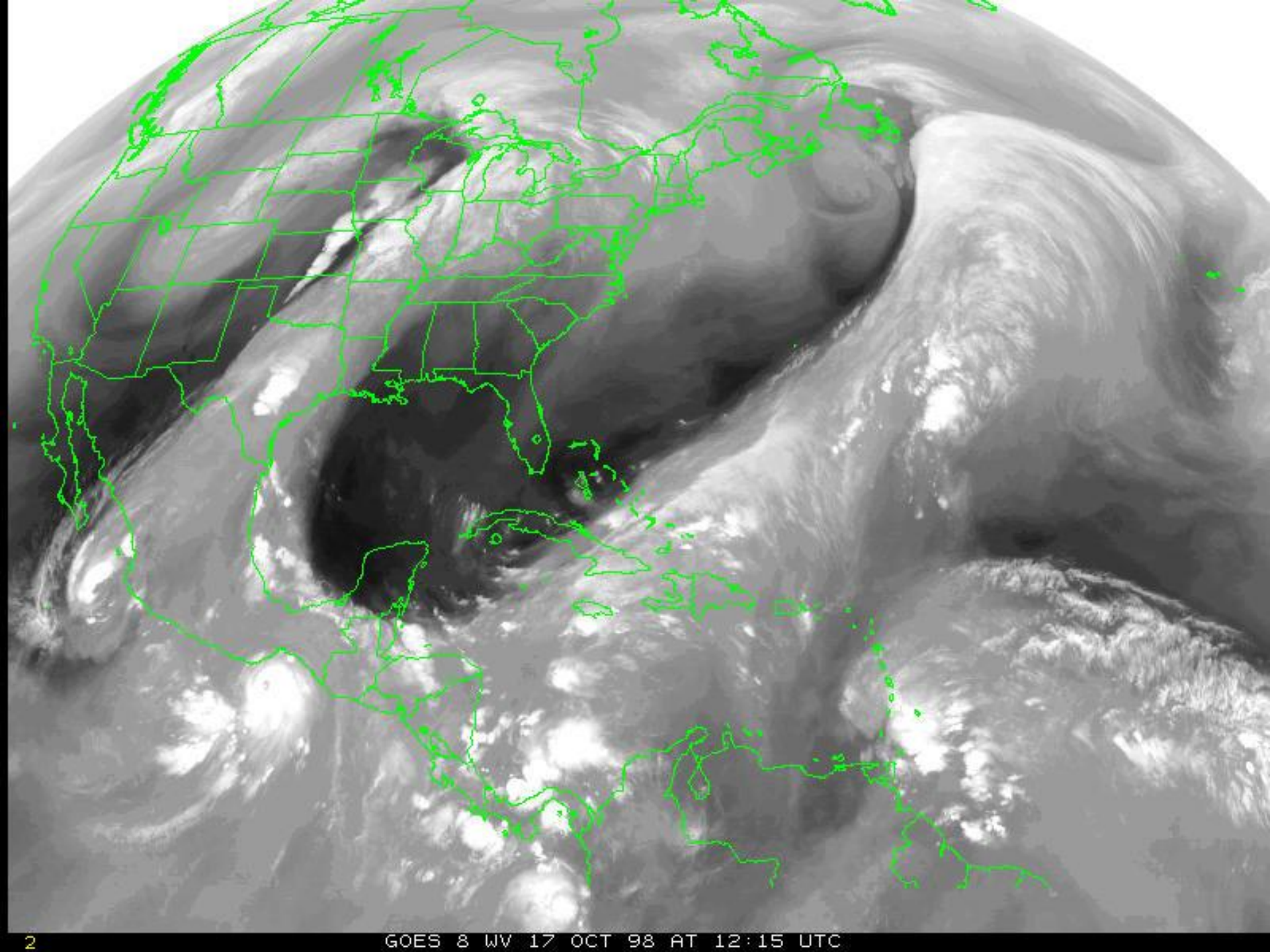
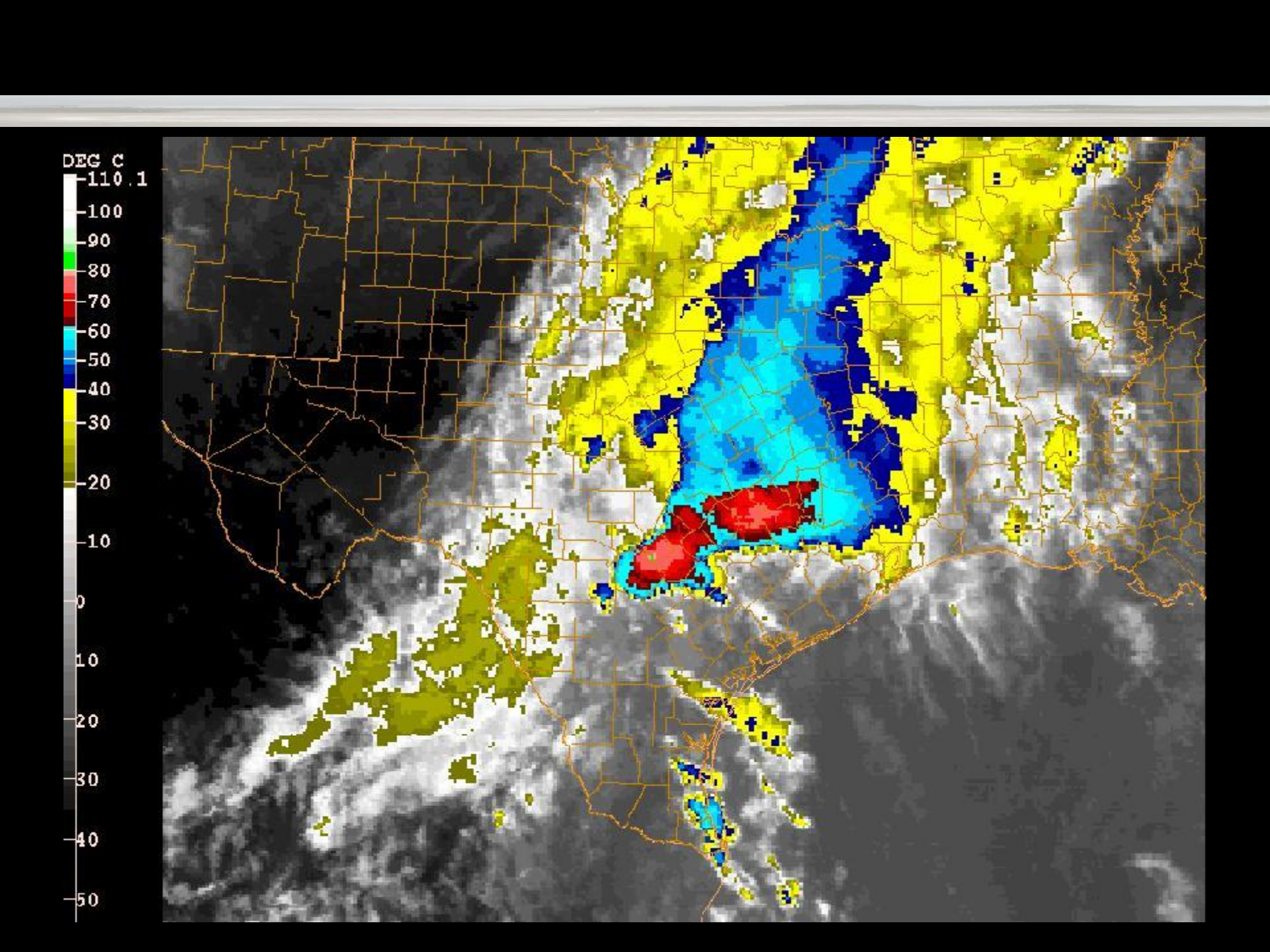
Flood Control in Comal County

