

APPENDIX B:
Reasonably Available Control
Measure Analysis

TABLE OF CONTENTS

1.0 INTRODUCTION..... 1-1

2.0 IDENTIFYING REASONABLY AVAILABLE CONTROL MEASURES 2-1

3.0 METHODOLOGY FOR RACM ANALYSIS FOR HA 212..... 3-1

 3.1 Pollutants Considered 3-1

 3.1.1 Control Measures Evaluated..... 3-1

 3.2 Estimating Emissions Reductions and Cost Effectiveness 3-2

 3.3 Evaluation of Reasonably Available Control Measures for Transportation..... 3-3

4.0 RACM ANALYSIS FINDINGS 4-1

5.0 RACM CONCLUSIONS FOR POTENTIAL RACM CONTROL MEASURES... 5-3

6.0 REFERENCES..... 6-1

LIST OF TABLES

Table 1. Nonpoint Source Categories with Greater Than 0.10 tpd VOC Emissions in the 2026 Ozone NAAQS SIP Inventory 3-1

Table 2. Current TCMs and Other Transportation Measures Implemented in Clark County..... 5-3

Table 3. Clark County Analysis of Reasonably Available Control Measures for Transportation..... 5-5

Table 4. Potential Nonroad Source VOC and Nox Emissions Control Measures 5-15

Table 5. Analysis of Potential Point and Nonpoint Source NO_x Control Measures for Clark County..... 5-16

Table 6. Analysis of Potential Point and Nonpoint Source VOC Control Measures for Clark County..... 5-34

ACRONYMS AND ABBREVIATIONS

Acronyms

ADT	Average Daily Trips
APUs	auxiliary power units
AQS	Air Quality System (EPA database)
BACM	Best Available Control Measures
BCC	Clark County Board of County Commissioners
BLM	U.S. Bureau of Land Management
BRT	bus rapid transit
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CCSD	Clark County School District
CBG	Cleaner-Burning Gasoline
CFR	Code of Federal Regulations
CNG	compressed natural gas
CTGs	Control Techniques Guidelines
DAQ	Division of Air Quality
DAQEM	Clark County Department of Air Quality and Environmental Management
DC	direct current
DCP	Clark County Department of Comprehensive Planning
DV	design value
EPA	U.S. Environmental Protection Agency
EQM	Environmental Quality Management, Inc.
EV	electric vehicle
FAST	Freeway and Arterial System of Transportation
FCAAA	Federal Clean Air Act Amendments
FR	<i>Federal Register</i>
GIS	Geographic Information System
HA 212	Hydrographic Area 212 (Las Vegas Valley)
HOV	high-occupancy vehicle
IPSM	Information Processing Systems MeteoStar
IC	internal combustion
I/M	Inspection/Maintenance
ITS	intelligent transportation system
LPG	liquid petroleum gas
MAR	Milestone Achievement Report
NAAQS	National Ambient Air Quality Standards
NEAP	Natural Events Action Plan
NG	natural gas
PTE	Permanent Total Enclosure
QA	quality assurance
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
RFG	reformulated gasoline
RFP	Reasonable Further Progress

RTC	Regional Transportation Commission of Southern Nevada
RTP	<i>Regional Transportation Plan FY 2006-2030</i>
RVP	reduced Reid vapor pressure
SCCs	Source Classification Codes
SIP	State Implementation Plan
SOV	single-occupancy vehicle
TCMs	transportation control measures
TDM	Transportation Demand Management
TOD	transit-oriented development
UNLV	University of Nevada, Las Vegas
VMT	vehicle miles traveled
VOC	volatile organic compound

Abbreviations

ft	foot
g	gram
in.	inch
km	kilometer
m	meter
mph	miles per hour
MW	megawatt
tpd	tons per day
tpy	tons per year

1.0 INTRODUCTION

Section 172(c)(1) of the Clean Air Act (42 U.S.C. 7401 et seq.) (the 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:

[i]n 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)(1)]

Neither the Act nor U.S. Environmental Protection Agency (EPA) regulations define what qualifies as RACM, nor has EPA 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, EPA recognizes that the requirement for RACM relates to the requirement to achieve attainment of the NAAQS. EPA determined that it may approve any State Implementation Plan (SIP) submittal lacking specific RACM 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 20375). Several courts have upheld EPA’s interpretation of the RACM requirement (e.g., *Sierra Club v. EPA*, 314 F.3d 735 (5th Cir. 2002) and *Sierra Club v. EPA*, 294 F.3d 155 (D.C. Cir. 2002)).

2.0 IDENTIFYING REASONABLY AVAILABLE CONTROL MEASURES

RACM assist with meeting Reasonable Further Progress (RFP) requirements and bringing an area into attainment as expeditiously as practicable. Such control measures can include control of point, area, on-road, and/or non-road emission sources. To qualify as RACM, EPA considers whether a control measure meets five criteria (74 FR 2945):

1. It is technologically feasible.
2. It is economically feasible.
3. It does not cause “substantial widespread and long-term adverse impacts.”
4. It is not “absurd, unenforceable, or impracticable.”
5. It can advance the attainment date by at least one year.

In identifying available control measures, state and local air pollution control agencies may consider applying control measures to emissions sources outside the nonattainment area if emissions reductions from the wider geographic area will reduce ozone concentrations within the nonattainment area.

RACM can reduce either volatile organic compound (VOC) or oxides of nitrogen (NO_x) emissions. However, if reducing emissions of one of these pollutants will not contribute to attainment, then available control measures for that pollutant need not be considered in the RACM analysis: “If a state demonstrates that implementation of VOC emissions reduction measures will not contribute to an area’s reasonable further progress or to attainment, then additional control of VOC emissions does not need to be further considered for RACM purposes” (80 FR 12264).

Additionally, a state or local air pollution control agency need not consider control measures for emissions sources that will not lead to a decrease in the ambient air concentration of ozone. EPA has determined that where an emissions source contributes ‘only negligibly’ to ambient concentrations that exceed the NAAQS, applying a control measure to the emissions source is not reasonable (57 FR 13498). For example, see EPA’s approval of Connecticut’s RACM analysis that concluded that local control measures could not advance the attainment date given that atmospheric transport “overwhelms the ability” of local control strategies to advance attainment (Docket No. EPA-R01-OAR-2016-6168-0022, available at <https://www.regulations.gov/document/EPA-R01-OAR-2016-0168-0022>); approved by EPA in 2018).

Finally, in identifying potential control measures, a state and local air pollution control agency should consider “the time needed to analyze, develop, and implement the measure” (44 FR 20375). If a control measure is available, but its implementation in the nonattainment area could not occur on a schedule that would achieve or advance the area’s attainment date, then “EPA would not consider it reasonable to require implementation of such measures” (57 FR 13498). To advance the area’s attainment date, the measure must provide emissions reductions such that the

nonattainment area would achieve attainment one year sooner (40 CFR Part 51.1004(a)(1)(i)). For example, EPA’s approval of Connecticut’s RACM analysis concluded there was “little time to adopt and implement additional RACM candidate measures prior to the 2016 ozone season, which would need to occur to advance the attainment date by one year” (83 FR 38109).

3.0 METHODOLOGY FOR RACM ANALYSIS FOR HA 212

3.1 POLLUTANTS CONSIDERED

The Clark County Department of Environment and Sustainability (DES), Division of Air Quality (DAQ) considered both NO_x and VOC emissions reduction control measures for RACM. Attainment modeling demonstrates that ozone production within Hydrographic Area (HA) 212 is sensitive to reductions in VOC emissions; the role of future NO_x reductions is less certain, and could lead to NO_x disbenefits by increasing O₃ in or near downtown Las Vegas, depending on whether the area is VOC-limited in future years. Nonetheless, DAQ considered potential control measures for both pollutants in the RACM analysis.

3.1.1 Control Measures Evaluated

DAQ developed a list of potential NO_x control measures using EPA’s “Menu of Control Measures for NAAQS Implementation” (EPA 2022), and considered transportation control measures (TCMs) and control measures reviewed in other state RACM plans for source categories in the emissions inventory with reported NO_x emissions above 0.03 tons per day (tpd). DAQ also consulted with the Regional Transportation Commission of Southern Nevada (RTC) to identify potential TCMs that could be applied in the area to reduce mobile source emissions.

For VOCs, most of the control measures listed on EPA’s Menu of Control Measures included VOC Control Techniques Guidelines (CTGs) for Reasonably Available Control Technology (RACT), which DAQ already evaluated in a CTG RACT analysis (Appendix C). To address remaining emissions, DAQ reviewed nonpoint source categories in the inventory with reported VOC emissions greater than 0.10 tpd (Table 1).

Based on Source Classification Codes (SCCs) exceeding this threshold, DAQ identified potential VOC control measures and assessed applicable strategies for these nonpoint sources. The review included relevant state regulations and RACM analyses to determine feasible measures for each category.

