



Mayes County SH-28 Pensacola Dam Bridges Widening and Rehabilitation

BUILD Transportation Grant Application
Rural Oklahoma



PROJECT INFORMATION	
Sponsoring Organization	Oklahoma Department of Transportation
DUNS Number	8247000740000
EIN	736017987
Program of Projects	
Name of Project	Mayes County SH-28 Pensacola Dam Bridges Widening and Rehabilitation
Type of Project	Bridge
Location of Project	Mayes County, Oklahoma
Congressional District	2nd
BUILD Application Amount Requested	\$15,180,000.00
BUILD Application Agency Match	\$5,296,824.00
BUILD Application Partnership Match	\$9,975,217.00
Primary Point of Contact	Laura Chaney, MA, CPM Transportation Manager Strategic Asset and Performance Management Oklahoma Department of Transportation 200 NE 21st St, Oklahoma City, OK 73105 lchaney@odot.org 405-521-2705

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
I. PROJECT DESCRIPTION	3
II. PROJECT LOCATION	6
III. GRANT FUNDS, SOURCES AND USES OF ALL PROJECT FUNDING	7
IV. SELECTION CRITERIA	8
1. Primary Selection Criteria	
a. Safety	8
b. State of Good Repair	10
c. Economic Competitiveness	11
d. Environmental Sustainability	13
e. Quality of Life	14
2. Secondary Selection Criteria	
a. Innovation	16
i. Innovative Technologies	16
ii. Innovative Project Delivery	17
iii. Innovative Financing	18
b. Partnership	18
V. PROJECT READINESS	20
1. Technical Feasibility	20
2. Project Schedule	20
3. Required Approvals	20
a. Environmental Permits and Reviews	21
i. NEPA Status of the Project	21
ii. Reviews, Approvals, and Permits by other Agencies	22
iii. Environmental Studies	23
iv. Coordination with ODOT	25
v. Public Engagement	25
b. State and Local Approvals	26
c. Federal Transportation Requirements Affecting State and Local Planning	26
4. Assessment of Project Risks and Mitigation Strategies	27
VI. BENEFIT COST ANALYSIS	29
SUMMARY	30

TABLES:

1. Project Benefits at a Glance	2
2. Sources and Uses	7
3. Current Conditions	10

SUPPORTING MATERIALS

Supporting documentation can be found on the BUILD Project Website at https://www.ok.gov/odot/Progress_and_Performance/Federal_Grant_Awards/BUILD_Grants/Mayes_County_SH-28_Pensacola_Dam_Bridges_Widening_and_Rehabilitation_2019.html

- Letters of Support
- GRDA Pensacola Dam Detour Route
- GRDA 60% Plans - Updated
- GRDA SH-28 Interactive 3D Arch Section
- GRDA SH-28 Interactive 3D Spillway Section
- GRDA SH-28 Interactive 3D Non-overflow Section
- US Megaregions Map
- Traffic Analysis Map
- 2016 In-Depth Pensacola Dam Field Assessment Report
- 2016 In-Depth East Spillway Field Assessment Report
- 2016 In-Depth West Spillway Field Assessment Report
- 2018 Pensacola Dam Field Assessment Report
- 2018 East and West Spillway Field Assessment Report
- GRDA Benham Preliminary Design Report
- GRDA Supplemental to Preliminary Design Report
- GRDA Supplemental No. 2 to Preliminary Design Report
- SH-28 Traffic Study
- SH-28 Bridge Widening BCA Narrative
- SH-28 Bridge Widening BCA 20yr (Excel)
- Videos:
 - Pensacola Dam - Did You Know?
 - Big Meat Run - 2019 Recap

EXECUTIVE SUMMARY

The Oklahoma Department of Transportation (ODOT) is pleased to sponsor and submit this application for Mayes County SH-28 Pensacola Dam Bridges Widening and Rehabilitation under the U.S. Department of Transportation BUILD Discretionary Grant Program. BUILD funding in the amount of \$15,180,000 will be coupled with funding through ODOT and private funds from the Grand River Dam Authority (GRDA). The BUILD Grant funds coupled with the \$15,272,041 from ODOT and GRDA results in a benefit cost ratio of 1.07.



Aerial of roadway, spillway, Grand Lake

The primary purpose of the project is to increase the safety for vehicles traveling in this region by widening and rehabilitating the three bridges on SH 28 over the dam of the Grand Lake O' the Cherokees (Grand Lake) in rural Mayes County. The project will provide improved safe and reliable access to community social, commercial, employment, and health care sites in rural northeast Oklahoma. Additional benefits of the project can be seen in Table 1. These bridges have been classified by ODOT as functionally obsolete, at-risk, and are load-rated at 16 tons until repairs are made. They are the narrowest and longest two-lane bridges in the State of Oklahoma, and three of a handful of 20-foot-wide bridges remaining on the Oklahoma highway system. The actual width of these bridges is 19 feet eight inches wide, with two lanes of nine feet ten inches each.

The late 1930's era structures cross the Pensacola Dam and the West and East Spillways and are fine examples of depression-era construction. The Pensacola Dam Bridge is 5,679 feet (1.07 miles) and is the longest of the three bridges. The remaining bridges, the West Spillway Bridge and the East Spillway Bridge are shorter at 451 feet (.085 miles) and 410 feet (.078 miles), respectively. The three bridges are collectively described as the SH 28 Bridges. They are listed on the National Register of Historic Places as an "excellent example of multiple arch dam engineering."

Although repairs have been made in the years since construction completion, significant rehabilitation and widening is needed for the structures to continue serving the safety and welfare of the local citizens. The SH 28 Bridges are key to the economic viability of the adjoining communities and businesses near Langley, Disney and Tia Juana. Without structural improvements, the bridges will likely require substantial

limitations on vehicular traffic at some point in the future. Permanent alternative highway route options are minimal and the redirection of traffic away from the communities that bookend the bridges would have devastating effects.

Given the bridges' historical significance and the manner in which they serve as a lifeline to the adjacent communities and local businesses, ODOT and GRDA are committed to improving the bridges while minimizing the negative economic impact during construction. Being the day to day manager of the structure, GRDA is keenly aware of the importance of the bridges and is providing access and operational care in order to support the project.

ODOT and GRDA have been collaborating on this project, Widening and Rehabilitation of the SH 28 Bridges, since 2017. These improvements are expected to extend the useful life of the SH 28 Bridges for more than 75 additional years. At the time of the submittal of the BUILD grant application, construction plans are at 60 percent and are expected to be at 90 percent by March 2020. The environmental clearance is underway at both the state and federal levels. All necessary permits are expected to be received so that the project can go to bid by July 2020 and be under construction by September 2020. Construction on the three bridges is scheduled to be completed by December 2021.

Table 1 - Project Benefits at a Glance

Widening and Rehabilitation of the SH 28 Bridges Project Benefits at a Glance	
Providing Safe and Reliable Transportation	✗ At nine foot ten inches wide, the SH 28 Bridges are the longest and narrowest bridges in the Oklahoma Transportation Network.
	✗ The reduced speed along the SH 28 Bridges increases travel time, congestion during times of high recreational use, and increased opportunities for conflict.
	✓ The project will widen the travel lanes to 12-feet thereby reducing collision rates by 20% annually while increasing the level of service of the bridges.
Increasing Economic Effectiveness and Connectivity	✗ Although an engineer marvel of the late 1930's, the existing configuration of the SH 28 Bridges is not adequate to today's movement of people and goods.
	✗ Without this project, the SH 28 Bridges could close to traffic in the future and the designated alternative route bypasses the communities located on the east side of the bridges.
	✓ The project will provide for safer travel across the SH 28 Bridges which will increase the economic growth opportunities for communities and businesses located around the southern edges of Grand Lake.
Enhancing Quality of Life for Rural Residents	✗ The load capacity restrictions and narrowness of the SH 28 Bridges limit the types of vehicles that can traverse the bridges.
	✓ The project will widen all three Pensacola Dam bridges and result in reliable connectivity of both goods and people between the southern Grand Lake communities and the entire Northeast Region of Oklahoma.
	✓ The project will rehabilitate the structural capacity of the bridges allowing increased coordination between regional emergency agencies as well as the use of larger emergency vehicles.

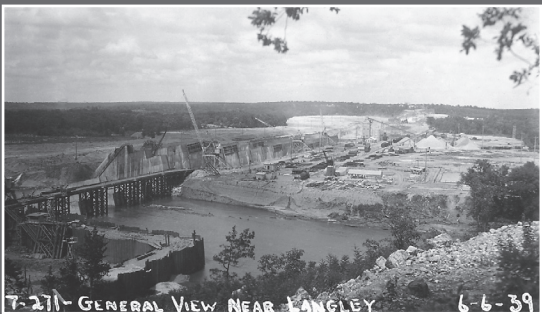
I. PROJECT DESCRIPTION



Preparation of the site started in 1937



First concrete pour started in 1938



Approximately 3000 men worked on the project



24-hour continuous pour continued for 20 months



Road across the dam was opened in August 1940

The submittal of this BUILD Grant application is to widen and rehabilitate the SH 28 Bridges which cross the historic Pensacola Dam and the auxiliary spillways on south side of Grand Lake O' the Cherokees. This is a key project for both ODOT and GRDA and it is vital to the economic prosperity of rural northeast Oklahoma including the communities of Langley, Disney and Tia Juana and the many businesses and residents that depend on this corridor. The project is also important to thousands of recreational users of Grand Lake.

