



REPORT CARD FOR **LOUISIANA'S** INFRASTRUCTURE



[INFRASTRUCTUREREPORTCARD.ORG/LOUISIANA](https://infrastructurereportcard.org/louisiana)



Table of Contents

Executive Summary	2
Recommendations To Raise The Grade	3
Grading Criteria.....	4
Grading Scale.....	4
2025 Report Card For Louisiana’s Infrastructure	5
Comparison of 2017 and 2025 Grades	6
The 2025 Committee for the Report Card on Louisiana’s Infrastructure	6

INFRASTRUCTURE GRADES BY CATEGORY

Aviation	7
Bridges.....	19
Coastal.....	30
Dams.....	39
Drinking Water	46
Levees	55
Ports	62
Roads	74
Solid Waste	81
Wastewater	88



2025 REPORT CARD FOR LOUISIANA'S INFRASTRUCTURE

Executive Summary

Since the first person first set foot in Louisiana, the land has given citizens a full measure of nature's bounty. In addition to the beauty of its bayous, piney woods, cypress swamps, and oak groves, Louisiana has a robust natural infrastructure. The coastline provides food and a portal to the world; the waterways offer transportation, trade routes and water supplies; and the climate is conducive to year-round outdoor activities. However, the state is struggling to adequately construct and maintain the infrastructure we need to live and prosper in a safe, modern society.

The Louisiana Section of the American Society of Civil Engineers' 2025 Report Card for Louisiana's Infrastructure is a non-political, technical review of 10 critical systems: aviation, bridges, coastal areas, dams, drinking water, levees, ports, roads, solid waste, and wastewater. Louisiana's infrastructure receives a grade of C-, up from a D+ in 2017 and a D in 2012. While the state is making small improvements in its infrastructure, a lot of work is needed. Six of the 10 infrastructure categories earned the same or lower grades since the 2017 report, and no area earned a grade higher than C+.

Louisiana saw improvements in aviation, coastal areas, and drinking water, in large part due to increased state and federal funding, including funding from the Infrastructure Investment and Jobs Act (IIJA). Despite this influx of investment, many funding sources have not kept pace with inflation or met growing needs, leading to significant funding gaps that prevent the state from addressing critical maintenance or capital improvement projects. Dams and ports saw decreases in their grades, as dam owners struggled to address maintenance needs and ports have not kept pace with capital investment needs to accommodate larger vessels and withstand extreme weather events.

Storm hardening measures and disaster response programs have strengthened the resilience of Louisiana's infrastructure systems in recent years. However, it is critical that these efforts continue, as the state's built environment will continue to face increasingly severe weather events.

The 2025 Report Card for Louisiana's Infrastructure presents a thorough, data-informed evaluation, and the findings point to serious concerns that merit close attention: Our roads "continue to deteriorate," and more than 1,500 of our bridges are in poor condition. Louisiana communities sometimes "struggle to meet potable water demands" while our cherished coast faces "critical challenges."

The hope is that Louisiana public officials will hear those alarm bells and make sound public policy decisions to prioritize and improve our infrastructure. With proper long-term planning and adequate investments, we can raise the grade to build upon the remarkable advantages this state has bestowed upon us.

Recommendations to Raise the Grade



INCREASE FUNDING – In most cases, Louisiana’s infrastructure has not been adequately funded to ensure it is in good working order. Nearly every area of infrastructure has backlogs of needed projects and deferred maintenance that grow larger every year. As inflation rises, these backlogs grow exponentially, making it more difficult over time to reverse the trend of decaying infrastructure. This issue also applies to maintenance. As facilities age, maintenance costs grow. In the short term, it adds to the budgetary burdens of state and local agencies that are being asked to maintain and improve facilities that should be replaced. In the long term, the facilities still will have to be replaced in the future, but at higher costs.



DEVISE BETTER SYSTEMS OF GATHERING AND SHARING DATA – Comprehensive, consistent, and publicly available data is critical for informed decision-making. Louisiana should invest in modern data management systems to monitor the condition, performance, and capacity of infrastructure assets across sectors. Improved data coordination among state agencies, local governments, and regional authorities would enable more accurate asset management, risk assessments, and prioritization of limited resources.



INCREASE RESILIENCY – Given Louisiana’s exposure to hurricanes, flooding, and other extreme weather events, resilience must be integrated into every stage of planning, design, and investment. Infrastructure projects should be guided by forward-looking risk assessments that account for climate change, sea level rise, and storm surge. Expanding natural and nature-based solutions, elevating critical assets, and hardening existing systems will also help reduce future damage and service disruptions while lowering future maintenance costs.



PRIORITIZE SAFETY – Facilities which lack standard replacements and refurbishments often pose a higher safety risk to the public. This is especially true for roads and bridges, but it also applies to levees, dams, drinking water systems, and solid waste facilities. Safety should always be a priority, both for old and new infrastructure. Enhanced public outreach concerning safety on and around roads, airport facilities, dams, and levees can help mitigate risks associated with infrastructure.



INCREASE COLLABORATION – Addressing Louisiana’s infrastructure challenges requires coordination across jurisdictions, agencies, and sectors. The state should strengthen partnerships among local governments, regional planning organizations, universities, and the private sector to share best practices, align investments, and develop innovative solutions. Enhanced collaboration among state agencies and federal partners will help streamline project delivery and maximize the impact of available funding. Public engagement and cross-sector partnerships can also build public trust and support for long-term infrastructure initiatives.

About The Report Card for America's Infrastructure

Every four years, America's civil engineers provide a comprehensive assessment of the nation's 18 major infrastructure categories in ASCE's *Report Card for America's Infrastructure*. Using a simple A to F school report card format, the Report Card examines current infrastructure conditions and needs, assigning grades and making recommendations to raise them.

The ASCE Committee on America's Infrastructure is made up of 52 dedicated civil engineers and infrastructure professionals from across the country, with decades of expertise in all categories, who volunteer their time to work with ASCE Infrastructure Initiatives staff to prepare the Report Card. The Committee assesses all relevant data and reports, consults with technical and industry experts, and assigns grades using the following criteria:

Methodology

CAPACITY

Does the infrastructure's capacity meet current and future demands?

CONDITION

What is the infrastructure's existing and near-future physical condition?

FUNDING

What is the current level of funding from all levels of government for the infrastructure category as compared to the estimated funding need?

FUTURE NEED

What is the cost to improve the infrastructure? Will future funding prospects address the need?

OPERATION AND MAINTENANCE

What is the owners' ability to operate and maintain the infrastructure properly? Is the infrastructure in compliance with government regulations?

PUBLIC SAFETY

To what extent is the public's safety jeopardized by the condition of the infrastructure and what could be the consequences of failure?

RESILIENCE

What is the infrastructure system's capability to prevent or protect against significant multi-hazard threats and incidents? How able is it to quickly recover and reconstitute critical services with minimum consequences to public safety and health, the economy, and national security?

INNOVATION

What new and innovative techniques, materials, technologies, and delivery methods are being implemented to improve the infrastructure?

In addition to this national Report Card, ASCE's sections and branches prepare state reports on a rolling basis. Visit [InfrastructureReportCard.org](https://www.infrastructurereportcard.org) to learn about your state's infrastructure.

The 2025 Report Card on Louisiana's Infrastructure



Aviation

C+



Bridges

D+



Coastal

C-



Dams

C



Drinking Water

D



Levees

C



Ports

D+



Roads

D



Solid Waste

C+



Wastewater

D+



OVERALL

Comparison of 2017 and 2025 Grade

LOUISIANA			
Category	2017	TREND	2025
Aviation	C	↑	C+
Bridges	D+	↔	D+
Coastal	D+	↑	C-
Dams	C+	↓	C
Drinking Water	D-	↑	D
Levees	C	↔	C
Ports	C-	↓	D+
Roads	D	↔	D
Solid Waste	C+	↔	C+
Wastewater	C-	↓	D+

The 2025 Committee for the Report Card on Louisiana's Infrastructure

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Aviation



Photo: The Entrance of Louis Armstrong New Orleans International Airport; RebeccaDunnLevert

GRADE
COMPARISON

LA: C+
Nat'l: D+



AVIATION

EXECUTIVE SUMMARY

Louisiana's airport system includes seven commercial airports and 61 general aviation airports. These airports are critical drivers of economic activity, generating more than \$10.1 billion in economic output and supporting over 76,000 jobs as of 2025, an upward trend in recent years. The state's aviation system earned a grade of C+, reflecting strong performance in capacity and innovation but persistent challenges in operation and maintenance, and safety. Most general aviation runways are in good condition, though some need maintenance or reconstruction. Larger airports meet capacity and design standards, while smaller ones face ongoing challenges. Safety remains a concern due to runway obstructions and limited backup power, especially for hurricane response. While recent federal relief and funding from the Infrastructure Investment and Jobs Act (IIJA) have supported modernization, Louisiana faces a backlog of between \$500 million to \$1 billion in unmet airport project needs.

CAPACITY

Louisiana's seven commercial service airports saw about 7.5 million enplanements in 2023. The largest airport, Louis Armstrong New Orleans International Airport (MSY), saw about 84% of those passengers. In 2023, eight airports – the seven commercial airports and Acadiana Regional Airport – accommodated 212 million pounds of air cargo shipments. About 61% of this cargo came through MSY.

Airfield capacity is divided into airside and landside. Airside capacity measures an airport's ability to handle forecasted operations without congestion, including runways, taxiways, and aprons. Landside capacity reflects how terminals, roadways, and parking facilities accommodate forecasted demand based on the airport's role.

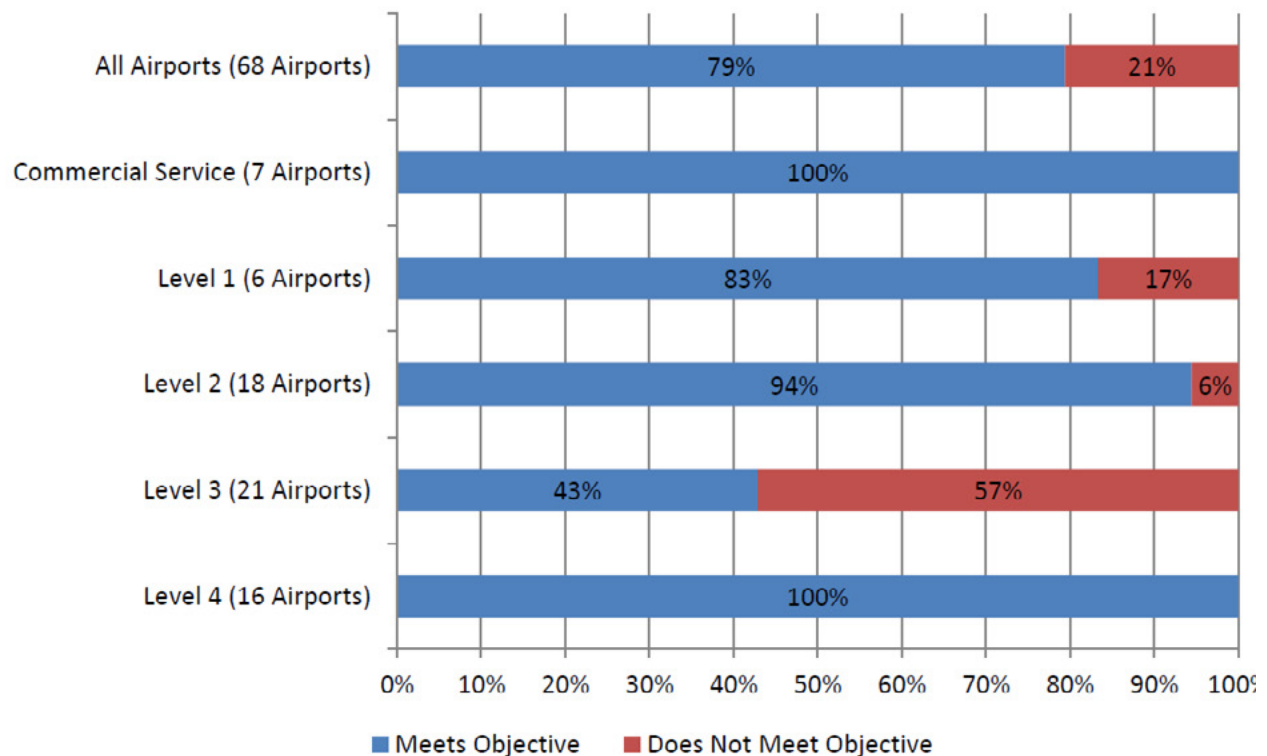
Airside capacity is graded based on whether any Louisiana airports require additional capacity beyond currently planned projects through 2030. Landside capacity is graded based on several physical sub-components of each airport's ability to accommodate certain aircraft and customers based on its role in the Louisiana system. These subcomponents are Airport Runway Code (ARC), Runway Length, Runway Width, Taxiway Layout, Instrument Approach Procedures, Visual Aids, Lighting, Weather Reporting, and Facilities.