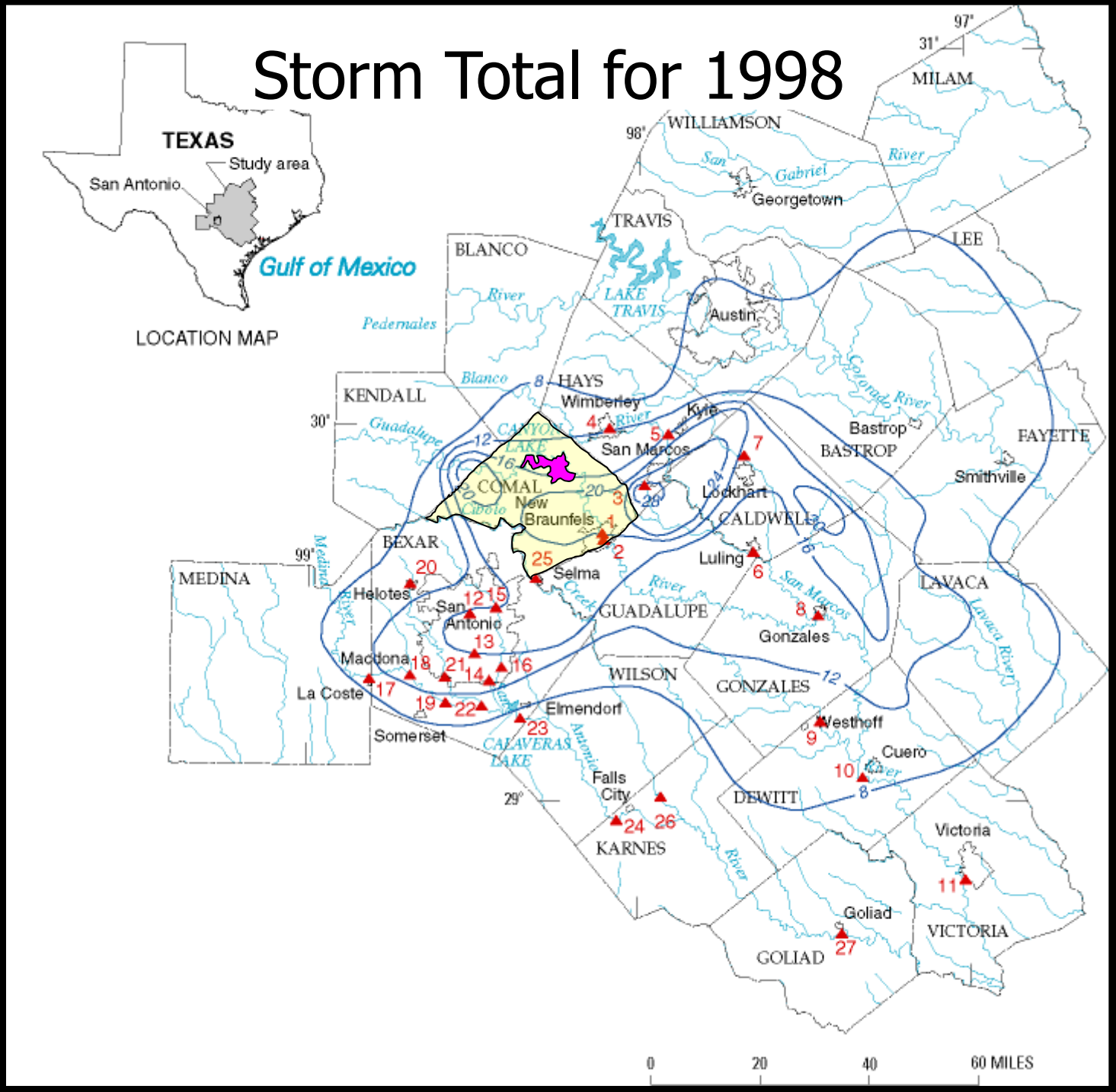
ROAD SCHOLAR
Adventures in Lifelong Learning

