





# NPDES Permit NV0023329 Stormwater Monitoring Plan 2019 - 2024





# Stormwater Monitoring Plan



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# NDOT 2018 MS4 Permit

Permit Type: Municipal Separate Storm Sewer Systems

Permit No. NV0023329

Nevada Division of Environmental Protection

## AUTHORIZATION TO DISCHARGE

In compliance with the provisions of the Clean Water Act, as amended, 33 U.S.C. 1251 et. seq. (CWA), and Chapter 445A of the Nevada Revised Statutes (NRS),

NEVADA DEPARTMENT OF TRANSPORTATION  
1263 S. STEWART STREET  
CARSON CITY, NV - 89712

is authorized to discharge from a facility located at:

NEVADA DEPARTMENT OF TRANSPORTATION MUNICIPAL SEPARATE STORM  
SEWER SYSTEM  
STATEWIDE, -, NV - -  
LATITUDE: 39.168790, LONGITUDE: -119.7684  
TOWNSHIP: T15N, RANGE: R20E, SECTION: S20

to receiving waters named:

WATERS OF THE UNITED STATES.

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Sections A, B, and C hereof.

This permit shall become effective on August 10, 2018.

This permit and the authorization to discharge shall expire at midnight, August 09, 2023.

Signed this 10th day of August 2018.

A handwritten signature in black ink, appearing to read "Andrew Dixon".

Andrew Dixon  
Stormwater Supervisor  
Bureau of Water Pollution Control

First issued 2004

Re-issued 2010

Current permit issued on  
August 10, 2018





# Stormwater Monitoring Plan

Nevada Department  
of Transportation



NPDES Permit NV0023329 Stormwater  
Monitoring Plan, 2019 through 2024



February 2019



Public Comment Period

- 4/17/19 – 5/17/19

Final Revised Plan Due

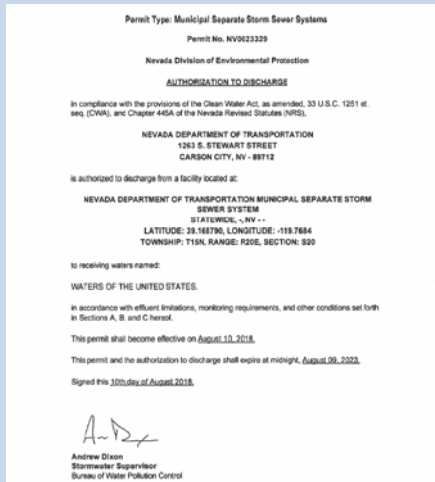
- 8/25/19



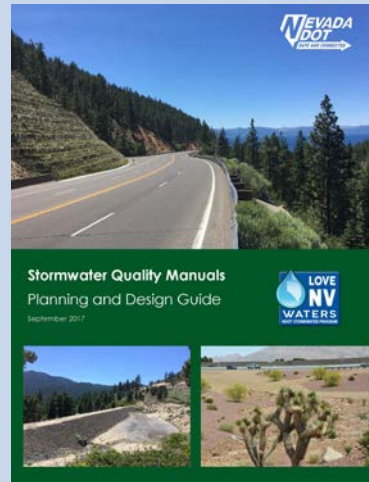


# SW Monitoring Plan Goals

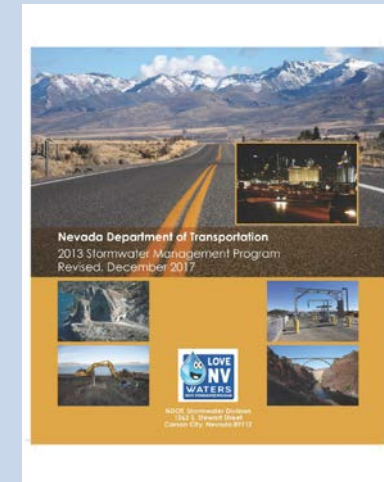
## Program Compliance



## Best Management Practices



## Measurable Goals





# Monitoring Strategies

## Runoff Characterization



## BMP Effectiveness



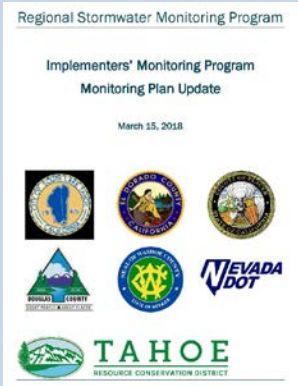
## Receiving Water Characterization



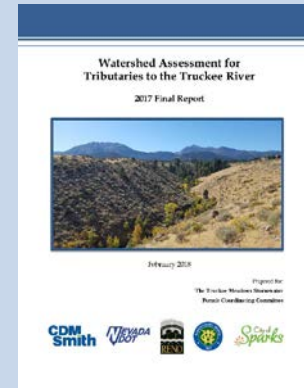
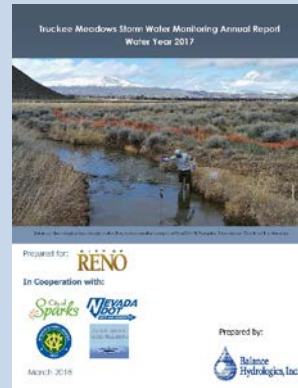