The Louisiana airport system's effectiveness can also be measured by the landside capacity, which refers to the physical characteristics of its facilities. The Louisiana Aviation System Plan (LASP) – last released in 2015 (with an update expected in 2025) – assessed the

state's runway system based on runway length, width, and taxiway layout. The analysis showed that 79% of the primary runways at each airport meet the LASP minimum standards for runway length. All commercial service airports meet their runway length objective. The LASP classified general aviation airports into four levels based on their role in supporting local, regional, state, national, and global economic access, with Level 1 airports playing

the most significant role. Among the Level 1 airports, 83% meet the benchmark of having a 6,500-foot or longer primary runway. The only Level 2 airport with insufficient runway length is Concordia Parish Airport in Vidalia, which has a 3,701-foot runway. Only 43% of the Level 3 airports meet their primary runway length benchmark of 4,000 feet, but all Level 4 airports meet the benchmark of maintaining their existing runway length.

Figure 1: Runway Length Benchmarks

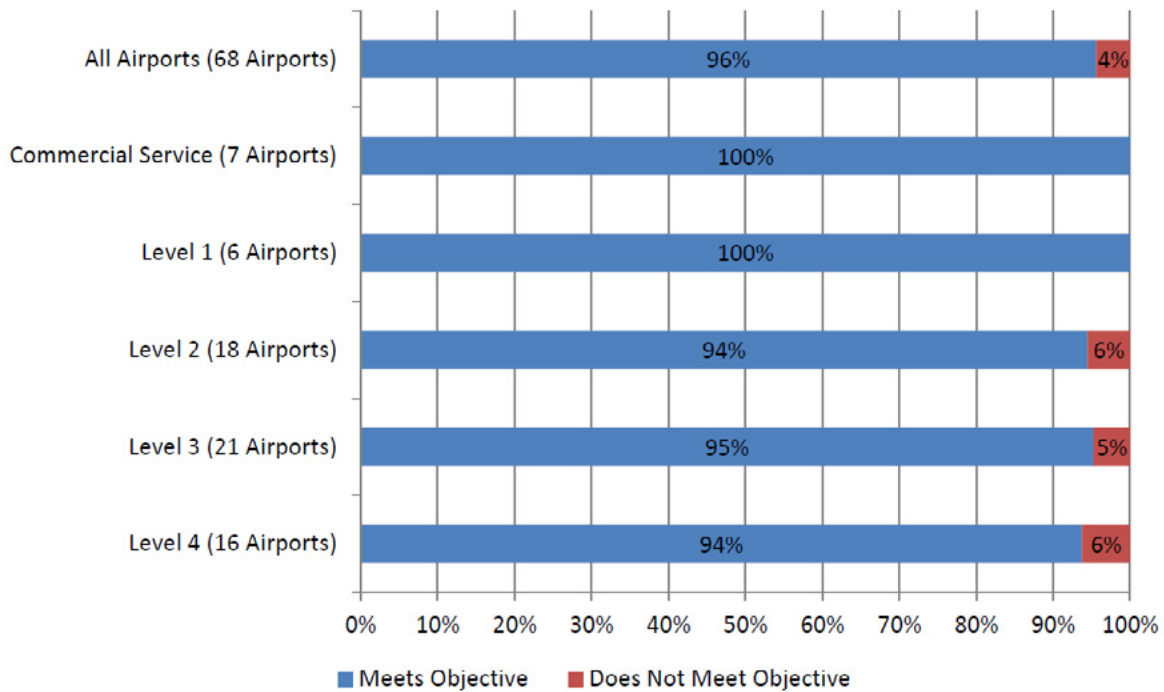


Source: CDM Smith

The 2015 LASP set a minimum standard Airport Reference Code (ARC) according to that airport's role. The ARC is a coding system used to relate airport design criteria (including runway width) to the operational and physical characteristics of the airplanes intended to operate at the airport.

The LASP analysis showed that 96% of the primary runways at each airport meet the minimum standards for runway width, which vary based on the ARC. All Commercial Service and Level 1 airports meet their runway width objective of having their primary runway width corresponding to their respective ARC.

Figure 2: Runway Width Benchmarks

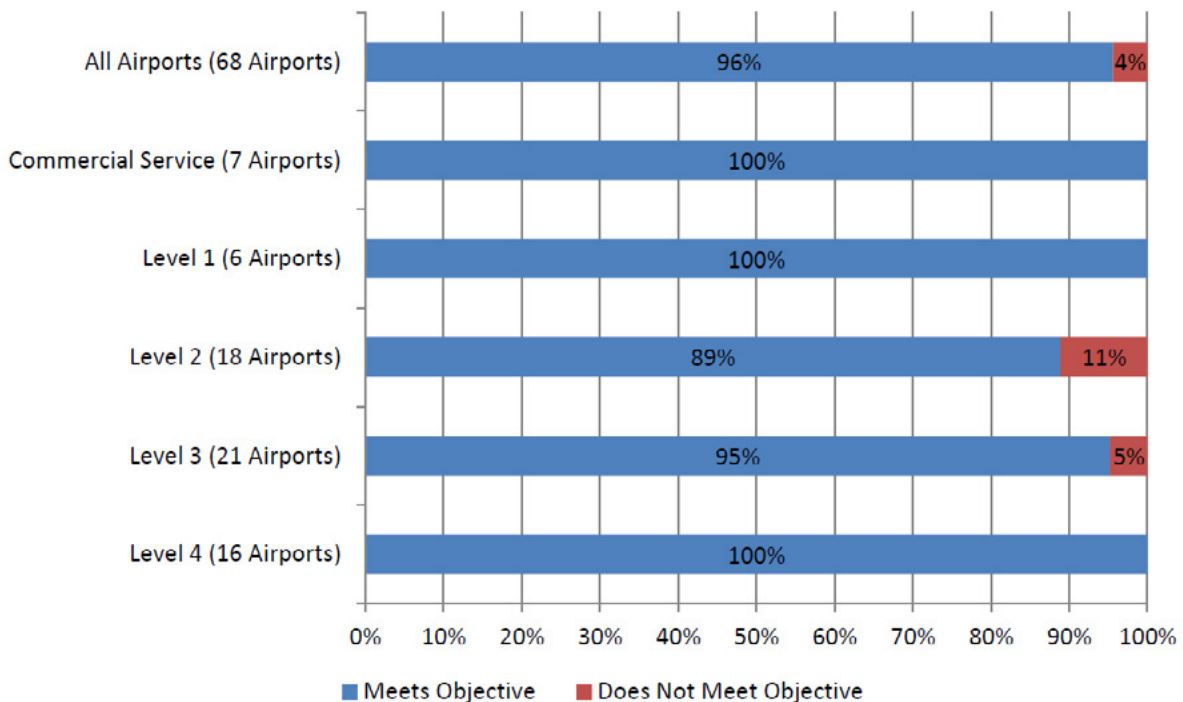


Source: CDM Smith

In order to meet the 2015 LASP benchmarks for taxiway layout, an airport's primary runway must meet certain

taxiway conditions based on its role. The total percentage of airports meeting the benchmark for taxiway layout is 96%.

Figure 3: Taxiway Layout Benchmarks



Source: CDM Smith

CONDITION

DOTD performed its Louisiana Airport Pavement Management System update in 2024 on 61 statewide general aviation airports. This update included a pavement condition index (PCI) assessment. Each airport’s area-weighted PCI was then evaluated for grading purposes.

DOTD’s Aviation Division uses this information as a budgetary tool when allocating state funds in accordance with priorities such as safety, preservation, improvements, and capacity.

Table 1: Pavement Condition Index Rating Scale

PAVEMENT CONDITION RATING SCALE	
PCI	Rating
100-86	Excellent
85-71	Very Good
70-55	Good
54-41	Fair
40-26	Poor
25-11	Very Poor
10-0	Failed

The overall area-weighted PCI of the state system’s pavement is 70 – down from 71 in 2021 – representing the floor of the “Very Good” range. This “Very Good” rating gives the general aviation airports within Louisiana a grade of “A” for pavement condition. Data for pavement

conditions at commercial airports was not available for inclusion in this report – capturing this data moving forward would enable a better assessment of the state’s aviation infrastructure.

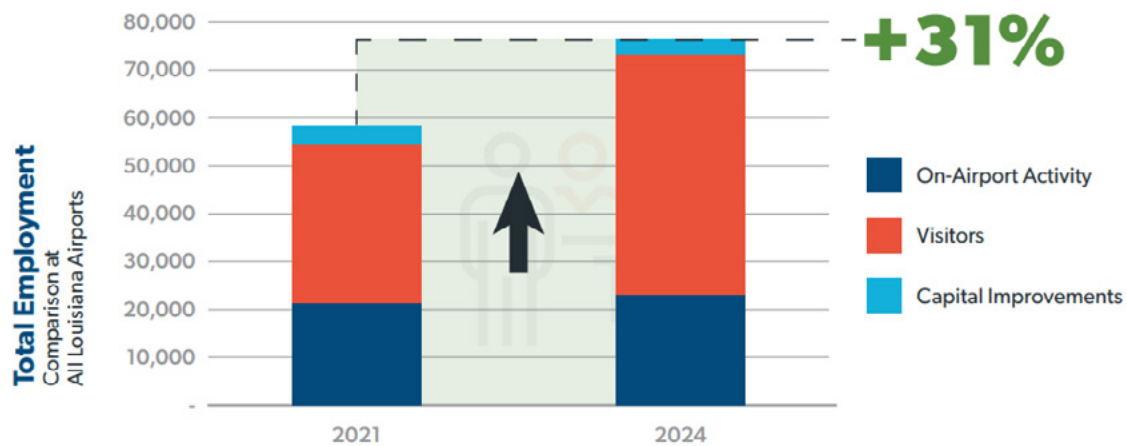
FUNDING

Louisiana airports play a crucial role in the transportation system of the state and nation, facilitating economic growth and providing access to global travel and trade opportunities. To ensure efficient management, maintenance, and infrastructure development, these airports rely on various funding sources, including federal, state, local, and private funds. Louisiana airports rely on a diverse range of funding sources to manage, maintain, and develop their infrastructure. Federal sources such as the Federal Aviation Administration’s (FAA) Airport Improvement Program (AIP) and Infrastructure Investment and Jobs Act (IIJA) programs, along with state and local funding initiatives, contribute to the economic impacts of these airports on the state and regional economies. The ongoing support from various

funding sources ensures that Louisiana airports continue to provide safe, efficient, and modern services, fostering economic growth and connectivity in the region.

