCR catalyst replacement is $5,660 per ton of NO_x reduced, which provides at least a 2.5% margin above DAQ's threshold. Based on this evaluation, DAQ concludes that the emission cap combined with existing controls satisfies RACT for Unit 1, and that SCR and water injection represent RACT for Units 2–5.

6.3.4.7 Clark Generating Station

NV Energy owns and operates the Clark Generating Station (CGS), located in Whitney, Nevada. CGS is an electric power generating facility (SIC code 4911, NAICS code 221112) that is a major stationary source for PM_{10}, $PM_{2.5}$, NO_x, CO, and VOC pollutants and a minor source for SO_2 and HAPs. Emissions units analyzed at CGS consisted of 13 simple cycle combustion turbines (Unit 4 and Units 11–22) and four combined cycle turbine units (Units 5–8). All turbines are subject to RACT for NO_x; Units 4 and 5–8 are subject to RACT for VOC.

For this NO_x RACT evaluation, DAQ considered the use of SCR, water injection, and GCP for Unit 4. For Units 5–8, DAQ considered the installation of SCR with the existing dry-low NO_x combustors (DLNC); for Units 11–12, DAQ considered the installation of DLNC with the current use of SCR and water injection. For the VOC RACT evaluation, DAQ considered the use of oxidation catalyst controls and GCP for Units 4–8; Units 11–22 are already equipped with oxidation catalyst controls. All other control technologies are technically infeasible.

For Unit 4, NV Energy incorporated annual emission caps as part of its RACT submittal in lieu of installing additional physical controls. DAQ reviewed other control strategies and determined that emissions management would be cost-effective. To ensure that capping emissions qualifies

as RACT compared to the next most effective control technology, DAQ requires Unit 4 to emit no more than 292 tpy or less in any consecutive 12-month period of NO_x. With this cap, the cost-effectiveness of any additional controls is above the threshold; therefore, DAQ concludes that emission management with the emission cap of 292 tpy of NO_x satisfies RACT.

For VOC, NV Energy's cost-effectiveness analysis for an oxidation catalyst on Unit 4 initially showed costs marginally above DAQ's threshold. However, when adjusted to reflect the NO_x limitation by reducing operating hours as necessary to comply with NO_x RACT, the cost exceeded $32,000 per ton of VOC removed, well above the cost-effectiveness threshold. Therefore, DAQ concludes that VOC RACT for Unit 4 provides GCP and GMP with a short-term emissions limit of 21.6 lb/hour during normal operations, with GCP required during startup, shutdown, and other non-normal operations.

For Units 5–8, DAQ considered the installation of SCR with the existing DLNC. Since the permit allows for a combined NO_x annual limit, DAQ evaluated control measures on a single unit and separately on all units. Even under scenarios that concentrated emissions on a single unit, cost-effectiveness for these units exceeded the threshold, confirming that further controls are not cost-effective. Therefore, DAQ determined the existing NO_x limits represent RACT based on existing control configuration and compliance determination procedures. For VOC, DAQ reviewed oxidation catalyst on Units 5–8 and found that the control is not cost-effective. Therefore, DAQ determined that the current short-term emission limit of 5.01 lb/hour satisfies RACT.

For Units 11–22, DAQ evaluated SCR with DLNC and found that the control measure was not cost-effective. Therefore, DAQ determined that current measures of SCR with a NO_x limitation of 5 ppmvd at 15% O_2 satisfies RACT. For VOC, Units 11-22 are already equipped with oxidation catalysts that limit VOC to less than 5 tpy, and have therefore been excluded from further RACT analysis.

DAQ defined NO_x and VOC RACT for startup and shutdown operations at CGS as GCP, and included a requirement to develop a best operating practices guideline with adequate reporting and recordkeeping procedures to ensure each unit maintains compliance with the "good operating practices" work practice standard.

6.3.4.8 Sun Peak Generating Station

NV Energy owns and operates the Sun Peak Generating Station (SPGS). SPGS is an electric power generating facility (SIC code 4911, NAICS code 221112) that is a major source for NO_x, a synthetic minor source for SO_2, and a minor source for all other regulated pollutants. The emission units analyzed for NO_x RACT at SPGS consist of three natural gas-fired, simple cycle combustion turbines (Units 3–5).

All turbines are currently equipped with water injection for NO_x control (Part 70 OP (Source ID: 423)). DAQ evaluated potential additional controls, including SCR, DLNC, and combinations of SCR with DLNC, but eliminated all upgrade options due to excessive cost. DAQ concludes that the existing NO_x limit represents RACT based on the use of existing controls. Compliance will continue to be demonstrated using continuous emission monitoring systems, in accordance with the monitoring and reporting procedures in the current OP. DAQ has determined that the existing

NO_x limit of 42 ppmvd at 15% O_2 (3-hour average) while firing natural gas (excluding startup, shutdown, and testing/tuning operations) represents RACT based on the use of existing NO_x controls. For startup and shutdown, NO_x is limited to 94 ppmvd at 15% O_2 (4-hour rolling average) while firing natural gas. RACT further includes adherence to GCP, supported by reporting and recordkeeping requirements.

6.3.4.9 Saguaro Power Company

Saguaro Power Company (SPC) is an electric power generating facility (SIC code 4931, NAICS code 221112) that is a major source for NO_x and a minor source for all other regulated pollutants. SPC emissions units that are subject to NO_x RACT analysis are two natural gas-fired combined cycle turbine units (turbine generators (EUs: A01 and A02), including duct burners (EUs: F05, F05a, F06, and F06a)).

All turbines are currently equipped with steam injection and SCR for NO_x control (Part 70 OP (Source ID 393)). Potentially available control technologies include DLNC and SCR catalyst replacement; all other options are technically infeasible. The cost evaluation showed there were no cost-effective control options for either unit. DAQ determined that existing controls represent RACT, so will require continued compliance with current NO_x limits and compliance determination procedures. DAQ also proposed SPC use GCP as RACT for all units during startup and shutdown operations by developing and maintaining an operating and maintenance manual.

7.0 REASONABLE FURTHER PROGRESS

7.1 INTRODUCTION

Section 172(c)(2) of the Clean Air Act requires nonattainment areas to demonstrate continued Reasonable Further Progress (RFP), and includes two requirements to ensure that nonattainment areas continue progress toward attaining the standard. The first, Section 182(b)(1)(A), establishes a Rate of Progress (ROP) requirement, which obligates areas classified "moderate" or above to achieve a one-time 15% reduction in volatile organic compound (VOC) emissions in the first six years after the baseline year (i.e., 2017). The second, Section 182(c)(2)(B), establishes an additional RFP requirement that obligates areas classified "serious" or higher to demonstrate a cumulative 3% per year reduction in volatile organic compound (VOC) emissions, averaged over each consecutive three-year period until attainment. This chapter provides the ROP and RFP demonstrations for HA 212, and demonstrates that reductions used to satisfy the ROP and RFP requirements come from separate sources.

The Moderate SIP demonstrated ROP compliance (DES 2024(a)). That demonstration has been revised for this SIP to reflect changes in the emissions inventory, update emissions reduction calculations, and show that emissions reductions credited to the ROP demonstration are not also used in the RFP demonstration. The revised ROP demonstration shows that total VOC emissions were reduced by 15% (16.84 tpd) to meet the ROP requirement.

Compliance with the RFP requirement requires a 9% (10.10 tpd) VOC emissions reduction from 2023–2026. This chapter explains how HA 212 meets this requirement with existing VOC emissions reductions, and through nitrogen oxides (NO_x) substitution using emissions reductions from 2023–2026.

7.2 EMISSIONS REDUCTIONS FROM CONTROL MEASURES IN THE MODERATE PLAN

In November 2024, DAQ submitted the Moderate SIP to fulfill its requirements for the 2015 8-hour ozone NAAQS (DES 2024). Sections 108 and 183 of the Act direct EPA to issue Control Technique Guidelines (CTGs) that provide air pollution control agencies with information on reducing VOC emissions from certain source categories. Section 182(b)(2) of the Act requires that air pollution control agencies implement CTG reasonable available control technology (RACT) requirements for each category of VOC stationary sources covered by an EPA-issued CTG when the source operates in a nonattainment area classified as "moderate" or above. The CTG RACT analysis in the Moderate SIP identified source categories for which CTG RACT regulations were needed and calculated potential emissions reductions from those CTG RACT rules.

Section 172(c)(9) of the Act provides that ozone nonattainment area SIPs must include contingency measures that will apply if the area fails either to achieve attainment by the attainment date or to meet RFP requirements. These contingency measures will take effect without further action by the state or the EPA Administrator if the area fails to reach attainment or RFP. DAQ adopted the California Air Resources Board (CARB) Phase I Enhanced Vapor Recovery (EVR) executive orders and certification requirements as a viable control measure to satisfy the contingency measure requirement.

Additionally, DAQ adopted a local control measure to control the VOC content in architectural and industrial maintenance (AIM) coatings to satisfy ROP requirements. This control measure is based on the Ozone Transport Commission (OTC) model rules (Phases I–II).

Table 71 summarizes the emission reductions, implementation timeline, rule effectiveness, and rule penetration for each control and contingency measure from the Moderate SIP, which contains additional information on these control measures. The rule effectiveness adjustment in Table 7-1 reflects the degree of emissions reduction that is expected in practice. This adjustment factor recognizes that, for a variety of reasons, not all sources will maintain rule compliance 100% of the time. “Rule penetration” refers to the extent to which a regulation applies to the universe of emissions it controls.

Table 7-1.Summary of Control Measures in the Moderate SIP

Control Measure	Description	Rule Effective-ness	Rule Penetra-tion	Adopted Date	Effective Date	Final Compliance Date	2026 VOC Emissions Reductions (tpd)	AQR Cite
CTG RACT	Metal and Plastic Parts Surface Coating	80%	100%	3/19/2024	4/2/2024	4/2/2025	0.13	103.10(c)
	Degreasing	80%	100%	3/19/2024	4/2/2024	9/29/2024	0.33	105.11(a)
	Industrial Adhesives	80%	100%	3/19/2024	4/2/2024	4/2/2025	0.90	101.10(c)
	Industrial Cleaning Solvents	80%	100%	3/19/2024	4/2/2024	4/2/2025	3.60[e]	104.10(c)
	Graphic Arts	80%	100%	5/7/2024	5/21/2024	5/21/2025	1.47[f]	106.11(c)
	Cutback Asphalt	80%	100%	3/19/2024	4/2/2024	9/29/2024	0.62	107.8(a)(1)
Local control measures	Architectural and Industrial Maintenance (AIM) Coatings from OTC model rules (Phases I–II)	100%	100%	8/6/2024	8/20/2024	12/31/2025	3.83	130.4.1(a) and 130.4.1(b)
	Stage 1 Enhanced Vapor Recovery (EVR)	100%	100%[c]	3/19/2024	7/20/2025[d]	1/21/2027	3.72	102.7(b)
						Total	**14.60**	

[a] Additional information on these measures may be found in the Moderate SIP (DES 2024).
[b] tons per day.
[c] 100% rule penetration excludes gasoline stations with gasoline throughput less than 120,000 gal/yr on a 12-month rolling basis.
[d] Control Officer notification for HA 212 was distributed on January 21, 2025. Per AQR 102.7(a)(5), Gasoline Dispensing Facilities (GDFs) have 180 days to comply.
[e] Revised as part of the Serious SIP to reflect updated point source data from EPA's 2022v1 emissions inventory.
[f] Revised as part of the Serious SIP to correct a calculation error in the Moderate SIP.

EPA's initial rule effectiveness policy required a 20% default reduction in projected emissions reductions unless the state or local agency could demonstrate a higher percentage was appropriate (52 FR 45044). EPA revised this policy in 2005 after a workgroup process initiated in 2004 (EPA 2005): the new policy recommends using a rule effectiveness adjustment that falls within one of five different ranges for point sources and one of three different ranges for nonpoint sources, depending on a variety of factors. The low end of the range of rule effectiveness requires at least a 30% adjustment to emissions projections. The high end requires no adjustment, assuming 100% rule effectiveness. Factors considered in selecting a range, and then a specific value from within the range, include the agency's experience enforcing the rule, the degree of monitoring and reporting required, and the frequency of inspections for the category, among others. These factors rely on data collected during past rule implementation. Where a state or local agency lacks information on a specific source category, EPA allows the agency to rely on studies conducted by other jurisdictions.

Applying this rule effectiveness policy to a specific area without a compliance history presents a challenge because neither the agency nor sources have implementation experience from which data can be used to develop an appropriate adjustment factor. In projecting future emissions reductions from the CTG RACT, DAQ considered its overall enforcement performance as reflected in EPA Region 9's "State Review Framework Study" (EPA 2021), which audited DAQ's enforcement program for 2019.

EPA found that Clark County conducted all compliance inspections within the negotiated frequencies of every two years for Title V major sources, every three years for "mega-sites," and every five years for other sources. EPA only identified 3 of 16 areas in which DAQ performed below the reported national average for a measurement metric, i.e., DAQ outperformed other jurisdictions more than 80% of the time. These enforcement statistics support selecting a rule effectiveness value in the higher range for both point and nonpoint sources.

Each CTG rule will include a registration or permitting program, along with robust monitoring, recordkeeping, and reporting requirements, to ensure continuous compliance. This factor also points to selecting a rule effectiveness value from the higher range.

Nevertheless, DAQ recognizes that there are numerous considerations in deciding on a rule effectiveness value for which it simply lacks data: for example, DAQ lacks data associated with media publicity of enforcement actions, and sources have not yet developed operator training programs for work practice standards, so no data are available. In addition, EPA identified areas related to identification and reporting of high priority violations (HPVs) where DAQ could improve inspector training and implementation.

Given the subjective nature of the rule effectiveness determination and the lack of complete data, DAQ elected to apply a 20% adjustment to estimated emissions reductions, assuming 80% of the projected emissions reductions will be realized from the CTG RACT rule. This value is in Range 4 for point sources and Range 2 for nonpoint sources, and likely underestimates reductions that will be realized in practice. DAQ may reevaluate these adjustments in a future SIP action and opt to increase the projected rule effectiveness, if supported by the enforcement audit or additional information.

DAQ based its AIM coatings rule on the OTC model rule (Phases I–II), which recommends reducing VOC emissions by regulating the VOC content of AIM coatings sold, supplied, offered for sale, applied, solicited for the application of, or manufactured for use in Clark County. The OTC projected 100% rule penetration and rule effectiveness for its rules, based on "the compliance and distribution practices of this industry" (OTC 2001).

For Stage 1 EVR, DAQ assumed 100% rule effectiveness per the comprehensive compliance obligations, including monitoring, recordkeeping, and reporting requirements, in Section 102.

No new emissions control measures were assumed or relied upon for the ROP and RFP demonstrations in this SIP.

7.3 EMISSIONS INVENTORY FOR RATE OF PROGRESS AND REASONABLE FURTHER PROGRESS DEMONSTRATION

DAQ developed 2017 base year, 2023 interim year, and 2026 future year emissions estimates for ozone precursors within HA 212 using the reductions from current control measures but no additional reductions from RACT. The source categories included in the 2015 ozone SIP inventory include all anthropogenic emissions categories: stationary point sources, stationary nonpoint (area) sources, on-road mobile sources, non-road mobile sources, airports, and locomotive sources (Chapter 2 of this SIP provides emission inventory details). Table 7-2 summarizes ozone season weekday VOC emissions for base, interim, and future year inventories, and Table 7-3 summarizes ozone season weekday NO_x emissions for the same inventories.

Table 7-2. Summary of HA 212 Ozone Season Weekday VOC Emissions (tpd)

Source Category	2017 Base	2023 Interim	2026 Base
Point source	1.25	1.88	1.89
Nonpoint source	57.72	59.15	47.09
On-road mobile	25.89	17.95	15.79
Non-road mobile	25.38	23.67	23.72
Airports (commercial & federal)	1.96	2.62	2.75
Locomotives	0.04	0.03	0.03
Emission Reduction Credit		0.05	0.05
Total	112.24	105.35	91.32

[a] Includes Moderate SIP controls in 2026,but does not include any RACT or local control measures that may be adopted as part of the Serious SIP.

Table 7-3. Summary of HA 212 Ozone Season Weekday NO_x Emissions (tpd)

Source Category	2017 Base	2023 Base	2026 Base
Point source	2.92	3.22	3.25
Nonpoint source	6.15	6.46	6.53
On-road mobile	41.84	22.43	16.41
Non-road mobile	36.86	22.80	18.91
Airports (commercial & federal)	11.90	15.52	15.90
Locomotives	0.80	0.66	0.62
ERC		0.92	0.92
Total	**100.47**	**72.01**	**62.54**

7.4 RATE OF PROGRESS DEMONSTRATION

Although the 2015 ozone implementation rule requires that VOC emissions reductions applied in the ROP demonstration occur in the 6 years following the 2017 base year (i.e., by 2023), this timing presented a challenge for demonstrating ROP in the Moderate SIP because the requirement to achieve ROP did not become effective in HA 212 until January 5, 2023, near the end of the 6-year period. Given the time necessary to develop an emissions inventory, conduct attainment demonstration modeling, identify sources subject to CTG and major source RACT, and develop regulations to implement additional control measures, the required VOC emissions reductions could not be achieved within the 6-year period.

