

A photograph of a white car partially submerged in floodwaters. The car is tilted, with only the roof and upper windows visible above the water. Debris, including a large log and some branches, is floating in the water near the car. In the background, there are buildings and more debris, suggesting a flooded urban or residential area. The entire image has a blue color cast.

Concurrent Session Flood Project Update

February 1, 2016

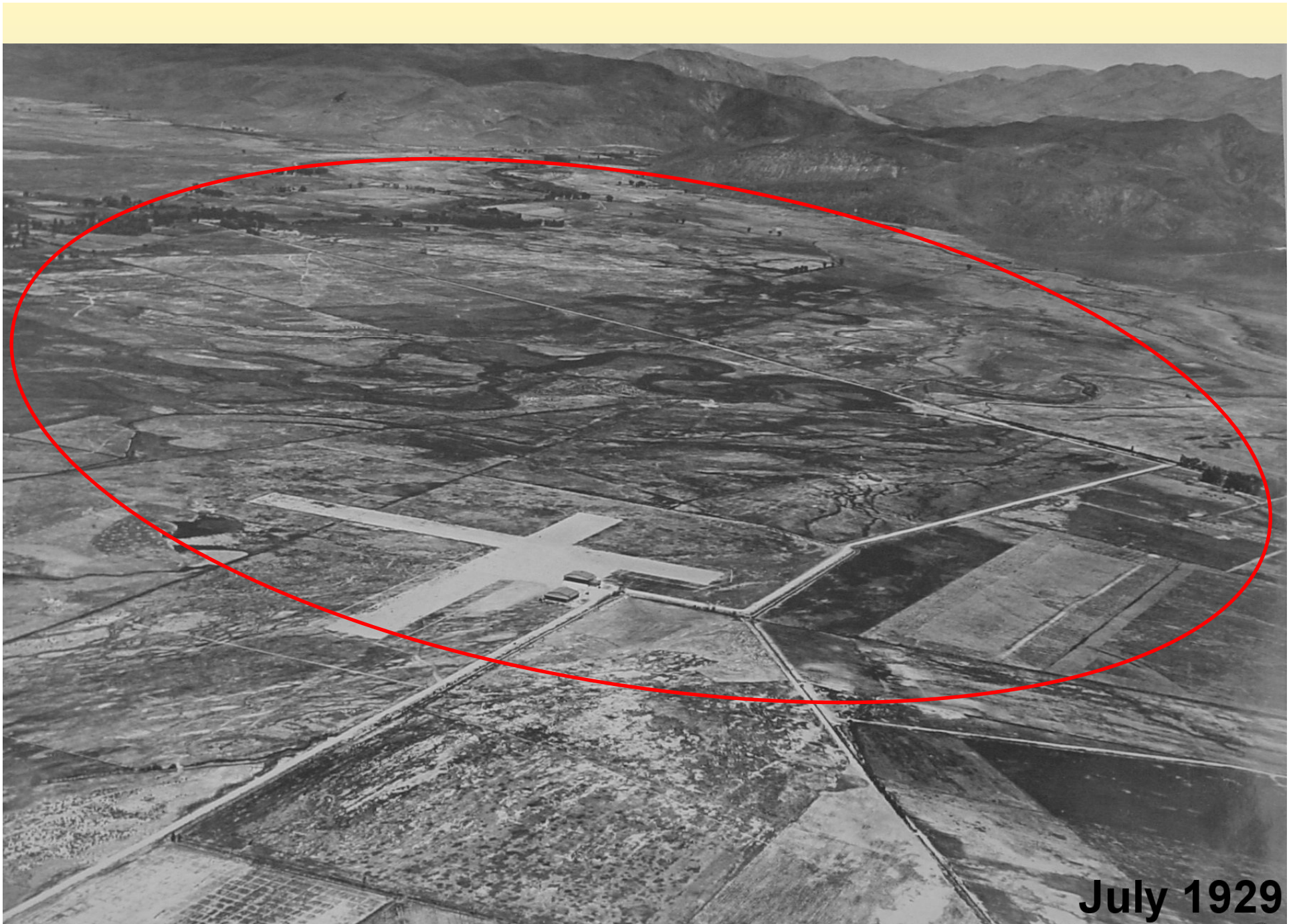
Jay Aldean, PE

Executive Director TRFMA

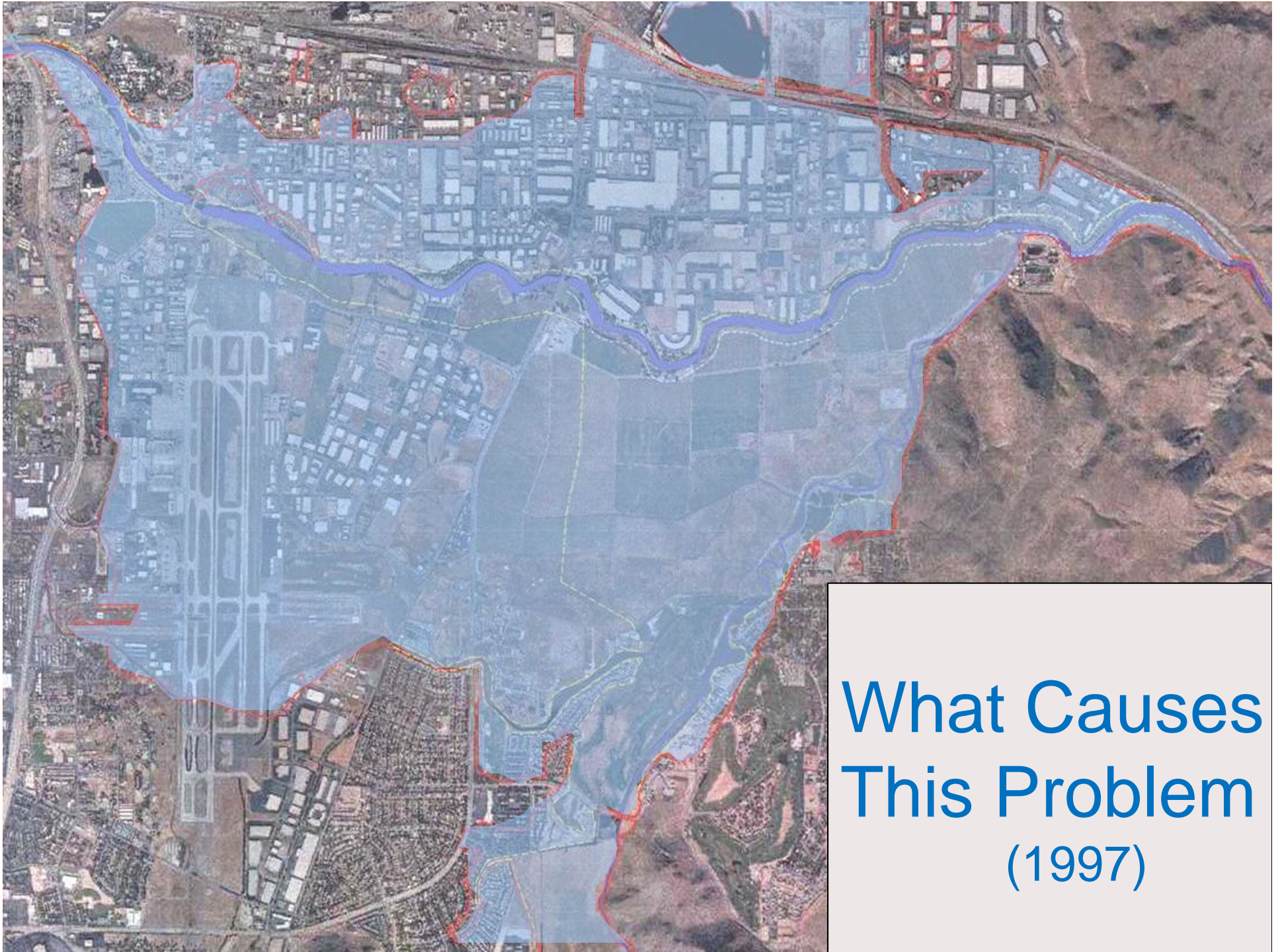
Perspective -

“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 -

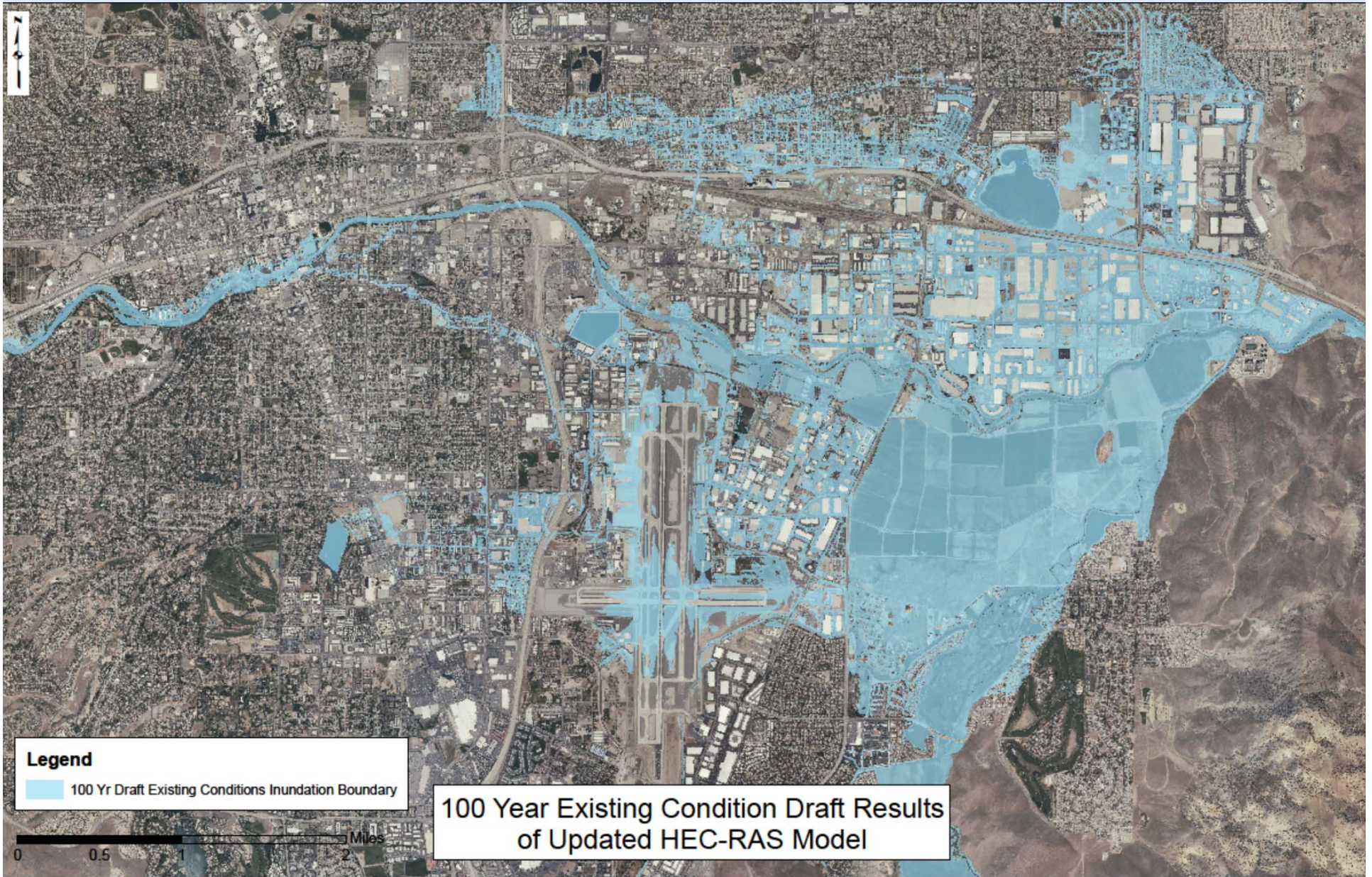


July 1929



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

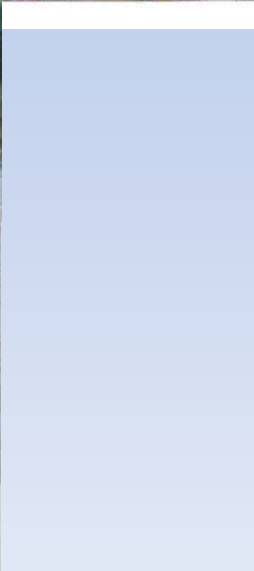
Truckee River





The Problem - 1950s