DOTD’s 2025 Aviation and Aerospace Economic Impact Report provides valuable insights into the financial aspects and economic significance of these facilities. The study revealed that the state’s airports contributed significantly to the local and regional economy, with general aviation and commercial airports generating more than \$10.1 billion in economic output, supporting over 76,000 jobs, and attracting business investments. This represents a significant increase since the prior study in 2022 – a 47% increase in economic output and 31% increase in employment.

Figure 4: Airport Employment



(Source: DOTD 2025 Aviation and Aerospace Economic Impact Report)

The state supports airport development and expansion through the Airport Construction and Development Priority Program, administered under the Louisiana Aviation Trust Fund (ATF). Recent years have seen consistent funding for this program provided by a 4% aviation fuel tax, with an average annual allocation of approximately \$28 million. However, it is important to note that an annual backlog ranging from \$500 million to \$1 billion exists for unfunded projects, highlighting the ongoing demand for additional resources. The ATF funding allocation is distributed among the airports with a 65-35% split between commercial service and general aviation facilities, respectively, and prioritized based on criteria such as project type, facility usage, and sponsor compliance.

The FAA's AIP plays a vital role in supporting airport development across the nation, including Louisiana. In the past, Louisiana airports benefited from significant AIP funding totaling more than \$280 million, contributing to critical infrastructure upgrades and modernization efforts. AIP funds require a local match, 10% of which is prioritized and provided by state funds further demonstrating the state's commitment to enhancing its aviation infrastructure. The FAA Reauthorization Act of 2024 increased national AIP funding from \$3.35 billion to \$4 billion per year.

In addition to regular AIP funding, Louisiana airports have received supplemental funding through appropriation acts in the years 2018 through 2022. Over this five-year

period, Louisiana's airports secured more than \$50 million in supplemental federal funding, which has been matched by state contributions as required. These funds have been instrumental in addressing urgent infrastructure needs and ensuring the safety and efficiency of airport operations.

The COVID-19 pandemic had a profound impact on airport funding, as it significantly disrupted air travel and airport operations worldwide. With travel restrictions, lockdowns, and reduced passenger demand, airports faced severe financial challenges leading to revenue losses and funding shortfalls. Recognizing the critical financial challenges faced by airports, the U.S. federal government took various measures to provide relief and support during the pandemic through initiatives such as the Coronavirus Aid, Relief, and Economic Security (CARES) Act, Coronavirus Response and Relief Supplemental Appropriations Act of 2021 (CRRSAA), and the American Rescue Plan Act. Combined, Louisiana airports received nearly \$200 million in federal relief funds between 2020 and 2022.

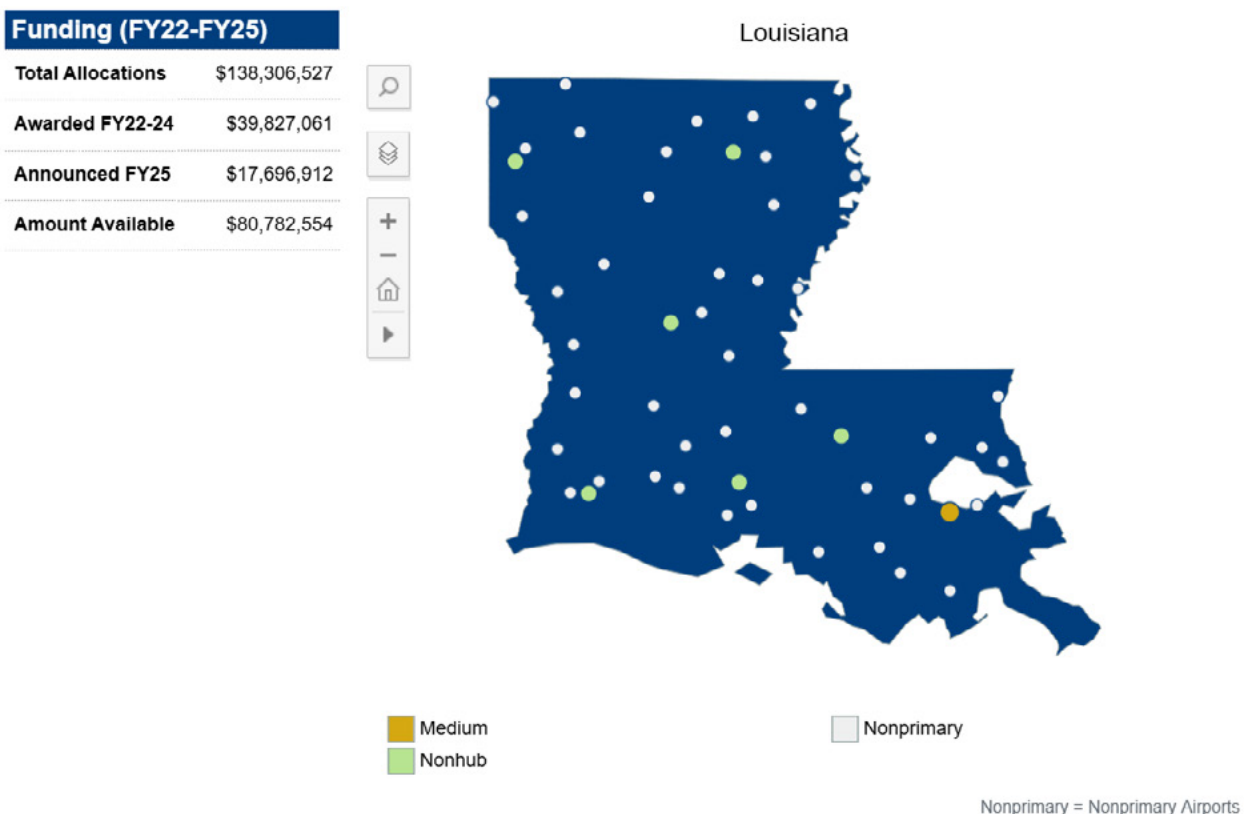
The IJA also provided substantial funding increases for various airport development initiatives related to airfield infrastructure, safety enhancements, and sustainability. As of January 2025, over \$138 million was made available to Louisiana airports through the Airport Infrastructure Grant program, funding that can be used for runways, taxiways, safety and sustainability projects, as well as terminal, airport transit connections, and roadway projects. In addition, over \$48 million in competitive grant awards

have been announced through the Airport Terminals Program for terminal improvements. This includes \$25.8

million at MSY for construction of a connector road that will improve access to the airport by road and transit.

Figure 5: Total AIG Funding for Louisiana 2022-2025

Airport Infrastructure Grants



Source: FAA.gov

Another source of funding is the Passenger Facility Charge (PFC), which commercial service airports are eligible to collect from enplaned passengers and can be used to finance capital improvement projects aimed at improving passenger amenities and facilities. PFC projects must be identified by the airport and approved by the FAA. Airports may also be supported by local tax bonds, which are issued to finance airport infrastructure projects. As an example, Lafayette Regional Airport (LFT) utilized a temporary tax approved locally in 2014 to contribute \$33.5 million towards construction of the New Terminal

development. The one-cent tax, which lasted eight months, was pivotal in helping LFT secure grants from the FAA, the U.S. Economic Development Administration, the state, and several other sources, allowing them to open the \$150 million terminal debt-free and in a timely manner in 2022.

Private investors also play a role in financing airport projects, although detailed information on these investments may vary based on individual agreements and projects.

OPERATION & MAINTENANCE AND FUTURE NEED:

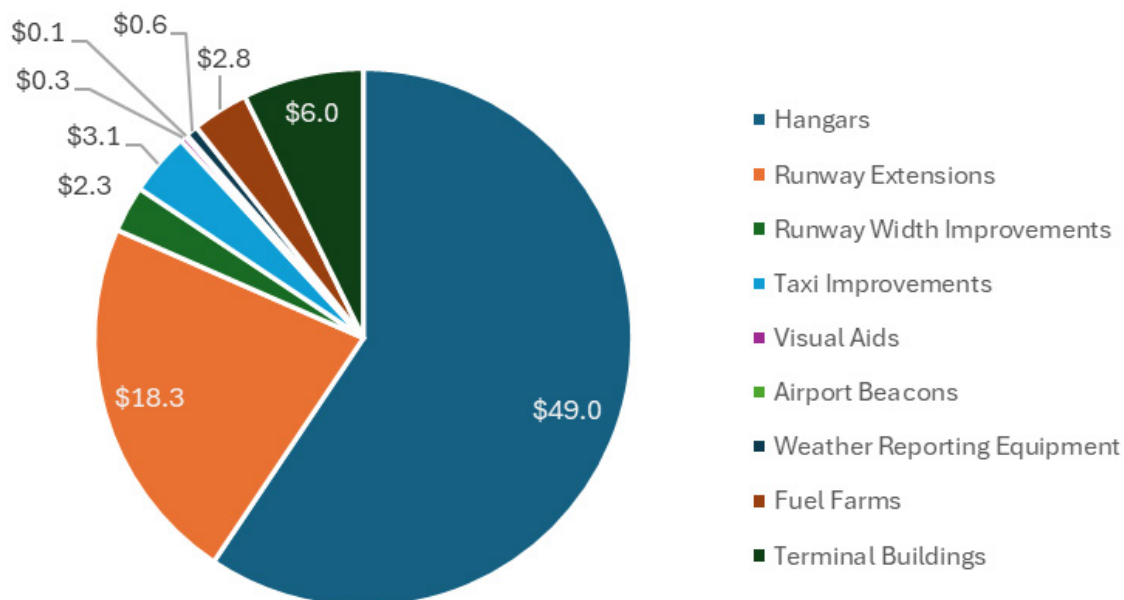
Airport operations and maintenance are essential to ensuring efficient service and sustaining a reliable air transportation system. As airport infrastructure across the state ages, preventive maintenance must be properly funded to preserve critical facilities and minimize long-term costs.

Most general aviation airports are owned and operated by a city, parish, designated airport commission, or authority. These organizations are limited to conducting operations and maintenance as their revenue or budget allows them. To further allow these authorities and municipalities to have reliable operations and maintenance processes, an alternate funding source could be of use. Statewide maintenance needs identified in the Louisiana Airport Pavement Management System (APMS) found \$254 million in pavement maintenance and rehabilitation needs at general aviation airports alone. While significant, this is a decrease from the \$295 million in needs identified in the 2022 update.

Identifying future needs of an aviation system is crucial to maintaining a safe, modern, and well-managed system of airports. The DOTD Aviation Division takes a proactive role in this by developing and maintaining the LASP and the APMS. The LASP identified significant improvement projects aimed at optimizing the roles of airports within the Louisiana airport system. Meanwhile, the APMS, updated in 2025, assessed the condition of airfield pavements and provided vital recommendations for maintenance and rehabilitation. Additionally, the DOTD Aviation Division and FAA collaborate closely with airports during annual Capital Improvement Plan (CIP) meetings to address funding needs and prioritize project applications.

The 2015 LASP identified over \$80 million in needed airport improvement projects that are essential to optimize the roles of airports within the state's aviation system. Over half of the investments needed were identified for hangars and nearly a quarter for runway extensions (see Figure 6).