# Partnerships and Agreements

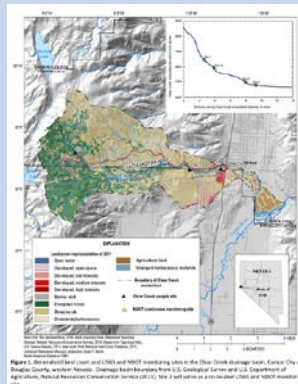
## LT IMP



## TMSWPCC



## USGS



## LVV SQMC

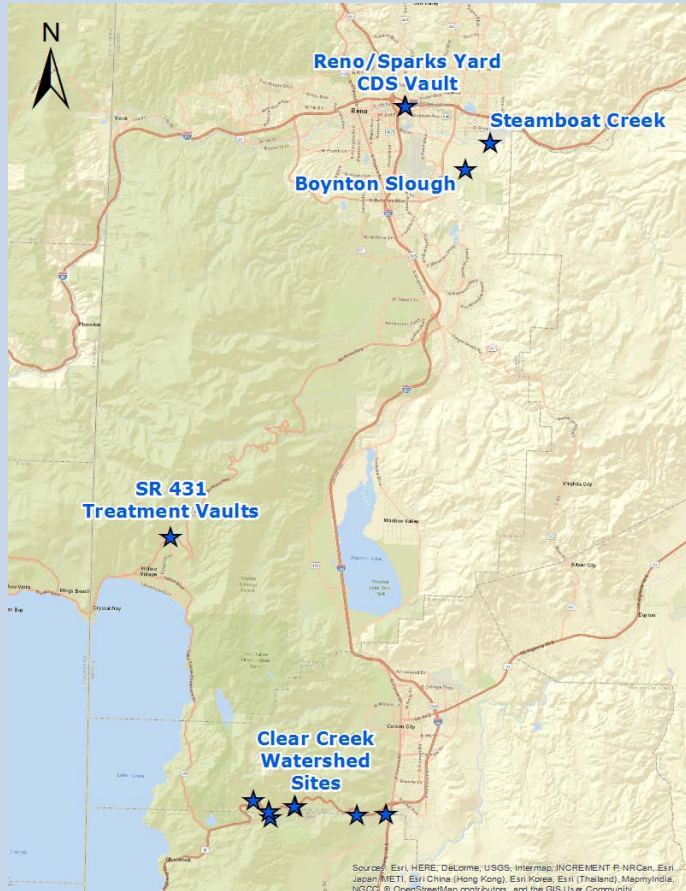






# Monitoring Studies

## Northern Nevada Sites



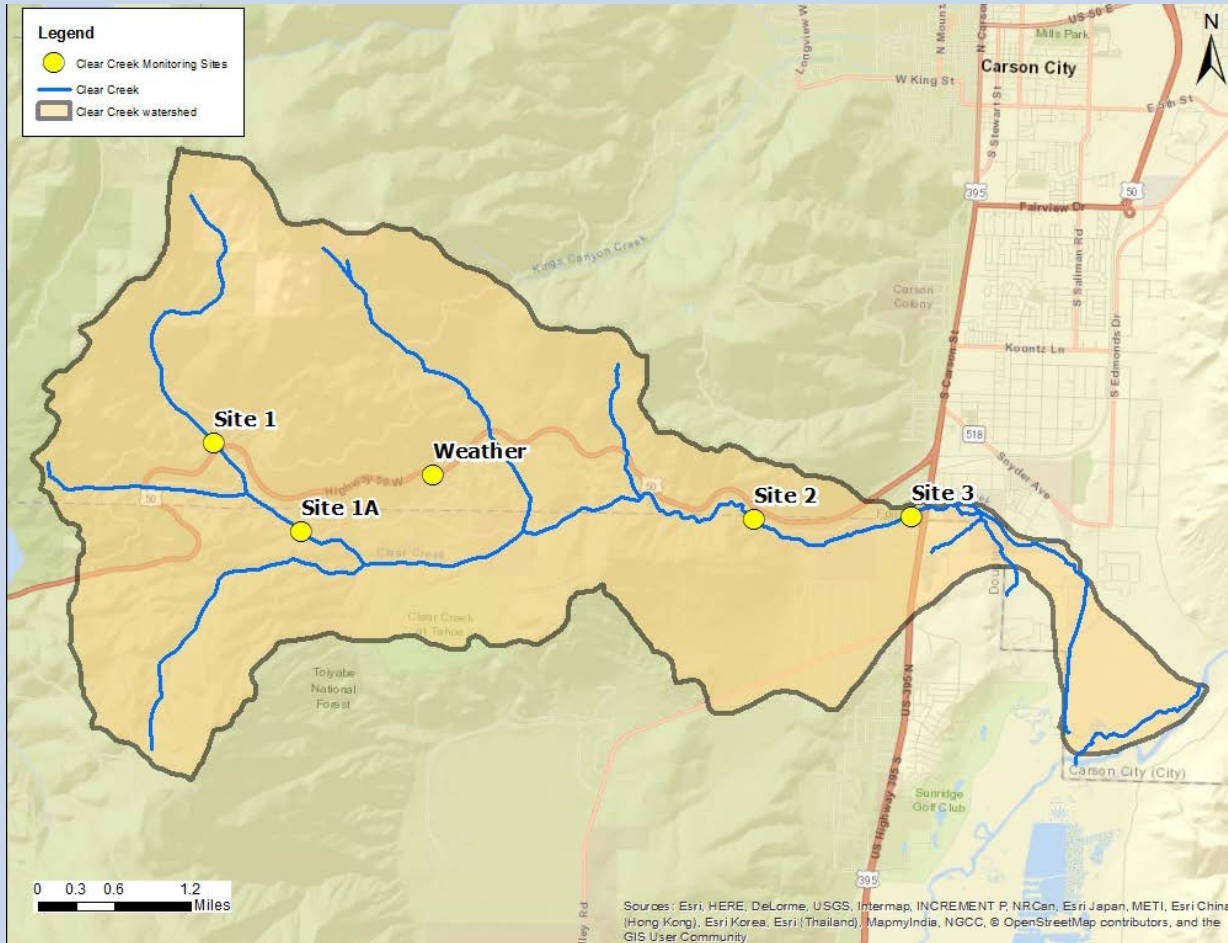
## Southern Nevada Sites





# US50 – Clear Creek Watershed

## Receiving Water/BMP Effectiveness Monitoring






# US50 – Clear Creek Watershed

## Receiving Water/BMP Effectiveness Monitoring


### USGS instantaneous measurements:

- Conductivity
- Dissolved oxygen
- pH
- Turbidity
- Water Temperature



Prepared in cooperation with the Nevada Department of Transportation

**Discharge, Sediment, and Water Chemistry in Clear Creek, Western Nevada, Water Years 2013–16**



Scientific Investigations Report 2018–5050

U.S. Department of the Interior  
U.S. Geological Survey

### USGS lab analysis:

- Bicarbonate
- Calcium
- Chloride
- Conductivity
- Dissolved solids
- Fluoride
- Hardness
- Iron
- Manganese
- Magnesium
- Potassium
- Sodium
- Sulfate
- SSC
- Turbidity





# US50 – Clear Creek Watershed

## Receiving Water/BMP Effectiveness Monitoring



Site 1A

### Continuous measurements:

- Conductivity
- Stage/Velocity (Site 1A)
- Turbidity
- Water Temperature



Site 2

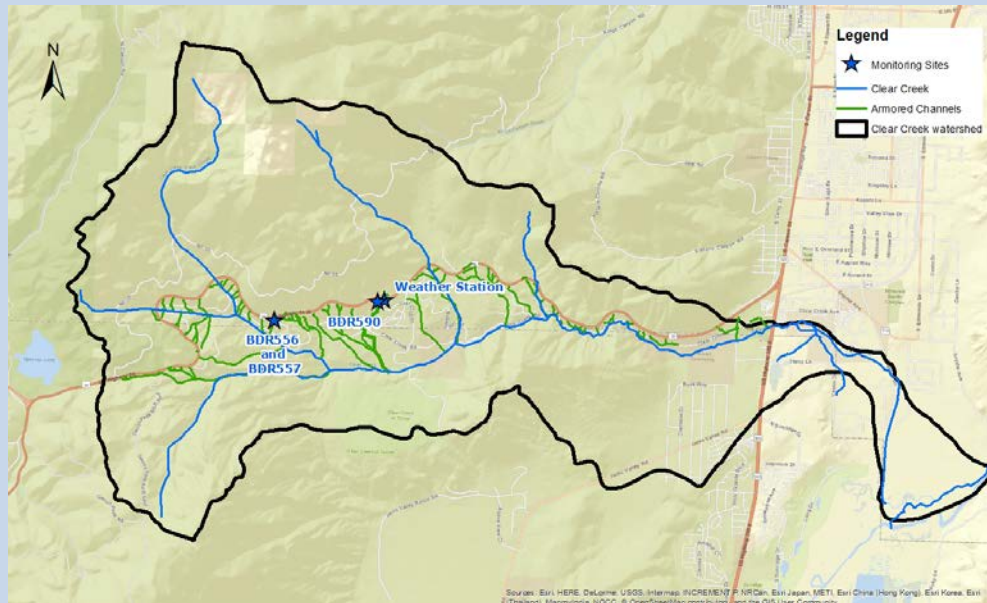
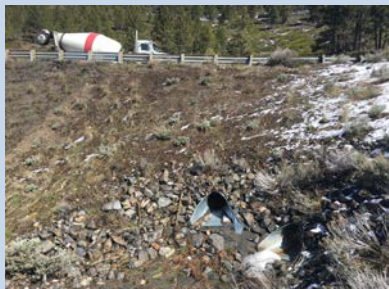
### Continuous weather measurements:

- Air Temperature
- Relative Humidity
- Precipitation
- Wind Speed/Direction



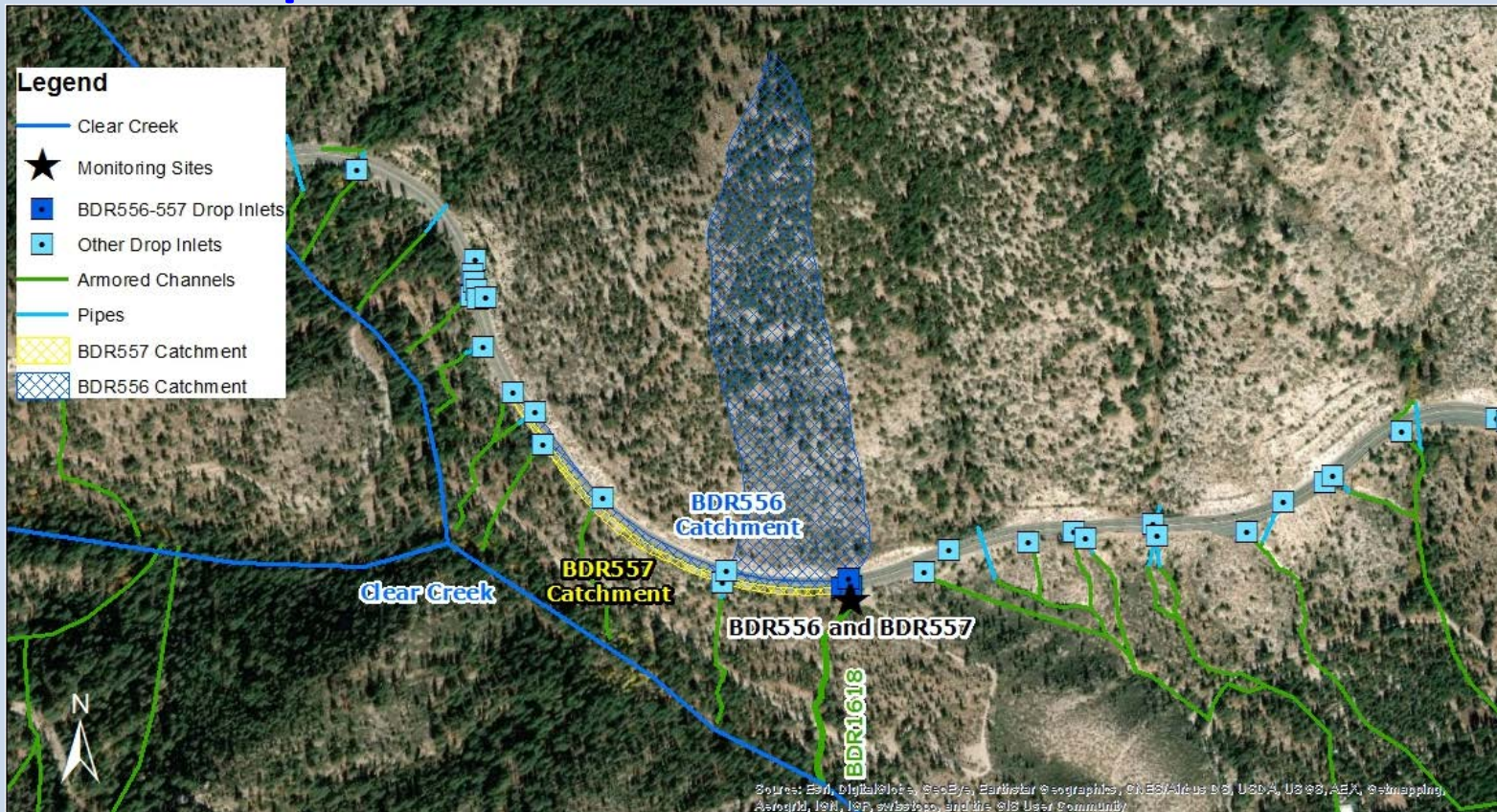


# US50 – Clear Creek Watershed Runoff Characterization





# US50 – Clear Creek Watershed Pipes BDR556 and BDR557





# US50 – Clear Creek Watershed Pipe BDR590





# US50 – Clear Creek Watershed Runoff Characterization

## Continuous measurements:

- Conductivity
- Stage/Discharge
- Turbidity
- Water Temperature

## Continuous measurements:

- Air Temperature
- Relative Humidity
- Precipitation
- Wind Speed/Direction



## Lab analysis:

- Conductivity
- Nitrate
- Nitrite
- Ortho-phosphate
- Total dissolved solids
- Total Kjeldahl N
- Total N
- Total Petroleum Hydrocarbons\*
- Total P
- Total Suspended Solids
- Turbidity







# SR 431 Treatment Vaults

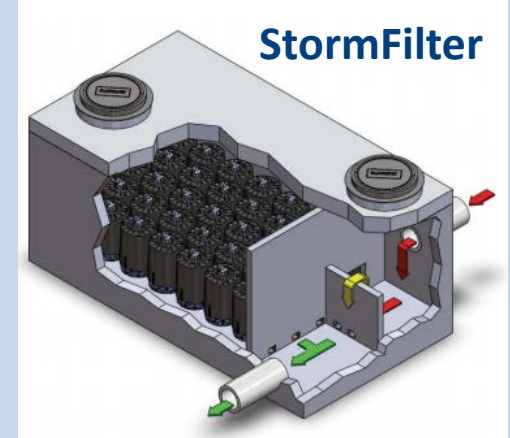
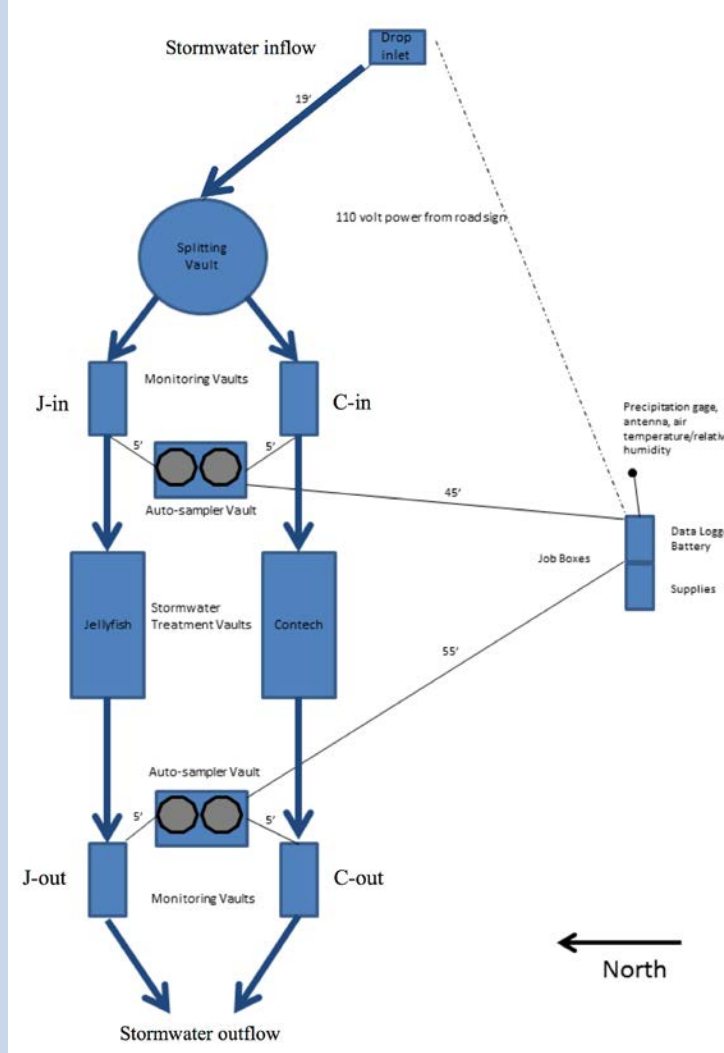




