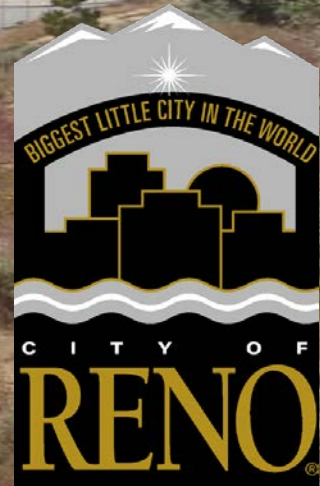


Reno Stead Water Reclamation Facility

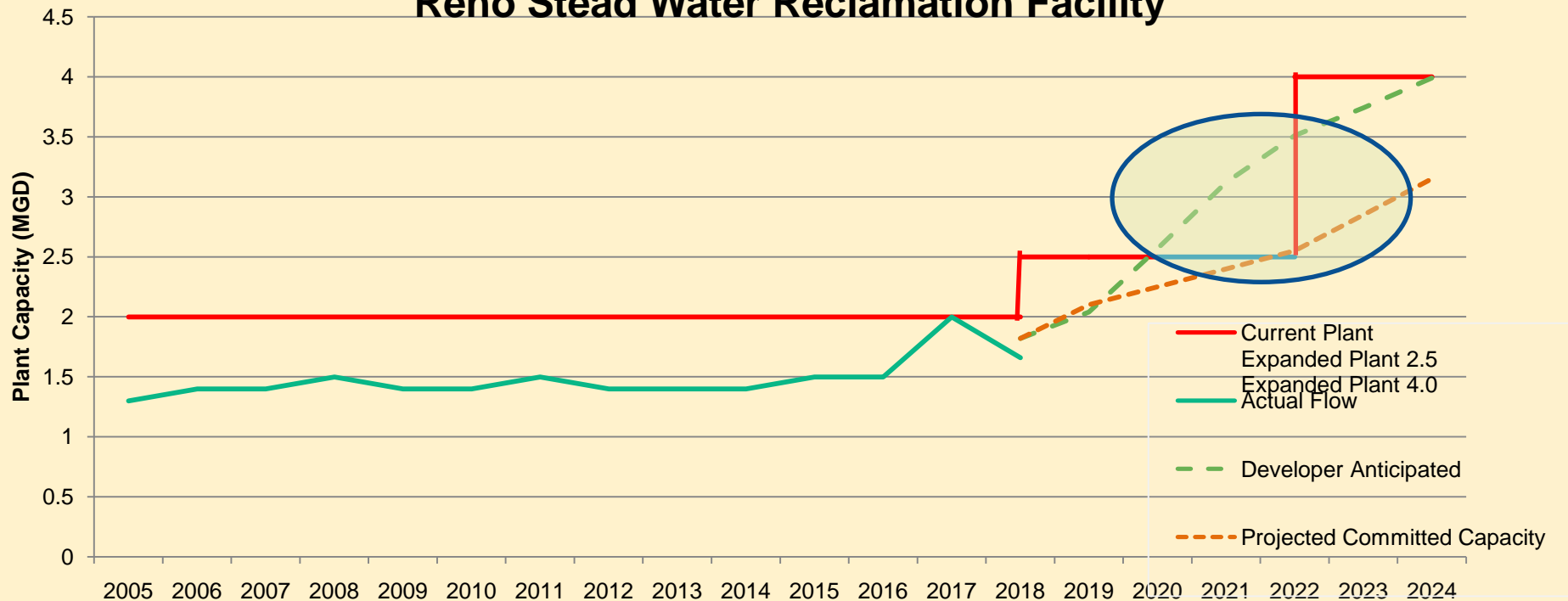
Current Capacity and Planned Expansion

John L Flansberg, P.E.
Director of Public Works
August 5, 2019



Reno Stead Water Reclamation Facility - Treatment Capacity

Reno Stead Water Reclamation Facility



Reno Stead Water Reclamation Facility: Allocation Program



Office of the City Manager

MEMORANDUM

DATE: July 16, 2019

TO: Mayor and City Council

THRU: Sabra Newby, City Manager

FROM: Bill Thomas, AICP, Assistant City Manager
John Flansberg, P.E., Director of Public Works