The Moderate SIP timeline for demonstrating ROP compliance was therefore extended to 2026. "EPA has routinely concluded in these circumstances that the area should demonstrate the required ROP as expeditiously as practicable once the statutory date for achieving such ROP has passed (68 FR 55472). Although no court has directly addressed the "as expeditious as practicable" standard, courts have addressed other issues concerning ROP plans submitted after the statutory date that demonstrated ROP as expeditiously as practicable without expressing any concern. For instance, the court upheld the calculation methods used in an ROP plan that was submitted 3 years after the statutory date and demonstrated ROP achievement 7 years after the statutory date (68 FR 55472; *Sierra Club v. EPA,* 314 F.3d 735 (5th Cir. 2002))."

For the Moderate SIP, DAQ adopted control measures to meet ROP as expeditiously as practicable. The Moderate SIP demonstrated compliance with the ROP requirement (i.e., 15% VOC reduction relative to the 2017 base year emissions inventory) by showing at least 16.47 tpd VOC emissions reduction would occur no later than 2026.

This extended period of implementation, however, causes an overlap with the time required for the RFP demonstration for the Serious SIP. Section 182(c)(2)(B) of the Act does not allow credit for the same emissions reductions to meet both ROP and RFP requirements. Therefore, this SIP submission includes a revised ROP demonstration reflecting changes in the emissions inventory and updated emissions reduction calculations. It shows that the ROP demonstration does not rely on the same emissions reductions as the RFP demonstration.

Table 7-4 illustrates how the control measures adopted in the Moderate SIP, as reflected in Table 7-1, are applied in this revised ROP demonstration. Comparing Table 7-4 with Table 7-5 shows

that the VOC emissions reductions used to meet RFP are different from those used in the ROP demonstration.

Table 7-4. VOC Emissions Reductions Applied to 15% Rate of Progress Demonstration

Control Measure	Description	2026 VOC Emissions Reductions (tpd)
Existing control measures	Already adopted (2017-2023)	6.84
CTG RACT (Table 7-1)	Metal and plastic parts surface coating	0.13
	Degreasing	0.33
	Industrial adhesives	0.90
	Industrial cleaning solvents	3.60
	Graphic arts	1.47
	Cutback asphalt	0.62
Local control measures	Architectural and industrial maintenance coatings from OTC model rules (Phases I–II)	2.95
	Total	**16.84**

There are several differences between the ROP demonstration in this Serious SIP (Table 7-4) and the one in the Moderate SIP. At the time of the Moderate SIP submission, HA 212's estimated 2017 base year emissions inventory included 109.81 tpd VOCs, so the ROP demonstration needed to show at least 16.47 tpd (15%) VOC emissions reductions. For this Serious SIP, HA 212's estimated 2017 base year emissions inventory is higher: 112.24 tpd VOCs. This ROP demonstration therefore must show at least 16.84 tpd of VOC emissions reductions to meet the 15% VOC emissions reduction requirement.

The Moderate SIP relied on existing control measures to achieve 5.04 tpd VOC emissions reductions over the 9 years from 2017 to 2026. This revised ROP demonstration relies on emissions reductions from existing control measures occurring over 6 years, between 2017 and 2023. The reduction is higher in the Serious SIP, reflecting changes in base year (2017) to interim year (2023) emissions inventories.

Table 7-1 also lists revised emissions reduction estimates for some rules due to changes in emissions inventory and emissions reduction calculations. These changes are carried forward from Table 7-1 to Table 7-4. Finally, since not all VOC emissions reductions from the AIM coatings rule are necessary to meet the ROP requirement, this demonstration applies 2.95 tpd of the estimated 3.83 tpd emissions reduction toward the ROP requirement. With these revisions, Table 7-4 shows that HA 212 meets the ROP requirement with a mix of existing and adopted control measures, achieving the required 16.84 tpd VOC emissions reductions.

7.5 RATE OF FURTHER PROGRESS DEMONSTRATION

To meet the RFP demonstration requirement, DAQ must show it will reduce emissions in HA 212 by 10.10 tpd (9% of 2017 base year emissions) between 2023 and 2026. Table 7-5 shows VOC emissions reductions between 2023 and 2026 that can apply toward the RFP requirement.

Table 7-5. VOC Emissions Reductions Applied to RFP Demonstration

Source Category	2023 Interim	2026 Base	Change	ROP Adjust.
Point source	1.88	1.89	0.01	0.01
Nonpoint source	59.15	47.09	-12.06	-2.06
On-road mobile	17.95	15.79	-2.16	-2.16
Non-road mobile	23.67	23.72	0.05	0.05
Airports (commercial & federal)	2.62	2.75	0.13	0.13
Locomotives	0.03	0.03	0	0
Emission Reduction Credit	0.05	0.05	0	0
Totals	**105.35**	**91.32**	**-14.03**	**-4.03**

Between 2023 and 2026, additional emissions reductions in the nonpoint sector were seen in HA 212 when the contingency measure was triggered. This control measure resulted in an estimated 3.72 tpd of VOC emissions reduction in the nonpoint source category. DAQ estimated that the AIM coatings rule would result in a 3.83 tpd emissions reduction; 2.95 tpd of these reductions were applied in the ROP demonstration, leaving 0.88 tpd from the nonpoint source category for the RFP demonstration. The combination of these emissions decreases, however, were offset by growth in other sources in the nonpoint sector. When this category was adjusted for new control measures, growth, and emissions reductions already applied to the ROP, only 2.06 tpd of emissions reductions remained from the nonpoint sector. Combining this emissions reduction with control measures reducing the onroad mobile sector and emissions growth in other sectors, a total of 4.03 tpd in VOC emissions reductions are credible toward RFP. This amount reflects a 6.07 tpd shortfall in the VOC emissions reductions needed to meet the 9% RFP demonstration. In such cases, Section 182(c)(2)(C) of the Act allows the RFP demonstration to substitute NO_x emissions reductions for required VOC emissions reductions if the NO_x reductions have an equivalent effect on ozone concentrations.

In 1993 EPA issued *NO_x Substitution Guidance,* explaining that the measure of equivalency is the "effect [on] attainment of the ozone NAAQS" (EPA 1993, 1994), which is measured by changes in design values (DVs). EPA cautioned against an approach that would assign set trading ratios between NO_x and VOCs because the "optimum 'exchange' rates vary from year to year and across geographic area as an area's emissions distribution and atmospheric chemistry change over time" (EPA 1993). Instead of developing a trading ratio, EPA recommended meeting the statutory requirement on a percentage basis (equivalent percent of the NO_x base year emissions inventory) using emissions reductions included in the modeling demonstration. EPA also signaled that "any reasonable substitution proposal will be approved" (EPA 1993, 1994).

This guidance is nonbinding, but remains current. EPA used the rationale and percentage approach in the 1993 *NO_x Substitution Guidance* to approve NO_x substitution for VOCs in recent RFP plan approvals: for example, those for Coachella Valley, California, and Dallas-Fort Worth, Texas (90 FR 6823; 88 FR 24693).

In the Dallas-Fort Worth nonattainment area, EPA explained the significance of ozone formation chemistry in showing that NO_x provided a suitable substitution for VOC emissions reduction in the RFP demonstration based on the 1993 percentage of emissions reduction approach. EPA explained that nothing in the Act requires a monitor-by-monitor demonstration of equivalency.

> For instance, it does not require a specific concentration test at every monitor or at specific locations within the area. No such requirement appears in the CAA's other provisions governing the RFP demonstration, which define specific percentage reductions aimed at ensuring timely attainment of the NAAQS, or in the EPA's 1993 NO_x Substitution Guidance, which describes a recommended procedure for states to utilize NO_x substitution. (87 FR 77770)

EPA also recognized that monitors below the level of the relevant NAAQS "are not relevant to the discussion on NO_x substitution since these monitors are not violating" (87 FR 77770).

While EPA Region 9 acknowledged the role of VOC-limiting ozone chemistry closer to an urban core, it noted that the nonattaining monitors in Dallas-Fort Worth were located farther away from the urban core, in areas more likely dominated by a NO_x-limited or transitional ozone regime. "The highest levels of ozone typically occur north and northwest of the Dallas urban core…monitors on the edges of DFW are transitional or NO_x-limited" (87 FR 77770)

In the Coachella Valley RFP approval, EPA explained the role of biogenic VOC emissions in ozone formation. While these emissions are not included in the anthropogenic RFP inventory, VOC biogenic emissions are a large portion of the total VOC inventory. As EPA described for the Coachella nonattainment area, "the amount of NO_x relative to VOC is smaller, tending to make the ozone chemistry more NO_x-limited" (90 FR 6823). Region 9 noted that transported emissions also impact the Coachella area, which have a lower NO_x concentration, "creating NO_x-limited conditions" in transport affected areas (90 FR 6823).

A retrospective look at ozone trends and modeling (2017–2025) shows that HA 212's ozone chemistry is similar to that of the Dallas-Fort Worth and Coachella areas in several important respects. Like Dallas-Fort Worth, HA 212 has an urban core (Las Vegas entertainment district); however, higher ozone levels occurred outside it. Specifically, 2024 DVs for the Mountains Edge Park, Joe Neal, Walter Johnson, Paul Meyer, Palo Verde, and Walnut Community Center monitoring stations were above the NAAQS. Jerome Mack, the monitor measuring conditions most likely to occur in the urban core (Warneke et al. 2023), is below the NAAQS. Source apportionment modeling conducted for the Moderate SIP predicted that the urban Las Vegas area would remain in a transitional ozone regime (2017–2026), which responds to both VOC and NO_x emissions reductions, while areas farther from the urban core would more likely be NO_x-limited during this period (DES 2024, Attachment B).

Like Coachella, HA 212 has been highly affected by pollutant transport, with only approximately 16% of local emissions contributing to the DV; for example, transport of wildfire emissions has been prevalent in summer months. Fires tend to transport a higher ratio of VOCs and radical pollutants than NO_x, creating more NO_x-limited conditions in areas impacted by the transport. "By the time ozone precursors have been transported to the Coachella Valley, NO_x has been preferentially removed by chemical and physical processes" (90 FR 6825). Also, like Coachella, biogenic emissions are the largest contributor to VOC emissions in the HA 212 modeled inventory, accounting for 56% of the total in 2022 and 59% in 2026 (DES 2024, Attachment B).

The ratio of NO_x emissions to VOC emissions (NO_x/VOC) in the 2026 projected inventory is 0.52. Ozone formation becomes NO_x-limited when there is more VOC than NO_x in an area. This small ratio signals that there are more VOC emissions in HA 212, and further supports a finding that conditions in HA 212 are more likely NO_x-limited than VOC-limited in areas outside the urban core, at least from 2023–2026.

Moreover, sensitivity modeling for the Serious SIP supports the conclusion in the Moderate SIP that HA 212 will have an equivalent response to both VOC and NO_x emissions reductions in the near term. Sensitivity modeling in the Serious SIP simulated the effect of additional VOC (5.8 tpd) or NO_x (5.6 tpd) emissions reductions on projected 2026 DVs (the base case), with and without atypical, wildfire-affected event days. Table 7-6 lists the sensitivity results for monitoring sites projected to remain above the NAAQS in the 2026 base year case.

Table 7-6. VOC and NO_x Sensitivity Modeling for Monitoring Sites Exceeding the NAAQS in the 2026 Base Case

		Case: Atypical Wildfire Affected Days Included		Case: Atypical Wildfire Affected Days Excluded	
Site Name	**2026 DV: Base Case**	**2026 DV: -5.8 tpd VOC**	**2026 DV: -5.6 tpd NO_x**	**2026 DV: -5.8 tpd VOC**	**2026 DV: -5.6 tpd NO_x**
Paul Meyer	**73**	**73**	**73**	**70**	**70**
Mountains Edge Park	**73**	**73**	**73**	**70**	**70**
Walter Johnson	**72**	**72**	**72**	**69**	**70**
Palo Verde	**71**	**70**	**70**	**68**	**69**
Joe Neal	**72**	**71**	**71**	**69**	**69**
Walnut CC	**71**	**71**	**71**	**70**	**71**

Although the modeling runs exhibited small differences in ozone concentrations between some NO_x and VOC emissions reduction scenarios, these differences generally do not affect the attainment status (the DV) of the area, i.e., the measure of equivalency EPA suggested in its 1993 *NO_x Substitution Guidanc*e. When the modeling included atypical wildfire-affected event days, 2026 DV predictions were the same for both the VOC and NO_x emissions reduction scenarios. When the modeling excluded atypical wildfire-affected event days, the Walnut Community Center was the only monitoring site with a predicted increase in DV above the NAAQS under the NO_x emissions reductions scenario. However, this effect was predicted only after the monitor attained the NAAQS.

The feasibility of NO_x substitution is a generally accepted premise when attainment modeling includes NO_x emission reductions, which generally lead to equal or greater reductions in ozone in areas with higher ozone concentrations. The likelihood of NO_x emissions reduction increasing ozone concentrations depends strongly on the ozone formation regime (NO_x-limited vs NO_x-saturated) and on the magnitude of local versus background ozone contributions. When DVs are above the NAAQS, high peak ozone concentrations are generally driven by NO_x-limited or transitional conditions, and NO_x reductions reliably reduce ozone. As the DV approaches or falls below 70 ppb, ambient ozone concentrations increasingly reflect regional/background concentration contributions and VOC-rich conditions near the urban core, increasing the likelihood that a reduction in NO_x emissions will increase ozone concentrations. "Ozone increases (disbenefits) from NO_x reductions were predicted to occur in a few areas where modeled NO_x/VOC concentration ratios were high but in most cases…with peak modeled monthly MDA8 O3 below 70 ppb" (EPA 2017b; Simon et al. 2014).

Assuming the sensitivity runs accurately predict a future change in DV for the Walnut Community Center monitoring site, this modeling is better interpreted as a prediction of a future response to additional NO_x emissions reduction (above the 9.47 tpd already modeled) under conditions of NO_x saturation that may occur after the monitoring site already measures attainment of the NAAQS, rather than a reflection of the effectiveness of pre-2027 NO_x emissions reductions at reducing ozone concentrations when the monitoring site measured values above the NAAQS. For monitoring sites with 2026 DV not yet meeting the NAAQS, the sensitivity modeling suggests NO_x emissions reductions produce an equivalent DV response to VOC.

The DV change at the Walnut Community Center monitoring station may also result from rounding conventions, since the predicted change between VOC and NO_x emissions reduction is only 0.1 ppb. At any rate, the *NOx Substitution Guidance* acknowledges that any change in ozone concentration at any given monitor is highly dependent on prevailing ozone chemistry and the equivalency demonstration does not depend on a monitor-by-monitor equivalency analysis (87 FR 77772). Because the majority of monitoring sites show an equivalent effect on attainment, with predicted 2026 DV above the NAAQS, and modeling for the Serious SIP relied on 9.47 tpd of NO_x emissions reductions from 2023–2026 to show that HA 212 will reach attainment by 2026 when atypical wildfire-affected days are removed from the model, DAQ concludes the weight of evidence supports a finding that NO_x emission reductions are generally equivalent to VOC emissions reductions and may be used in the RFP demonstration.

To calculate the amount of NO_x required each year to substitute for VOC on a percentage basis, the *NOx Substitution Guidance* provided the following formula (adapted for clarity):

Equation 7-1.

$$VOC\frac{projected\ tpd}{base\ year\ inventory\ tpd} + NOx\frac{projected\ tpd}{base\ year\ inventory\ tpd} > or = 0.03$$

Equation 7-2 uses this equation to computer the amount of NOx emissions reductions needed to offset the VOC shortfall.

Equation 7-2.

$$VOC\frac{\frac{4.03}{3}tpd}{112.24}+NOx\frac{?\ tpd}{100.47}=0.03\ (1\ year)$$

$$\left[\left(0.03-\frac{\frac{4.03}{3}}{112.24}\right)*100.41\right]*3\ years=5.43\ tpd\ NOx$$

The attainment demonstration modeling relies on at least 5.43 tpd of NO_x emissions reductions to demonstrate attainment, and at least 5.43 tpd of NO_x emissions reductions are projected to occur between 2023 and 2026 based on the emissions inventory projection used for attainment modeling (with additional NO_x emissions reductions potentially available for use from 2017-2023). Therefore, the NO_x substitution satisfies the criteria in the *NO_x Substitution Guidance*.

Table 7-7 shows the VOC and NO_x base year (2017), interim year (2023), and attainment year (2026) emissions inventory used in the attainment modeling demonstration. The modeling demonstration relied on 9.47 tpd NO_x emissions reductions between 2023 and 2026, well above the 5.43 tpd NO_x required to cover the 6.07 tpd VOC shortfall.

Table 7-7. RFP Demonstration Using NO_x Substitution

Clark County Emissions Inventory	Baseline Inventory						
	2017 tpd	2023 tpd	2026 tpd	VOC Emissions Reductions		NO_x Substitution	
Total VOC Emissions, tpd	112.24	105.35	91.32				
Total NO_x Emissions, tpd	100.47	72.01	62.54	tpd	%	tpd	%
VOC Emissions Reductions to Meet RFP							
2026 VOC Reduction Target for RFP (% 2017 base year emissions)				-	9.0%		
Required VOC reductions, 2023–2026 (tpd)				10.10			
Surplus VOC reductions achieved, 2023–2026 (Table 7-5)				4.03			
VOC shortfall (−)/surplus (+), IN %				6.07	5.4%		
NO_x Substitution to Meet RFP							
Required NO_x reductions to cover VOC shortfall (substitution) (Eq. 2)						5.43	5.4%
NO_x emission reductions achieved 2023–2026						9.47	
NO_x shortfall (−)/surplus (+), IN %						4.04	4.0%
Total shortfall for RFP						0.00	0.0%
2026 RFP Met?	**Yes**						

Based on the use of VOC emissions reductions shown in Table 7-5 and the substitution of equivalent NO_x emissions reductions shown in Table 7-7, total reductions meet the 9% RFP requirement for HA 212. Moreover, the VOC reductions relied on are surplus to emissions reductions used in the ROP demonstration.

