

Wastewater Rates and Charges
Citizens
Advisory
Committee

June 21, 2018

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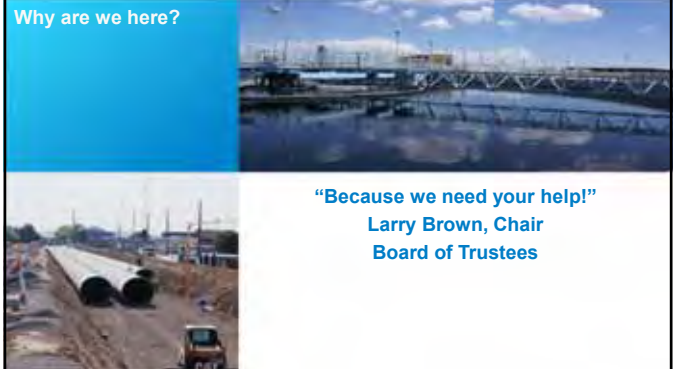


June 21, 2018

INTRODUCTIONS



Why are we here?



“Because we need your help!”
Larry Brown, Chair
Board of Trustees

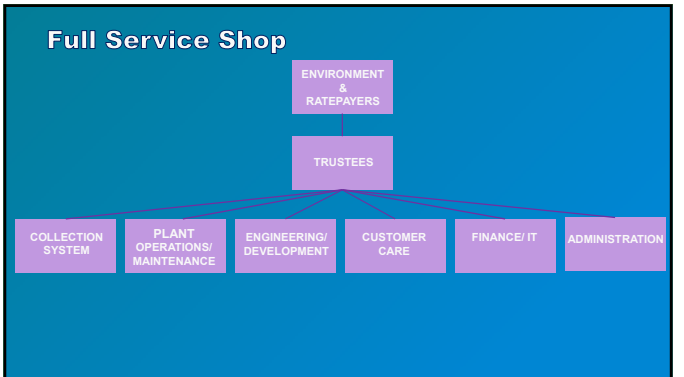
What's With the Brand?



AGENCY HISTORY

ORGANIZATION AND LEGAL STUFF

Cities and Unincorporated Clark County



WHAT WE DO

COLLECTION SYSTEM


COLLECTION SYSTEM

- 230 square mile service area
- 2,190 miles
- 46,298 manholes
- 23 lift stations

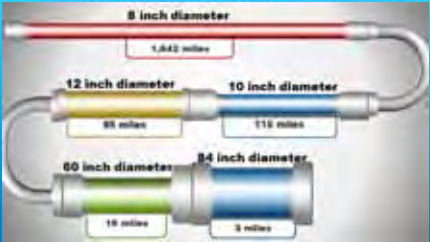


2,190 Miles of Pipeline

- 2,160 miles gravity pipeline
- 30 miles force main
- 8" to 84" in diameter

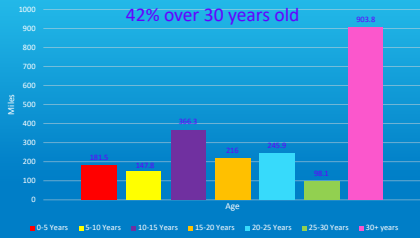


PIPELINE SIZES



- 1,880 Miles - Small Diameter (<15")
- 214 Miles - Medium Diameter (15" to 30")
- 96 Miles - Large Diameter (>30")

Pipeline Age



PIPELINE MATERIAL

- Poly Vinyl Chloride (PVC)
- Vitrified Clay Pipe (VCP)
- High Density Polyethylene (HDPE)
- Centrifugally Cast Fiberglass Reinforced (CCFR)
- Lined Concrete