SUBJECT: Status of Sewer Allocation for Reno Stead Water Reclamation Facility

This memo is an update on the status of available sewer capacity and projects pending approval to be served by the Reno Stead Water Reclamation Facility (RSWRF). Since January 1, 2019, the following projects have come in for "will serve" letters:

Project Description	Single Family (gallons/day)	Multi-Family (gallons/day)	Commercial / Industrial (gallons/day)
Nevada Towing – APN 090-051-23			40
Silver Peak Apartments Phase 3 (112 units)		19,600	
Silver Dollar Estates Area 4 Phase 1 (57 units)	9,975		
Silver Dollar Estates Area 1 Phase 1 (52 units)	9,100		
Silver Dollar Estates Area 4 Phase 2 (87 units)	15,225		
Fragrance.net Tenant Impr. (APN 090-040-19)			210
Tenant Impr. Warehouse (568-033-04)			16
The Lakes at Lemmon Bldgs 21-43 (184 units)		32,200	
Aloha Shack Remodel			65
Silver Dollar Estates Area 2 Phase 2 (57 units)	9,975		
Silver Dollar Estates Area 2 Phase 1 (37 units)	6,475		
Silver Dollar Estates Area 3 Phase 2 (40 units)	7,000		
Silver Dollar Estates Area 3 Phase 1 (44 units)	7,700		
405 sf shell warehouse (APN 082-101-72)			175
The Lakes at Lemmon Bldgs 44-48 (40 units)		7,000	
Becknall Industrial LLC) – Commercial Shell			175
Total	65,450	58,800	681

Permitted capacity for RSWRF is 2.0 million gallons per day (MGD) which is based on treated effluent water discharged from the facility. In 2018, the average annual flow was 1.66 MGD or 83% of the treated capacity. Below are the current and unrealized permitted flows for the RSWRF (as of July 15, 2019).

Reno-Stead Water Reclamation Facility (Through 6/21/19)	Average Annual Flow from RSWRF (MGD)	Percent of Total Capacity Before Flow Shave Project (2.0 MGD)	Percentage of Total Capacity After Flow Shave Project (2.5 MGD)
2018 Current Flow	1.660	83%	66.4%
Unrealized Permitted Flow (Committed through Will Serve)	0.284	14.2%	11.4%
Total Committed Flow	1.944	97.2%	77.8%

The unrealized permitted flow of the 0.284 MGD is permitted by use-type as follows:

- 61.7% Single Family Residential (SFR);
- 37.0% Multi-Family Residential (MFR);
- 1.3% Commercial / Industrial

The "Flow Shave" project is completed and will be utilized as operations allow with the intent to reduce flows to Swan Lake. At this time, irrigation for Mayors Park, Sierra Sage Golf Course, and the North Valleys Sports Complex as well as the truck fill station at RSWRF is utilizing all of the effluent that is being produced. Therefore, the amount of treated effluent going into Swan Lake is near zero.

Staff will continue to closely monitor the unrealized, permitted flow and available capacity as other final maps and/or building permits are approved and report out to City Council. The most recent RSWRF allocation report is attached for your information.

History of Council's Reno Stead Water Reclamation Facility (RSWRF) Actions

- 1996 Reno Stead WRF Facility Planning- discussions commence
- 2002-2003: Agreements with engineering consultants to begin North Valleys Wastewater Planning Services, final design services for RSWRF expansion, construction of sewer solids force main, pumping station
- 2004: Award of bids for RSWRF facility expansion (1.2 MGD to 2 MGD), consulting services for "Effluent Disposal Facility Plan" for North Valleys
- 2005: Land purchase, construction and substantial Completion of RSWRF expansion
- 2006: Continuing facilities planning
- 2007: Next increment expansion RSWRF: design commences
- 2008-2010: Treatment investigations/ Pilot Projects: Ozonation / Biological Activated Carbon / Membrane Filtration, UNR agreements
- 2013: RSWRF upgrades Supervisory Control and Data Acquisition (SCADA)
- 2015-2016: Consultant agreement sewer capacity analysis North Valleys and equipment replacement: diffuser membranes, grit pumps

