

Concurrent Meeting

November 6, 2017

Information distributed during

Public Comment

Agenda Item 4

# REDEFINING THE FUTURE

HAZMAT  LEADERSHIP  PREVENTION  
SUPPRESSION  HANDS-ON  VOLUNTEER  
COMMAND  SAFETY  HEALTH & WELLNESS

## FireShows™ WEST Conference and Expo

BCC Concurrent 11-6-17  
William Steward #4

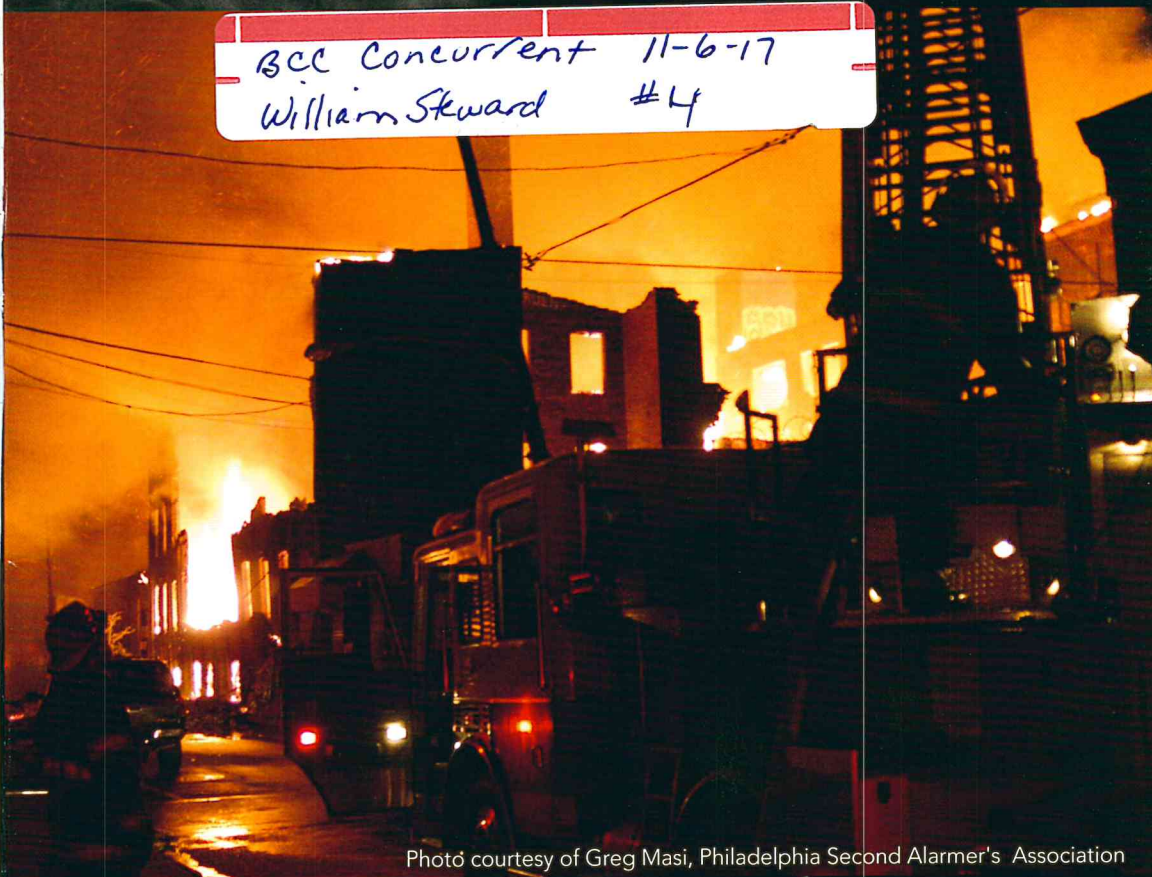


Photo courtesy of Greg Masi, Philadelphia Second Alarmer's Association

**NOVEMBER 6 - 9, 2017**

**GRAND SIERRA RESORT • RENO, NV**

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# monday NOVEMBER 6

8:00 am - 5:00 pm

**HZ1 HTAC - Hazmat Tactical Analysis Card**  
Clint Greenwood & John Carpenter,  
HazTrek Emergency Response Training  
and Consulting LLC

**CM1 Table Top Command**  
Jesse Quinalty, Captain, Upland Fire  
Department & Red Helmet Training, CA

**NFA1 National Fire Academy - Managing  
Fire Officer Course Leadership II (FO804)**  
**Monday & Tuesday 8:00 am - 5:00 pm (16hr)**  
Sponsored by the Nevada State Fire  
Marshal Division, NV

**LE1 Ethics & Leadership for the Fire Officer**  
Mark Romer, Division Chief (Ret.)  
Roseville Fire Department, CA

# tuesday NOVEMBER 7

8:00 am - 10:00 am

**FP1 Understanding Display Fireworks  
Operations**  
John Hagan,  
Zambelli Fireworks, Shafter, CA

8:00 am - 5:00 pm

**SU1 Building Construction for  
Today's Fireground**  
Barry Franchi, Captain (Ret.),  
San Jose Fire Department, CA  
James Johnson, Firefighter,  
Vancouver Fire & Rescue, Vancouver, BC

8:00 am - 12:00 pm

**HZ2 TIER-1 (Toxicology in Emergency  
Response) Medical Response to  
select WMD's**  
David Ladd, Captain  
Henderson Fire Department, NV

**SA1 Emergency Vehicle Response Safety**  
Justin Eberly, Education and Training  
Specialist, VFIS, York, PA

1:00 pm - 3:00 pm

**SA2 Emergency Services Incident  
Investigation**  
Justin Eberly, Education and Training  
Specialist, VFIS, York, PA

1:00 pm - 5:00 pm

**LE2 Habits of Highly Effective Incident  
Commanders**  
Kevin Ward, Fire Chief,  
Layton City Fire Department, Utah  
Paul Sullivan, Deputy Chief,  
Weber Fire District, UT

**HZ3 Chemistry of Hazardous Materials**  
David Ladd, Captain  
Henderson Fire Department, NV

**SU2 SLAB SAVERS**  
Jesse Quinalty, Red Helmet Training,  
Rancho Cucamonga, CA

**LE3 Going the Distance on Your  
Road to Leadership**  
Paul Strong, Battalion Chief,  
Valley Regional Fire Authority, WA

**VOL1 Leading the Transition in Volunteer  
& Combination Fire Departments**  
Ron J. Cheves, Fire Chief (ret.), IAFC  
James Grady III, Fire Chief (ret.),  
Illinois Fire Chiefs Association

## National Fire Academy

**NFA1 Managing Fire Officer Program  
Leadership II for Fire and EMS (FO804)**

Sponsored by the  
Nevada State Fire Marshal Division

**Please refer to the website  
for certification information  
[www.fireshowswest.com](http://www.fireshowswest.com)**

## HANDS-

Monday - 8:00 am to 5:00 pm

**HDS1 Advanced Auto Extrication for  
the "Beginner"**  
Steve Carpenter,  
Batt Chief (Ret.), Vacaville, CA  
John Jurado, Captain,  
Dixon Fire Department, CA

Tuesday - 8:00 am to 12 Noon

**HDS2 Large Caliber Streams, Bringing  
Out the Big Guns**  
Paul Shapiro, Engineer (Ret.),  
Las Vegas Fire & Rescue,  
Las Vegas, NV

# wednesday NOVEMBER 8

**8:30 am - 10:00 am**

**KEY1** Living a Better Life Through Understanding the Power of Trust and Teamwork: Lessons from 9/11  
Michael Hingson,  
Michael Hingson Group, Victorville, CA

**1:00 pm - 3:00 pm**

**HZ4** Atmospheric Monitoring for Knuckleheads  
Kent Freeman, Captain (Ret.),  
Roseville Fire Department, Roseville, CA

**LE4** RIC for REAL: Lessons Learned from 400 Firefighters  
Paul Strong, Battalion Chief,  
Valley Regional Fire Authority, WA

**LE5** First Responders and Persons with Disabilities: Fears, What to do AND What Not to do  
Michael Hingson,  
Michael Hingson Group, Victorville, CA

**CM2** The First 24 Minutes - Amtrak 188 Train Derailment/Transportation Accident, 4- Alarms  
Vincent Mulray, Deputy Chief,  
Philadelphia Fire Department, PA

**FP2** Hoarding Hazards for the Fire Service  
Jeff Donahue, Regional Education Specialist, NFPA, Public Education Division, Quincy, MA

**1:00 pm - 3:00 pm**

**LE6** Rural Fire Officer: Leading Rural Fire Agencies  
Devon Wells, Fire Chief (Ret.)  
First Vice President, International Society of Fire Service Instructors (ISFSI)

**WE1** Stress Management and Behavioral Wellness  
Brandon Dreiman, FF/Paramedic,  
Indianapolis Fire Department, IN

**3:30 pm - 5:00 pm**

**HZ5** First 30 Minutes Ammonia Emergency Response  
Gary Smith, President, Ammonia Safety & Training Institute, Monterey, CA

**LE7** Chief Officer Toolkit- Political Acumen  
Jeff Meston, Fire Chief,  
South Lake Tahoe Fire Rescue, CA

**LE8** Social Media for Fire Service Leaders  
Sean Slamon, Fire Chief,  
Carson City Fire Department, NV

**SU3** Box 366, Front & York Streets, Line of Duty Deaths, Mill Building Fire, 5-Alarms  
Vincent Mulray, Deputy Chief,  
Philadelphia Fire Department, PA

## Visit the Exhibit Hall

Wed 10:00am to 5:00pm  
Thurs 10:00am to 2:00pm

## ON TRAINING ZONE

Wednesday - 8:00 am to 5:00 pm

**HDS3** Search and Rescue Operations  
Lead Instructor: Tim Adams,  
Battalion Chief, Anaheim  
Fire and Rescue, CA

Thursday - 8:00 am to 5:00 pm

**HDS4** Live Fire Evolutions Training  
Lead Instructor: Tom Martinez,  
Nevada State Fire Marshal Division

## Continuing Education

Course curriculum has been submitted to Columbia Southern University for CEU evaluation.