Table 1. Nonpoint Source Categories with Greater Than 0.10 tpd VOC Emissions in the 2026 Ozone NAAQS SIP Inventory

SCC	SCC Description
2102004002	Stationary Source Fuel Combustion; Industrial; Distillate Oil
2103006000	Stationary Source Fuel Combustion; Commercial/Institutional; Natural Gas
2104008700	Stationary Source Fuel Combustion; Residential; Wood
2302002200	Industrial Processes; Food and Kindred Products: SIC 20; Commercial Cooking - Charbroiling
2401001000	Solvent Utilization; Surface Coating; Architectural Coatings
2401005000	Solvent Utilization; Surface Coating; Auto Refinishing: SIC 7532
2401008000	Solvent Utilization; Surface Coating; Traffic Markings
2401020000	Solvent Utilization; Surface Coating; Wood Furniture: SIC 25
2401025000	Solvent Utilization; Surface Coating; Metal Furniture: SIC 25
2401100000	Solvent Utilization; Surface Coating; Industrial Maintenance Coatings

SCC	SCC Description
2401200000	Solvent Utilization; Surface Coating; Other Special Purpose Coatings
2415000000	Solvent Utilization; Degreasing; All Processes/All Industries
2425000000	Solvent Utilization; Graphic Arts; All Processes
2460030999	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; Lighter Fluid, Fire Starter, Other Fuels
2460100000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Personal Care Products
2460200000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Household Products
2460400000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Automotive Aftermarket Products
2460500000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Coatings and Related Products
2460600000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Adhesives and Sealants
2460800000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All FIFRA Related Products
2460900000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; Miscellaneous Products (Not Otherwise Covered)
2461021000	Solvent Utilization; Miscellaneous Non-industrial: Commercial; Cutback Asphalt
2461022000	Solvent Utilization; Miscellaneous Non-industrial: Commercial; Emulsified Asphalt
2501011011	Storage and Transport; Petroleum and Petroleum Product Storage; Residential Portable Gas Cans
2501011012	Storage and Transport; Petroleum and Petroleum Product Storage; Residential Portable Gas Cans
2501011013	Storage and Transport; Petroleum and Petroleum Product Storage; Residential Portable Gas Cans
2501012013	Storage and Transport; Petroleum and Petroleum Product Storage; Commercial Portable Gas Cans
2501012014	Storage and Transport; Petroleum and Petroleum Product Storage; Commercial Portable Gas Cans
2501050120	Storage and Transport; Petroleum and Petroleum Product Storage; Bulk Terminals: All Evaporative Losses
2501060051	Storage and Transport; Petroleum and Petroleum Product Storage; Gasoline Service Stations
2501060201	Storage and Transport; Petroleum and Petroleum Product Storage; Gasoline Service Stations
2501080050	Storage and Transport; Petroleum and Petroleum Product Storage; Airports : Aviation Gasoline
2610000500	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories
2680003000	Waste Disposal, Treatment, and Recovery; Composting; 100% Green Waste (e.g., residential or municipal yard wastes)
2810025000	Miscellaneous Area Sources; Other Combustion; Residential Grilling (see 23-02-002-xxx for Commercial)

3.2 ESTIMATING EMISSIONS REDUCTIONS AND COST EFFECTIVENESS

After identifying potential control measures, DAQ considered the degree of emissions reductions that could result from implementing the control. DAQ used the emission inventory for 2026 for the Clark County ozone nonattainment area (Appendix A).

If the emission inventory included emissions that might be controlled by a potential measure, then DAQ presumed the measure is technically feasible for purposes of this RACM evaluation. If estimated cost effectiveness for an available control measure is less than \$5,500 per ton, then

DAQ considered the measure potentially cost effective. This amount represents a screening value that aligns with the value applied in the major source RACT determinations; its use does not mean that DAQ concluded the technology was cost-effective. DAQ did not have to perform further analysis on any given control measure because all control measures were eliminated based on one or more RACM criteria.

DAQ did not consider whether some or all the emissions in the inventory already meet some level of emissions control and assumed no existing control. Although multiple control options were available for some source categories, DAQ generated the emissions reduction estimates using the conservative assumption there was no overlap in the available emissions controls.

In identifying potential emission reductions from the inventories, DAQ eliminated individual point sources reporting less than 0.003 tpd NO_x or 0.10 tpd VOCs. These source emissions are negligible and unlikely to be cost-effective to control. After grouping individual point or non-point sources together, DAQ also eliminated groupings collectively reporting less than 0.10 tpd of NO_x or VOCs, since these emissions are also negligible and unlikely to be cost effective to control (MDE 2023).

Emissions reductions were estimated for each control measure by multiplying the total emissions in the emissions inventory for SCC(s) by the control efficiency. DAQ generally applied control efficiencies provided by EPA to estimate potential emission reductions from the 2026 inventory (EPA 2022). When EPA control efficiency data were unavailable, DAQ used previous estimates developed for its attainment SIP for the Las Vegas Valley moderate nonattainment area (“Moderate SIP”) or conducted additional research to calculate costs and emissions reductions, such as reviewing control requirements adopted by other jurisdictions, CTGs, and EPA fact sheets.

When DAQ could estimate potential emissions reductions, the “RACM Conclusions” column in Tables 5 and 6 reports these estimates. If a control measure was associated with emissions sources that DAQ determined were negligible, that measure was considered not cost-effective regardless of its stated cost per ton.

3.3 EVALUATION OF REASONABLY AVAILABLE CONTROL MEASURES FOR TRANSPORTATION

Section 108(f)(1)(A) of the Act provides a list of 16 measures, commonly referred to TCMs, to reduce or control pollutants from transportation. TCMs may be considered as RACM for the transportation sector.

EPA’s “Transportation Conformity Regulations as of April 2012” defines a TCM as “any measure that is specifically identified and committed to in the applicable implementation plan, including a substitute or additional TCM that is incorporated into the applicable SIP through the process established in CAA section 176(c)(8), that is either one of the types listed in CAA section 108, or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Notwithstanding the first sentence of this definition, vehicle technology-

based, fuel-based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of this subpart” (EPA 2012).

The RTC has already implemented or is implementing many TCMs in Clark County. DAQ determined that the remaining TCMs and other transportation measures did not meet RACM criteria. Moreover, implementing all other TCMs with other measures considered in this analysis would not advance Clark County’s 2015 8-hour ozone NAAQS attainment date by at least one year for several reasons:

- Delays to design, construct, and open the project for operation make it impossible for these projects to advance attainment by at least a year, from the current date of August 2027 to August 2026.
- Because of the time required to program, fund, and implement some projects, it would not be possible for them to advance attainment by at least a year, from the current date of August 2027 to August 2026.
- Some projects or strategies would require funding above what is available from current or anticipated sources.
- Insufficient data or evidence was available to quantify an emissions reduction outcome from some projects.

Table 2 in Section 5 lists current TCMs and other transportation programs implemented in Clark County. Table 3 lists additional transportation measures evaluated for their potential as RACM. The first column of Table 3 identifies the TCMs from the list in Section 108(f) of the Act with which the measure is most closely associated. Some of the Section 108(f) TCMs are grouped because they are similar; for example, multiple TCMs relate to encouraging bicycling and walking or employer-based trip reduction. Some measures involving electric and alternative fuel vehicles are not listed as TCMs in the Act but may still be considered RACM.

Table 3 omits two measures from the Act. TCM #12, “Program To Reduce Motor Vehicle Emissions Which Are Caused By Extreme Cold Start Conditions,” is not relevant in southern Nevada’s climate. TCM #16, “Program To Encourage The Voluntary Removal From Use And The Marketplace Of Pre-1980 Model Year Light Duty Vehicles And Pre-1980 Model Light Duty Trucks,” is of limited relevance, given that these vehicles are at least 45 years old now and very few of them are still on the road.

4.0 RACM ANALYSIS FINDINGS

The 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 demonstrates (Appendix E, Section 9.5) that adoption of additional local VOC or NO_x control measures results in little change in the predicted 2026 design value (DV) and cannot advance attainment.

DAQ modeled the impacts of achieving an additional 5.8 tpd of VOC emissions reductions on the predicted 3-year average ozone concentrations within HA 212. Implementing the associated control measures would have reduced 2026 3-year average ozone concentrations by a negligible amount—between 0.0 and 0.2 ppb compared to base model projections. The changes would have decreased the DV at only two monitors and would not have brought HA 212 into attainment when atypical wildfire-influenced exceedances were included. When atypical wildfire-influenced exceedances were removed from the analysis, no additional emissions reductions were needed and the small changes predicted made no change in the DV. Thus, even if such VOC control measures could have been implemented in time, they would not have advanced the attainment date.

Modeling the effect of 5.6 tpd NO_x emissions reductions showed a similar result. The reductions would have decreased the DV at one monitoring site and would not have brought HA 212 into attainment when atypical wildfire-influenced exceedances were included. When atypical wildfire-influenced exceedances were excluded, future NO_x reductions might have increased the DV above the NAAQS and resulted in nonattainment. However, this outcome is uncertain because the prevailing ozone chemistry and existing VOC-to-NO_x ratio cannot be reliably ascertained.

Based on the small estimated emissions reductions from the identified control measures, DAQ determined that no control measure yields emissions reductions sufficient to advance HA 212's attainment date. Specifically, based on these modeling sensitivity runs, one or more control measures would have had to achieve considerably more than 5.8 tpd of VOC emissions reductions to advance the attainment date. If the ozone response is linear, VOC emissions reductions exceeding 800 tpd would be needed to reduce the measured 2024 DV below the NAAQS; future NO_x emissions reductions of 5.6 tpd NO_x might not advance attainment.

Moreover, DAQ cannot implement any potential control measure identified in Tables 2–5 in time to advance the attainment date by one year. EPA requires implementation of ozone control measures before the last full ozone season preceding the attainment date. The attainment date for HA 212 is August 3, 2027; to advance the attainment date by a year, DAQ would have had to adopt control measures and have them in effect no later than December 31, 2025, which was not possible with the SIP planning period of less than a year. A previous source apportionment modeling study conducted for the Moderate SIP further suggests that external, uncontrollable factors—including natural emissions (i.e., biogenic, lightning, oceanic sources), international transport, and transport of anthropogenic emissions from upwind California monitoring sites over the Mojave Desert—significantly impact ambient ozone concentrations in HA 212; the imposition of local control measures would therefore have a negligible effect on HA 212's ozone DV concentration and ability to reach attainment (DES 2024).

In summary, DAQ identified no additional control measures that resulted in attainment of the NAAQS or advances the attainment date by at least one year. Even if such control measures existed, it was not feasible to implement them to advance the attainment date by at least one year because such measures could not be adopted and put into effect before December 31, 2025. Therefore, there are no control measures that satisfy the RACM criteria.

