Las Vegas Valley Municipal Storm Sewer System Permit Stormwater Management Plan

CITY OF LAS VEGAS NEVADA

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY NEVADA

together for better

CITY OF NORTH LAS VEGAS

HENDERSON

May 2026

Brown AND Caldwell

Las Vegas Valley Municipal Storm Sewer System Permit
Stormwater Management Plan

Prepared for the
Stormwater Quality Management Committee
Las Vegas Valley
May 2026

FINAL

Brown AND Caldwell
8337 West Sunset Road, Suite 310
Las Vegas, NV 89113
T: 702.938.4080

Acknowledgements

This Stormwater Management Plan was prepared by Brown and Caldwell under contract with the Clark County Regional Flood Control District. Many representatives of municipal, county, and state agencies were instrumental in developing this document. Contributions from these agencies and individuals are acknowledged below.

Stormwater Quality Management Committee

- Andrew Trelease, Clark County Regional Flood Control District (Chair)
- Lance Olson, City of Henderson (Vice-Chair)
- Michael Cunningham, City of Las Vegas
- Denis Cederburg, Clark County
- Mike Hudgeons, City of North Las Vegas

Permittee Coordination Group

- Lenny Badger, City of North Las Vegas
- Jennifer Davis, City of Henderson
- Chelsie Kekaula Duke, City of Henderson
- Allen Frischmann, City of North Las Vegas
- Christene Klimek, City of Henderson
- Joseph Leedy, Clark County
- Sherri McMahon, City of Las Vegas
- John Solvie, Clark County
- Daylin Sigler, Clark County
- John Tennert, Clark County Regional Flood Control District

Nevada Division of Environmental Protection

- Kristie Black, Stormwater Supervisor, Bureau of Water Pollution Control
- Andrew Dixon, Chief, Bureau of Water Pollution Control
- Robert Zinkevich, Stormwater Supervisor, Bureau of Water Pollution Control

Briscoe Prows Kao Ivester & Bazel LLP

- Larry Bazel

Brown and Caldwell

- Angela MacKinnon
- Ellen Yuska

HDR

- Alisson Boeing
- Catherine LaBounty

Table of Contents

List of Figures

List of Tables

Stormwater Management Program Introduction and Overview

The Nevada Division of Environmental Protection (NDEP) has issued National Pollutant Discharge Elimination System (NPDES) Permit No. NV0021911 jointly to Clark County Regional Flood Control District (CCRFCD), the City of Las Vegas, the City of North Las Vegas, the City of Henderson, and Clark County (Permittees). This Permit, which was originally issued on December 13, 1990, authorized discharges from the Municipal Separate Storm Sewer System (MS4) in the Las Vegas Valley. The Nevada Department of Transportation (NDOT) was included in the original permit and subsequently received its own MS4 Permit from NDEP in 2004. The Permit has been renewed and revised multiple times with the most current Permit being issued on February 5, 2024.

Section B.5.1 of the MS4 Permit requires the Permittees to review the existing SWMP to determine whether its programs require revisions. Existing programs include public outreach and education, MS4 maintenance activities, post-construction, illicit discharge and detection, industrial facility monitoring and controls, and construction sites. This SWMP maintains all those programs with minor modifications.

Section B.5.1.5.3 of the MS4 Permit requires the Permittees to issue the Draft Stormwater Management Plan (SWMP) for public comment for a minimum of 30 days and hold a public workshop in accordance with Nevada Administrative Code (NAC) 445A.67558. The public comment period opened on March 30, 2026, and closed on April 30, 2026. The public workshop was held on April 22, 2026, at the CCRFCD offices. No public comments were received during the 30-day public comment period or during the public workshop.

The Las Vegas Valley consists of the three incorporated cities and unincorporated Clark County. Each of the municipalities is responsible for stormwater management within their geographic boundaries. According to Section A.1.1 of the 2024 MS4 Permit, the MS4 "consists of their municipal separate storm sewer systems located in the Las Vegas Valley (as shown in Exhibit 1)." The municipal separate storm sewer systems in Exhibit 1 are all within the ultimate development boundary (UDB). Figure 1 shows a map of the MS4 boundary (2023 UDB within the Las Vegas Valley watershed) and the jurisdictional subdivisions of the Las Vegas Valley[1]. The UDB is reviewed every five years and updated as necessary by CCRFCD. Any changes to the UDB will be documented in the Annual Report. Figure 1 also shows locations of stormwater infrastructure and potential outfalls in the Las Vegas Valley.

[1] Section A.1.1 of the 2024 MS4 Permit specifies that "This permit does not apply to Nellis Air Force Base, NDOT MS4 jurisdiction within Las Vegas Valley, or to any areas outside Las Vegas Valley, including Boulder City, Laughlin, Mesquite, Ivanpah Valley, or portions of North Las Vegas and any other incorporated or unincorporated areas located outside the Las Vegas Valley."

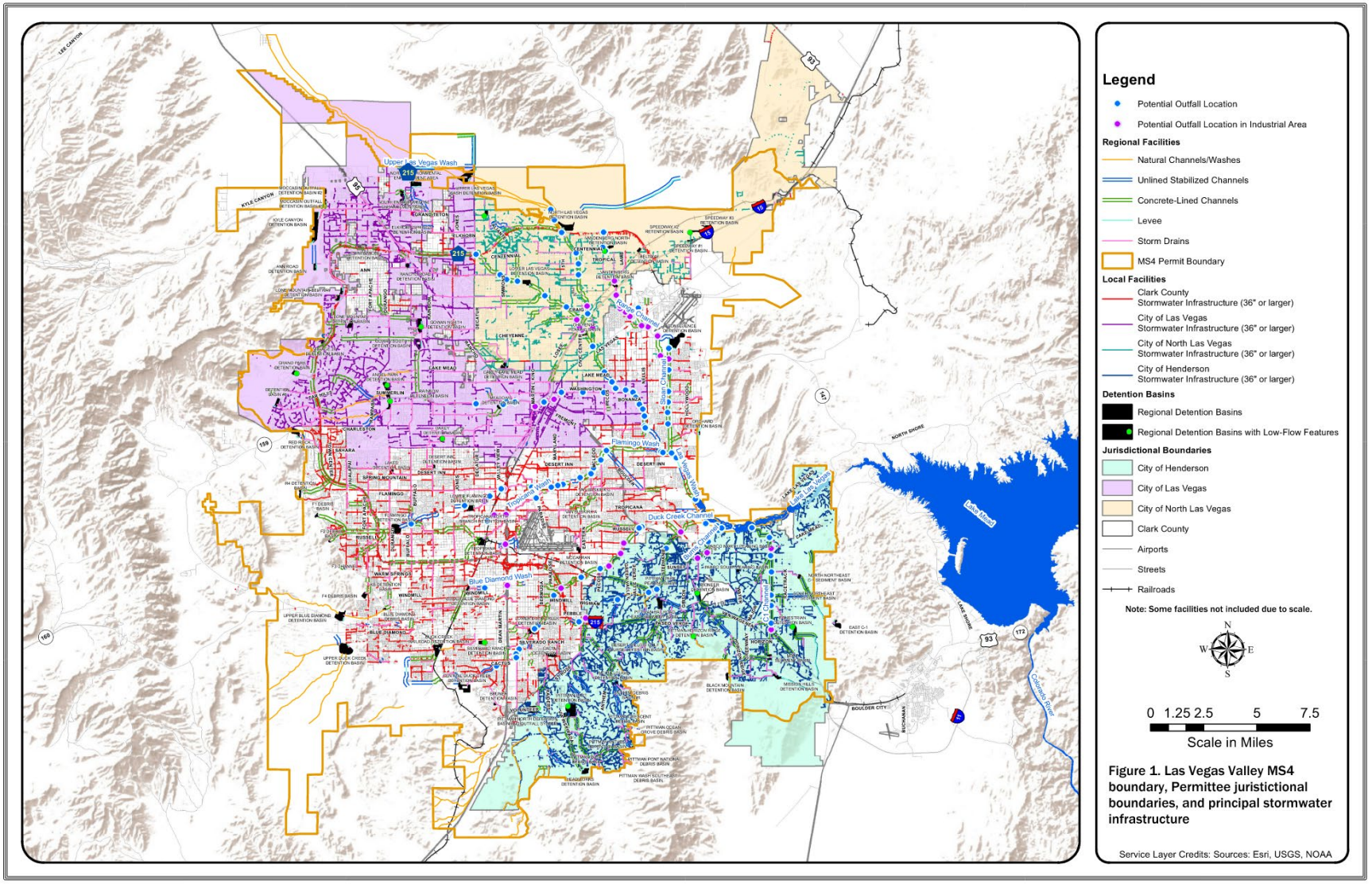

Figure 1. Las Vegas Valley stormwater system

Clark County Regional Flood Control District

Origin and Process

The CCRFCD was established in 1986 following a series of flooding events in the Las Vegas Valley in the 1970s and early 1980s. Before the CCRFCD was established, virtually everywhere in the Las Vegas Valley was vulnerable to flood flows. Figure 2 shows flooding at Caesars Palace in 1975. The CCRFCD was authorized to develop and implement coordinated and comprehensive master plans to solve flooding problems throughout Clark County. Nearly all funding for designing, constructing, and maintaining flood control facilities comes from one-quarter of one percent sales tax in Clark County.

The CCRFCD is a distinct local government agency led by a general manager/chief engineer responsible for analyzing the extent of flood control problems and presenting solutions and recommendations to a Board of Directors. The CCRFCD Board of Directors includes two representatives from Clark County and the City of Las Vegas, and one from the cities of Henderson, North Las Vegas, Boulder City, and Mesquite.

Figure 2. 1975 flood on the Las Vegas Strip

Detention Basins, Low-Flow Features, and Channel Lining

CCRFCD provides funding to the four municipalities for design, construction, operation, and maintenance of concrete channel lining, other kinds of channel protection, regional detention basins, low-flow features, and other flood control facilities. As of August 2025, the Las Vegas Valley includes 87 detention basins, 330 miles of regional underground storm drains, and 325 miles of surface channel, including 204 miles of channels that are concrete, riprap, or otherwise protected against erosion. Figure 3 and Figure 4 show examples of concrete channels.

