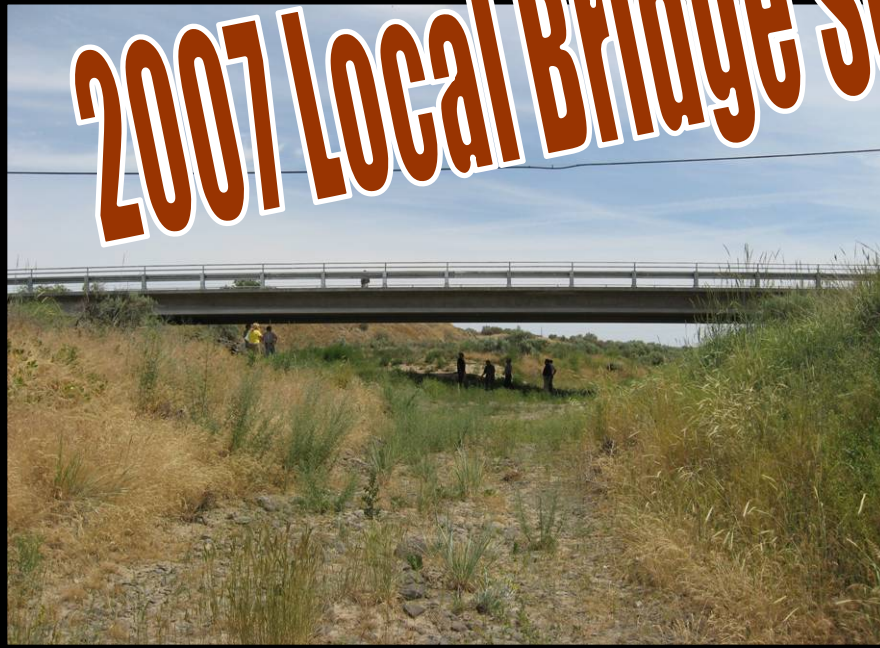




2007 Local Bridge Scanning Tour of WA



The WA Local Bridge Scanning Tour (LBST)

Why?

- A means to find other economical, fast, proven, durable, and safe bridges
- An opportunity to expand the list of approved bridge types/details
- Stimulated by the success from the NY LBST, October, 2006
- Method of developing relationships with industry, local agencies, and other transportation departments



The WA Local Bridge Scanning Tour (LBST)

How?

- Support of the County Engineer's Bridge Committee
- Support of SALT and the State Bridge Office
- Support of MN FHWA , NY FHWA, WA FHWA, NYDOT, WSDOT, and Cattaraugus County, NY
- Support of the Local Bridge Consultants



The Local Bridge Scanning Tour (LBST)

Who?

Minnesota Team

- **Romeo Garcia, Patti Loken, Dave Conkel, Ron Benson, Jeff Rensch, Larry Erickson, and
Rich Sanders**



New York Team

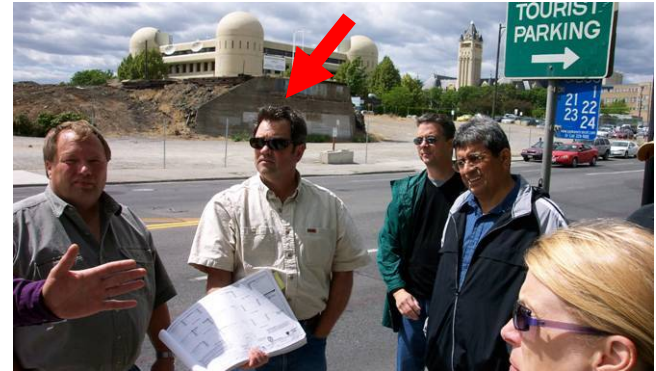
- **Earl Dubin, NY FHWA and Bill Fox, Cattaraugus County**