5.0 RACM CONCLUSIONS FOR POTENTIAL RACM CONTROL MEASURES

Table 2. Current TCMs and Other Transportation Measures Implemented in Clark County

TCM/Other Measure	Description	2025 Status	SIP Inclusion	Included as TCM (Y/N)
Carbon Monoxide				
Transportation Demand Management (TDM) Program	Programs and projects aimed at maximizing traveler choices – RTC Club Ride provides carpool ride-matching, the Guaranteed Ride Home program, the Club Ride Rewards incentive program, EZ Rider transit pass discounts, and ongoing marketing campaigns and promotions. These are designed to encourage carpooling, vanpooling, riding transit, walking, bicycling, working from home, and compressed work weeks.	Adopted in 1999. Ongoing.	CO Redesignation Request and Maintenance Plan (Clark County DAQ, 2008) – No longer included for CO reductions, but included as a Contingency Measure	Y
Technician Training	Auto smog check inspector and repair technician training program. Smog check inspectors and repair technicians are required to be certified.	Implemented. Ongoing.	Second 10-Year Carbon Monoxide Limited Maintenance Plan	N
Motor Vehicle Inspection/Maintenance (I/M) Program	Identify cars and trucks with high emissions and that may need repairs through smog checks.	Adopted in 1978. Ongoing.	Second 10-Year Carbon Monoxide Limited Maintenance Plan	N
Oxygenated Gasoline Program	An oxygenated fuels program control period means the period during which oxygenated gasoline must be sold or dispensed in any oxygenated gasoline control area, pursuant to section 211(m)(2) of the Act, and as specified in EPA guidance.	Adopted in 1991/1995. Ongoing.	Second 10-Year Carbon Monoxide Limited Maintenance Plan	N
Cleaner-Burning Gasoline (CBG) Wintertime Fuels Program	The Federal Clean Air Act Amendments (FCAAA) of 1990 requires the Federal Wintertime Oxygenates Program. Section 211(m) of FCAAA requires states to implement an oxygenated gasoline program in those areas designated nonattainment for the Federal CO standards, which began in the winter of 1992. These requirements are in effect during the portion of the year in which a nonattainment area is subject to high ambient concentrations of CO, with a regulatory control period of no less than four months (usually November, December, January, and February).	Adopted in 1999. Ongoing.	CO Redesignation Request and Maintenance Plan (Clark County DAQ, 2008)	N
Reduced Reid Vapor Pressure (RVP) Gasoline Program	EPA set the RVP standard at 9.0 psi for designated volatility attainment areas and the RVP standard at 7.8 psi for certain designated volatility nonattainment areas.	Adopted in 1995. Ongoing.	Second 10-Year Carbon Monoxide Limited Maintenance Plan	N
Alternative Fuels for Government Fleets	Alternative fuels that are accepted in the NV program include: Methanol, E85, Compressed Natural Gas (CNG), liquid	Adopted in 1991. Ongoing, including	CO Redesignation Request and Maintenance Plan (Clark	N

Appendix B: Reasonably Available Control Measure Analysis

TCM/Other Measure	Description	2025 Status	SIP Inclusion	Included as TCM (Y/N)
Program	petroleum gas (LPG), Hydrogen, Electricity, Biodiesel blends from B5-B100, Ethanol-diesel Blends, Renewable diesel blends from R20-R100, and GDiesel fuel.	clean diesel street sweepers and electric and CNG buses.	County DAQ, 2008)	
PM ₁₀				
Paving of Unpaved Roads	Self-explanatory.	Implemented. Ongoing.	2001 PM10 SIP	N
Stabilize Narrow Roadway Shoulders	Self-explanatory.	Implemented. Ongoing.	2001 PM10 SIP	N
Transportation Construction - Rules 90-94	All transportation construction projects must conform. All transportation construction contracts, regardless of funds source, include the requirement to conform to Rules 90-94.	Implemented. Ongoing.	2001 PM10 SIP	N
Note: Fuels and vehicular technologies do not qualify as TCMs.				

Table 3. Clark County Analysis of Reasonably Available Control Measures for Transportation

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure ¹
N/A. Programs to Support Alternative Fuel Vehicles	RTC Zero Emission Vehicle Transit Fleet	The RTC Zero Emissions Bus Rollout Plan identifies steps the RTC will take to transition its vehicle fleet from fossil fuels to 100-percent zero emissions by 2050.	In progress	No	Will not be implemented in time to advance attainment.
N/A. Programs to Support Alternative Fuel Vehicles	Clark County School District (CCSD) Electrifying School Bus Fleet	CCSD received \$10M fund from EPA's Clean School Bus Program in 2022 to replace existing school buses with zero-emission and low-emission buses.	In progress	No	Will not be implemented in time to advance attainment.
N/A. Programs to Support Alternative Fuel Vehicles	Electric vehicle (EV) charging stations	Install and operate public charging stations	In progress	No	Multiple projects are programmed or planned in FY26-29, but will not be completed in time to advance attainment.
N/A. Programs to Support Alternative Fuel Vehicles	RTC non-revenue EVs	New non-revenue zero emission vehicles to replace existing gas/diesel-fueled vehicles.	In progress	No	Vehicle purchases are programmed in FY26, but will not be operational in time to advance attainment.
N/A. Programs to Reduce Emissions from Conventional Fuel Vehicles	Smog Free Clark County	The County-wide Vehicle Repair Pilot Program is proposed to improve the air quality across the valley by providing financial assistance for emissions-related vehicle repairs, focusing on low-income residents with the most polluting cars.	Planned	No	While a program is funded in FY26, it will not be implemented in time to advance attainment.
1. Improved Public Transit	Game Day Express	Service to Allegiant Stadium and T-Mobile Arena to provide an efficient transportation option for attendees of Las Vegas Raiders, University of Nevada, Las Vegas (UNLV) football, and Vegas Golden Knights games.	Existing	No	Already in operation; evaluation of ridership and emissions data indicate negligible emissions reductions and that the program is not cost effective. Continuation of either the existing or an enhanced program would not reduce emissions enough to advance attainment.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
1. Improved Public Transit	Free transit during holidays	Provide free alternative transportation during holidays.	Existing	No	Already in operation; as a measure comparable to the Game Day Express, continuation of either the existing or an enhanced program is not expected to advance attainment.
1. Improved Public Transit	Paratransit and microtransit service	Flexible transit service targeted towards special needs populations – RTC-OnDemand, Silver STAR, Flexible Demand Response.	Existing	No	Already in operation; continuation will not advance attainment; and any potential expansion of the program could not be implemented in time to advance the attainment date.
1. Improved Public Transit	High speed rail	Construct high-speed rail connecting Las Vegas and Los Angeles.	In progress	No	Will not be completed in time to advance attainment.
1. Improved Public Transit	Expanded public transportation services	On-Board Mobility Plan implementation of high-capacity transit (light rail, and bus rapid transit, and rapid bus).	Planned	No	Will not be implemented in time to advance attainment. Sufficient funding not currently available to fully implement planned services and therefore may not be cost effective.
1. Improved Public Transit	Integrated Payment Systems for Transit	Provide integrated payment systems to improve ease of use and encourage ridership.	Planned	No	Proposed, not yet funded; cannot be completed in time to advance attainment.
1. Improved Public Transit	Provide free public transit during episodes	Provide free transit rides during high level ozone episodes.	Not implemented	No	Insufficient evidence to quantify a meaningful impact on air quality.
2. Restriction of Roads or Lanes to Buses or High Occupancy Vehicles	Express busways or dedicated bus lanes	Bus rapid transit (BRT) projects such as Maryland BRT and Boulder Highway BRT.	In progress	No	Programmed/ planned BRT and rapid bus projects will not be completed in time to advance attainment.
2. Restriction of Roads or Lanes to Buses or High Occupancy Vehicles	High-occupancy vehicle (HOV) lanes	Construct additional HOV lanes; allow use by electric vehicles and alternative fuel vehicles.	Planned	No	NDOT is studying use of existing HOV lanes and has proposed a long-range network, but this is not funded and could not be implemented in time to advance attainment.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
3, 13. Employer-Based Transportation Management Plans and Incentives	Preferential parking for carpools and vanpools	Encourage employers to provide preferential parking for carpools and vanpools to reduce single-occupancy vehicle (SOV) trips.	Not implemented	No	Measure unlikely to produce permanent, quantifiable, and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced
3, 13. Employer-Based Transportation Management Plans and Incentives	Encourage regulated employers to subsidize the cost of transit for employees	Provide outreach and possible financial incentives to encourage local employers to provide transit passes or subsidies to encourage less individual vehicle travel.	Not implemented	No	Measure unlikely to produce permanent, quantifiable and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced
3, 13. Employer-Based Transportation Management Plans and Incentives	Compressed work weeks/flexible work schedules	Encourage employers to implement alternate work schedules to reduce travel.	Not implemented	No	Measure unlikely to produce permanent, quantifiable and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced.
3, 13. Employer-Based Transportation Management Plans and Incentives	Telecommuting	Encourage employers to allow employees to work from home.	Not implemented	No	Measure unlikely to produce permanent, quantifiable and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
3, 13. Employer-Based Transportation Management Plans and Incentives	Off days for ozone alerts	On ozone alert days, notify employees through email that there is an ozone alert. Employees are given a pre-specified number of days they can decide not to come in to work on ozone-forecast days.	Not implemented	No	Measure unlikely to produce permanent, quantifiable and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced. There would likely be significant economic impact from employee absences.
3, 13. Employer-Based Transportation Management Plans and Incentives	Voluntary business closures on ozone-action days	A more expensive version of "off days" for ozone alerts.	Not implemented	No	Measure unlikely to produce permanent, quantifiable and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced. There would likely be significant economic impact from business closures.
3, 13. Employer-Based Transportation Management Plans and Incentives	Bike parking, showers, and lockers at work	Provide secure bike parking, showers, and lockers to encourage walking and biking to work.	Not implemented	No	Measure unlikely to produce permanent, quantifiable and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforced.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
4. Trip Reduction Ordinances	Trip reduction ordinance	Require employers to reduce trips associated with employee commuting.	Not implemented	No	Evaluations of programs in other jurisdictions, such as Bay Area AQMD and Phoenix Metro Area, indicate limited and uncertain emission reductions while requiring substantial administrative oversight, suggesting that trip reductions are neither reasonably available nor effective in advancing attainment.
5. Traffic Flow Improvement Programs	Dynamic message signs	Use dynamic message signs to direct/smooth speeds during incidents.	Existing	No	Already in operation; continuation will not advance attainment.
5. Traffic Flow Improvement Programs	Traffic signal timing	Management of traffic signals to improve traffic flow and reduce delay. Freeway and Arterial System of Transportation (FAST) has responsibility for programming and coordinating over 1,000 of the approximately 1,200 signalized intersections in the Las Vegas Valley.	Existing	No	Already in operation; continuation will not advance attainment.
5. Traffic Flow Improvement Programs	Incident management	FAST works closely with the NDOT Freeway Service Patrol by alerting them to incidences of disabled vehicles observed through the monitoring system. The Freeway Service Patrol provides free assistance during incidents to improve safety and reduce delays.	Existing	No	Already in operation; continuation will not advance attainment.
5. Traffic Flow Improvement Programs	Intelligent transportation system (ITS) upgrades	Fiber optic communications and ITS improvements for monitoring and managing traffic conditions.	Planned	No	Additional upgrades are funded but will not be implemented in time to advance attainment.

