A white car is partially submerged in turbulent blue water. A large log is floating nearby. The background shows a blurred shoreline with buildings.

# *Concurrent Session Flood Project Update*

*February 1, 2016*

*Jay Aldean, PE*

*Executive Director TRFMA*

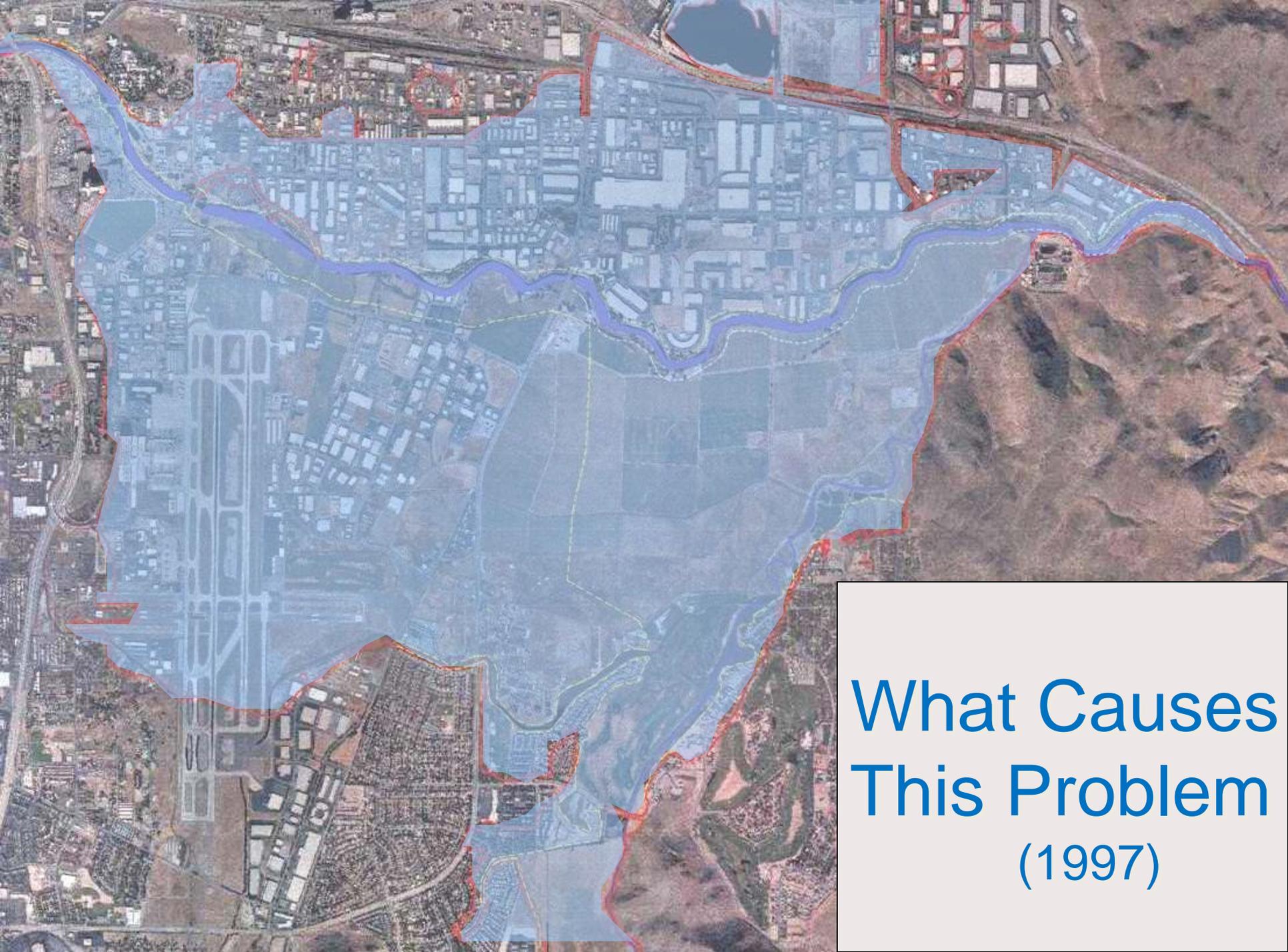
# Perspective -

“Building in the floodplain is like pitching a tent in the middle of a highway when there are no cars coming.” - ASFPM