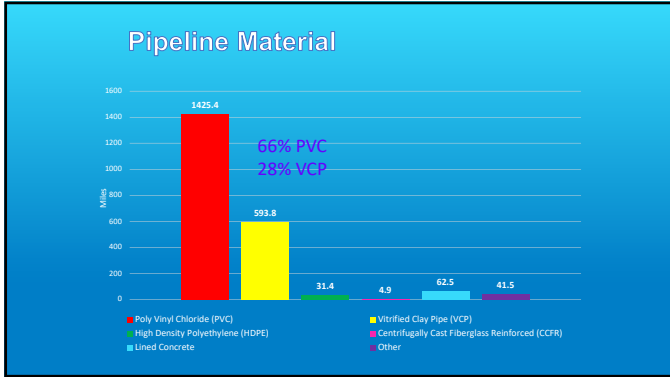
Parts of a Manhole



What is a Lift Station?

Lift stations pump wastewater to a higher elevation





COLLECTION SYSTEM: ODOR AND CORROSION CONTROL

LIQUID PHASE

- 25 Chemical Injection Facilities
- 2,000 Gallons per Day

GAS PHASE

- 4 Gas Phase Facilities
- 400-10,000 cfm Air Scrubbers

COLLECTION SYSTEM: ODOR AND CORROSION CONTROL

BIOFILTERS

Located at 4 Lift Stations

MANHOLE INSERTS

- 148
- Charcoal and Persnickety

COLLECTION SYSTEM MAINTENANCE

- 24/7 Customer Response
- Staffed 10/7
- After Hours Stand-by Response

COLLECTION SYSTEM MAINTENANCE

- System-wide Cleaning and Inspections
- Hot-Spot Cleaning
- Sanitary Sewer Overflow Response
- Manhole Inspections
- Flow Monitoring
- Odor Monitoring

COLLECTION SYSTEM MAINTENANCE

- Sewer Pipeline Repairs
 - Open-cut
 - Trenchless
- Manhole Repair and Replacement



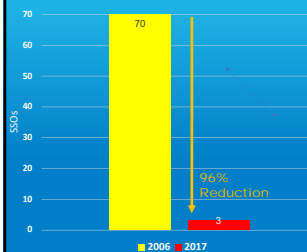
COLLECTION SYSTEM MAINTENANCE

- Source Control Program (Pretreatment)
- USA Mark-out/Call Before You Dig
- Public Education

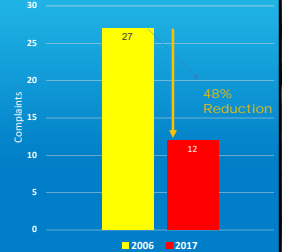


COLLECTION SYSTEM METRICS

Sanitary Sewer Overflows

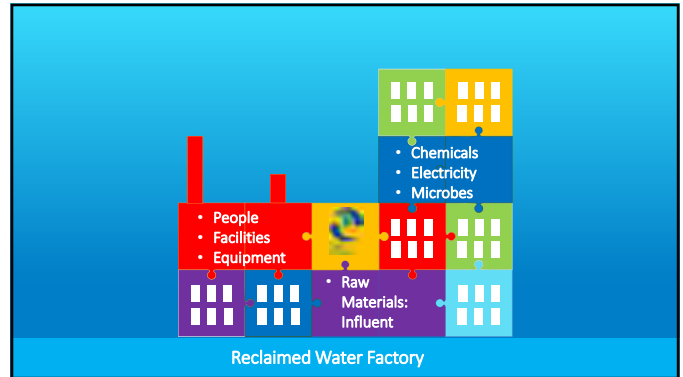


Odor Complaints



WHAT WE DO

TREATMENT



What's Influent?

- Wastewater discharged from:
 - Residences (toilets/sinks/showers/washing machines)
 - Hotels/Restaurants
 - Businesses/Industries

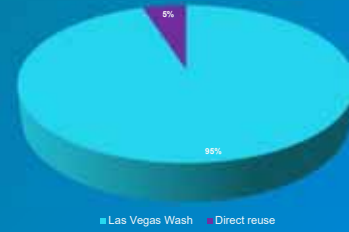
What's Not Influent?