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CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
5. Traffic Flow Improvement Programs	Intersection improvements	Install turn lanes, curbs, or traffic signals, make geometric realignments, and/or implement other measures to improve traffic flow and reduce delays at intersections.	Existing/Planned	No	Various intersection improvements have been funded in the past and are programmed in the future. Planned/programmed improvements will not be implemented in time to advance attainment.
5. Traffic Flow Improvement Programs	Reversible lanes	Change direction of travel during special events or during congestion periods.	No	No	Could not be implemented in time to advance the attainment date.
5. Traffic Flow Improvement Programs	Freeway bottleneck improvements (add auxiliary lanes, construct shoulders, etc.)	Identify key freeway bottlenecks and take action to mitigate them.	No	No	Various freeway bottleneck improvements have been funded in the past and are programmed in the future. Planned/programmed improvements will not be implemented in time to advance attainment.
5. Traffic Flow Improvement Programs	Minimize impact of construction on traveling public. Have contractors pay when lanes are closed as an incentive to keep lanes open.	Prohibit lane closures during peak hours, limit work to weekends and/or nights.	No	No	Construction is scheduled outside of peak hours to the degree practical. Some peak period impacts cannot be avoided due to engineering or economic reasons.
5. Traffic Flow Improvement Programs	Eco-driving educational program	Education program to improve vehicle efficiency by improving driving habits.	No	No	Insufficient evidence to be able to quantify an emission reduction from this measure.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
5. Traffic Flow Improvement Programs	55 mph speed limit	Reduce speed limits on freeways to 55 mph.	No	No	No authority to implement. The measure requires a state legislative change, which cannot occur in time to advance the attainment date, and measure may not result in permanent, quantifiable emissions reductions because it relies on voluntary compliance or enhanced enforcement which may be economically infeasible.
6. Fringe And Transportation Corridor Parking Facilities	Park-and-ride facilities	Park-and-ride facilities at transit stations.	Existing	No	Some park-and-ride lots exist already. Additional park-and-ride expansion and access improvements could not be implemented in time to advance attainment.
7. Programs to Limit or Restrict Vehicle Use in Areas of Emission Concentration	Off-peak goods movement	Require trucks to operate or make deliveries during off-peak hours.	No	No	Evaluations of the NY City Off-Hour Delivery initiative and FHWA ¹ case studies indicate programs impose increased labor and operational costs that are driven by overnight staffing and significant coordination across supply chains, making this measure economically infeasible.

¹ Federal Highway Administration.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
7. Programs to Limit or Restrict Vehicle Use in Areas of Emission Concentration	Increase parking fees	Increase the price of parking to discourage driving and encourage use of alternative modes.	No	No	Measure unlikely to produce permanent, quantifiable, and enforceable emissions reductions, and likely would have a low effectiveness value because it relies on a voluntary measure implemented by employers that cannot be readily enforce
7. Programs to Limit or Restrict Vehicle Use in Areas of Emission Concentration	Establish auto-free zones and pedestrian malls	Designate certain streets for pedestrians only.	No	No	Insufficient evidence to be able to quantify an emission reduction from this measure. There can be negative impacts on businesses.
7. Programs to Limit or Restrict Vehicle Use in Areas of Emission Concentration	Smart parking detection system	Utilize mobile communication devices to access the parking availability at multiple lots and provide real-time inventory of parking spaces.	No	No	Insufficient evidence to be able to quantify an emission reduction from this measure. This strategy could not be implemented in time to advance attainment.
8. Provision of High-Occupancy, Shared-Ride Services	Rideshare program	Provide rideshare services.	Existing	No	Already in operation; continuation will not advance attainment.
8. Provision of High-Occupancy, Shared-Ride Services	Vanpool program	Provide vanpool service for certain communities; purchase new vans	Not implemented	No	Private services work with businesses to provide vanpools where demand exists, e.g., Commute with Enterprise.
9, 10, 15. Programs to Encourage Bicycle and Pedestrian Travel	Micromobility – bike and scooter share	RTC Bike Share/E-bike program	Existing	No	Some microtransit and micromobility programs are in operation; continuation will not advance attainment.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
9, 10, 15. Programs to Encourage Bicycle and Pedestrian Travel	Active transportation safety and facility improvements	Improvements are identified in various plans including Regional Bicycle and Pedestrian Plan (2017); Regional Walkability Plan; Las Vegas Vision Zero Action Plan (2022); RTC Safe Streets for All Action Plan (in progress); Clark County Office of Traffic Safety – safety prioritization platform; Complete Streets and active transportation projects programmed in TIP.	In progress	No	Some projects have been completed; others are programmed or planned but will not be completed in time to advance attainment.
9, 10, 15. Programs to Encourage Bicycle and Pedestrian Travel	Secure bike parking at park & ride lots/transit stations	Install bicycle storage spaces in parking lots.	Existing	No	Bike parking already provided; additional parking could not be provided in time to advance attainment.
9, 10, 15. Programs to Encourage Bicycle and Pedestrian Travel	Encourage walking and bicycling for school trips	Safe Routes to School programs to provide infrastructure improvements, education, and other activities to promote walking and biking to school.	Existing	No	Continuation of programs will not advance attainment.
11. Programs to Control Extended Idling of Vehicles	Enforce limitations on vehicle idling	Enforce current anti-idling laws, including 15-minute idle limit for diesel truck and bus engines.	Existing	No	These emissions reductions are already required by local-rule Section 45, and emissions reductions achieved by the program are not expected to be sufficient to advance the attainment date even when combined with other reductions.
11. Programs to Control Extended Idling of Vehicles	Promote use of auxiliary power units (APUs)	Encourage use of on-board idle reduction technology to keep air conditioning and other truck systems working while truck is not in use.	Existing	No	Nevada has a weight limit incentive to encourage APUs. Emissions reductions achieved by the program are not expected to be sufficient to advance the attainment date even when combined with other reductions.

Appendix B: Reasonably Available Control Measure Analysis

CAA TCM Category	Program	Description	2025 Status	Feasible as RACM?	Reasoned Justification for Infeasible Measure¹
11. Programs to Control Extended Idling of Vehicles	Truck stop electrification	Provide plug-in options at truck stops to reduce extended/overnight idling.	No	No	Could not be implemented in time to advance attainment.
14. Programs to Reduce the Need for SOV Travel as Part of Transportation Planning and Development Efforts	Transit-oriented development (TOD)	RTC is undertaking a pilot TOD planning study for Charleston Blvd., funding comprehensive planning work to support mixed-use development, walkability, and transit access.	Planned	No	While a planning study is funded in FY25, its outcomes are not yet known and even if feasible funding and will not be completed in time to advance attainment.
14. Programs to Reduce the Need for SOV Travel as Part of Transportation Planning and Development Efforts	Sustainable development	Programs and incentives to increase density and walkability in residential, commercial, and mixed-use centers throughout the region.	No	No	Due to the time scale required to implement development, additional land use planning or incentives would not provide benefits in time to advance attainment.
14. Programs to Reduce the Need for SOV Travel as Part of Transportation Planning and Development Efforts	New development air quality impact evaluation	Evaluate air quality impacts of new development and recommend or require mitigation for significant adverse impacts.	No	No	Due to the time scale required to implement development, implementation of this measure could not be completed in time to advance attainment.

¹ Expanding existing TCM and other control measures may not be technically or economically feasible. In all cases, expansion of existing programs cannot be implemented in time to advance the attainment date.

Table 4. Potential Nonroad Source VOC and Nox Emissions Control Measures

Sector	Control Measure	Cost Effectiveness (\$/ton)	RACM Conclusion
Off-highway equipment - Gasoline/LPG/CNG	Reformulated Gasoline (RFG)	Unknown	This measure might reduce NO _x and VOC emissions. This economic feasibility of this control measure is unknown. This control measure is not necessary for attainment and cannot advance the attainment date.
Off-highway equipment - Diesel	Repowering Engines/Retrofits	\$4,500	This measure might reduce NO _x and VOC emissions. This control measure is not necessary for attainment and cannot advance the attainment date.
Offroad Engines - Diesel	Tier II Engine Replacement to Tier III or IV	\$43,493	This measure might reduce NO _x emissions. This control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
Offroad Construction, Industrial and Airport Equipment	Engine Replacement to Tier IV	\$16,000	This measure might reduce NO _x emissions. This control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
Off-highway Construction and Agriculture Equipment	Electrification	Unknown	This measure might reduce NO _x and VOC emissions. The economic feasibility of this measure is unknown. This control measure is not necessary for attainment and will not advance the attainment date.
Off-highway Construction and Agriculture Equipment	Biodiesel	Unknown	The economic feasibility of this measure is unknown. This control measure is not necessary for attainment and cannot advance the attainment date.
Off-highway Construction and Agriculture Equipment	Cap and Trade	Unknown	The economic feasibility of this measure is unknown. This control measure is not necessary for attainment and cannot advance the attainment date.
Small Offroad Engines	Electrification or Low-Emitting Engines	\$16,000	This measure might reduce NO _x and VOC emissions. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
Locomotives	Upgrade Engines in Switcher Locomotives - Diesel-Electric Hybrid Locomotives	\$12,250	This control measure is not cost effective, is not needed for attainment, and will not advance the moderate area attainment date.