A great community enhances the quality of life -

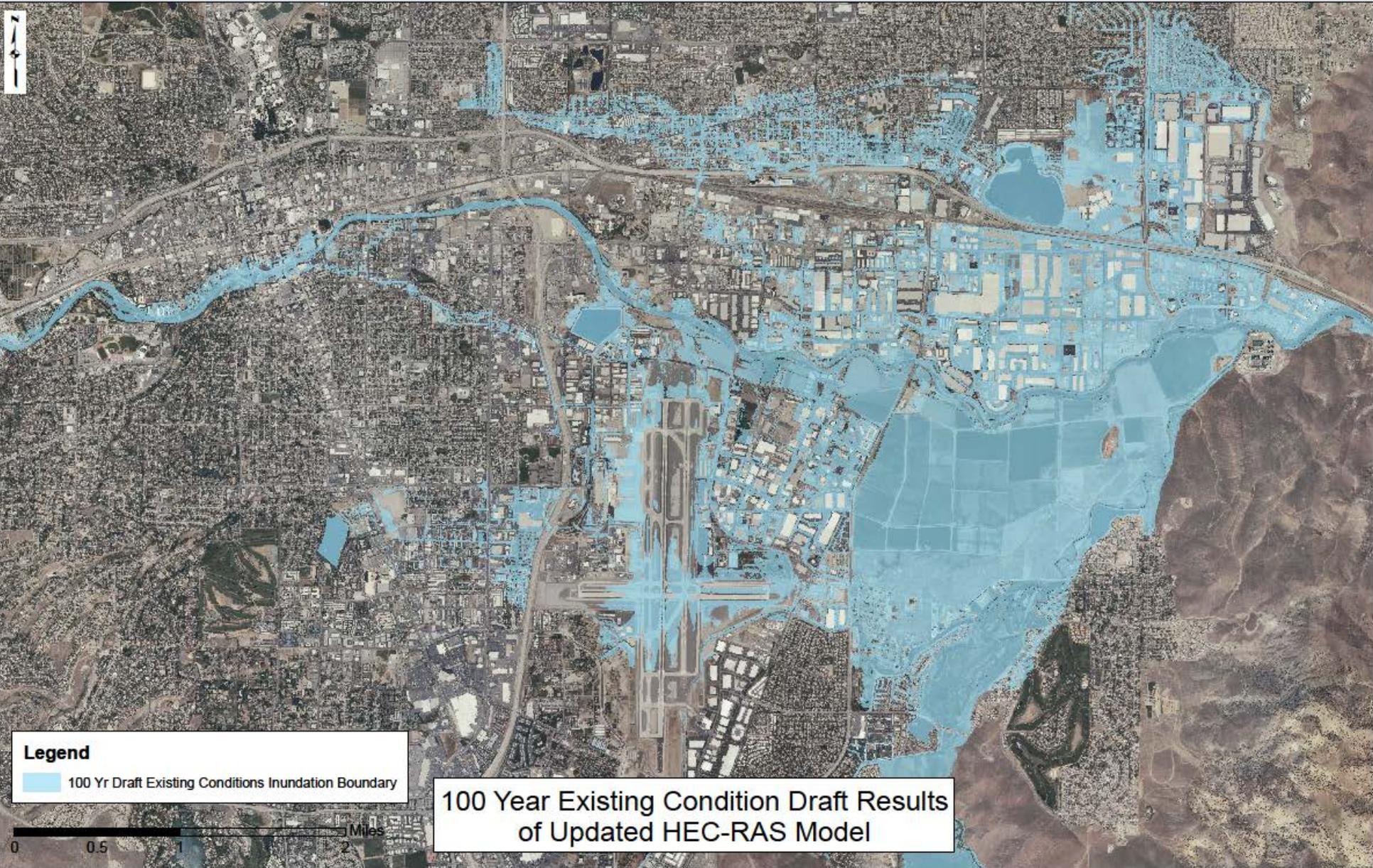


July 1929



What Causes  
This Problem  
(1997)