The Problem - 1997



The Problem – 1997

Reno Tahoe International Airport





The Problem - 2005



Downtown Reno¹ Flooding History

Date	Peak Flow	Return Freq.	
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	
<u>December 4, 1950</u>	<u>11,700 cfs</u>	<u>35 yr</u>	Flood Control Act of 1954
December 23, 1955	20,800 cfs	100 yr	
February 2, 1963	18,400 cfs	90 yr	
December 23, 1964	11,300 cfs	35 yr	
<u>February 17, 1986</u>	<u>14,400 cfs</u>	<u>50 yr</u>	Water Resources Development Act of 1988
January 1, 1997	23,200 cfs	117 yr	
<u>December 31, 2005</u>	<u>16,400 cfs</u>	<u>70 yr</u>	Water Resources Reform & Development Act of 2014

¹ 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 Nino
- Do we expect a major flood soon (± 4 years)?
 - Most likely YES
 - ± 15 year span between major events
 - Floods tend to end droughts in the Sierra
 - Heading into a La Nina/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
 - We now plan for NO Federal \$\$ to be conservative
 - 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">▪ Corps of Engineers decides to kill the Federal project investigation
2012	<ul style="list-style-type: none">▪ Senator Reid and TRFMA staff meet with Corps to revive Federal project▪ TRFMA staff proposes dual planning strategies utilizing independent local and USACE resources▪ TRFMA approves contract w/ HDR to develop local 100-yr flood plan▪ TRFMA agrees to fund USACE's completion of GRR (50-yr plan)
2013	<ul style="list-style-type: none">▪ TRFMA approves Local Rate Plan (100-yr flood plan)▪ TRFMA approves Downtown Reno LRP plan addition
2014	<ul style="list-style-type: none">▪ USACE recommends approval of 50-yr plan to Congress▪ Senator Reid inserts language into tentative bill to allow the Corps to accept our LRP in-lieu of their 50-yr plan (Section 1036)▪ With support from Senator Reid, Senator Heller and Congressman Amodei, Congress approves WRRDA 2014
2015	<ul style="list-style-type: none">▪ TRFMA staff directs HDR to complete remodeling of floodplain▪ TRFMA's financial consultant FCS completes analysis on flood fee's▪ TRFMA Board rejects flood fees – too expensive for some sectors▪ TRFMA staff, with lobbyist support, begin negotiations with the Corps:<ul style="list-style-type: none">▪ Review of 100-yr LRP▪ Reduce local obligation of Federal project planning costs
2016	<ul style="list-style-type: none">▪ Board members & staff meet with Commercial & Industrial community▪ TRFMA staff proposes alternative funding concept