Table 5. Analysis of Potential Point and Nonpoint Source NO_x Control Measures for Clark County

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Adipic Acid Manufacturing	Extended Absorption	86	\$156	No sources operating in Clark County.
	NonEGU Point	Adipic Acid Manufacturing	Thermal Reduction	81	\$728	No sources operating in Clark County.
	NonEGU Point	Ammonia – natural gas (NG)-Fired Reformers	Low NO _x Burner and Flue Gas Recirculation	60	NO _x < 365 tpy: \$4,440 NO _x > 365 tpy: \$1,023	No sources operating in Clark County.
	NonEGU Point	Ammonia – NG-Fired Reformers	Low NO _x Burner	50	NO _x < 365 tpy: \$1,422 NO _x > 365 tpy: \$937	No sources operating in Clark County.
	NonEGU Point	Ammonia – NG-Fired Reformers	Selective Catalytic Reduction	90	\$3,421	No sources operating in Clark County.
	NonEGU Point	Ammonia – NG-Fired Reformers	Selective NonCatalytic Reduction	50	NO _x < 365 tpy: \$6,711 NO _x > 365 tpy: \$2,723	No sources operating in Clark County.
	NonEGU Point	Ammonia – Oil-Fired Reformers	Low NO _x Burner and Flue Gas Recirculation	60	NO _x < 365 tpy: \$1,942 NO _x > 365 tpy: \$676	No sources operating in Clark County.
	NonEGU Point	Ammonia – Oil-Fired Reformers	Low NO _x Burner	50	NO _x < 365 tpy: \$694 NO _x > 365 tpy: \$746	No sources operating in Clark County.
	NonEGU Point	Ammonia – Oil-Fired Reformers	Selective Catalytic Reduction	80	NO _x < 365 tpy: \$2,567 NO _x > 365 tpy: \$1,405	No sources operating in Clark County.
	NonEGU Point	Ammonia – Oil-Fired Reformers	Selective NonCatalytic Reduction	50	NO _x < 365 tpy: \$4,474 NO _x > 365 tpy: \$1,821	No sources operating in Clark County.
	NonEGU Point	Ammonia Prod; Feedstock Desulfurization	Low NO _x Burner and Flue Gas Recirculation	60	NO _x < 365 tpy: \$4,440 NO _x > 365 tpy: \$1,023	No sources operating in Clark County.
30500205, 30500206	NonEGU Point	Asphaltic Conc; Rotary Dryer; Conv Plant	Low NO _x Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	This measure might reduce emissions by 0.055 tpd. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	By-Product Coke Mfg; Oven Underfiring	Selective NonCatalytic Reduction	60	\$2,844	No sources operating in Clark County.
30500606, 30500620, 30500622	NonEGU Point	Cement Manufacturing - Dry	Selective Catalytic Reduction	90	\$6,703	No sources operating in Clark County.
	NonEGU Point	Cement Manufacturing - Dry	Selective NonCatalytic Reduction - Ammonia	50	\$1,474	No sources operating in Clark County.
	NonEGU Point	Cement Manufacturing - Dry	Selective NonCatalytic Reduction	50	\$1,335	No sources operating in Clark County.
	NonEGU Point	Cement Manufacturing - Dry2	Selective Catalytic Reduction	85	\$5,844	No sources operating in Clark County.
30500606	NonEGU Point	Cement Manufacturing - Wet	Selective Catalytic Reduction	90	\$5,728	No sources operating in Clark County.
	NonEGU Point	Cement Manufacturing - Wet	Selective NonCatalytic Reduction	50	\$1,335	No sources operating in Clark County.
	NonEGU Point	Cement Manufacturing - Wet or Dry	Low NOx Burner	27	\$653	No sources operating in Clark County.
	NonEGU Point	Cement Manufacturing - Wet or Dry	Mid-Kiln Firing	41	\$82	No sources operating in Clark County.
30500850	NonEGU Point	Ceramic Clay Mfg; Drying	Low NOx Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	This measure might reduce emissions by 0.0025 tpd. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Coal Cleaning Thrml Dryer; Fluidized Bed	Low NOx Burner	50	NO _x < 365 tpy: \$1,338 NO _x > 365 tpy: \$268	No sources operating in Clark County.
30190013	NonEGU Point	Comm./Inst. Incinerators	Selective NonCatalytic Reduction	45	\$1,960	This measure might reduce emissions by 0.0003 tpd. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Conv Coating of Prod; Acid Cleaning Bath	Low NO _x Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	No sources operating in Clark County.
2102002000	NonEGU Point	External Combustion Boilers, Elec Gen, Coal	Selective NonCatalytic Reduction	40	\$1,642	This control measure could achieve 0.073 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.
20100201	NonEGU Point	External Combustion Boilers, Elec Gen, Dis Oil	Selective NonCatalytic Reduction	50	\$5,838	This control measure could result in emissions reductions of 0.29 tpd. This control measure is not cost effective.
10100601, 10100602	NonEGU Point	External Combustion Boilers, Elec Gen, Nat Gas	Natural Gas Reburn	50	\$2,821	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	External Combustion Boilers, Elec Gen, Res Oil and Solid Waste	Selective NonCatalytic Reduction	50	\$3,231	No sources operating in Clark County.
	NonEGU Point	Fbrglass Mfg; Txtle-Type Fbr; Recup Furn	Low NO _x Burner	40	\$2,931	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Fluid Cat Cracking Units; Cracking Unit	Selective Catalytic Reduction	90	\$8,269	No sources operating in Clark County.
	NonEGU Point	Fluid Cat Cracking Units; Cracking Unit	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	No sources operating in Clark County.
	NonEGU Point	Fuel Fired Equip; Furnaces; Natural Gas	Low NO _x Burner	50	\$989	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Fuel Fired Equip; Process Htrs; Pro Gas	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	No sources operating in Clark County.
20100801, 31000203, 20300203	NonEGU Point	Gas Turbines - Natural Gas	Catalytic Combustion	98	NO _x < 365 tpy: \$1,330 Direct Current (DC) < 26 Megawatts (MW): \$969 DC > 26 MW: \$535	This control measure could achieve 0.42 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20100801	NonEGU Point	Gas Turbines - Natural Gas	Dry Low NO _x Combustion	84	NO _x < 365 tpy: \$434 NO _x > 365 tpy: \$188	This control measure could achieve 0.36 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
31000203	NonEGU Point	Gas Turbines - Natural Gas	EMx and Dry Low NO _x Combustion	99	NO _x > 365 tpy: \$2,401	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
20300203	NonEGU Point	Gas Turbines - Natural Gas	EMx	95	NO _x > 365 tpy: \$2,401	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Gas Turbines - Natural Gas	EMx and Water Injection	99	NO _x > 365 tpy: \$3,467	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Gas Turbines - Natural Gas	Low NO _x Burner	84	NO _x < 365 tpy: \$850 NO _x > 365 tpy: \$173	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
20100801, 31000203, 20300203	NonEGU Point	Gas Turbines - Natural Gas	Selective Catalytic Reduction + Dry Low NO _x Combustion	94.6	DC > 26 MW: \$564 DC < 26 MW: \$2,603 DC < 26 MW: \$1,431	This control measure could achieve 0.41 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20100801, 31000203, 20300203	NonEGU Point	Gas Turbines - Natural Gas	Selective Catalytic Reduction and Steam Injection	95	DC > 26 MW: \$824 DC < 26 MW: \$3,716 DC < 26 MW: \$1,995	This control measure could achieve 0.41 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20100801, 31000203, 20300203	NonEGU Point	Gas Turbines - Natural Gas	Selective Catalytic Reduction and Water Injection	94.1	DC > 26 MW: \$1,547 DC < 26 MW: \$4,034 DC < 26 MW: \$1,981	This control measure could achieve 0.41 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20100801, 31000203, 20300203	NonEGU Point	Gas Turbines - Natural Gas	Steam Injection	80	DC > 26 MW: \$723 DC < 26 MW: \$2,443 DC < 26 MW: \$1,186	This control measure could achieve 0.35 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20100801, 31000203, 20300203	NonEGU Point	Gas Turbines - Natural Gas	Water Injection	72	DC > 34.4 MW: \$1,055 DC < 34.4 MW: \$2,588 DC < 34.4 MW: \$1,446	This control measure could achieve 0.32 tpd in emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Glass Manufacturing - Container	Low NO _x Burner	40	\$1,436	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - Container	Selective Catalytic Reduction	75	\$2,135	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - Container or Pressed	Cullet Preheat	5	\$6,812	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - Flat	Catalytic Ceramic Filter	80	\$11,414	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - Flat	Low NO _x Burner	40	\$573	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Glass Manufacturing - Flat	Selective Catalytic Reduction	75	\$1,055	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - General	Electric Boost	30	\$9,673	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - General	Oxygen-Enriched Air Staging	65	\$797	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - Pressed	Low NO _x Burner	40	\$2,601	No sources operating in Clark County.
	NonEGU Point	Glass Manufacturing - Pressed	Selective Catalytic Reduction	75	\$4,388	No sources operating in Clark County.
2103007000, 2102007000	NonEGU Point	Internal combustion (IC) Engines - Gas/ Diesel/LPG	Ignition Retard	25	NO _x < 365 tpy: \$1,335 NO _x > 365 tpy: \$850	Some of these engines may already be meeting EPA emissions control requirements. If all emissions from the SCC are uncontrolled and meet the source category description, then maximum emissions reductions of 0.021 tpd could result from implementing this control. This control measure is not necessary for attainment and cannot advance the attainment date.
20200102	NonEGU Point	IC Engines - Gas/ Diesel/LPG	Ignition Retard	25	NO _x < 365 tpy: \$1,335 NO _x > 365 tpy: \$850	This control measure could result in 0.06 tpd emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20100102, 20300101	NonEGU Point	ICE - Diesel	Selective Catalytic Reduction	90	NO _x < 365 tpy: \$11,747	This measure might result in 0.47 tpd emissions reductions. This control measure is not cost effective.