- Stormwater
- Urban Run-off



Reclaimed Water Factory Outputs

Where Does the Reclaimed Water Go?



Treatment Facility Flows

	2012 (mgd)	2017 (mgd)	Current Capacity (mgd)
Flamingo Water Resource Center	94	105	126
Laughlin Water Resource Center	1.9	2.1	8.0
Desert Breeze Water Resource Center	2.9	2.5	4.9
Moapa Valley Treatment Facility	0.15	0.16	0.75
Indian Springs Treatment Facility	0.07	0.10	0.50
Searchlight Ponds	0.05	0.04	0.09
Blue Diamond Ponds	0.013	0.011	0.044

Treatment Basics

- Liquid Treatment
- Solids Treatment
- Odor Control



PRELIMINARY TREATMENT:

Removal of Rags and Grit

- Physical Treatment
- Bar Screen
- Grit Basin

**PRIMARY TREATMENT**

Removal of Suspended Solids and Grease

- Physical and Chemical Treatment
- Ferric Chloride
- Primary Clarifiers

**SECONDARY TREATMENT**

Remove Dissolved Organics, Phosphorous and Ammonia

- Biological Treatment
- Aeration Basins/Activated Sludge
- Biological Nutrient Removal
- Secondary Clarifiers

**TERTIARY TREATMENT**Remove Fine Particulates
Phosphorus "Polishing"

- Physical and Chemical Treatment
- Aluminum Sulfate
- Sand/Anthracite Filters
- Membranes



DISINFECTION

Remove Pathogens
Reduction of Microorganisms

- Physical or Chemical Treatment
- Ultraviolet light
- Ozone

**POLLUTANTS REMOVED**

- Dissolved Organics
- Suspended Solids
- Phosphorus
- Ammonia
- Microorganisms
- Fats/Oil/Grease/Grit
- Toxins
- Trace Organics

**SOLIDS TREATMENT**

Final Removal of Solids and Phosphorous
Production of "Haul-able" Sludge Cake

- Physical and Chemical Treatment
- Thickening
- Polymers
- Centrifuges

**FLAMINGO WATER RESOURCE CENTER**

ODOR CONTROL

Capture/Eliminate Odors
Be a Good Neighbor

- Chemical Scrubbers
- Biofilters



How Do We Know the Water is Clean?

- Helpers Clean Water for Us
- Testing and Analysis



LeAnna's Famous
Bug Show!

HOW DO WE SUPERVISE OUR HELPERS?

LeAnna's Famous Bug Show!

Quality Laboratory

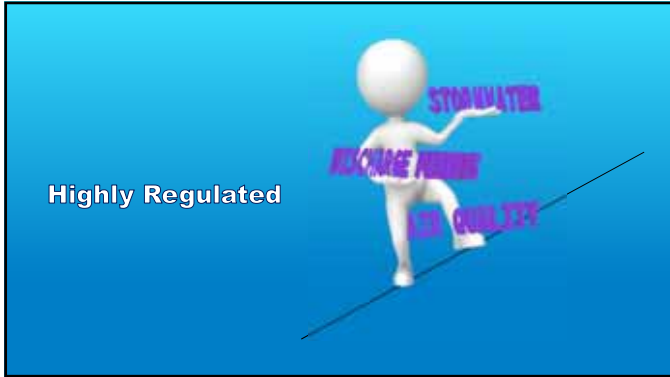
- Permit Compliance
- Data for Process Control
- Monitor Receiving Waters