Virginia Street Bridge Replacement



North Truckee Drain Realignment



Truckee River Flood Management Authority

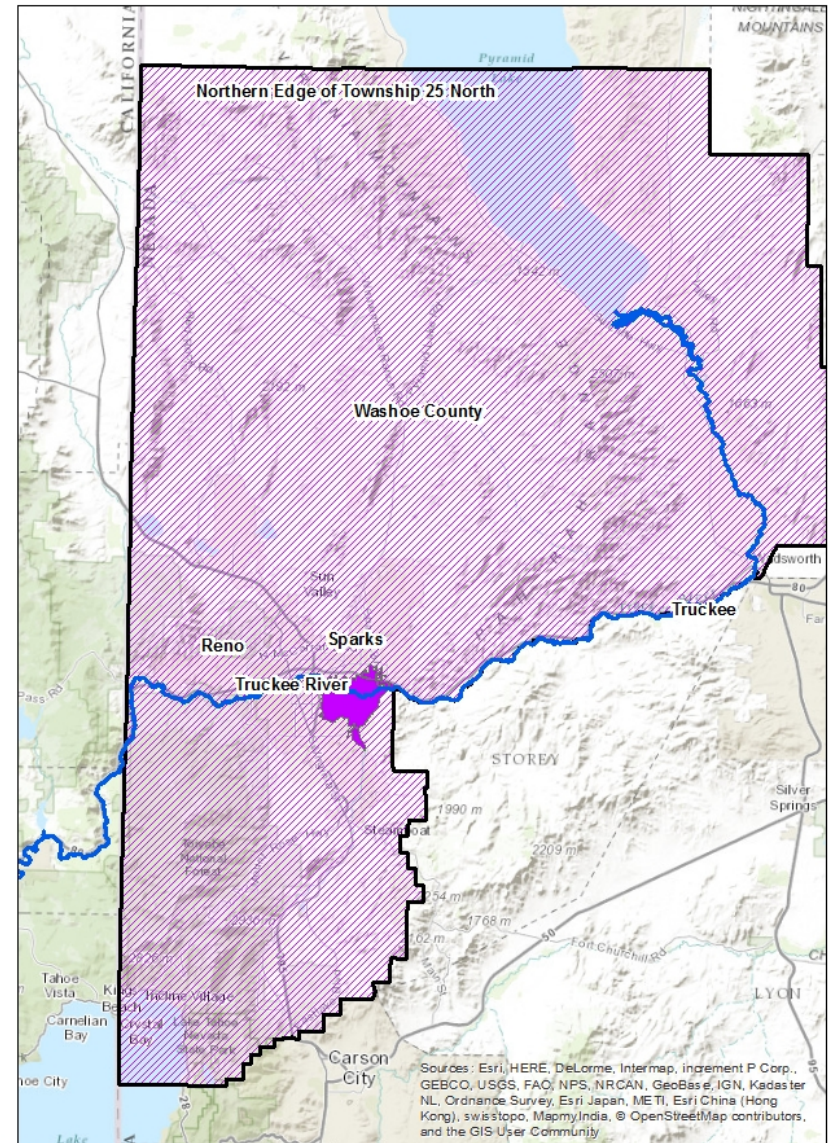
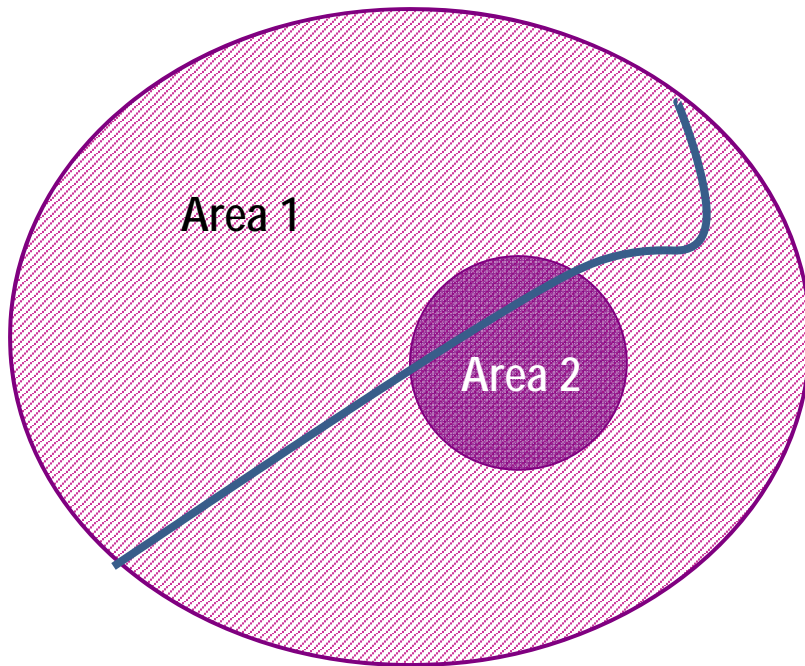