8.0 ATTAINMENT DEMONSTRATION

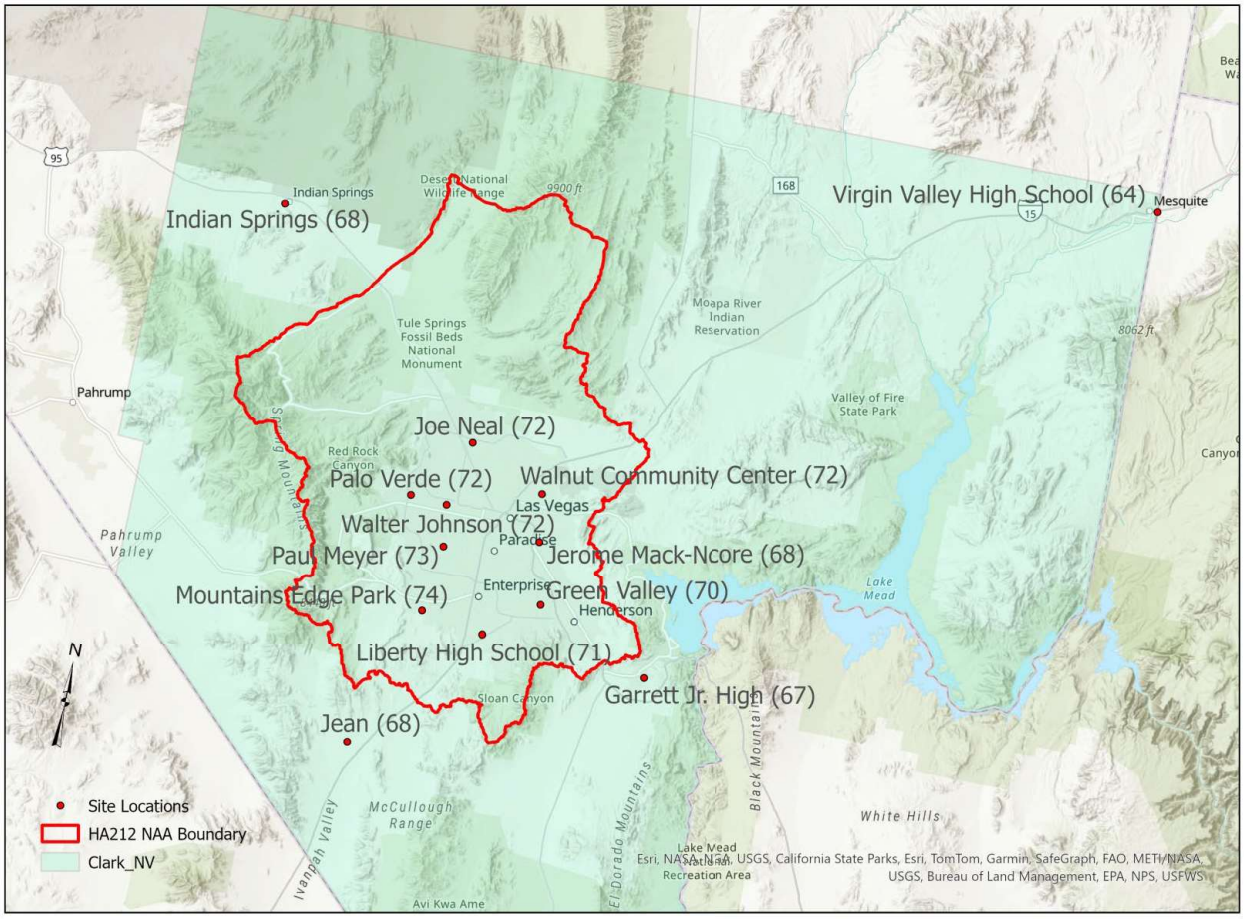
8.1 INTRODUCTION

Section 182(c)(2)(A) of the Clean Air Act requires that a serious area attainment plan submission include a demonstration it will achieve attainment of the NAAQS by the attainment date. 40 CFR Part 51.1308 requires that this attainment demonstration use photochemical grid modeling that meets the modeling guidelines in 40 CFR Part 51, Appendix W, and includes inventory data, modeling results, and an emissions reduction analysis. Appendix E contains a detailed description of the development for this modeling.

The Clark County nonattainment area (HA 212) comprises the Las Vegas Valley (LVV), which is bordered by the Spring Mountains to the west (maximum elevation: Mt. Charleston, at approximately 11,920 ft (3,633 m)) and the Sheep Mountain Range to the north (maximum elevation: Hayford Peak, at approximately 9,920 ft (3,023 m)). Three lower mountain ranges comprise the southern end of the valley. The valley floor slopes downward from west to east, which influences surface weather and water runoff patterns. The I-15 corridor to the southwest is an important atmospheric transport pathway from the Los Angeles Basin into the LVV (Langford et al. 2015).

During the May–September season, ozone concentrations in HA 212 are influenced by the photochemical oxidation of local precursor emissions (nitrogen oxides (NO_x) and volatile organic compounds (VOCs)), regional transport into the region, and exceptional events such as wildfires and stratospheric intrusions (Langford et al. 2015; DAQ 2019). Local ozone production is maximized during hot, stagnant conditions when strong regional high pressure suppresses boundary layer depth and reduces basin ventilation.

Figure 8-1 shows the DAQ monitoring network and 2023 design values (DVs) for HA 212, with higher ozone levels generally observed in the western LVV, characterizing urban and air basin ozone patterns.



Note: Numbers in parentheses show the 2023 DV at each of the 13 ozone monitoring sites within and immediately surrounding the nonattainment area.

Figure 8-1. Clark County Ozone Monitoring Sites Operating in 2023.

8.2 MODEL DESIGN

8.2.1 Model Selection

EPA recommends selecting models for ozone SIP studies on a case-by-case basis, yet explicitly notes the Community Multiscale Air Quality (CMAQ) model and the Comprehensive Air quality Model with extensions (CAMx) as being the most common photochemical grid models. For over a decade, DAQ has used the following models, processors, and systems to study ozone air quality in the LVV: Weather Research and Forecasting (WRF) model, Sparse Matrix Operator Kernel Emissions (SMOKE) processor, MOtor Vehicle Emission Simulator (MOVES), Biogenic Emission Inventory System (BEIS), and CAMx. All these were used in developing the 2024 Moderate SIP, and DAQ continued using them in modeling for this Serious SIP. Additional details about each model are provided in the attainment modeling TSD (Appendix E).

8.2.2 Modeling Period and Platform

DAQ followed EPA's current ozone SIP modeling guidance for selecting modeling periods (EPA 2018), which emphasizes modeling an entire summer ozone season to capture

meteorological and emissions variability and include enough high-ozone days for the attainment test. This is now common practice for ozone nonattainment areas throughout the United States, and is the approach generally adopted for modeling ozone in serious ozone nonattainment areas.

Originally, the attainment demonstration selected June through early September 2022 as the base year because this period adequately represents recent high-ozone conditions in the LVV and because EPA's 2022 national modeling platform (MP), including emissions, meteorology, initial and boundary conditions, and other CAMx input datasets for the 2022 base year and the 2026 future year, was readily available. However, due to poor model performance in July and August 2022 (documented in Appendix E), and with EPA approval, DAQ conducted the modeled attainment demonstration using the 2016 MP developed for the Moderate SIP combined with the 2022 and 2026 emissions inventories for the Serious SIP.

8.2.3 Model Domain and Inputs

For the modeling domain, DAQ applied the same 36-, 12-, and 4-km grid configurations as those used previously for the Moderate SIP. The 36- and 12-km grids are consistent with the EPA 2022 MP, and the 4-km grid covering Clark County (designated CC4c2) was nested within the 12-km domain.

Because the 2016 MP was selected for the modeled attainment demonstration, all CAMx inputs (except the 2022 and 2026 anthropogenic model-ready emissions) came from the 2016 MP. These included meteorology, boundary conditions, natural (biogenic and lightning NO_x) emissions, and wildfire emissions for the 12- and 4-km grids.

The 2022 and 2026 anthropogenic model-ready emissions for the 12-km domain were obtained from the 2022v1 Emission Modeling Platform, while the 4-km model-ready emissions were developed using the 2022v1 EMP. Table 8-1 summarizes the sources of 2022 and 2026 anthropogenic emissions by each source category and modeling domain. Table 8-2 lists the 2022 and 2026 daily average emissions across the CC4c2 domain. VOC emission reductions associated with local control and contingency measures from the Moderate SIP were applied to the 2026 emissions inputs.

Appendix E contains a detailed description of the development of the model-ready emissions for each source category.

Table 8-1. 2022 and 2026 Anthropogenic Emissions Inventory Sectors by Domain

Source Category	Clark County 4 km Domain (cc4c2)	Continental U.S. 12 km Domain
Area: *ag, rwc, afdust, nonpt, solvents*	EPA 2022hc inventory, 2026hc inventory with local VOC control measure reductions applied	EPA 2022hc/2026hc model-ready files
Oil & Gas: *np_oilgas, pt_oilgas*	EPA 2022hc/2026hc inventory	EPA 2022hc/2026hc model-ready files
On-road Mobile: *onroad*	SMOKE-MOVES with local MOVES5 emission factors, VMT (2022 and 2026), vehicle population and 2022 CC4c2 WRF-MCIP meteorology.	EPA 2022hc/2026hc model-ready files
Nonroad: *nonroad*	EPA 2022hc/2026hc inventory	EPA 2022hc/2026hc model-ready files
Airports: *airports*	2022 and 2026 airport emissions provided by Clark County Department of Aviation	EPA 2022hc/2026hc model-ready files
Commercial Marine Vessels (CMV): *cmv_c1c2, cmv_c3*	N/A	EPA 2022hc/2026hc model-ready files
Locomotives: *rail*	EPA 2022hc/2026hc inventory	EPA 2022hc/2026hc model-ready files
EGU Point:*ptegu*	EPA 2022hc/2026hc model-ready files: all emissions in this sector are elevated (no low-level contribution)	EPA 2022hc/2026hc model-ready files
Point: *ptnonipm*	EPA 2022hc/2026hc model-ready files: all emissions in this sector are elevated (no low-level contribution) and local VOC control measure reductions were applied to 2026hc	EPA 2022hc/2026hc model-ready files
Non-US: *Canada/Mexico/Offshore*	N/A	EPA 2022hc/2026hc model-ready files

Table 8-2. Daily Average NO_x and VOC Emissions (tpd) in the CC4c2 Domain for 2022 and 2026 by Major Source Sector.

Source Category	2022 NOx	2026 NOx	2022 VOC	2026 VOC
Point source	10.7	10.6	2.7	2.8
Nonpoint source	6	5.8	74.1	61.8
On-road mobile	33	22	23.9	19.9
Non-road mobile	23.6	18.8	28.5	27.4
Airports (commercial & Federal)	21.8	24.3	2.9	5.2
Locomotives	6.7	6.7	0.3	0.3
Biogenic	4.5	4.5	169.8	169.8
Fires	<0.01	<0.01	<0.01	<0.01
TOTAL	**106.4**	**92.8**	**303.5**	**287.1**

8.3 MODELED ATTAINMENT TEST

Based on photochemical modeling outputs for both base and future years, DAQ used EPA's Software for Model Attainment Test–Community Edition (EPA 2024c), which incorporates the procedures recommended in EPA modeling guidance (EPA 2018), to project future year design values (DVFs) for ozone from base year design values (DVBs).

Because EPA allows for the exclusion of atypical days when projecting DVFs, SMAT-CE was applied for two scenarios: one with and one without the removal of atypical days. Table 8-3 lists results with no atypical days removed; under this scenario, the peak 3-year average projected 2026 DV was 72 ppb at the Paul Meyer and Mountains Edge Park monitors. Table 8-4 lists results with atypical days removed (see Appendix F, which compiles extensive evidence supporting the identification of atypical days). Under this scenario, the projected 2026 DVs indicate attainment at all sites, with Walnut Community Center and Mountains Edge Park each exhibiting projected DVs of 70 ppb. Accordingly, the Clark County nonattainment area is expected to attain the 2015 ozone NAAQS and pass the modeled attainment test under the "atypical days removed" scenario.

Table 8-3. 2022–2024 Monitored DVs (DVBs) and 2026 Projected DVs (DVFs) with No Atypical Days Removed at Each Monitoring Site According to SMAT-CE Calculations

Site ID	Site Name	DVB (ppb)	DVF (ppb)
320030024	Virgin Valley HS	64.5[a]	63.9
320030043	Paul Meyer	73.3	72.7
320030044	Mountains Edge Park	73.5	72.8
320030071	Walter Johnson	72.3	71.8
320030073	Palo Verde	71.3	70.5
320030075	Joe Neal	72.7	71.6
320030298	Green Valley	70.0	69.5
320030299	Liberty HS	70.5	69.9
320030540	Jerome Mack-Ncore	67.7	67.3
320030602	Garrett Jr. HS	67.3	66.7
320031019	Jean	68.0	67.3
320032003	Walnut CC	72.0	71.4
320037772	Indian Springs	68.0	66.8

[a] Red indicates values above the 2015 ozone NAAQS; green indicates values below the 2015 ozone NAAQS.

Table 8-4. Refined 2022–2024 Base DVs and Projected 2026 DVs with Atypical Days Removed at Each Monitoring Site According to SMAT-CE Calculations

Site ID	Site Name	2022-2024 DV (Atypical Fire Days Removed)	
		DVB (ppb)	DVF (ppb)
320030024	Virgin Valley HS	63.5[a]	62.9
320030043	Paul Meyer	70.3	69.8
320030044	Mountains Edge Park	71.0	70.4
320030071	Walter Johnson	70.0	69.6
320030073	Palo Verde	69.3	68.6
320030075	Joe Neal	70.0	69.0
320030298	Green Valley	68.3	67.9
320030299	Liberty HS	68.0	67.4
320030540	Jerome Mack-NCore	65.3	64.9
320030602	Garrett Jr. HS	67.0	66.4
320031019	Jean	67.0	66.4
320032003	Walnut CC	71.0	70.4
320037772	Indian Springs	66.0	64.9

[a] Red indicates values above the 2015 ozone NAAQS; green indicates values below the 2015 ozone NAAQS.

8.4 WEIGHT OF EVIDENCE

Weight-of-evidence (WOE) is a necessary and important component of the ozone attainment demonstration. As EPA's modeling guidance states, "By definition, models are simplistic approximations of complex phenomena" (EPA 2018, p. 169). EPA guidance recommends performing up to three types of supplemental analysis to support a modeled attainment demonstration, including an analysis of trends in ambient concentrations and emissions, additional modeling analysis, and additional emissions controls analysis.

8.4.1 Emissions Trends

Consistent with the projected decline in DV concentrations, the NO_x and VOC emissions trendlines based on historical and projected anthropogenic emission inventories for all of Clark County, not just the nonattainment area, show continual declines in anthropogenic emissions in recent and future years. These emissions reductions provide further WOE supporting the projected decline in the 2026 DVs and attainment of the 2015 ozone NAAQS.

Centered on 2017, the resulting trendlines span 9 years prior and 16 years forward. Historical emissions in 2008 and 2015 were taken from the *Ozone Redesignation Request and Maintenance Plan* (DAQEM 2011), while 2017 anthropogenic emissions and projections to 2023 and 2033 were taken from the 1997 ozone NAAQS second maintenance plan (DES 2021a). The emissions inventories generated for this SIP are focused on HA 212 and therefore cannot be directly compared with the Clark County maintenance plan inventories, which cover the full geographic region of the county.

The historical inventories reported for 2008, 2015, and 2017 were developed using different data sources, methods, and models unique to each inventory year. This situation led to some inconsistencies in trendlines for sectors affected by substantial updates, improvements, or refinements (e.g., the evolution of MOBILE, NONROAD, and MOVES models) and associated local data used to estimate emissions for on-road and non-road motor vehicle sectors. Additionally, substantial methodological and data updates for other sectors either have occurred and are anticipated: for instance, new information from field research and models from which to estimate emissions from volatile consumer products (VCPs), which comprise a major fraction of the nonpoint VOC emissions sector. Nevertheless, the trendlines developed provide a general sense of NO_x and VOC emissions trends over a 25-year span.

Tables 8-5 and 8-6 provide Clark County anthropogenic emissions estimates for 2008–2033 by major source sector, and Figure 2 shows the resulting trendline for total anthropogenic NO_x and VOCs. A substantial reduction in NO_x emissions (56%) occurred between 2008 and 2023. Continued reductions are projected out to 2033, with an overall 2008–2033 reduction of 64%. NO_x reductions over the period primarily come from large decreases in the on-road and non-road motor vehicle sectors. The only sector showing increased NO_x emissions is aviation.