# Revised 2-D Model of Existing 100-yr Floodplain



# Truckee River Floodplain – view to the south

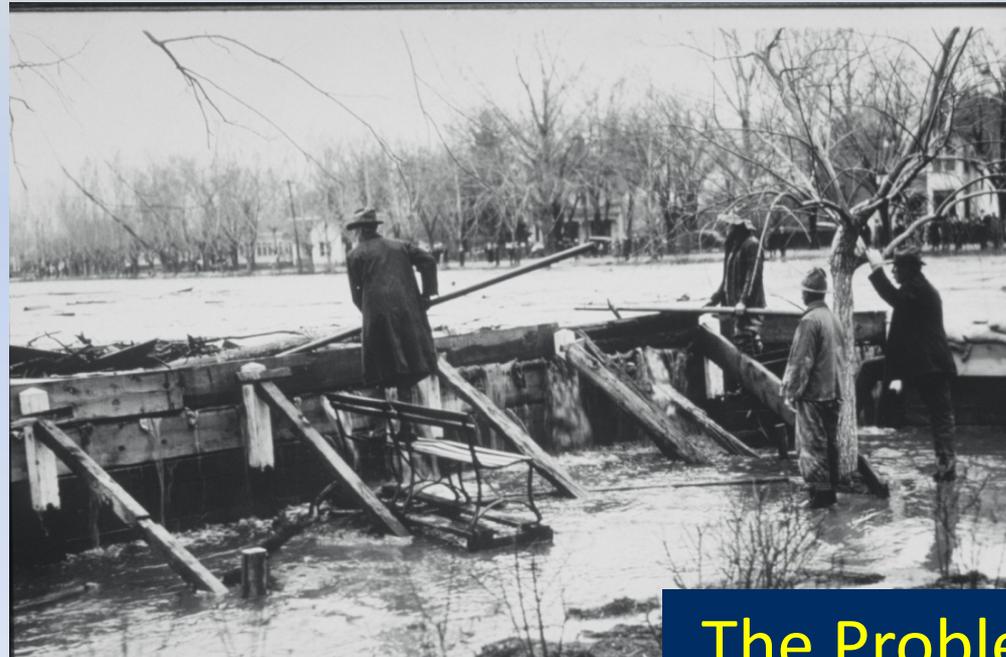
1997 Event

Airport runways appear to be open

Mill Street

Truckee River





The Problem - 1950s

# The Problem - 1997



The Problem – 1997

*Reno Tahoe International Airport*



# The Problem - 2005



# Downtown Reno<sup>1</sup> Flooding History

| <b>Date</b>            | <b>Peak Flow</b> | <b>Return Freq.</b> |   |
|------------------------|------------------|---------------------|---|
| Early 1862 - Ark Storm |                  | double 100yr        |   |
| March 18, 1907         | 18,500 cfs       | 90 yr               |   |
| January 16, 1909       | 10,100 cfs       | 30 yr               |   |
| March 26, 1928         | 18,800 cfs       | 90 yr               |   |
| December 11, 1937      | 17,000 cfs       | 80 yr               |   |
| November 21, 1950      | 19,900 cfs       | 95 yr               |   |
| December 4, 1950       | 11,700 cfs       | 35 yr               | <b>Flood Control Act of 1954</b>                            |
| December 23, 1955      | 20,800 cfs       | 100 yr              |   |
| February 2, 1963       | 18,400 cfs       | 90 yr               |   |
| December 23, 1964      | 11,300 cfs       | 35 yr               | <b>Water Resources Development Act of 1988</b>              |
| February 17, 1986      | 14,400 cfs       | 50 yr               |   |
| January 1, 1997        | 23,200 cfs       | 117 yr              | <b>Water Resources Reform &amp; Development Act of 2014</b> |
| December 31, 2005      | 16,400 cfs       | 70 yr               |   |

<sup>1</sup> At the Reno Gage located just west of the Hwy 395 bridge

# Next Flood?

- Do we expect a flood this year?
  - Most likely NO
    - Majority of the flood season is over
    - There has never been a flood during an El Niño
- Do we expect a major flood soon ( $\pm 4$  years)?
  - Most likely YES
    - $\pm 15$  year span between major events
    - Droughts in the Sierra tend to end in floods
    - Heading into a La Niña/neutral zone when floods occur

# Regional Strategy

- **Critical Importance of a Regional Solution**
  - Fixes the FEMA floodplain accuracy issue
  - Provides safety to the public
  - Reduces property damages and disruptions
  - Strengthens the economy of the region
- **USACE Plan Critical to Regional Strategy**
  - Most likely never receive Federal approval for another study
  - To be conservative we now plan for NO Federal \$\$
  - However we may eventually receive some Federal reimbursement