Figure 3. Concrete-lined channel

Figure 4. Concrete-lined channel and box culvert

All regional facilities are designed to manage runoff from the 100-year storm occurring under full build-out conditions in the watershed, with no assumption of onsite peak or volume reductions in new development. Runoff management is primarily accomplished using large regional detention basins that capture runoff from large watershed areas in the Las Vegas Valley. Regional detention basins capture flood flows and release them at a smaller discharge rate. These regional detention basins capture sediment and associated parameters, which fall out as detained stormwater loses velocity. Figure 5 provides an example of a regional detention basin.

Figure 5. Oakey Detention Basin

All detention basins are routinely inspected and sediment is removed. For example, sediment may be removed from a detention basin when it accumulates a thickness of 1 to 2 feet. Some detention basins, such as those at the edge of development, fill up relatively quickly with dirt from the surrounding desert and are cleaned out frequently. Other detention basins need very little sediment removal. Figure 6 shows sediment being stockpiled for removal from Oakey Detention Basin.

Figure 6. Sediment stockpiled for removal at Oakey Detention Basin

Some of these large regional detention basins have low-flow features that detain lower flows that would otherwise pass through. An example of these facilities is shown in Figure 7. Low-flow features settle out sediment from smaller storms.

Figure 7. Low-flow feature at Oakey Detention Basin

Unique Conditions in the Las Vegas Valley

The 2024 MS4 Permit requires the Permittees to implement a stormwater program that is suited to the unique local hydrologic, hydrogeologic and regional conditions, and is consistent with local and state laws, regulations, and water resources plans. This section summarizes the factors that make the Las Vegas Valley unique and describes the implications of these unique factors in developing an appropriate MS4 program.

Climatic Factors

With a mean annual rainfall of 4.2 inches, the Las Vegas Valley is the driest large MS4 in the nation (Table 1). Depending on soil and site conditions, developed areas and construction sites have the potential to produce measurable runoff on an average of only 6 to 11 days per year. Most runoff-producing events are short-duration (e.g., a few hours) thunderstorms of limited areal extent, which may affect one part of the Valley but not other areas. The median number of dry days between rainfall events that produce runoff greater than 0.2 inches at the Harry Reid Airport gauge is 22 days, but dry periods can last for many months. This is representative of any given location in Las Vegas Valley.

Table 1. Mean Annual Rainfall in Western United States Cities	
Community	Mean Annual Rainfall (inches)
Las Vegas, NV	4.2
Phoenix, AZ	7.2
Reno, NV	9.2
Riverside, CA	9.4
San Diego, CA	12
Tucson, AZ	12
Los Angeles, CA	12
Sacramento, CA	18
San Bernardino, CA	22
San Francisco, CA	23
Seattle, WA	37
Portland, OR	37

Source: NOAA U.S. Climate Normals, https://www.ncei.noaa.gov/access/us-climate-normals/

Most of the water used in the Las Vegas Valley comes from the Colorado River, which is heavily regulated. Southern Nevada Water Authority (SNWA), which is the regional water purveyor, and the Permittees have been working for decades to reduce outdoor water use in Las Vegas Valley, for example by prohibiting turf (such as lawns that require regular watering) in new developments and paying property owners to replace turf. Removal of turf reduces the application of fertilizers and other chemicals associated with turf.

Traditional best management practices (BMPs) that rely on vegetation for treatment are inappropriate. In the Las Vegas Valley, using vegetation as a BMP would require extensive irrigation if it were to be maintained as part of site landscaping. These BMPs would be inconsistent with the water conservation objectives of SNWA and the ordinances established by the Permittees.

Hydrologic Factors

The Las Vegas Valley is located in the Mojave Desert. Although most of the washes in the Las Vegas Valley are dry, the lower Las Vegas Wash below the discharges from four wastewater treatment plants has a substantial amount of perennial flow. The upper Las Vegas Wash and some tributary channels have a small amount of perennial flow in their lower reaches from overirrigation and surfacing groundwater. The stormwater runoff in the Las Vegas Valley flows through lower Las Vegas Wash into Lake Mead.

Annual flow in the lower Las Vegas Wash is comprised of about 90 percent wastewater effluent, approximately 5 percent urban dry weather contributions, of which about half are from overirrigation and half from surfacing groundwater, and 5 percent storm runoff, on average. Most parts of the MS4 system in the Las Vegas Valley are dry for the entire year except in response to rainfall. When storm runoff does occur, it is typically of very short duration and extent (e.g., a few hours).

The local goal is also to maximize the flow of stormwater into the Colorado River because of the need for water in the Colorado River, the relatively high water quality of stormwater, and the harm that stormwater does when infiltrated into the shallow aquifer. Stormwater flowing into the Colorado River from the Las Vegas Valley does not cause exceedances of water quality standards because of its

relatively high quality and relatively small amount. For example, the TDS of Las Vegas Valley stormwater is lower than the TDS of the Colorado River. Also, Nevada receives credit for return flows from the Las Vegas Wash to Lake Mead and the Colorado River. Nevada's Colorado River return flows consists mostly of highly treated wastewater returned to Lake Mead via the Las Vegas Wash.

Geologic Factors

Caliche, expansive soils, and collapsible soils are widespread throughout the Las Vegas Valley, and compromise the effectiveness of standard infiltration BMPs. Caliche maps for the Las Vegas Valley are not available. As a result, the presence of any of these geologic conditions must be evaluated on a site-specific basis through geotechnical evaluations. This makes infiltration BMPs inappropriate for stormwater disposal in most areas of the Las Vegas Valley. In areas where infiltration is possible, it remains undesirable because infiltration can lead to other potential problems, in particular exacerbating the transport of naturally occurring selenium, high total dissolved solids, and other parameters through the shallow aquifer into the lower Las Vegas Wash. The tributary channels upstream of lower Las Vegas Wash have high levels of selenium and other parameters even though the surfacing groundwater is diluted by the overirrigation water.

Hydrogeologic Factors

The Las Vegas Wash aquitard creates a shallow alluvial aquifer and areas of perched groundwater that are of poor quality and are not beneficially used. Figure 8 shows the general hydrogeologic conditions in the Las Vegas Valley. A separate deep aquifer is used as a source of local water supply. Virtually all recharge to the deep aquifer occurs along the mountain front of the Spring Mountains, located on the western side of the Las Vegas Valley. The Las Vegas Wash aquitard forces groundwater to the surface in tributary channels near the lower Las Vegas Wash and in the Las Vegas Wash itself.

As described, flow of infiltrated surface water through native soils significantly increases total dissolved solids (TDS) and selenium concentrations. In the Las Vegas Valley, the shallow groundwater is high in TDS and selenium. Elevated TDS and selenium concentrations are ubiquitous across the Colorado River Basin, and the Colorado River Basin Salinity Control Program has been developed to respond to TDS issues.

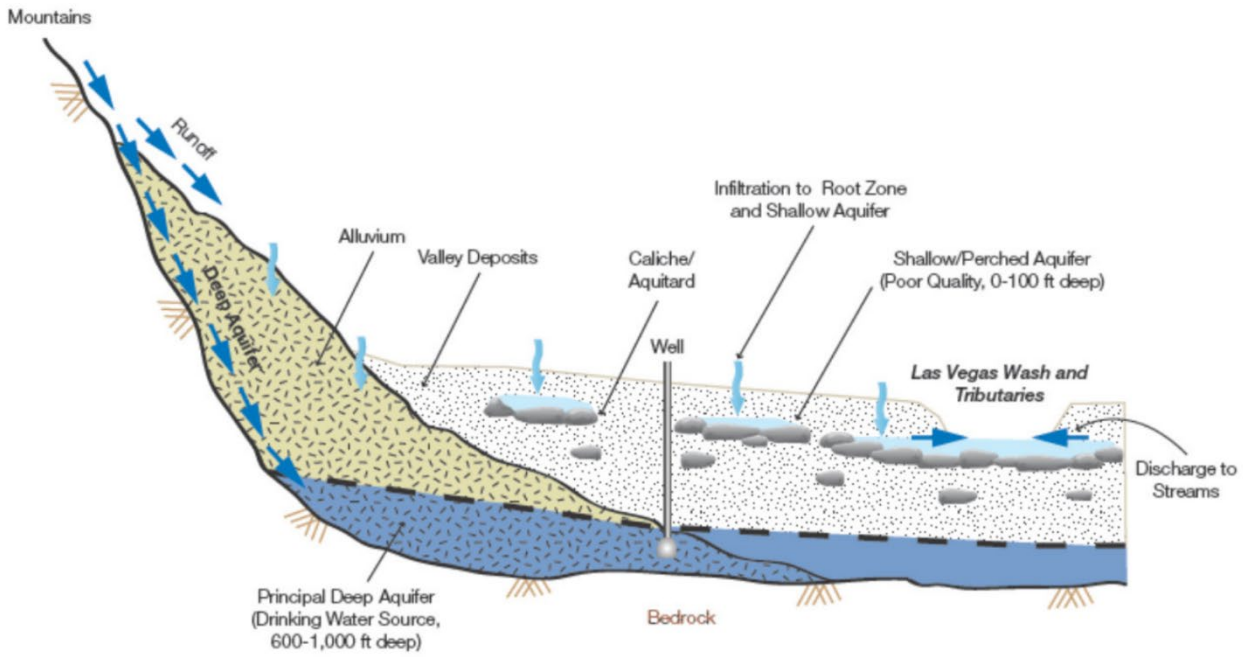

Figure 8. Hydrogeologic schematic of Las Vegas Valley

Although the NAC allows for Class V injection wells, these wells in the Las Vegas Valley would be prohibited as they would degrade the aquifer. In the Las Vegas Valley, infiltrated stormwater would tend to degrade the aquifer by dissolving and mobilizing selenium and other materials. Therefore, stormwater wells in the Las Vegas Valley would appear to be prohibited. NAC 445a.849(4) defines Class V injection wells to include "wells used to drain surface fluid, primarily the runoff from storms, into a subsurface formation." A permit is required to operate a Class V well. NAC 445a.850 specifies that "no person may inject a fluid which degrades the physical, chemical or biological quality of the aquifer" unless that aquifer is exempted.

Watershed and Land Use Factors

High rates of erosion and sediment transport occur naturally in the Las Vegas Valley watershed and are primarily associated with high flow events (greater than the 2-year event). Figure 9 shows a typical dry wash in an alluvial fan, which shows erodible material. Land development in Las Vegas Valley tends to stabilize the watershed surface and reduce soil loss compared to native conditions. Figure 10 shows uphill undisturbed conditions to the left and downhill developed areas to the right.