History of Reno Stead Water Reclamation Facility (RSWRF) Decisions

- 2017: Discussions on sewershed planning in North Valleys to include lift stations and collection systems, subsurface hydrogeologic explorations with TMWA, flood emergency/flood mitigation efforts
- April 2018: RSWRF expansion from 2 MGD to 4 MGD: design contract awarded
- September 2018: Short and long term effluent water and reuse options, approve 2019 pilot study (A+)
- December 2018: Agreement with UNR for advanced purified water pilot project (A+)
- 2019 to date: Construction of 0.5 MGD flow shave, Sewer Allocation / Will Serve process, Agreements for pilot testing - equipment rental (A+)

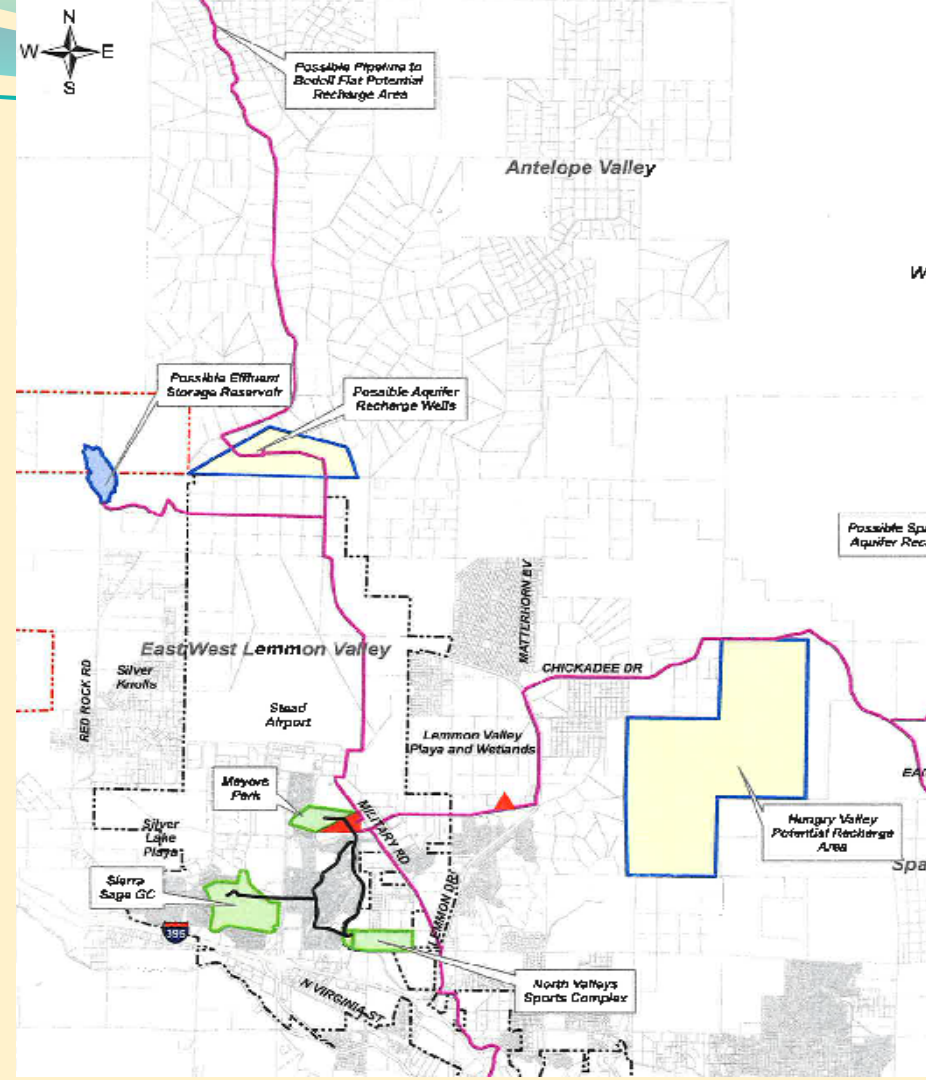
Sewer Treatment Capacity vs Effluent Management

- ❖ Sewer Treatment Capacity is based on the volume of sewage that can be treated within permit requirements.
- ❖ Effluent currently is discharged to Swan Lake with the exception of irrigation uses at Sierra Sage Golf Course, North Valleys Sports Complex, or Mayors Park.
 - Effluent discharge to Swan Lake is capped at an annual average flow of 1.85 MGD.
 - Irrigation use (April through October) consumes an annual average flow of 0.5MGD.