	NonEGU Point	ICI Boilers - Coal	Selective Catalytic Reduction	90	\$8,194	This measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	ICI Boilers - Coal	Selective NonCatalytic Reduction	35	\$8,410	This measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	ICI Boilers - Coal/Wall	Low NO _x Burner	47.5	25 tpy < NO _x < 100 tpy: \$8,057 100 tpy < NO _x < 250 tpy: \$2,694 NO _x > 250 tpy: \$909	This measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	ICI Boilers - Coal/Wall	Ultra Low NO _x Burner and Selective Catalytic Reduction	91	25 tpy < NO _x < 100 tpy: \$17,697 100 tpy < NO _x < 250 tpy: \$6,312 NO _x > 250 tpy: \$2,343	The control measure could result in 0.165 tpd emissions reductions. This measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	ICI Boilers - Coal/Wall	Ultra Low NO _x Burner and Selective NonCatalytic Reduction	69.5	25 tpy < NO _x < 100 tpy: \$12,875 100 tpy < NO _x < 250 tpy: \$4,877 NO _x > 250 tpy: \$2,143	This measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
10300602, 20200202	NonEGU Point	ICI Boilers - Gas	Flue Gas Recirculation	40	25 tpy < NO _x < 50 tpy: \$23,290 50 tpy < NO _x < 100 tpy: \$12,423 NO _x > 100 tpy: \$6,602	The control measure could result in 0.055 tpd emissions reductions. This control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
10300602, 20200202	NonEGU Point	ICI Boilers - Gas	Low NO _x Burner and Flue Gas Recirculation	61	25 tpy < NO _x < 50 tpy: \$25,768 50 tpy < NO _x < 100 tpy: \$13,798 NO _x > 100 tpy: \$7,338	The control measure could result in 0.084 tpd emissions reductions. This control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
10300602, 20200202	NonEGU Point	ICI Boilers - Gas	Ultra Low NO _x Burner	75	25 tpy < NO _x < 50 tpy: \$8,605 50 tpy < NO _x < 100 tpy: \$4,603 NO _x > 100 tpy: \$2,451	This control measure could result in 0.104 tpd emissions reductions. This control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
10300602, 20200202	NonEGU Point	ICI Boilers - Gas	Ultra Low NO _x Burner and Selective Catalytic Reduction	91	25 tpy < NO _x < 50 tpy: \$31,198 50 tpy < NO _x < 100 tpy: \$17,166 NO _x > 100 tpy: \$9,300	This control measure could result in 0.126 tpd emissions reductions. This control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
10100602, 30600204, 5010799, 10200603	NonEGU Point	ICI Boilers - Gas	Low NO _x Burner and Selective NonCatalytic Reduction	69.5	25 tpy < NO _x < 50 tpy: \$21,826 50 tpy < NO _x < 100 tpy: \$12,047 NO _x > 100 tpy: \$6,740	The only stationary source in the source category emitting above 25 tpy will be regulated by major source NO _x vRACT. No additional emissions control is cost effective.
10100602, 30600204, 5010799, 10200603	NonEGU Point	ICI Boilers - Gas	Selective Catalytic Reduction	90	\$11,441	This control measure might result in 0.00072 tpd emissions reduction. This control is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
10300602	NonEGU Point	ICI Boilers - Gas	Selective NonCatalytic Reduction	35	\$11,071	This control measure might result in 0.048 tpd emissions reduction. The control measure is not cost effective. There are no sources emitting above 10 tpy in the emissions inventory. This control measure is not necessary for attainment and cannot advance the attainment date.
2102004001	NonEGU Point	ICI Boilers - Oil	Flue Gas Recirculation	40	NO _x > 25 tpy: \$13,000	This control measure might result in 0.055 tpd emissions reductions. Emissions in the inventory are from nonpoint sources. Control of emissions are not cost effective.
2102004001	NonEGU Point	ICI Boilers - Oil	Low NO _x Burner and Flue Gas Recirculation	61	NO _x > 25 tpy: \$14,054	This control measure might result in 0.083 tpd emissions reductions. Emissions in the inventory are from nonpoint sources. Control of emissions are not cost effective.
2102004001	NonEGU Point	ICI Boilers - Oil	Low NO _x Burner	47.5	NO _x > 25 tpy: \$1,499	This control measure might result in 0.065 tpd emissions reductions. Emissions in the inventory are from nonpoint sources. Control of emissions are not cost effective.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
20300101	NonEGU Point	ICI Boilers - Oil	Ultra Low NO _x Burner and Selective Catalytic Reduction	91	NO _x > 25 tpy: \$4,076	If this control technology is applied to source emitting above 25 tpy, then it could result in 0.46 tpd of emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
20300101	NonEGU Point	ICI Boilers - Oil	Low NO _x Burner and Selective NonCatalytic Reduction	69.5	NO _x > 25 tpy: \$3,361	If this control technology is applied to source emitting above 25 tpy, then it could result in 0.35 tpd of emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
10300502	NonEGU Point	ICI Boilers - Oil	Selective Catalytic Reduction	90	\$8,914	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	ICI Boilers - Oil	Selective NonCatalytic Reduction	35	\$9,537	Emissions from this source category are negligible. The control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonPoint	Industrial Coal Combustion	RACT to 25 tpy (Low NO _x Burner)	21	NO _x > 25 tpy: \$2,341	No sources operating in Clark County.
	NonPoint	Industrial Coal Combustion	RACT to 50 tpy (Low NO _x Burner)	21	NO _x > 50 tpy: \$2,341	No sources operating in Clark County.
	NonEGU Point	Industrial Incinerators	Selective Catalytic Reduction	90	\$4,495	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Industrial Incinerators, Municipal Waste Combustors	Selective NonCatalytic Reduction	45	\$1,960	No sources operating in Clark County.
	NonPoint	Industrial NG Combustion	RACT to 25 tpy (Low NO _x Burner)	31	NO _x > 25 tpy: \$1,335	Sources already considered in major source NO _x RACT analyses.
	NonPoint	Industrial NG Combustion	RACT to 50 tpy (Low NO _x Burner)	31	NO _x > 50 tpy: \$1,335	Sources already considered in major source NO _x RACT analyses.
	NonEGU Point	Industrial NG ICE, 4cycle (rich)	Non-Selective Catalytic Reduction	90	\$610	No sources operating in Clark County.
30600204 10200602 50100799 10200603	NonEGU Point	Industrial NG ICE, SCCs with technology not specified	Non-Selective Catalytic Reduction or Adjust Air Fuel Ratio and Ignition Retard	39	NO _x < 365 tpy: \$2,219 NO _x > 365 tpy: \$772	If all emissions from the referenced SCCs are uncontrolled and meet the source category description, then maximum emissions reductions of 0.025 tpd could result from implementing this control. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Industrial NG ICE, SCCs with technology not specified	Non-Selective Catalytic Reduction or Layered Combustion	95.95	\$4,924	No sources operating in Clark County.
	NonEGU Point	Industrial NG ICE, SCCs with technology not specified	Non-Selective Catalytic Reduction or Low Emission Combustion	87.45	\$667	No sources operating in Clark County.
	NonPoint	Industrial Oil Combustion	RACT to 25 tpy (Low NO _x Burner)	36	NO _x > 25 tpy: \$2,046	Sources already considered in major source NO _x RACT analyses.
	NonPoint	Industrial Oil Combustion	RACT to 50 tpy (Low NO _x Burner)	36	NO _x > 50 tpy: \$2,046	Sources already considered in major source NO _x RACT analyses.
	NonEGU Point	In-Proc;Process Gas;Coke Oven/Blast Furn	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	No sources operating in Clark County.
	NonEGU Point	In-Process Fuel Use - Gas	Selective Catalytic Reduction	90	\$7,161	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	In-Process Fuel Use; Natural Gas; Gen	Low NO _x Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	No sources operating in Clark County.
	NonEGU Point	In-Process Fuel Use; Residual Oil; Gen	Selective Catalytic Reduction	90	\$6,446	No sources operating in Clark County.
	NonEGU Point	In-Process Fuel Use; Residual Oil; Gen	Low NO _x Burner	37	NO _x < 365 tpy: \$4,370 NO _x > 365 tpy: \$1,231	No sources operating in Clark County.
2102002000	NonEGU Point	In-Process Fuel Use; Bituminous Coal; Gen	Selective Catalytic Reduction	90	\$4,377	Implementation of this control measure could result in 0.16 tpd of emissions reductions if emissions are currently uncontrolled. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	In-Process Fuel Use; Bituminous Coal; Gen	Selective NonCatalytic Reduction	40	NO _x < 365 tpy: \$2,185 NO _x > 365 tpy: \$1,630	No sources operating in Clark County.
30501604	NonEGU Point	In-Process; Bituminous Coal; Cement and Lime Kilns	Selective Catalytic Reduction	90	\$3,064	This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	In-Process; Bituminous Coal; Cement Kiln	Selective NonCatalytic Reduction	50	\$1,335	No sources operating in Clark County.
	NonEGU Point	In-Process; Bituminous Coal; Lime Kiln	Selective NonCatalytic Reduction	50	\$1,335	No sources operating in Clark County.
	NonEGU Point	In-Process; Process Gas; Coke Oven Gas	Selective Catalytic Reduction	90	\$9,212	No sources operating in Clark County.
	NonEGU Point	In-Process; Process Gas; Coke Oven Gas	Low NO _x Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	No sources operating in Clark County.
	NonEGU Point	Internal Combustion Engines - Gas	Adjust Air to Fuel Ratio	20	NO _x < 365 tpy: \$2,723 NO _x > 365 tpy: \$659	No sources operating in Clark County.
	NonEGU Point	Internal Combustion Engines - Gas	Adjust Air to Fuel Ratio and Ignition Retard	30	NO _x < 365 tpy: \$2,497 NO _x > 365 tpy: \$798	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
2103006000	NonEGU Point	Internal Combustion Engines - Gas	Ignition Retard	20	NO _x < 365 tpy: \$1,769 NO _x > 365 tpy: \$954	Some of these engines may already be meeting EPA emissions control requirements. If all emissions from the SCC are uncontrolled and meet the source category description, then maximum emissions reductions of 0.36 tpd could result from implementing this control. This control measure is not necessary for attainment and cannot advance the attainment date.