Figure 9. Dry wash in alluvial fan

Figure 10. Aerial photograph of new development adjacent to undisturbed area in Las Vegas Valley

The Las Vegas Valley has been one of the fastest growing urban areas in the nation. Almost 1.5 million people moved to the area between 1980 and 2008, a 300 percent increase in population. Since 2008, the population has increased by another 20 percent. New development is occurring in an outward pattern from the center of the Las Vegas Valley in nearly all directions. The majority of new development consists of residential housing and associated commercial development. Land use and development also includes large hotels and casinos. The majority of significant redevelopment consists of new hotels, casinos, and high-rise residential development in the vicinity of the Las Vegas Strip and Interstate 15. The Las Vegas Valley hosts over 40 million visitors per year, highlighting the importance of the hotel, casino, and tourism industries to the local economy and landscape.

The Las Vegas Valley is also affected by strong wind conditions, which carry sediment off the undeveloped desert areas and deposit it on streets and other developed areas where it is readily carried off by stormwater. Street sweeping helps respond to wind-blown sediment.

Conclusions About Unique Conditions in the Las Vegas Valley

The unique factors described in this Section lead to several important conclusions for implementing a stormwater management program for the Las Vegas Valley in compliance with the MS4 Permit:

- The Las Vegas Valley is the driest large MS4 in the nation. Most parts of the MS4 system in the Las Vegas Valley are dry except in response to rainfall. In the lower Las Vegas Wash, about 90 percent of annual flows are from wastewater effluent. BMPs that rely on constant or frequent water flows for pollutant removal effectiveness, such as wetlands or vegetation, are not feasible in most of the Las Vegas Valley. Instead, regional watershed-level controls that capture stormwater from large drainage areas are more technically feasible and cost effective.

- Traditional BMPs that rely on vegetation for treatment are not recommended because they would require extensive irrigation.
- The presence of caliche, expansive clays, and collapsible soils in the Las Vegas Valley creates unsuitable conditions for infiltration as a stormwater disposal method. In places where infiltration is feasible, it may not be desirable due to the potential to increase the shallow groundwater levels and the transport of unfavorable water quality constituents (e.g. TDS and selenium).

Regional Watershed-Based Strategy

The Permittees' stormwater management program, which has been operating for nearly 35 years, is based on a regional, watershed-based approach. A regional approach has the greatest likelihood of having a positive impact on surface water quality. Most of the programs now in effect have been operating for at least 15 years. The following describes the key components of a regional watershed-based strategy:

- Emphasis on Regional Measures. In general, regional watershed-based measures for stormwater quality management are preferred over on-site measures. In an environment in which rainfall is extremely infrequent and isolated, regional measures addressing runoff from large areas are more effective for the community than on-site measures. Las Vegas Valley has adopted a regional approach to flood risk reduction that includes dozens of large detention basins typically serving many square miles of drainage area rather than hundreds of smaller basins serving single lots or subdivisions. A watershed approach is consistent with EPA's promotion of watershed-based solutions to water quality issues.
- Recognition of Infiltration Limitations. Stormwater infiltration is not a significant factor in the Las Vegas Valley MS4 program. As described in the previous section, infiltration of stormwater is problematic in Las Vegas Valley due to poor soils and other issues. Therefore, other approaches have been adopted for mitigating stormwater runoff impacts.
- Permittee Responsibility. Each municipal Permittee is responsible for implementing the 2024 MS4 Permit requirements within its jurisdiction. The municipalities maintain their own inventories and checklists.

Public Outreach and Education

The Permittees have developed Public Outreach and Education Programs, which include the use of social media, websites, educational material, video material, labeling of drain inlets, tabling events, and live presentations.

There are three target audiences: 1) developers, architects, and construction contractors, 2) the general public, and 3) school-age children.

The overall approach to educating the first target audience is to provide them with sufficient information so that they can comply with the regulatory requirements applicable to them.

The overall approach to educating the second target audience is to inform the general public in the Las Vegas Valley about important water quality issues related to stormwater runoff—in particular that stormwater does not go to wastewater treatment plants—and to influence behavior of the general public to reduce activities that may have a negative impact on stormwater runoff quality. Examples include discharging down storm drains and not cleaning up pet waste, and increase activities that may have a positive impact on stormwater runoff quality, such as proper disposal of pollutants.

The overall approach to educating the third target audience is to provide awareness of stormwater to influence their future behavior and for them to educate their family members on the issues identified for the second target audience.

The primary pollutants include sediment for the first targeted audience and pet waste, trash and debris, yard waste, oils, solvents, and other household chemicals for the second and third targeted audiences.

The Permittees evaluate the public's understanding of stormwater quality issues through a regularly conducted survey.

MS4 Maintenance Activities

The following describes the key components for maintaining the Las Vegas Valley structural and source control measures:

- Regional Detention Basins. The Permittees regularly inspect and maintain regional detention basins. The principal purposes of inspections are to determine whether retained pollutants need to be removed, and whether the structures need maintenance. If inspections determine that material need to be removed, the Permittees bring in heavy equipment to collect the material and place it in trucks for off-site disposal. If maintenance needs to be done, CCRFCD provides funding.
- Regional Stormwater Conveyance System. The Permittees regularly inspect and maintain regional stormwater conveyance system. Inspections identify areas where material has settled out and need to be removed and locations where the stabilizing concrete or other material needs to be maintained.
- Public Storm Drain Inlets. The Permittees regularly inspect, maintain, and clean public storm drain inlets.
- Operating and Maintaining Public Streets. The Permittees regularly sweep public streets to remove material.

Post-Construction Program for New Development and Significant Redevelopment (NDSR) Projects

The Permittees accomplish the key flow-based goals of LID through regional detention basins and low-flow features, which reduce velocities and settle out pollutants. In addition, all new development, both public and private, must comply with the Hydraulic Criteria and Drainage Design Manual (HCDDM), which has been developed by CCRFCD and adopted by the Permittees. Section 1500 of the HCDDM requires what are called low-impact development (LID) measures (or alternatives) for medium and large commercial and industrial parking lots. All of the Permittee municipalities have a plan review process for checking if drainage studies are in compliance with the HCDDM. Developers have typically responded to these requirements by installing swales. Although swales are typically considered LID measures, in the Las Vegas Valley the primary purpose of these measures is not to maintain natural hydrology, but rather to facilitate pollutant removal, including trash and debris. Rather than maintaining the natural hydrology, the Las Vegas Valley flood control system is designed to mitigate flash floods, which are dangerous to people and property.

Section 1200 of the HCDDM regulates the design of the regional detention basins and low-flow features. Although these are typically developed and installed by the municipalities, they may also be installed by developers.

Illicit Discharge and Detection

The Permittees' program to detect and remove illicit discharges consists of municipal ordinances prohibiting illicit discharges and activities to enforce those ordinances. In the Las Vegas Valley, much of the stormwater system consists of open channels, which extend for many miles. Since all stormwater conveyances terminate in open channels, the Permittees can investigate any atypical dry weather flows that emerge from underground stormwater facilities. The Permittees enforce municipal ordinances by conducting on-going field screening activities such as storm channel inspections, investigations of atypical dry weather flows as observed by the Permittees, or in response to complaints. Through these open channel inspections, the Permittees regularly inspect a substantial portion of the main facilities of the MS4, not just the outfalls. The municipalities retain contractors who respond to spills of hazardous materials.

Industrial Facility Monitoring and Control

The 2024 MS4 Permit requires the Permittees to inspect specified industrial sites. The Permittees' program begins with an inventory of industrial sites, which is divided into four categories: 1) operating municipal landfills; 2) hazardous waste treatment, disposal and recovery facilities; 3) facilities that are subject to Superfund Amendments and Reauthorization Act (SARA) Section 313; and 4) industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the MS4. This inventory is developed from EPA listings and local information and is submitted to NDEP each year as part of the Annual Report. In the Las Vegas Valley, there are no operating municipal landfills and no industrial facilities that the Permittees have determined are contributing a substantial pollutant loading to the MS4. In addition, the Permittees track other industrial facilities to confirm that these industries are not substantially contributing, even though they are not an MS4 permit mandated industrial category.

The Permittees routinely inspect these facilities as part of their industrial inspection program. The Permittees have developed inspection checklists and a training program for industrial facility inspectors. These checklists are used to assess whether significant stormwater issues are likely to arise at each facility, and whether the facility has implemented sufficient BMPs to respond to these issues. Site layout and good housekeeping are also considered during the inspections.

Control measures are assessed case-by-case and depend on what substances are being used or stored at that facility, whether those substances are exposed to stormwater, and what control measures are deemed appropriate for the specific stormwater issues identified at the facility. For example, spill control kits are required to be readily available.

Construction Site BMP Program

The Permittees maintain development checklists, such as the Las Vegas Valley Stormwater Quality Management Program Construction Permit Submittal Checklist, identifying the need for a NDEP stormwater permit for properties of one acre or more. Those checklists are made available to developers, who provide completed checklist information when they submit plans for review.

The MS4 Permit, like NDEP's Construction Stormwater General Permit, calls generally for the implementation of BMPs but does not specify exactly which BMPs must be implemented at each site. Similarly, the Permittees call generally for the implementation of BMPs at construction sites, but do not specify exactly which BMPs must be implemented at each site. To assist developers, and with the input and concurrence of the other Permittees, CCRFCD maintains the Las Vegas Valley Construction Site BMP Guidance Manual, which identifies a suite of BMPs that can be implemented by developers.

The Permittees provide educational and training measures for construction site operators by conducting annual training sessions with the assistance of NDEP. These training sessions are advertised to developers and the public through email lists and website notices. The Permittees also provide information on their websites about the development process and compliance with state and local stormwater provisions.

The Permittees check for coverage before or during construction site inspections. Permittees either check NDEP's Construction General Permit website to confirm coverage or check for the NDEP approval letter kept with the Stormwater Pollution Prevention Plans onsite. The Permittees also require contractors to submit NOIs under NDEP's Construction Stormwater General Permit as part of the process of obtaining plan review by the Permittees.

The Permittees regularly inspect construction sites to determine the proper installation and maintenance of BMPs. Follow-up or reinspection occurs when the inspectors identify an issue.

Organization of the SWMP

The following sections provide detailed responses to each of the SWMP requirements in the 2024 MS4 Permit. This SWMP is numbered to be consistent with the 2024 MS4 Permit, in which the SWMP requirements are numbered B.5.1 through B.5.15.

B.5.1 SWMP Revision

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.1.