The immediate purpose of the project is to increase the safety for vehicles utilizing these bridges while extending the life of the historic SH 28 Bridges by reinvesting in them such that they fully meet today's vehicular standards.

Pensacola Dam was a late 1930's era Works Progress Administration (WPA) project which included both the concrete dam structure and powerhouse. The \$8.4 Million dollar project began in 1937 and was completed in 1940. It was the largest single construction project of the time in Oklahoma and is listed on the National Register of Historic Places. An engineering marvel of the era, it remains an exhibit of such even today. This project to widen the existing bridges is similarly a feat of engineering and coordination.

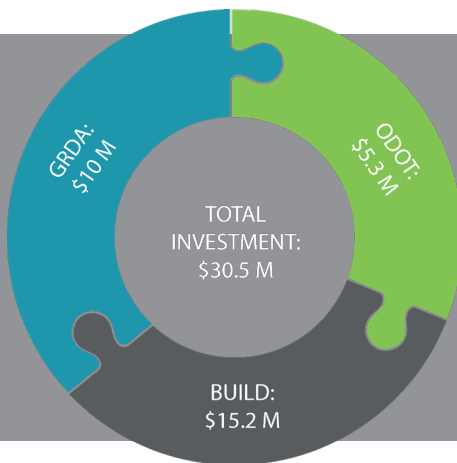
By today's standards, however, the SH 28 Bridges sit atop the dam as the narrowest and longest two-lane bridges in the State of Oklahoma. They are among a handful of bridges in Oklahoma whose width is less than 20 feet. The Pensacola Dam alone is one mile long. The bridges are classified by ODOT as functionally obsolete. The bridges' condition and



[For More Information, Watch the Did You Know Pensacola Dam Video on the BUILD Website](#)

capacity are also inadequate to accommodate the daily loads the bridge currently serves. Given its age and the loads it has experienced, it remains a marvel and credit to its historical significance. The majority of the bridge components are structurally sound and in good condition, although, key components of the Pensacola Dam Bridge at expansion joints have significant deterioration due to frozen and leaking joints that warrant repair or replacement. The load rating of the deck and floor beams show that these components require rehabilitation and additional strengthening measures to carry the heavy vehicular loads crossing the bridges. The damages inflicted to the bridges have reached a point requiring structural improvements before excessive deterioration occurs that could necessitate the closure of the highway altogether.

ODOT and GRDA manage the SH 28 Bridges collaboratively. ODOT maintains the driving surface of the bridges between the curbs. GRDA owns and maintains the remainder of the bridges, dam and spillways and is responsible for operating the hydroelectric powerhouse.



“This project has the right partners in place and has consistently met early milestones. With the BUILD funding, the widening and rehabilitation of the SH 28 Bridges will continue to be a structure vital to northeast Oklahoma for many years to come.”

Senator James Inhofe

GRDA and ODOT have performed numerous repairs over the years to sustain the life of the historic bridges, however, the level of damage now is at a point that requires a concentrated reinvestment to making the structures safe for today’s traveling public. Both agree that the need for rehabilitation and widening of the bridges is not an elective undertaking; the extent of improvement, however, is subject to the availability of funding.

Both GRDA and ODOT have programmed funding for the primary deck rehabilitation and the planned structural deterioration repairs beginning in 2020. These repairs are essential to relieving the structural capacity concerns for the main Pensacola Dam Bridge. These repairs alone, however, do not address the long-term safety concerns associated with the dangerously narrow travel lanes.

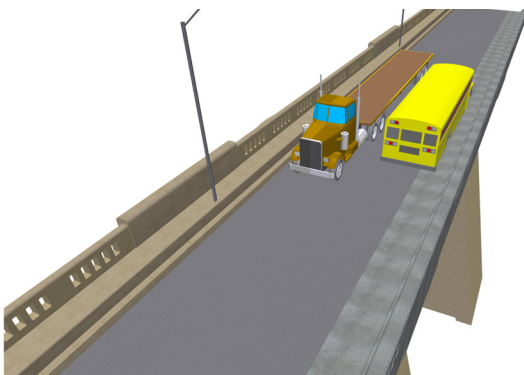
To begin to address the challenges associated with the SH 28 Bridges, GRDA engaged a consultant team in September 2017 to provide professional planning

and engineering services to evaluate the structural and functional renovation of the Oklahoma State Highway 28 Bridges which cross the Pensacola Dam and auxiliary spillways. The consultant team developed and evaluated three rehabilitation and widening alternatives. In addition, a strictly rehabilitation scenario as well as a “no action” scenario was considered.

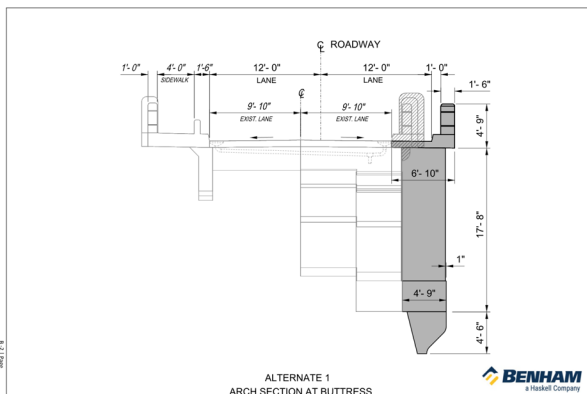
The requested BUILD Grant, combined with the ODOT and GRDA programmed structural improvement funds, will allow for the following safety improvements to be made to the SH 28 Bridges:

- structural improvements to the decks and supporting girders and floor beams
- removal and replacement of the existing downstream curb and parapet wall
- widening the downstream side by approximately four feet to obtain two twelve foot lanes instead of the existing two nine-foot ten-inch lanes

Without the BUILD Grant Funding, the widening of the three structures will not occur; hence the SH 28 Bridges will not meet the safety needs of today, much less into the future. The narrowness of the bridges is a deterrent for some who might otherwise use the bridge. Many become fearful of meeting a large truck or RV on the bridge, and choose another route.



In summary, combining the widening funded with the BUILD Grant and the rehabilitation and structural upgrades in a total project package will not only extend the life of the three SH 28 Bridges but also will address structural capacity and long-term safety concerns for vehicles and pedestrians utilizing the structures. Tandem construction will reduce impacts to the local communities and decrease the cost of the construction compared to letting two separate projects at different times.