SAMPLING

ANALYSIS

LABORATORY

- 15 Scientists and Technicians
- 14,400 Samples/Year
- 108,000 Tests/Year



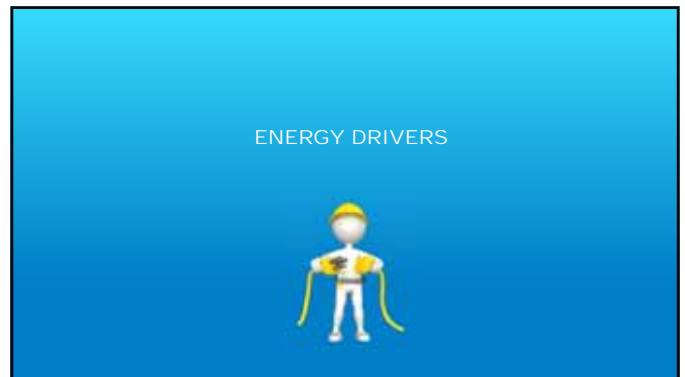
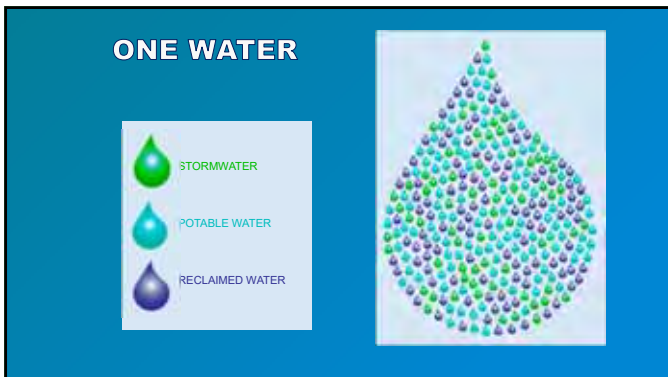
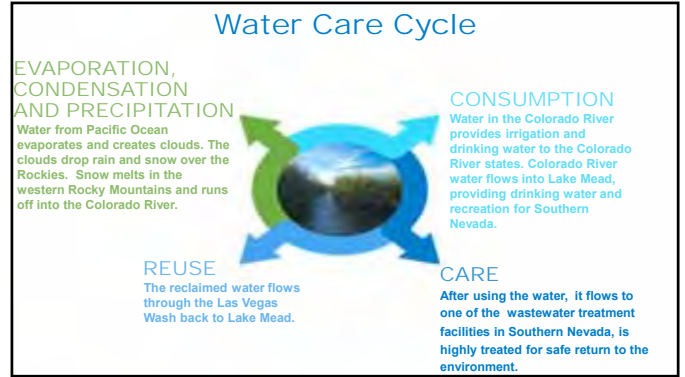
Discharge Permits

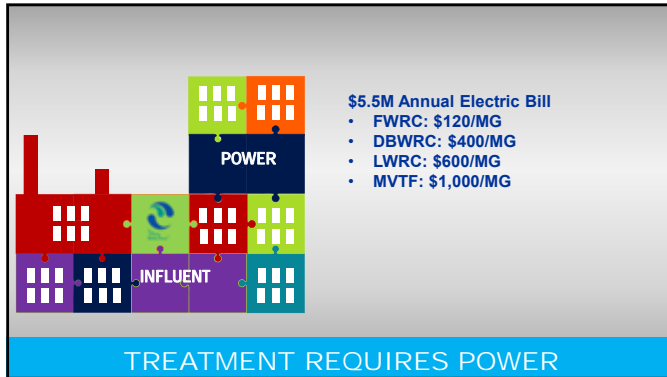
- Driven by Water Quality Standards for Receiving Waters
- Each Facility
- Sampling
- Reporting

Stormwater Permits

Air Quality Permits

- Dust Permits
- Operating Permits
 - 5 Facilities
 - Daily Visual Checks
 - Weekly/Monthly Monitoring
 - Quarterly Sampling
 - Annual Reporting







BIG ELECTRICAL USERS

BIG ELECTRICAL USERS

- Blowers
- Pumps
- 250 HP Centrifuges (190kW)