International Code Council (ICC) Fire Prevention classes held in conjunction with FireShowsWest have been submitted to ICC for approval of CEU credit.

## Color Code Legend

**HZ - HAZMAT**  
**LE - LEADERSHIP**  
**FP - PREVENTION**  
**SU - SUPPRESSION**  
**CM - COMMAND**  
**SA - SAFETY**  
**VOL - VOLUNTEER**  
**WE - HEALTH & WELLNESS**

# Welcome and Keynote Speaker - Michael Hingson

*Living a Better Life Through Understanding the Power  
of Trust and Teamwork: Lessons from 9/11*



Michael Hingson uses his personal experiences of over 35 years in high technology sales and management, 53 years with guide dog partners, and his survival of the Twin Towers terrorist attacks on 9/11, to address the issue of building a team based on trust. He captivates his audiences with stories and lessons about how he has created successful and high functioning teams wherever he goes. "The power of trust and teamwork is all around us if we learn how to harness it and use its strengths wisely" Mike says. Mike's audiences discover

first-hand how he lived through the terrorist attacks by forming teams to keep everyone around him focused and to successfully work toward the common goal of escape from Tower One.

Mike's thoughtful insights inspire his audiences to change the way they think about the way they live, work and relate to each other. Listeners learn about skills and methods Mike uses daily to create teams and how Trust and Teamwork enriches his life as well as the lives of those around him.

**WEDNESDAY NOVEMBER 8 - 8:00am - 10:00am**

## thursday NOVEMBER 9

**8:00 am - 10:00 am**

**FP3 From Sand Box to Shuffleboard: Fire Safety Across Generations**  
Jeff Donahue, Regional Education Specialist, NFPA, Public Education Division, Quincy, MA

**CM3 "Trench Rescue" Current Concepts, Trends and Paradigms**  
Kent Freeman, Captain (Ret.), Roseville Fire Department, Roseville, CA

**SU5 What's Hiding Behind the Walls?**  
James Johnson, Firefighter, Vancouver Fire & Rescue, Vancouver, BC

**LE9 Panel Discussions - Fire Chiefs "Unplugged"**  
Jeff Meston, Panel Leader, Fire Chief, South Lake Tahoe Fire Rescue, CA

**8:00 am - 11:00 am**

**HZ6 Emergency Response to Alternative Fueled Vehicles**  
David Ladd, Captain Henderson Fire Department, NV

**WE2 S.O.S. Significant Other Survival**  
Kathleen Wellbrock, Ph.D., The Counseling Team International, San Bernardino, CA  
*Note: This class is open to attendees and their significant others for class participation. There is no additional cost to attend this session.*

**10:30 am - 12:00 pm**

**FP4 Pitfalls of High Rises and Wide Rises**  
David Kerr, Assistant Chief/Fire Marshal Plano Fire Department, Plano, TX  
*This session will be held in two segments.  
10:30 am - 12:00 pm and 1:00 pm - 2:30 pm*

**SU6 Tilt-Up Construction: Fortress or House of Cards?**  
James Johnson, Firefighter, Vancouver Fire & Rescue, Vancouver, BC

**1:00 pm - 2:30 pm**

**FP4 Pitfalls of High Rises and Wide Rises Segment 2**

**LE10 The Stack Effect**  
William Steward, Captain, Truckee Meadows Fire Protection District, NV

**SU7 After Action Renew**  
Jesse Quinalty, Captain, Upland Fire Department & Red Helmet Training, CA

**HZ7 Nevada's Chemical Accident Prevention Program, 26 Years of Chemical Process Safety Oversight**  
Kelly Thomas, NDEP, NV



Photo courtesy of South Lake Tahoe Fire Rescue, CA

## REGISTRATION FEES

Full Conference Package	Mon. – Thurs.	\$398.00
Three-Day Conference Package	Tues. – Thurs.	\$298.00
Two-Day Conference Package	Mon. & Tues.	\$250.00
Two-Day Conference Package	Wed. & Thurs.	\$250.00
Daily Rates - Hands-on Training	Mon. – Thurs.	\$145.00
Daily Rates (Colleague offer does not apply)	Mon. – Thurs.	\$135.00
Colleague Offer (for multi-day packages only)		\$ 50.00
Exhibits Only		\$ 20.00
NFA Course-Leadership II for Fire and EMS (F0804)		No Charge

All registrations must be paid in U.S. Dollars

## FireShowsWest and Fire Prevention Conference Packages

Mon. – Thurs.	\$398.00
Tues. – Thurs.	\$298.00
Mon. & Tues.	\$250.00
Wed. & Thurs.	\$250.00
Mon. – Thurs.	\$145.00
Mon. – Thurs.	\$135.00
	\$ 50.00
	\$ 20.00
	No Charge

## \$50.00 Colleague Offer

Want to attend with a colleague? When one person in your department registers, a second colleague can attend for \$50.00.

Restrictions:

- This offer is NOT available on Daily Rate packages. Colleague offer will run through Friday, October 20.
- This offer does not apply to the Nevada LEPC HAZMAT program or Hands-On Training.

## Nevada LEPC HAZMAT

### Registration \$195.00

Nevada HAZMAT Program runs Mon., 11/6 through Thurs., 11/9 (Grant funding provided by Nevada SERC) To qualify for the \$195.00 rate, you must be sponsored by a Nevada LEPC through a current Hazardous Materials Emergency Preparedness (HMEP) grant.

For more information, visit [FireShowsWest.com](http://FireShowsWest.com) or call 1-800-632-7489.

## Special Events

### Lower Level - Nevada Exhibition Center

#### Mentor Central Mixer

Wednesday, November 8  
5:00 pm – 6:30 pm

#### First Responder Health and Wellness Fair

Thursday, November 9  
1:00 – 4:00 pm

## Hotel Information

### Grand Sierra Resort Hotel

2500 East Second Street | Reno, NV 89595  
Group Code: FSW17  
Cut-off date: Wednesday, October 18, 2017

Standard Room Rate:  
\$69.00 per night + \$18.00 Resort Fee = \$87.00  
\$2.00 per night tourism fee  
\$11.31 Room Tax (13%)  
Estimated Room cost is \$100.31 per night  
For reservations: (775) 789-2000 or (866) 473-6672  
[www.grandsierraresort.com](http://www.grandsierraresort.com)

## How to Register

### Register online at [FireShowsWest.com](http://FireShowsWest.com)

For questions or assistance with registration, contact Jo Anne Hill at 1-800-632-7489 or [joanne@fireshowswest.com](mailto:joanne@fireshowswest.com)

### Cancellation Policy

Cancellations for conference registration will be subject to a \$50 administrative fee. Cancellation fee does not apply to Exhibit Hall Passes. Cancellations must be received via email by October 20, 2017. After October 20, the registration fee is nonrefundable.

**Accommodations:** Persons who wish to request disability-related accommodations should contact our office at 1-800-632-7489 at least two weeks in advance.

## Registration Check-in Location Grand Sierra Resort Hotel

### General Registration Hours — Conference and Exhibits

Monday, November 6	7:00 am – 5:00 pm
Tuesday, November 7	7:00 am – 5:00 pm
Wednesday, November 8	7:00 am – 5:00 pm
Thursday, November 9	7:00 am – 11:00 am

Registration will be near the Exhibit Hall.

### Exhibitor Check-in/Registration Hours

Tuesday, November 7	8:00 am – 5:00 pm
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## Exhibit Hall Hours

Wednesday, November 8	10:00 am – 5:00 pm
Thursday, November 9	10:00 am – 2:00 pm

## Conference and Expo Location

### Grand Sierra Resort Hotel

Lower Level

2500 East Second Street  
Reno, NV 89595



## Schedule at a Glance

### Exhibit Hall Schedule

#### Tuesday, November 7

8:00 am to 11:00 am Apparatus Move-in  
11:00 am to 5:00 pm Exhibitor Move-in

#### Wednesday, November 8

10:00 am Exhibit Hall Opens  
10:00 am to 5:00 pm Exhibits Open

#### Thursday, November 9

10:00 am Exhibit Hall Opens  
10:00 am to 2:00 pm Exhibits Open  
2:00 pm Exhibit Hall closes



### Conference Schedule

#### Monday, November 6

8:00 am - 5:00 pm Pre-Conference Sessions  
8:00 am - 5:00 pm Hands-on Session

#### Tuesday, November 7

8:00 am to 5:00 pm Pre-Conference Sessions  
8:00 am to 12:00 pm Hands-On Session

#### Wednesday, November 8

8:00 am to 10:00 am Welcome & Keynote Session  
8:00 am to 5:00 pm Hands-On Session  
10:00 am to 5:00 pm Exhibits Open  
10:00 am to 1:00 pm Expo Hall / Networking  
1:00 pm to 5:00 pm Conference Sessions  
5:00 pm to 6:30 pm "Mentor Central" Mixer

#### Thursday, November 9

8:00 am to 2:30 pm Conference Sessions  
8:00 am to 5:00 pm Live Fire Evolution Session  
10:00 am to 2:00 pm Exhibits Open  
1:00 pm to 4:00 pm Health & Wellness Fair



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California Training Officers Association  
Fire Prevention Association of Nevada  
Fire Service Manufacturers and Vendors Association  
Lake Tahoe Regional Fire Chiefs Association  
Nevada State Emergency Response Commission  
Nevada State Fire Marshal Division  
Nevada State Firefighters' Association  
Northern Nevada Fire Chiefs Association



1st  
Good Morning Councils, Commissioners, and Board members.  
Tammy Holt-Still - Lemmon Valley Swan Lake Recovery Committee  
The water is still there, I'm still here for the record.