Table 8-5. Clark County Anthropogenic NO_x Emissions Trends by Major Source Category (tpd)

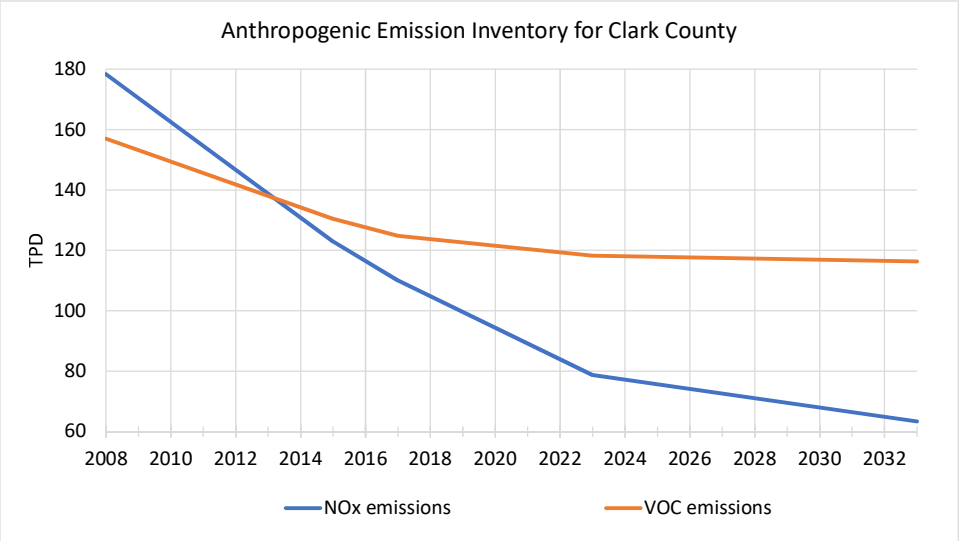
Sector	2008	2015	2017	2023	2033
Point source	28.97	11.60	12.34	11.41	11.33
Nonpoint source	6.60	5.94	4.69	5.03	4.78
Mobile: on-road	89.50	64.30	42.20	22.22	11.13
Mobile: non-road	40.63	27.69	38.87	24.48	16.33
Aviation: commercial + federal	12.68	13.35	11.90	15.53	19.77
TOTAL	**178.38**	**122.88**	**110.0**	**78.67**	**63.34**

Note: Data from 2008 and 2015 are reported by Clark County (2018); data from 2017 through 2033 are reported by Clark County (2021). Sectors noted in green (red) exhibit a net reduction (increase) from 2008 to 2023 and beyond to 2033.

Table 8-6. Clark County Anthropogenic VOC Emissions Trends by Major Source Category (tpd)

Sector	2008	2015	2017	2023	2033
Point source	1.50	2.42	2.95	2.62	2.63
Nonpoint source	67.56	60.12	64.69	67.83	71.31
Mobile: on-road	42.46	33.04	26.27	17.85	11.50
Mobile: non-road	42.07	31.10	28.93	27.29	27.86
Airports: commercial + federal	3.39	3.75	1.96	2.64	3.05
TOTAL	**156.98**	**130.43**	**124.08**	**118.23**	**116.35**

Note: Data from 2008 and 2015 are reported by Clark County (2018); data from 2017 through 2033 are reported by Clark County (2021). Sectors noted in green (red) exhibit a net reduction (increase) from 2008 to 2023 and Beyond to 2033.



Note: Data from 2008 and 2015 are reported by Clark County (2018); data from 2017 through 2033 are reported by Clark County (2021).

Figure 8-2. Clark County Total Anthropogenic NO_x and VOC Emission Trends (tpd), 2008–2033.

VOC emissions decreased by 25% over the 2008–2023 period and are projected to continue decreasing through 2033, for a total reduction of 26%. These decreases are driven primarily by on-road and non-road mobile sources, but are offset by growth in the nonpoint sector from historical and future population growth and commercial activity. Recent growth in airport emissions has contributed to increasing VOCs since 2017.

8.4.2 Wildfire Impacts

Wildfires in the western United States have increased in both frequency and intensity as climate change-driven heat and drought dry out vegetation and lengthen fire seasons. Because wildfire emissions can travel hundreds of miles, prevailing summer winds from California, Oregon, and Washington often transport smoke into the LVV, elevating ozone levels and contributing to NAAQS exceedances.

Figure 8-3 shows the total acreage burned in California, Oregon, and Washington from 2000–2025. These data are sourced from the *Wildland Fire Summary and Statistics Annual Report,* published by the National Interagency Coordination Center. Figures 8-4 and 8-5 show the annual number of maximum daily 8-hour average (MDA8) ozone values exceeding 70 ppb and the annual fourth highest MDA8 ozone, respectively, for four high-ozone monitoring sites in Clark County (Joe Neal, Walter Johnson, Paul Meyer, and Palo Verde). These values are plotted relative to the three ozone NAAQS promulgated over the past 25 years.

Figures 8-4 and 8-5 show that peak ozone levels have declined significantly, largely due to substantial reductions in anthropogenic emissions. However, this downward trend has leveled off since 2011, with year-to-year variability driven by summer weather patterns and external, uncontrollable factors, such as increasing wildfire activity (Figure 8-3). Therefore, the data support removing fire-influenced days from the DVF projection in order to better represent underlying air quality conditions in the LVV.

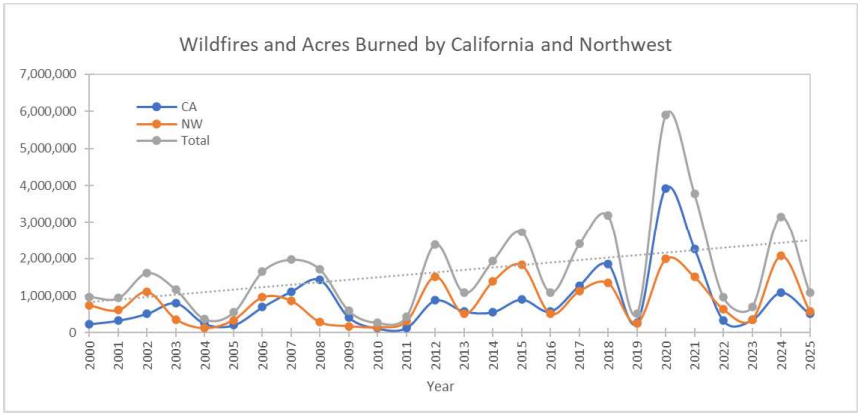
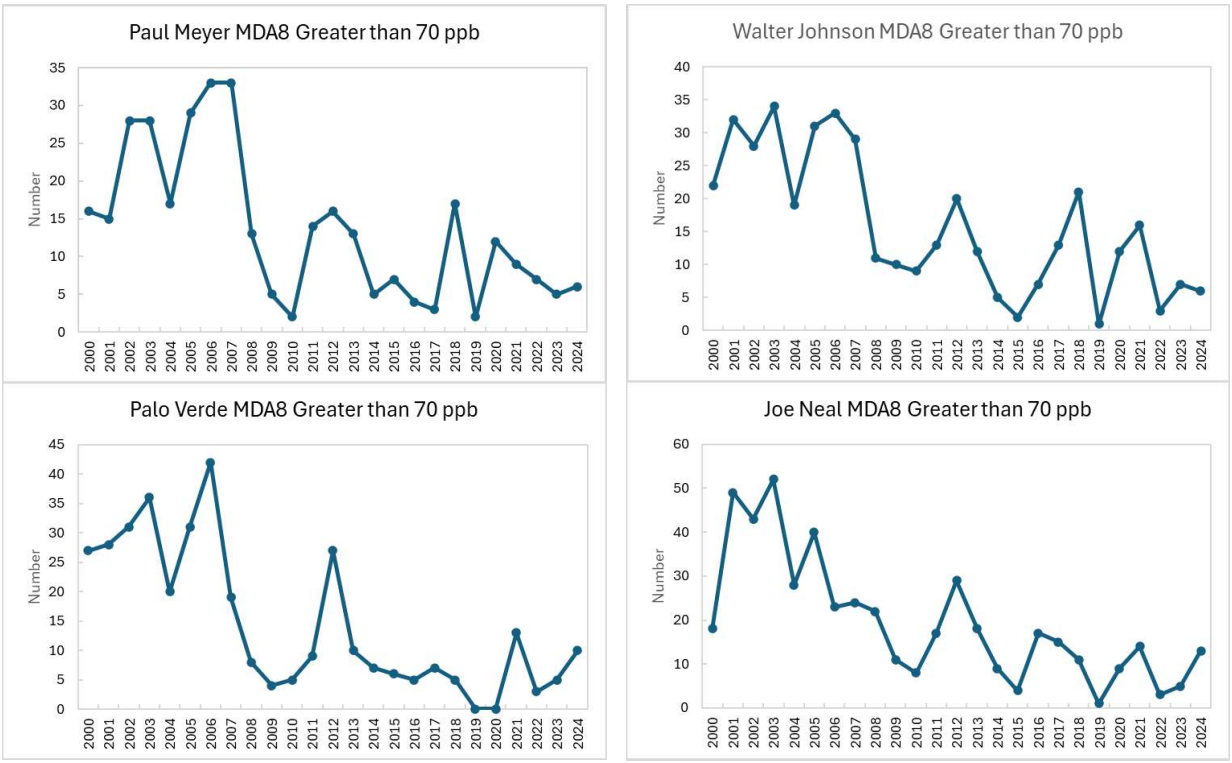
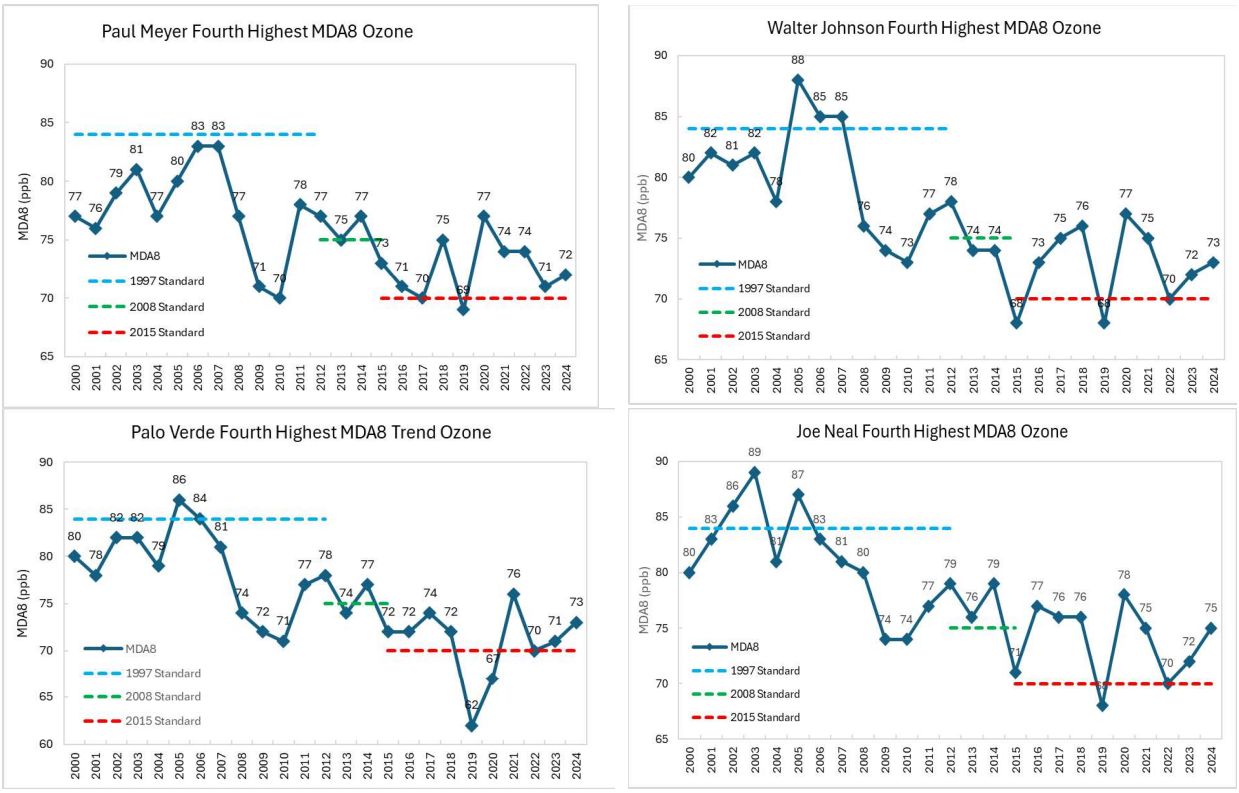


Figure 8-3. Acres Burned by Wildfires in California, Oregon, and Washington, 2000–2025.



Note: Data obtained from EPA's Air Quality System database.

Figure 8-4. History of Number of MDA8 > 70 ppb at Paul Meyer, Walter Johnson, Palo Verde, and Joe Neal Monitoring Stations.



Note: Data obtained from EPA's Air Quality System database.

Figure 8-5. History of 4th highest MDA8 Ozone at Paul Meyer, Walter Johnson, Palo Verde, and Joe Neal Monitoring Stations with the 3 Ozone NAAQS in Effect Since 2000.

8.4.3 Ozone Trends Adjusted for Meteorology

Because interannual variations in meteorology influence ozone DVs, they can obscure the evaluation of air quality trends. DAQ used May–September 2000–2023 data from EPA's Air Quality System and applied EPA's statistical model (Wells et al. 2021) to filter interannual variability in key meteorological factors toward climatological averages, producing meteorologically adjusted 97th percentile ozone trends with and without fire-influenced days removed for the four high-ozone monitoring sites in Clark County (Joe Neal, Walter Johnson, Paul Meyer, and Palo Verde) with long-term data records. Applying linear regression to meteorologically adjusted ozone trends then clarified 24-year mean trends and enabled projections to 2026.

Table 8-7 lists pertinent statistics and 2026 projections from the meteorologically adjusted 97th percentile trendlines. The projected 2026 97th percentile MDA8 ozone concentrations with fire-influenced days removed all are below the NAAQS. This result provides additional WOE supporting the reliability of the attainment test modeling.

Table 8-7. Regression Statistics for Meteorologically Adjusted 97th Percentile MDA8 Ozone Trend Lines for All Days and No-Fire Days with Corresponding 2026 Projected 97th Percentile MDA8 Ozone

Site	Slope (ppb/yr)		R^2		24-year Change		2026 Projected Fourth Highest Ozone Concentration (MDA8)	
	All Days	No Fire	All Days	No Fire	All Days	No Fire	All Days (ppb)	No Fire (ppb)
Joe Neal	-0.4811	-0.5881	0.57	0.72	-11.5	-14.1	70.2	67.8
Palo Verde	-0.5091	-0.5519	0.51	0.59	-12.2	-13.2	67.3	66.2
Walter Johnson	-0.5307	-0.5415	0.53	0.62	-12.7	-13.0	67.9	67.2
Paul Meyer	-0.2150	-0.2726	0.23	0.33	-5.2	-6.5	71.8	70.2

8.4.4 EPA Modeling

EPA modeling consistently shows attainment projections for Clark County across multiple MP iterations, which provides strong WOE support for attainment of the 2015 ozone NAAQS in Clark County by the attainment date.

In January 2022, EPA released the 2016v2 MP, which projected future year ozone DVs for 2023, 2026, and 2032 using a nationally consistent emissions inventory and photochemical modeling framework. EPA modeling indicated that Clark County was projected to attain the 2015 ozone NAAQS in 2023, and to continue attaining the standard with increasing margins below the NAAQS in 2026 and 2032.

In late 2022, EPA finalized an updated MP, 2016v3 (version "gf"), incorporating emissions inventory updates, improved projection methods, and refinements based on newly available data. EPA reran future year ozone projections using this updated platform and again projected attainment of the 2015 ozone NAAQS at all Clark County ozone monitoring sites in both 2023 and 2026 based on 2016 meteorology, fire activity, and boundary conditions. Projected average 3×3 DV at all monitoring sites remained below 70 ppb, providing continued confirmation of attainment under improved and more refined modeling assumptions.

These results demonstrate that application of existing federal, state, and local control programs is sufficient to bring Clark County into attainment within the statutory time frame and support a finding that uncontrollable emissions, such as atypical events due to fire-influenced days, likely play a prominent role in higher ambient ozone concentrations measurements. Accordingly, EPA modeling provides WOE support using the refined modeling results that address fire-influenced, atypical event days, and demonstrates attainment of the 2015 ozone NAAQS by the HA 212 attainment date.

8.5 CONCLUSION

Attainment modeling demonstrates that projected 2026 ozone DVs at all monitoring sites are 70 ppb or less after adjusting for atypical, fire-influenced days. These modeling results are consistent with long-term observed downward trends in ambient ozone concentrations and ozone precursor emissions. The modeled results are further supported by EPA's interstate transport modeling, which independently projects attainment at all Clark County monitors using existing

control measures, with increasing margins of compliance below the NAAQS, in 2026. When considered together, the modeling results, emissions trends, ozone trends, and interstate transport analyses provide a coherent and reasonable basis for concluding that HA 212 is expected to attain the 2015 ozone NAAQS by the 2027 attainment date.

9.0 CONTINGENCY MEASURES

9.1 POLICY BACKGROUND

Section 172(c)(9) of the Clean Air Act provides that a serious ozone nonattainment area SIP must include contingency measures.

The preamble to EPA's 2015 Ozone NAAQS Implementation Rule states:

> Contingency measures required under CAA sections 172(c)(9) and 182(c)(9) must be fully adopted rules or measures that can take effect without further action by the state or EPA upon failure to meet milestones or attain by the attainment deadline.