Potential loss of life,  
industry, jobs and tax  
revenue to the region





# Events, Accomplishments & Goals

|      |   |
|------|---|
| 2011 | <ul style="list-style-type: none"><li>▪ Corps of Engineers decides to kill the Federal project investigation</li></ul>  |
| 2012 | <ul style="list-style-type: none"><li>▪ Senator Reid and TRFMA staff meet with Corps to revive Federal project</li><li>▪ TRFMA staff proposes dual planning strategies utilizing independent local and USACE resources</li><li>▪ TRFMA approves contract w/ HDR to develop local 100-yr flood plan</li><li>▪ TRFMA agrees to fund USACE's completion of GRR (50-yr plan)</li></ul>  |
| 2013 | <ul style="list-style-type: none"><li>▪ TRFMA approves Local Rate Plan (100-yr flood plan)</li><li>▪ TRFMA approves Downtown Reno LRP plan addition</li></ul>   |
| 2014 | <ul style="list-style-type: none"><li>▪ USACE recommends approval of 50-yr plan to Congress</li><li>▪ Senator Reid inserts language into tentative bill to allow the Corps to accept our LRP in-lieu of their 50-yr plan (Section 1036)</li><li>▪ With support from Senator Reid, Senator Heller and Congressman Amodei, Congress approves WRRDA 2014</li></ul>   |
| 2015 | <ul style="list-style-type: none"><li>▪ TRFMA staff directs HDR to complete remodeling of floodplain</li><li>▪ TRFMA's financial consultant FCS completes analysis on flood fees</li><li>▪ TRFMA Board rejects flood fees – too expensive for some sectors</li><li>▪ TRFMA staff, with lobbyist support, begin negotiations with the Corps:<ul style="list-style-type: none"><li>▪ Review of 100-yr LRP</li><li>▪ Reduce local obligation of Federal project planning costs</li></ul></li></ul> |
| 2016 | <ul style="list-style-type: none"><li>▪ Board members &amp; staff meet with Commercial &amp; Industrial community</li><li>▪ TRFMA staff proposes alternative funding concept</li></ul>  |