Regrettably I have to start off with some very disturbing horrifying news.

Washoe County has

1. Announced the displaced residents of Lemmon Valley will no longer received assistance but yet CAN NOT return to their homes. How could you allow this to happen to these citizens you are sworn to protect and serve? A senior couple where he has served and protected this nation and is now disabled? Makes me SICK!!!
2. Red Tagged residents received a Letter from Washoe County demanding the residents to complete work on homes with no assistance to do so.
3. Washoe County Commissioners and staff making negative disrespectful statements about Lemmon Valley residents to other public officials and professionals.

At this time Washoe County and the City of Reno have yet done their fiduciary responsibility, this is not the state's or federal governments responsibility, it's your mess clean it up.

You see these people in the gallery they feel the same way I do and I encourage all of them to speak out loud so you hear them.

Time to step up and do the following.

1. Assist the residents displaced from the effluent waters generated by Washoe County and the City of Reno by
  - A. pay for their housing until such time as they can return home.
  - B. pump your effluent water someplace other than Swan Lake now not 10 years from now.
  - C. protect ALL the homes and church from being flood
  - D. URGE TRC, City of Reno and TMRPA to fund from HUD for residents to rehabilitate their homes.
2. Put a moratorium on all construction and connection to the Stead and County Sewer systems until effluent waters are no longer going in Swan Lake.
3. Quite with what you see in this picture, which was installed at the corner of Stead and Lear.

These are just a start of what needs to be done now.

BCC Concurrent 11-6-17  
Tammy Holt-Still #4





KOMATSU

THIS  
BLOCK

LANE  
CLOSED

I'd like to say "Thank you" to all of you here today representing various entities of our local government.

This is very important, if you haven't seen it, each of you should seriously watch the movie "An Inconvenient Truth Sequel, "Truth to Power" by our 45<sup>th</sup> Vice President, Al Gore. Right now you can get it from Charter on demand.

It's about Global Warming and it's shocking effects. Effects that caused us to gasp at the shock of our neighbors in the Napa Valley and the horrific fires that we could have NEVER imagined could or would happen.

Effects that caused the unimaginable flooding in our local areas this past year.

Please try to follow this with me.....

<https://www.usbr.gov/main/about/fact.html>

### **From The Bureau of Reclamation:**

"an acre-foot, 325,851 gallons of water, supplies enough water for a family of four for one year).

Which equals a total residential use of 8000 homes having a 4 member family.

**From Vidler Water. Com –The controlling interest in the ranch property which produced the "Fish Springs Ranch – Water Deal" States: The approximate 8,000 acre-feet of groundwater is enough water to support at least 16,000 new residential homes in the Reno market.**

(I suppose they think the average family of a man and woman do not have children, thereby stretching their 8000 acre feet of water to 16,000 homes.)

### **From the Reno Gazette Journal, April 29, 2015 –**

In an article written "Pipeline would provide new water for the North Valleys"

"An acre-foot of water can supply about two "SINGLE" Family homes for a year" This article goes on to say how valuable this

BCC Concurrent 11-6-17  
- Denise Ross #4

water is at that time, since the drought, then in its FOURTH year, could continue longer, and would provide AN EXTRA 8000 FEET OF DROUGHT BACKUP.

Now..... going back in time to a June 2007 ECO:LOGIC Engineering report:

Stormwater management and flood control are also very important considerations that affect water and wastewater issues in the Stead and Lemmon Valley TMSA. Geographically, the areas lie within a closed basin, so precipitation and runoff stays within the basin.

Presently, stormwater runoff is routed to Swan Lake and Silver Lake. Since there is very little percolation from these playa lakes, the water persists for several months or seasons until it evaporates. Each of these lakes has established FEMA 100year flood elevations. Recent planning work indicates that more severe flooding may occur at Silver Lake than identified by the current flood elevation.

Furthermore, additional runoff resulting from development in the Swan Lake watershed will need to be mitigated to prevent an increase in the flood elevation.

Now, please consider, the Fish Springs Pipeline, the new housing areas, warehouses, and already

converted homes from wells that ran dry, consider Global Warming and Nevada's history of drought, consider the engineering reports warning of stormwater management, flood control, and wastewater issues that result in additional runoff from development.

ASK YOURSELF, WHERE IS THIS 8000 ACRE FEET OF WATER, BEING PUMPED IN FROM FISH SPRINGS, THAT MAY ONE DAY GO DRY, GOING TO INEVITABLY END UP?? SWAN LAKE AND SILVER LAKE.

You are all on record as being in attendance of this wake up call.

I am giving the reports to the clerk for you to review.

Thank you

Stormwater management and flood control are also very important considerations that affect water and wastewater issues in the Stead and Lemmon Valley TMSA. Geographically, the areas lie within a closed basin, so precipitation and runoff stays within the basin.

Presently, stormwater runoff is routed to Swan Lake and Silver Lake. Since there is very little percolation from these playa lakes, the water persists for several months or seasons until it evaporates. Each of these lakes has established FEMA 100year flood elevations. Recent planning work indicates that more severe flooding may occur at Silver Lake than identified by the current flood elevation.

Furthermore, additional runoff resulting from development in the Swan Lake watershed will need to be mitigated to prevent an increase in the flood elevation.

## Table of Contents

Section 6 - Stead and Lemmon Valley TMSA .....	1
6.1 Study Area Description and Development Constraints .....	1
6.2 Conclusions and Summary Recommendations .....	2
6.3 Description of Service Providers.....	2
6.3.1 Water.....	2
6.3.2 Wastewater .....	3
6.4 Status of Infrastructure Planning.....	3
6.5 Water .....	5
6.5.1 Assumptions, Planning Criteria, and Methodology .....	5
6.5.2 Existing and Future Water Demand .....	5
6.5.3 Water Resources.....	7
6.5.4 Planned Water Facilities.....	9
6.5.5 Water Facility Cost Estimates.....	10
6.5.6 Water Planning Limitations.....	11
6.6 Wastewater.....	11
6.6.1 Assumptions, Planning Criteria, and Methodology .....	12
6.6.2 Existing and Future Wastewater Flow .....	12
6.6.3 Water Reclamation and Disposal .....	13
6.6.4 Planned Wastewater Facilities .....	13
6.6.5 Wastewater Facility Cost Estimates .....	14
6.6.6 Wastewater Planning Limitations .....	15
6.7 Policy Recommendations (Inclusive of Water, Wastewater).....	15

## List of Tables

Table 6.1 - TAZ Data Modification.....	1
Table 6.2 - Infrastructure Costs.....	2
Table 6.3 - Recent Facility Plans.....	4
Table 6.4 - Existing Water Demands.....	6
Table 6.5 - City of Reno Water Demands.....	6
Table 6.6 - Washoe County Water Demands.....	6
Table 6.7 - Domestic Well Demands.....	7
Table 6.8 - Potentially Available Water Resources .....	8
Table 6.9 - Water Demand and Resources Comparison.....	8
Table 6.10 - Water Facility Totals.....	10
Table 6.11 - Water Infrastructure Costs .....	10
Table 6.12 - Existing Wastewater Flows .....	12
Table 6.13 - City of Reno Wastewater Projections.....	12
Table 6.14 - Washoe County Wastewater Projections .....	12
Table 6.15 - Septic Tank Conversion Flow Projections.....	13
Table 6.16 - Summary of Recommended Wastewater Infrastructure.....	14
Table 6.17 - Wastewater Infrastructure Costs .....	14

## List of Figures – Included at End of Section

Figure 6-1	Study Area
Figure 6-2	Area Constraints
Figure 6-3	Water Purveyor Service Area
Figure 6-4	Wastewater Service Area
Figure 6-5	Planned TMSA Water Facilities
Figure 6-6	Planned Wastewater Collection & Treatment Facilities
Figure 6-7	Planned Reclaimed Water & Disposal Facilities

# Section 6 - Stead and Lemmon Valley TMSA

## 6.1 STUDY AREA DESCRIPTION AND DEVELOPMENT CONSTRAINTS

The Stead / Lemmon Valley TMSA is shown on Figure 6-1 (see figures at end of section) and includes areas within the jurisdiction of both the City of Reno and Washoe County. There are two hydrobasins covering this area that are known as West and East Lemmon Valley. Surface runoff within the West Lemmon Valley basin drains to the Silver Lake playa. Surface runoff within the East Lemmon Valley basin drains to the Swan Lake playa. The TMSA is complex from the perspective of whether particular areas are under the jurisdiction of either the City of Reno or Washoe County, who the water and wastewater purveyors are, and who has responsibility for stormwater and floodplain management. Additionally, there is the Swan Lake Advisory Board that has responsibility for planning and management of the Swan Lake playa and surrounding public open space.