The purpose of contingency measures is to ensure continued air quality improvement if an area fails to meet Reasonable Further Progress (RFP) milestones or fails to attain the applicable NAAQS by the required attainment date. Although the Act requires no specific quantity of emissions reductions to satisfy contingency measures, EPA recommends reductions approximately equivalent to One Year's Worth (OYW) of progress (EPA 2024a). The recommended percentage of reductions represents progress toward attainment instead of a fixed amount (57 FR 13511). EPA states in the updated guidance that the annual rate of reductions could be more or less than 3%. For the "recommended OYW of progress" metric, EPA recommends that air agencies perform this calculation separately for each precursor, but with "inter-precursor substitution available as appropriate."

9.2 EMISSIONS TARGETS FOR CONTINGENCY MEASURES

EPA (2024a) recommends a specific method for calculating the amount of emissions reductions from a contingency measure. The formula for OYW of progress is:

Equation 9-1.

$$OYW\ of\ Progress = \frac{RFP\ baseline - Attainment\ projected\ inventory}{N_{years} \times RFP\ baseline} \times Attainment\ projected\ inventory$$

where N_{years} is the expected attainment year (per the modeled attainment demonstration) minus the base year (e.g., 2017 for the 2015 ozone standard). The OYW of progress calculation is based on anthropogenic emissions, and the terms "RFP baseline" and "attainment projected inventory" refer to anthropogenic emissions within the nonattainment area.

Table 9-1 presents the nitrogen oxide (NO_x) and volatile organic compound (VOC) emissions targets for a contingency measure based on EPA's recommended OYW of progress calculation; Chapter 2, "Emissions Inventory," documents the base and attainment emissions used for the calculation.

Table 9-1. OYW of Progress Calculation for VOC and NO_x (tpd)

Pollutant	RFP Base Year Inventory (2017)	Attainment Projected Inventory (2026)	N_{years} (attainment year–base year)	OYW of Progress
VOC	112.24	91.32	9	1.89
NO_x	100.47	62.54	9	2.62

9.3 OXIDES OF NITROGEN OR VOLATILE ORGANIC COMPOUND CONTROL MEASURES

EPA recognizes that contingency measures should be focused on attainment and reflect the attainment needs of an area, so recommends that air agencies calculate OYW for "relevant precursors." EPA identified NO_x and VOC precursors for ozone contingency measures, assuming that both are relevant. However, EPA acknowledged there may be justification for proposing lower emissions reductions to satisfy the contingency measure requirement, including the infeasibility of obtaining emissions reductions of a certain pollutant (EPA 2024a).

EPA's guidance provides an analytical approach to justifying fewer emissions reductions based on technical or economic infeasibility; however, it does not yet address other types of limitations. Nonetheless, given the attainment focus of the contingency measure requirement, considerations should extend beyond technical and economic conditions to account for the effect of local precursor emissions reductions on ambient ozone concentrations. If a local control measure for a precursor results in little to no change, or an increase in ambient ozone concentrations or design value (DV), then that control measure is ineffective. Such a demonstration supports concluding that the pollutant is not a "relevant precursor" for purposes of a contingency measure.

In HA 212, NO_x is not a relevant precursor for purposes of a contingency measure requirement. As part of attainment demonstration modeling, a NO_x emissions reduction sensitivity analysis assessed the effectiveness of NO_x emissions control measures in reducing projected 2026 DV concentrations. The analysis considered whether a control measure that achieves a 5.6 tpd NO_x reduction, which represents the entire nonpoint source NO_x emissions inventory in Clark County, would result in improvements in air quality. DAQ conducted these sensitivity runs to examine the effectiveness of adopting a consumer products rule to reduce ozone concentrations, which would result in an estimated 5.8 tpy of VOC emissions reduction. To compare results to a potential but identified NO_x control measure, modeling was conducted using the total amount of nonpoint source NO_x reductions.

Table 9-2 summarizes the NO_x sensitivity modeling results using higher-precision projected future DVs from EPA's Software for Model Attainment Test–Community Edition, showing increases at five monitors near the urban core and decreases at monitors farther downwind. The results suggest that NO_x reductions would have a nonbeneficial effect in areas near the urban core.

Table 9-2. NO_x Reduction Modeling Results at Monitors Within HA 212

Site Name	Base DV (ppb)	Future DV (ppb)	Future DV with NO_x Reduction (ppb)	Changes in Future DV (ppb)
Joe Neal	72.7	71.62	71.49	-0.13
Liberty High School	70.5	69.91	69.86	-0.05
Mountains Edge Park	73.5	72.86	72.82	-0.04
Palo Verde	71.3	70.51	70.49	-0.02
Walnut Community Center	72.0	71.43	71.45	0.02
Jerome Mack-NCore	67.7	67.30	67.35	0.05
Green Valley	70.0	69.52	69.58	0.06
Walter Johnson	72.3	71.84	71.96	0.12
Paul Meyer	73.3	72.78	72.92	0.14

Note: Future DV reductions (benefits) are shown in blue; increases (disbenefits) are shown in red.

Congress intended contingency measures to be consistent with a goal of attaining the NAAQS and to provide a material benefit in support of that effort (EPA 2024a). Photochemical modeling indicates that additional NO_x emission reductions would not meaningfully lower ozone concentrations in HA 212. Specifically, the area exhibits conditions under which further NO_x reductions could be expected to yield limited or counterproductive ozone responses, thus would not materially contribute to attainment. Based on this analysis, DAQ focused its contingency measure on VOC emissions reductions, which modeling indicated were more effective in reducing ozone concentrations in the area. Accordingly, DAQ identified and quantified the amount of OYW of VOC emissions reductions as the basis for the contingency measure.

9.4 PROPOSED CONTROL MEASURE

DAQ identified emulsified asphalt as a source of unregulated VOCs in the emissions inventory for which there are available controls commonly implemented by other states; therefore, DAQ is promulgating a new air quality regulation to meet mandated contingency measure requirements from this source category.

Section 131, "VOC Emissions Control for Emulsified Asphalt," of the Clark County Air Quality Regulations (AQRs) establishes VOC limits for emulsified asphalt operations as a contingency measure for the 2015 ozone NAAQS under Sections 172(c)(9) and 182(c)(9) of the Act. This new rule follows approaches adopted by other jurisdictions to reduce ozone precursor emissions from emulsified asphalt manufacturing and use. For HA 212—and any future area designated a "moderate" or higher ozone nonattainment area for the 2015 ozone NAAQS—the rule ensures that additional VOC reductions will occur (1) if air quality in the area remains above the level of the 2015 ozone NAAQS after that area's attainment date, (2) if required RFP emissions reductions are not achieved, or (3) if DAQ fails to meet a milestone as defined in EPA's 2015 Ozone Implementation Rule (40 CFR Part 51.1310(c)).

Section 131 establishes a maximum permissible VOC content limit of 3% by volume to minimize the VOC emissions during manufacturing and application operations. This VOC content

restriction is consistent with the range of best practices in other states and the international community that have implemented VOC content limits or seasonal bans on emulsified asphalt to reduce ozone-forming emissions: for example, regulations from Maricopa County, AZ (Maricopa County Reg. III, Rule 340, Section 301.3), Colusa County, CA (Colusa County APCD Rule 231, Section 3.2), and the Bay Area Air Quality Management District (Reg. 8, Rule 15, Section 8-15-303) include a VOC content limit of 3% or less by volume. The state of Vermont allows a maximum VOC content of less than 5% by weight (VAPCR Rule 5-253.15). Canada recommends a 3% VOC content limit by volume during the ozone season (Environment and Climate Change Canada 2017), although the ozone season in HA 212 spans the entire year.

DAQ conducted a workshop and held separate meetings with stakeholders to confirm the achievability and practicality of implementing a 3% by volume VOC content restriction. DAQ estimates that implementation of this rule could reduce 2026 VOC emissions from emulsified asphalt operations by approximately 79%; actual reductions could be higher or lower, depending on the year of implementation.

Section 131 applies to owners or operators of emulsified asphalt operations and could impose additional restrictions on the same owners or operators already subject to requirements for cutback asphalt operations in Section 107. Like the activities regulated by Section 107, the new rule imposes restrictions on manufacturing, selling, offering for sale, mixing, storing, using, or supplying emulsified asphalt materials within an ozone nonattainment area once the Control Officer notifies owners and operators of the rule's applicability.

The new rule has several exemptions, such as using emulsified asphalt as a penetrating prime coat, to fill potholes, or make emergency road repairs, or for residential applications, airfield pavement, and dust control. These exemptions are appropriate for applications that require quick curing and strong adhesion, and including them in the rule balances environmental goals with practical considerations for small-scale and specialized asphalt operations: as an example, for small-scale paving jobs (e.g., residential driveways, emergency repairs), contractors often need the surface ready for traffic quickly. Higher VOC content accelerates drying and hardening, reducing the time for surface availability. Solvent-rich emulsions can also penetrate dusty or porous surfaces more effectively than low-solvent formulations; accordingly, for dust suppression or sealing unpaved roads (which require deeper penetration), a higher-VOC content material binds loose particles and stabilizes the surface better than low-VOC materials. Allowing higher VOC content for such applications also reduces particulate matter emissions more effectively, offering added environmental benefits. Airfields and runways often require high durability and resistance to heavy loads, and are subject to specific Federal Aviation Administration requirements; higher VOC content emulsions can provide a stronger initial bond and better cohesion under stress over a longer duration, reducing the frequency of required paving activities and associated VOC emissions.

The definitions in Section 131.3 align with existing DAQ terminology in Sections 0 and 107, ensuring clarity and consistency. Sections 131.7–8 also mirror the registration and reporting requirements in Sections 107.6 and 107.7.2. These requirements allow DAQ to identify owners or operators subject to the new rule, enhancing tracking and enforcement efforts. The recordkeeping requirements impose a minimum burden that builds on existing business records while ensuring

the availability of information for effective enforcement. Owners or operators must maintain records for 5 years, which is consistent with the time required for stationary sources subject to permitting requirements.

Section 131.6 includes labeling requirements for small containers (5 gallons or less) modeled after New York's asphalt pavement and asphalt-based surface coating rule, which includes labeling requirements for small containers (10 gallons or less) (6 NYCRR 241.5). DAQ conducted a visual review of containers at a local supply store and found it only stocked containers of 5 gallons or less, so DAQ is applying the small container labeling requirement to that size of containers. Labeling requirements ensure the VOC content of material is known and tracked by owners and operators and readily apparent to field inspectors. Containers larger than the 5 gallons found on local supply shelves are subject to the recordkeeping and other requirements of Section 131.8 because of their greater potential for increased VOC emissions.

Once the Control Officer issues a written notice that the rule applies, owners or operators must comply within 180 days. This time allows existing supplies of asphalt to be used while providing adequate time for owners and operators to plan for future compliance.

9.5 ACHIEVABLE EMISSIONS REDUCTIONS

Emissions reductions associated with the emulsified asphalt rule depend on the VOC content limit, and were estimated with reference to the emulsified asphalt used in absence of the control measure. EPA's 2016v3 emissions inventory (the basis of the Clark County nonattainment area 2026 nonpoint emissions inventory) indicates that asphalt emissions are from EPA's Volatile Chemical Products Framework (VCPy) and references EPA 2023a (Seltzer et al. 2021). However, VOC content assumptions for emulsified asphalt are not readily available from VCPy; therefore, DAQ used EPA's 2020 National Emissions Inventory (NEI) assumption of 10.29% VOC content by weight or 14.30% by volume in emulsified asphalt to estimate potential emissions reductions. Table 9-3 lists VOC emissions and emissions reductions in HA 212 for a VOC content by volume requirement of 3%. The estimated emissions reduction exceeds the 1.89 tpd of VOC emissions reduction needed to meet the contingency measure requirement. Accordingly, the emulsified asphalt rule will fully satisfy contingency measure requirements.

Table 9-3. Estimated VOC Emissions Reductions (tpd) Within HA 212 from Emulsified Asphalt Rule

Source	2026 Emissions (tpd)	VOC content (by vol) w/o Control Measure	VOC Content (by vol) with Control Measure	Reduction %	Estimated VOC Reductions (tpd)
Emulsified asphalt (SCC: 2461022000)	3.14	14.30%	3%	79.0%	2.48

9.6 CONTROL MEASURE COST EFFECTIVENESS

Information was not readily available to quantify the cost-effectiveness associated with emissions reductions from limiting emulsified asphalt VOC content. However, according to the 2006 OTC Model Rule, low-VOC alternatives for emulsified asphalt are "currently available and no additional costs are expected from their use"(OTC 2007).

9.7 IMPLEMENTATION OF CONTINGENCY MEASURE

DAQ is responsible for enforcing SIP-approved control measures and other air permitting rules. There is currently no specific requirement for emulsified asphalt in the Clark County nonattainment area. DAQ anticipates that the requirement to reduce VOC content in emulsified asphalt will become effective upon EPA's notice that the Las Vegas Valley has failed to meet any required milestone—including, but not limited to, attainment of the NAAQS by August 2027—and subsequent written notice from the Control Officer. Once notified, owners or operators have 180 days to comply. This time allows existing supplies of asphalt to be used while providing adequate time for owners and operators to plan for future compliance. Any use of existing emulsified asphalt inventory that does not meet the lower VOC content requirements will be prohibited year-round.

Several areas in the United States have implemented measures to reduce emissions associated with emulsified asphalt, so a measure to reduce emulsified asphalt VOC emissions in the ozone nonattainment area is feasible.

10.0 NONATTAINMENT NEW SOURCE REVIEW

Section 172(c)(5) of the Clean Air Act requires implementation of a permit program consistent with the permit requirements of Section 173 of the Act. DAQ has a long-standing and fully implemented Nonattainment New Source Review (NNSR) permitting program for major sources under Section 12.3 of the Clark County Air Quality Regulations (AQRs), "Permit Requirements for Major Sources in Nonattainment Areas." DAQ certifies that the existing NNSR program is at least as stringent as the requirements at 40 CFR Part 51.165 for ozone and its precursors, and includes everything needed to meet EPA's minimum requirements for serious nonattainment areas for the 2015 ozone NAAQS.

10.1 EXISTING AND REVISED NONATTAINMENT NEW SOURCE REVIEW RULES

DAQ's existing NNSR regulations (Section 12.3) were last revised on July 20, 2021. EPA approved Clark County's certification that the NNSR program meets the marginal area requirements for the 2015 ozone NAAQS on May 6, 2024 (89 FR 37137); however, EPA has not acted on the July 2021 amendments to Section 12.3, which NDEP submitted on January 31, 2022.

As part of the planning for its Moderate SIP, DAQ certified that the existing NNSR program met EPA's minimum requirements for moderate areas for the 2015 ozone NAAQS. When the area was reclassified to "serious" on January 21, 2025, more revisions were needed and DAQ revised Section 12.3 to comply with 40 CFR Part 51.165. These revisions lowered the major source thresholds for NO_x and VOCs to 50 tpy, lowered the significant thresholds to 25 tpy, and increased the offset ratio to 1.2:1 (Table 10-1). On May 19, 2026, these revisions will go before the Clark County Board of County Commissioners for formal approval; after a public hearing and the Board's adoption and approval, they will be submitted to EPA for inclusion in the Nevada SIP.

The NNSR program remains enforceable and operates as stringently as required under federal and state guidance for serious nonattainment areas.

10.2 MINIMUM NEW SOURCE REVIEW REQUIREMENTS

Table 10-1 identifies the 40 CFR Part 51 requirement and the corresponding DAQ regulation(s) that meet EPA provisions under Section 172(c)(5) of the Act.

Table 10-1. Compliance Demonstration for Clark County's NNSR Program

	40 CFR Part 51.165 Requirement	AQR Compliance Demonstration, Section 12.3 and Section 12.7.5
1.	(a)(1)(iv)(A)(*1*)(i)-(iv) and (*2*): Major source thresholds for ozone – VOCs and NO_x	Section 12.3.2 definition of "major stationary source" includes the 50 tpy threshold for serious ozone nonattainment area (and other thresholds up to the extreme classification).
2.	(a)(1)(iv)(A)(*3*): Change constitutes a major source by itself	Section 12.3.2 definition of "major stationary source" mirrors EPA's rule: "if the change would constitute a major stationary source by itself."