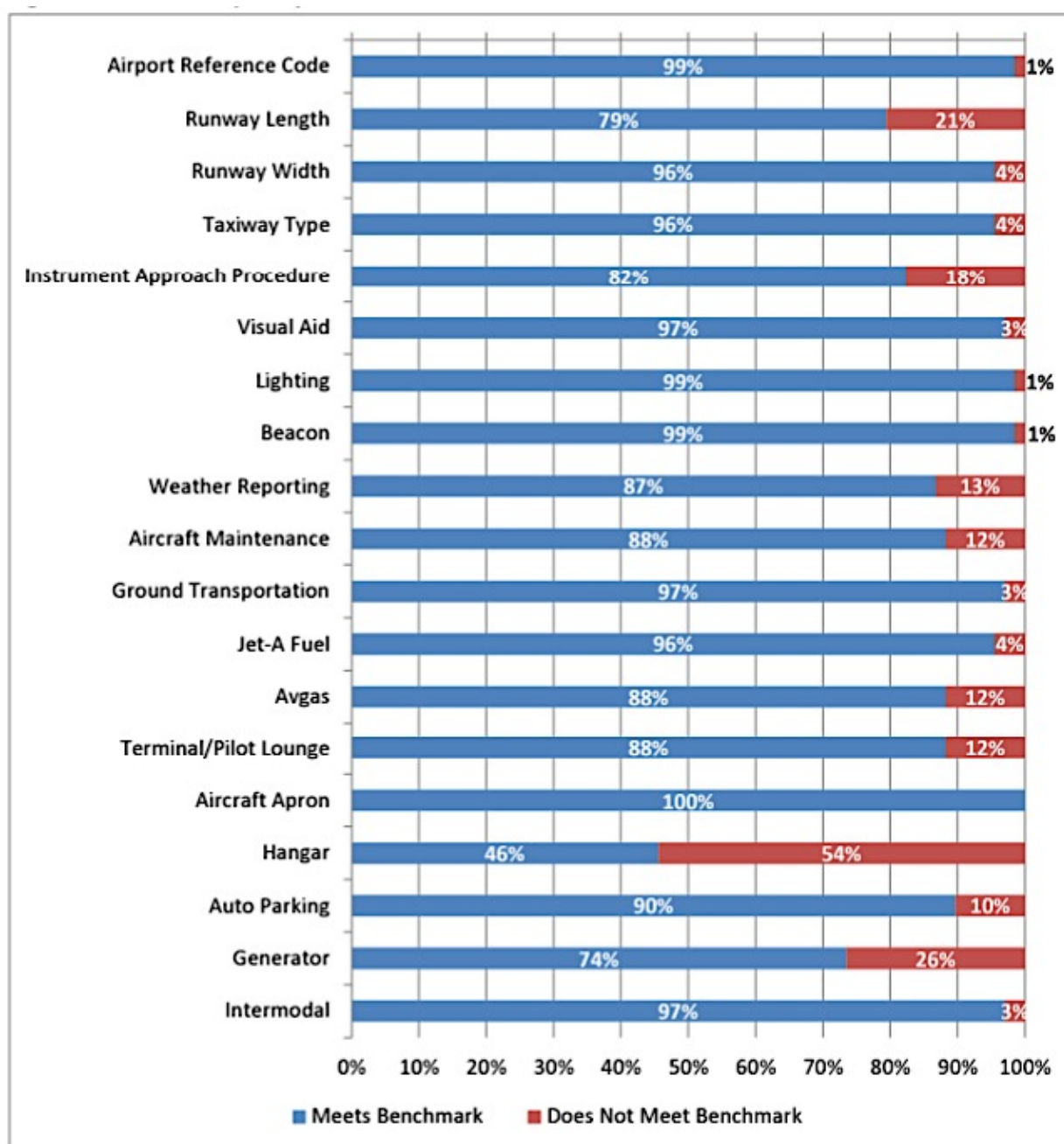
Figure 6: Allocation of System Improvements (in millions of 2010 dollars)



Currently, an update to the LASP is underway, ensuring the continuous assessment of airport needs and aligning

projects with evolving aviation demands.

Figure 7: Louisiana Airport System Performance Measures



Source: CDM Smith

Source: Louisiana Aviation System Plan, 2015

Without adequate funding, the overall average PCI could significantly deteriorate in the next five years, leading to potential safety concerns and operational disruptions.

Addressing the funding needs for the identified improvement projects and maintenance efforts is critical for continued success of the program.

PUBLIC SAFETY

Airport safety was measured by checking for obstacles near airports and tracking how often safety incidents happen at commercial airports. An obstacle is any fixed object that sticks up into the airspace around an airport. A runway incursion is when a vehicle, person, or aircraft enters a runway without permission, whether or not it causes an accident. Seventy-eight percent of Louisiana's runways are affected by obstructions. Ten percent of the obstructions found at Louisiana's airports are marked and/or lighted. Also, just under 8% of runways are affected by a "close-in" obstruction.

The most recent full year of incursion data available from the FAA is from Fiscal Year (FY) 2022. Louisiana commercial service airports reported 13 incursions in 2022 – one fewer than in 2021. However, none of these incursions were considered a serious incident in which a collision was narrowly avoided or significant potential for collision existed. These incursions were considered either an incident characterized by ample time and/or distance to avoid a collision or an incident with no immediate safety consequences.

RESILIENCE

National emergencies that test resilience and permanently transform industries like aviation are rare. However, we have seen two such events in the last quarter of a century. First, the September 11th, 2001 terrorist attacks challenged our aviation security and resiliency to the core. Most recently, the COVID-19 pandemic tested how the aviation industry can pivot in the wake of a national health emergency. Air travel came to almost a complete halt during 2020. As Centers for Disease Control and Prevention and Transportation Security Administration guidelines allowed, passengers were able to return to the skies at a slow rate. Although commercial flight passenger traffic in Louisiana has not reached pre-COVID-19 figures yet, levels are closer than they have been since the pandemic. In fact, at Baton Rouge Metropolitan Airport, June 2023 passenger numbers reached 93.3% of the traffic that took place in June 2019.

While these events were unprecedented, Louisiana is tested yearly during hurricane season. Louisiana must rely on its airports to serve as emergency hubs for essential operations during the aftermath of these natural disasters. More often than not, airports must be operational ahead of other critical infrastructure. Airport infrastructure requires the ability to support military operations, police personnel, ambulance dispatch, shelter for evacuated civilians, supply depots, and other critical emergency activities. The state's top priority remains having functional generators for all airports in order to have reliable emergency operations. Approximately 62% of general aviation airports in Louisiana have back-up generators to provide power in the event of an outage.

INNOVATION

An area of advancement that is likely to impact Louisiana aviation is Unmanned Aircraft Systems (UAS). In 2019, the Houma-Terrebonne Airport was awarded a \$1.3 million federal grant to advance its UAS by developing a Center of Excellence for large UAS. These unmanned aircraft

are expected to provide new services to the oil and gas industry before expanding into new disciplines. Though it will be years before UAS can be fully established industry wide, it displays the willingness that Louisiana possesses to be on the frontline of innovation.



RECOMMENDATIONS TO RAISE THE GRADE

- Update the Louisiana Aviation System Plan (LASP) to reflect terminal and facility upgrades completed since 2015, and incorporate future needs assessments. This update should include a comprehensive inventory of terminal expansions, passenger amenities, and accessibility improvements across all commercial and general aviation airports. It should also identify gaps in capacity, forecasted demand, and resilience needs to guide strategic investment and policy decisions.
- Expand funding support for general aviation airports for minor maintenance projects and broader infrastructure and development needs to reduce the backlog and enable airports to address issues promptly and proactively, reducing the risk of deferred maintenance escalating into major rehabilitation projects.
- Expand investment in critical airport infrastructure, including hangars and emergency power systems, to improve operational resilience and financial sustainability. Hangars support revenue generation and aircraft protection, while backup generators are essential for maintaining airport functionality during hurricanes and other emergencies. A targeted capital program should prioritize airports serving emergency response roles and those with high economic impact.
- Initiate a statewide commercial airport condition assessment program. This effort should mirror the existing Pavement Condition Index (PCI) evaluations conducted for general aviation airports and include terminals, runways, taxiways, and landside facilities. Collecting and analyzing this data will enable more accurate planning, funding allocation, and performance benchmarking across Louisiana's seven commercial service airports.
- Establish a statewide airport resilience program to ensure all airports—especially general aviation facilities—have access to backup power, emergency response coordination, and climate adaptation planning. This program should prioritize funding for generators, storm hardening, and continuity-of-operations planning to support Louisiana's role in hurricane response and emergency logistics.



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Bridges



Photo: Lake Charles; Mauricio Reyes

GRADE
COMPARISON

LA: D+
Nat'l: C



BRIDGES

EXECUTIVE SUMMARY

Louisiana, unofficially “America’s Wetland”, is home to 12,698 roadway bridges, which cross numerous low-lying areas and intertwined navigable waterways. This infrastructure is vital for the transportation of goods and services that are the economic lifeblood of Louisiana. Though Louisiana ranks 24th nationally for number of bridges, it ranks fourth for total bridge deck area, boasting 182 million square feet of elevated roadway, and five of the eight longest highway bridges in the world. Unfavorably, 11.5% of Louisiana’s bridges are rated in poor condition, ranking Louisiana eighth nationally for highest percentage of poor condition bridges. While Louisiana has made progress in reducing the number of bridges in poor condition, the state’s overall bridge conditions have trended downward in the past 10 years. Compounding the problem, Louisiana’s current transportation funding has left a significant budget shortfall, meaning the state does not have the necessary funding for maintaining and improving current bridge infrastructure. Increased funding is necessary to improve the bridge grade.

CONDITION

Louisiana entities, including the state government, local government agencies, cities, and parishes maintain a total of 12,698 roadway bridges. Of this figure, 1,458 bridges (11.5%), are in poor condition, an improvement since 2018, when there were 1,678 bridges in poor condition. Continuous maintenance and repair efforts have also improved the percentage of bridge deck area in poor condition in the last five years, dropping from

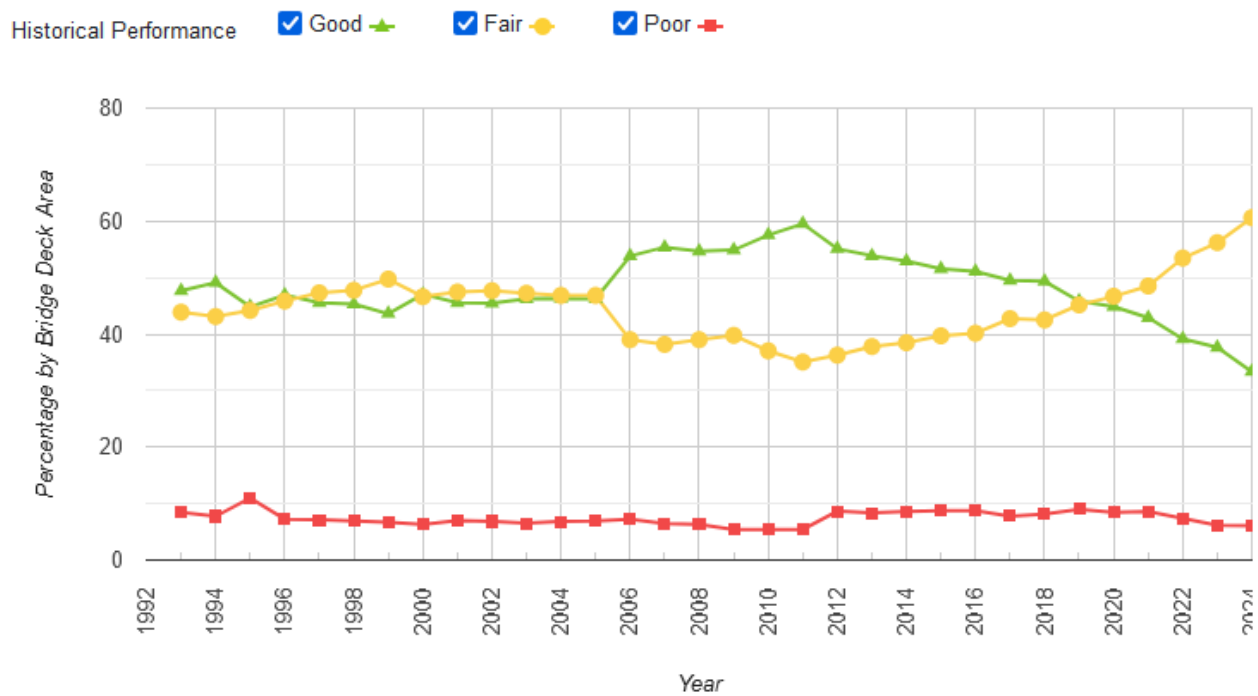
9% in 2019 to 6% in 2024. While this positive trend of addressing the poorest condition crossings is promising, the percentage of bridge inventory in good condition has steadily declined; the majority of bridges in Louisiana are in fair condition. This trend means the overall condition of bridges continues to decline, reflecting the increasing overall aging of our infrastructure and the need for continual maintenance.