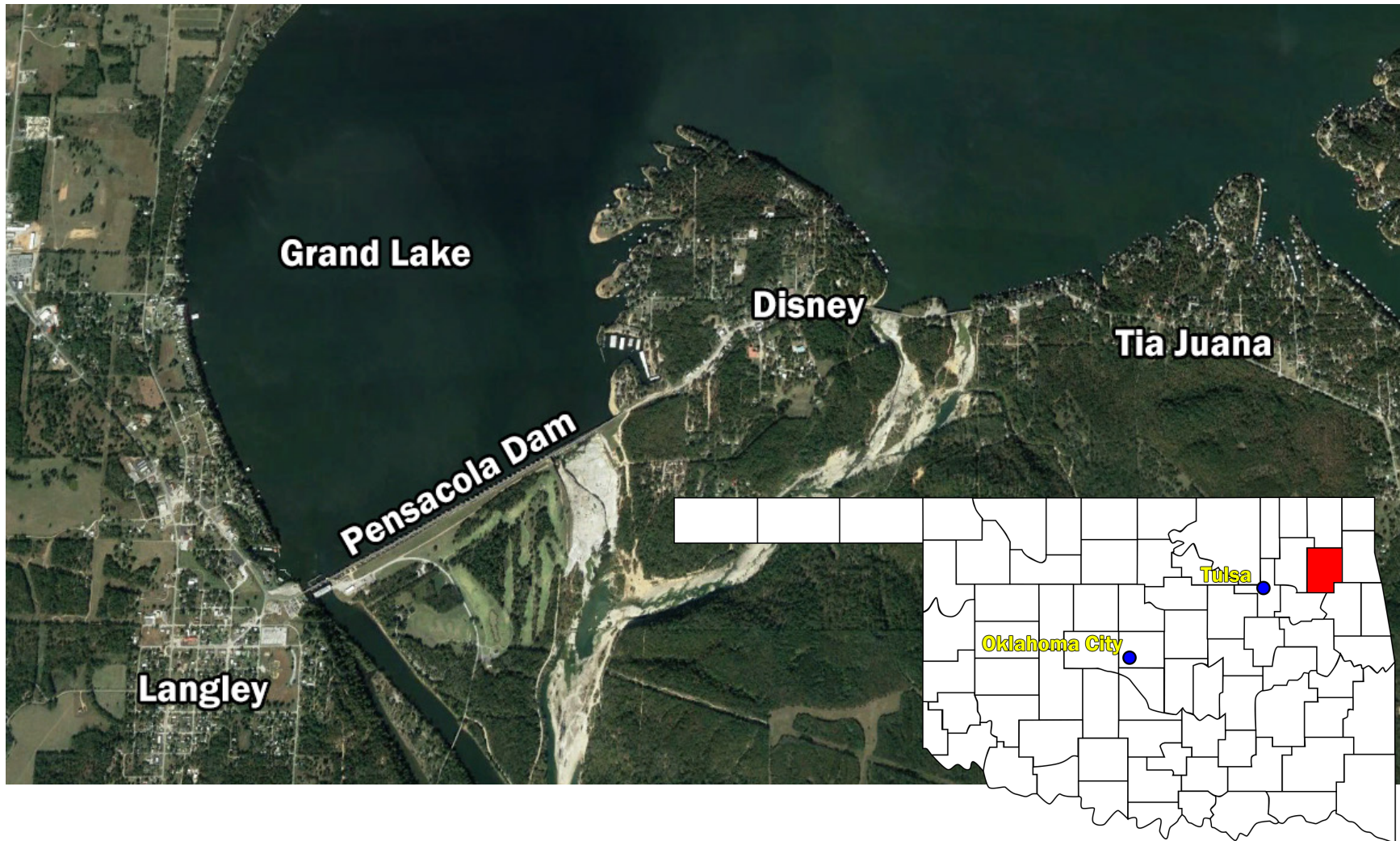


Rendering and Elevation View of Bridge Widening

To accomplish the intent of the project to bring the bridges over Pensacola Dam and the Grand Lake Auxiliary Spillways **back to fully functioning and safe structures**, it is essential that funding be leveraged from multiple sources - BUILD, ODOT, GRDA - for the project.

II. PROJECT LOCATION

The SH 28 Bridges are located in rural Mayes County in Northeast Oklahoma. The SH 28 Bridges cross the Pensacola Dam and its auxiliary spillways. The SH 28 corridor provides access to the southern end of Grand Lake O' the Cherokees. Grand Lake is one of Oklahoma's largest bodies of water, spanning three counties with over 46,500 surface acres.



III. GRANT FUNDS, SOURCES AND USES OF ALL PROJECT FUNDING

Table 2 - Sources and Uses

SH 28 BUILD Sources and Uses - 2019							
USES	STATE FUNDS/ODOT		PRIVATE INVESTMENT/GRDA		BUILD FEDERAL FUNDS		TOTAL PROJECT COST
	Previously Incurred	Future	Previously Incurred	Future	Previously Incurred	Future	
Environmental and Preliminary Engineering			\$798,235	\$182,715			\$980,950
Final Engineering and Construction Services	\$20,000	\$51,584	\$521,385*	\$452,882			\$1,045,851
Construction: Bridge Deck Rehabilitation		\$4,628,800					\$4,628,800
Construction: Superstructure Rehabilitation				\$7,260,000			\$7,260,000
Construction: Bridge Deck Resurfacing at Widening						\$1,000,000	\$1,000,000
Construction: Pensacola Dam Bridge Widening						\$11,230,000	\$11,230,000
Construction: West Spillway Bridge Widening						\$980,000	\$980,000
Construction: East Spillway Bridge Widening						\$850,000	\$850,000
Mobilization		\$300,000		\$350,000		\$470,000	\$1,120,000
5% Contingency, and Other		\$296,440		\$410,000		\$650,000	\$1,356,440
Total Project Cost	\$20,000	\$5,276,824	\$1,319,620	\$8,655,597	\$0	\$15,180,000	\$30,452,041
Total Funding		\$5,296,824		\$9,975,217		\$15,180,000	\$30,452,041
*Funding Includes Construction from Pensacola Dam Lighting upgrades to meet SHPO Suggestions:						Federal Funds	49.85%
						\$141,820.00 State/Private Funds	50.15%

IV. SELECTION CRITERIA

1. PRIMARY SELECTION CRITERIA

a. Safety

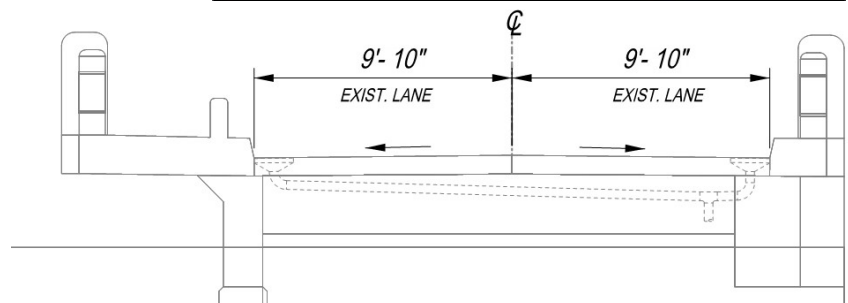
The Project will improve safety through:

- Widening the travel lanes from 9-foot 10-inches to 12-feet will reduce collision rates by 20% annually
- Strengthening the structural condition of the bridges to accommodate the daily loads on the bridge including local emergency vehicles (See State of Good Repair Section)
- Improving the conflict points located at the approach sections to the three bridges

The safety of those who travel the SH 28 Bridges is a serious concern of both ODOT and the GRDA. The deterioration of these bridges has reached a point requiring substantial condition improvements to prevent the possible future closure of this vital highway corridor altogether.

The three SH 28 Bridges are classified as functionally obsolete, at-risk, and are load-rated at 16 tons due to narrow width, condition, and excessive loads. SH 28 is a two-lane narrow roadway (one 9-foot 10-inches travel lane in each direction) with no shoulder. The narrowness does not allow for safe passing or emergency areas. The proposed widening will accommodate today's vehicle sizes and move traffic with fewer conflicts which would result in a 20 percent reduction in crashes annually.

ODOT Traffic Engineering Division Collision Analysis and Safety Branch tracks intersection and segment data along the Oklahoma State Highway System including the project area. Data was collected on SH 28 from approximately two and one-half miles west of the Mayes/Delaware County Line to approximately one-half mile east of the Mayes/Delaware County Line.



Overweight Truck Driving over Existing Bridge with Narrow Lanes

The collision analysis shows that the overall segment collision rating was 34% above the statewide average rate between 2014 and 2016, with more than 20% of the collisions being sideswipes between vehicles going in opposite directions and more than 36% being collisions with fixed objects including the approach guardrails, curbs and parapet walls.

SUMMARY OF COLLISION DATA

- *56% of the reported incidents were sideswipes from either the same or opposite direction*
- *68% of the collisions resulted in property damage*
- *59% of the reported incidents were during dry, daylight conditions*
- *Overall collision rates on this section of highway were 34% above the statewide rates between 2014 and 2016*

During advanced planning for this project, an average daily safety study was completed in July 2018. The current posted speed on the SH 28 Bridges is 45 miles per hour. During the study period, over 90 percent of the traffic traveled below the posted speed with 48 percent traveling below 35 miles per hour. The report indicated that in order “to have an efficient posted speed limit of 45 miles per hour or increase the posted speed limit, the level of service (LOS) will need to be higher.” The report further stated that widening the SH 28 Bridges from 9-foot 10-inch lanes to 12-foot lanes would improve the LOS.

The approaches to each bridge will also be improved for safety. Existing guardrail at the West and East Spillway Bridges will be replaced with longer extents and modern end treatments to protect the public from blunt ends. Guardrail will also be added to the east end of the Pensacola Dam Bridge. The west end of the Pensacola Dam Bridge is located adjacent to the Pensacola Dam Plaza and other historic structures; therefore, the safety improvements will be coordinated with the State Historical Preservation Office (SHPO).

“I am all for it and what it will mean, once it is completed, for the community. A lot of people won’t buy property on this side because of the dam. I’ve had boat buyers ask to be taken home by boat instead of driving across it.”

*Jerry Cookson - Boat Salesman/Marina Manager
Cedar Port Marina*



Truck Driving over Center Line on Narrow Bridge

b. State of Good Repair

The Project will ensure state of good repair through:

- Improving the condition of the driving surface of the bridge structures
- Conducting structural repairs and strengthening to carry vehicular loads which are current with today's standards.

The proposed project will improve the condition of the three SH 28 Bridges across the Pensacola Dam and Auxiliary Spillways. Deterioration associated with age and excessive loads have reached the point of requiring significant condition improvements.

The SH 28 Bridges Pensacola Dam Bridge (NBI 27569) and West and East Spillway Bridges (NBI 29642, 29645) were last inspected in November 2018, with an in depth inspection in 2016. The overall length of the Pensacola Dam Bridge is 5,679 feet. The West and East Spillway bridges extend 451 and 410 feet in length, respectively. These structures were originally designed for an H15 or H20 truck, which is a two-axle truck weighing a total of 15 to 20 tons, respectively. ODOT has rated these bridges as functionally obsolete, at-risk, with a load posting of 16 tons.