Table B.5.1-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.1.6	Review of Legal Authority	The Permittees provide NDEP with their legal authority once each permit year as part of the Annual Report. NDEP reviews the Annual Report each year and accepts the report with comments. As a part of the 2023-2024 Annual Report, the Permittees reviewed their legal authority to implement the 2024 MS4 Permit and presented their revisions.
Measure 5.1.9	Selection of New BMPs and Measurable Goals	The Las Vegas Valley MS4 Stormwater Program, which has been ongoing for over 30 years, has been highly successful in controlling stormwater discharges and maintaining ambient water quality within appropriate levels during storms. After reviewing BMPs and measurable goals, the Permittees concluded that no new BMPs were needed. The BMPs for the program were reviewed and approved by NDEP as a part of the 2014 audit. However, the Permittees are enhancing their post-construction BMP inspection programs to include inspections of properties where no complaints were received, taking into account relative priorities. These enhancements will be implemented within 6 months of the approval of the SWMP. Other measurable goals were carried forward from the previous SWMP and revised to be consistent with the new format of the SWMP. The rationale for each measurable goal is provided with the activity description.
Measure 5.1.11	Staff and Resources to Implement Program Elements	The four municipal Permittees have staff and departments responsible for implementing 2024 MS4 Permit requirements. For some program activities, including industrial site inspections, construction site inspections, development submittals, and storm drain system maintenance activities, staff from multiple departments are involved. The municipalities also receive support from consultants. Each year, all the Permittees will submit to NDEP a description of the departments involved, a summary of the costs expended for the previous year, and a budget for the following year as a part of the Annual Report.

Table B.5.1-2. SWMP Revision Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.1a, Review of Legal Authority	The Permittees review legal authority, make changes as necessary, and report the changes to NDEP. The rationale for this goal is to keep legal authority current and appropriate.	Yes	Review legal authority each permit year as part of the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.1b, Staff and Resources	The Permittees review cost and budgeting information each permit year and report this information to NDEP. The rationale for this goal is to keep NDEP informed of the Permittees' costs of implementing the 2024 MS4 Permit.	Yes	Each permit year provide NDEP with a summary of the costs expended for that permit year and a budget for the following permit year as part of the Annual Report.	Not applicable.	Although titles of positions vary from Permittee to Permittee and over time, the following current titles of positions implement and coordinate the stormwater program elements: • COH: General Services Maintenance Manager, Public Works Support Services, (702) 267-3273 • CLV: Environmental Compliance & Enforcement Administrator (702) 229-2338 • CNLV: Manager, Development and Flood Control, (702) 633-1200 • Clark County: Water Quality Compliance Manager, (702) 668-8361 • CCRFCD: Environmental Mitigation Manager, (702) 685-0000 Each Permittee is responsible only for implementing and coordinating program elements within its respective jurisdiction.

B.5.2 Source Identification

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.2.

Table B.5.2-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.2.1	Provide Updated Maps	Because the maps change every year as new areas are developed, the Permittees provide updated maps to NDEP of the Permittees' MS4s in the Annual Report. The current map is reproduced in Appendix A. Annual Reports are posted on regionalflood.org and lvstormwater.com.

Table B.5.2-2. Source Identification Narrative and/or Numerical Measurable Goals					
Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.2a, Provide Updated Maps	The Permittees provide updated maps to NDEP of the Permittees' MS4s. The rationale for this goal is to keep NDEP current.	Yes	Submit updated maps once each permit year as part of the Annual Report.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000

B.5.3 Characterization Data

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.3.

Table B.5.3-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.3.1	Evaluate Characterization Data	The Permittees evaluate characterization data previously submitted and include additional data collected in the same manner, evaluate whether existing data collection programs should be modified to improve characterization of stormwater discharges, effects of BMPs, or ambient water quality, and submit this information as a part of the annual monitoring plan required in Section B.6.1 of the Permit. An extensive evaluation of data was submitted to NDEP as a part of the 2023-2024 Annual Report. That evaluation concluded that existing data collection programs should not be modified. The Permittees have collected data from one storm event since 2024, found that the data are consistent with previous storm events, and concluded that no modifications are necessary. The 2024 analysis is included in the Stormwater Monitoring Plan for the 2024 MS4 Permit.

Table B.5.3-2. Characterization Data Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.3a, Evaluate Characterization Data	The Permittees evaluate characterization data previously submitted and include additional data collected in the same manner, evaluate whether existing data collection programs should be modified to improve characterization of stormwater discharges, effects of BMPs, or ambient water quality, and submit this information as a part of the stormwater monitoring plan required in Section B.6.1 of the Permit. The rationale for this goal is to conduct periodic evaluations of the program and report them to NDEP.	Yes	Submit required information in the stormwater monitoring plan and report updates in the Annual Report.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000

B.5.4 Public Outreach and Education

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.4.

Table B.5.4-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.4.1	Public Outreach and Education Program	The Permittees have developed Public Outreach and Education Programs, which include the use of social media, websites, educational material, video material, labeling of drain inlets, tabling events, and live presentations. There are three target audiences: 1) developers, architects, and construction contractors, 2) the general public, and 3) school-age children. The overall approach to educating the first target audience is to provide them with sufficient information so that they can comply with the regulatory requirements applicable to them. The overall approach to educating the second target audience is to inform the general public in the Las Vegas Valley about important water quality issues related to stormwater runoff—in particular that stormwater does not go to wastewater treatment plants—and to influence behavior of the general public to reduce activities that may have a negative impact on stormwater runoff quality. Examples include discharging down storm drains and not cleaning up pet waste, and increase activities that may have a positive impact on stormwater runoff quality, such as proper disposal of pollutants. The overall approach to educating the third target audience is to provide awareness of stormwater to influence their future behavior and for them to educate their family members on the issues identified for the second target audience. The primary pollutants include sediment for the first targeted audience and pet waste, trash and debris, yard waste, oils, solvents, and other household chemicals for the second and third targeted audiences. The Permittees evaluate the public's understanding of stormwater quality issues through a regularly conducted survey.
Measure 5.4.2	Educational Materials	The Permittees have developed educational materials distributed during public outreach events, including brochures and giveaways. A description of the primary pollutants, target audiences, and other information is included in Measure 5.4.1.
Measure 5.4.3	Educational and Public Information Activities	The Permittees conduct educational activities, public information activities, and other appropriate activities within the Program, which includes the use of social media, websites, educational material, video material, labeling of drain inlets, tabling events, and live presentations. A description of the primary pollutants, target audiences, and other information is included in Measure 5.4.1.
Measure 5.4.4	Informing Developers and Others About Workshops	The Permittees inform developers, contractors, operators, and agency staff about upcoming educational and training workshops by advertising on websites, emails to email lists, and social media outreach. A description of the primary pollutants, target audiences, and other information is included in Measure 5.4.1.

Table B.5.4-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description**
Measure 5.4.5	Informing Architects, Engineers, and Others About Problems and Requirements	The Permittees inform architects, engineers, municipal development personnel, and local government officials on water quality problems associated with urban runoff and the requirements for meeting National Pollutant Discharge Elimination System (NPDES) laws and program goals for properly managing the quality of urban runoff by issuing planning and design criteria within materials such as the HCDDM, Las Vegas Valley Construction Site BMP Guidance Manual, and other educational documents. Developers must typically submit drainage studies as part of their development plans, and those studies are prepared by professionals familiar with the HCDDM, who prepare submittals consistent with its requirements. The Permittees do not accept plans that are noncompliant. Both the HCDDM and the Las Vegas Valley Construction Site BMP Guidance Manual are being updated as of 2025, and the updating process has involved substantial outreach to and input from the development community. Both these documents are available on regionalflood.org.

Table B.5.4-2. Public Outreach and Education Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.4a, Public Outreach and Education Program	The Permittees periodically review their public outreach and education programs and determine whether changes are appropriate. The rationale for this goal is to keep their public outreach programs current.	Yes	Review program once per permit cycle.	Review at least one program element each permit year.	See Measure 5.1b.
Measure 5.4b, Educational and Public Information Activities	CCRFCD periodically produces or updates public service announcements (PSAs). The rationale for this goal is to keep their PSAs current.	Yes	CCRFCD to produce or update one new PSA every permit cycle.	Review PSAs each permit year.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000
Measure 5.4c, Educational and Public Information Activities	CCRFCD periodically attends community events and makes elementary school presentations. The rationale for this goal is to keep the public informed and educate school children and teachers.	Yes	CCRFCD will attend 3 community events and 5 elementary school presentations each permit year.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000
Measure 5.4d, Informing Developers and Others	The Permittees hold contractor workshops on construction BMPs once per year and notify developers and contractors in advance of the workshop. The rationale for this goal is that informed contractors are more likely to comply with applicable requirements.	Yes	Hold contractor workshops once each permit year and notify contractors in advance.	Not applicable.	See Measure 5.1b.
Measure 5.4e, Informing Stakeholder Community	CCRFCD informs the stakeholder community and local government officials about pending stormwater information and issues by holding public meetings. The rationale for this goal is that informed stakeholders are more likely to comply with applicable requirements.	Yes	Hold public meetings (such as at an SQMC meeting) at least once per year and maintain or update lvstormwater.com website.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000
Measure 5.4f, Informing Stakeholder Community	CCRFCD is now in the process of updating the HCDDM and the Las Vegas Valley Construction Site BMP Guidance Manual. The rationale for this goal is to bring the manuals up to date.	Yes	Complete updates within two permit years after the SWMP is approved.	Within one permit year after SWMP is approved, ascertain whether reasonable progress is being made towards completion.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000

B.5.5 MS4 Maintenance Activities

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.5. Descriptions of other structural and source control measures are found in other sections.