Tom Hornseth, Comal County Engineer


2
GOES 8 WV 17 OCT 98 AT 12:15 UTC

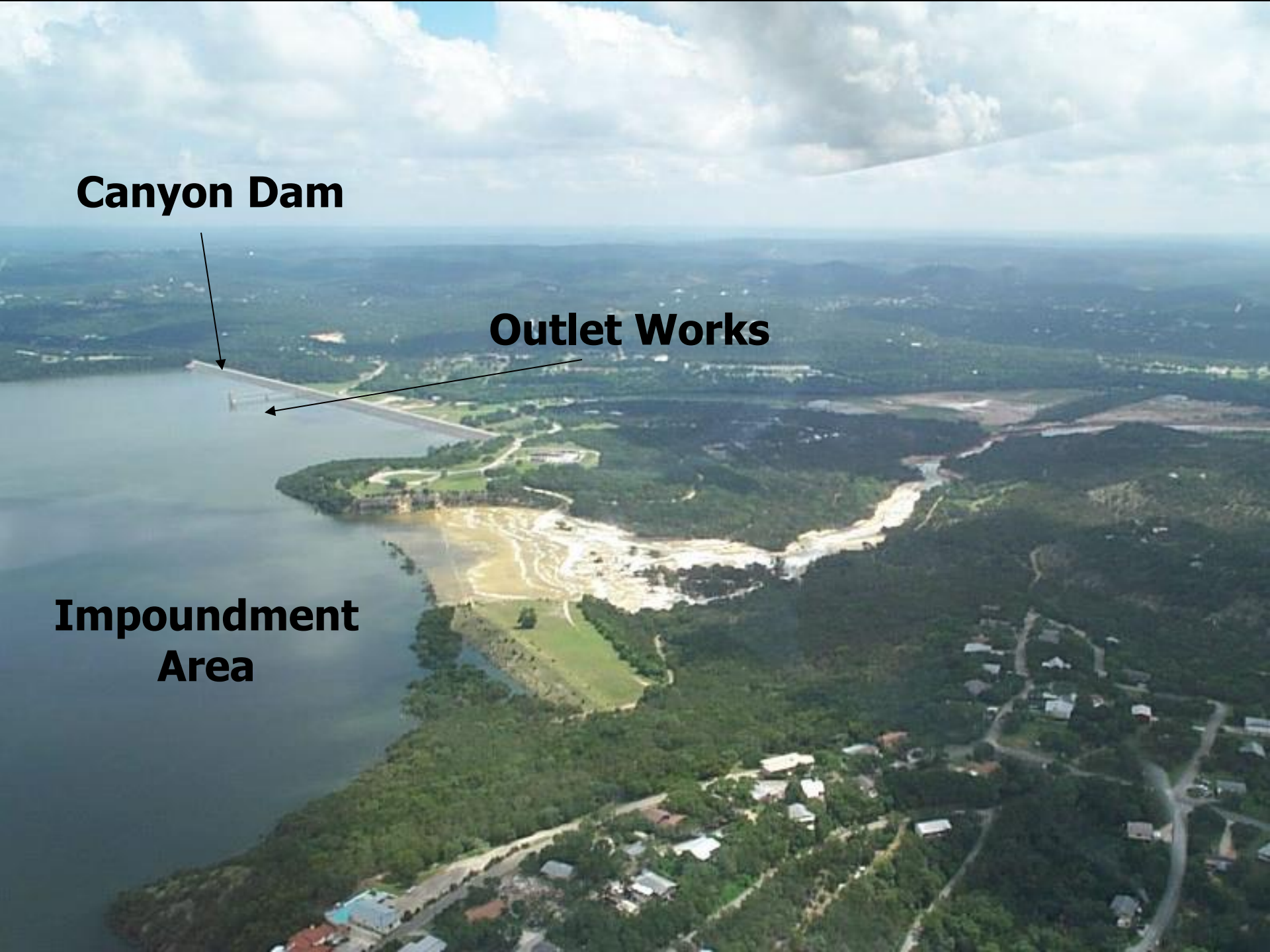

DEG C
110.1
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50

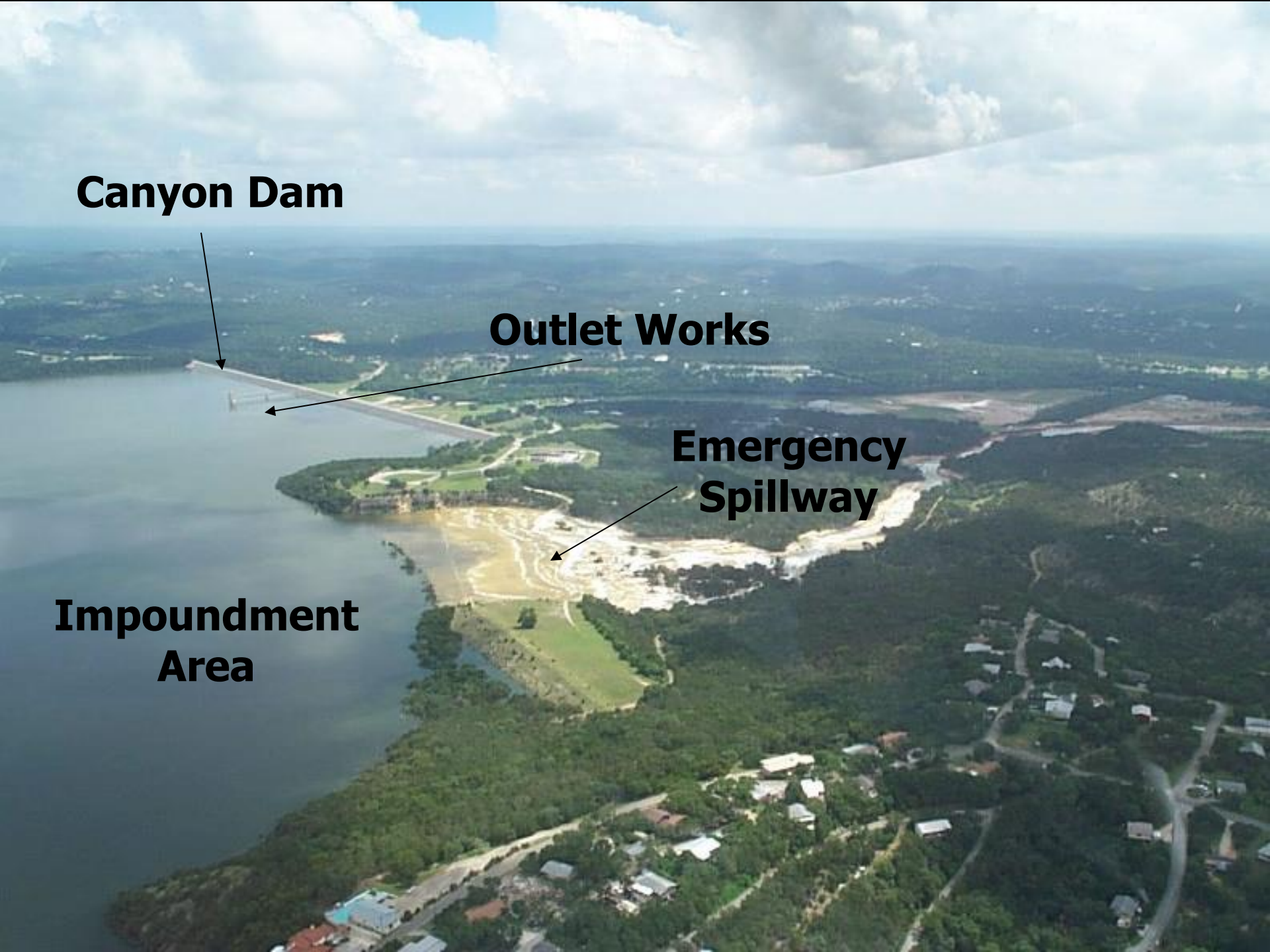
Storm Total for 1998




Canyon Dam