The City of Reno portion of the TMSA generally includes the central portion of the TMSA known as Stead and the North Virginia Corridor. Included within this area are the Reno-Stead Regional Airport Center, the North Virginia Transit Oriented Development Corridor (TOD), and a significant amount of existing and proposed future residential, commercial, and industrial development.

As mentioned in Section 1, the land use basis for facility planning was Traffic Analysis Zone (TAZ) data provided by the City of Reno and Washoe County, with supplemental information derived from the City's Master Plan and Washoe County planned land uses. These data were modified with more detailed information provided by the University of Nevada, Reno (UNR) Small Business Development Center and developer's representatives. TAZ identifications where more current information was incorporated are listed in Table 6.1 and shown in Figure 6-A1 (Appendix A).

Table 6.1 - TAZ Data Modification

TAZ	Modification
399	Used water demands from the North Valley Water Supply Comparison report
405	Modified dwelling units from UNR approved unbuilt data
408	Modified dwelling units from UNR approved unbuilt data
631	Modified dwelling units from UNR approved unbuilt data
634	Modified dwelling units from UNR approved unbuilt data
688	Modified dwelling units from UNR approved unbuilt data
806	Modified dwelling units using Wallach IX planning data



Areas that are limited or constrained for future development include the Reno-Stead Airport, Silver Lake playa, Swan Lake playa, floodplains, and areas with slopes greater than thirty percent. These areas are shown on Figure 6-2.

## 6.2 CONCLUSIONS AND SUMMARY RECOMMENDATIONS

Insufficient water resources exist to serve the projected 2030 demands in Stead and Lemmon Valley, when potential demands for Cold Springs are taken into consideration. The projected increase in demand is approximately 18,580 AF, compared to the potentially available water resources of 11,909 AF. Expanded use of reclaimed water, such as front and back yard residential landscape watering, should be implemented where reasonable to extend available water supplies and help fulfill the development potential within the Reno and County TMSA.

In Stead and Lemmon Valley, an estimated 3,467 AF of new residential irrigation demand may be served by reclaimed water.

The 2030 total projected wastewater treatment plant capacity for the Stead and Lemmon Valley TMSA is approximately 7.2 MGD, including potential septic tank conversion flows. Regional water supply, water reclamation and wastewater disposal should be a coordinated effort for the Stead, Lemmon Valley and Cold Springs TMSA because of their common effluent disposal constraints.

A summary of the estimated water and wastewater costs for the proposed infrastructure is listed in Table 6.2.

Table 6.2 - Infrastructure Costs (a)

Facility Description	Total Cost (\$M)
Water	\$163.5
Wastewater	\$171.1

(a) 20 Cities ENRCCI = 7,942 May 2007

## 6.3 DESCRIPTION OF SERVICE PROVIDERS

The water and wastewater service providers are described in the following sections.

### 6.3.1 Water

The Stead / Lemmon Valley area is served by two water purveyors, Truckee Meadows Water Authority (TMWA) and Washoe County. Initially, the City of Reno portions of Stead were entirely served by TMWA. Now that the City has expanded its annexation and TMSA, there are portions of the City of Reno that lie within the Washoe County Department of Water Resources

water service area. This complicates matters when describing facilities, service areas, and City/County jurisdictional areas.

TMWA provides water service to existing customers within the majority of Reno's TMSA in Stead. Washoe County is the water purveyor for the remainder of the Stead / Lemmon Valley TMSA, including the portion of Reno's TMSA lying in the northwest portion of the TMSA and the northern portion of the Reno-Stead Airport properties. Figure 6-3 depicts the water purveyor service areas, Reno City limits, and locations of existing domestic wells.

### **6.3.2 Wastewater**

The City of Reno provides wastewater collection, treatment and disposal for Reno's Stead TMSA with wastewater flows being treated at the City's Reno-Stead Water Reclamation Facility (RSWRF). RSWRF is also anticipated to provide service to a significant portion of Washoe County's TMSA within the Lemmon Valley area. Washoe County presently provides wastewater collection, treatment and disposal to existing customers in the Lemmon Valley area at the Lemmon Valley Wastewater Treatment Plant (LVWWTP). Wastewater service for the majority of new development within the County TMSA is anticipated to be provided by expansion of the RSWRF facility. Figure 6-4 depicts the locations of the two wastewater treatment facilities, areas anticipated to be served by these facilities, and the locations of existing parcels with septic tanks.

## **6.4 STATUS OF INFRASTRUCTURE PLANNING**

The Stead and Lemmon Valley TMSA is poised for development with the implementation of new water supply projects for the area and the expansion of the RSWRF.

Historically, development within the area has been limited due to a lack of available water supplies. The TMWA service capability has been limited by the available capacity of the Stead Main, which supplies water to Stead from the Central Truckee Meadows. Additionally, groundwater resources within the TMWA and Washoe County water systems have been fully allocated.

Vidler Water Company is constructing the Fish Springs Water Supply Project, and TMWA is constructing the North Virginia / Stead Pumping System Improvements. With these two water supply projects, and the Intermountain Water Supply project also under development, over 10,000 AF of new water supplies will be available to support development within the Reno and Washoe County TMSA.

With the implementation of these water supply projects underway, Reno has expanded the capacity of the RSWRF. Present capacity is 2.35 MGD, with improvements to further increase capacity to 3.25 MGD under design. Washoe County currently has no plans to expand the LVWWTP, but it will be maintained in operation for the foreseeable future to serve existing customers in Lemmon Valley. Because the Stead and Lemmon Valley area is a closed basin, disposal of the treated wastewater is a challenge. Presently, treated wastewater is reused for

irrigation of parks, a golf course and open spaces, and is supplied to Swan Lake to enhance wetland habitat. As the need for additional wastewater disposal capacity increases, plans are to provide a small amount of additional reclaimed water to the Swan Lake wetlands, and expand the use of reclaimed water for proposed water features and landscape irrigation within new developments. Implementation of other disposal options, such as rapid infiltration basins or export to other basins such as Bedell Flat and Long Valley Creek, are also under investigation. These other disposal options are necessary to manage the overall water resources of the area, taking into consideration water supply, wastewater treatment and disposal, and flood control.

Stormwater management and flood control are also very important considerations that affect water and wastewater issues in the Stead and Lemmon Valley TMSA. Geographically, the areas lie within a closed basin, so precipitation and runoff stays within the basin. Presently, stormwater runoff is routed to Swan Lake and Silver Lake. Since there is very little percolation from these playa lakes, the water persists for several months or seasons until it evaporates. Each of these lakes has established FEMA 100-year flood elevations. Recent planning work indicates that more severe flooding may occur at Silver Lake than identified by the current flood elevation. Furthermore, additional runoff resulting from development in the Swan Lake watershed will need to be mitigated to prevent an increase in the flood elevation. Stormwater management and flood control are discussed in Section 14.

The most recent facility plans for water and wastewater are listed in Table 6.3.

Table 6.3 - Recent Facility Plans

Plan Name	Date	Description
<b>Water</b>		
North Valley Water Supply Comparison Reference: ECO:LOGIC	Oct. 2002	Detailed analysis of water supply alternatives that will support the build-out land uses in the Stead, Lemmon Valley, and Cold Springs regions of Washoe County.
North Valley Water Facility Plan Update Reference: ECO:LOGIC	Jan. 2007	Identification of the backbone water infrastructure that would be required to serve new development once new water resources from the Fish Springs Water Supply Project and Intermountain Water Supply Project become available.
North Virginia Stead Pumping System Improvements Reference: ECO:LOGIC	Sept. 2005	Evaluate design options and develop the proposed design criteria for the pump station, pipeline and tank to replace the Stead Main and North Virginia pump zone facilities.
Fish Springs Ranch Facility Plan Reference: ECO:LOGIC	Sept. 2005	Construction of the Fish Springs Water Supply Project to meet future water demands for the Stead, Silver Lake and Lemmon Valley area (North Valleys) within the Truckee Meadows Services Area. The project consists of a new electrical substation off of the Alturas Transmission Line, groundwater production wells, a pump station, a transmission pipeline and terminal water storage tank to convey water from Fish Springs Ranch to the North Valleys. The facilities will be sized to supply 8,000 AF of water per year (AFA).

2005-2025 Water Facility Plan Reference: TMWA	Dec. 2004	Describes the necessary water distribution and treated water storage facilities to meet the forecasted demands and resource optimization goals in the 2025 water resource plan.
<b>Wastewater</b>		
North Valley Effluent Disposal Options Reference: ECO:LOGIC	Sept. 2005	Evaluation of effluent disposal strategies in the North Valleys.
Reno Stead Wastewater Reclamation Facility Expansion Design Report Reference: ECO:LOGIC	April 2004	Provide the necessary additional capacity, unit process redundancy and other improvements required to reliably treat wastewater generated in the planning area in order to accommodate growth, improve treatment flexibility, and provide process redundancy.
Regional Water Master Plan Amendment-Disposal Options Reference: ECO:LOGIC	July 2006	This Amendment sets forth the objectives and strategy to address wastewater disposal planning for the Stead / Lemmon Valley area.
Draft Washoe County 208 Water Quality Plan Version 3 Reference: Truckee Meadows Regional Planning Agency	January 2007	Per section 208 of the Clean Water Act this report provides the planning and management of all sources of water pollution and defines the parameters for area-wide wastewater management plans.

## 6.5 WATER

The projected water demands and required infrastructure are developed in this section.