The bridge deck of the three structures are covered with an asphaltic overlay that has extensive deterioration throughout the length of the bridge. The overlay and underlying deck have been patched in multiple locations in both driving lanes. The deck joints are leaking, which has caused superstructure elements to show signs of water deterioration.

Table 3 - Current Conditions

Snapshot of Condition	Total Count	Good Condition	Moderate Deterioration	Significant Deterioration
Total Number of Floor Beams, 3 Br.	729	512 70%	212 29%	5 1%
Total Number of Longitudinal Girders, 3 Br.	161	147 91%	4 2%	10 6%
Total Number of Hinges, 3 Br.	102	- 0	10 10%	15 15%
Total Number of Arches, 3 Br.	51	46 90%	5 10%	0 0%

Deterioration associated with age and excessive load require structural repairs. A summary of the existing condition of the bridges is described in the Preliminary Design Report, and Field Assessment Reports ([See ODOT BUILD Project Website](#)) and Table 3. The full assessment of the existing conditions is provided in the Field Assessment Reports.

If left unimproved, it could result in future closure of the SH 28 Bridges. It should be noted that the only current alternative highway route along the southern side of the lake is approximately 26 miles long and completely bypasses the east side communities of Disney and Tia Juana.



Example Bridge Conditions

c. Economic Competitiveness

The Project will maintain and enhance economic competitiveness by:

- Restoring the viability of the SH 28 Bridges for future generations
- Combined Fire and EMS service response saves lives and property
- Improving reliability of travel time for residents and tourists traversing SH 28, resulting in a savings of approximately \$7.7 million Net Present Value (NPV)
- Eliminating the future need for an alternative highway route which would bypass much of the developed communities and businesses along the southern end of Grand Lake and harm Disney and Tia Juana

The communities of Disney and Langley lie on either side of the SH 28 Pensacola Dam Bridge and west of the two auxiliary spillway bridges. These communities were established during the construction of the Pensacola Dam when workers lived in tent cities along the cliffs above Grand Lake. Since those early beginnings, the SH 28 corridor became and continues to be the lifeline for communities and businesses along the southern end of Grand Lake. This project will result in easier and more reliable connectivity between employees and places of employment thereby creating greater economic opportunity for both the workforce and businesses seeking to attract and retain talent within and outside the region. Likewise, tourists will have a faster and safer route to the services and amenities at either end of the dam. The Pensacola Dam is listed in the National Register of Historical Places as an excellent example of multiple arch dam engineering. With 51 arches, the dam is the longest

multi-arch dam in the United States and the only example of a multi-arch dam in Oklahoma. The structure is also the state's first hydroelectric dam. The designated historic district includes the dam, powerhouse, substation, two auxiliary spillways and intake station.

“...Our Community depends on through traffic. Highway 28 is the only way on, or off, of Disney Island. The economic impact on our town will be extreme [should the bridge close]. ...[O]nce the dam has been widened, it should bring more people to Disney Island that in the past have been reluctant to try to tow their RV's and 'toys' across the dam.”

Chris Tuter - Mayor, Disney, OK

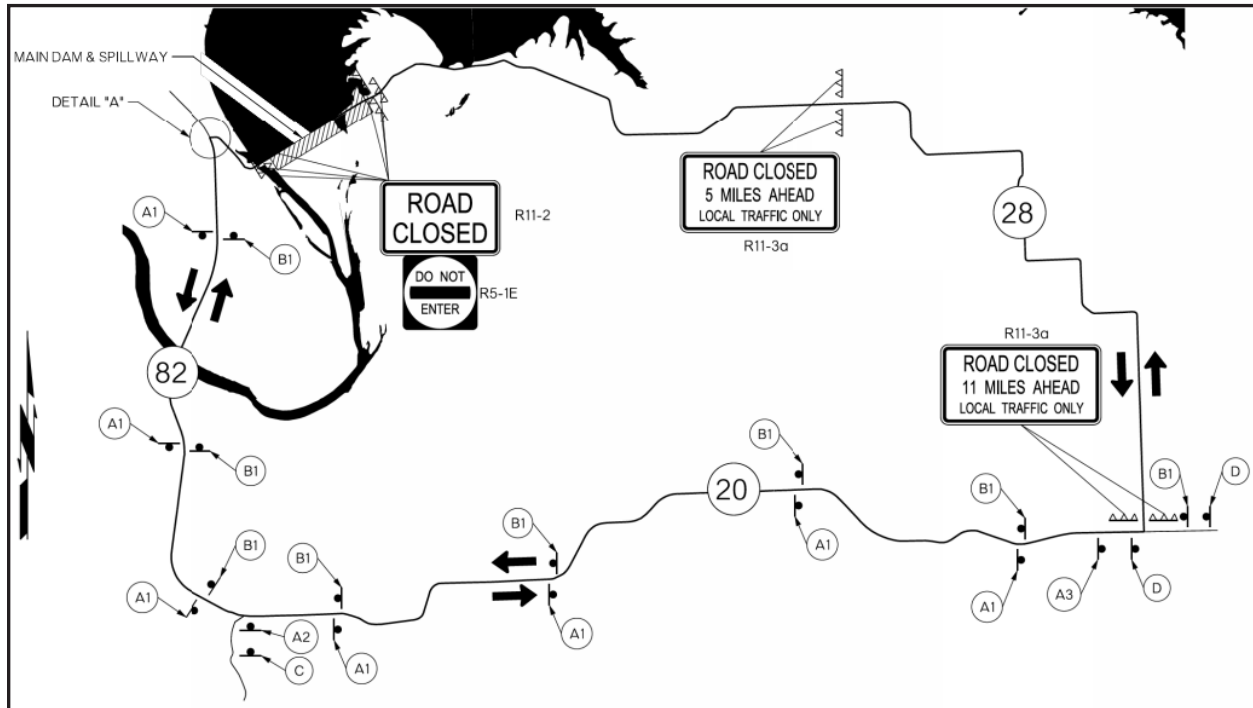
The area surrounding the SH 28 corridor is home to multiple restaurants, marinas, and a state park, all of which benefit from the tourism associated with Grand Lake. In 2018, more than 650,000 individuals visited the parks around Grand Lake. An Oklahoma Tourism Commission study estimated that in 2016, the revenue associated from tourism around Grand Lake was more than \$14.5 million. Recreation in the area begins in March when the area hosts the annual Big Meat Run, bringing over 20,000 people from across the United States. During the event, the area downstream of the dam is filled with enthusiasts exploring the spillways and terrain with their off-road vehicles. Every campground and hotel room within a 70-mile radius is reserved for this heavily attended annual event. Additionally, Grand Lake hosts numerous professional fishing tournaments, bringing in millions of dollars. In 2019 alone, there are 25 fishing tournaments scheduled.



[For More Information, Watch the Big Meat Run 2019 Recap Video on the BUILD Website](#)

The Pensacola Dam Bridges often experience extreme congestion especially during summer months. Without improvements to the structural capacity and width of the bridges they will likely require substantial limitations or closure to traffic. The only existing alternative highway route around the southern reaches of Grand Lake would be 26 miles and bypass the east side communities of Disney and Tia Juana. The total

travel time savings that occur from increasing the average speed, reduction in travel time, savings from not closing the bridge is a net present value of \$7.7 million dollars (NPV). Additionally, the project will provide savings of approximately \$3.9 million dollars (NPV) in vehicle operating costs.



Detour Map

d. Environmental Sustainability

The Project will support environmental sustainability by:

- Maintaining the same number of through lanes but with a safer configuration
- Reducing congestion and travel delays by widening the SH 28 Bridges, resulting in emissions damage savings of \$0.5 million (NPV) over 20 years.
- Widening without adding to the footprint of fill or concrete in the waterways
- Allowing fire fighters to join forces quickly across the communities, saving more habitat area from fire damage

This project will contribute to the environmental sustainability of the region over time. The proposed widening maintains the same number of through lanes, thereby improving safety without increasing the vehicular volume traversing the bridges. It will meet the region's current transportation needs without compromising the environmental and socioeconomic elements for the future. Review and compliance

with environmental regulations will be captured, in full, as part of the environmental review.

If improvements cannot be made and the bridges are severely restricted, the only travel option for vehicular traffic will be the 26-mile alternative highway route. The longterm use of the alternative route would have negative socioeconomic impacts to the east side communities (previously described) as well as environmental impacts due to increased emissions. It is estimated that the resulting increase in emissions over 20 years would cost an additional \$500,000 (NPV).