# SR 431 Treatment Vaults



Jellyfish





# SR 431 Treatment Vaults

## Continuous measurements:

- Conductivity (C-in)
- Precipitation
- Stage/Discharge
- Turbidity
- Water Temperature



## Lab analysis:

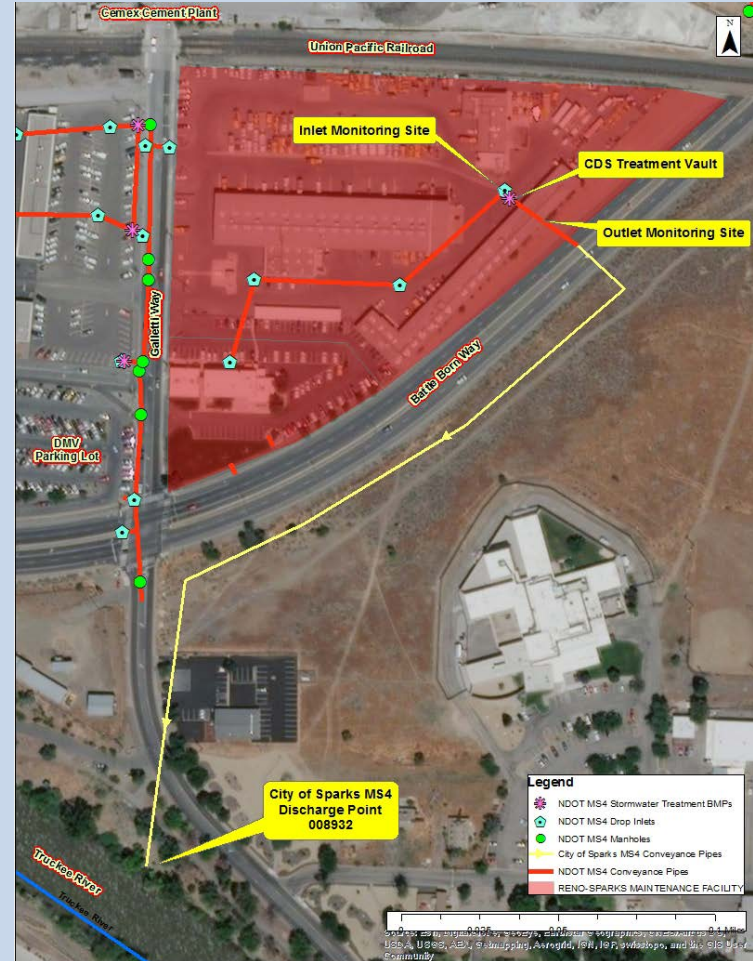
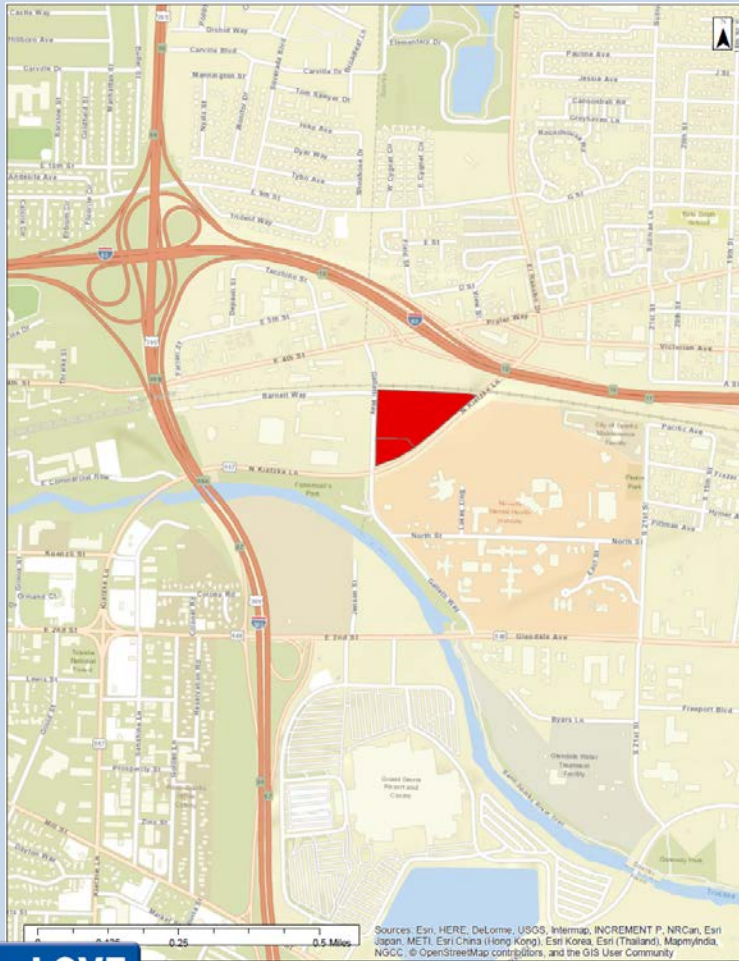
- Nitrate + Nitrite
- Total Kjeldahl N
- Total P
- Total Suspended Solids
- Turbidity
- Fine Sediment Particles