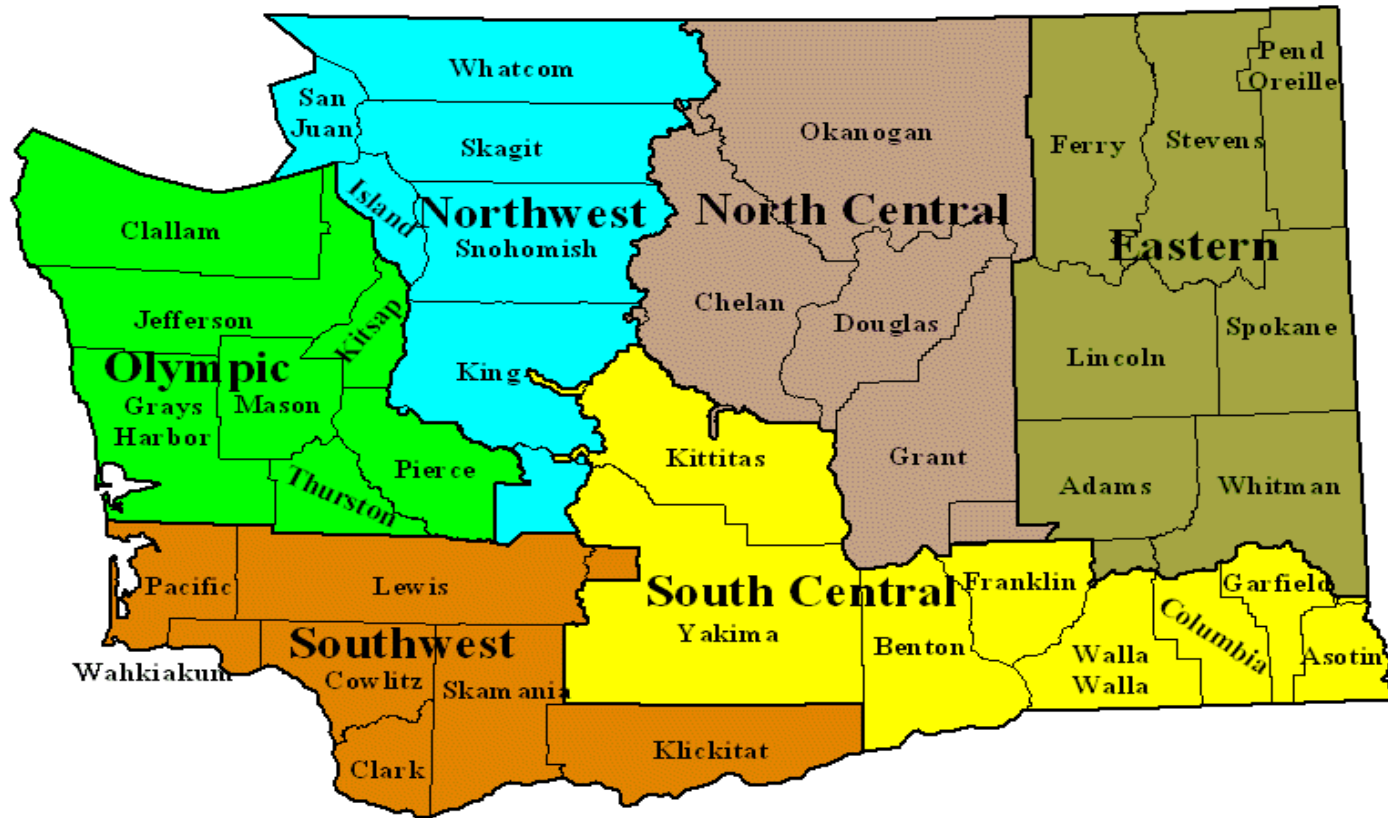
The Local Bridge Scanning Tour (LBST)

Washington State Hosts

- Grant Griffin, WSDOT
- Jerry Nicholls, Nicholls Engineering
- Chuck Prussack, Central Pre-Mix Co.



State of Washington



39 counties in Washington

State of Washington

- The team decided on the Eastern and Northwestern WA regions
- Spokane County, Adams County, Whatcom County, & Tacoma Washington
- Central Premix, Concrete Technology Corporation



State of Washington



State of Washington

- **Similar weather and environments to Minnesota**
- **Progressive precast concrete industry**
- **Innovative and resourceful local bridge designs**



Spokane Washington

General Information

- **Spokane is the largest city between Seattle and Minneapolis on the I-90 corridor**
- **Spokane County maintains 2,500 miles of roadway**
- **Spokane hosted the first World's Fair in Expo 74', becoming the then-smallest city to ever host a World's Fair.**



Spokane Washington

Central Premix Prestress

- Plant opened in 1958, has a national reputation on quality, performance and innovation
- Produces:
 - 12" solid slab, spans to 50'
 - 18" & 26" voided slab, spans up 92'
 - Bulb tee deck unit with adjustable top flange width, spans to to 165'