40 CFR Part 51.165 Requirement		AQR Compliance Demonstration, Section 12.3 and Section 12.7.5
3.	(a)(1)(v)(E): Significant net emissions increase of NO_x is significant for ozone	Section 12.3.2 definition of "regulated NSR pollutant"; Section 12.3.2 definition of "Major Modification"; Section 12.3.2 definition of "significant." Rules define NO_x as an ozone precursor pollutant and set a significant threshold.
4.	(a)(1)(v)(F): Any emissions change of VOCs in Extreme area triggers NNSR	Not applicable because no Clark County nonattainment area is or has been previously classified as extreme.
5.	(a)(1)(x)(A)-(C) and (E): Significant emissions rates for VOCs and NO_x as ozone precursors	Section 12.3.2 definition of "significant" sets 25 tpy significant emissions rate for NO_x and VOCs.
6.	(a)(2) Applicability Procedures	Section 12.3.1, "Applicability Procedures," applies NNSR to the same project emissions increases as the federal program.
7.	(a)(3)(ii)(C)(*1*)-(*2*): Provisions for emissions reduction credits	Section 12.3.6.6, "Emission Reduction Requirements," and Section 12.7.5(i), "Stationary Source Shutdowns," mirror EPA requirements.
8.	(a)(*8*): Requirements for VOCs apply to NO_x as ozone precursors	Section 12.3.2 definition of "major stationary source"; Section 12.3.2 definition of "regulated NSR pollutant"; Section 12.3.2 definition of "significant"; Section 12.3.6.5, Table 12.3-1 regulates NO_x as a regulated NSR pollutant; sets the significant rate at the same level as VOCs and requires the same offset ratio as VOCs.
9.	(a)(*9*)(ii)-(iv): Offset ratios for VOCs and NO_x for ozone nonattainment areas	Section 12.3.6.5, Table 12.3-1 establishes the offset ratio for serious ozone nonattainment areas at 1.2:1.
10.	(a)(11): Interprecursor trading (partially vacated)	Section 12.3.6.3(b) has been removed from the rules, consistent with *Sierra Club v. EPA*, 21 F.4th 815 (D.C. Cir. 2021)
11.	(a)(12) Anti-backsliding provision(s), where applicable	Clark County was designated attainment for the 2008 ozone NAAQS and has an approved maintenance plan for the 1997 ozone NAAQS (78 FR 1149). This plan satisfies the requirements of anti-backsliding provisions and 40 CFR Part 51.1100(o).
12.	(f) Actual PALs	Section 12.3.9 essentially mirrors EPA's PAL provisions.
13.	(i) Public participation requirements	Section 12.3.8 requires publication in both a newspaper and on the DAQ website.

10.3 CONCLUSION

Section 12.3 rule revisions have been amended based on EPA feedback. Additional amendments are being proposed, and will be subject to a BCC public hearing.

DAQ certifies that its existing NNSR program, specifically AQR Sections 12.3 and 12.7.5, is at least as stringent as the requirements in 40 CFR Part 51.165 for ozone and its precursors.

11.0 INSPECTION AND MAINTENANCE PLAN

11.1 SUMMARY

DAQ certifies that the current SIP-approved Nevada Emissions Control Program (Chapter 445B of the Nevada Administrative Code, approved in 40 CFR Part 52.1470) is operating at or above the required enhanced inspection and maintenance (I/M) performance standard level for a serious ozone nonattainment area. To demonstrate the required level of performance, DAQ conducted Performance Standard Modeling (PSM), which showed NO_x emissions are lower with the state's existing emissions control program in HA 212 than the enhanced performance standard benchmark program and VOC emissions are essentially equivalent to those of the benchmark program. In addition, the Nevada Emissions Control Program in Clark County meets or exceeds other requirements for an enhanced I/M program, with a very low test failure rate (2.25% for light-duty gasoline vehicles) and waiver rate (less than 0.25%), a high compliance rate (96% in 2024), and an on-road study of 0.5% of the vehicle population using remote sensing testing (Nevada DMV 2024).

11.2 INTRODUCTION AND BACKGROUND

11.2.1 Overview of Vehicle Inspection and Maintenance Requirements

Section 182(c)(3) of the Clean Air Act requires serious ozone nonattainment areas to provide for a vehicle I/M program that meets enhanced I/M program requirements. Periodic inspections of motor vehicles' emissions control systems are conducted in such programs, which help improve air quality by identifying cars and trucks with high levels of emissions that may need repairs. Owners or operators of these vehicles may be required to obtain a smog check as part of their registration process; if the vehicle fails testing, the owner must complete the necessary repairs to achieve a passing result or meet the criteria for a waiver.

40 CFR Part 51, Subpart S sets the requirements for I/M programs. The rule requires:

> If a moderate ozone or carbon monoxide (CO) nonattainment area is reclassified to serious or worse, an enhanced I/M program shall be implemented in the 1990 Census-defined urbanized area, if the 1980 Census-defined population is 200,000 or more. (40 CFR Part 51.350(a)(9))

The requirements for an enhanced I/M program (40 CFR Part 51.351) also specify network type (centralized testing); test frequency (annual); model year coverage (testing of 1968 and newer vehicles); vehicle type coverage (light-duty vehicles and trucks); emission test type (idle testing and onboard diagnostic (OBD) checks based on vehicle model year); emission standards (40 CFR Part 85, Subpart W); emission control device inspections; stringency (20% emission test failure rate for pre-1981 model year vehicles); waiver rate (3%); inspector training, licensing, and certification requirements; on-road testing of at least 0.5% of the subject vehicle population (or 20,000 vehicles, whichever is less); and compliance rate (96%).

To comply with 40 CFR Part 51.366, the Nevada DMV submits an annual report to EPA that evaluates program performance, including enforcement effectiveness, quality assurance, quality

control, and testing outcomes (Nevada DMV 2024). Details about the program's budget are provided in "DMV - Motor Vehicle Pollution Control: 101-4722" (Nevada DMV 2025a).

The rest of Chapter 11 details the I/M program in Clark County and how it meets enhanced I/M program criteria.

11.2.2 Nevada Emissions Control Program

The Nevada Emissions Control Program is detailed in the *Carbon Monoxide State Implementation Plan: Las Vegas Valley Nonattainment Area, Clark County, Nevada* (Clark County DCP 2000), approved by the BCC in August 2000 and EPA in September 2004 (69 FR 56351). With approval of the CO SIP in 2004, EPA classified the state's program as at least an "EPA low enhanced I/M program" meeting the requirements of 40 CFR Part 51.351(g). The program is also described in the Moderate SIP.

The Nevada Emissions Control Program in Clark County is governed under Chapters 445B.700-835 of the NRS and Chapter 445B of the NAC, and administered by the Nevada DMV. These statutes and regulations establish annual testing procedures for 1968 or newer gasoline-powered vehicles, regardless of size, and for diesel-powered vehicles with a manufacturer's gross vehicle weight rating (GVWR) of up to 14,000 lb: a higher, more inclusive rating than the enhanced I/M program's required 8,500-lb GVWR. Onboard diagnostic II testing procedures are used for 1996 and newer vehicles, while older vehicles undergo a two-speed idle test. All used-car dealers in Nevada must provide a valid passing emissions test result with any vehicle they sell that will be registered in Clark County.

In Clark County, the program includes waiver provisions for motorists who spend $450 on emission-related repairs. To qualify, a 2G-Licensed Authorized Station must repair the vehicle and the waiver application must include receipts from the station showing that the owner spent at least $450 on parts other than a catalytic converter, fuel inlet restrictor, or air injection system, or on labor other than emissions testing. The Smog-Free Clark County Voucher Program will pay up to $975 in emissions-related repairs for 1968–2006 model year vehicles (DAQ administers this program via an independent contractor). DAQ plans to retain current waiver provisions (e.g., waiver minimum of $450) given the very low test failure rate (2.25% for light-duty gasoline vehicles) and waiver rate (less than 0.25%), along with the high compliance rate (96% in 2024) in Clark County (Nevada DMV 2024).

The program exempts new vehicles in Clark County from emissions testing for the first three years (Nevada DMV 2025b). New hybrid electric vehicles receive an exemption for their first five years of registration. Cars with "Classic Vehicle," "Classic Rod," or "Old Timer" license plates must carry classic or antique vehicle insurance with limited-use restrictions, including a limit of 5,000 miles driven per year (owners must provide annual odometer verification). Vehicles that do not qualify for any of these special license plates must meet emissions inspection requirements. No waivers are available for any vehicle that emits visible smoke.

The stringency requirement for Clark County is a less than 20% emission test failure rate for pre-1981 model year vehicles. However, the county's overall rate of failure, including retesting of

initial failures, is 14%, meaning that 86% of pre-1981 vehicles pass the emission test (Nevada DMV 2024).

Although EPA's enhanced performance standard requires centralized, annual testing of light-duty cars and trucks, it also provides flexibility for comprehensive, decentralized programs. As approved and implemented, the Nevada Emissions Control Program in Clark County is a decentralized program that satisfies the applicable performance standard, with test-only and test-and-repair vehicle inspection stations. Nevertheless, the program requires licensed inspectors to meet training requirements and follow certification procedures per 40 CFR Part 51.367. Specifically, certified inspectors must receive verified training that includes a course approved by the state DMV and Department of Public Safety, written and practical testing, and fulfillment of a separate certification process. In general, inspector training covers the purpose and goals of I/M programs, emissions control devices, configuration and inspection, test procedures, and rationale.

The program also requires class 2 inspector training and licensing that conforms to the requirements in 40 CFR Part 51.369. Certification and licensing are required to perform work on or otherwise service vehicle emissions components. NAC Chapters 445B.485–445B.502 contain additional information about these requirements, as does the "State of Nevada State Implementation Plan for an Enhanced Program for the Inspection and Maintenance of Motor Vehicles for Las Vegas Valley and Boulder City, Nevada" (69 FR 56351; EPA 2025). The DMV's annual report (Nevada DMV 2024) provides data on new applicants and recertification of inspectors.

The Nevada DMV is responsible for implementing and monitoring the state's I/M program, including inspector training and certification programs. As specified in NRS Chapters 445B.765 and 445B.810, it submits annual reports on the I/M program to EPA every July to comply with the provisions of 40 CFR Part 51.366.

11.3 DETERMINATION OF PERFORMANCE STANDARD TYPE

11.3.1 Analysis Overview

The "serious" ozone classification requires implementation of an enhanced I/M program. States with existing I/M programs must conduct PSM analysis (EPA 2022c) and document any necessary program revisions as part of their SIP submission to ensure their I/M program is operating at or above the enhanced I/M performance standard level.

Enhanced I/M performance standards are defined at 40 CFR Part 51.350 and outlined in Section 10.2 of this SIP. PSM analysis shows whether a state's I/M program meets the applicable performance standard, which establishes the level of emission reductions that a mandatory I/M program must meet or exceed. States that determine, by PSM analysis, that an existing SIP-approved program meets the I/M performance standard for the 2015 ozone NAAQS without modification can submit a written statement certifying the existing program as adequate for meeting the 2015 ozone NAAQS SIP requirements.

To perform a PSM analysis, DAQ modeled two scenarios:

1. An existing state program scenario representing the Nevada Emissions Control Program in Clark County as it operates today, including a delay in initial testing for the newest six model year vehicles and factoring in all local parameters and control measures, as well as inputs required to define the existing program.

2. EPA's performance standard benchmark scenario, which represents the applicable EPA-defined benchmark program, including all local area parameters and control measures, and EPA's I/M program with the elements of the applicable performance standard.

The PSM analysis compares the results of these scenarios to determine whether the existing program's emission rates are the same as or lower than EPA's performance standard benchmark. If the existing program shows the same or lower emissions levels for VOCs and NO_x as EPA's performance standard benchmark program, to within 0.02 grams/mile (EPA 2022c), then it meets the enhanced I/M program performance standard.

11.3.2 Performance Standard Modeling Overview

DAQ performed its PSM analysis using EPA's MOtor Vehicle Emissions Simulator, version 5 (MOVES5) emissions model with the latest planning assumptions (e.g., local fleet age distribution, vehicle miles traveled (VMT), fuel parameters), which are updated every three years in conjunction with the federal requirements for statewide National Emissions Inventory (NEI) development. The analysis was performed for July weekdays and all hours, as recommended in *Performance Standard Modeling for New and Existing Vehicle Inspection and Maintenance (I/M) Programs Using the MOVES Mobile Source Emissions Model* (EPA 2022c), and for calendar year 2026, as required by 40 CFR Part 51.351(i)(13).

11.3.2.1 Analysis-Year Selection

The HA 212 area was reclassified to serious nonattainment effective January 21, 2025, with an attainment date of August 3, 2027 (40 CFR Part 81). For reclassifications, the PSM guidance suggests the analysis year be the attainment date or the program implementation date, whichever is later. DAQ selected 2026 as the model year and confirmed the selection with EPA Region 9.

11.3.2.2 Geographic Coverage

In accordance with PSM guidance, analysis should be performed for each county in which the I/M program is required to operate. DAQ used Clark County, which covers all of HA 212 and therefore is consistent with designation guidance and 40 CFR Part 51.351 requirements. All modeling inputs, including fleet characteristics, travel activity, and meteorological parameters, were selected to represent local conditions within the designated nonattainment area.

11.3.2.3 Emissions Model Selection

DAQ used the MOVES5 model for all emissions calculations in this PSM analysis, in accordance with the PSM guidance and 40 CFR Part 51.351(d). MOVES5, released in November 2024,

is EPA's latest mobile source emission model (EPA 2024b) and is recognized as the regulatory model for evaluating I/M performance standards for ozone nonattainment areas because of its ability to simulate vehicle emissions with locally specific fleet, activity, and meteorological data.

11.3.2.4 Existing Inspections and Maintenance Program Coverage

The Nevada Emissions Control Program applies to all gasoline-powered vehicles of model year 1968 or newer, and to diesel-powered motor vehicles of model year 1968 or newer that have a manufactured GVWR of up to 14,000 lb. New vehicles are exempt from emission inspections for their first three years; new hybrid electric vehicles are exempt for the first five years. Consistent with the PSM guidance, DAQ used the latest update to the IMCoverage table in MOVES5 modeling; however, DAQ reviewed and modified the MOVES5 IMCoverage input (two-year new vehicle exemption for 2017 and three-year exemptions for 2023 and 2026) to accurately reflect the Nevada Emissions Control Program (Table 11-1).

Table 11-1. MOVES5 Input for Existing I/M Program

Pol Proc ID	St ID	Co ID	Yr ID	Src Type ID	Fuel Type ID	IM Prog ID	Inspect Freq	Test Std ID	Beg Model Year	End Model Year	Use I/M? Y/N	Comp. Factor
101	32	32003	2026	21	1	2	1	12	1968	1995	Y	93.12
101	32	32003	2026	21	1	10	1	51	1996	2023	Y	93.12
101	32	32003	2026	21	5	202	1	12	1968	1995	Y	93.12
101	32	32003	2026	21	5	210	1	51	1996	2023	Y	93.12
101	32	32003	2026	31	1	2	1	12	1968	1995	Y	93.12
101	32	32003	2026	31	1	10	1	51	1996	2023	Y	93.12
101	32	32003	2026	31	5	202	1	12	1968	1995	Y	93.12
101	32	32003	2026	31	5	210	1	51	1996	2023	Y	93.12
101	32	32003	2026	32	1	2	1	12	1968	1995	Y	93.12
101	32	32003	2026	32	1	10	1	51	1996	2023	Y	93.12
101	32	32003	2026	32	5	202	1	12	1968	1995	Y	93.12
101	32	32003	2026	32	5	210	1	51	1996	2023	Y	93.12
102	32	32003	2026	21	1	2	1	12	1968	1995	Y	93.12
102	32	32003	2026	21	1	10	1	51	1996	2023	Y	93.12
102	32	32003	2026	21	5	202	1	12	1968	1995	Y	93.12
102	32	32003	2026	21	5	210	1	51	1996	2023	Y	93.12
102	32	32003	2026	31	1	2	1	12	1968	1995	Y	93.12
102	32	32003	2026	31	1	10	1	51	1996	2023	Y	93.12
102	32	32003	2026	31	5	202	1	12	1968	1995	Y	93.12
102	32	32003	2026	31	5	210	1	51	1996	2023	Y	93.12
102	32	32003	2026	32	1	2	1	12	1968	1995	Y	93.12
102	32	32003	2026	32	1	10	1	51	1996	2023	Y	93.12
102	32	32003	2026	32	5	202	1	12	1968	1995	Y	93.12
102	32	32003	2026	32	5	210	1	51	1996	2023	Y	93.12

Pol Proc ID	St ID	Co ID	Yr ID	Src Type ID	Fuel Type ID	IM Prog ID	Inspect Freq	Test Std ID	Beg Model Year	End Model Year	Use I/M? Y/N	Comp. Factor
201	32	32003	2026	21	1	2	1	12	1968	1995	Y	93.12
201	32	32003	2026	21	1	10	1	51	1996	2023	Y	93.12
201	32	32003	2026	21	5	202	1	12	1968	1995	Y	93.12
201	32	32003	2026	21	5	210	1	51	1996	2023	Y	93.12
201	32	32003	2026	31	1	2	1	12	1968	1995	Y	93.12
201	32	32003	2026	31	1	10	1	51	1996	2023	Y	93.12
201	32	32003	2026	31	5	202	1	12	1968	1995	Y	93.12
201	32	32003	2026	31	5	210	1	51	1996	2023	Y	93.12
201	32	32003	2026	32	1	2	1	12	1968	1995	Y	93.12
201	32	32003	2026	32	1	10	1	51	1996	2023	Y	93.12
201	32	32003	2026	32	5	202	1	12	1968	1995	Y	93.12
201	32	32003	2026	32	5	210	1	51	1996	2023	Y	93.12
202	32	32003	2026	21	1	2	1	12	1968	1995	Y	93.12
202	32	32003	2026	21	1	10	1	51	1996	2023	Y	93.12
202	32	32003	2026	21	5	202	1	12	1968	1995	Y	93.12
202	32	32003	2026	21	5	210	1	51	1996	2023	Y	93.12
202	32	32003	2026	31	1	2	1	12	1968	1995	Y	93.12
202	32	32003	2026	31	1	10	1	51	1996	2023	Y	93.12
202	32	32003	2026	31	5	202	1	12	1968	1995	Y	93.12
202	32	32003	2026	31	5	210	1	51	1996	2023	Y	93.12
202	32	32003	2026	32	1	2	1	12	1968	1995	Y	93.12
202	32	32003	2026	32	1	10	1	51	1996	2023	Y	93.12
202	32	32003	2026	32	5	202	1	12	1968	1995	Y	93.12
202	32	32003	2026	32	5	210	1	51	1996	2023	Y	93.12
301	32	32003	2026	21	1	10	1	51	1996	2023	Y	93.12
301	32	32003	2026	21	5	210	1	51	1996	2023	Y	93.12
301	32	32003	2026	31	1	10	1	51	1996	2023	Y	93.12
301	32	32003	2026	31	5	210	1	51	1996	2023	Y	93.12
301	32	32003	2026	32	1	10	1	51	1996	2023	Y	93.12
301	32	32003	2026	32	5	210	1	51	1996	2023	Y	93.12
302	32	32003	2026	21	1	10	1	51	1996	2023	Y	93.12
302	32	32003	2026	21	5	210	1	51	1996	2023	Y	93.12
302	32	32003	2026	31	1	10	1	51	1996	2023	Y	93.12
302	32	32003	2026	31	5	210	1	51	1996	2023	Y	93.12
302	32	32003	2026	32	1	10	1	51	1996	2023	Y	93.12
302	32	32003	2026	32	5	210	1	51	1996	2023	Y	93.12

11.3.2.5 Input Database

All inputs DAQ used in the MOVES5 modeling for both the existing program scenario and the enhanced benchmark scenario were the same except the I/M program inputs: meteorological data, source type population, source type age distribution, annual VMT within HA 212, VMT fractions, road type distribution, average speed distribution, fuel data, and Alternative Vehicle and Fuel Technologies (AVFT). These are documented in Section 3 of Appendix A. Tables 11-1 and 11-2 summarize the existing control program inputs used in the MOVES5 modeling for both scenarios; EPA supplied the I/M program inputs for the enhanced benchmark scenario (Table 11-2).