## Continuous weather measurements:

- Air Temperature
- Relative Humidity
- Precipitation



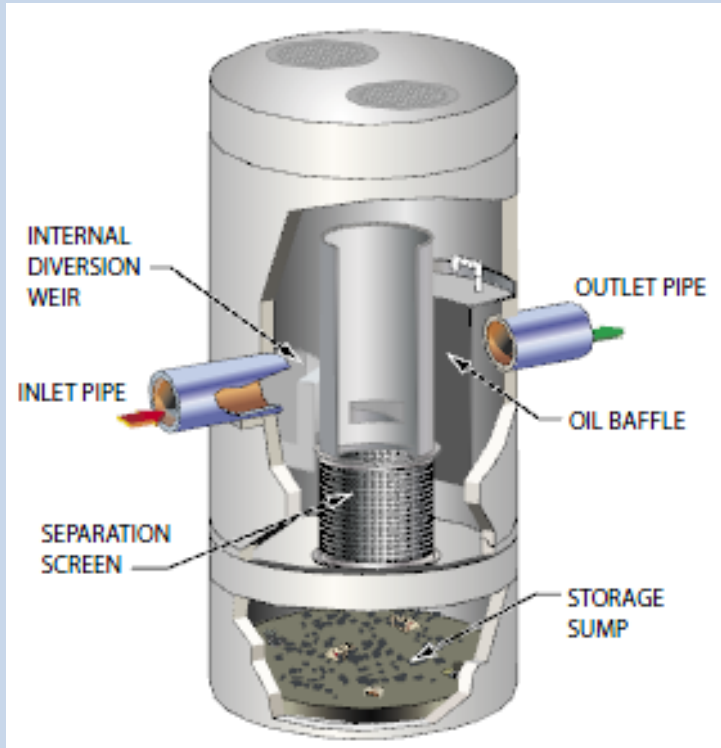
# Reno-Sparks Maintenance Yard





# Reno-Sparks Maintenance Yard

## CDS Hydrodynamic Separator



Inflow station



Outflow station





# Reno-Sparks Maintenance Yard

## Continuous measurements:

- Conductivity
- Precipitation
- Stage/Discharge
- Turbidity
- Water Temperature



## Lab analysis:

- Conductivity
- Nitrate
- Nitrite
- Ortho-phosphate
- Total dissolved solids
- Total Kjeldahl N
- Total N
- Total Petroleum Hydrocarbons\*
- Total P
- Total Suspended Solids
- Turbidity





# Las Vegas Maintenance Yards

## North Yard

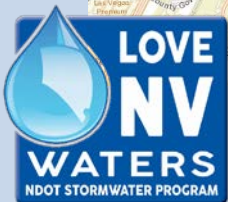
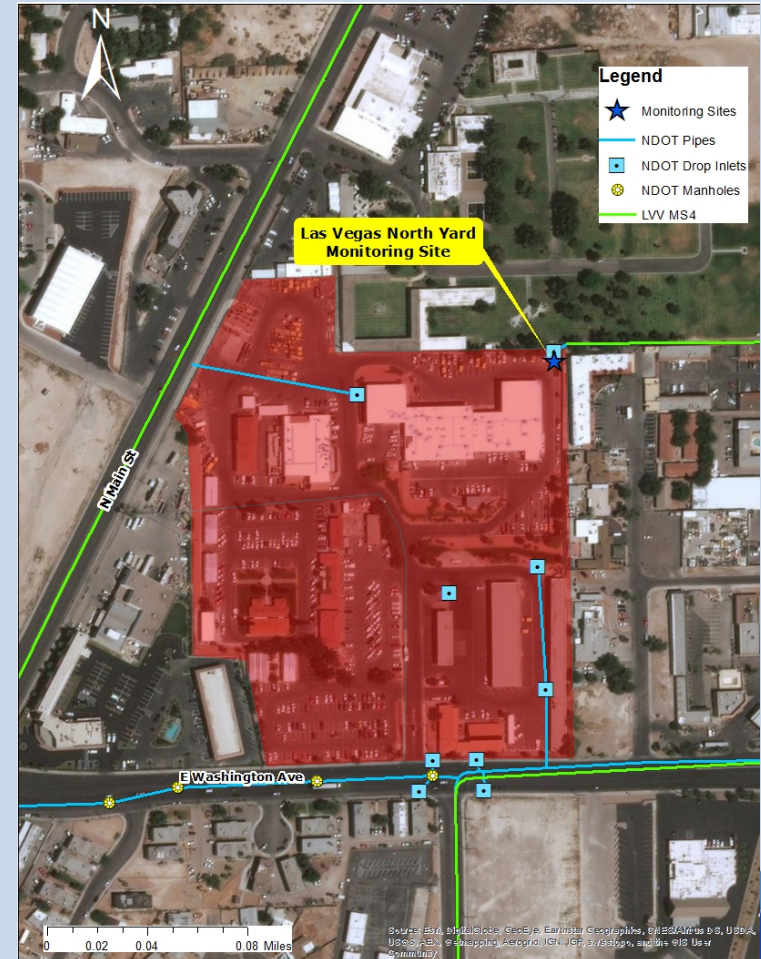
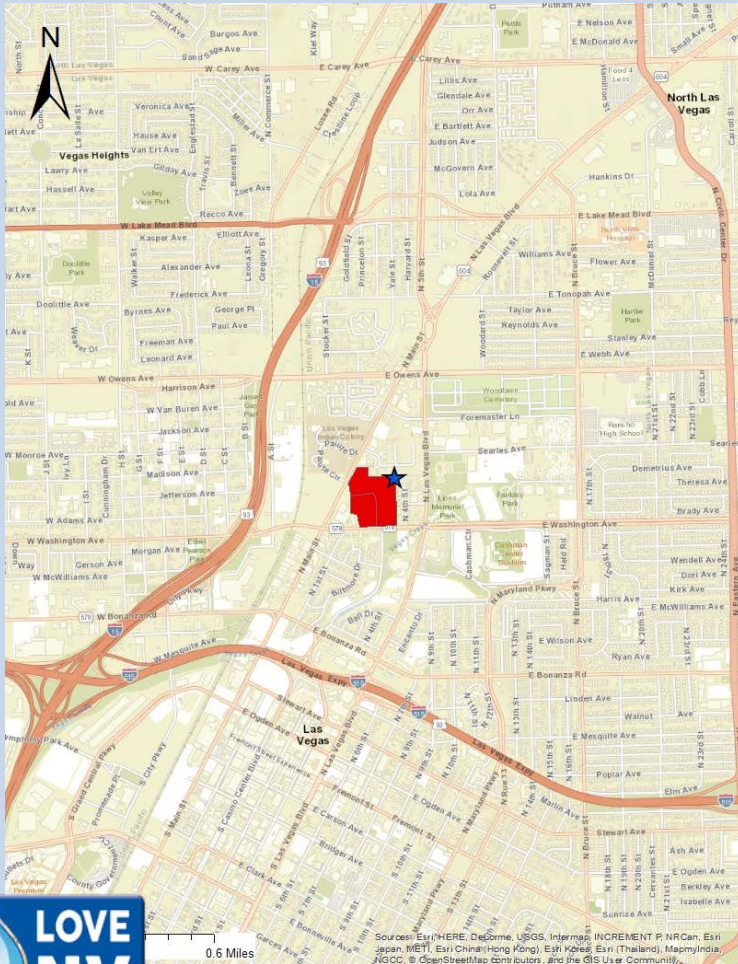