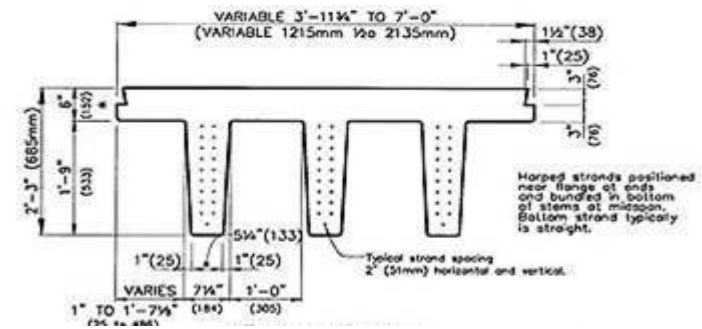


Spokane Washington

Central Premix Prestress

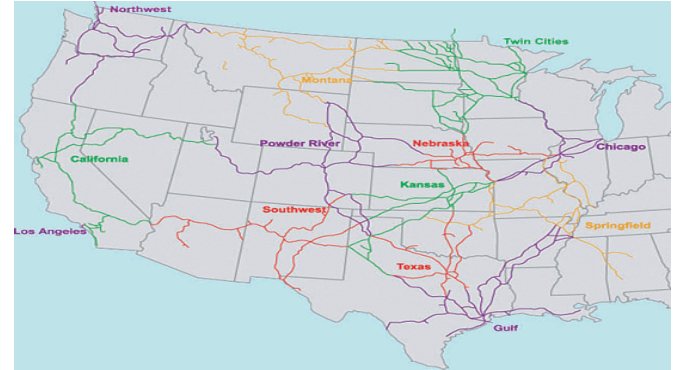
Produces:

- 27" tri deck (instant bridge) multi-stemmed units, spans up to 70'
- Post-tensioned spliced prestressed concrete girders, spans up to 200'
- 3 sided box structures, precast abutments and wingwalls



Spokane Washington to Polk Co. Minnesota

- Further discuss the possibilities with Central Pre-Mix to transport bulb tee beam units by rail transport.
- Also continue to discuss the opportunities with our local precasters to fabricate these proven deck beam systems.
- Develop a marketing plan to encourage the use of precast concrete bridge components



Spokane Washington

- **The Monroe Street Bridge**
 - The bridge is a triple deck arch that spans the Spokane River.
 - Originally built in 1911 and restored to original appearance in 2005.
 - The longest arch span is 281 ft with a total bridge length of 896 ft.
 - Decking materials consisted of 30' span 12" prestressed precast concrete solid slab units



Spokane Washington

- **The Rosamond Ave Bridge**
 - The urban bridge is a 3 span 60'-100'-60' with 45 deg skew that spans over Sunset Blvd.
 - Bridge cross section, includes two 5'-6" sidewalks with a 40' roadway.
 - Superstructure, 48" deep X 6'-9" wide bulb tees with 7-1/2" min concrete topping



Spokane Washington

- **Deep Creek Road Bridge**
 - The rural bridge is a 86' simple span with 21 deg skew, over Deep Creek.
 - Bridge cross section, includes two concrete traffic rails with a 28' roadway.
 - Superstructure, 38" deep X 6'-2" wide bulb tees with 8-3/4" concrete topping.



Adams County Washington



Adams County is a predominantly rural county located in southeastern Washington.

Adams County Washington

General Information

- **County named after 2nd President John Adams.**
- **Adams County is an semi arid agricultural region.**
 - **Irrigation channels bisecting the land of sagebrush and circles of green**
 - **Agricultural pursuits include dry-land wheat farming, irrigated field crops (primarily potatoes)**
- **Since 1952 Columbia River water brought through the Columbia Basin (Coulee Dam) Project has irrigated the region.**



Adams County Washington



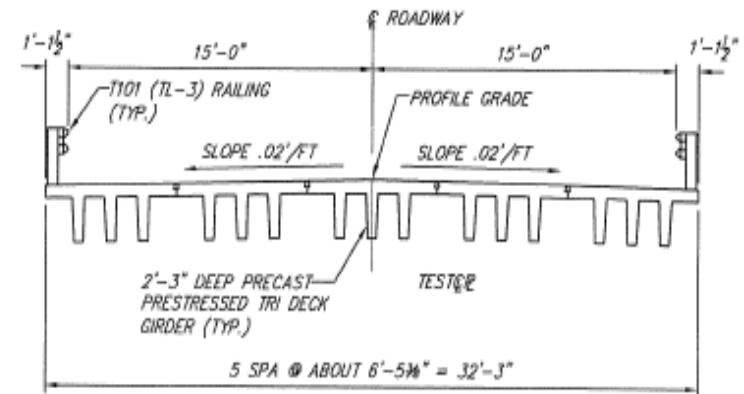
Grand Coulee Dam, creates a water supply to over a million acres of dry land



Grand Coulee Dam, designed as an irrigation project in 1920 and financed as a jobs program in the 1930's

Adams Washington

- **The Weber Bridge**
 - The rural bridge is a 47' simple span with 24 deg skew that spans over Dry Wash
 - Bridge cross section, includes two TL-3 metal traffic rails with a 30' roadway.
 - Superstructure, 27" deep x 6'-5" tri deck with 2" min bituminous overlay. Tri deck used in WA for 12 yrs.