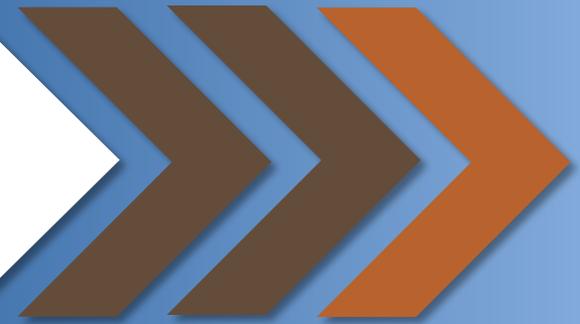
# Virginia Street Bridge Replacement



# North Truckee Drain Realignment



# Truckee River Flood Management Authority



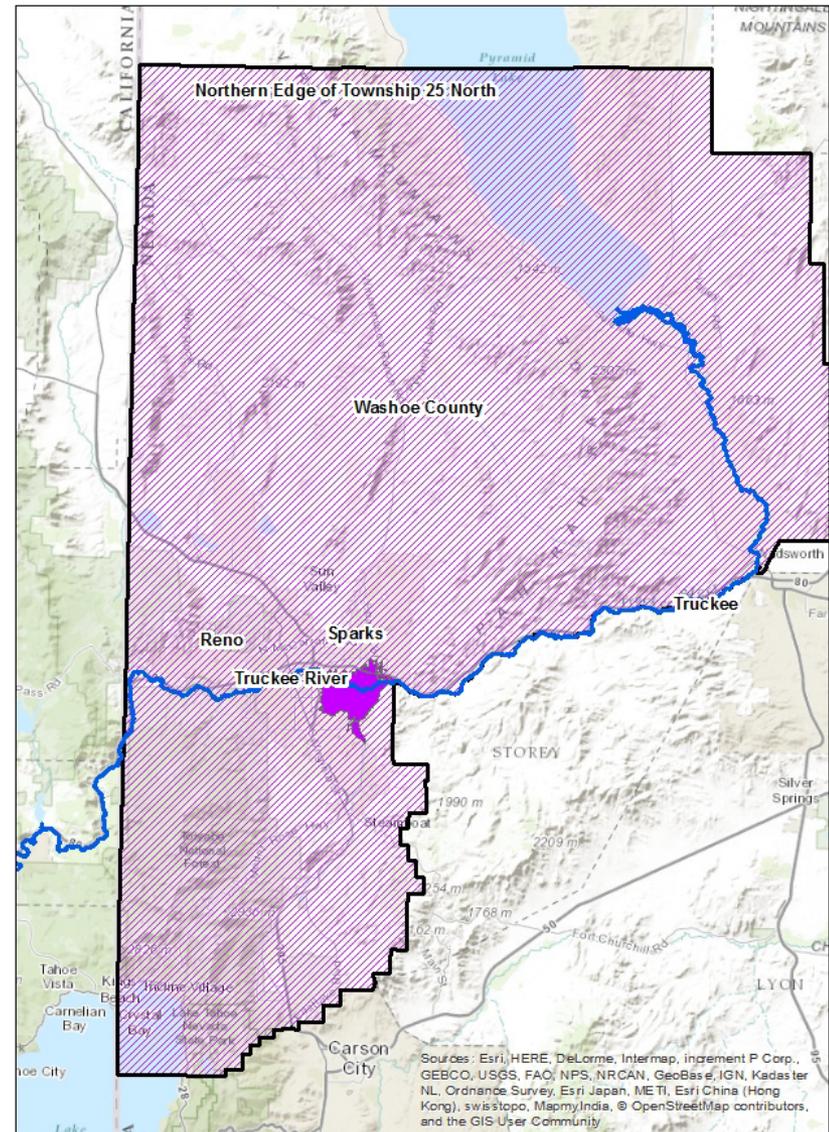
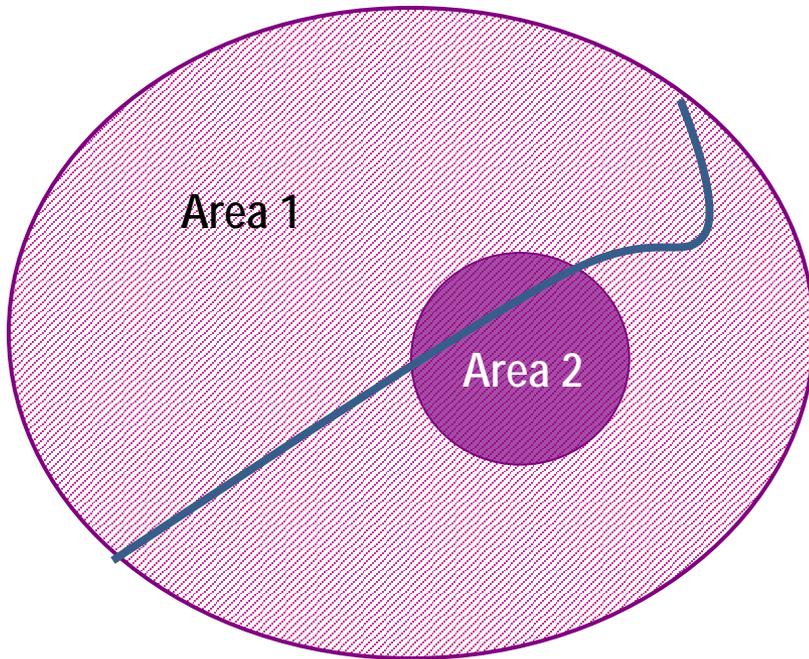
## Rate Model Update

October 9, 2015



# Rate Design

- ◆ Group 1: Ratepayers in Area 1 (area in Washoe County south of Township 25)
- ◆ Group 2: Ratepayers in Area 2 (area in existing 100-year flood zone)



## Legend

- Area 1
- Area 2

0 4.5 9 18 Miles



# Revenue Requirement Scenarios

## Construction Scenarios

18-Year Construction

10-Year Construction

## Construction Funding Scenarios

Pay-As-You-Go  
*(only for 18-Year construction)*

Debt Funded Construction

State Bond Bank Bonds

TRFMA Revenue Bonds

## Billing Scenarios

Billing by TRFMA  
*(\$2M/Year)*

Billing by County Treasurer  
*(\$750k/Year)<sup>1</sup>*

## Emergency Reserve Scenarios

\$15M Reserve by FY 2039-40<sup>2</sup>

\$43.3M Reserve by FY 2019-20<sup>3</sup>  
*(only for 18-year debt funded construction using state bonds with County Treasurer billing)*