Table 11-2. MOVES5 Input for Enhanced I/M Program

Pol Proc ID	St ID	Co ID	Yr ID	Src Type ID	Fuel Type ID	IM Prog ID	Inspect Freq	Test Std ID	Beg Model Year	End Model Year	Use I/M? Y/N	Comp. Factor
101	32	32003	2026	21	1	111	1	11	1968	2000	y	95.8
101	32	32003	2026	31	1	111	1	11	1968	2000	y	93.2
101	32	32003	2026	32	1	111	1	11	1968	2000	y	73.1
102	32	32003	2026	21	1	111	1	11	1968	2000	y	95.8
102	32	32003	2026	31	1	111	1	11	1968	2000	y	93.2
102	32	32003	2026	32	1	111	1	11	1968	2000	y	73.1
301	32	32003	2026	21	1	111	1	11	1968	2000	y	95.8
301	32	32003	2026	31	1	111	1	11	1968	2000	y	93.2
301	32	32003	2026	32	1	111	1	11	1968	2000	y	73.1
302	32	32003	2026	21	1	111	1	11	1968	2000	y	95.8
302	32	32003	2026	31	1	111	1	11	1968	2000	y	93.2
302	32	32003	2026	32	1	111	1	11	1968	2000	y	73.1
101	32	32003	2026	21	1	151	1	51	2001	2025	y	95.8
101	32	32003	2026	31	1	151	1	51	2001	2025	y	93.2
101	32	32003	2026	32	1	151	1	51	2001	2025	y	73.1
102	32	32003	2026	21	1	151	1	51	2001	2025	y	95.8
102	32	32003	2026	31	1	151	1	51	2001	2025	y	93.2
102	32	32003	2026	32	1	151	1	51	2001	2025	y	73.1
301	32	32003	2026	21	1	151	1	51	2001	2025	y	95.8
301	32	32003	2026	31	1	151	1	51	2001	2025	y	93.2
301	32	32003	2026	32	1	151	1	51	2001	2025	y	73.1
302	32	32003	2026	21	1	151	1	51	2001	2025	y	95.8
302	32	32003	2026	31	1	151	1	51	2001	2025	y	93.2
302	32	32003	2026	32	1	151	1	51	2001	2025	y	73.1
112	32	32003	2026	21	1	143	1	43	2001	2025	y	95.8
112	32	32003	2026	31	1	143	1	43	2001	2025	y	93.2
112	32	32003	2026	32	1	143	1	43	2001	2025	y	73.1
101	32	32003	2026	21	5	111	1	11	1968	2000	y	95.8
101	32	32003	2026	31	5	111	1	11	1968	2000	y	95.8

Pol Proc ID	St ID	Co ID	Yr ID	Src Type ID	Fuel Type ID	IM Prog ID	Inspect Freq	Test Std ID	Beg Model Year	End Model Year	Use I/M? Y/N	Comp. Factor
101	32	32003	2026	32	5	111	1	11	1968	2000	y	95.8
102	32	32003	2026	21	5	111	1	11	1968	2000	y	95.8
102	32	32003	2026	31	5	111	1	11	1968	2000	y	95.8
102	32	32003	2026	32	5	111	1	11	1968	2000	y	95.8
301	32	32003	2026	21	5	111	1	11	1968	2000	y	95.8
301	32	32003	2026	31	5	111	1	11	1968	2000	y	95.8
301	32	32003	2026	32	5	111	1	11	1968	2000	y	95.8
302	32	32003	2026	21	5	111	1	11	1968	2000	y	95.8
302	32	32003	2026	31	5	111	1	11	1968	2000	y	95.8
302	32	32003	2026	32	5	111	1	11	1968	2000	y	95.8
101	32	32003	2026	21	5	151	1	51	2001	2025	y	95.8
101	32	32003	2026	31	5	151	1	51	2001	2025	y	95.8
101	32	32003	2026	32	5	151	1	51	2001	2025	y	95.8
102	32	32003	2026	21	5	151	1	51	2001	2025	y	95.8
102	32	32003	2026	31	5	151	1	51	2001	2025	y	95.8
102	32	32003	2026	32	5	151	1	51	2001	2025	y	95.8
301	32	32003	2026	21	5	151	1	51	2001	2025	y	95.8
301	32	32003	2026	31	5	151	1	51	2001	2025	y	95.8
301	32	32003	2026	32	5	151	1	51	2001	2025	y	95.8
302	32	32003	2026	21	5	151	1	51	2001	2025	y	95.8
302	32	32003	2026	31	5	151	1	51	2001	2025	y	95.8
302	32	32003	2026	32	5	151	1	51	2001	2025	y	95.8
112	32	32003	2026	21	5	143	1	43	2001	2025	y	95.8
112	32	32003	2026	31	5	143	1	43	2001	2025	y	95.8
112	32	32003	2026	32	5	143	1	43	2001	2025	y	95.8

11.4 PERFORMANCE STANDARD MODELING ANALYSIS

11.4.1.1 Running MOVES5

A RunSpec file defines modeling parameters, including location, time period, vehicle types, road types, fuel types, emission processes, pollutants, and other settings. The file also specifies input and output database locations. The key settings in the RunSpec for both scenarios were:

3. Model type: Onroad

4. Domain/Scale: County

5. Calculation Type: Inventory

6. Analysis year: 2026

7. Analysis day: Weekday

8. Analysis hour: All hours

9. Geographic bounds: HA 212

10. On-road vehicle equipment: All fuel type/source type

11. Pollutants: VOCs and NO_x (must include)

12. Emission processes: All emission processes for VOCs and NO_x (must include)

13. Units: Grams and miles

14. Activity: Distance traveled

15. Time output aggregation: 24-hour day

DAQ conducted two MOVES5 runs, one for the existing program scenario and one for the enhanced benchmark scenario. The only difference between them was the I/M program input, as summarized in Tables 11-1 and 11-2.

11.4.1.2 Processing Model Output

After completing the MOVES5 run for the existing program scenario, an output database was generated as specified in the RunSpec file. The following post-processing steps were performed to calculate VOC and NO_x emissions rates:

1. Generate the MOVES rates table. In the Post Processing menu of MOVES5, select the "EmissionRates.sql" script. Doing so creates a new table, "movesrates," in the output database.

2. Extract emissions and activity data. Using HeidiSQL, a software tool for processing MOVES databases:

    a. Total VOC and NO_x emissions are obtained from the movesrates table.

    b. Total distance (activity) is obtained from the default movesactivityoutput table.

3. Calculate emission rates. VOC and NO_x emission rates are calculated as:

    a. Emission Rate (g/mile) = Total Emissions (g)/Total Distance (miles).

The same procedure was applied to the enhanced benchmark scenario. Tables 11-3 and 11-4 present the results.

Table 11-3. July Weekday Total VOC and NO_x Emissions, Total Distance, and Emission Rates for Existing Program Scenario (HA 212)

2026 Future Base – Existing Program	VOCs	NO_x
Total Emission (emissionQuant) (g)	14,327,677	14,882,718
Total Distance (activity) (miles)	50,884,403	50,884,403
Emission Rate (emissionrate) (g/mile)	0.2816	0.2925

Table 11-4. July Weekday Total VOC and NO_x Emissions, Total Distance, and Emission Rates for Enhanced Benchmark Scenario (HA 212)

2026 Enhanced I/M Programs	VOCs	NO_x
Total Emission (emissionQuant) (g)	13,790,472	14,963,224
Total Distance (activity) (miles)	50,884,403	50,884,403
Emission Rate (emissionrate) (g/mile)	0.2710	0.2941

11.4.1.3 Performance Standard Modeling Results

Table 11-5 shows that DAQ's existing I/M program meets the requirements of an enhanced performance standard. Under the existing program, NO_x emissions are lower than the enhanced benchmark and VOC emissions are essentially equivalent, with modeled emissions within half of the acceptable margin (0.02 grams per mile) in the benchmark program.

Table 11-5. I/M Performance Standard Modeling for HA 212 (CY2026)

Scenario	NO_x (g/mi)	VOCs (g/mi)
Nevada Emissions Control Program in Clark County	0.2925	0.2816
Enhanced performance standard benchmark	0.2941	0.2710
Enhanced performance standard benchmark (0.02 g/mi buffer)	0.3141	0.2910

11.5 CONCLUSION

The existing, SIP-approved Nevada Emissions Control Program in Clark County satisfies the requirements for an enhanced I/M program. PSM analysis showed that NO_x emissions are lower when implementing the existing Nevada Emissions Control Program in HA 212 than the enhanced performance standard benchmark, and VOC emissions are essentially equivalent. In addition, as Section 10.2.2 describes, the existing program meets other regulatory requirements of 40 CFR Part 51.351(i)): a low test failure rate (2.25% for light-duty gasoline vehicles) and waiver rate (less than 0.25%), a high compliance rate (96% in 2024), and an annual on-road remote sensor testing study of 0.5% of the vehicle population. The program also meets the stringency requirement of less than 20% emission test failure rate for pre-1981 model year vehicles, with an overall rate of failure, including retesting initial failures, of 14% (Nevada DMV 2024). The Smog-Free Clark County Voucher Program pays up to $975 in emissions-related repairs for 1968–2006 model year vehicles.

Therefore, DAQ certifies that its current I/M program meets the applicable enhanced I/M performance requirements of 40 CFR Part 51.351.

12.0 CLEAN FUELS

12.1 INTRODUCTION

Section 182(c)(4) of the Clean Air Act requires states with ozone nonattainment areas classified as "serious" or above and 1980 populations of 250,000 or more to submit a SIP revision that:

1. Includes measures necessary to ensure the effectiveness of the Clean Fuel Fleets Program (CFFP) prescribed under Part C of Title II of the Act, or

2. Provides a substitute that satisfies the statutory requirement.

Since HA 212 was reclassified from "moderate" to "serious" nonattainment for the 2015 ozone NAAQS effective January 21, 2025, the CFFP requirement applies to this area.

Clark County's current fleet characteristics show that existing vehicle standards achieve emissions reductions at least equivalent to the CFFP, so implementing the CFFP would not result in additional emissions reductions in HA 212. This chapter describes the relevant federal guidance and presents data on the composition and turnover of the on-road fleet in Clark County. This information demonstrates that a separate CFFP is not required to attain and maintain the 2015 ozone NAAQS.

12.2 BACKGROUND

The Clean Fuel Fleets provisions in the 1990 Clean Air Act Amendments established emission standards for light- and heavy-duty clean-fuel vehicles that were more stringent than the general vehicle emission standards in effect at the time. Congress designed these standards to reduce emissions of ozone precursors by requiring covered fleets to purchase a specified percentage of clean-fuel vehicles that met the numerical standards in Sections 243 and 245 of the Act.

Since adopting these statutory provisions, EPA has promulgated substantially more stringent emission standards for light- and heavy-duty vehicles, including Tier 3 light-duty vehicle emission standards (40 CFR Part 86) and heavy-duty vehicle and engine emission standards (40 CFR Part 1036). EPA determined these modern standards meet or exceed CFFP standards as ultra-low-emission vehicles (40 CFR Part 88). Thus the current standards are as or more stringent than the CFFP numerical standards in Sections 243 and 245 of the Act, and implementation of the CFFP could not result in additional emissions reductions.

12.3 GUIDANCE ON CLEAN FUEL FLEETS PROGRAM

On June 29, 2021, EPA revised the Clean Fuel Fleets regulations in 40 CFR Part 88 to recognize that vehicles and engines certified to current EPA or California Air Resources Board (CARB) standards were deemed to comply with the Clean Fuel Fleets emission standards as ultra-low-emission vehicles (86 FR 34308). Under the revised regulations, the purchase of any new light- or heavy-duty vehicle certified to current EPA or CARB standards would achieve the emission performance improvements intended by the CFFP.

EPA's "Guidance for Fulfilling the Clean Fuel Fleets Requirement of the Clean Air Act" later clarified that, when current vehicle standards already meet or exceed CFFP emissions requirements, states may submit a SIP revision explaining that implementation of a CFFP would not result in additional emission reductions (EPA 2022a).

12.4 FEDERAL VEHICLE EMISSION STANDARDS

Federal emission standards form the baseline for all states. The Tier 2 standards, which were phased in beginning with model year 2004, established fleet-average limits on NO_x and VOCs for light- and medium-duty vehicles and tightened heavy-duty vehicle requirements. Tier 3 standards, which were phased in beginning with model year 2017, reduced these limits further and lowered the sulfur content of gasoline. These federal standards ensured additional emissions reductions from both new and existing vehicles. Tier 3 emissions levels for NO_x and VOCs are significantly lower than the levels required under the CFFP, particularly for light-duty trucks and heavy-duty vehicles. Because federal standards apply nationwide and an increasing percentage of Clark County's on-road fleet now consists of vehicles certified to Tier 2 and Tier 3 standards, large and ongoing reductions occur in ozone precursor emissions as owners retire older vehicles from service (Section 12.5).

To illustrate the relative stringency of the federal programs, Table 12-1 summarizes the emission limits for light-duty vehicles and heavy-duty gasoline engines under the CFFP, Tier 2, and Tier 3 standards. This comparison, adapted from analyses conducted by the state of Georgia, shows that Tier 2 standards required substantially lower combined NO_x and VOC emissions than the CFFP.[5] Tier 3 standards further reduced allowable fleet-average emissions. These reductions demonstrate that the federal Tier 2 and Tier 3 programs provide greater benefits than the CFFP, forming the foundation for Clark County's explanation that adoption of the CFFP could not result in additional emissions reductions.

Table 121. Comparison of CFFP, Tier 2, and Tier 3 Vehicle Emission Standards for NO_x and VOCs,

Vehicle Category	CFFP / LEV (VOCs+NO_x)	Tier 2 (VOCs+NO_x)	Tier 3 (VOCs+NO_x)	Relative Stringency
Light-duty vehicles	0.275–0.86 g/mi (depending on truck class)	0.075–0.11 g/mi	0.030–0.086 g/mi (phased 2017–2025)	Tier 3 > Tier 2 > CFFP
Heavy-duty gasoline vehicles	3.8 g/bhp-hr	2.4 g/bhp-hr	Not directly comparable (Tier 3 uses g/mi)	Tier 2 > CFFP (heave-duty sector)

Note: Adapted from Georgia Environmental Protection Division, "Attachment A: Supporting Documentation for Section 110(l) and 193 of the Act Demonstrations."

[5] EPA proposed to approve changes to the Georgia ozone SIP submitted on January 22, 2015, to move the Clean Fueled Fleets Program from the active portion of the Georgia SIP to the contingency measures portion of the maintenance plan for the Atlanta area for the 1997 8-hour ozone NAAQS. Calculations can be found in Turner 2015.

12.5 CLARK COUNTY FLEET CHARACTERISTICS AND VEHICLE TURNOVER

The Nevada DMV's 2024 "Inspection and Maintenance Program Activity Report" provides a detailed picture of the age and composition of the on-road fleet in Clark County. In 2024, approximately 1.2 million emissions tests were conducted in Clark County on light-duty vehicles. Analysis of model year distribution shows that over 37% of tested vehicles were model year 2016 or newer, demonstrating strong penetration of Tier 3-compliant vehicles. More than 65% of the fleet was model year 2010 or newer, reflecting broad compliance with Tier 2 standards; vehicles 20 years or older accounted for less than 15% of the tested fleet. These figures indicate that fleet turnover in Clark County is occurring rapidly, with a steady replacement of older, higher-emitting vehicles with newer, cleaner ones. The I/M program reinforces this trend by ensuring continued compliance with emission standards.