## South Yard





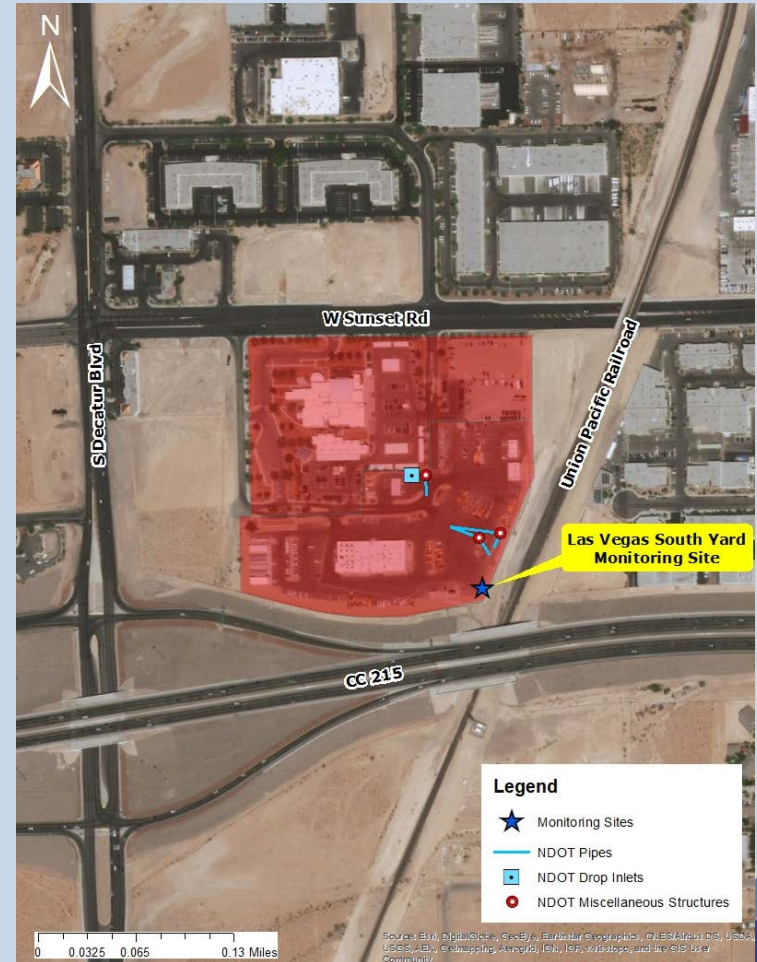
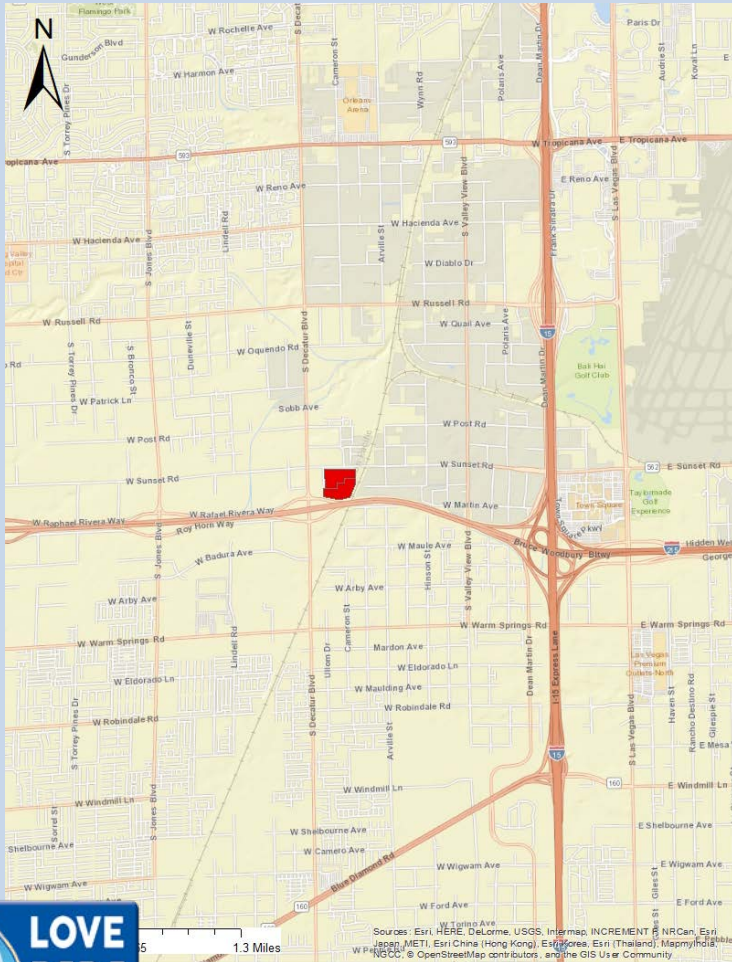
# Las Vegas North Maintenance Yard







# Las Vegas South Maintenance Yard





# Las Vegas Maintenance Yards



## Lab analysis:

- Conductivity
- Nitrate
- Nitrite
- Ortho-phosphate
- Total dissolved solids
- Total Kjeldahl N
- Total N
- Total Petroleum Hydrocarbons
- Total P
- Total Suspended Solids
- Turbidity