### 6.5.1 Assumptions, Planning Criteria, and Methodology

Water demand factors used to generate demand are based on TMWA design standards for both the TMWA and County areas. The TMWA Rule 7 demand factors are also relevant to the County because new development will dedicate water resources in accordance with TMWA water rights dedication policies.

In the case of non-residential development, the demand factor used represents an average number for planning purposes only. When TMWA or Washoe County receives a request for water service on a non-residential property, the actual water rights dedication requirement will be based on a project-specific analysis of the number of fixture units and the specific landscaping plan. This level of detail is not available for this analysis.

### 6.5.2 Existing and Future Water Demand

Estimated water demands for Reno and the County are listed in Table 6.4, and are based on data provided by the County and TMWA. The demand estimates are approximate and are representative of typical demands that could be expected without the influence of seasonally cool/wet or hot/dry periods that tend to skew the historical record.

Table 6.4 - Existing Water Demands

	Estimated Demand (AFA)
City of Reno	4,035
Washoe County	791

Based on the TAZ analysis, projected water demands for Reno and the County are listed in Table 6.5 and Table 6.6, respectively. The irrigation demand component is projected assuming that 6,000 gallons per month of water is consumed within a typical house, and the remainder is used for irrigation. The irrigation demand range is based on front yard only irrigation, and the combined front and back yard irrigation. Irrigation demand was not estimated for commercial or industrial use because there is no projection available for the amount of new commercial and industrial acreage that will be built by 2030. The total demands include both indoor and outdoor water use. The projected increase in demand is an approximation based upon the difference between the total demand minus the estimated demand reported in Table 6.4.

Table 6.5 - City of Reno Water Demands (a)

Condition	Irrigation Demand Component (AFA)	Total Demand Including Irrigation (AFA)	Projected Increase in Demand (a) (AFA)
2030 (b)	660-1,320	8,277	4,242
2095 (c)		13,417	9,382

- (a) Based on TAZ analysis, minus estimated demands from Table 6.4.
- (b) Based on 12,716 dwelling units and 2,199 acres of commercial and industrial land use.
- (c) Based on 23,084 dwelling units and 2,199 acres of commercial and industrial land use.

The water rights/demands associated with the potential for intensified development within the Reno-Stead Regional Airport Center and North Virginia TOD were compared to the overall demand for the Stead / Lemmon Valley TMSA. Of the 2030 City of Reno water rights requirement, approximately 3,560 AFA or 43 percent is estimated to be within the TOD and Center area. This includes new demands, and potential redevelopment of existing properties.

Table 6.6 - Washoe County Water Demands

Condition	Irrigation Demand Component (AFA) (b)	Total Demand Including Irrigation (AFA) (b)	Projected Increase in Demand (a) (AFA)
2030	1,074- 2,147	6,900	6,109

- (a) Based on TAZ analysis, minus estimated demands from Table 6.4.
- (b) Based on 12, 241 dwelling units and 92 acres of commercial and industrial land use.

An estimate of water demands associated with domestic wells is listed in Table 6.7 for Reno and the County. In the TAZ analysis, existing houses were analyzed the same way whether the house

has a domestic well, or not. The flows projected in Tables 6.5 and 6.6 include demands from houses with an existing well.

Table 6.7 - Domestic Well Demands

	Number of Domestic Wells	Domestic Well Demands (AFA) (a)
Reno	151	169
County	1,217	1,363
Total	1,368	1,532

(a) Domestic well conversion based on 1.12 AFA per well

### 6.5.3 Water Resources

Existing water resources available to the Stead and Lemmon Valley area include Truckee Meadows surface and groundwater delivered by TMWA through the Stead Main, and local groundwater resources. The North Virginia / Stead Pumping System Improvement Project will increase supply capacity to the City of Reno TMSA. As part of this project, TMWA is also providing a new 990 gpm wholesale water supply to Washoe County for its TMSA in the Lemmon Valley and Golden Valley areas. It is anticipated that this water supply project will provide new development with approximately 200 to 400 AFA within the TMWA service area, and 400 to 500 AFA for Washoe County.

The Fish Springs Water Supply Project will provide 8,000 AF of new water per year for development. The water will be delivered to the northeast portion of Lemmon Valley, and will be available for use in early 2008 within both the City of Reno and Washoe County TMSA in Stead and Lemmon Valley. Additional water resources from the Intermountain Water Supply Project may also become available in the near future. The project has received permitting approvals from the BLM and Washoe County, and could be implemented within a one year time frame once all construction related approvals have been obtained.

Substantial amounts of reclaimed water, up to 8,065 AFA, could also become available from RSWRF as new development generates additional wastewater flows. This high quality reclaimed water is suitable for landscape irrigation, including residential areas, and could be used to extend the available potable water supplies. Landscape irrigation accounts for approximately half of the total water demand for a typical residential unit. Water demands could be further reduced by implementing water conserving landscaping practices and/or xeriscaping.

Existing and potentially available water resources to serve both the City of Reno and Washoe County TMSA in the Stead and Lemmon Valley area are presented in Table 6.8.

Table 6.8 - Potentially Available Water Resources

Source Description	Supply (AFA)
<b>Existing Resources</b>	
TMWA Truckee Meadows Surface / Non-Stead Groundwater	3,265 (a)
TMWA Stead Groundwater	770
Washoe County Groundwater	1,258
Reclaimed Water	(b)
<b>Total</b>	<b>5,293</b>
<b>Future Resources</b>	
TMWA Truckee Meadows Surface / Groundwater	750 (c)
Remaining Groundwater Rights from Golf Course	172
Fish Springs Water Supply Project	8,000 (d)
Intermountain Water Supply Project	2,000 (d)
<b>Total</b>	<b>10,922</b>

(a) Approximation of existing utilization of committed water resources.

(b) Reclaimed water may be used to supplement water resources for non-potable uses.

(c) TMWA supply is intended for use only in areas with a return flow to the Truckee River.

(d) Water resources potentially available to Stead, Lemmon Valley, Cold Springs and Spring Mountain.

A comparison of the existing and future resources, water demand for existing conditions and the potential 2030 demand is shown in Table 6.9. The total demand estimate includes potential water requirements of 1,532 AF for domestic wells. The estimated need for additional water resources for the Reno and Washoe County TMSA is approximately 4,192 AFA and 6,109 AFA, respectively, for a total need of 10,301 AF. This compares favorably with the potentially available water resources of 10,922 AF.

Table 6.9 - Water Demand and Resources Comparison

Condition	Supply (AFA)	City of Reno Demand (AFA)	County Demand (AFA)	Total Demand (AFA)
Existing	5,293	4,035	791	4,826
2030	16,215	8,227	6,900	15,127
Net Increase	10,922 (a)	4,192	6,109	10,301

(a) 10,000 AF of water resources potentially available and shared between Stead, Lemmon Valley, Cold Springs and Spring Mountain TMSA.

However, interest has been expressed in use of a portion of the 10,000 AF from the Fish Springs and Intermountain water resources in areas outside of Stead and Lemmon Valley, including the TMSA in Cold Springs and Spring Mountain. Changes to the Place of Use for the water rights would need to be filed and approved by the State Engineer. If approved, the demand for potable water supplies for these areas will significantly exceed the available supplies from the Fish

Springs and Intermountain projects. Expanded uses for reclaimed water, such as front and back yard residential landscape watering, will be needed to help fulfill the development potential within the Reno and County TMSA.

#### **6.5.4 Planned Water Facilities**

Both TMWA and the County have recently prepared water facility plans for their systems in the Stead / Lemmon Valley area that identify the required improvements to accommodate growth and remediate existing system deficiencies in their service territories.

Proposed additional improvements to serve the Reno and County TMSA lie within the Washoe County Department of Water Resources service territory and have been integrated with the County's previous water facility plan. No further planning within TMWA's service territory was conducted. A summary of TMWA's planned facility improvements for the Stead area is presented in Table 6.10 and shown graphically in Figure 6-B3 (Appendix B). The source of this information is TMWA's 2025 Water Facility Plan.

Backbone distribution system facilities are planned that supply a maximum day demand of 16,750 gpm to meet projected growth in the Lemmon Valley, Stead Airport, Silver Knolls, North Virginia Corridor and portions of the Cold Springs regions. These regions, with the exception of Cold Springs, generally comprise the Stead and Lemmon Valley TMSA. These facilities convey the currently available resource while satisfying design criteria. It is important to note that certain transmission facilities for the Stead and Lemmon Valley TMSA have capacity sized to provide water supplies to the Cold Springs TMSA.

A high pressure backbone transmission main is planned that serves all but the highest reaches of the Stead / Lemmon Valley TMSA. The hydraulic grade of the transmission main is 5,311 feet, established by the proposed Intermountain and East Lemmon Tank elevations (see Figure 6-5). Two pump stations are planned that serve higher elevations in the Silver Knolls and Horizon Hills areas. Maximum pressures in the transmission main are approximately 170 psi. The high pressure backbone main has cost and operational advantages when compared to a conventional pressure transmission main. Results of a planning level cost analysis indicate a capital cost savings with a high pressure main of around \$16 million. Lower capital (and O&M) costs are primarily due to fewer required pump stations and storage tanks.

All existing and proposed wells are located on the east side of Silver Lake in the Lemmon Valley region. Well locations are presented in Figure 6-5. The proposed wells will need to be constructed when the imported water capacity approaches its full maximum day allocation. The peaking capacity of several of the existing wells will also need to be increased to meet maximum day demands. However, annual groundwater usage will not increase as additional supplies will be brought into the North Valleys area. A summary of the recommended TMSA facilities is presented in Table 6.10 and illustrated in Figure 6-5. Water system pressure zones are shown in Figure 6-B1 (Appendix B).