Figure 1: Two of Louisiana's many Major River Crossings – Crescent City Connections 1 and 2, in New Orleans, Louisiana.



(Source: Modjeski and Masters, Inc.)

Figure 2: Louisiana Roadway Bridge Condition by Percentage Deck Area

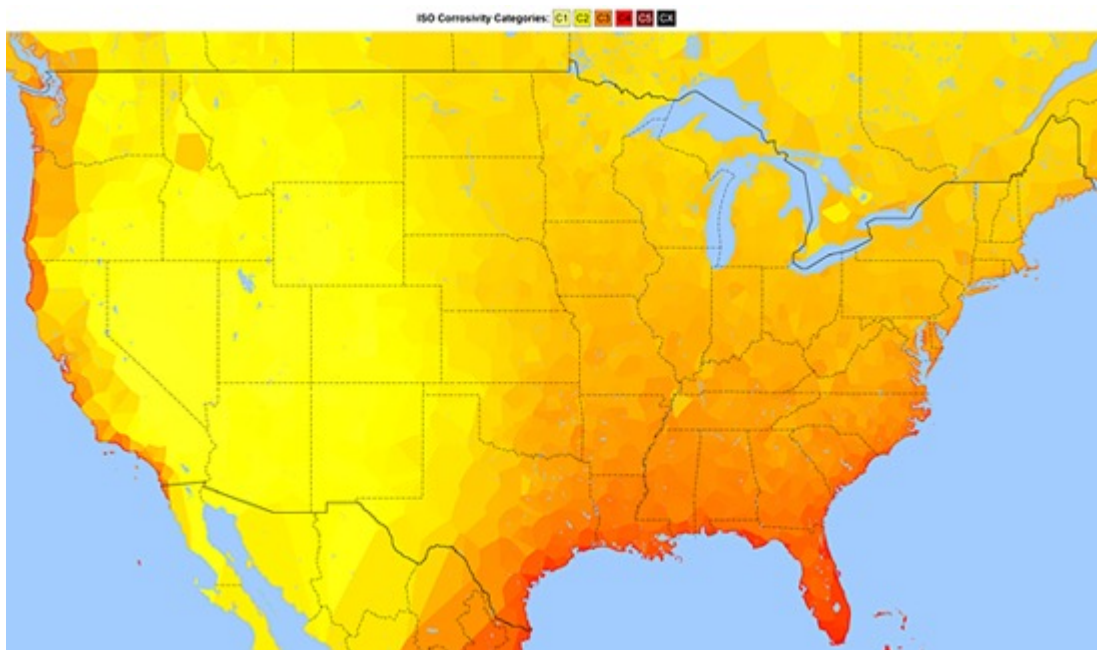


(Source: FHWA InfoBridge).

Due to the warm and humid climate prevalent throughout Louisiana, environmental conditions across the state are generally classified as medium to highly corrosive. By nature of design, the primary structural

elements of most bridges are continuously exposed to the elements of nature. This combination is particularly challenging to Louisiana's bridges, many of which exist in high exposure and coastal environments.

Figure 3: ISO Corrosivity Category Estimation Tool (ICCET) Corrosivity Heatmap.



(Source: Whole Building Design Guide)

Louisiana also faces challenges with unpermitted overweight vehicles imparting high loads to the bridges, affecting their service life and damaging components. Currently, Louisiana has 1,849 bridges that are posted for restricted loading, which restricts the size and weight

of vehicles crossing the structure. The number of posted bridges is nearly the same as in 2017, when 1,848 bridges were posted. Louisiana also currently has 122 bridges within the system that are closed to traffic and require repair before they can be reopened.

CAPACITY

The motor vehicle volume-to-capacity (V/C) ratio, which measures traffic congestion, indicates that most bridge structures do not require major improvements in the near term. However, there are several bridge structures in each major region (New Orleans, Baton Rouge, Lafayette, Shreveport, Lake Charles, and Monroe) that merit additional bridge capacity to relieve motor vehicle travel times for users. Because of numerous and sizable waterways and bayous, several of the bridge capacity projects require substantial investment.

Progress has been made to address some of the most congested corridors, including reconstructing and widening Interstate 10 (I-10) from the Mississippi River Bridge to the I-10/I-12 split in Baton Rouge, new access from I-20 directly into Barksdale Air Force Base in Bossier City, replacement and widening of the I-10 Calcasieu River Bridge, the Belle Chasse bridge and tunnel replacement project, and I-49 widening in Lafayette. Many of these efforts are currently under construction.

Louisiana agencies have also continued to evaluate a new bypass around Baton Rouge to help relieve congestion and add motor vehicle capacity. The estimated \$1.5 billion project, which is currently in the planning stages, would

entail a new four-lane Mississippi River Bridge south of the existing bridge. In 2022, Louisiana legislators agreed to fund \$300 million towards the project.

FUNDING

Louisiana ranks among the lowest nationwide (48th) in overall transportation investment as a percentage of state budget and has the seventh lowest gas tax in the U.S at \$0.20 per gallon. Although 44 states have increased their gas tax rates in the last 35 years, Louisiana has not, resulting in insufficient growth in transportation funding. Louisiana last increased the state gasoline tax in 1989 by 4 cents, to 20 cents per gallon. Because of inflation, that 20 cent nominal tax from 1989 only buys seven cents in 2025 dollars. Thanks to continual improvements in automobile efficiency and the introduction of electric vehicles to the market, gas tax revenue is also declining. As a result, the Louisiana Department of Transportation and Development (LADOTD), which is the largest bridge owner in the state, has become less able to maintain bridges effectively and meet the demands of a changing economy and mobile population.

The 2021 Infrastructure Investment Jobs Act (IIJA) included \$5.9 billion for Louisiana in formula funds from the federal government for highways and bridges over five years. As of October 2024, approximately \$876.3 million in formula funding has been dedicated to Louisiana's bridges through the Bridge Formula Program.

Of the automatic federal highway formula funding from IIJA to state transportation agencies, Louisiana must dedicate a greater share to bridges versus highways compared to other states, because Louisiana has a relatively high number of poor condition bridges.

As part of the IIJA, \$12.5 billion is available nationally through the competitive Bridge Investment Program (BIP), which intends to cover up to 50% of costs for large projects and up to 80% of costs for smaller projects. A goal of the BIP is to reduce the number of the nation's bridges in poor condition or improve those in fair condition that are at risk of falling into poor condition within the next three years. This money applies to large, shovel-ready projects and small projects or projects in the planning phase. For example, Lafourche Parish received \$60,000 in 2022 for planning, feasibility analysis, and revenue forecasting for development a project to replace a bridge (Old Louisiana Highway-182) over Lafourche Bayou.

Another IIJA funding mechanism, the National Infrastructure Project Assistance (Mega) program, provides additional funding for large, complex projects of regional or national significance that are difficult to fund by other means. Louisiana was recently awarded \$150 million in funding for the I-10 Calcasieu River Bridge replacement project.

These federal funds allow LADOTD and other agencies to continue addressing bridges in poor condition, but those investments require matching state or local funds. Greater federal support requires a larger state and local transportation program. Louisiana will be more successful winning grants for bridge projects and maximizing formula money if the state enhances dedicated local funding mechanisms such as the gas tax and user fees.

FUTURE NEED

The 12,698 roadway bridges in Louisiana have an average age of 43 years. By current standards, bridges are generally designed with a 75-year or greater design life; however, most of the bridges in Louisiana's inventory that were constructed prior to the 1980s were designed with a 50-year design life. By the end of 2025, 43% of the bridges will have exceeded the historic 50-year

design life. Currently, Louisiana has identified needed repairs on 3,251 bridges, which is an improvement compared to 2018, when repairs were needed on 3,347 bridges. However, the estimated cost of repairs to bridges statewide exceeds \$9 billion.

Figure 4: Proposed bridge work on existing Louisiana bridges, statewide

Type of Work	Number of Bridges	Cost to Repair (in millions)	Daily Crossings	Area of Bridges (sq. meters)
Bridge replacement	2,453	\$8,517	22,264,549	3,736,386
Widening & rehabilitation	1	\$45	87,741	30,552
Rehabilitation	511	\$400	1,444,339	232,160
Deck rehabilitation/replacement	0	\$0	0	0
Other structural work	80	\$46	40,073	25,099
Total	3,045	\$9,007	23,836,702	4,024,197

(Source: American Road & Transportation Builders Association Bridge Report (ARTBA))

Figure 4 represents repairs needed to maintain the current infrastructure. In addition to the existing highway system, there is a need to construct new, more resilient bridges. Expanding the bridge network supports long-term economic growth and provides safer, more accessible connections for people and freight—whether traveling by foot, mobility device, bicycle, rail, or motor vehicle.