2102004002	NonEGU Point	Internal Combustion Engines - Oil	Ignition Retard	25	NO _x < 365 tpy: \$1,335 NO _x > 365 tpy: \$850	Some of these engines may already be meeting EPA engine standards. If all emissions from the SCC are uncontrolled and meet the source category description, then maximum emissions reductions of 0.69 tpd could result from implementing this control. This control measure is not necessary for attainment and cannot advance the attainment date.
10300502	NonEGU Point	Internal Combustion Engines - Oil	Selective Catalytic Reduction	80	NO _x < 365 tpy: \$4,058 NO _x > 365 tpy: \$1,595	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Iron & Steel - InProcess Combustion - Bituminous Coal	Selective Catalytic Reduction	90	\$4,377	No sources operating in Clark County.
	NonEGU Point	Iron & Steel - InProcess Combustion - Natural Gas and Process Gas - Coke Oven Gas	Selective Catalytic Reduction	90	\$7,161	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Iron & Steel - InProcess Combustion - Natural Gas or Coke Oven Process Gas	Low NO _x Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	No sources operating in Clark County.
	NonEGU Point	Iron & Steel - InProcess Combustion - Process Gas -Coke Oven/ Blast Furnace	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	No sources operating in Clark County.
	NonEGU Point	Iron & Steel - InProcess Combustion - Residual Oil	Selective Catalytic Reduction	90	\$6,446	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Annealing	Low NO _x Burner and Selective NonCatalytic Reduction	80	\$2,983	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Annealing	Low NO _x Burner and Selective	90	\$7,076	No sources operating in Clark County.
	Catalytic Reduction					
	NonEGU Point	Iron & Steel Mills - Annealing	Low NO _x Burner	50	\$989	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Annealing	Selective NonCatalytic Reduction	60	\$2,844	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Annealing2	Selective Catalytic Reduction	90	\$7,618	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Galvanizing	Low NO _x Burner and Flue Gas Recirculation	60	\$1,006	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Galvanizing	Low NO _x Burner	50	\$850	No sources operating in Clark County.
	NonEGU Point	Iron & Steel Mills - Reheating	Low Excess Air	13	\$2,289	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Iron & Steel Mills - Reheating	Low NO _x Burner	66	\$520	No sources operating in Clark County.
	NonEGU Point	Iron and Steel Production - Annealing or Soaking Pits	Low NO _x Burner and Flue Gas Recirculation	60	\$1,301	No sources operating in Clark County.
	NonEGU Point	Iron and Steel Production; Blast Heating or Reheating	Low NO _x Burner and Flue Gas Recirculation	77	\$659	No sources operating in Clark County.
	NonEGU Point	Lean Burn ICE - NG	Air to Fuel Ratio Controller	20	NO _x < 365 tpy: \$1,121	No sources operating in Clark County.
	NonEGU Point	Lean Burn ICE - NG	Layered Combustion	97	NO _x < 365 tpy: \$43,657 NO _x > 365 tpy: \$1,723	No sources operating in Clark County.
	NonEGU Point	Lean Burn ICE - NG	Layered Combustion	97	\$5,695	No sources operating in Clark County.
	NonEGU Point	Lean Burn ICE - NG	Low Emission Combustion	80	NO _x < 365 tpy: \$1,384	No sources operating in Clark County.
	NonEGU Point	Lean Burn ICE - NG	Selective Catalytic Reduction	90	\$4,013	No sources operating in Clark County.
30501604	NonEGU Point	Lime Kilns	Low NO _x Burner	30	\$971	This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Medical Waste Incinerators	Selective NonCatalytic Reduction	45	\$7,821	No sources operating in Clark County.
	NonEGU Point	Nitric Acid Manufacturing	Extended Absorption	95	\$832	No sources operating in Clark County.
	NonEGU Point	Nitric Acid Manufacturing	Non-Selective Catalytic Reduction	98	\$954	No sources operating in Clark County.
	NonEGU Point	Nitric Acid Manufacturing	Selective Catalytic Reduction	90	\$1,174	No sources operating in Clark County.
	NonEGU Point	Petroleum Refinery Gas-Fired Process Heaters	Excess O ₃ Control	37	NO _x > 25 tpy: \$70	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Petroleum Refinery Gas-Fired Process Heaters	SCR-95%	84	NO _x > 25 tpy: \$12,352	No sources operating in Clark County.
	NonEGU Point	Petroleum Refinery Gas-Fired Process Heaters	Selective Catalytic Reduction	71	NO _x > 25 tpy: \$10,798	No sources operating in Clark County.
	NonEGU Point	Petroleum Refinery Gas-Fired Process Heaters	Ultra-Low NO _x Burner	53	NO _x > 25 tpy: \$1,803	No sources operating in Clark County.
	NonEGU Point	Plastics ProdSpecific; (ABS) Resin	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Pri Cop Smel; Reverb Smelt Furn	Low NO _x Burner and Flue Gas Recirculation	60	\$1,301	No sources operating in Clark County.
2102004002 20100102	NonEGU Point	Reciprocating IC Engines - Oil	Ignition Retard	25	\$1,335	This control measure could result in 0.69 tpd emission reduction from nonpoint sources; emissions from point sources are trivial. This control measure is not necessary for attainment and cannot advance the attainment date.
30500208	NonEGU Point	asphalt oil heater	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	This control measure might result in 0.004 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Sec Alum Prod; Smelting Furn/Reverb	Low NO _x Burner	50	\$989	No sources operating in Clark County.
	NonEGU Point	Solid Waste Disp;Gov;Other Incin;Sludge	Selective NonCatalytic Reduction	45	\$1,960	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
30301201 10500206	NonEGU Point	Space Heaters - Distillate Oil	Low NO _x Burner and Flue Gas Recirculation	60	NO _x < 365 tpy: \$4,318 NO _x > 365 tpy: \$1,318	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
30301201 10500206	NonEGU Point	Space Heaters - Distillate Oil	Low NO _x Burner	50	NO _x < 365 tpy: \$2,046 NO _x > 365 tpy: \$3,590	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
30301201 10500206	NonEGU Point	Space Heaters - Distillate Oil	Selective Catalytic Reduction	80	NO _x < 365 tpy: \$4,821 NO _x > 365 tpy: \$2,619	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
30301201 10500206	NonEGU Point	Space Heaters - Distillate Oil	Selective NonCatalytic Reduction	50	NO _x < 365 tpy: \$8,047 NO _x > 365 tpy: \$3,278	Emissions from this source category are negligible and therefore the control measure is not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Space Heaters - Natural Gas	Low NO _x Burner and Flue Gas Recirculation	60	NO _x < 365 tpy: \$4,440 NO _x > 365 tpy: \$1,023	No sources operating in Clark County.
	NonEGU Point	Space Heaters - Natural Gas	Low NO _x Burner	50	NO _x < 365 tpy: \$1,422 NO _x > 365 tpy: \$1,127	No sources operating in Clark County.
	NonEGU Point	Space Heaters - Natural Gas	Selective Catalytic Reduction	80	NO _x < 365 tpy: \$4,960 NO _x > 365 tpy: \$2,098	No sources operating in Clark County.
	NonEGU Point	Space Heaters - Natural Gas	Selective NonCatalytic Reduction	50	NO _x < 365 tpy: \$6,711 NO _x > 365 tpy: \$2,723	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
30504033	NonEGU Point	Starch Mfg; Combined Operations	Low NO _x Burner and Flue Gas Recirculation	55	NO _x < 365 tpy: \$5,532 NO _x > 365 tpy: \$4,284	Implementation of this control measure could result in 0.087 tpd of emissions reductions. This control measure is likely not cost effective. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Steel Foundries; Heat Treating Furn	Low NO _x Burner	50	\$989	No sources operating in Clark County.
40201001	NonEGU Point	Surf Coat Oper; Coating Oven Htr; Nat Gas	Low NO _x Burner	50	NO _x < 365 tpy: \$3,815 NO _x > 365 tpy: \$3,122	This control measure could result in 0.0053 tpd emissions reductions. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Adipic Acid Manufacturing	Extended Absorption	90	\$7,618	No sources operating in Clark County.
	NonEGU Point	Adipic Acid Manufacturing	Thermal Reduction	42	DC > 25 MW: \$440	No sources operating in Clark County.
	NonEGU Point	Ammonia - NGFired Reformers	Low NO _x Burner and Flue Gas Recirculation	47	DC > 25 MW: \$549	No sources operating in Clark County.
	NonEGU Point	Ammonia - NGFired Reformers	Low NO _x Burner	62	DC > 25 MW: \$490	No sources operating in Clark County.
	NonEGU Point	Ammonia - NGFired Reformers	Selective Catalytic Reduction	90	25 MW < DC < 99 MW: \$2,674 100 MW < DC < 299 MW: \$2,269 300 MW < DC < 499 MW: \$2,146 500 MW < DC < 699 MW: \$2,083 DC > 700 MW: \$2,019	No sources operating in Clark County.
	NonEGU Point	Ammonia - NGFired Reformers	Selective NonCatalytic Reduction	25	25 MW < DC < 99 MW: \$3,470 100 MW < DC < 299 MW: \$2,821 300 MW < DC < 499 MW: \$2,644 500 MW < DC < 699 MW: \$2,546 DC > 700 MW: \$2,447	No sources operating in Clark County.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (2018\$/ton reduced)	RACM Conclusion
	NonEGU Point	Ammonia - OilFired Reformers	Low NO _x Burner and Flue Gas Recirculation	72	DC > 25 MW: \$698	No sources operating in Clark County.
	NonEGU Point	Ammonia - OilFired Reformers	Low NO _x Burner	57	DC > 25 MW: \$646	No sources operating in Clark County.
	NonEGU Point	Ammonia - OilFired Reformers	Selective Catalytic Reduction	80	DC > 25 MW: \$1,621	No sources operating in Clark County.
	NonEGU Point	Ammonia - OilFired Reformers	Selective NonCatalytic Reduction	80	DC > 25 MW: \$1,621	No sources operating in Clark County.