Compared to Home Equipment

- Typical Pool Pump=1 HP (.75kW)
- Typical Home AC Unit=4kW

COLORADO RIVER COMMISSION POWER



Water Conservation

- Indoor "conservation"
- Outdoor conservation

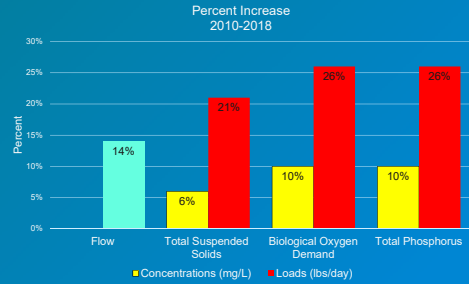
Water Conservation

Gallons Per Capita per Day (GPCD)

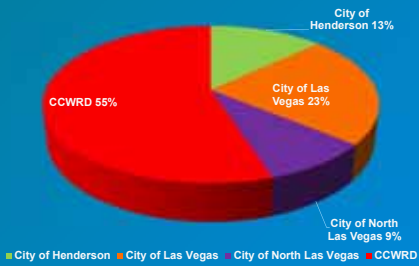
Use	2002	2017	Decrease
Total	314	233	26%
Returned	116	106	9%
Consumptive	198	127*	36%

* Goal is 116 GPCD by 2035

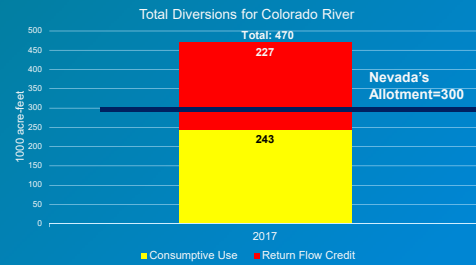
Concentrations/Loads Over Time

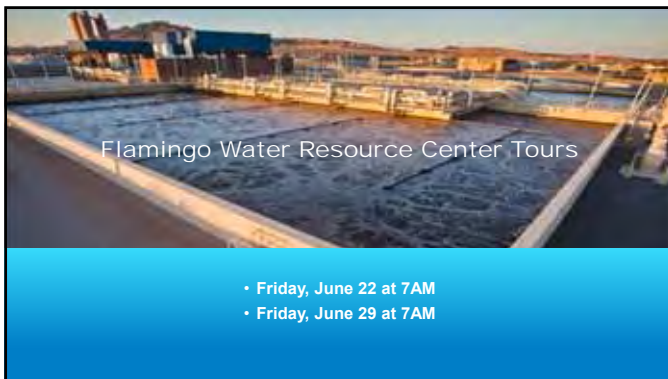
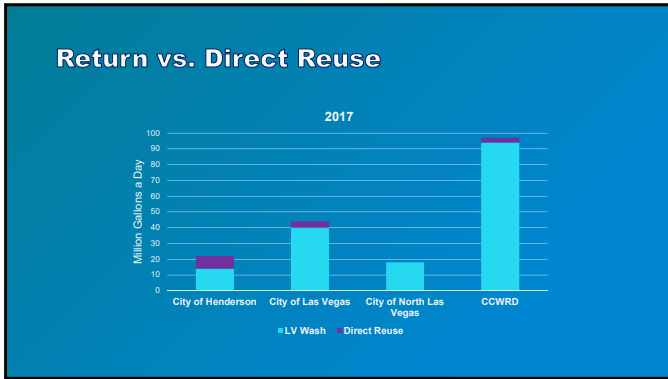


LV Valley Wastewater Flows



Return Flow Credits





Next Meeting: July 19
 at the Las Vegas Metro Chamber of Commerce
 Conference Room
 575 Symphony Park Avenue
 Suite 100

- O&M and Replacement
- Capital Projects
- Rate Structure
- Connection Fee
- Annual Sewer Service Charge
- Reserve Policy

Next Meeting:
July 19 at 11:30 AM
at the Las Vegas Metro
Chamber of Commerce
Conference Room
575 Symphony Park
Avenue
Suite 100



- **O&M and Replacement**
- **Capital Projects**
- **Rate Structure**
- **Connection Fee**
- **Annual Sewer Service Charge**
- **Reserve Policy**

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