GRAND LAKE EAGLE COUNT

GRDA works closely with the U.S. Fish and Wildlife Service (USFWS), as well as the George Miksch Sutton Avian Research Center to ensure that the eagles that call GRDA reservoirs home are properly monitored and protected from year to year. GRDA performs two aerial surveys yearly for bald eagles. This is done by counting individuals as well as monitoring nesting territories. During the 2019 monitoring season, there were 162 adult bald eagles and 77 juvenile bald eagles observed along the shoreline of GRDA's reservoirs.



e. Quality of Life

The Project will improve the quality of life in the region by:

- Restoring the Historic SH 28 Bridges to their 1940s grandeur
- Reducing congestion especially during high traffic recreation periods
- Improving structural capacity and width of the bridges will allow for current local emergency response vehicles to safely utilize the bridges.

The Pensacola Dam construction was completed in 1940, creating Grand Lake. In the more than 75 years following the completion of the dam, the positive economic effects of the lake continue to ripple throughout the region. Without improvements to the SH 28 Bridges, however, the bridges may require substantial limitations to traffic or ultimate closure.

Grand Lake's 46,500 surface acres of water are the foundation for a thriving tourism and recreation industry in Northeast Oklahoma. Tourism provides and supports a broad and ever-expanding tax base. In addition to those who come to Grand Lake to play in the spring and summer months, thousands more live, work and play year-round along the lake's highly-developed shoreline.



The communities on the southern edges of Grand Lake, out of purpose and necessity, coordinate emergency response efforts as the "South Grand Lake Emergency District". They work collaboratively and provide redundancy during times of need, including grass fires, vehicular crashes, drownings and other situations where emergency response is needed. Currently, the larger response vehicles are unable to cross the SH 28 Bridges



Grand Lake Tourism

due both to the width and structural limitations. The larger fire engines for Langley and Lakemont Shores weigh 25 tons and 32.5 tons, exceeding the current load posting of 16 tons. Local emergency responders are forced to take a longer alternative route which may cause devastating delays during a crisis situation. Response time, however, will be hindered when the bridge is closed during construction. The South Grand Lake Emergency District has been fully engaged with GRDA, ODOT, and other stakeholders to develop appropriate temporary alternative routes for emergency situations during construction, as shown in the 60% plans on the [BUILD Project Website](#).

"The narrowness of the bridges listed here affect patient care by increasing response time(s) and also has been a factor in collisions involving ambulances, thankfully nothing more serious than my ambulance's mirrors striking other larger vehicle mirrors but nonetheless these collisions for my service occur 10 to 1 on these bridges compared to any other location we travel."

Mayes Emergency Services Trust Authority

2. SECONDARY SELECTION CRITERIA

a. Innovation

The Project will incorporate innovative strategies by:

- Utilizing pre-cast construction elements, hydrodemolition and latex modified concrete overlay to reduce costs and construction time
- Limiting bridge closure to the off-season for tourism
- Providing two emergency detour routes for first responders to minimize response times during construction
- Using incentive/disincentive measures to expedite construction
- Sequencing construction in a way to reduce the closure duration of the Pensacola Dam Bridge and promote worksite safety
- Combining two projects into one to reduce costs and minimize closure time
- Leveraging funds from multiple partners including federal, state and private funds

I. INNOVATION TECHNOLOGIES

Precast Concrete Element Systems (PCES) will be utilized for this project, an Accelerated Bridge Construction (ABC) technique detailed in Federal Highway's ABC Final Manual. The new spandrel arches and other longitudinal girders for the widening will be precast. Additionally, the new parapet will be precast to accelerate the construction schedule. As much as possible, precast elements will be utilized to minimize the need to form concrete



Precast Concrete

at heights up to 150' above the existing downstream grade. Use of PCES will reduce costs and construction time thereby limiting adverse effects on the communities and improve worker safety.

Hydrodemolition planned for the deck rehabilitation is another innovative method for this project. With the total length of deck over a mile long, an efficient and effective method to remove unsound portions of the deck was desired by ODOT and GRDA;

hydrodemolition accomplishes this goal. Hydrodemolition methods allow the entire 5,679 feet of deck to be prepared for an overlay within one week!

What is hydrodemolition? A programmable robot uses water jets with calibrated pressure to break up and dislodge inferior deck, with minimal bar exposure. The source of water can be taken directly from the lake and does not need to be filtered. The entire bridge deck is hydroblasted and there is no need to sound the deck to determine bad spots; the robot will seek out the bad areas. A vacuum-equipped vehicle follows the hydrodemolition robot to clean up the slurry and grit.

The Contractor is required to have a water control plan and adhere to the Clean Water Act; the debris resulting from hydrodemolition may not be disposed of into water features and a permit may be required. Hay bales, gravel berms, etc. may be used to collect the contaminated water for processing in an acceptable manner.

After the deck is prepared, the entire deck will be overlaid with latex modified concrete (LMC), which has a very tight pore structure which essentially waterproofs the concrete. LMC is considered structural, acting compositely with the original deck. This improves the strength of the new deck section, which in combination with the low porosity, greatly extends the life of the new deck surface.

II. INNOVATIVE PROJECT DELIVERY

The construction sequencing of the project is innovative, performing the majority of the widening and rehabilitation work on the Pensacola Dam Bridge with the bridge fully closed during a single off-season for Langley and Disney. This schedule is driven by the need to allow the local communities to benefit from tourism as much as possible during the summer months, and also to restrict the closure of the mile-long bridge to a single construction season.

ODOT and GRDA are coordinating with stakeholders to minimize negative impacts to the communities, including providing detour routes across the spillway channel for use by emergency responders. The terrain is rugged, and not traversable by sedans and truck traffic. However, the initial public meeting identified the need for a shorter detour route by



Emergency Vehicles Detour Map

emergency vehicles, and accommodations have been made in the construction plans. Two detour routes across the spillway will help emergency responders cut 20 or more minutes off their response time, which is critical when every minute counts.

Additionally, to reduce the duration of the closure, incentive/disincentive measures establishing a critical milestone for the end of the first off-season allow the widening and rehabilitation of the Pensacola Dam Bridge to be completed within nine months and the bridge to be reopened to traffic as quickly as possible. The stakeholders indicated that closing the smaller spillway bridges east of Disney in the second off-season is very much acceptable, in view of having the Pensacola Dam Bridge reopened within the first off-season.

The team has performed constructability reviews and critical path method scheduling which indicate the length of the Pensacola Dam Bridge can easily accommodate work-train type measures to efficiently complete the widening and critical repairs which require road closure. The repetitive nature of the repairs will allow repeated use of concrete forms to progress the support work for the widening down the many buttresses and piers.

The coordination of GRDA and ODOT to use a single bidding mechanism for two separate projects using a mandatory tie is also innovative, providing economy of scale to the contractor for cost and schedule efficiency as well as limiting the closure for the Pensacola Dam Bridge to a single season, thereby reducing the impacts to the communities.

III. INNOVATIVE FINANCING

GRDA is a non-appropriated state agency, fully-funded by the revenues from the sale of electricity and water, instead of taxes. They function much like a private sector company providing significant economic contributions to the Oklahoma economy. This project combines the private capital of GRDA electric rate payers (without increase to rates) with state appropriated dollars through ODOT. This partnership will provide more than a 50% match to the requested federal funding to be provided by the BUILD Transportation Funds.

b. Partnership

The Project is supported by strong collaborative relationships including:

- GRDA and ODOT collaboratively owning and managing the SH 28 Bridges
- Interested stakeholders including Chamber of Commerces, Postal Service, and emergency personnel were engaged during the stakeholder process

GRDA and ODOT have a long-term partnership with regards to the SH 28 Bridges. ODOT maintains the driving surface of the bridges between the curbs. GRDA owns and maintains the remainder of the bridges, dam and spillways and is responsible for operating the hydroelectric powerhouse. Because SH 28 is the primary connection

across the southern portion of the Grand Lake, it is also essential that they work closely with communities on either side of the bridges, local businesses as well as every day and recreational users.

An initial stakeholder meeting was held in October 2017. Project descriptions, scheduling, durations, lane and structure closures and associated impacts were discussed. Stakeholders included the residents surrounding the Grand Lake, as well as Emergency Responders, US Mail Service, Schools, Parks, County Government, Chambers of Commerce and Preservation and Historical Agencies. The Preliminary Design Report details the outcomes of the 2017 stakeholder meeting. Informal discussions have continued in the interim as well as a meeting with South Grand Lake Chamber. A Public Information Meeting was conducted in March 2019 with the stakeholders. They voiced their appreciation at their previous comments being incorporated into the project development and plans.

The quotes included throughout this grant narrative demonstrate the importance of this project to project stakeholders. Letters of support for the SH 28 Widening and Rehabilitation Project from Senator James Inhofe, Mayes Emergency Services Trust, and Town of Disney, OK among others can be found on the [BUILD Project Website](#).

"I appreciate GRDA and ODOT considering everyone's opinion and input on the bridge deck expansion."