Table 6. Analysis of Potential Point and Nonpoint Source VOC Control Measures for Clark County

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (\$/ton reduced)	RACM Conclusion
	NonEGU Point	Flexible Package Printing	Add-on controls, work practices, and material reformulation / substitution	67	\$3,433	Section 106 meet the CTG RACT requirement for sources operating within HA 212.
	NonEGU Point	Generic NonEGU	Carbon Adsorber	99	\$1,349	This recommendation is not associated with any industrial category.
	NonEGU Point	Generic NonEGU	Catalytic Oxidizer	99	\$2,335	This recommendation is not associated with any industrial category.
	NonEGU Point	Miscellaneous Metal and Plastic Parts Coatings	Coating Reformulation	35	\$2,155	Section 103 meet the CTG RACT requirement for sources operating within HA 212.
2401015000, 2401020000	NonEGU Point	Flat Wood Paneling Coatings	Low-VOC materials coatings and Add-On Controls	90	\$3,188	This control measure could achieve 0.134 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Paper Film and Foil Coatings	Low-VOC coating materials and/or add-on controls	90	\$1,471	This control measure will be implemented by a CTG RACT rule.
2401015000, 2401020000	NonEGU Point	Flat Wood Paneling Coatings	Low-VOC materials coatings	60	\$2,329	This control measure could achieve 0.089 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Large Appliance Surface Coating	Low-VOC coating materials	30	\$613	No sources operating in HA 212
2401025000	NonEGU Point	Metal Furniture Coatings	Low-VOC coating materials	35	\$245	This control measure could achieve 0.04 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (\$/ton reduced)	RACM Conclusion
	NonEGU Point	Miscellaneous Industrial Adhesives	Low VOC Adhesives and Improved Application Methods	64	\$322	Section 101 meet the CTG RACT requirement for sources operating within HA 212.
40201101	NonEGU Point	Fabric Printing/ Coating and Dyeing	Permanent Total Enclosure (PTE)	97	\$1,992	Emissions from this source category are negligible. The control measure is not cost effective. This measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Metal Can Surface Coating	PTE	95	\$11,538	This measure would not be cost effective and the measure is not necessary for attainment and will not advance the attainment date.
	NonEGU Point	Metal Furniture Surface Coating	PTE	95	\$28,339	No sources operating in HA 212
	NonEGU Point	Paper and Other Web Coating	PTE	95	\$2,204	Emissions from this source category are negligible. The control measure is not cost effective. This measure is not necessary for attainment and cannot advance the attainment date.
	NonEGU Point	Product and Package Rotogravure Printing	PTE	96	\$20,459	This measure would not be cost effective and the measure is not necessary for attainment and will not advance the attainment date.
	NonEGU Point	Generic NonEGU	Regenerative Thermal Oxidizer	99	\$2,581	This recommendation is not associated with any industrial category.
	NonEGU Point	Fiberglass Boat Manufacturing	Solvent substitution, nonatomized resin application methods	35	\$5,149	No sources operating in HA 212
	NonEGU Point	Miscellaneous Industrial Adhesives	Solvent Substitution	64	\$325	Section 101 meets the CTG RACT requirement for sources operating within HA 212.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (\$/ton reduced)	RACM Conclusion
	NonEGU Point	Generic NonEGU	Vapor Recovery Unit	97	\$25,356	This measure would not be cost effective and the measure is not necessary for attainment and will not advance the attainment date.
250101101325 010110122501 012014250101 101125010120 132501012012 2501012011	Non EGU Point	Portable Fuel Container	OTC Phase I Model Rule (Ozone Transport Commission 2001)	65	\$581/ton	This control measure could achieve 0.0075 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.
2501011013 2501011012 2501012014 2501011011 2501012013 2501012012 2501012011	Non EGU Point	Portable Fuel Container	OTC Phase II Model Rule/CARB Rule (Ozone Transport Commission 2007)	58	\$800-1400/ton	This control measure could achieve 0.995 tpd emissions reduction. This control measure is not necessary for attainment and cannot advance the attainment date.
2461800000	Nonpoint	Agriculture - Pesticides	CARB Rule	45-70	<\$14, 926	This measure is likely not cost effective. This control measure is not needed for attainment and will not advance the attainment date.
2302002200	Nonpoint	Commercial Cooking	Catalytic oxidizer	86%	\$2,359	This control measure is not necessary for attainment and cannot advance the attainment date.
2610000500	Nonpoint	Construction Debris	Prohibition	100%	Unknown	Section 42 already prohibits open burning of construction debris.
2680003000	Nonpoint	Composting	Cover; BMP	16%	Unknown	The economic feasibility of this control measure is unknown. This control measure is likely to face practical implementation constraints and is thus infeasible.

Appendix B: Reasonably Available Control Measure Analysis

SCC	Sector	Source Category	Emission Reduction Measure	Control Efficiency (%)	Cost Effectiveness (\$/ton reduced)	RACM Conclusion
	Nonpoint	Adhesives and Coatings	Low VOC Coatings		Unknown	T DAQ promulgated a CTG RACT requirement for this category and additional emissions reductions are unlikely cost effective and could not be implemented in time to advance the attainment date.
2461022000	Nonpoint	Emulsified Asphalt	Reduce VOC Content to 3% by volume	75%	Unknown	DAQ promulgated this requirement as a contingency measure. This measure could not be implemented in time to advance the attainment date, and the projected VOC emissions reductions from this measure would not advance the attainment date event if implemented sooner.

6.0 REFERENCES

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

40 CFR Part 51. “Subpart Z—Provisions for Implementation of PM_{2.5} National Ambient Air Quality Standards,” Section 51.1004: “Attainment dates.”

44 FR 20375. “State Implementation Plans; General Preamble for Proposed Rulemaking on Approval of Plan Revisions for Nonattainment Areas.”

57 FR 13498. “State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990.”

70 FR 71612. “Final Rule To Implement the 8-Hour Ozone National Ambient Air Quality Standard-Phase 2; Final Rule To Implement Certain Aspects of the 1990 Amendments Relating to New Source Review and Prevention of Significant Deterioration as They Apply in Carbon Monoxide, Particulate Matter and Ozone NAAQS; Final Rule for Reformulated Gasoline.”

74 FR 2945. “Approval and Promulgation of Implementation Plans; New Jersey Reasonable Further Progress Plans, Reasonably Available Control Technology, Reasonably Available Control Measures and Conformity Budgets.”

80 FR 12264. “Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements.”

83 FR 38109. “Air Plan Approval; Connecticut; Plan Submittals for the 2008 Ozone National Ambient Air Quality Standards.” <https://www.federalregister.gov/documents/2018/08/03/2018-16622/air-plan-approval-connecticut-plan-submittals-for-the-2008-ozone-national-ambient-air-quality#page-38109>

DES. 2024. *Clark County Moderate Ozone SIP*: “Attachment B: Technical Support Document: Attainment Demonstration for the Clark County Ozone State Implementation Plan.” Las Vegas, NV: Clark County Department of Environment and Sustainability. <https://www.clarkcountynv.gov/adobe/assets/urn:aaid:aem:3f3abc47-2bb5-411f-b314-15230eea1ff5/original/as/attb-attainment-demo-td.pdf>.

EPA. 2012. *Transportation Conformity Regulations as of April 2012*. Washington, D.C.: U.S. Environmental Protection Agency. <https://scag.ca.gov/sites/default/files/2024-05/transportationconformityregulations-temapril2012.pdf>.

EPA. 2022. *Important Information Concerning the Menu of Control Measures*. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/sites/default/files/2016-02/documents/menuofcontrolmeasures.pdf>.

MDE. 2023. *Baltimore Moderate Nonattainment Area Reasonably Available Control Measures (RACM) Analysis for the 2015 Ozone National Ambient Air Quality Standards (NAAQS)*. “Appendix D: RACM Analysis and List.” Baltimore, Maryland: Maryland Department of the Environment.

<https://mde.maryland.gov/programs/air/AirQualityPlanning/Documents/Baltimore%20Ozone%20NAA%2070ppm/Appendix%20D%20-%20RACM.pdf>.

Ozone Transport Commission. 2001. "Control Measure Development Support Analysis of Ozone Transport Commission Model Rules." Washington, D.C.: Ozone Transport Commission.
<https://otcair.org/upload/Documents/Reports/Control%20Measure%20Development%20Support.pdf>.

Ozone Transport Commission. 2007. "Identification and Evaluation of Candidate Control Measures." Washington, D.C.: Ozone Transport Commission.
<https://otcair.org/upload/Documents/Reports/OTC%20Control%20Measures%20TSD%20070228%20Final%20SB.pdf>.