Canyon Dam
Impoundment Area


Canyon Dam
Outlet Works
Impoundment Area


Canyon Dam
Outlet Works
Emergency Spillway
Impoundment Area

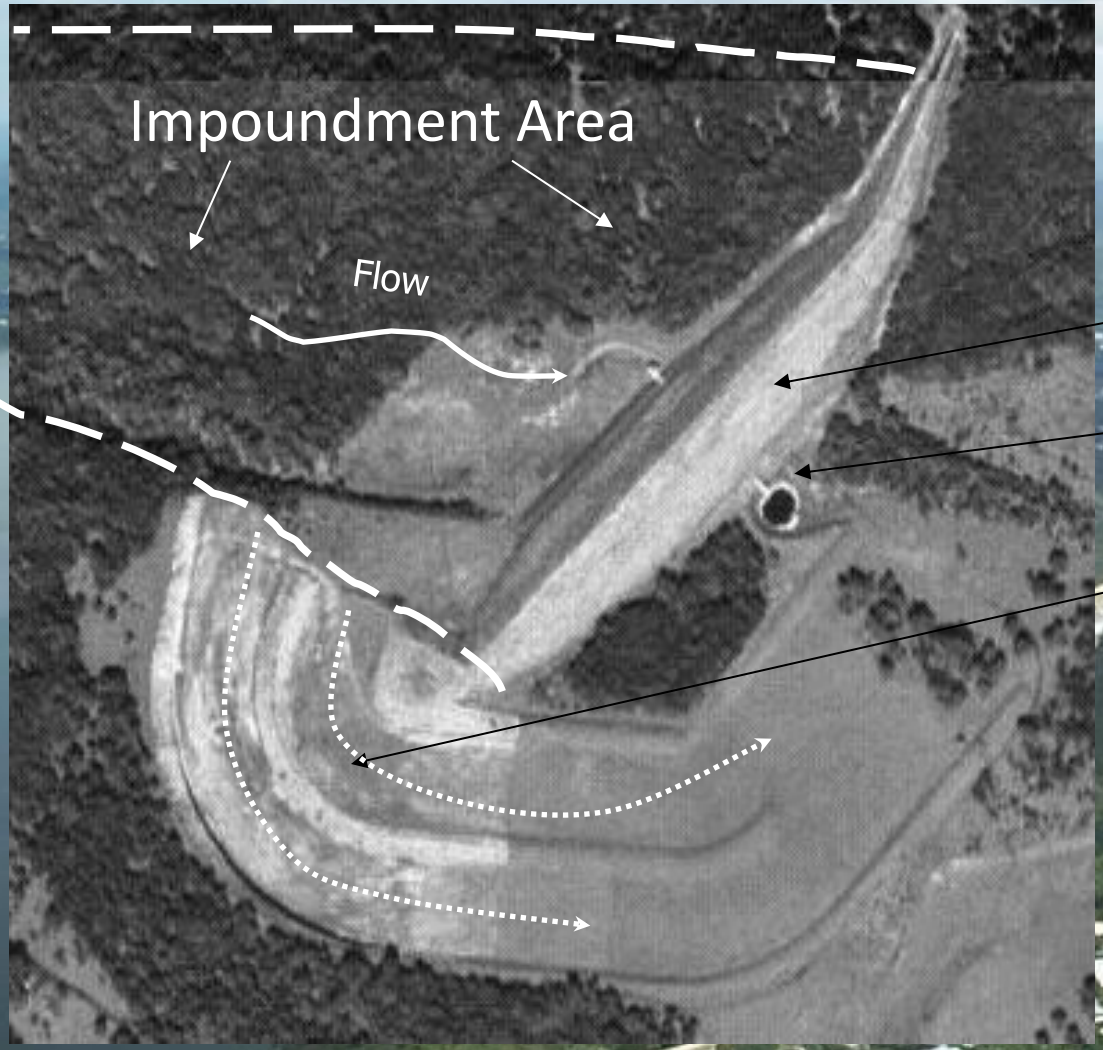

Givler Engineering, Inc.


Computer Kinetics, LLC


SPEED
LIMIT
45


X
Givler Engineering, Inc.