Rate Model Update

October 9, 2015

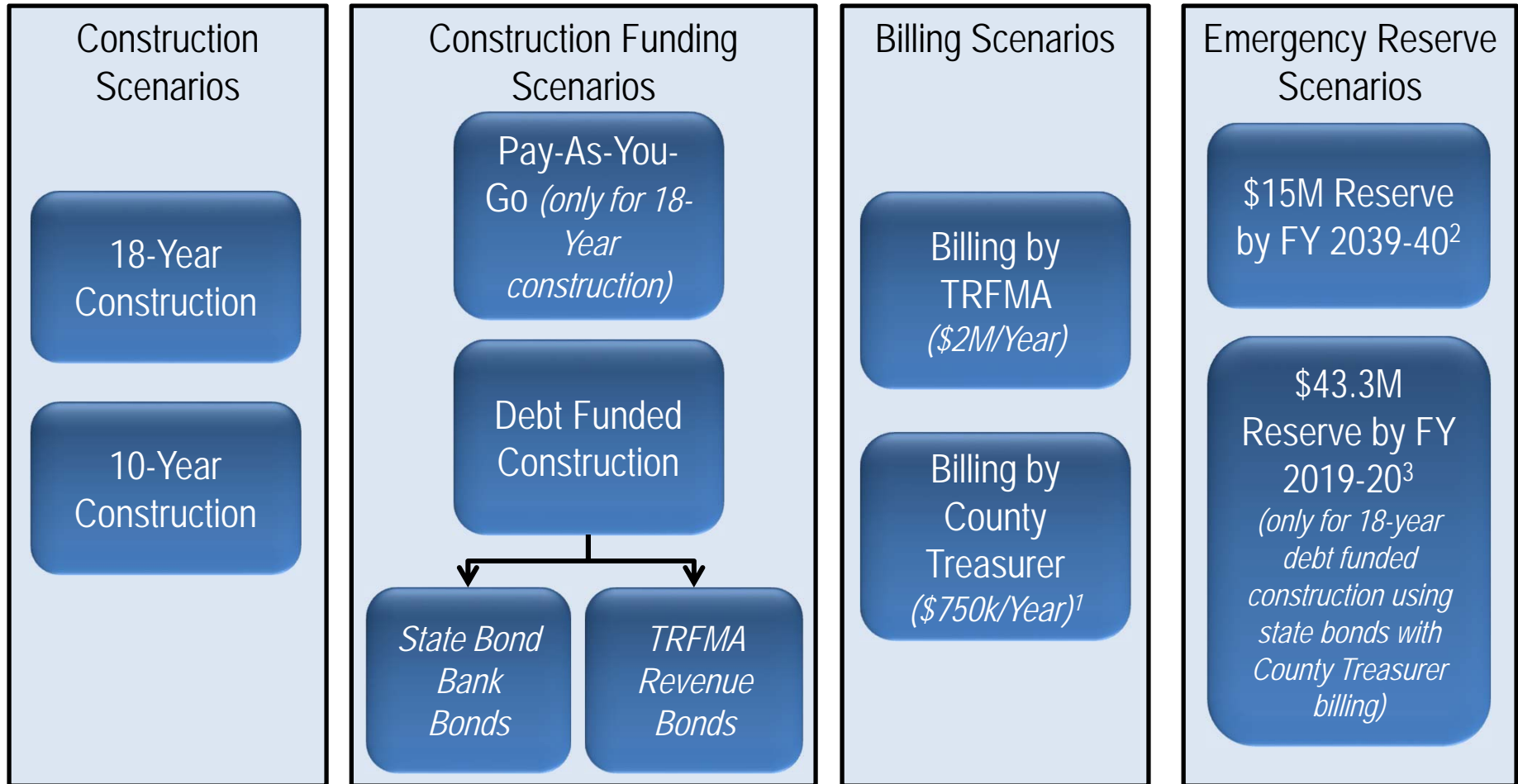
Rate Design

- ◆ 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)





Revenue Requirement Scenarios



- 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*	Bond Retirement*	Bond Retirement*	Bond Retirement*	Bond Retirement*
\$2M Annual Cost of Billing Scenario						
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	
\$750k Annual Cost of Billing Scenario						
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

*Bond retirement is 30-years after last debt issuance. This means rates must continue until 2053 in 10-year construction and 2063 in 18-year construction.



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