Richard Wright | Surveyor and Lakemont Shores Fire Chief

V. PROJECT READINESS

1. Technical Feasibility

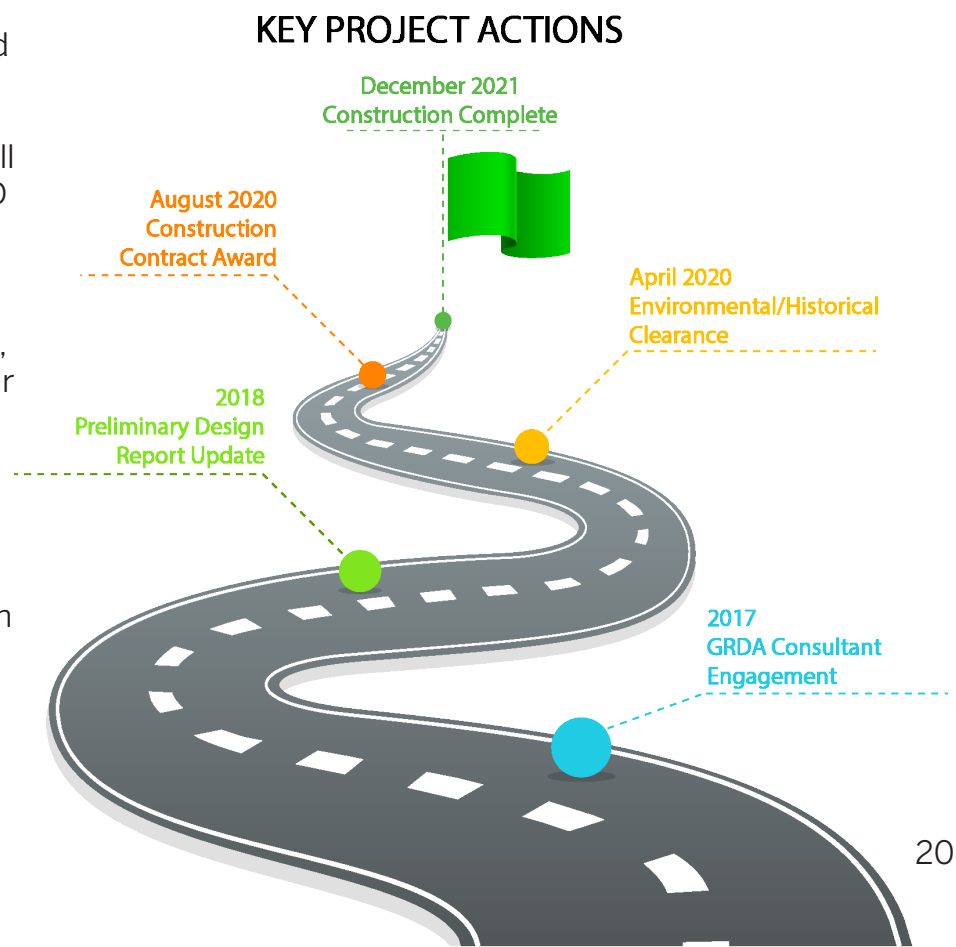
The 2017 Preliminary Design Report which was updated in 2018 and July 2019 ([see BUILD Project Website](#)) documents the technical feasibility of the rehabilitation and widening for the SH 28 Bridges. The design team submitted 60% plans and specifications on April 2018, with a subsequent submittal with comments incorporated made on June 2018. The 60% plans were updated on July 2019 ([see BUILD Project Website](#)) based on additional load testing. The project requires no new permanent right-of-way (ROW). It is anticipated that the project will be processed as a Categorical Exclusion (CE) once environmental investigations have been substantially completed to ensure there are not impacts that prevent the project from being processed at the CE level. Consultation with the Oklahoma State Historic Preservation Office began October 11, 2017 and is expected to conclude in spring 2020. Funding for the rehabilitation portion of the project has already been programmed by both ODOT and GRDA. Should funding be available from the BUILD Transportation Grant, it is expected that final design will be completed by April 2020 with letting to occur in July 2020.

2. Project Schedule

Key milestones in the project schedule are found below. It is anticipated that Grant funds will be obligated well in advance of the September 30, 2021 deadline. Additionally, all grant funds are expected to be expended by April 2022 which is in advance of the September 2026 liquidation deadline. All funding outside of the BUILD Grant request have already been programmed. The team does not expect any delays as part of this project, however, should delays occur they would not prevent the total liquidation of funds by the 2026 deadline.

3. Required Approvals

Field studies and preparation of NEPA documentation is on-going as of the BUILD Grant Application submittal



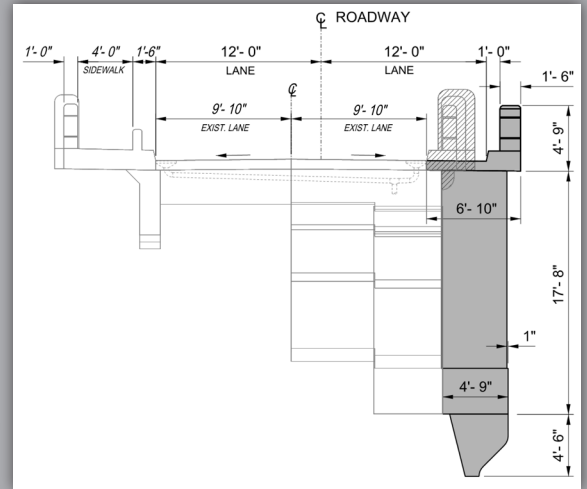
date. Coordination with FHWA, U.S. Fish and Wildlife Service (USFWS), Oklahoma Department of Wildlife Conservation (ODWC), Bureau of Indian Affairs (BIA) and other impacted agencies will occur in the fall of 2019 and is anticipated to be completed by March 2020. Further coordination with SHPO may be delayed until notification of a successful BUILD grant. Construction would not proceed until all environmental approvals and permits are received.

a. Environmental Permits and Reviews

The SH-28 Rehabilitation and Widening project is preliminarily not expected to result in significant environmental impacts under NEPA due to the work being completed within existing right of ways and structures. However, GRDA is cognizant of issues that may arise related to the Pensacola Dam facility's status as a historic district listed in the National Park Service's National Register of Historic Places (NRHP). Without BUILD funding, the project does not have a federal nexus requiring approval by the State Historic Preservation Officer (SHPO). However, the project team has coordinated with the SHPO to address potential concerns and has identified opportunities to reduce impacts to the bridge as much as practicable in the widening and rehabilitation plans. BUILD funding would provide a federal nexus for the SHPO, and coordination with the SHPO would continue as required under Section 106 of the National Historic Preservation Act (36 Code of Federal Regulations [CFR] 800).

i. National Environmental Policy Act:

BUILD funding would also provide the federal nexus for the preparation of documentation in compliance with the National Environmental Policy Act (NEPA) (42 U.S. Code Sections 4321–4375) and implementing regulations promulgated by the Council on Environmental Quality (CEQ, 40 CFR 1500), plus additional environmental regulatory compliance



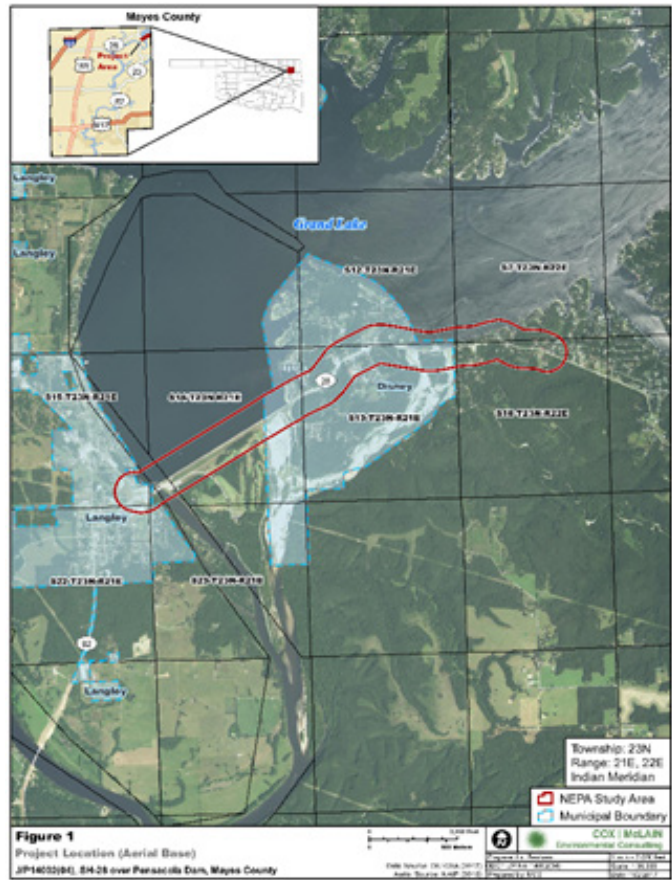
The Right Path Forward

*The SH 28 Bridges Widening and Rehabilitation project has already made significant forward-progress toward design, final construction plans, permitting and coordination with the surrounding communities and stakeholders. Many critical actions building towards construction are **completed, underway or pending** for future completion.*