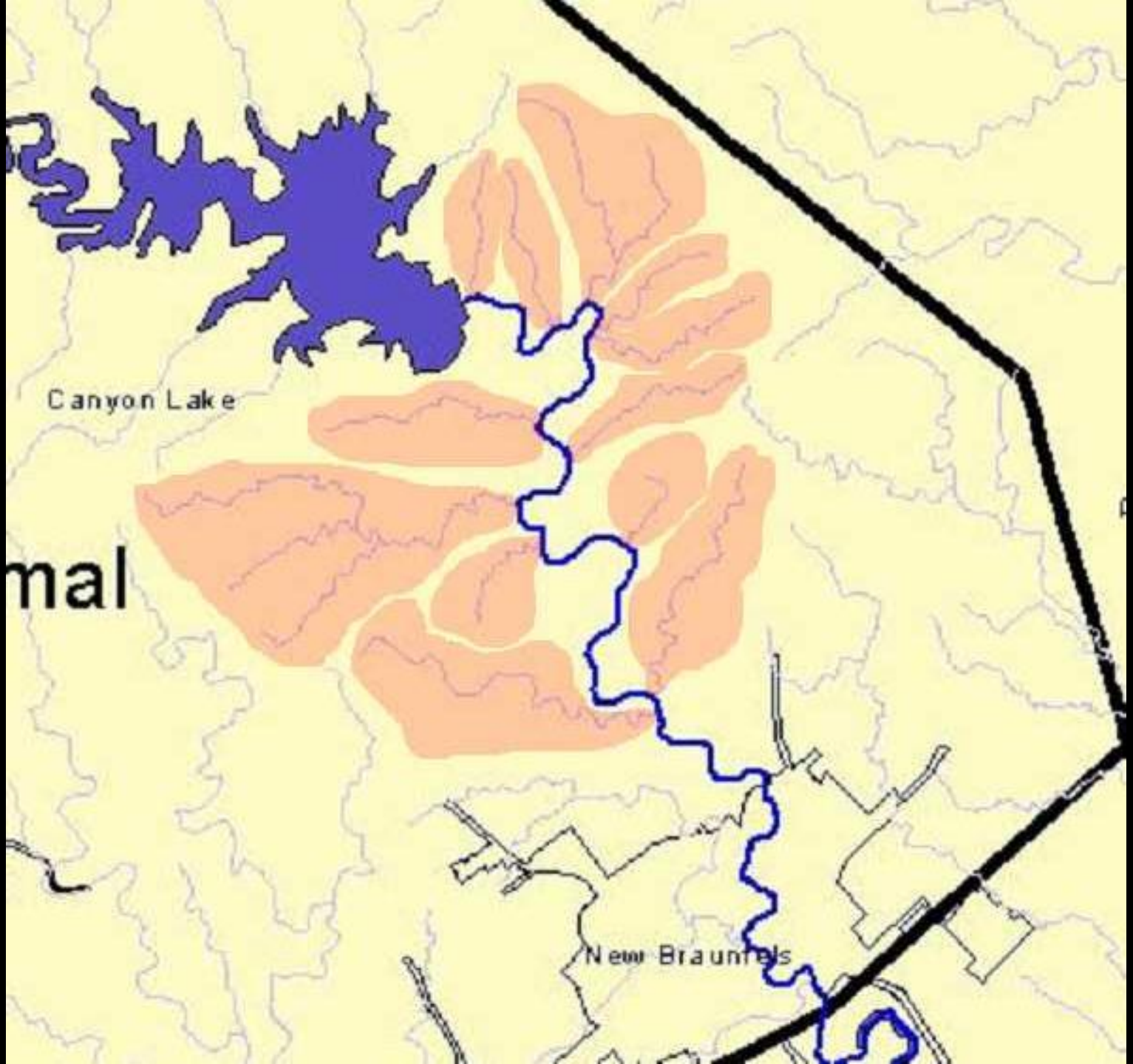
Flood Control Dam Components



Dam

Outlet Works

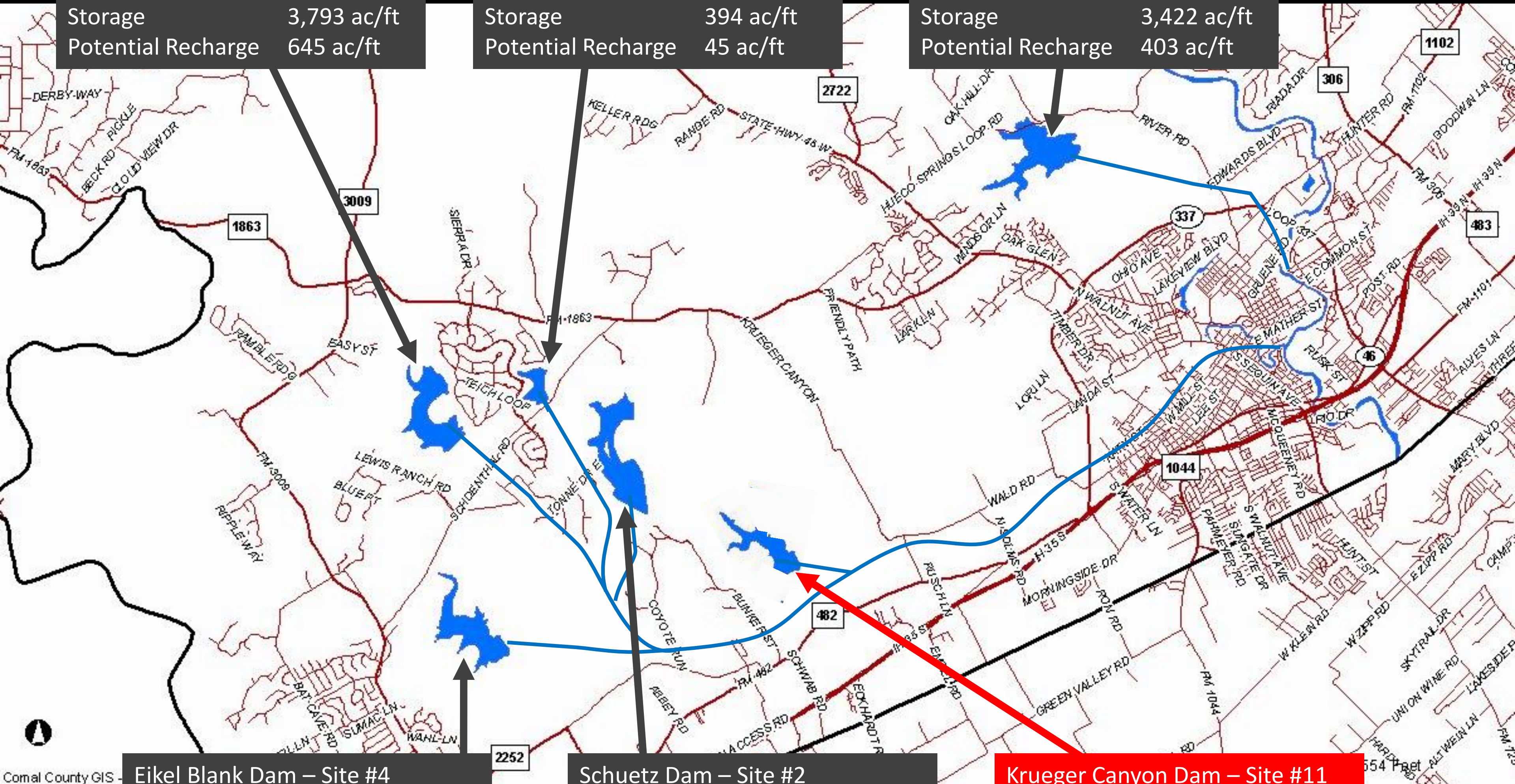
Emergency Spillway


Canyon Lake
mal
New Braunfels

Krause Dam – Site #1	
Drainage Area	11,582 acres
Dam Height	70 feet
Dam Length	2,003 feet
Impound Area	218 acres
Storage	3,793 ac/ft
Potential Recharge	645 ac/ft

Vogel Dam – Site #5	
Drainage Area	881 acres
Dam Height	32 feet
Dam Length	1,090 feet
Impound Area	40 acres
Storage	394 ac/ft
Potential Recharge	45 ac/ft

Blieder's Creek Dam – Site #3	
Drainage Area	7,398 acres
Dam Height	60 feet
Dam Length	1,124 feet
Impound Area	255 acres
Storage	3,422 ac/ft
Potential Recharge	403 ac/ft