TYPICAL BRIDGE SECTION
CROWN CENTER GIRDER u"

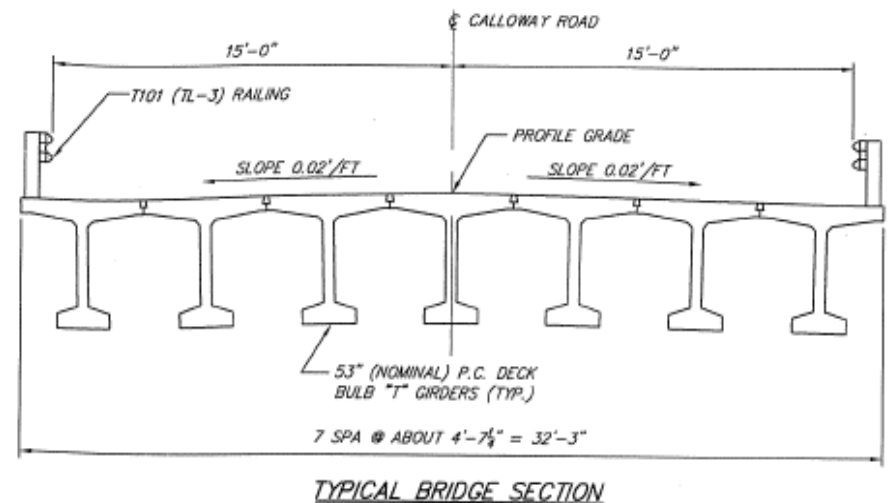
Adams Washington

- **The SP & S Overherd Bridge**
 - The rural bridge is a 121' simple span with 45 deg skew that spans over a trail
 - Bridge cross section, includes two service level 1 metal traffic rails with a 30' rdwy.
 - Superstructure, 53" deep X 7'-7" wide bulb tees with no overlay.



Adams Washington

- **The Duck Pond Bridge**
 - The rural bridge is a 153' simple span with 55 deg skew that spans over East Low Canal
 - Bridge cross section, includes two TL-3 metal traffic rails with a 30' rdwy.
 - Superstructure, 53" deep X 4'-7" wide bulb tees with no overlay.



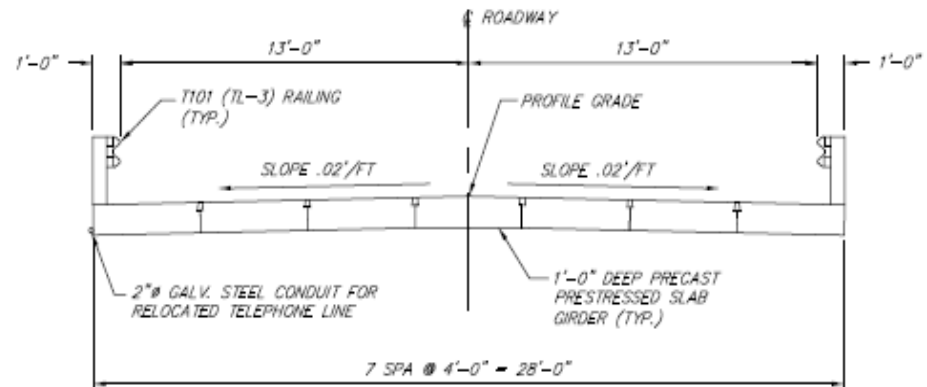
Adams Washington

- **City of Lind, established in 1888**
 - German town in the middle of a wheat field
 - Home of the combine demolition derby
 - Slim's Caffe
- **Lind Coulee Bridge, 120' span over the Lind Coulee**
- **Superstructure, 41" deep X 5'-2" wide bulb tees with no overlay.**



Adams Washington

- **The Leo Dyck Bridge**
 - The rural bridge is a 24' simple span that spans over Farrier Coulee Low
 - Bridge cross section, includes two TL-3 metal traffic rails with a 26' rdwy.
 - Superstructure, 12" deep X 4'-0" solid slabs with no overlay.