# Partnerships and Agreements

## LT Implementers' Monitoring Program

Regional Stormwater Monitoring Program

Implementers' Monitoring Program  
Monitoring Plan Update

March 15, 2018



**TAHOE**  
RESOURCE CONSERVATION DISTRICT



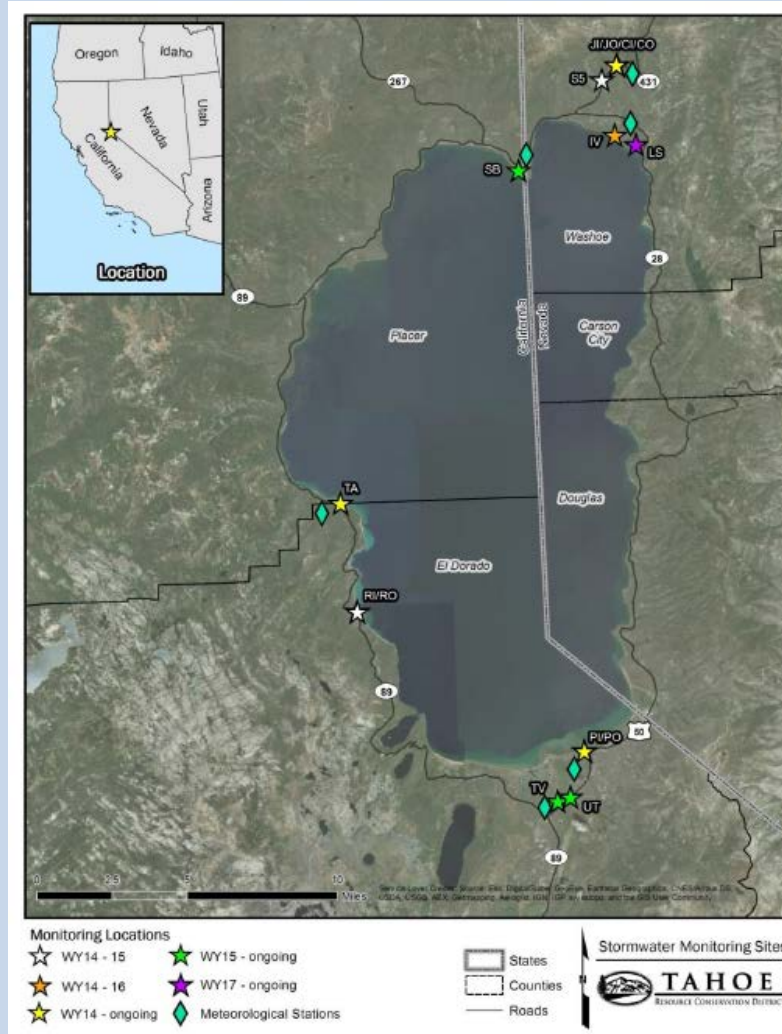


# Monitoring Partnerships

## Lake Tahoe IMP

### Continuous measurements:

- Discharge
- Stage
- Precipitation
- Turbidity
- Water Temperature



### Lab analysis:

- Nitrate + Nitrite
- Total Kjeldahl N
- Total P
- Total Suspended Solids
- Turbidity
- Fine Sediment Particles

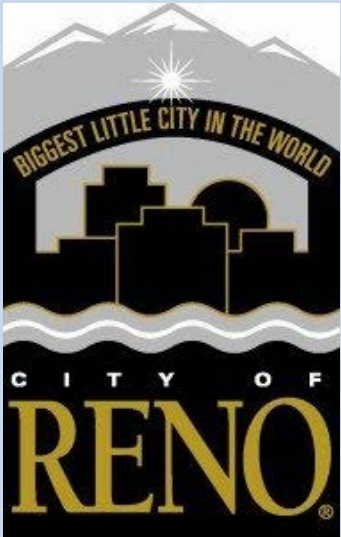




# Partnerships and Agreements

## TMSWPCC Monitoring Program

### Committee Members



### Cooperators





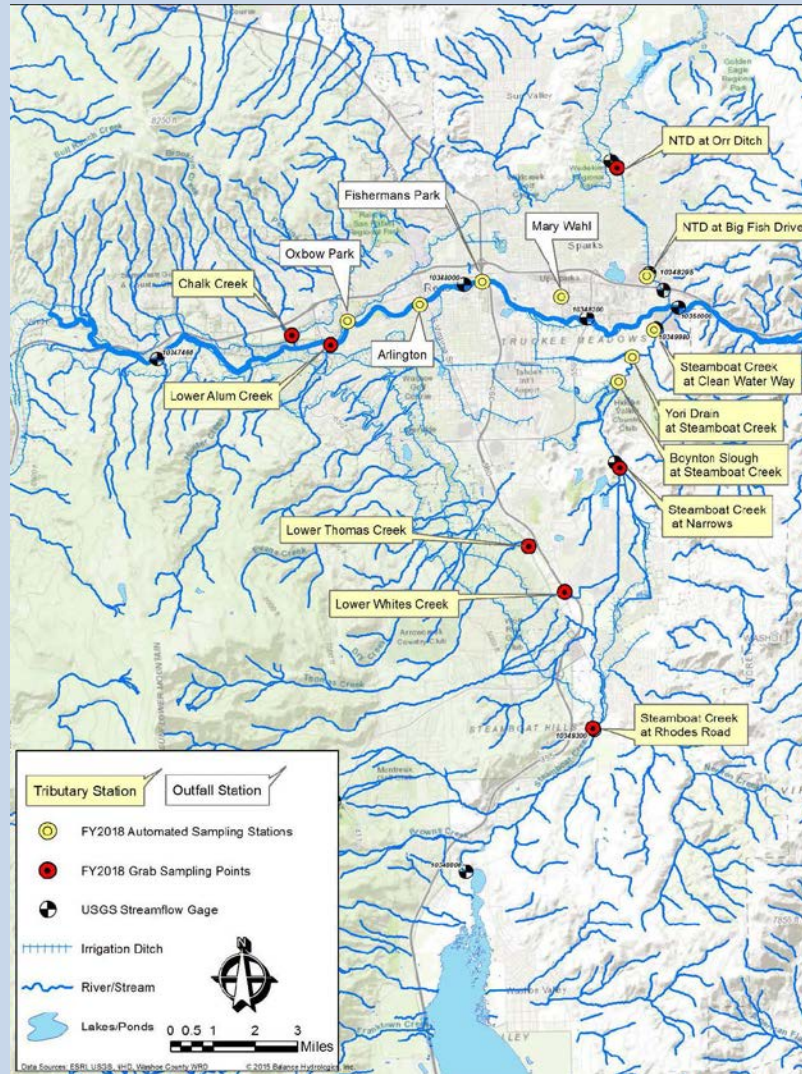
# Monitoring Partnerships Truckee Meadows SWPCC

## Continuous measurements:

- Discharge
- Stage

## Instantaneous measurements:

- Conductivity
- Dissolved oxygen
- pH
- Turbidity
- Water Temperature



## Lab analysis:

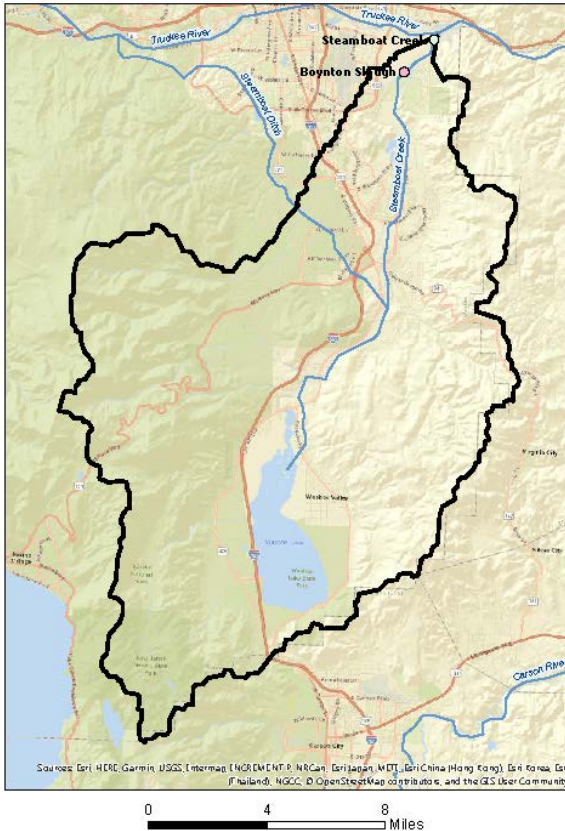
- *E. Coli.*\*
- Nitrate as N\*
- Ortho-phosphates
- Total Dissolved Solids
- Total P
- Total N
- Total Suspended Solids