- ✓ **Two stakeholder meetings**
- ✓ **Emergency vehicle detour route**
- ✓ **60% plans Submitted**
- ✓ **Consultation with State ODOT**
- ✓ **Preliminary meeting with SHPO**
- ✓ **Funding Programmed for Rehab**
- **Environmental Field Work**
- **NEPA Studies/Documentation**
- **Socioeconomic Study**
- **Sec 106 & Park Roads Sec 4(f)**
- Public Involvement Meeting**
- 90% Construction Plans**
- Bidding/Award Construction Contract**
- Construction Start**
- Construction Completion**

documentation and specialist studies. The environmental study area was established as beginning at the SH-28/SH-82A intersection on the west end and the SH-28/Hines Point Road intersection on the east end, plus a buffer centered on the roadway centerline. Depending on the results of the specialist studies, the project may be processed as a Categorical Exclusion with confirmation from ODOT, FHWA, and coordinating agencies. Project team coordination is taking place to ensure that avoidance and minimization of impacts occurs to the extent possible for efficient environmental review and processing.

ii. Reviews by other agencies



Environmental Study Area

Historic Preservation and

Cultural Resources: In 2003, the Pensacola Dam was listed in the National Register of Historic Places (NRHP) as a historic district under Criterion C as an excellent example of multiple-arch dam engineering. With 51 arches, the dam is the longest multi-arch dam in the United States and the only example of a multi-arch dam in Oklahoma. Six of the seven buildings and structures associated with the dam contribute to the historic district, determined to be significant on the national level when it was nominated for NRHP listing.

GRDA and ODOT are committed to preserving the historic significance of the Pensacola Dam Historic District while balancing the safety needs and continued utility of the bridges and the SH-28 roadway corridor. In anticipation of the project being classified as a federal action requiring consultation under Section 106 of the National Historic Preservation Act, if awarded a BUILD grant, GRDA has consulted with SHPO in October 2017 regarding the aesthetics and historic integrity of the Pensacola Dam Historic District. The SHPO's comments were incorporated into the design development process to the greatest extent possible to honor the aesthetics and significance of this facility while balancing

the needs of the proposed project. The SHPO comments were specifically incorporated into the project to include preserving the arch shape supporting the widening along the main dam and incorporating a bridge railing that is in the character of, but not identical to, the existing bridge railing. Additional field investigations took place in June and July 2019 to collect additional information about the resources within the Historic District and the Area of Potential Effects.

See the Preliminary Design Report and Supplemental Report No. 2 on the [BUILD Project Website](#) for additional description.

iii. Environmental Studies or other documents

Because ODOT, as co-applicant, would be the primary administrator of BUILD grant funds, they would serve as the lead agency and therefore NEPA documentation would start with completion of the required Specialist Studies in ODOT's preferred formats. Coordination on scoping took place between GRDA Consultants and ODOT Specialists in the fall of 2018 and the spring of 2019 to ensure that documentation would meet ODOT's expectations. Background research and data collection are being conducted within the study area. Specialist studies and impacts assessments are focused on the area within the footprint of the proposed project, plus a buffer around the footprint appropriate for each specialist study. Tribal coordination was completed by ODOT's tribal liaison in fall of 2018. Property owner notification was by team subconsultants so that field investigations could start in late May/early June (after flood conditions at that time subsided). The Specialist Studies are underway with agency reviews beginning in July 2019.



Environmental Field Work

Biological Resources: Specialist studies include threatened and endangered species habitat assessment, presence/absence surveys for federally endangered bats (both acoustic and visual) and for the federally endangered American Burying Beetle. Substantial field work was completed in May and June of 2019 and will continue through the summer. With Specialist Study documentation underway, the reviews are anticipated to be complete in Summer/Fall 2019. The Specialist Studies will be coordinated by ODOT, who will consult with the U.S. Fish and Wildlife Service (USFWS) and the Oklahoma Department of Wildlife Conservation (ODWC).

Water Resources: A delineation of aquatic features, including wetlands, was conducted within the anticipated project area in June 2019. The project does not place fill within waters of the U.S., and therefore a Department of the Army, Section 404 of the Clean Water Act permit authorization is not anticipated for the widening and rehabilitation construction activities. GRDA will coordinate with the U.S. Army Corps of Engineers–Tulsa District Office regarding provisions for minor improvements on the spillway channel for the emergency vehicle detour route and for any construction access requirements.

Historic Resources: The historic resources study has an expanded scope to include buildings along SH-28 in Disney and an assessment of potential indirect effects on the town, in addition to assessment of the Pensacola Dam Historic District. The initial field survey for Section 106 compliance was completed in June 2019 and a follow-up investigation is scheduled for early July 2019. See Supplemental Report No. 2 on the [BUILD Project Website](#) for the Alternatives Analysis for the Pensacola Dam and Spillways and for additional information on the Section 106 compliance plan for the project, should it receive federal funding via a BUILD grant.

Archeological Resources: Background research has been completed for the archeological resources study with fieldwork scheduled for early July 2019. A major constraints study for GRDA's entire service area was prepared in 2019, providing a solid understanding of the archeological resources in the vicinity of the Pensacola Dam. Reporting will be completed in concert with the historic resources study.

Hazardous Materials: A field survey was conducted in June 2019 to identify hazardous materials located within or adjacent to the project limits which may have previously impacted project area resources or may have the potential to be affected by the project. Following the field investigation and database review of state and federal records, the initial site assessment is underway to provide full documentation according to ODOT's Specialist Study guidance. No fatal flaws were discovered during the course of site reconnaissance.



Environmental Field Work

Socioeconomic Specialist Study: A study is underway according to ODOT's newest documentation standards. This project would not result in any displacements, so the focus of the Specialist Study is closely aligned with the Quality of Life discussions and economic considerations that are central to the project. Widening of the dam structure would facilitate emergency services provision and enhance lake-related tourism activities; construction of the improvements are strategically timed to minimize adverse economic impacts by prohibiting road closure during the crucial summer tourist season. Construction is scheduled to commence after Labor Day weekend and conclude prior to Memorial Day weekend to allow full tourist access to the lake and local businesses.

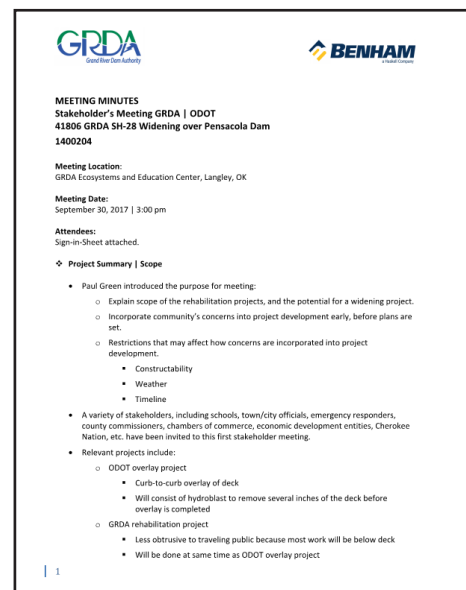
There are several public parks along Grand Lake. There is a property that the State of Oklahoma intended to use for parks development, but according to a deed agreement from the 1960's, if the park has not been developed or is abandoned, the ownership reverts back to GRDA. There are no known concerns about compliance with Section 4(f) of the U.S. Department of Transportation Act of 1966 (23 CFR 774) with regard to publicly owned recreational resources because direct impacts are limited to a guard rail extension to comply with current safety standards and coordination with the Official with Jurisdiction, if required, is not anticipated to be controversial.

iv. Engagement with State DOT:

This project is being completed cooperatively with GRDA and ODOT, both at the field division level and headquarters office. Field division staff have actively participated in plan review and the initial public meetings. Ongoing communication has occurred throughout the project design regarding compliance with environmental regulations as well as structural coordination.

v. Public Engagement:

An initial Stakeholder Meeting was held on October 30, 2017 at the GRDA Ecosystems and Education Center in Langley, OK and included stakeholders from the communities of Langley, Disney and Tia Juana, as well as Emergency Responders, US Mail Service, Schools, Parks, County government, Chambers of Commerce, and Preservation and Historical Agencies. Project description, durations, lane and structure closures



Meeting Minutes from Initial Stakeholder Meeting

and associated impacts were discussed. The concerns of the stakeholders attending are detailed in the Preliminary Design Report and were incorporated into the project development and design. The Design Team has offered approaches to minimize impacts and has incorporated design elements as appropriate, including ensuring the bridges are open to traffic during the summer tourist season and The Big Meat Run in mid-March, providing two routes across the spillway for emergency responders to use in lieu of the 26-mile standard detour route, and coordinating closure with the local communities and first responders. GRDA has continued informal discussions with stakeholders, including a meeting with the South Grand Lake Chamber on July 18, 2018. Most recently, a Public Information Meeting was held March 13, 2019 to provide the stakeholders an update on the project. The stakeholders expressed appreciation for the accommodations being made in the project development and design in consideration of their previous comments. See the BUILD Project Website for the agenda and minutes of the public meetings. A formal public meeting for temporary road closure is scheduled to take place in December 2019.

b. State and Local Approvals

State and local permits are not required other than a Contractor's Notice of Intent to Construct (NOI), which will be filed with the Oklahoma Department of Environmental Quality (ODEQ). The project does not place footings or fill within the waterway, therefore a US Army Corps of Engineer's 404 permit is not applicable. If a route for emergency responders is provided with a gravel roadbed over a temporary pipe, the need for a nationwide 404 Permit will be discussed with the US Army Corps of Engineers.