In 2015, LADOTD and regional planning offices statewide prepared a 30-year investment and policy plan to create a well-connected, accessible, and community-friendly transportation system. Goals

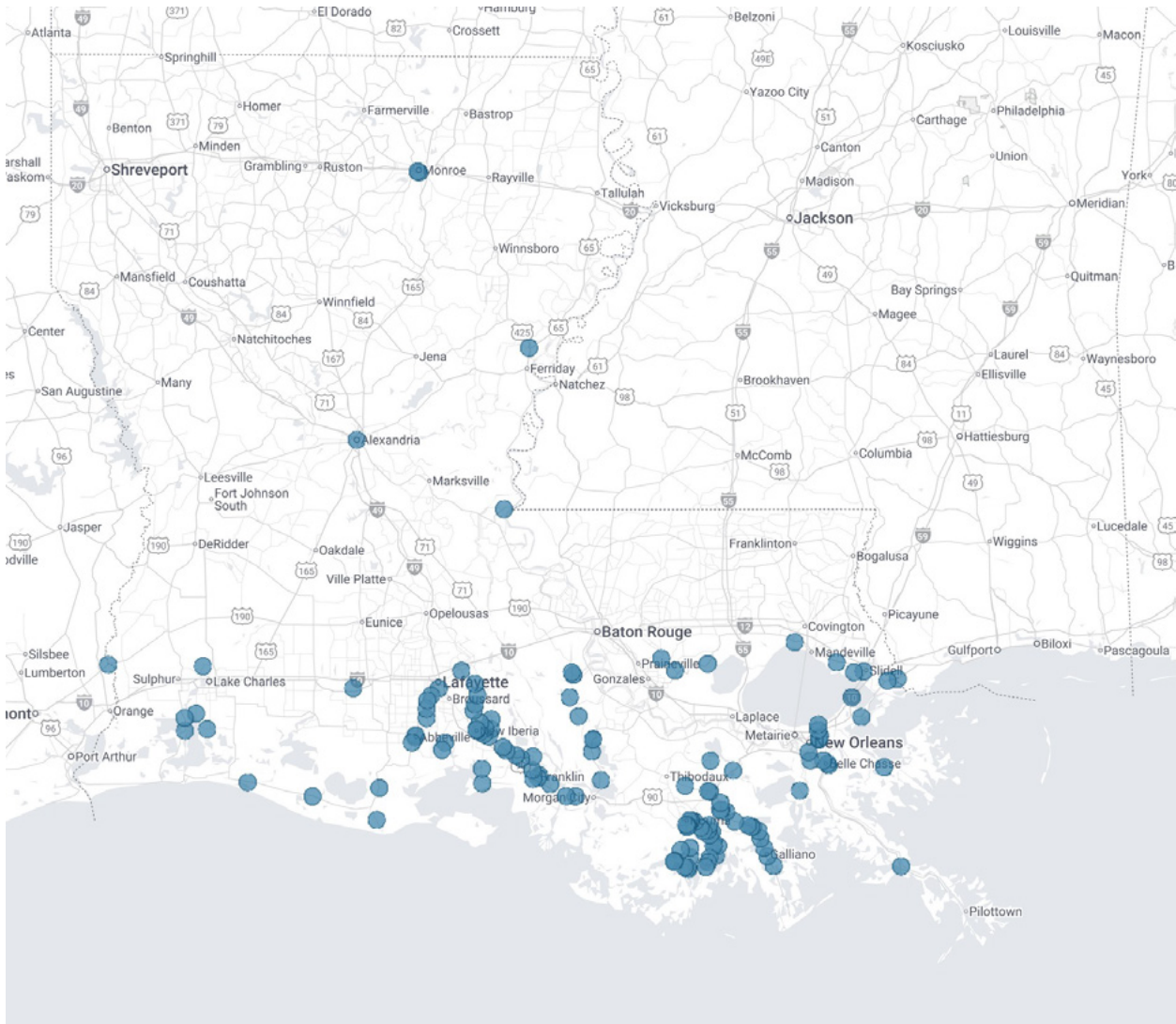
included infrastructure preservation and maintenance, and environmental stewardship. The plan identified 113 proposed transportation megaprojects with regional or statewide impact that would require special funding to supplement current LADOTD funding mechanisms. The most urgent needs are classified as Priority A and B projects under this plan and include 39 major transportation improvement ‘megaprojects’; many of which involve widening, improvement, or construction of bridges. Projects within these categories have a combined projected cost of \$10.6 billion. While some of these projects have received the funding needed to move forward, the majority are still unfunded.

OPERATION AND MAINTENANCE

The Federal Highway Administration (FHWA) has established rigid requirements for routine inspection and reporting of bridge conditions that all bridge owners in the nation must comply with. These inspections are typically completed on a biennial basis; however, critical structures and those in poor condition receive more frequent inspections. LADOTD, which is the largest bridge owner in the state, uses a comprehensive bridge database that identifies key primary elements on each bridge and the condition of each element to prioritize preservation and forecast rehabilitation costs.

Louisiana leads the nation with 167 movable bridges (139 when excluding railroad bridges)—four more than Florida, and 102 more than the state with the third-highest count. Movable bridges require a higher level of routine maintenance than fixed bridges and can be challenging to properly operate and maintain as they age. With numerous moving parts and constant wear and tear from traffic, maintenance and disruptions to traffic (highway, railroad, and marine) are frequent. In several cases, movable bridges are on hurricane evacuation routes and serve as the only routes to safety.

Figure 5: Map of Movable Roadway Bridges within Louisiana.



(Source: FHWA InfoBridge.)

PUBLIC SAFETY

With nearly 76 million daily bridge vehicle crossings in Louisiana, public safety is of the utmost importance. Improvements in safety design measures, including incorporation of roadway shoulders and barriers, have proven to reduce traffic crashes and severity. The majority of Louisiana's functionally obsolete bridges—14.7%, or 1,898 structures—are classified as such due to inadequate shoulder widths.

Strides have been made in the past decade to enhance bridge and roadway safety, with programs to improve

bridge safety railings and add pull-off areas to bridges lacking proper shoulders. Such a project was recently completed on the 23.9-mile Causeway Bridge that crosses Lake Pontchartrain between Jefferson and St. Tammany Parishes. The Greater New Orleans Expressway Commission (GNOEC) reports roughly 10-12 breakdowns per day on the Causeway, which offers nowhere to safely pull over. In 2016, GNOEC implemented a toll increase—\$1 for toll tag users and \$2 for cash customers—to fund safety improvements. The revenue supported barrier enhancements on the

southbound bridge and the installation of twelve safety bays for vehicle pullovers, with six bays added to both the northbound and southbound bridges.

LADOTD has also implemented a Transportation Alternatives Program (TAP) that emphasizes safety in non-motorized transportation, such as pedestrian, wheelchair, and bicycle transportation. This program is available to help fund improvements on roadway and bridge projects for safe shared usage alongside motorized transportation on the roadways and bridges. In 2023, over \$28 million was awarded for TAP projects across the state.

Another important safety factor is structural redundancy, or whether a bridge has backup support built into its design. About 22% of bridges in Louisiana lack this kind of redundancy and include what's known as Nonredundant Steel Tension Members (NSTM). According to the FHWA, if one of these steel components fails, it could lead to part—or even all—of the bridge collapsing. Many of the crossings of the Mississippi River in Louisiana are NSTM bridges. A single impact or incident on these bridges can create a serious scenario.

Figure 6: Inspector assessing damage to a truss bottom chord on the Sunshine Bridge over the Mississippi River in Donaldsonville, La., after the impact of an overheight vessel in 2018



(Source: Modjeski and Masters, Inc.)

RESILIENCE

In the last decade, Louisiana has experienced 36 extreme weather events, costing the state up to \$200 billion in damages. The IJA made a \$50 billion investment nationwide to bolster our nation's infrastructure resilience against pressing challenges, such as the impacts of climate change, extreme weather events, and hazards such as cyberattacks.

Most bridges are designed today by taking into consideration extreme event loadings, such as wave and wind loads from hurricanes and flooding from a 500-year storm. Louisiana has 1,329 bridges that are defined

as scour critical, meaning that in the event of a 100-year storm, streambed material can be removed by swiftly moving water from around the bridge's substructure, causing deep holes. These deep holes can result in loss of structural capacity and bridge instability, resulting in bridge closures.

After a significant storm event, appropriate authorities are required to inspect affected bridges for scouring. If needed, emergency repairs are implemented. Resilience is expected to improve as more existing bridges are replaced to meet current design standards

INNOVATION

Louisiana is uniquely positioned to provide innovation on bridge projects. The Louisiana Transportation Research Center (LTRC), in partnership with LADOTD, has assisted with transportation research and testing to help accelerate innovation since 1986. With a high number of poor condition bridges that require major work, bridge projects are required to focus on innovation to minimize impacts to traffic or extend service life.

LADOTD has also incorporated an in-house bridge construction crew that is capable of expediting the replacement of simple crossings. The crew replaces up to 12 bridges each year, creatively accelerating the replacement process and saving important funds for other maintenance needs. This initiative has successfully inspired nearby states to implement their own similar programs.



Photo: Morgan city river port and bridges



RECOMMENDATIONS TO RAISE THE GRADE

- Sustain bridge investments by increasing the gas tax and indexing it to inflation. A significant increase in transportation and bridge funding is needed, gas taxes serve as a primary source of transportation funding for Louisiana.
- Consider alternate sources of dedicated funding, such as generating revenue from road usage charges. Louisiana could follow several other states that have opted for pilot programs on a per-mile charge basis instead of fuel usage charge. Other alternatives include electric vehicle charging station taxes, electronic tolling, or charges based on how much pollution a vehicle generates.
- Strategically implement Complete Streets design in the planning of bridge projects to improve safety for non-motorized transportation and reduce overall congestion.
- Prioritize funding for maintenance and repairs, with a focus on reducing the number of poor condition bridges to a manageable level, while implementing a preventative maintenance strategy to ensure structures remain in good and fair condition.
- Continue to develop and implement LADOTD's in-house bridge construction group to accelerate the replacement of bridges in critical need and provide a lower total project cost per bridge.
- Improve efforts to enforce state and federal truck weight limits to minimize unnecessary damage to bridges due to unpermitted overweight vehicles.
- Continue supporting innovative and efficient project delivery methods such as public-private partnerships (P3s), design-build, Construction Manager at Risk (CMAR), and bundling multiple bridge projects to increase efficiency in design and construction.



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Coastal



Photo: Grand Isle, the channel entrance to Caminada and Barataria Bays.
The ruins of Fort Livingston on Grande Terre Island in the background; Judy

GRADE
COMPARISON

LA: C-
Nat'l: N/A



COASTAL

EXECUTIVE SUMMARY

Louisiana's coast faces critical challenges from rapid land loss, rising sea levels, and increasingly intense storms, which threaten its communities, industries, and ecosystems. Since 2007, the state has completed over 150 restoration projects benefiting over 55,000 acres and enhancing storm resilience. However, millions more acres still require restoration. The 2023 Coastal Master Plan outlines a \$50 billion strategy to address these issues, but significant funding gaps threaten its implementation. Louisiana's coast supports a \$120 billion annual economic output through industries like oil and gas, seafood, and trade, with its ports and wetlands playing a vital role in national security and commerce. Protecting Louisiana's coast is critical not only for the state but also for safeguarding the nation's economy, infrastructure, and cultural heritage.

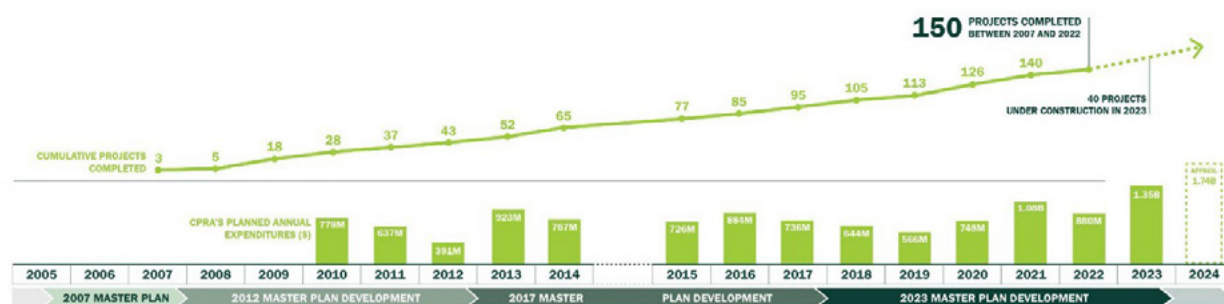
CAPACITY

The state legislature currently mandates a comprehensive master plan of coastal restoration and protection projects be updated every six years. Louisiana has completed the development of the 2023 Coastal Master Plan, which was approved by the state's legislature in May 2023. This is a comprehensive plan that builds on the previous three plans (2007, 2012, and 2017) and provides direction for investments and project priorities for the state's coastal activities through a robust process, leveraging

the knowledge from hundreds of researchers, planners, engineers, and scientists across the State. Dating back to 2007 (see Figure I), Louisiana has completed more than 150 projects totaling:

- 55,807 acres benefited;
- 193 million cubic yards of sediment placed; and
- 71.6 miles of restored barrier islands.