TYPICAL BRIDGE SECTION

LOOKING AHEAD ON STATIONING
CROWN CENTER GIRDER $\frac{1}{2}$ "

Coulee City Washington

- **Dry Falls Dam**
 - **Skeleton of one of the greatest waterfalls in geologic history, 3.5 miles wide by 400 feet deep**
 - **Note, Niagara is 1 mile wide by 165 feet deep.**
 - **The geological feature was created by water, ice, and earth during the ice age.**



City of Twisp Washington

- **City of Twisp**
 - **Small city near the foot hills of the Cascade Mountains**
 - **Hwy 20 over the Twisp River. This bridge is a 196' simple span using WSDOT "super girders"**
 - **Superstructure, 8'-0" deep post-tensioned spliced prestressed concrete girders**
 - **Each girder in 3 segments , 45'-101'- 45', were supported on shoring over the river**



Cascade Mountains



North Cascade National Park

Whatcom Washington

- **General Information**

- **County is responsible for 75% of the nation's raspberry production**
- **Weather, average high 73 degrees, average low 46 degrees**
- **2,180 square miles, 974 county road miles and 151 county bridges**
- **Economy includes agriculture, fishing, and timber. Also manufacturing of transportation equipment IE luxury yachts and military boats.**



Whatcom Washington

- **Bridges**
 - **Seven-person bridge crew, maintains the bridges, guardrails, seawalls, bulkhead retaining walls, and ferry docks**
 - **Bridge crew works with various types of equipment ranging from a shovel to a 25-ton crane and an 18-ton boom truck.**
 - **151 bridges at last count are inspected bi-annually.**



Whatcom Washington

- **The Loomis Bridge**

- Bridge constructed with county forces. Completed in approximately 5 weeks
- County considers this to be their standard 40'-0" span replacement bridge
- Includes two Oregon 2 tube metal rail on 10" curb, and voided slab superstructure
- Superstructure is supported on a concrete pile cap with stay-in-place galvanized metal form, and precast concrete backwall.



Tacoma Washington

- **Concrete Technology Corporation**
- **Plant opened in 1951, known for quality, and innovation.**
- **Produces:**
 - **Box beams**
 - **Voided slabs**
 - **Bulb tee girders**
 - **Prestress piling & etc.....**



Tacoma Washington

Tacoma Narrows Bridge

- **Old Gertie built in 1940, suspension spans collapsed on November 7, 1940**
- **Suspension spans of Old Gertie rebuilt, carries west bound traffic**
- **New Tacoma Narrows Bridge, carries east bound traffic**
- **2,800' main span, 5,400' total length, towers 510' tall**



Summary of Observations

- Side by side bulb tee girders with or without overlay for longer spans
- Super girders, using post tensioning for super long spans
- TL-3 metal bridge railing, economical rail for low speed, low volume roadways.
- Local bridge designs reflect the progressive precast concrete industry
- Precast systems are durable, economical, and accelerate construction



LBST Team at Central Pre- Mix Spokane WA



LBST Team on Tacoma Narrows Bridge

Consensus of the LBSTT

- 12" side by side solid slabs units
- Voided slab bridge systems
- Side by side bulb tee girders
- Spliced precast post-tensioned girders
- TL-3 metal traffic railing



Scanning Team



Let's scan Iowa

Consensus of the LBSTT

- Tri-Deck
- Additional prestressed options
- More communication between states needs to be supported and encouraged
- More State funding for local bridges
- Washington State is a heck of a nice place to visit



Scanning Team



Let's implement

WA Local Bridge Scanning Tour Credits

Romeo Garcia, MN FHWA, Finance Director, and LBST Team Member

Grant Griffin, WA/DOT Local Agency Bridge Engineer, Tour Coordinator

Earl Dubin, NY FHWA, LBST Team Member

Bill Fox, Cattaraugus County, NY, LBST Team Member

Cameron West, Concrete Technology Corporation, Tacoma, WA

Clint Biggar, Engineering Supervisor, Adams County, WA

**Chuck Prussack, Vice President of Eng., Central Pre-Mix Prestress Co.,
Spokane, WA**

Jerry Nicholls, Nicholls Engineering.

SRF Consulting Group, Inc

WSN Consulting Engineers

Erickson Engineering

Blue Earth County, Minnesota

Steele County, Minnesota

Polk County, Minnesota

The LBST Team Members



LBST Team on the Leo Dyck Bridge, Adams



**LBST Team on the Deep Creek Road Bridge,
Spokane County**

Little Bit O' Fun



Sailing the Pacific



Pike Place Fish Company



Pike Place Market



Safeco Field

Other Observations



Delineators Inside Guardrail



Narrow Rdwy, Steep In slopes



Guardrail End Treatments



TL-?? Bridge Rail