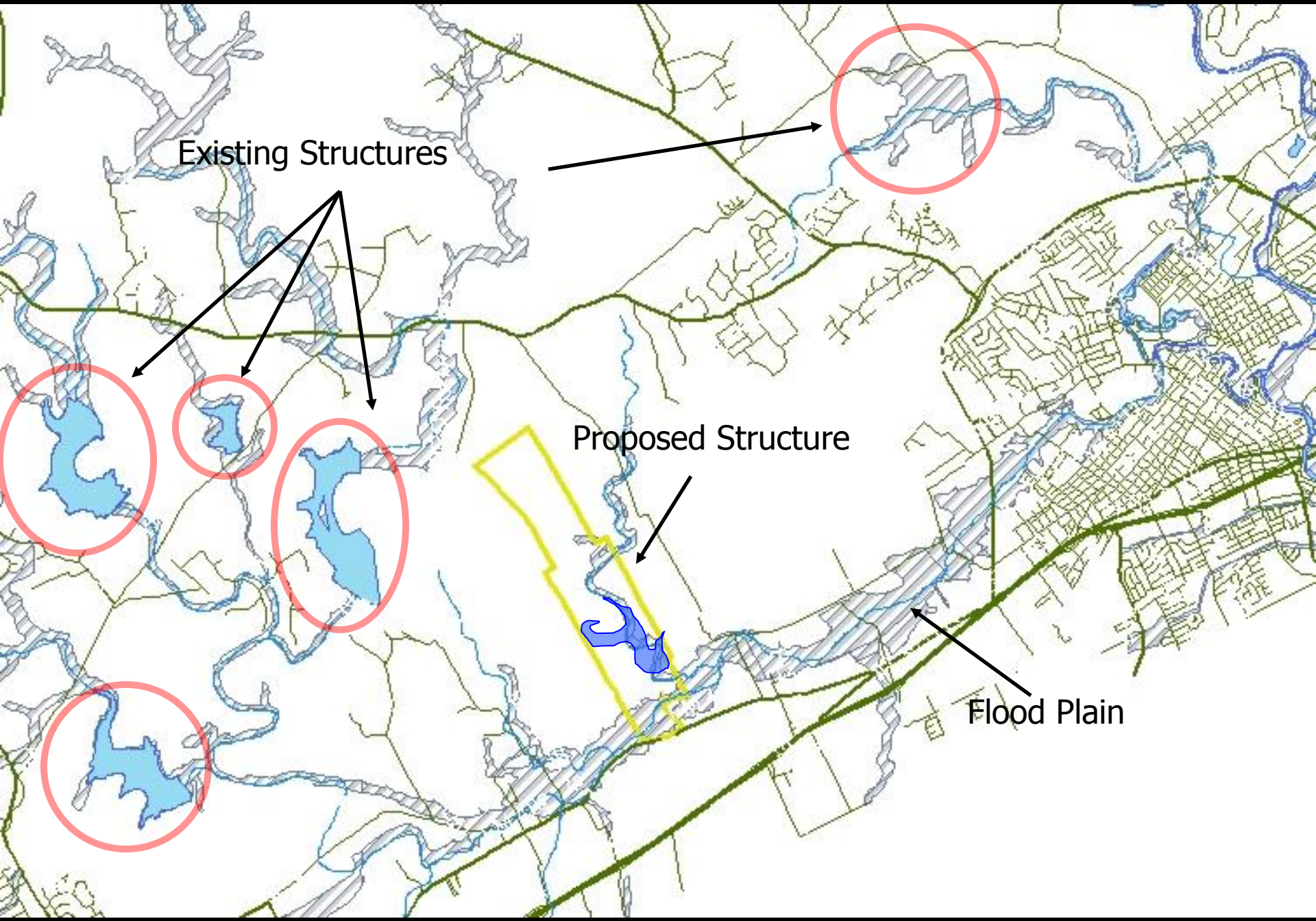


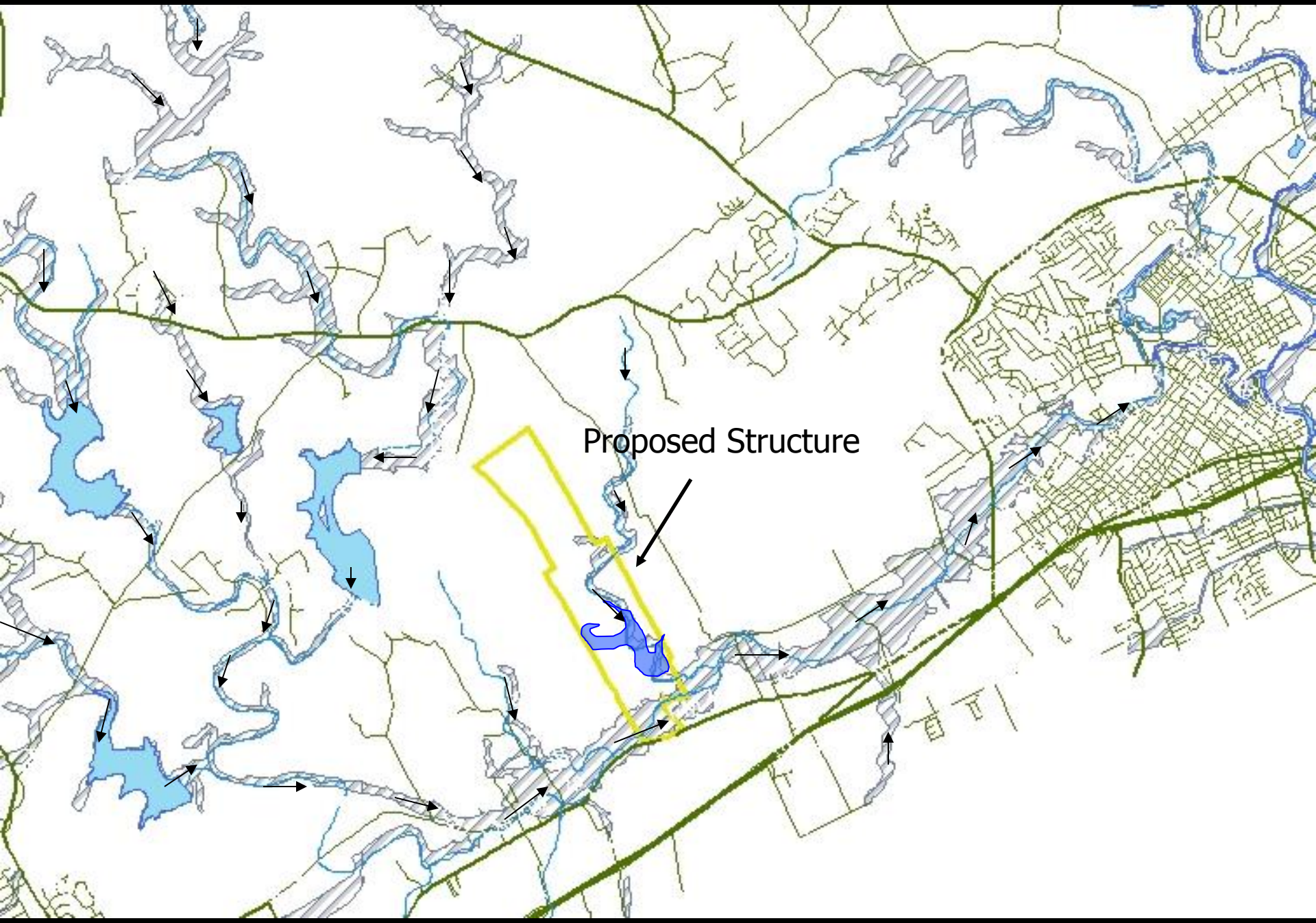
Eikel Blank Dam – Site #4	
Drainage Area	8,301 acres
Dam Height	72 feet
Dam Length	1,600 feet
Flood Area	191 acres
Storage	3,604 ac/ft
Potential Recharge	455 ac/ft