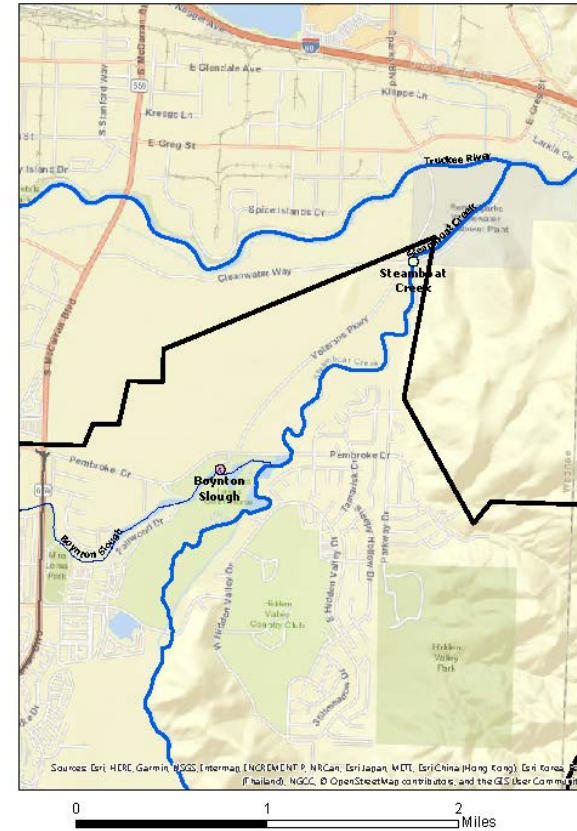


# Monitoring Partnerships Boynton Slough and Steamboat Creek

Steamboat Creek/Boynton Slough  
Watershed Area



Steamboat Creek/Boynton Slough Monitoring Sites





# Monitoring Partnerships Boynton Slough and Steamboat Creek



Boynton Slough



Steamboat Creek

## Continuous measurements:

- Conductivity
- Dissolved Oxygen
- pH
- Turbidity
- Water Level (Boynton only)
- Water Temperature

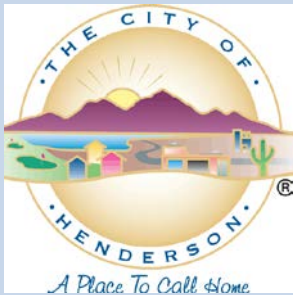






# Partnerships and Agreements Las Vegas SQMC

## Committee Members



## Cooperators

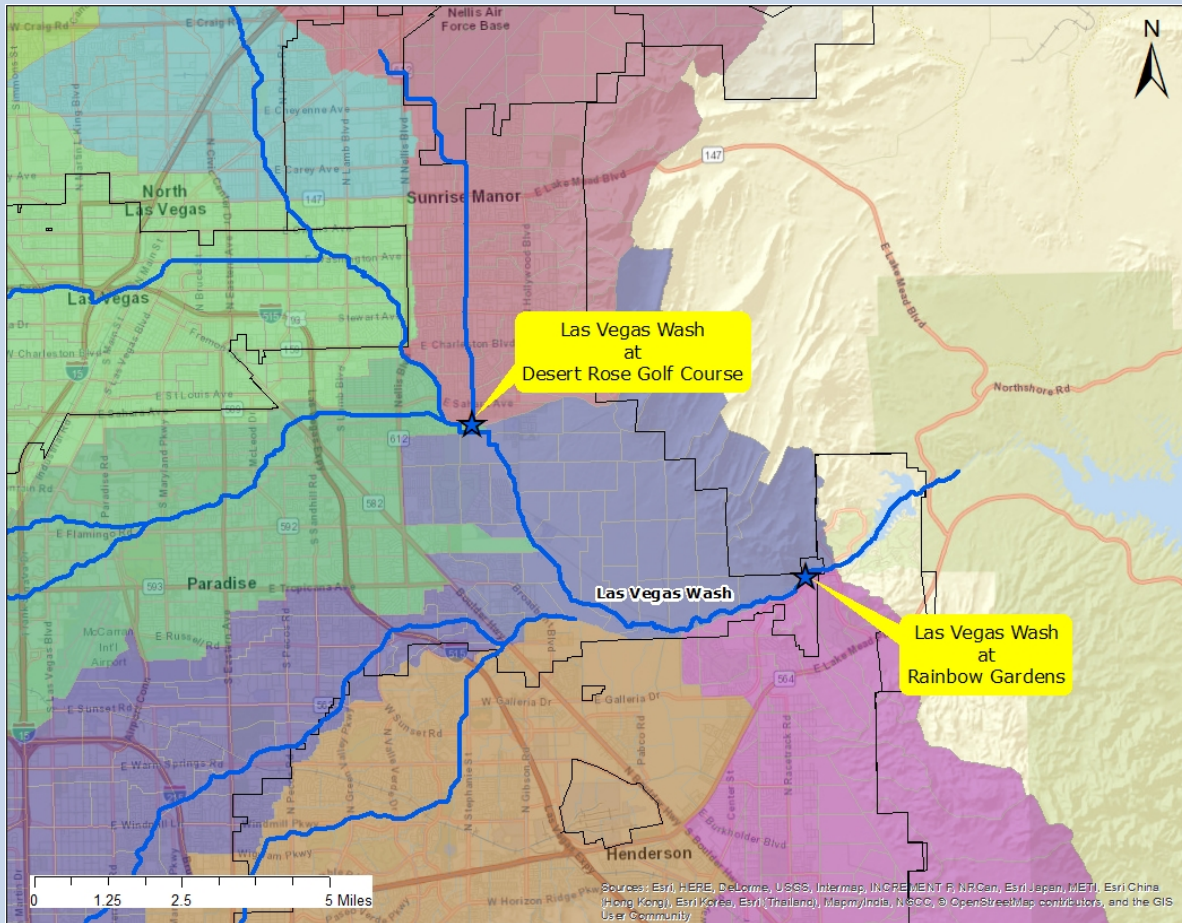




# Monitoring Partnerships

## Las Vegas Valley

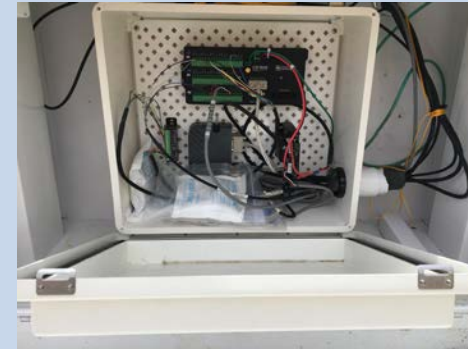
### Stormwater Quality Management Committee





# Monitoring Partnerships

## Las Vegas Wash at Desert Rose Golf Course



### Continuous measurements:

- Air Temperature
- Conductivity
- Relative Humidity
- Turbidity
- Water Temperature





# Questions

Nevada Department  
of Transportation



NPDES Permit NV0023329 Stormwater  
Monitoring Plan, 2019 through 2024



February 2019



## Do you have questions?





# Comments

Nevada Department  
of Transportation



NPDES Permit NV0023329 Stormwater  
Monitoring Plan, 2019 through 2024



February 2019



Submit comments to:  
James Murphy  
(775) 888-7889  
[jmurphy@dot.nv.gov](mailto:jmurphy@dot.nv.gov)  
1263 S. Stewart St.  
Room 215  
Carson City, NV  
89712





# NEVADA DOT



[www.nevadadot.com](http://www.nevadadot.com)