Inspection data for heavy-duty gasoline vehicles in Clark County also show steady turnover patterns. In 2024, more than 30,000 heavy-duty gasoline vehicles were tested; approximately 43% were model year 2016 or newer, indicating substantial penetration of Tier 3 standards. Nearly 60% were model year 2010 or newer, reflecting compliance with Tier 2 standards, while about 29% of the fleet was 20 years or older. Although the share of older vehicles among heavy-duty gasoline vehicles remains higher than in the light-duty fleet, the data demonstrate that heavy-duty gasoline vehicles in Clark County are transitioning toward newer, lower-emitting models. This turnover, reinforced by ongoing I/M requirements, contributes to continued reductions in emissions of ozone precursors from the heavy-duty vehicle sector.

Taken together, these data demonstrate that Clark County's fleet composition reflects a high degree of compliance with modern emissions standards, achieving ongoing emissions reductions greater than the levels achievable through CFFP implementation.

12.6 DEMONSTRATION OF NO ADDITIONAL EMISSIONS REDUCTIONS

DAQ evaluated whether implementation of a CFFP in HA 212, using the numerical emissions standards in Sections 243 and 245 of the Act, would result in emission reductions beyond those already achieved through existing federal and state motor vehicle emission standards.

Based on this evaluation, DAQ concluded that:

3. All new light-duty vehicles purchased by fleet owners in Clark County are required to meet EPA Tier 3 emission standards, which are more stringent than the Clean Fuel Fleets emission standards established in the Act.

4. All new heavy-duty vehicles and engines purchased by fleet owners in Clark County must meet EPA's current heavy-duty emission standards, which are as or more stringent than the Clean Fuel Fleets emission standards.

5. Any new fleet vehicle purchased today already qualifies as an ultra-low-emission Clean Fuel Fleets vehicle, regardless of fuel type, and therefore a low-emission Clean Fuel Fleets vehicle, regardless of fuel type.

6. "Based on EPA's June 29, 2021, final rule, the purchase of any new light- or heavy-duty vehicle by a fleet owner would provide emission reductions equivalent to or greater than a new vehicle that would have been certified to the CAA's ultra-low clean-fuel vehicle emission standards" (EPA 2022a).

In summary, requiring fleet owners to participate in a separate Clean Fuel Fleets purchasing program meeting CFFP standards would not result in additional long-term reductions of ozone precursor emissions.

12.7 CONCLUSION

Clark County satisfies the CFFP requirements of Section 182(c)(4) of the Act through implementation of federal vehicle emission standards. The ongoing turnover of the on-road fleet within HA 212 provides NO_x and VOC emissions reductions that meet or exceed those required under the federal CFFP; therefore, Clark County is not required to adopt a separate CFFP to satisfy the serious nonattainment area SIP requirements.

Nothing in this SIP revision precludes the state of Nevada or Clark County from adopting additional fleet, transportation, or zero emission vehicle measures in the future to further reduce ozone precursor emissions or to address local air quality or environmental justice concerns.

13.0 TRANSPORTATION CONFORMITY, MOTOR VEHICLE EMISSIONS BUDGET, AND TRANSPORTATION CONTROL

13.1 TRANSPORTATION CONFORMITY

Transportation conformity is required under Section 176(c) of the Clean Air Act, which prohibits the federal government from engaging in, supporting, or providing financial assistance for licensing, permitting, or approving any transportation project unless it conforms to the SIP. Conforming to the SIP means the transportation projects do not cause or contribute to new violations of the NAAQS, do not increase the frequency or severity of any existing NAAQS violations, and do not delay timely attainment of the NAAQS or any required interim emission reductions or other milestones.

EPA established implementation rules for Section 176(c) in 40 CFR Part 51, Subpart T and 40 CFR Part 93 ("conformity rule"). For nonattainment areas required to demonstrate reasonable further progress (RFP) and attainment, EPA requires the SIP to document the motor vehicle emissions budget (MVEB) used in the attainment demonstration. The MVEB is the allowable on-road mobile source emissions defined in the SIP for meeting RFP milestones or demonstrating attainment or maintenance of the NAAQS for a criteria pollutant or its precursors, i.e., it establishes the emissions budget for highway and transit vehicles. Emissions from future transportation projects within the nonattainment area must stay within this budget. Transportation plans, programs, and projects funded or approved by the Federal Highway Administration and Federal Transit Administration must conform to the on-road MVEBs specified in the applicable SIP. 40 CFR Part 93.118 provides the criteria and procedures for MVEBs.

Transportation planning is the responsibility of local Metropolitan Planning Organizations, which for Clark County is the Regional Transportation Commission of Southern Nevada (RTC). The RTC develops the Regional Transportation Plan (RTP) and the Transportation Improvement Program (TIP), and conducts the regional emissions analysis that satisfies the requirements of the conformity rule. It conducts travel demand modeling to forecast vehicle miles traveled (VMT) and vehicle speeds on the county's road network using the latest planning assumptions, derived from land use, population, and employment projections (40 CFR Part 93.110). Conformity determinations required for the RTP and TIP must show that total emissions from future transportation projects in the region will not exceed established MVEBs in RFP milestone or attainment years.

Once EPA approves new or revised SIP MVEBs, the RTC must use those in its transportation conformity analyses. Interagency consultation is required when making a conformity determination and developing or revising an RTP, TIP, or SIP (40 CFR Part 93.105). The transportation conformity and interagency consultation process is documented in the *Clark County Transportation Conformity Plan* (DAQEM 2008b). Using this process, DAQ consulted with the RTC, the Nevada Department of Transportation, and EPA in establishing the MVEBs in this SIP.

13.2 MOTOR VEHICLE EMISSIONS BUDGETS

The MVEBs in this SIP establish a cap on motor vehicle-related VOC and NO_x (i.e., ozone precursor) emissions that predicted transportation system emissions from new transportation

projects cannot exceed. This budget serves as a ceiling on emissions for the estimation year and all subsequent years, until either a different budget is defined for another year or a SIP revision modifies the budget. Unless the SIP clearly indicates otherwise, the estimate of future transportation network emissions used in a milestone or attainment demonstration acts as the MVEB.

The MOVES5 model was used to develop estimates of VOC and NO_x ozone precursor emissions for a representative hot summer weekday (Appendix A). Table 13-1 shows the resulting NO_x and VOC MVEBs for the 2026 attainment year. Once approved or determined adequate by EPA, these MVEBs will be used in future transportation conformity analyses.

Table 13-1. Motor Vehicle Emission Budgets

Year	VOC (tpd)	NOx (tpd)
2026	15.79	16.41

13.3 TRANSPORTATION CONTROL

For areas designated as "serious" nonattainment or above for ozone, Section 182(c)(5) of the Act requires that states submit a transportation control demonstration every three years that assesses whether current aggregate VMT, aggregate vehicle emissions, congestion levels, and other traffic- and vehicle emissions-related factors (collectively called "relevant parameters") are consistent with those used for the area's ozone attainment demonstration. RTC evaluates regional mobile source emissions on a regular basis through its conformity processes, and those mobile source emissions must be consistent with the MVEBs established in this SIP.

No new transportation control measures are proposed for this SIP because existing measures are enough to meet the attainment demonstration and RFP requirements of this SIP. In 2028, DAQ will submit a transportation control demonstration as required to compare recent actual transportation emissions with those used in the attainment demonstration and RFP portions of this SIP. If the actual levels exceed those used for this SIP, then DAQ will develop and submit a SIP revision to implement additional measures in the nonattainment area.

14.0 CONCLUSION

This plan shows how DAQ will meet the requirements to attain the 2015 ozone NAAQS by the required date of August 3, 2027. It provides a demonstration of attainment, description of major source Reasonably Available Control Technology (RACT) and programs already in place, and a strategy to control NO_x and VOC emissions within HA 212 to reach attainment by the attainment date. Lastly, it charts the course for meeting the Rate of Progress and Reasonable Further Progress requirements of the Act, describes measures to be invoked if certain requirements are not met, and lays out future actions.

14.1 CURRENT PROGRAMS

14.1.1 Enhanced Monitoring Network

DAQ operates more than the minimum number of ozone monitoring sites, so it meets or exceeds the enhanced monitoring requirements in 40 CFR Part 58, Appendix D for NO_2, NCore measurements, and the Photochemical Assessment Monitoring Stations program in a serious nonattainment area.

14.1.2 Nonattainment New Source Review

Section 172(c)(5) of the Act requires implementation of a permit program that is consistent with the requirements of Section 173. AQR Section 12.3, "Permit Requirements for Major Sources in Nonattainment Areas," fully implements DAQ's Nonattainment New Source Review permitting program for major sources, including all the elements needed to meet minimum requirements for serious nonattainment areas under the 2015 ozone NAAQS.

14.1.3 Enhanced Motor Vehicle Inspection and Maintenance Program

DAQ certifies that the current SIP-approved state emission control program (NRS 445B.770)) operates at or above the required enhanced inspections and maintenance program performance standard level for a serious ozone nonattainment area.

14.1.4 Clean Fuel Vehicle Program

The ongoing turnover of the on-road fleet within HA 212 reduces NO_x and VOC emissions by an amount that meets or exceeds that required by Section 182(c)(4) of the Act. Clark County is thus not required to adopt a separate Clean Fuel Fleet Program to satisfy serious nonattainment area requirements.

14.2 ATTAINMENT DEMONSTRATION

Attainment modeling demonstrates that projected 2026 ozone design values meet the NAAQS, with all monitoring sites in HA 212 predicted to measure 70 ppb or less after adjusting for atypical, fire-influenced days. These results are consistent with observed long-term downward trends in ambient ozone concentrations and ozone precursor emissions. The results are further supported by EPA's interstate transport modeling, which independently projects attainment at all

Clark County monitors using existing control measures. Considered together, modeling results, emissions trends, and ozone trends provide a coherent and reasonable basis for concluding that HA 212 will attain the 2015 ozone NAAQS by the attainment date.

14.3 EMISSIONS INVENTORIES

14.3.1 Planning Emissions Inventory

DAQ developed 2017 (base year), 2023 (interim year), and 2026 (future year) anthropogenic emissions estimates for ozone precursors within HA 212, collectively referred to as the 2015 Ozone NAAQS State SIP Inventory.

For nonpoint sources, DAQ developed and adopted a set of VOC emission control measures during preparation of the Moderate SIP that will be fully implemented in 2026. The expected VOC reductions from these measures were applied in this serious SIP. The point source inventory included all Title V stationary sources and all minor stationary sources within HA 212 with the potential to emit at least 10 tons of VOCs or 25 tons of NO_x annually. Point source emission inventories were either developed from data collected by direct on-site measurements or calculated using appropriate emission factors and activity data.

14.4 TRANSPORTATION CONFORMITY AND MOTOR VEHICLE EMISSIONS BUDGETS

This attainment plan uses the most recent federally accepted planning variables (e.g., vehicle miles traveled projections, population forecasts) from the RTC, the designated Metropolitan Planning Organization for the Las Vegas urban area, to establish a motor vehicle emissions budget (MVEB). Once approved, RTC will use this MVEB for transportation conformity determinations in future regional transportation plans and analyses.

The SIP emissions inventory, rather than the attainment modeling emissions inventory, was used in calculating the MVEB because it is more stringent and satisfies Reasonable Further Progress (RFP) requirements. Although past MVEBs had a safety margin to accommodate future variations in models and forecasts, this one does not because any additional margin could have interfered with the attainment demonstration and/or RFP requirements.

14.5 CONTROL STRATEGY

Section 172(c)(1) of the Act requires nonattainment areas to implement all reasonably available control measures as expeditiously as practicable. DAQ has implemented a comprehensive control strategy that incorporates federal vehicle and fuel standards, state vehicle inspection programs, Control Techniques Guidelines (CTGs), RACT guidance for stationary sources, major source RACT, enhanced vapor recovery for gasoline dispensing facilities, and sector-specific controls.

Because of EPA's "serious area" classification, DAQ is adopting new CTG RACT regulations, updating major source RACT for sources that may emit more than 50 tpy of NO_x or VOC, and adopting a contingency measure for controlling emissions from emulsified asphalt operations.

Sensitivity analyses confirm that VOC or NO_x reductions beyond the adopted measures would provide negligible air quality benefits, demonstrating that the control strategy achieves all emission reductions necessary and practicable for attainment.

14.5.1 Reasonably Available Control Measures

DAQ finds that existing federal and local ozone control measures, along with reductions in transported pollution, are projected to bring HA 212 into attainment with the 2015 8-hour ozone NAAQS by August 3, 2027. No additional measures are needed to reach attainment. Moreover, DAQ identified no emissions controls that could advance the attainment date by one year or sufficiently reduce the ozone design value.

14.5.2 Reasonably Available Control Technology

The AQRs require stationary sources to comply with RACT under Sections 12.1.3.6 and 12.4.3 (for significant permitting changes) and Section 120 (for all major sources in an ozone nonattainment area). When EPA reclassified HA 212 to "serious" nonattainment, DAQ notified major sources that all affected emission units with the potential to emit 5 tpy or greater of NO_x or VOC must comply with AQR Section 120. An analysis determined both CTG RACT (Appendix C) and major source RACT (Appendix D) applicability for stationary sources in HA 212.

14.5.3 Contingency Measure

Having identified emulsified asphalt emissions as a source of unregulated VOC emissions, DAQ promulgated AQR Section 131 to establish VOC limits for such operations as a contingency measure. The rule ensures that additional VOC reductions will be triggered by failing to meet required RFP emissions reductions or attain the standard, as specified in 40 CFR Part 51.1310(c). Projected VOC emissions reductions associated with an emulsified asphalt control measure are more than the one year's worth of progress when calculated using EPA guidance; accordingly, the emulsified asphalt rule satisfies contingency measure requirements.

14.6 PATH FORWARD

14.6.1 Rate of Progress and Reasonable Further Progress

Section 172(c)(2) of the Act requires nonattainment areas to demonstrate Reasonable Further Progress (RFP) and establishes two related requirements to ensure continued emissions reductions: an initial Rate of Progress (ROP) requirement under Section 182(b)(1) and an ongoing RFP requirement under Section 182(c)(2)(B).

Section 182(b)(1) of the Act obligates areas classified as "moderate" or above to achieve a one-time 15% reduction in VOC emissions in the first 6 years after the baseline year (2017), known as the Rate of Progress (ROP) requirement. The technical support document of the Moderate SIP (DES 2024) demonstrated compliance with this requirement, but this plan revises the demonstration to reflect emissions inventory revisions and emissions reduction calculations.

Section 182(c)(2)(B) of the Act obligates areas classified as "serious" or higher to demonstrate a cumulative 3% per year reduction in VOC emissions, averaged over consecutive 3-year periods until attainment; compliance thus requires a 9% reduction in VOC from the SIP emission inventory for 2023. This is known as the RFP requirement. This plan satisfies RFP using local control measures adopted in the Moderate SIP but not otherwise used for ROP, along with existing control measures that reduced NO_x and VOC emissions between 2017 and 2026.

14.6.2 Transportation Control Measures

DAQ is not adopting any new transportation control measures because existing measures are sufficient to meet the attainment demonstration and RFP requirements of this plan.

DAQ commits to submitting a transportation control demonstration in calendar year 2028, as required, to compare actual transportation emissions with those used in the attainment demonstration and RFP parts of this plan. If the actual levels exceed those used, DAQ will develop and submit a SIP revision to implement additional transportation control measures within the ozone nonattainment area.

14.7 PROSPECTIVE INTERNATIONAL TRANSPORT DEMONSTRATION (SECTION 179B(A))

This plan also includes a demonstration showing that HA 212 will attain the NAAQS when international emissions are excluded from the attainment demonstration, as allowed by Section 179B(a) of the Act. Modeling conducted to support the attainment demonstration provides EPA with a basis to approve the plan, including the attainment demonstration, by showing that when atypical, wildfire-affected event days are removed, the model projects all monitors in the nonattainment area to be at or below the NAAQS by 2026. This is not the case, however, with the base case modeling, where atypical, wildfire-affected event days are included. The Section 179B(a) demonstration included with this plan (DES 2024, Appendix G) shows that al-though the base case design values exceed the NAAQS, the nonattainment area is projected to attain the NAAQS when international emissions are excluded from design value predictions. Section 179B(a) directs EPA to approve an implementation plan in these circumstances; therefore, DAQ includes a Section 179B(a) demonstration to provide an alternative or additional basis for EPA to approve this plan.

15.0 REFERENCES

42 U.S.C. 7401 et seq. Clean Air Act.

49 U.S.C. 53 et seq. Public Transportation (as amended by Public Law No: 117-58, Infrastructure Investment and Jobs Act).

NRS (Nevada Revised Statutes) 281A.150. "Ethics in Government, 'Public employee' defined."

NRS 281A.160. "Ethics in Government, 'Public officer' defined."

NRS 281A.410. "Limitations on representing or counseling private persons before public agencies; request for relief from strict application of certain provisions."

NRS 281A.420. "Requirements regarding disclosure of conflicts of interest and abstention from voting because of certain types of conflicts; effect of abstention on quorum and voting requirements; exceptions."

NRS 445B.500. "Establishment, content and administration of program; designation of air pollution control agency of county for purposes of Federal Act; powers and duties of local air pollution control board; notice of public hearings; delegation of authority to determine violations and levy administrative penalties; cooperative or interlocal agreements by cities and smaller counties; regulation of certain electric plants prohibited."

NRS 445B.700. "Definitions."

NRS 445B.770. "Regulations of Commission: Control of emissions from motor vehicles; program for inspection and testing of motor vehicles."

NRS 445B.810. "State Department of Conservation and Natural Resources to provide assistance."

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