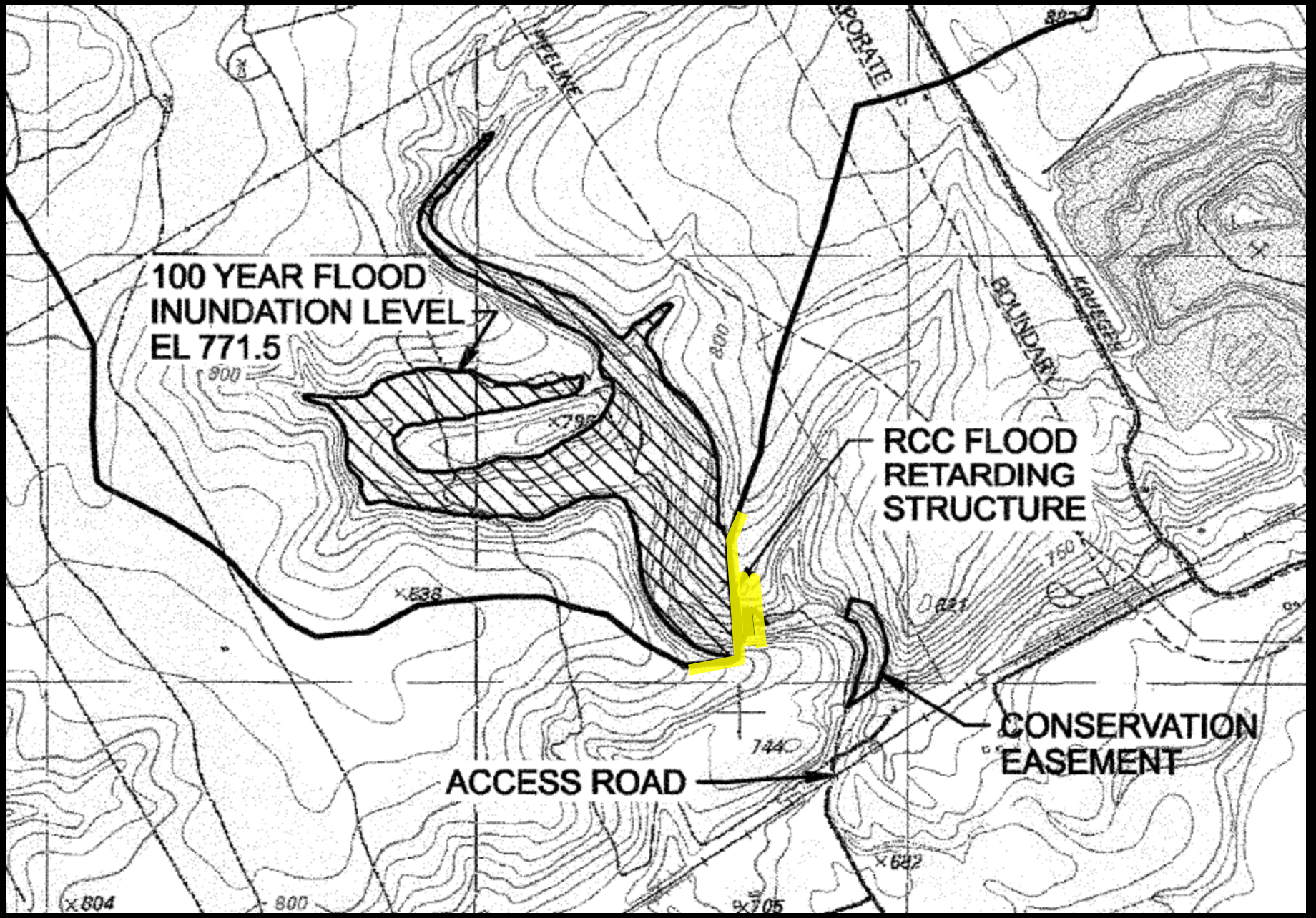
Schuetz Dam – Site #2	
Drainage Area	19,294 acres
Dam Height	75 feet
Dam Length	2,612 feet
Flood Area	465 acres
Storage	7,878 ac/ft
Potential Recharge	1,051 ac/ft

Krueger Canyon Dam – Site #11	
Drainage Area	3,590 acres
Dam Height	85 feet
Dam Length	1,500 feet
Flood Area	120 acres
Storage	2,884 ac/ft
Potential Recharge	120 ac/ft


June 9th Event
Kayakers


Existing Structures
Proposed Structure
Flood Plain


Proposed Structure


100 YEAR FLOOD
INUNDATION LEVEL
EL 771.5
RCC FLOOD
RETARDING
STRUCTURE
CONSERVATION
EASEMENT
ACCESS ROAD
KAUKEGEN
BOUNDARY