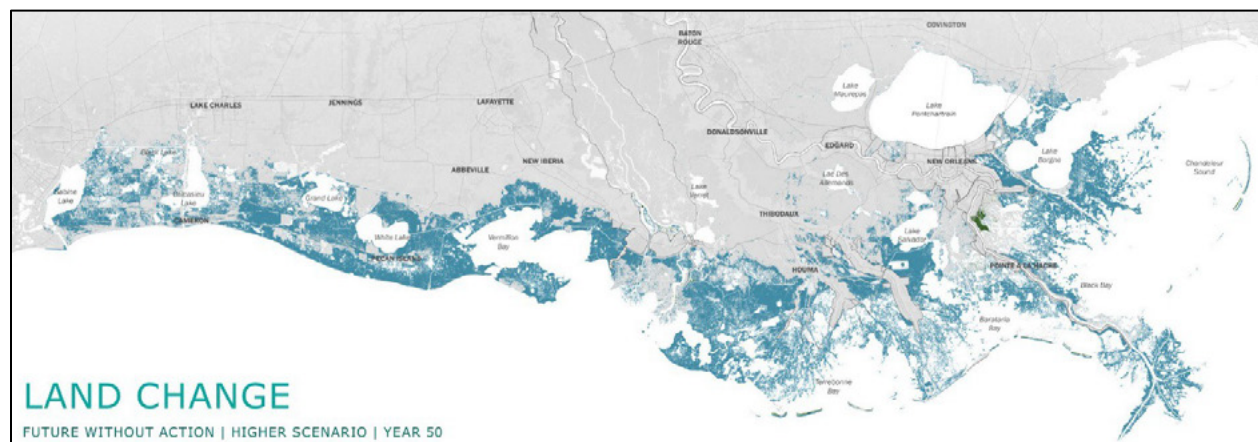
Figure 1: CPRA Project Implementation History (CPRA)



Although the Louisiana Coastal Protection and Restoration Authority (CPRA), the agency charged with implementing the Coastal Master Plan, has been successful in implementing restoration projects over the past two decades, Louisiana's coastal wetlands are continuing to erode at alarming rates due to an increase in storm intensity and rates of sea level rise. However, Louisiana has two coastal challenges unique to the State. While all coastal states are faced with eustatic (global) sea level rise challenges to sustainability, rates of subsidence in Louisiana are exceptionally high, resulting in significantly higher levels of relative sea level rise than other coastal states. With about 40% of the wetlands in the continental United States, the approximate 3 million acres of wetlands consist of 10% of the State's total area; wetland loss in Louisiana accounts for about 80% of loss in the US.

In recent years, the Louisiana coast has seen an increase in the number and intensity of hurricanes making landfall including Hurricanes Laura, Delta, and Zeta in 2020 and Ida in 2021, which caused devastating impacts to both Louisiana's coast and its communities. Since 1932, Louisiana has lost more than 2,000 square miles of coast. The State stands to lose an additional 4,000 square miles over the next 50 years without additional implementation of restoration and protection projects from CPRA's Coastal Master Plan (see Figure 2). Additional and continued investments into Louisiana's wetlands are required to implement the projects identified in the state's Coastal Master Plan, which protect investments in the entire nation's assets.

Figure 2: Land Change Future Without Action (CPRA)



CONDITION

Over the years, stakeholders have constructed numerous types of restoration projects to provide Louisiana with a more resilient coast. Typical coastal projects implemented by stakeholders such as CPRA, non-governmental organizations (NGO), and parish governments include wetland restoration, barrier island restoration, shoreline stabilization, and hydrologic restoration. Constructed coastal projects have weathered recent storms well and have increased the protection

of our coastal communities from being inundated with flood water from storm surges. Although past projects are performing well, millions of acres of Louisiana's coastal wetlands still require restoration and protection, and many constructed projects have reached the need for maintenance. Some of the highest land loss rates in the world necessitate an increased investment to ensure a sustainable future for this region that is exceptionally valuable to the entire nation.

OPERATION & MAINTENANCE

The CPRA oversees the maintenance and monitoring of Louisiana's coastal restoration projects through field offices in Lafayette, Thibodaux, and New Orleans. Annual funds from the state's plan support project operation, maintenance, and performance evaluations based on criteria such as elevation changes and vegetation cover. Since the 2007 Master Plan, the restoration program's budget has grown, but aging projects increasingly require maintenance and renourishment, leading to significant funding shortfalls.

CPRA also employs long-term monitoring programs,

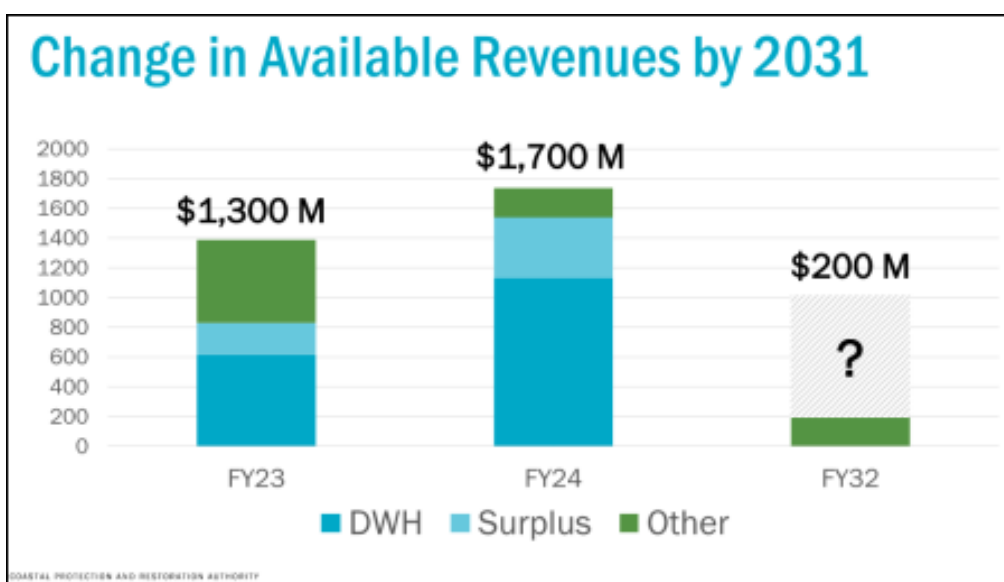
including the Coastwide Reference Monitoring System (CRMS), System-Wide Assessment and Monitoring Program (SWAMP), and the Adaptive Management and Monitoring Program, to inform restoration decisions and improve project designs. However, Louisiana's monitoring program is underfunded compared to other U.S. coastal systems, limiting its ability to optimize restoration approaches. Additional monitoring resources could enhance adaptive management and yield more effective, cost-efficient designs for the state's coastal preservation efforts.

FUNDING & FUTURE NEED

The annual expenditures on coastal restoration and protection projects are outlined in CPRA's annual plans (summarized in Table 1). Louisiana utilizes several key funding sources in developing budgets to implement CPRA's annual plans. A sizable portion of the state's current funds are associated with the Deepwater Horizon (DWH) Oil Spill settlement through the Resources and

Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act, National Fish and Wildlife Foundation funding, and Natural Resources Damage Assessment funding. However, these funds have largely been allocated to projects and will sunset in April 2031, leaving future projects without a consistent revenue source (Figure 3).

Figure 3: Future Funding Outlook (CPRA)



The 2023 Coastal Master Plan, which was approved by Louisiana's legislature, would require \$50 billion over 50 years to fully implement, with \$25 billion being allocated towards coastal restoration projects (Figure 4). While

the recent annual plans currently meet the goals for \$1 billion per year, after funding associated with the DWH oil spill settlement is expended, a large void in funding will remain, preventing long-term goals of the Coastal Master

Plan from being met. Therefore, Louisiana, with other coastal states, is looking for long-term funding streams or improvements to current funding streams (e.g., American Shores Protection and Reinvesting in Shoreline

Economies and Ecosystems Acts) to meet the overall goals of the \$50 billion plan. Overall, the long-term level of funding is far from adequate.

Figure 4: Planning Budget Allocation by Project type in USD (CPRA)



Table 1: Annual CPRA Expenditures

FY	CPRA SPENDING (\$M)
2018	\$644
2019	\$566
2020	\$748
2021	\$1,083
2022	\$880
2023	\$1,354
2024	\$1,620
AVERAGE:	\$985

PUBLIC SAFETY

Approximately two million people call Louisiana's wetlands home, and most of those people have made their livelihoods near Louisiana's coast. The wetlands and barrier islands serve as a buffer from the storm surges brought on by the increasingly more intense and frequent storms devastating Louisiana's coast. In forgoing projects that help strengthen and build up our coast, Louisiana faces

worse disasters, which will cost lives, economic downturn, and loss of the vibrant culture unique to coastal Louisiana (Figure 5). The prevalence of flooding in coastal Louisiana has already encouraged insurance companies to flee from the market, which leaves the area more volatile in the event of a disaster, endangering residential, commercial, and industrial investments.

Figure 5: Pointe-aux-Chenes Community



Coastal land loss also threatens the oil and gas industry in Louisiana, which is vital to the economy of both Louisiana and the United States. As land loss worsens in Louisiana, oil and gas infrastructure becomes more susceptible to storms and scouring, which will increase the potential for damage. With the increased risk of storms impacting

Louisiana, the oil and gas industry may face operational challenges that could cost Louisiana and the United States billions of dollars in annual economic output. This highlights the critical role Louisiana's oil and gas industry plays in the national economy and the urgency of protecting its coastal infrastructure.

RESILIENCE

Resiliency on Louisiana's coast depends on the ability to consistently withstand or quickly recover from storm effects, higher water levels (short and long term), and the associated changes in barrier island position and marsh geomorphic form and function. Louisiana has always benefitted from a working coast with some of the most important infrastructure located within the coastal zone with direct exposure to storm surge, high winds, and low and high-water levels. Economic development within this zone has resulted in engineered systems that changed natural processes and reduced the natural ability to recover from consistent storm events.

A Chief Resilience Officer within the Office of the Governor was established through Act 315 of the 2023 Regular

Legislative Session, House Bill 526. Per Act 315, resilience shall mean a capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimal damage to social well-being, the economy, infrastructure, and the environment. The state's resilience framework focuses on enhancing the ability to adapt to environmental changes, reducing vulnerability, and seizing opportunities for communities to thrive despite disruptions from extreme weather and climate change. Additionally, the 2023 Coastal Master Plan aims to preserve Louisiana's rich culture, ecosystems, and natural resources threatened by ongoing land loss and flood risk. Even with this concerted effort across state and federal agencies, restoration is not keeping pace with the rate of loss.

INNOVATION

Louisiana is a hub of innovation and collaboration among academia, government agencies, NGOs, and the private sector to address the severe challenges facing its coast. The Coastal Master Plan reflects the State's commitment to using the best available science for coastal management. Research centers like the Water Institute of the Gulf, the LSU Center for River Studies, and the Coastal Center at Nicholls State University (Figure 6) contribute cutting-edge strategies for resilience. Academic programs, such as LSU's Coastal and Ecological Engineering Master's

Program and the University of New Orleans' Coastal Engineering and Sciences Certificate further drive innovation. Additionally, Louisiana is developing the Atchafalaya National Estuarine Research Reserve to join the National Oceanic and Atmospheric Administration's National Estuarine Research Reserve System, with the application pending approval. These collective efforts highlight Louisiana's proactive approach to designing a more resilient coast, vital for addressing current and future challenges.