Table 6.10 - Water Facility Totals

<b>TMSA Facilities</b>	
<b>Facility</b>	<b>Qty</b>
Total Length of proposed Transmission Mains	173,300 FT
Total number of Pump Stations	2
Total number of Tanks	7
Total Storage Volume	7.67 MG
Total number of wells	3 new, 2 retrofitted
<b>TMWA Facilities (per TMWA 2025 WFP) (a)</b>	
Total Length of proposed Transmission Mains	27,200
Well Improvements	1

(a) Planned improvements are from TMWA's Water Facility Plan, as of December 2004.

Fire flows available to the Stead / Lemmon Valley TODs were evaluated. These corridors are along Virginia Street in the Horizon Hills area and Stead Boulevard. With the planned improvements in the Horizon Hills area, there will be 4,000 gpm of available fire flow. According to planning personnel from TMWA, the current available fire flow along Stead Boulevard is approximately 2,000 gpm.

### 6.5.5 Water Facility Cost Estimates

The estimated costs of the planned water infrastructure for Stead / Lemmon Valley TMSA are summarized in Table 6.11, and are listed in more detail in Stead section of Appendix B.

Table 6.11 - Water Infrastructure Costs (a)

<b>Facility Description</b>	<b>Total Cost (\$M)</b>	<b>Reno Share of Facility (\$M)</b>	<b>County Share of Facility (\$M)</b>
<b>TMSA Costs (not including TMWA)</b>			
Supply (b)	\$90.2	Not available	Not available
Transmission	\$52.8	\$20.6	\$32.2
Storage	\$13.2	\$5.5	\$7.7
<i>Subtotal</i>	\$156.2	\$26.1	\$39.9
<b>TMWA Costs (per TMWA 2025 WFP) (c)</b>			
Transmission	\$5.3	\$5.3	\$0
Other	\$2.0	\$2.0	\$0
<i>Subtotal</i>	\$7.3	\$7.3	\$0
<b>Total</b>	<b>\$163.5</b>	<b>\$33.4</b>	<b>\$39.9</b>

(a) 20 Cities ENRCCI = 7,942 May 2007

(b) Water rights costs are not included. Supply facility costs are based upon \$82M of the \$100M for Fish Springs and \$22M for Intermountain with the remainder of the cost allocated to the Cold Springs Area. Also included is \$8.168M for North Virginia capacity (based on 4/06 Feeder Main fees).

(c) Planned improvements costs are from TMWA's Water Facility Plan, as of December 2004.

Project divisions for the cost analysis can be found in Figure 6-B2 (Appendix B). Costs of the proposed transmission mains, pump stations and storage tanks were included. Individual pressure reducing stations are not included in the cost estimates, as these facilities are generally considered development specific, on-site improvements. In addition, the costs of purchasing water rights are not included.

The allocation of cost between Reno and the County was proportioned by flow (pipes and pump stations) or volume (tanks).

### **6.5.6 Water Planning Limitations**

Specific limitations of the water facility plan component for the Stead and Lemmon Valley TMSA are listed below.

- The proposed facilities identified in this plan are for serving new growth and not intended to remediate existing system deficiencies.
- Insufficient water resources have been identified to serve the projected 2030 demands in the Stead, Lemmon Valley and Cold Springs areas (projected increase in demand of approximately 18,580 AF, compared to potentially available resources of 11,909 AF). The transmission mains identified are sized to serve these areas based on the potentially available water resources from Table 6.9. If more resources become available to the area, larger transmission mains will be required to satisfy the forecasted 2030 demand.
- The water demand estimate for the Stead TOD and Center was compared between the TAZ analysis estimate and the TMWA model demand estimate. The TMWA model has a slightly higher demand for this area, and therefore the modeled infrastructure is assumed to be adequate for the area. Site specific infrastructure may need to be upsized for higher demands.
- Single backbone mains were used to supply water throughout the TMSA. As development occurs, it is likely that an equivalent transmission capacity will be conveyed by a distribution network rather than by a single backbone main.
- The allocation of cost between Reno and Washoe County is an approximation. Further analysis will be required to determine the appropriate cost allocation for specific facilities.
- Washoe County and TMWA facilities were not integrated in this analysis. Emergency interties between these systems would provide an economical means of increasing system reliability.

## **6.6 WASTEWATER**

The projected wastewater flows and required infrastructure for conveyance, treatment, and disposal are developed in this section.

### 6.6.1 Assumptions, Planning Criteria, and Methodology

The wastewater flow factor for the Stead area was assumed from the 2007 Washoe County 208 Water Quality Management Plan. The flow factor ranged from a low of 70 gallons per capita per day (gpcd) to 130 gpcd. An average of 100 gpcd was used for flow projection. All other wastewater planning assumptions are as stated in Appendix A.

### 6.6.2 Existing and Future Wastewater Flow

The 2006 annual average wastewater flows for Reno Stead Water Reclamation Facility and Lemmon Valley Wastewater Treatment Plant are listed in Table 6.12 below.

Table 6.12 - Existing Wastewater Flows (a)

	2006 Annual Average Flows (MGD)
Reno Stead WRF	1.4
Lemmon Valley WWTP	0.25
Total	2.25

(a) Based on 2006 plant flow records.

Using the TAZ data, flow was projected for the Reno and County TMSA. The wastewater treatment plant capacity projections for Reno and Washoe County are presented in Tables 6.13 and 6.14, respectively. Wastewater treatment for the majority of new development within the County TMSA is anticipated to be provided by expansion of the RSWRF facility.

Table 6.13 - City of Reno Wastewater Projections

Condition	Flows (MGD)
2030 (a)	4.45
2095 (b)	6.73

(a) Based on 12,716 dwelling units and 2,199 acres of commercial and industrial land use.

(b) Based on 23,084 dwelling units and 2,199 acres of commercial and industrial land use.

The intensification of wastewater flows in the Stead TOD and Center were compared to the overall flows for the Stead area. Of the City wastewater treatment plant flow, 47 percent is estimated to be produced from areas within a TOD or Center.

Table 6.14 - Washoe County Wastewater Projections

Condition	Flows (MGD)
2030 (a)	2.75

(a) Based on 12,241 dwelling units and 92 acres of commercial and industrial land use.

The 208 Plan has a projected 2030 wastewater flow range of 3.3 MGD to 7.1 MGD for Stead. The 2030 total projected wastewater flow for Stead and Lemmon Valley TMSA is 7.2 MGD.

The potential flow projection for parcels with existing septic tanks that could be connected to the municipal sewer system is listed in Table 6.15. In the TAZ analysis, existing houses were analyzed the same way whether the house has a septic tank or not. The flows projected in Tables 6.13 and 6.14 include potential flows from houses with septic tanks.

Table 6.15 - Septic Tank Conversion Flow Projections

	Number of Septic Tanks	Septic Tank Conversion Flows (MGD) (a)
Reno	129	0.026
County	1819	0.363
Total	1948	0.389

(a) Septic tank conversion based on 200 gpd per septic

### 6.6.3 Water Reclamation and Disposal

Current plans to increase water reclamation and disposal capacity at the RSWRF include providing additional supplies to the Swan Lake wetlands, up to 2.35 MGD, and expanding the use of reclaimed water. Reclaimed water is proposed for water features and landscape irrigation within several new developments located within both the Reno and Washoe County TMSA. Within Reno, current plans for expansion of the reclaimed water system are proposed along Stead Boulevard and will connect to the existing distribution system near Silver Lake Road and Silver Sky Parkway. Within Washoe County, expansion of the reclaimed water system is proposed to serve the planned developments east of Lemmon Drive. Potentially 3,467 AF of new residential irrigation demand may be served by reclaimed water. Residential reclaimed water irrigation would only be for new development due to the high cost of retrofitting existing residential developments.

Wastewater disposal capacity beyond 2.35 MGD will require implementation of additional water reclamation facilities and disposal options. Additional water reclamation facilities under investigation include an effluent reservoir for non-irrigation season storage in the Silver Knolls vicinity, and potential new uses at the Golden Valley Community Park and the North Valleys High School. Supplemental disposal options include rapid infiltration basins and export to other areas including Bedell Flat and Long Valley Creek.

### 6.6.4 Planned Wastewater Facilities

Recommendations for future wastewater collection and treatment facilities were developed for 2030 and are shown on Figure 6-6. For each sewer collection area, the projected 2030 flows were compared to the capacity of the existing gravity interceptors. The collection areas are shown on Figure 6-C1 (Appendix C). Existing lift stations and force mains were not analyzed in detail for remaining available capacity. If the existing interceptors or force mains do not have capacity for the 2030 flow, a parallel pipe/facility is recommended. Future detailed design

studies should determine whether replacing the existing pipe or installing a parallel main is the appropriate improvement. Facility sizing methods and calculations are included in Appendix A.

The best available information and status of current planning for regional reclaimed water facilities is shown in Figure 6-7. Regional reclaimed water facilities will likely serve the Stead, Lemmon Valley and Cold Springs TMSA due to their common effluent disposal constraints. Additional reclaimed water distribution facilities will be required that have not been evaluated in this facility plan.

A summary of recommended wastewater collection, treatment, and reclaimed water / disposal infrastructure is summarized in Table 6.16.