Table B.5.5-1. Permittee Obligations

Measure	Measure Name	Measure Description, Basis For Expected Reduction, and Schedule
Measure 5.5.1	Structural and Source Control Measures	A description of the structural and source control measures is provided in the introduction.
Measure 5.5.1.1a	Regional Detention Basins	The Permittees inspect and maintain regional detention basins. The principal purposes of inspections are to determine whether retained pollutants need to be removed, and whether the structures need maintenance. The basis for the expected reduction is that regional detention basins slow down stormwater velocity, drop out pollutants, and provide capacity for holding until pollutants can be removed from the regional detention basins. Regional detention basins are more effective than individual site measures because detention basins collect stormwater from most of the Las Vegas Valley. If inspections determine that pollutants need to be removed, the Permittees bring in heavy equipment to collect the material and place it in trucks for off-site disposal. If maintenance needs to be done, CCRFCD provides funding. A schedule for inspections is identified in Section B.5.14.
Measure 5.5.1.1b	Regional Stormwater Conveyance System	The Permittees inspect and maintain regional stormwater conveyance system, which stabilizes channels, reduces erosion, and allows pollutants and debris to settle out and be removed by the Permittees. The regional stormwater conveyance system includes channels that have been stabilized by paving them with concrete or by installing other measures such as riprap or gabions. Unlike natural desert washes, which are easily eroded, channels protected by concrete, riprap, and gabions, are highly resistant to erosion. Concrete channels can allow pollutants and debris to settle out because some have a wide channel with a gentle slope. Sediment may also settle out in unlined areas. The Permittees inspect these areas and remove accumulated material when appropriate. Inspections also identify locations where the stabilizing concrete or other material needs to be maintained. The basis for the expected reduction is the removal of accumulated material. A schedule for inspections is identified in Section B.5.14.
Measure 5.5.1.1c	Public Storm Drain Inlets	The Permittees inspect and maintain public storm drain inlets. The basis for the expected reduction is that public storm drain inlets capture sediment, trash, debris, and other pollutants. A schedule is identified in Section B.5.14.
Measure 5.5.1.2	Operating and Maintaining Public Streets	The Permittees regularly sweep public streets to remove pollutants. The goal is to cover all publicly maintained curbed and paved streets. The basis for the expected reduction is that regular public street sweeping removes stormwater pollutants. A schedule is identified in Section B.5.14.
Measure 5.5.1.3	Landfill Program	No evaluation is necessary. There are no operating municipal landfills in Las Vegas Valley. The City of Henderson has a closed landfill managed according to State approved plans for controlling erosion.

Table B.5.5-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description, Basis For Expected Reduction, and Schedule**
Measure 5.5.1.4	Pesticides, Herbicides, and Fertilizer Program	The Permittees collect data on pesticides, herbicides, and fertilizer components in stormwater. No significant amount of these substances consistently appear in stormwater. The Permittees have concluded that no reduction in the general use of these substances is necessary. Las Vegas Valley is reducing the use of pesticides, herbicides, and fertilizer by reducing turf. The website lvstormwater.com advises the public on the proper application of pesticides, herbicides, and fertilizers. All Permittee supervisors involved with herbicides and pesticides hold Nevada Restricted Use Pesticide Certifications, and comply with requirements to maintain those certifications. Those requirements typically include continuing education. The basis for the expected reduction is to avoid improper discharges of pesticides, herbicides, and fertilizer by employees of the Permittees. A schedule is identified in Section B.5.14.

Table B.5.5-2. MS4 Maintenance Activities Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.5a, Regional Detention Basins	The Permittees inspect regional detention basins. The rationale for this goal is to make sure the regional detention basins are functioning properly, have adequate capacity, and to determine maintenance needs.	Yes	Inspect regional detention basins twice per permit year (July 1 through June 30), for example fall and spring.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.5b, Regional Detention Basins	The Permittees monitor sediment and debris in regional detention basins as deemed warranted. The rationale for this goal is to keep the regional detention basins functioning properly and remove pollutants from the system.	Yes	Monitor sediment and debris in regional detention basins as deemed warranted and report the estimated volume of material removed each permit year in the Annual Report.	Not applicable.	See Measure 5.1b.
Measure 5.5c, Regional Stormwater Conveyance System	The Permittees inspect conveyance system regional channels. The rationale for this goal is to make sure the conveyance system regional channels are functioning properly and have adequate capacity, and to determine maintenance needs.	Yes	Inspect conveyance system regional exposed channels twice per permit year, (July 1 through June 30), for example fall and spring.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.5d, Regional Stormwater Conveyance System	The Permittees monitor sediment and debris in conveyance system regional channels as deemed warranted. The rationale for this goal is to keep the conveyance system regional channels functioning properly and remove pollutants from the system.	Yes	Monitor sediment and debris in conveyance system regional exposed channels when deemed warranted, and report on the estimated volume of material removed from the conveyance system regional channels each permit year in the Annual Report.	Not applicable.	See Measure 5.1b.
Measure 5.5e, Public Storm Drain Inlets	The Permittees inspect public storm drain inlets. The rationale for this goal is to make sure the public storm drain inlets are functioning properly.	Yes	Inspect 20% of the public storm drain inlets in the jurisdiction of each entity municipality each permit year.	Not applicable.	See Measure 5.1b, except CCRFCD.

Table B.5.5-2. MS4 Maintenance Activities Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.5f, Public Storm Drain Inlets	The Permittees monitor sediment and debris in public storm drain inlets as deemed warranted. The rationale for this goal is to keep the public storm drain inlets functioning properly and remove pollutants from the system.	Yes	Monitor sediment and debris in public storm drain inlets when deemed warranted, and report on the estimated volume of material removed from the public storm drain inlets each permit year in the Annual Report.	Not applicable.	See Measure 5.1b.
Measure 5.5g, Operating and Maintaining Public Streets	The Permittees sweep curbed and paved public streets in urban areas. The rationale for this goal is to reduce pollutants from urban streets.	Yes	Sweep selected curbed and paved public streets in urban areas monthly on average, and report on the compliance with the goal each permit year in the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.5h, Pesticides, Herbicides, and Fertilizer Program	The Permittees' supervisors involved with pesticides and herbicides are trained about the application of pesticides and herbicides. The rationale for this goal is to make staff knowledgeable about the application of pesticides and herbicides.	Yes	Review and report training each permit year in the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.

B.5.6 Post-Construction Program for New Development and Significant Redevelopment Projects

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.6.

Table B.5.6-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.6.3.1.1	Post-Construction Program For NDSR Projects	The Permittees have developed, implemented, and enforced a program that includes educational outreach to address post-construction urban runoff from Permit-specified new development and significant redevelopment (NDSR) projects, including low-impact development (LID) measures and water quality features in regional detention basins. The program includes requirements referred to as LID measures, that are described in Measure 5.6.3.1.2. The program also consists of regional detention basins, which are planned or expanded in relation to new development. Developers may also concrete-line channels or otherwise stabilize channels for the relevant Permittee.
Measure 5.6.3.1.2	LID Measures	The Permittees have developed LID measures that will remain in effect after construction on public and private property is complete and are effective and appropriate for the Las Vegas Valley and its environment. As of August 2025, the Permittees have constructed 87 regional detention basins, plus 13 low flow features within regional detention basins that operate on lower flows. On-site infiltration of stormwater is not appropriate for most of the 2024 MS4 Permit area because it would exacerbate selenium issues. The Permittees have determined that onsite LIDs or alternative measures are appropriate in the Las Vegas Valley for medium and large commercial and industrial parking lots, which are sources of pollutants such as trash, oils and grease, sediment, and metals. These measures are not appropriate for small parking lots, which are relatively rare and not heavily trafficked, or for other development. In order to get approval for construction plans, all new development, both public and private, must comply with Section 1500 of the HCDDM, which requires LID or alternative measures for medium and large commercial and industrial parking lots. Although LID measures such as swales are identified in Section 1500 of the HCDDM, in the Las Vegas Valley the primary purpose of these measures is not to maintain natural hydrology, but rather to facilitate pollutant removal. Rather than maintaining the natural hydrology, the Las Vegas Valley flood control system is designed to mitigate flash floods, which are dangerous to people and property. The Permittees accomplish the key flow-based goals of LID through regional detention basins and low-flow features, which reduce peak flows, and through the parking lot program, which may have some small-scale localized effects. This is a continuous program. The schedule of implementation for each regional detention basin depends on factors specific to that development, including available CCRFCD funds or the contribution of funds from the developer. The schedule of implementation for each medium and large commercial and industrial parking lot depends on the schedule for that development. Measures must be in place before completion of the project.

Table B.5.6-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description**
Measure 5.6.3.1.3	Additional Features	For control of sediment, large features such as regional detention basins and channel lining, are most effective. For medium and large commercial and industrial parking lots, LID features as described in Measure 5.6.3.1.2, are most effective for controlling trash and debris. These LID features therefore are also basic treatment and source control BMPs. The Permittees have concluded that additional on-site structural and non-structural BMPs, other than those identified in Measures 5.6.3.1.1 and 5.6.3.1.2, are not effective and appropriate for Las Vegas Valley and its environment. Additional BMPs would be too small and ineffective to produce a significant benefit for stormwater in the Las Vegas Valley. New construction in the Las Vegas Valley has improved stormwater quality and reduced the natural discharge of sediment from desert areas through the construction of regional detention basins and the stabilization of channels and developed areas. Natural desert produces a great deal of sediment, as demonstrated in the Las Vegas Valley by those detention basins that are upstream of development, which regularly collect sediment and need to be cleaned out.
Measure 5.6.3.1.4	Future Flood Management Projects	Future flood management projects, consisting primarily of regional detention basins and channel stabilization, inherently improve water quality by reducing peak flood flows and stabilizing channels. CCRFCD assesses the impacts of these projects on the water quality of receiving water bodies by designing these structures to withstand or contain specified flow, generally the 100-year flood, with a margin of safety. Procedures for implementing regional detention basins and channels consist of updating the Master Plan every five years and prioritizing the expenditure of CCRFCD funds through the development of the 10-Year Construction Program. Priority depends on a list of factors, including population affected, public perception of need, and environmental enhancement. CCRFCD also assesses whether retrofitting low-flow features within regional detention basins are feasible and appropriate. Determination of the need for low-flow features depends on factors including the extent of development upstream. Several kinds of low-flow features have been installed in existing regional detention basins. Factors affecting installation include the extent of upstream development and the reduction in detention basin capacity.
Measure 5.6.3.1.5	NDSR Regulatory Mechanisms	The Permittees have developed a regulatory mechanism to address urban runoff from NDSR projects by requiring compliance with Sections 1200 and 1500 of the HCDDM requiring NDSR measurements for development plan approval, where applicable. Sites are not individually evaluated for LID applicability. The determination has been made Valley-wide that groundwater infiltration is highly problematic and that source control measures are best suited for medium and large commercial and industrial parking lots.
Measure 5.6.3.1.6	Inventory and Tracking System	The Permittees have developed and are expanding an inventory and tracking system, either through a database or spreadsheet, for post-construction structural stormwater BMPs on public and private sector sites. The tracking system includes the data needed by the Permittees to identify the location and type of post-construction structural stormwater BMPs so that they can be tracked and inspected. The Permittees may track post-construction structural stormwater BMPs through tiers, with the highest tier getting the most priority. The tracking system also identifies corrective actions undertaken at the sites. See Measure 5.6.3.1.7.