- 1 Billing by County Treasurer requires state legislative amendment
- 2 Proposed replacement reserve
- 3 Interlocal Cooperative Agreement (ICA) reserve requirement



# Estimated Monthly Rates

| Scenario Comparison                           | Scenario 1   | Scenario 2A      | Scenario 2B      | Scenario 3A      | Scenario 3B      | Scenario 3C      |
|---|--------------|------------------|------------------|------------------|------------------|------------------|
| Construction Period                           | 18 years     | 18 years         | 10 years         | 18 years         | 10 years         | 18 years         |
| Rate Duration                                 | 18 years     | Bond Retirement* |
| <b>\$2M Annual Cost of Billing Scenario</b>   |              |                  |                  |                  |                  |                  |
| First Year Revenue Requirement                | \$24,155,661 | \$19,850,000     | \$30,100,000     | \$17,000,000     | \$25,800,000     |                  |
| Area 1 Rate per SFD – Residential             | \$9.46       | \$7.77           | \$9.84           | \$6.66           | \$8.43           |                  |
| Area 2 Rate per SFD – Residential             | \$27.39      | \$22.50          | \$47.49          | \$19.27          | \$40.71          |                  |
| Area 1 Rate per kSF - Commercial/Other        | \$1.97       | \$1.62           | \$2.11           | \$1.39           | \$1.81           |                  |
| Area 2 Rate per kSF - Commercial/Other        | \$12.43      | \$10.21          | \$21.30          | \$8.74           | \$18.26          |                  |
| <b>\$750k Annual Cost of Billing Scenario</b> |              |                  |                  |                  |                  |                  |
| First Year Revenue Requirement                | \$22,791,926 | \$18,700,000     | \$28,900,000     | \$15,850,000     | \$24,500,000     | \$16,980,000     |
| Area 1 Rate per SFD - Residential             | \$8.93       | \$7.32           | \$9.44           | \$6.21           | \$8.01           | \$6.65           |
| Area 2 Rate per SFD - Residential             | \$25.84      | \$21.20          | \$45.60          | \$17.97          | \$38.65          | \$19.25          |
| Area 1 Rate per kSF - Commercial/Other        | \$1.86       | \$1.53           | \$2.02           | \$1.30           | \$1.72           | \$1.39           |
| Area 2 Rate per kSF - Commercial/Other        | \$11.72      | \$9.62           | \$20.45          | \$8.15           | \$17.34          | \$8.73           |

- ◆ **Scenario 1:** Pay-As-You-Go Construction over 18-year period
- ◆ **Scenario 2:** Debt-funded Construction using TRFMA Revenue Bonds
  - 2A: 18-Year Construction Period
  - 2B: 10-Year Construction Period
- ◆ **Scenario 3:** Debt-funded Construction using State Bond Bank Bonds
  - 3A: 18-Year Construction Period
  - 3B: 10-Year Construction Period
  - 3C: 18-Year Construction Period with emergency reserve requirement set at \$43.3M in FY 2019-20



# Pay-As-You-Go Construction, 10-Year Period

|  |              |
|--|--------------|
|  |              |
| <u>First Year Revenue Requirement with \$750k annual billing costs</u> | \$43,864,885 |
| Area 1 Rate per SFD – Residential                                      | \$14.33      |
| Area 2 Rate per SFD – Residential                                      | \$69.21      |
| Area 1 Rate per kSF - Commercial/Other                                 | \$3.07       |
| Area 2 Rate per kSF - Commercial/Other                                 | \$31.04      |

| 10-Year Cost Allocation Summary | Residential: SFD | Commercial/ Other | Total       |
|---------------------------------|------------------|-------------------|-------------|
| Area 1 (regional benefit area)  | \$299,500,000    | \$141,500,000     | 441,000,000 |
| Area 2 (100-Yr flood boundary)  | \$13,300,000     | \$241,400,000     | 254,700,000 |
| Overall Benefit                 | \$324,700,000    | \$371,000,000     | 695,700,000 |

# Funding Alternative

- Hybrid funding concept
  - Fee imposed on the direct benefit area
    - Those gaining the most pay the most
    - Legal arguments support direct pay fee
  - Sales tax
    - Recognizes regional benefits to the project
    - Captures the regional nature of the flood project by passing portion of funding to regional users / tourists

# A Challenge

Elected officials are obligated to provide flood prevention infrastructure for our community to protect the citizens and enhance the quality of life

End of Presentation