Table 6.16 - Summary of Recommended Wastewater Infrastructure

Facility	Units
Interceptors	47,800 feet
Parallel Interceptors	60,100 feet
Force Mains	46,600 feet
Reclaimed Water/Disposal Pipe	75,500 feet
Wastewater Lift Stations	6 stations
Reclaimed Water/Disposal Pump Stations	1 Station
2030 Treatment Capacity for Reno Stead WRF	7.2 MGD
2030 Treatment Capacity for Lemmon Valley WWTP	0.3 MGD
Reclaimed Water Storage Reservoir	3,000 AF

### 6.6.5 Wastewater Facility Cost Estimates

Wastewater infrastructure costs are summarized in Table 6.17, and are listed in more detail in Appendix C. These facilities are intended to serve new growth, and not to remediate existing system deficiencies.

Table 6.17 - Wastewater Infrastructure Costs (a)

Facility Description	Total Cost (\$M)	Reno Share of Facility (\$M)	County Share of Facility (\$M)
Collection System	\$61.3	\$44.5	\$16.8
Treatment	\$69.5	\$30.1	\$39.4
Disposal/Reclaimed Water	\$40.3	\$17.4	\$22.9
Total	\$171.1	\$92	\$79.1

(a) 20 Cities ENRCCI = 7,942 May 2007

The allocation of cost between Reno and Washoe County was developed from their respective share of the flow for the collection system and treatment facilities. The reclaimed water /

disposal cost includes a reclaimed water system expansion in Stead and shared regional facilities. A detailed breakdown of regional reclaimed water costs between Stead and Cold Springs is located in Appendix C.

### **6.6.6 Wastewater Planning Limitations**

Specific limitations of the wastewater planning in the Stead and Lemmon Valley area are listed below.

- Wastewater flow projections are conservative because a mid-range wastewater flow factor is used. The TMWA Rule 7 water demand projections are representative of actual demands. Therefore, the percentage of wastewater flow compared to the total water demand is more than the “typical” fifty percent reported in previous planning studies.
- The 2004 expansion of the Norton Interceptor was designed for a d/D ratio of 0.7. Analysis of the projected flow and capacity of the Norton Interceptor used this design standard instead of the d/D ratio of 0.5 that was used for the remainder of the pipes. The projected flow in the Norton Interceptor exceeds the projected capacity at a d/D ratio of 0.7. The potential need to expand the capacity of the pipe should be studied as development progresses.
- Effluent disposal planning for the Stead and Lemmon Valley TMSA is conceptual. The best available information for regional reclaimed water facilities has been provided; however, additional facilities and costs will be required to provide disposal capacity for the projected 2030 wastewater flows.
- The effluent disposal strategy will likely consist of a combination of continued disposal to Swan Lake, expanded water reclamation, land disposal to the White Lake playa and discharge to Long Valley Creek.
- The allocation of cost between Reno and Washoe County is an approximation. Further analysis will be required to determine the appropriate cost allocation for specific facilities.

## **6.7 POLICY RECOMMENDATIONS (INCLUSIVE OF WATER, WASTEWATER)**

Potentially available water resources have been identified to serve the projected 2030 demands in the Stead and Lemmon Valley TMSA. However, insufficient water resources are available to satisfy the needs of Cold Springs, which is relying on the same water resources. Expanded use of reclaimed water, such as front and back yard residential landscape watering, should be implemented where reasonable to extend available water supplies and help fulfill the development potential within the Reno and County TMSA. Water demands could be reduced by implementing water conserving landscaping practices and/or xeriscaping. However, water conserving landscape practices should be balanced with the need for disposal of reclaimed water.

Regional water supply, water reclamation and wastewater disposal should be a coordinated effort for the Stead, Lemmon Valley and Cold Springs TMSA because of their common effluent disposal constraints.

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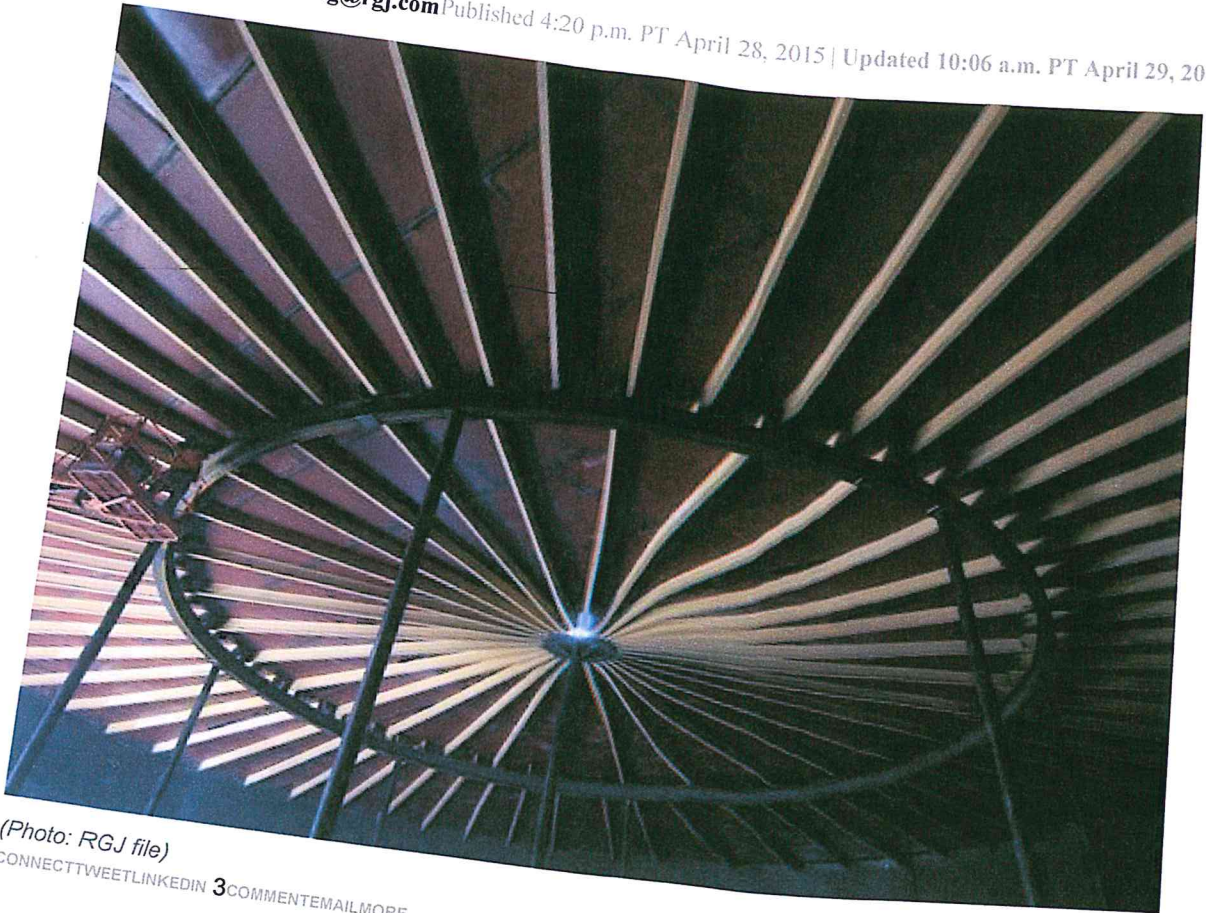
**Fish Springs Ranch Project (Current)**

In 2000, Vidler purchased a controlling interest in a ranch property north of Reno, Nevada. The ranch currently consists of approximately 7,500 acres of ranchland and 13,000 acre-feet of fully permitted groundwater rights from the Nevada State Engineer. After several years of drilling and obtaining all appropriate federal, state and local permits, Vidler received approval to move approximately 8,000 acre-feet of groundwater from Fish Springs Ranch to the North Valleys of Reno to support planned development. The project required the construction of a 35-mile pipeline, which Vidler completed in 2009 and dedicated to the public water utility serving the North Valleys of Reno. The approximate 8,000 acre-feet of groundwater is enough water to support at least 16,000 new homes in the Reno market, specifically in the North Valleys area. While the timing is uncertain, Vidler anticipates growth in the North Valleys of Reno to resume and that the growth in new housing will result in sales of Vidler's Fish Springs water. However, no assurances can be made that such growth will materialize or that Vidler will be able to sell any of its Fish Springs water over this time frame.

# Pipeline would provide new water for North Valleys

Jeff DeLong, [jdelong@rgj.com](mailto:jdelong@rgj.com)

Published 4:20 p.m. PT April 28, 2015 | Updated 10:06 a.m. PT April 29, 2015



(Photo: RGJ file)

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Reno's primary water provider is poised to tap a new source of water that has sat unused but largely ready to go for nearly a decade.

The \$17.8 million project planned by the Truckee Meadows Water Authority would allow the utility to draw groundwater from far north of Reno and serve homes throughout the North Valleys area.

Doing so, utility officials said, would free up water now being pumped to the North Valley from the Truckee Meadows. It could then be stored in upstream reservoirs as drought reserves instead.

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"That resource has never been used," Mark Foree, general manager of the water authority, said of the new water supplies he hopes to have flowing to North Valleys homes and businesses by June 2016.

The targeted water supply would come from Fish Springs, located in the Honey Lake Basin along the Nevada-California line. Water rights from the area were acquired by the Vidler Water Co. in 2000, which spent millions building a 28-mile-long pipeline to Lemmon Valley. The pipeline was completed in 2007, just in time for the recession to hit, Nevada's housing market to collapse and the new water system to be idled.