Table B.5.6-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description**
Measure 5.6.3.1.7	Inspection of Post-Construction BMPs	The Permittees inspect and enforce the proper installation of post-construction structural stormwater BMPs on public and private sector sites through construction inspection programs that check for conformity of site conditions to approved plans before construction is completed. The Permittees inspect and enforce long-term maintenance of post-construction structural stormwater BMPs on public and private sector sites through site inspections of facilities on the inventory identified in Measure 5.6.3.1.6. Enforcement will be conducted through the existing procedures for enforcing the Permittees' ordinances. Regional detention basins are inspected and maintained by the Permittees themselves. The Permittees' ordinances apply to both public and private properties.
Measure 5.6.3.1.8	MS4 Maps	CCRFCD updates the MS4 maps every year to show areas of NDSR, including any new stormwater major infrastructure that was constructed to serve these areas and regional detention basins and low flow features. Information is provided by each of the Permittees to CCRFCD and its consultants. The updated maps are provided in the Annual Report.
Measure 5.6.4	Design Standards	The 2024 MS4 Permit requires a description of how NDSR projects will implement the design standards outlined in this section, including peak-urban runoff discharge rates, site design BMPs, source control BMPs, and treatment control BMPs. The purpose of peak-urban runoff discharge rates is to provide protection against downstream erosion. In the Las Vegas Valley, protection against downstream erosion is provided by regional detention basins, low-flow features, channel lining, and other channel protections, as well as requirements on medium and large commercial and industrial parking lots. The 2024 MS4 Permit requires site design BMPs to meet the goals identified in Section B.5.6.2, which consist of the prevention of downstream exceedances of selenium water quality standards, the promotion of antidegradation of ambient water quality, and the promotion of maximization of stormwater conveyance to Lake Mead. In the Las Vegas Valley, site design BMPs meet these goals by limiting groundwater infiltration, thereby reducing the mobilization of selenium in soils and promoting reuse by returning additional flow to Lake Mead and the Colorado River. These provisions are also consistent with Nevada state law, which prohibits diverting stormwater without a permit from the State Engineer. The 2024 MS4 Permit requires a description of how source control BMPs will be implemented. Source control BMPs will be implemented through the requirements on medium and large parking lots, regional detention basins, and low-flow features. Although these are described elsewhere as LID measures, they are also source control measures. Source control is also accomplished through the Permittees' ordinances regulating trash control and hillside development. See Section B.5.15. The 2024 MS4 Permit requires a description of how treatment control BMPs will be developed and implemented, including a description of volumetric treatment control BMP design criteria and flow-based BMP design criteria. Volumetric and flow-based design criteria for regional detention basins and low-flow features are included in Section 1200 of the HCDDM. Treatment and volumetric and flow-based design criteria for on-site BMPs are included in Section 1500 of the HCDDM. A table is provided in Section 1500 that identifies how the provisions of these sections apply to accepted parking lot BMPs in the Las Vegas Valley. In addition, Section 700 of the HCDDM imposes requirements on the construction and maintenance of open channels.

Table B.5.6-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description**
Measure 5.6.5.1	Effect of the Post-Construction Program on Water Quality Standards	The 2024 MS4 Permit calls for a written evaluation of whether the criteria developed as part of the post-construction program will tend to cause or contribute to elevated levels of selenium in surface waters within the Las Vegas Valley. The Permittees have concluded that post-construction program criteria will not contribute to elevated levels of selenium in surface waters with the Las Vegas Valley and will not cause an exceedance of the water quality standards for selenium in identified waters. This conclusion depends primarily on the lack of LID measures that would cause stormwater to infiltrate into the ground. Infiltration in the Las Vegas Valley raises shallow groundwater levels and mobilizes naturally occurring selenium in the soils, which ultimately surfaces in surface channels. See discussion in Unique Conditions in the Las Vegas Valley section. Unrelated to the stormwater program, SNWA is reducing infiltration by restricting outdoor watering and incentivizing conversions of turf to xeriscaping. Other reasons that water quality standards for selenium are not likely to be exceeded are the substantial amounts of dilution downstream of the wastewater treatment plants and the recent removal of selenium standards in most areas upstream of the plants, consistent with recent research showing the concrete linings and other features of the tributary channels make them unsuitable for fish habitat.
Measure 5.6.5.2	Effect of the Post-Construction Program on Drinking Water Supply	The 2024 MS4 Permit calls for a written evaluation of whether the criteria developed as part of the post-construction program will tend to reduce or degrade the contribution of stormwater to the water supplies provided by the Colorado River. The Permittees provide the following evaluation. The Permittees' evaluation of monitoring data, as presented in the 2023-24 Annual Report, has shown that turbidity and suspended solids are far lower than background levels, nutrients in stormwater are not causing algal problems, and dissolved metals are not harming fish. In addition, the flow of stormwater into Lake Mead is very small compared to the flow of water from the upstream Colorado River, and the load of pollutants from stormwater is tiny compared to the load from the upstream Colorado River. Based on these data, the Permittees have concluded that the post-construction program criteria will not tend to reduce or degrade the contribution of stormwater to the Colorado River's water supply.

Table B.5.6-2. Post-Construction Program For NDSR Projects Narrative and/or Numerical Measurable Goals					
Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.6a, Inventory and Tracking System	The Permittees have developed and implemented an inventory and tracking system for post-construction structural stormwater BMPs and update the system. The rationale for this goal is to keep the system current.	Yes	Report on whether the inventory and tracking system has been updated each permit year in the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.

Table B.5.6-2. Post-Construction Program For NDSR Projects Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.6b, Inspection of Post-Construction BMPs	The Permittees inspect and enforce the proper installation and long-term maintenance of post-construction structural stormwater BMPs, including inspections of regional detention basins, low flow features, installations, and maintenance. The rationale for this goal is to track post-construction BMPs.	Yes	Inspect all regional detention basins and low flow features each permit year. Inspect additional post-construction BMPs during construction or as appropriate after the completion of construction, taking into consideration the significance of the BMPs and priorities for the program. Each Permittee will review the program annually and make necessary changes. Implement enhanced program within 6 months of final SWMP approval. Because post-construction BMPs provide a small increment in pollutant reduction compared to regional detention basins, low-flow features, and active construction sites, their inspection is a relatively low priority. Post-construction BMPs that are the subject of a complaint receive an inspection. Most post-construction BMPs on private properties are swales, which are generally subject to routine maintenance by property owners' maintenance staff. High priority post-construction BMPs, including underground treatment control BMPs and private detention basin BMPs, are inspected at least once each permit cycle.	The Permittees shall confirm each permit year in the Annual Report that they can achieve the measurable goal.	See Measure 5.1b, except CCRFCD.

Table B.5.6-2. Post-Construction Program For NDSR Projects Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.6c, MS4 Maps	CCRFCD updates the MS4 maps to show areas of NDSR, including any new stormwater major infrastructure that was constructed to serve these areas. The rationale for this goal is to identify areas of NDSR.	Yes	Provide NDEP with updated maps each permit year in the Annual Report.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000
Measure 5.6d, Outreach	The Permittees provide outreach on post-construction BMPs by contractor training, flyers, and the lvstormwater.com website. The rationale for this goal is to keep the development community informed about post-construction BMPs.	Yes	Report on the number of contractor trainings conducted and flyers distributed each permit year in the Annual Report.	Not applicable.	See Measure 5.1b.
Measure 5.6e, Written Evaluations	CCRFCD provides written evaluations whether the criteria developed as part of the post-construction program will tend to cause or contribute to elevated levels of selenium in surface waters within Las Vegas Valley and whether the criteria developed as part of the post-construction program will tend to reduce or degrade the contribution of stormwater to the water supplies provided by the Colorado River. The rationale for this goal is to evaluate whether the NDSR program is adversely affecting water quality.	Yes	Provide written evaluations or updated evaluations each permit year in the Annual Report.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000

B.5.7 Illicit Discharge and Detection

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.7.

Table B.5.7-1. Permittee Obligations

Measure	Measure Name	Measure Description and Schedule
Measure 5.7.1.1	Illicit Discharge and Detection Program	The Permittees' program to detect and remove illicit discharges consists of municipal ordinances prohibiting illicit discharges and activities to enforce those ordinances. The Permittees enforce municipal ordinances by conducting on-going field screening activities such as storm channel inspections, investigations of atypical dry weather flows as observed by the Permittees or in response to complaints, follow-up activities, and investigations of portions of the MS4 with a reasonable potential of containing illicit discharges, as described in Measures 5.7.1.2 through 5.7.1.8. A schedule is identified in Section B.5.14.
Measure 5.7.1.2	Description of Procedures for Field Screening Activities	In the Las Vegas Valley, much of the stormwater system consists of open channels, which extend for many miles. Since all stormwater conveyances terminate in open channels, the Permittees can investigate any atypical dry weather flows that emerge from underground stormwater facilities. The locations of open channels can be identified in the map of the Permittees' MS4s in Appendix A. The Permittees' storm channel inspections include most of these open channels. Because these channels are open, most illicit discharges can be observed. Permittees follow existing procedures during these inspections. A schedule is identified in Section B.5.14.
Measure 5.7.1.3	Description of Protocol to Investigate Dry Weather Flows	The Permittees' field screening protocols indicate that during storm channel and regional detention basin inspections in which the Permittees visually inspect (often by walking or driving in or adjacent to) the channel or regional detention basin, illicit discharges observed into the channel or regional detention basin will receive a follow-up investigation. The Permittees also conduct inspections when questionable discharges are identified by their staff or the public. A schedule for investigations is identified in Section B.5.14.
Measure 5.7.1.4	Description of Procedures to Investigate Areas with a Reasonable Potential of Containing Illicit Discharges	Because all the major downstream storm channels are open, the Permittees can observe and identify any discharge significant enough to reach an open channel. The Permittees' inspections thereby include areas of reasonable potential. See Measure 5.7.1.3 and the schedule identified there.
Measure 5.7.1.5	Description of Procedures To Prevent, Contain, And Respond To Spills	Procedures to prevent, contain, and respond to spills are generally handled through measures outside the SWMP. The Permittees have spill prevention and response regulations and programs in place through their appropriate departments, which may include fire departments, environmental divisions, public works, and/or contracts with special emergency response contractors. A private contractor is used by the Permittees to respond to and clean up hazardous material spills over 25 gallons. The hazardous material emergency response plans contain extensive notification lists, of individuals and agencies that should be contacted in the event of a hazardous material spill. When NDEP receives notices of spills, they forward to CCRFCD, who forward to the Permittees. Public sanitary sewer overflows