Multiple letters of support have been received showing support for the SH 28 Bridges Rehabilitation and Widening. Letters of support for the project have been received from local communities, Chambers of Commerce, federal and state legislators as well as state, regional and local elected officials.

c. Federal Transportation Requirements Affecting State and Local Planning

The project is consistent with Oklahoma's Long Range Transportation Plan 2015 – 2040 (LRTP). It will address the Highway Bridge Policies and Strategies #1 "Improve the safety and bridge conditions by replacing or rehabilitating structurally deficient bridges on the State Highway System." The deck rehabilitation of the project is included on Oklahoma's Statewide Transportation Improvement Plan (STIP). Should BUILD funding become available, the STIP will be updated to reflect the additional project components.

The regional Council of Governments, Grand Gateway Economic Development Association is in the process of developing Long Range Transportation Plans for communities in their area. They are expected to begin planning for Mayes County in Federal Fiscal Year 2019/2020. They will include information regarding this project and plan to assist GRDA and ODOT in any way necessary as it would relate to inclusion in their Long Range Transportation Plan.

4. Assessment of Project Risks and Mitigation Strategies

- *State Historic Preservation Office Consultation:*

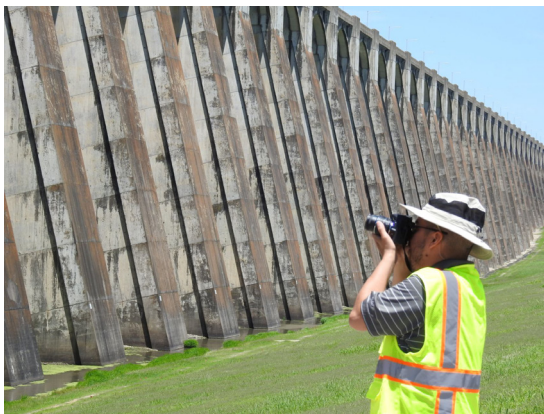
Without BUILD funding, the project does not have a federal nexus requiring the SHPO. However, the project team has coordinated with the SHPO beginning in October 2017 to identify areas of concern and is addressing those concerns as much as practicable in the widening and rehabilitation plans. BUILD funding would provide a federal nexus and coordination with the SHPO would continue if the funding were awarded. The historic resources study will be available for SHPO review in August 2019. Official coordination would commence as soon as the federal nexus is triggered. Ultimate determination of the effect of the project on historic resources lies with the SHPO. Should SHPO review result in a determination of adverse effect, further work would be required. Professional historians have the expertise necessary to shepherd the project through additional coordination and compliance activities required under this scenario, including resolution of adverse effects under Section 106 of the NHPA and compliance with Section 4(f) of the U.S. Department of Transportation Act. Expert historians would guide the team along the most expeditious and appropriate compliance path; leveraging the Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges would streamline the Section 4(f) process. This programmatic evaluation only requires consideration of a limited, pre-established set of alternatives, and does not require a draft, a 45-day comment period, or circulation of the document. Advanced research has been completed to help ensure that the clearance process for historic resources proceeds as efficiently and effectively as possible.

- *Environmental Review:*

The SH-28 Rehabilitation and Widening project is preliminarily not expected to result in significant environmental impacts under NEPA, due to the work being completed within existing right of ways and structures. Significant review will be related to the Pensacola Dam Historic District. This risk will be minimized by ongoing consultation that has already been initiated.

For Biological Resources, coordination has been initiated with the USFWS Information for Planning and Consultation for the action area of the proposed

project. The action area is located within the range of several federally protected endangered species, including the Northern long-eared bat, Ozark big-eared bat, Indiana bat, gray bat, American burying beetle, Interior Least Tern, Piping Plover, Neosho Madtom, Neosho mucket, and Ozark cavefish. Potentially suitable habitat for the Northern long-eared bat, Ozark big-eared bat, Indiana bat, gray bat and American burying beetle is located within the action area. Presence/absence surveys for these species are being conducted according to current approved USFWS protocols. This will include a visual inspection of the dam structures using a snooper truck (an under bridge inspection vehicle) for all roosting bats and/or their past presence, an acoustic survey for bats within the forested areas of the action area, and a bucket trap survey for the American burying beetle (where potentially suitable soil exists) within the action area. These efforts will be coordinated with ODOT, who will consult with the USFWS. All work is to be completed during the active survey season for these species (prior to mid-September 2019). Risk associated with the sensitive associated timeline for this proposed project and agency coordination will be minimized by preemptively identifying potential biological resource constraints (threatened and endangered species) within the action area of the proposed project.



Environmental Field Work

VI. BENEFIT COST ANALYSIS

The Benefit Cost Analysis (BCA) was prepared in accordance with the 2018 FHWA BCA Guidance for Discretionary Grant Programs. The SH 28 Widening and Rehabilitation Project provides a benefit-cost ratio of 1.07 and an internal rate of return of 0.36 percent. The proposed total capital project cost of \$28.2 million will produce a positive net user benefit of about \$73.2 million over 20 years.

The project will significantly improve safety as well as improve the structural capacity of the SH 28 Bridges allowing traffic to remain on top of the dam in the future. The SH 28 Bridges provide a vital connection to the communities on either side Dam. Over the life of the project, these investments will produce:

- Improved Travel Time - \$7.7 million (NPV)
- Increased Safety - \$7.5 million (NPV)
- Reduced Emissions Damage - \$500,000 (NPV)
- Vehicle Operating Cost - \$3.9 million (NPV)

The BCA prepared for this project accounts for anticipated capital costs as well as ongoing maintenance and operations cost. The benefits are considered for the 20 year period per BCA guidance. The Project anticipated life cycle, however, extends well beyond that period to 75 years.

The project will benefit the bridges' primary users - residents, rural and urban workers for whom this bridge is their primary State Highway means of travel. Improvements to the bridges will result in easier and more reliable connectivity between employees and places of employment, creating greater economic opportunities for both the workforce and businesses seeking to attract and retain talent within and outside the region. Additionally, there are benefits to residents regionally stemming from reducing emissions, decreasing congestion and improving time reliability. The Project will provide substantial benefits by improving safety, level of service, travel time performance, emissions and economic vitality for the surrounding area.

The complete BCA Narrative and calculations can be found on the [BUILD Project Website](#).



Pensacola Dam and Bridge

SUMMARY

The SH 28 Bridges atop Pensacola Dam and spillways have long been a priority for both ODOT and GRDA. Their collaboration and commitment in time and money, coupled with funding through the BUILD Grant, will result bringing the Historic SH 28 Bridges over Pensacola Dam and its auxiliary spillways back to the late 1930's WPA "engineering marvel" while meeting the vehicular uses of today. The widening and rehabilitation of the bridges will result in a safer corridor for those traveling on the bridges as well as allow for the continuation of reliable access to the surrounding communities and businesses. Additionally, this corridor is the lifeline for much of South Grand Lake, not only due to its being an economic driver through the movement of people and goods, but also because it is a connector for regional emergency response. The total project cost is \$30.5 million with more than 50% of the funding coming from non-federal sources. The Pensacola Dam was an engineering marvel of the time in terms of construction and expedited schedule. This project will similarly be a feat of engineering and coordination. *The project has the right partners in place and has already met many early milestones. With this BUILD funding, the widening and rehabilitation of the SH 28 Bridges will continue to be a structure vital to Northeast Oklahoma for many years to come.*

"Who would have thought over 80 years ago when the ultra-modern bridges were built connecting the bustling and growing towns of Disney and Langley that the same bridges would one day curtail growth and nearly strangle the town of Disney.

Who would have thought that the best Rock Crawling events in the United States would be in Disney? Over 20,000 fans come to Disney each year. And, that Grand Lake would be among the Top 10 Best Bass Fishing lakes in America, hosting over 80 tournaments each year and two-time host of the Bass Master Classic. The televised event consistently reaches a world-wide audience.

Disney is less than one hour from over one million people in northwest Arkansas and, in the opposite direction, another one million people in Oklahoma.

The fact that the ultra-modern bridges have become one of the most dangerous bridges in Oklahoma has led to the underdevelopment of Disney. Two vehicles, with a boat, cannot safely pass each while traveling in opposite directions.

It is past time to unleash this economic engine for all Grand Lake stakeholders, and build on the solid investments that GRDA and the state of Oklahoma made with the original dam infrastructure eight decades ago."



Tom Kimball - Chairman of GRDA Board of Directors - Grand Lake Homeowner for more than 18 years.