#### [Drought could kill wild horses, cows](#)

The water was dedicated to Washoe County but never tapped. Now the Truckee Meadows Water Authority, which acquired the county's water system this year, is preparing to do so.

**Available is 8,000 acre-feet of water per year, or roughly 2.6 billion gallons, pumped at 6,500 gallons per minute. An acre-foot of water can supply about two single-family homes for a year.**

The water authority has applied with the Nevada Division of Environmental Protection for a \$15 million loan to cover the bulk of the \$17.8 million project. The job would entail extending the 29-mile pipeline built by Vidler by 5.5 miles, with the 24-inch pipeline reaching south from the north end of Lemmon Valley south to the north Virginia Street corridor.

#### [Master Gardener: Growing flowers, food during drought](#)

The extra water is valuable in any case, but that prove particularly true if the current drought — now in its fourth year — continues longer. It would provide an extra 8,000 acre-feet of drought backup.

"It's basically equal to the amount of water we now pump out to the North Valleys from the Truckee Meadows," said Scott Estes, the utility's director of engineering.

"It's going to basically offset that water," Estes said. "If the drought continues, it could be very important to us."

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## Reno Looks West to Quench Thirst

Los Angeles Times  
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### Susanville, Calif.

Like many ranchers in the West, Fred Mallery is familiar with the tales of secret deals, bloody fights and quick riches that make up the region's water lore. These days Mallery is especially interested in the saga of the distant Owens Valley.

In a blitz of deceit and cash early this century, agents took control of the fertile valley's streams and pointed them 300 miles south to water a new desert metropolis -- Los Angeles. Today, sagebrush covers the valley's old farms, and Owens Lake, once crossed by ferries and barges, is a vast dust bed. It is an old story, but one that is on a lot of minds here along the Nevada border in northeastern California, where Mallery grows alfalfa and breeds cattle on his family's old homestead in the Honey Lake Valley.

For once again, an arid, growing city has come to an agricultural valley looking for water to ship south -- and the natives, fearing that history may repeat, have begun to fight. This time the thirsty invader is not Los Angeles nor even from California. It is Reno, 75 miles south of Mallery's farmhouse and hay barns. "We all know what happened in the Owens Valley," Mallery said recently. "The fear is here."

Booming Reno is bursting at the seams. New homes are spilling over mud-brown hills into dry desert valleys recently populated by coyotes and jack rabbits. But just as corn and hay cannot grow without water, neither can cities -- especially on the lee side of the Sierra Nevada, which extracts most of the moisture from Pacific storms before they sail over Reno and across the Great Basin.

Reno now gets most of its water from California by way of the Truckee River, which spills to life over a dam at the northwest corner of Lake Tahoe. But the Truckee's flow past Reno's downtown casinos is not enough for all the dishwashers, toilets and lawns that officials eagerly envision being installed in the 1990s on the city's expanding outskirts. A new master plan calls for extensive development in the rural areas around Reno and its neighbor city, Sparks, together the second-largest metropolitan area in fast-growing Nevada.

Officials in Washoe County, which includes Reno and Sparks, have made an ironic choice in tying their future to the Honey Lake area, site of an armed border skirmish involving California and Nevada. California won the rights to the shallow lake in the 1860s in a brief battle over border lines called the Sagebrush War. After the revolt -- led by Isaac Roop, a former governor of the Nevada territory -- failed, the state line was moved east to annex Honey Lake to California.

Washoe County has no plans to reassert Nevada's sovereignty over Honey Lake, and no exchange of gunfire is expected. But the Nevadans, since the early 1980s, have wanted to pump ground water from beneath Fish Springs Ranch on their side of the state line and pipe it south to Reno.

Here on the California side, Mallery and other ranchers say that the Nevada pumps could draw down the aquifer they say the two states share and thus harm the wells used to irrigate fields. They also complain that the Nevada pumps could lower the water table enough to dry up springs that seep naturally into some pastures and moisten wetlands used by deer and other wildlife.

"While this would be a more subtle result . . . it would be no less destructive," said Jack Hanson, president of the Lassen County Cattlemen's Assn., in a letter to a California Senate committee. "The potential effects on natural vegetation, wildlife and cattle grazing in the area would be severe."

Nevada's position is that the \$80-million Truckee Meadows water project, as it is known, will have no impact in California. Franklyn Jeans, the Reno investor who is in charge of the project, insists that preliminary geological studies have found that a subterranean clay barrier separates the water beneath Fish Springs Ranch from the water basin beneath the California side. Thus, he says, the pumping in Nevada will not even be noticed in California.

The battle could turn on a crucial document to be released next month -- a U.S. Geological Survey report that will be the first independent study of whether such a barrier exists and of how much water is at stake. Jeans said he has offered to install monitoring wells so the California ranchers can keep an eye on the condition of the aquifers beneath the area. But Reno's plans have prompted wary officials in the lightly populated California mountains from Lake Tahoe north to the Oregon line to keep a close watch on the proposal.

Lassen and five nearby counties on the California side have begun meeting to keep tabs on Nevada's moves. The counties helped push the Legislature to create an agency that gave Lassen County ranchers and officials the power to negotiate with Nevada. The bill forming the Honey Lake ground water management district passed unanimously and was signed by Gov. George Deukmejian last Oct. 2.

"Our biggest fear is, 'Where do you stop them? Where do you draw the line when they get thirsty again?' " Mallery said. "We fear they will sweep through here like what happened in the Owens Valley." The Owens Valley story has struck a chord here because, according to Lassen County Supervisor Helen Williams, "It's an example of what has happened before when a larger entity preys upon a smaller entity. I think there is tremendous concern about what the environmental effects will be."

When Los Angeles long ago found itself in the same situation as Reno today - - coveting rapid growth but lacking water -- the city scoured the possibilities and sent agents bearing cash to the Owens Valley. In 1913, the Los Angeles Aqueduct began capturing most of the flow from the Owens River. Farmers lost their access to irrigation water, and many sold out to the city of Los Angeles. In the 1940s, Owens Lake finally dried up, leaving a 100-square-mile bed of caustic dust that winter winds blow over the California deserts.

Los Angeles -- which now owns nearly all of the pasture and rangeland in the valley -- also began pumping ground water in the 1940s. New wells in the 1970s were blamed by residents for lowering the water table, denuding the valley of hundreds of trees and forcing residents to drill new wells.

Jeans and Washoe County officials say they can understand the fears of Californians about another Owens Valley. "No doubt about it, there's a built-in fear," Jeans said. "It's an automatic knee-jerk reaction anywhere along the east slope of the Sierras." But, he added, the Truckee Meadows project "just isn't the same thing. This isn't a rape-and-pillage kind of thing." Nevada law forbids ground-water "mining" -- taking more water than nature replenishes -- and the Nevada state engineer will not issue the necessary permit unless the Geological Survey report and other studies show that there is enough water, Jeans said.

But the question of how much water Reno and Washoe County want is feeding the anxiety on the California side, especially in Lassen County, which includes the Honey Lake area. Lassen ranchers say the pipeline that will convey the water south to Reno is far larger than needed for the 20,000 acre-feet a year that Jeans said his project will eventually use. They fear that the rising value of water in the arid West could lead to some California ranchers switching from the cattle business to the water business by hooking their wells up to Jeans' pipeline.

Jeans himself set such an example. He and his partners bought the Fish Springs Ranch several years ago, intending to raise cattle and alfalfa. Then he found that there was more money to be made farming water, Jeans said. But Jeans said the larger capacity of the pipeline to Reno is needed to allow



for heavier flows in summer, when Reno's other water sources are less reliable.

Lassen officials also say they do not know how much water they will need for their own growth. The area has grown from 21,000 people in 1980 to nearly 30,000 now and has been one of the fastest-developing areas in California in recent years. Planning Director Bob Sorvaag said another 6,000 people could arrive in the next few years, some drawn by new industry and some by expansion of a state prison outside Susanville, the county seat.

In an unusual move to ease tensions across the state lines, the elected officials of Washoe County came to Susanville last month for a public meeting with the Lassen County Board of Supervisors. While still wary, the rivals have at least begun talking. "The relationship is improving," Jeans said. Both sides said they hope to avoid the cumbersome legal maneuvering that typically delays efforts by states to settle water differences.

For instance, California and Nevada negotiated 13 years on a compact to divvy up water from Lake Tahoe and three major rivers. Once each state gave its approval, the compact waited 15 years in vain for congressional approval before California and Nevada gave up trying. Even a relatively uncontroversial pact over water in the Goose Lake area did not pass Congress for 21 years after it was ratified by Oregon and California.

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## TAXPAYER CONCERNS

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

WCSD Schools: Dysfunction, building costs, Newspaper used term "dishonest". Cost of building what was told 2015 Legislature to get WC1. Then what was told voter. Now costs up 50%- 300%. Local Govt reports building up 25%.

Sales Tax Sluggish 5.3%: Other counties booming. Auto sales very sluggish and April was down over 8%.

AB375: Flood Tax. Question legality of bill that grants power to biased, unelected committee and No New Taxes!

Reno Highest gas prices even higher than much of Calif. Property Tax maxed, SB207 extended school prop tax, AB 375 will raise it more. Special districts out of control, Sales tax highest in state 8.265%, hotel taxes (\$100 room was 17% tax and \$28 resort fee!), rental car taxes can be 50% of rental! Tax Tax Tax

Take a Stand Not a Knee: Effect on revenue if local teams take a knee: It's wrong, we'll protest and it affects business and revenue!