Table B.5.7-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description and Schedule**
		(SSOs) are regulated by applicable wastewater permits. A schedule is identified in Section B.5.14.
Measure 5.7.1.6	Description of Program to Facilitate Public Reporting	Through CCRFCD's websites at regionalflood.org and lvstormwater.com and the Permittees' individual websites, the Permittees encourage the public to report illicit discharges and water quality concerns through phone numbers and email reporting. CCRFCD's public service announcements encourage the public to make use of its websites. Other programs to facilitate public reporting, such as general municipal violation reporting, exist outside of the SWMP. A schedule is identified in Section B.5.14.
Measure 5.7.1.7	Description of Educational Activities and Public Information Activities Related to Proper Management and Disposal of Used Oil and Toxic Materials	The Permittees' public information activities related to proper management and disposal of used oil and toxic materials is part of the public education and outreach program described in Section B.5. Website information includes best management practices for household hazardous waste, which includes used oil and toxic materials. Public information announcements and labeling of drain inlets inform the public that the system connects to Lake Mead and discourages them from putting waste materials into the system. A schedule is identified in the Public Outreach and Education subsection in Section B.5.14.
Measure 5.7.1.8	Assessment of Whether Procedures Can Identify Sanitary Sewer Exfiltration	The Permittees have assessed whether their procedures can identify exfiltration from sanitary sewers and they have determined that they can. Exfiltration from sanitary sewers to storm sewers is relatively limited in Las Vegas Valley owing to the relatively young age of the sanitary sewers, the applicable design standards that limit proximity of sanitary sewers to storm sewers, and the programs outside of the MS4 program to camera and reline sanitary sewers. In areas of the Las Vegas Valley where there is shallow groundwater, the hydraulic gradient is ordinarily into the sanitary sewers instead of out of the sanitary sewers, and infiltration is more of a concern than exfiltration. In other areas of the Las Vegas Valley, the MS4 channels are generally dry, which means that any exfiltration from sanitary sewers is not entering the MS4 at those locations. Storm channel inspections include visually searching for evidence of exfiltration. Because so much of the MS4 is open channel, visual evidence of exfiltration is more readily observed than in MS4s that are predominantly underground. Any exfiltration significant enough to be perceived by the public is likely to be reported by the public, and the Permittees respond to public reports.

Table B.5.7-2. Illicit Discharge and Detection Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.7a, Illicit Discharge and Detection Program	The program to enforce municipality ordinances consists of procedures in Section B.5.7, including on-going field screening activities; field screening protocol to investigate dry weather flows; follow-up activities; identification, containment, and response to spills as necessary; and investigations of portions of the MS4 with a reasonable potential of containing illicit discharges. The rationale for this goal is to see that the program is implemented.	Yes	Conduct field screening activities along with maintenance activities as described previously in Section 5.5, including inspections of channels and detention basins.	Not applicable.	See individual entries in Section 5.5.
Measure 5.7b, Illicit Discharge and Detection Program	Same as Measure 5.7a.	Yes	Train new inspectors and provide refresher training every three years.	Review and report training each permit year in the Annual Report.	See Measure 5.1b, except CCRFCD.
Measure 5.7c, Illicit Discharge and Detection Program	Same as Measure 5.7a.	Yes	Report on the number of responses to complaints relating to illicit discharge and detection each permit year in the Annual Report.	Not applicable.	See Measure 5.1b.
Measure 5.7d, Illicit Discharge and Detection Program	The Permittees conduct a program review of elements of the Illicit Discharge and Detection Program. The rationale for this review is to keep the program current.	Yes	Conduct a program review every five permit years.	Review at least one program element each permit year.	See Measure 5.1b.

B.5.8 Industrial Facility Monitoring and Control

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.8.

Table B.5.8-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.8.1	Industrial Facility Monitoring and Control Program	The Permittees' program to monitor and control pollutants in stormwater discharges to MS4s from operating municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the MS4 begins with the identification of these facilities and their placement on the comprehensive inventory. In the Las Vegas Valley, there are no operating municipal landfills and no industrial facilities that the Permittees have determined are contributing a substantial pollutant loading to the MS4. The Permittees routinely inspect these facilities as part of their industrial inspection program. As part of these inspections, the Permittees assess whether significant stormwater issues are likely to arise at each facility, and whether the facility has implemented sufficient BMPs to respond to these issues.
Measure 5.8.1.1	Priorities and Procedures for Inspections	The Permittees have developed inspection checklists and a training program for industrial facility inspectors. These checklists are used to assess whether significant stormwater issues are likely to arise at each facility, and whether the facility has implemented sufficient BMPs to respond to these issues. Site layout and good housekeeping are also considered during the inspections. Because facilities required to be on the inventory are inspected regularly, no special priority is needed.
Measure 5.8.1.2	Control Measures for Discharges	Control measures are assessed case-by-case and depend on what substances are being used or stored at that facility, whether those substances are exposed to stormwater, and what control measures are deemed appropriate for the specific stormwater issues identified at the facility. The Permittees will develop and post a Industrial Facility Stormwater BMP Guidance Manual on lvstormwater.com.
Measure 5.8.1.3	Develop Industrial Facility Inventory	The Permittees have developed and maintained an inventory of the facilities identified in Measure 5.8.1. The inventory has four categories: 1) operating municipal landfills; 2) hazardous waste treatment, disposal and recovery facilities; 3) facilities that are subject to SARA Section 313; and 4) industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the MS4. These categories are taken directly from the Permit. The inventory provides specific categories by identifying the SIC and/or NAICS codes as available for each facility. Facilities in Categories 2 and 3 are checked against the EPA website for accuracy. There are currently no facilities in Categories 1 or 4. In addition, the Permittees track other industrial facilities to confirm that these industries are not substantially contributing, even though they are not an MS4 permit mandated industrial category.
Measure 5.8.1.4	Provide Inventory to NDEP	Each permit year, CCRFCD provides to NDEP the inventory as reviewed and updated accordingly during that permit year as part of the Annual Report. That inventory is used for the following permit year.

Table B.5.8-1. Permittee Obligations		
Measure	**Measure Name**	**Measure Description**
Measure 5.8.1.5	Monitoring Program for Industrial Discharges	The Permittees monitor the industrial facilities identified in this section by inspecting them regularly, as identified in Measurable Goal 5.8a. The Permittees also monitor the chemical quality of stormwater in the Las Vegas Valley, as described in the annual monitoring plan required in Section B.6.1 of the Permit. The Permittees have evaluated those monitoring data and determined that no additional wet weather chemical monitoring is required. Each year, additional data are considered, and a proposed wet weather monitoring plan is submitted to NDEP.

Table B.5.8-2. Industrial Facility Monitoring and Control Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.8a, Industrial Facility Monitoring and Control Program	The Permittees monitor and control pollutants in stormwater discharges by inspecting the industrial facilities on the comprehensive inventory maintained for the MS4. The rationale for this program is to assess the compliance of industrial facilities with local ordinances.	Yes	Inspect each facility required to be on the inventory once each permit year.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.8b, Procedures for Inspections	The Permittees have developed standard operating procedures, inspection checklists, and a training program for industrial facility inspectors. The rationale for this goal is to have standard procedures for inspections.	Yes	Train new inspectors and provide refresher training every three years.	Review and report training each permit year in the Annual Report.	See Measure 5.1b, except CCRFCD.
Measure 5.8c, Develop and Submit Industrial Facility Inventory	The Permittees review and update an inventory of the facilities identified in Measure 5.8.1. The rationale for this goal is to keep the inventory current. The inventory has four categories: 1) operating municipal landfills; 2) hazardous waste treatment, disposal and recovery facilities; 3) facilities that are subject to SARA Section 313; and 4) industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the MS4.	Yes	Update and submit inventory to NDEP once each permit year in the Annual Report. For Categories 2 and 3, the minimum inspection frequency is once per permit year. There are currently no facilities in Categories 1 and 4, but if facilities are added they will be inspected once per permit year.	Not applicable.	See Measure 5.1b.

B.5.9 Construction Site BMP Program

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.9.

Table B.5.9-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.9.1.1	Notifying Developers of Applicable Requirements	The Permittees maintain development checklists, such as the Las Vegas Valley Stormwater Quality Management Program Construction Permit Submittal Checklist, identifying the need for a NDEP stormwater permit for properties of one acre or more. Those checklists are made available to developers, who provide completed checklist information when they submit plans for review.
Measure 5.9.1.2	Nonstructural and Structural BMPs	The MS4 Permit, like NDEP's Construction Stormwater General Permit, calls generally for the implementation of BMPs but does not specify exactly which BMPs must be implemented at each site. Similarly, the Permittees call generally for the implementation of BMPs at construction sites, but do not specify exactly which BMPs must be implemented at each site. To assist developers, and with the input and concurrence of the other Permittees, CCRFCD maintains the Las Vegas Valley Construction Site BMP Guidance Manual, which identifies a suite of BMPs that can be implemented by developers. The manual is available on regionalflood.org and lvstormwater.com.
Measure 5.9.1.3	Educational and Training Measures for Construction Site Operators	The Permittees provide educational and training measures for construction site operators by conducting annual training sessions with the assistance of NDEP. These training sessions are advertised to developers and the public through email lists and website notices. The Permittees also provide information on their websites about the development process and compliance with state and local stormwater provisions. The Las Vegas Valley Construction Site BMP Guidance Manual is made available, as described in Measure 5.9.1.2.
Measure 5.9.1.4	Construction Permit Coverage	The Permittees check for coverage before or during construction site inspections. Permittees generally check NDEP's Water Pollution Control General Permits System website to confirm coverage or check for the NDEP approval letter, either at plan review or as kept with the Stormwater Pollution Prevention Plans onsite.