Integrated Water Management

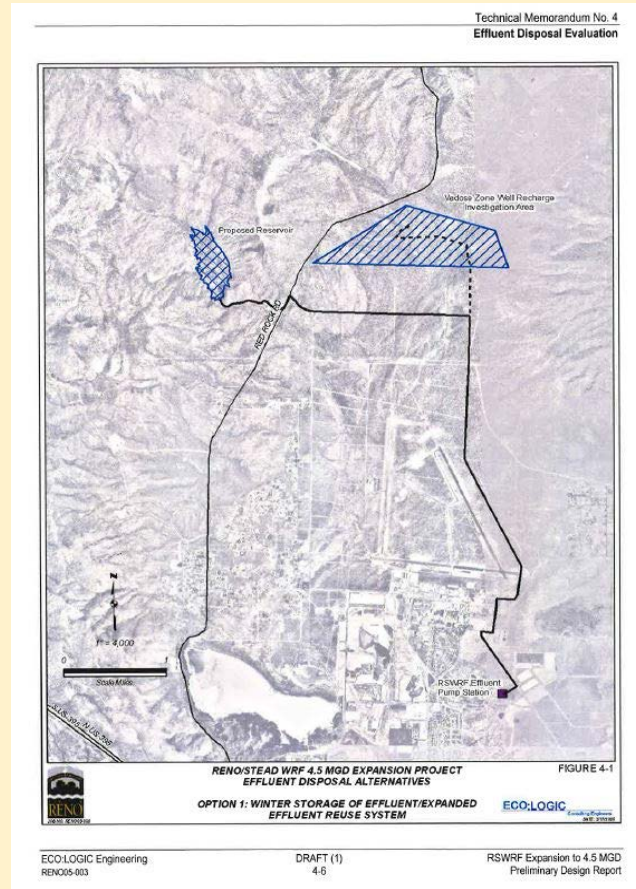
Options for Treated Effluent:

- Agricultural Use/Land Application
- Reservoir/Expanded Reuse System
- Aquifer Storage and Recovery—Feasibility Study Stage
 - American Flat
 - Bedell Flat



Effluent Storage Reservoir--Expanded Reuse

A seasonal effluent storage reservoir in conjunction with expansion of the existing system would allow for additional effluent beneficial use.



Effluent Management Options - Direction to Staff

❖ Short Term Options

- Flow Shave Project (0.5 MGD flow from RSWRF to TMWRF)
- **Agricultural Use / Land Application**

❖ Near Term Options

- Reservoir for Expanded Reuse (Design, Land Acquisition, Identification of Customers, Construction)
- ~~➤ Long Valley Creek (Pipeline to dispose of excess effluent)~~
- Bedell Flat (Pipeline to dispose of excess effluent - Rapid Infiltration Basin)

❖ Long Term Options

- American Flat Rd (A+ Treatment and Direct Injection)
- Bedell Flat (A+ Treatment and Direct Injection)

RSWRF Expansion Planning

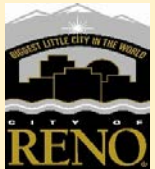
Stantec designing expansion of RSWRF for City of Reno

Existing plant is a 2 MGD Facility; activated sludge process (MLE); includes aeration basins, clarification, sand filters, disinfection and reuse system

Expand from 2 MGD to 4 (AAF) MGD treatment capacity

- improvements to grit/screening handling facility
- two new aeration basins
- new blowers in the existing blower building
- two new secondary clarifiers
- new return activated sludge (RAS) pump station
- new scum pump station
- new tertiary filtration
- new UV disinfection processes
- new effluent storage tank

\$55M Estimated Cost for Completion (Construction & Construction Management)





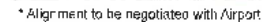
- ❖ Exceptional quality reclaimed water A+
- ❖ Studying whether advanced purified water offers regional long range benefits
- ❖ Feasibility studies
- ❖ Demonstration projects
- ❖ International water quality experts and UNR



EXHIBIT "A"
AQUIFER STORAGE AND RECOVERY FEASIBILITY STUDY AMERICAN FLAT ROAD SITE



PROPOSED BEDELL FLAT RECHARGE



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Feasibility Study RSWRF: Direct Injection Research

- RSWRF 2019-2020
- Direct injection demonstration (Aquifer Storage Recovery-ASR)
 - 1) potable water injection
 - 10-30 gpm
 - 3 wells
 - 2) monitoring
 - 3) recovery