CAT
725
1427


KOMATSU

Aero Photo

727.520.8181
www.aerophoto.com

Dry Comal Creek Flood
Retarding Structure

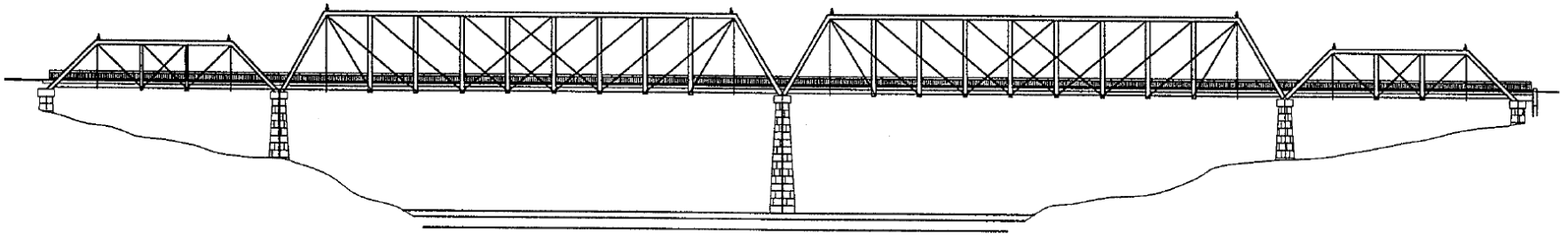
Image # 121210 6176
Date 12.10.12

Faust Street Bridge

Built
1887

New Braunfels
Comal County, Texas

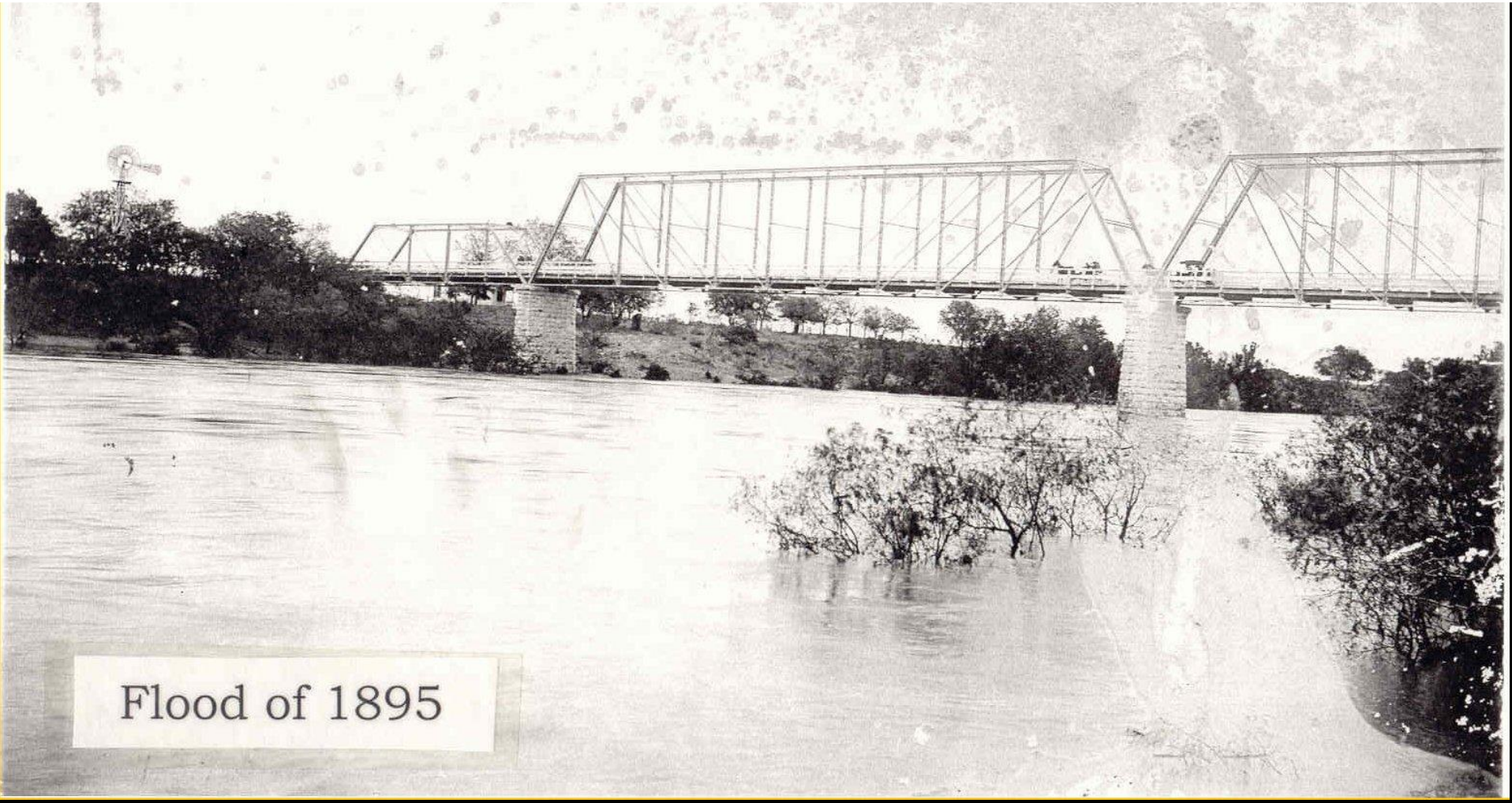
Restored
1998



The Faust Street bridge was constructed by King Iron and Bridge Company of Cleveland, Ohio in 1887. Comal County considered three proposals for the bridge at its April 5, 1887, commissioners court meeting. King Iron and Bridge Company submitted the low bid of $25,600 and was awarded the contract. According to the Comal County Commissioners Court Minutes, the total cost of the bridge, including land for right-of-way, trusses, piers and engineering costs, came to $33,269.

Newly Constructed Bridge in 1887

The county opened the bridge as a toll-free structure in late 1887. At the time of its opening, the Faust Street Bridge was one of the first permanent "toll-free" structures completed over a major waterway in Texas. Most major bridges built during the 1880s were built by privately-funded bridge corporations which charged tolls or fees to cover construction and maintenance expenses of the bridge. The county's $33,269 investment in the opening of a "free bridge" across the Guadalupe was a testament to the county's prosperity and civic-mindedness at the time.



Flood of 1895

On December 27, 1887, the Commissioners Court opened the bridge and adopted the following rules regulating the traffic:

Rule 1. The driving of loose stock over the bridge is prohibited.

Rule 2. Teams and horsemen are required to cross the bridge in a walk.

Rule 3. In driving over the bridge, all teams must take the right hand side.

The bridge was built as a toll free structure. Most major bridges of the time were built by privately-funded entities which charged tolls. Comal County's investment in opening a "free bridge" was a testament to the County's prosperity and civic-mindedness.

The County built the bridge within feet of the Guadalupe River crossing of the Old San Antonio Road (El Camino Real).

In 1917, the Texas Highway Department designated the structure to serve as part of the State Highway 2, the predecessor route to US 81 and IH 35.

The bridge served as a major crossing for all traffic between Dallas/Austin to San Antonio from 1887 to 1934.

The County replaced the timber decking of the bridge in 1947 and added a pedestrian walkway on the upstream side. Sound timbers were salvaged from the original 1887 deck and used to build the walkway.

The Faust Street Bridge served local New Braunfels traffic until 1968 when, faced with significant repair costs of $43,906, the County concluded it would be in the best interest of the public to close the bridge to vehicular traffic.

After suffering fire damage, the bridge was closed to pedestrian traffic in 1978.

The bridge remained dormant and unattended until Comal County ordered engineering to begin its restoration in 1994.

In 1998, the restored bridge was dedicated to the City of New Braunfels and re-opened to pedestrian traffic.

Automobile Accident in 1929

Technical Facts

The Faust Street Bridge is a 640-foot long, four-span truss bridge across the Guadalupe River within the City of New Braunfels in Comal County, Texas.

The bridge is made of wrought iron, a once common structural material. Wrought iron is nearly pure iron, containing very little carbon or alloying metals. It has a fibrous character like that of wood. This makes wrought iron less brittle than cast iron and early steels. Wrought iron also has superior corrosion resistance compared to steel.

The strong, reliable character of wrought iron made large truss bridges possible. Later, the economics of steel production replaced wrought iron as the bridge material of choice. Wrought-iron bridges were not built after about 1890.

The Whipple truss was patented by Squire Whipple, an American inventor, in 1847 and became the preferred truss type for long spans.

Each of the 220-foot main spans is a double-intersection Pratt (or Whipple) through-truss. The two 100-foot approach spans are Pratt trusses. In these types of trusses the diagonal bars are in tension and the vertical posts are in compression.

Tension members, such as the diagonals and the bottom chord, consist of double or quadruple sets of eyebars. The eyebars have a flat, circular head with a 2-inch to 3-inch hole. The eyebars are held together by cylindrical pins. There are as many as 12 eyebars nested on a single pin. These are best observed from underneath the bridge.

The deck of the bridge is supported by 20-foot long 3" x 14" Douglas Fir and Pine stringers.

The bridge is supported by massive limestone piers. These large piers were designed to support the weight of the bridge and to resist the forces of a flooding river.