Table B.5.9-2. Construction Site BMP Program Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.9a, Notifying Developers of Applicable Requirements	The Permittees provide the Las Vegas Valley Stormwater Quality Management Program Construction Permit Submittal Checklist for the requirement for a stormwater permit for properties of one acre or more to developers. The rationale for this goal is to keep developers informed.	Yes	Report to NDEP once each permit year in the Annual Report whether the Permittees continue to provide to developers development checklists identifying the need for a stormwater permit for properties of one acre or more.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.9b, Nonstructural and Structural BMPs	With the input and concurrence of the other Permittees, CCRFCD maintains the Las Vegas Valley Construction Site Best Management Practices Guidance Manual. The rationale for this goal is to advise developers of relevant BMPs.	Yes	See Measurable Goal 5.4f.	See Milestone 5.4f.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000
Measure 5.9c, Educational and Training Measures for Construction Site Operators	The Permittees provide educational and training measures for construction site operators by conducting annual training sessions, and by producing brochures and the Las Vegas Valley Construction Site BMP Guidance Manual. The rationale for this goal is to inform developers and the public about the suite of BMPs that are available for implementation on construction sites. Workshops are conducted annually because that is an appropriate interval.	Yes	Hold construction site operator workshops once each permit year and notify construction site operators in advance.	Not applicable.	See Measure 5.1b.
Measure 5.9d, Construction Permit Coverage	The Permittees check for coverage before or during construction site inspections. Permittees generally check NDEP's Water Pollution Control General Permits System website to confirm coverage or check for the NDEP approval letter, either at plan review or as kept with the Stormwater Pollution Prevention Plans onsite. The rationale for this goal is to comply with the 2024 MS4 Permit requirement.	Yes	Report to NDEP any construction sites that the Permittees determine do not have coverage.	Not applicable.	See Measure 5.1b, except CCRFCD.

B.5.10 Inspection of Construction Sites

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.10.

Table B.5.10-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.10.2	Inspection Frequency	The Permittees inspect at least monthly all construction sites disturbing 100 acres or more in size at one time, all sites disturbing one acre or more that discharge directly to a water body segment impaired for sediment or turbidity, and all sites determined by the Permittees as a significant threat to water quality. The Permittees inspect all other construction sites of greater than one acre at least two times for the duration of ground disturbance activities.
Measure 5.10.3	Inspection Follow-Up	Based upon site inspection findings, the Permittees implement all follow-up actions (such as corrective action review, re-inspection, or enforcement) necessary to comply with this Permit. For example, if a Permittee were to conclude that a facility lacks sufficient BMPs, the Permittee would reinspect for sufficiency or otherwise confirm that compliance has been achieved.
Measure 5.10.4	Construction Site Inspections	The Permittees' inspections of construction sites include assessment of compliance with Permittee ordinances and permits related to urban runoff, assessment of BMP effectiveness, visual observations for non-stormwater discharges and potential illicit connections, creation of a written or electronic inspection report, and education and outreach on stormwater pollution prevention, as needed. The Annual Report will include a description of the Permittees' groups or departments that performed construction site inspections.
Measure 5.10.5	Inspection Tracking	The Permittees track the number of inspections using their individual tracking databases for the inventoried construction sites throughout the reporting period. The Permittees verify that the sites are inspected at the minimum frequencies required and include this information in the Annual Report.

Table B.5.10-2. Inspection of Construction Sites Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.10a, Inspection Frequency	The Permittees inspect at least monthly all construction sites disturbing 100 acres or more in size at one time, all sites disturbing one acre or more that discharge directly to a water body segment impaired for sediment or turbidity, and all sites determined by the Permittees as a significant threat to water quality. The Permittees inspect all other construction sites of greater than one acre at least two times for the duration of ground disturbance activities. The rationale for this goal is to check compliance at construction sites.	Yes	Report on number of sites with monthly inspections and number of inspections performed each permit year in the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.10b, Inspection Follow-Up	Based upon site inspection findings, the Permittees implement all follow-up actions (i.e., re-inspection or enforcement) necessary to comply with this Permit. The rationale for this goal is to follow-up on compliance issues identified during site inspections.	Yes	Report on the number of follow-up actions each permit year in the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.
Measure 5.10c, Construction Site Inspector Training	The Permittees' train their construction site inspectors on assessment of compliance with Permittee ordinances and permits related to urban runoff, assessment of BMP effectiveness, visual observations for non-stormwater discharges and potential illicit connections, education, and outreach on stormwater pollution prevention, as needed, and creation of a written or electronic inspection report. The rationale for this goal is to provide training for new inspectors and refresher training for existing inspectors at a reasonable interval.	Yes	Train new inspectors and provide refresher training every three years.	Review and report training each permit year in the Annual Report.	See Measure 5.1b, except CCRFCD.

B.5.11 Sharing Responsibility

This section presents the measures to comply with 2024 MS4 Permit Section B.5.11. There are no measurable goals for this section.

Table B.5.11-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.11.1	Assigning Responsibility	CCRFCD is responsible for the items in the SWMP in which CCRFCD has been identified as the responsible municipality, and each of the other Permittees are responsible for implementing BMPs within its jurisdictional boundary. Each Permittee is responsible for its own compliance with this Permit, but not for any noncompliance of another Permittee. As noted in Section B.5.14, CCRFCD does not participate in some activities conducted by the other Permittees and takes full responsibility for some activities.

B.5.12 Reviewing and Updating Stormwater Management Programs

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.12.

Table B.5.12-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.12.1	Annual Review of the SWMP	The Permittees complete an annual review of the SWMP in conjunction with preparation of the Annual Report required under Section B.6.3 of the Permit.

Table B.5.12-2. Reviewing and Updating Stormwater Management Programs Narrative and/or Numerical Measurable Goals

Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.12a, Annual Review of the SWMP	With the input and concurrence of the Permittees, CCRFCD conducts an annual review of the SWMP. The rationale for this goal is to keep the SWMP current.	Yes	Conduct annual review of SWMP and report results to NDEP once each permit year in the Annual Report.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000

B.5.13 Responsibility for SWMP Implementation in New Areas

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.13.

Table B.5.13-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.13.1	New Areas	All areas of the MS4 are within the jurisdiction of one of the Permittees, although the boundaries are subject to change. The MS4 does not include other MS4 jurisdictions as identified in Section A.1 of the Permit. When a new area within the MS4 is transferred to one of the Permittees, the transition will be implemented within one year.

Table B.5.13-2. Responsibility for SWMP Implementation in New Areas Narrative and/or Numerical Measurable Goals					
Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.13a, New Areas	CCRFCD reports to NDEP on changes to the boundaries. The rationale for this goal is to keep NDEP current.	Yes	Report changes to the boundaries once each permit year in the Annual Report.	Not applicable.	CCRFCD: Environmental Mitigation Manager, (702) 685-0000

B.5.14 Measurable Goals

The other sections present measurable goals within the corresponding programs of this SWMP to comply with 2024 MS4 Permit Section B.5.14. A full description of the measure is provided in the corresponding section of the SWMP describing the measure.

Table B.5.14-1 is provided to comply with 2024 MS4 Permit Section B.5.14.3 (additional measures) and Table B.5.14.2 is to comply with 2024 MS4 Permit Section B.5.14.5 (collaborating with other MS4 Permittees).

Table B.5.14-1. Additional Proposed Programs

Permit Language	Measure
The Permittees shall describe any proposed programs, if applicable, that the Permittees may implement during the life of this 2024 MS4 Permit to require additional controls on a system wide basis, a watershed basis, a jurisdictional basis, or on individual outfalls.	None other than described elsewhere in this SWMP.

Table B.5.14-2. Collaborating with Other MS4 Permittees

Permit Language	Measure
If collaborating with other MS4 permittees, the Permittees' SWMP shall describe which permittee is responsible for implementing each of the control measures.	None.

B.5.15 Legal Authority

This section presents the measures and measurable goals to comply with 2024 MS4 Permit Section B.5.15.

Table B.5.15-1. Permittee Obligations

Measure	Measure Name	Measure Description
Measure 5.15.1	Provide Legal Authority	Legal authority and changes made during the last year are reported to NDEP each year in the Annual Report. The legal authority of the four municipal Permittees is as follows: City of Henderson: Chapter 13.04 of the City of Henderson Municipal Code: Stormwater Regulations; 19.8.4 COH Hillside Overlay District; 19.14.6 Drainage Design Adoption of the HCCDM; Title 14 Utility Services; Title 15.12 Property Maintenance Code; Title 15.32 International Fire Code; 19.10.7.B Dumpster Screening; 5.17.110 Solid Waste Management. City of Las Vegas: LVMC 6.54 Mobile Car Wash/Auto Detail Business; LVMC 13.04 Use of Streets and Sidewalks; LVMC 14.08 Water Regulations; LVMC 14.11 Water Conservation; LVMC 14.17 Wastewater Collection and Treatment; LVMC 14.18 Stormwater and Stormwater Management; LVMC 20.04 Flood Control Channels Master Plan; LVMC 20.08 Flood Hazard Reduction; LVMC 20.10 Uniform Regulations for the Control of Drainage; Title 19.06.040(F) and Title 19.08.040(F) for Landscaping and Low Impact Development; Title 19.09.080 Open Space Standards; Title 19.10.140 Hillside Overlay; 2050 Master Plan (Land Use/Density/Rural Land Overlay); and Special Area Plans. City of North Las Vegas: Chapter 8.50 of the City of North Las Vegas Municipal Code (NLVMC): Stormwater Regulations; Chapter 17.24 of the NLVMC: Development Standards. Clark County: Title 24, Chapter 24.40 Storm Sewer System Discharge / Other related ordinances include: Title 9 Public Health and Sanitation, 10.36 - Animals, noise, waste, restraint, sanitation & dead animals, 10.40 - Enforcement, 11 - Abatement and Nuisances, Title 22 – Building and Construction, 22.02.492 - Storm sewer system inspections, 25.10 – Building Water Conservation, 25.20 – The Energy Conservation, 30.04 Development Standards, 30.04.01 Landscaping, 30.04.01.A.4 Permanent Stormwater Control per Section 1500 of the Regional Flood Control District's, Hydrologic Criteria and Drainage Design Manual, 30.04.05 Site and Building Design, 30.04.05.K Hillside Development, 30.06.11.E Grading Permits, 30.04.08.B.1 Drainage Impact Analysis in compliance with Regional Flood Control District's, Hydrologic Criteria and Drainage Design Manual.

Table B.5.15-2. Legal Authority Narrative and/or Numerical Measurable Goals					
Program Element, Program Name	Activity Description and Rationale	Continuous?	Measurable Goal	Milestones for Goals Spanning > 1 Year	Title of Positions Responsible for Implementation and Coordination
Measure 5.15a, Provide Legal Authority	The Permittees provide NDEP with their legal authority once each permit year as part of the Annual Report. The rationale for this goal is to keep NDEP current.	Yes	Provide legal authority to NDEP once each permit year in the Annual Report.	Not applicable.	See Measure 5.1b, except CCRFCD.