Figure 6: Nicholls Coastal Center



Coastal



RECOMMENDATIONS TO RAISE THE GRADE

- **Accelerate Project Implementation:** Speed up restoration and protection efforts outlined in the Coastal Master Plan to address critical land loss and vulnerabilities and avoid exponential cost increases associated with delays in implementation.
- **Secure Long-Term Funding:** Establish sustainable funding sources to replace expiring Deepwater Horizon Oil Spill settlements.
- **Improve Monitoring and Maintenance:** Enhance programs to evaluate project performance, adapt to changes, and maintain restoration effectiveness.
- **Strengthen Innovation and Community Engagement:** Collaborate with researchers, agencies, and private sectors to create innovative solutions while involving local communities in decision-making.
- **Enhance Resilience Planning:** Expand resilience frameworks to address climate risks and reduce vulnerabilities in key coastal zones.

By concentrating on these areas, Louisiana can improve its coastal resilience and better protect its ecosystems and communities, which are exceptionally valuable not only to the State but to the nation.

Coastal



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Dams



Photo: Flood control on the Bayou Teche in Louisiana; Brian

GRADE
COMPARISON

LA: C
Nat'l: D+



DAMS

EXECUTIVE SUMMARY

The Louisiana Department of Transportation and Development (DOTD) Dam Safety Program, established in 1981, oversees the inspection and regulation of 693 registered dams throughout the state to ensure public safety and mitigate risk to life and property downstream. Of these 693, 42 are classified as high hazard potential dams, requiring annual inspections and an Emergency Action Plan. Most of the dams in the state are privately owned and are often underfunded, particularly in terms of operations and maintenance. A majority of the dams are over 50 years old, and the condition of these dams continue to degrade, with only 4% rated as satisfactory. Despite federal investments—such as a one-time \$53 million allocation from the Department of Housing and Urban Development and the annual National Dam Safety State Assistance Grant—funding remains limited, especially for privately owned dams. Despite funding limitations, the program continues to explore innovative technologies like drones and LiDAR to enhance the inspection process. Current investment and sustainable funding mechanisms are urgently needed to address current and future repair as well as resiliency challenges for both public and private dams. The slight reduction in the grade from the 2017 ASCE Louisiana Report Card is mostly attributed to a lower assessment of dam operation and maintenance (O&M).

BACKGROUND

The Louisiana Department of Transportation and Development (DOTD) Dam Safety Program was established to ensure the safety and regulation of dams within the state. The program's origins trace back to the early 1980s, following the passage of Act No. 733 by the Louisiana Legislature in 1981. This act mandated the inspection, regulation, and supervision of dams to prevent potential hazards to downstream life

and property. The program operates under the Public Works and Water Resources section of DOTD, which provides engineering and technical support for flood control, drainage, and water resource management. Over the years, the program evolved to include rules and regulations, to ensure that both existing and new dams meet safety standards to help protect the lives and property of those living downstream of the dam.

CONDITION AND CAPACITY

The State of Louisiana has a total of 693 dams registered in the National Inventory of Dams, of which 546 are privately owned and maintained. 660 of the dams are regulated by the Louisiana Department of Transportation and Development (DOTD) and 17 of the dams are regulated by the United States Army Corps of Engineers (USACE).

A total of 42 dams are considered high hazard potential (HHP), which indicate that the loss of human life is likely if the dam fails.

A total of 42 dams are considered high hazard potential (HHP), which indicate that the loss of human life is likely if the dam fails. These high hazard dams are inspected annually and have an Emergency Action Plan (EAP) in place. Many owners of privately-owned dams do not have resources to adequately maintain and repair their dams. Fortunately, most of the privately-owned dams are categorized as having a low hazard potential. Condition assessments are conducted along with the inspections and utilize a satisfactory, fair, poor, and unsatisfactory scale. These condition assessments have been conducted for all dams that have been inspected and evaluated since 2017. A total of 596 dams were included in the scoring for condition assessment. Of the 42 HHP dams with condition assessment rating, 3% have an unsatisfactory condition, 9% have a poor condition, 79% fair, and 9% satisfactory (Figure 1).

Figure 1: HHP Condition Assessment as of 2023

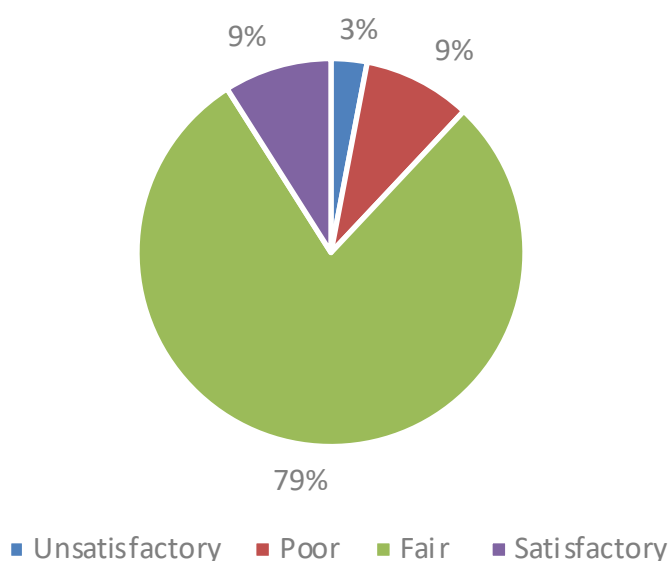
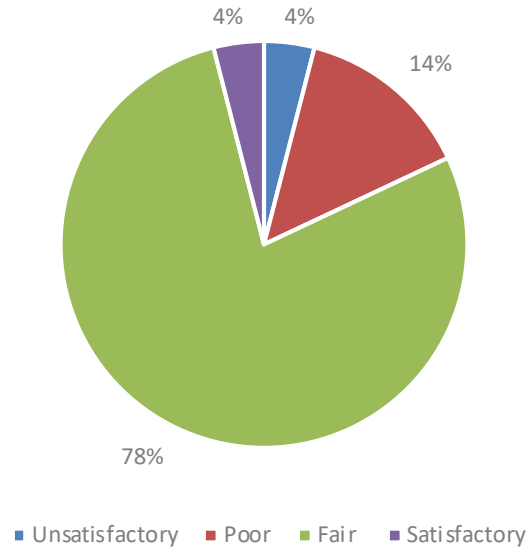


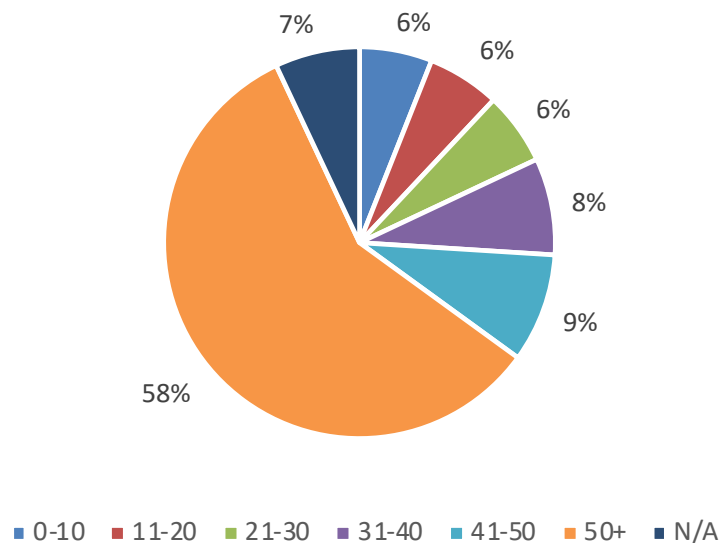
Figure 2: Condition Assessment All Dams as of 2023



Public safety is of most importance as it relates to dam condition assessments. Annual inspections, along with routine maintenance and timely rehabilitation are the keys to a satisfactory condition assessment rating. Recent inspections reveal most dams in the inventory as being in fair condition – mostly due to a lack of maintenance. Overall, approximately 78% of dams in the inventory are in fair condition, about 4% were assessed as satisfactory, 4% unsatisfactory, and 14% poor (Figure 2). Additionally, over half of the dams in the state inventory are near 55 years in age as of 2023

(Figure 3), which is below the national average of 64 years. While specific design life information is not available for many of these dams, issues will continue to arise as these structures increase in age particularly if maintenance is not prioritized. The frequency of inspections and the level of service with respect to maintenance and repair are directly related to the funding availability. Therefore, the condition assessment grading illustrates how the available funding plays a role in the grading of the infrastructure.

Figure 3: Louisiana Dam Ages – 2023 Data

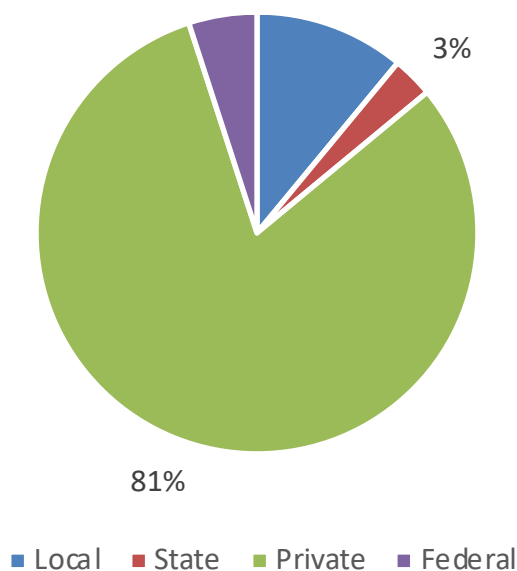


The O&M of the high hazard and significant hazard potential dams is significant because 54% of those dams are state owned/maintained, meaning they have available funding sources for O&M. The remaining 46% of the high and significant hazard potential dams are privately owned, therefore the availability funding for O&M on these dams is questionable. As for low hazard potential dams, over 87% of these dams are privately owned. The O&M of any dam is the responsibility of the owner, and many private owners do not have the necessary funding needed for the repairs identified in the inspections. Also, many of the owners may not be aware of the O&M needs of their dams until they receive an inspection report from the State Dam Safety Program. The low hazard potential dams are only inspected once every 5 years, and in that time, erosion

and infrastructure damage may occur. Privately-owned dams account for over 80% of the dams in Louisiana (Figure 4), and although the repairs needed to them are minor, the amount of resources spent on O&M is very little.

Compared to 2017, O&M performance has declined, with owners addressing 5–10% fewer maintenance needs and providing limited inspection documentation. Even when notified of deficiencies, fewer owners are taking corrective action which is allowing issues such as erosion channels to worsen. These delays in maintenance are a main driver in the lowering of the Dam's grade as compared to 2017.

Figure 4: Dam Ownership breakdown from 2023 data



FUNDING

Funding has increased for eight of the state owned/maintained dams, thanks to a one-time \$53M federal investment from the United States Department of Housing and Urban Development (HUD). Two high hazard potential dams have also been awarded funding in Fiscal Year 2024 from FEMA's High Hazard Potential Dams Grant program. Yet, the funding has remained generally constant since the last report card was released in 2017 without regard to aging of the

remaining dams, increased costs (including inflation in materials and labor) for repairs and rehabilitation of state-maintained dams. The current budget for dam inspections performed by DOTD is \$500K annually, along with an additional \$80K in annual funding from the National Dam Safety Program State Assistance Grant. State Bond funds in the amount of \$3.9M have been appropriated to conduct needed repairs on a number of the state owned/maintained dams.

Additionally, \$4.5M in funding for the state owned/maintained dams has been authorized for future use. However, for privately owned dams, the effect of high inflation and the cost of living adds pressure to delay scheduled maintenance, repairs and upgrades to their dams. The state currently does not have a funding

mechanism for assisting owners with maintenance and repairs of private dams. As Louisiana's dam inventory continues to be exposed to storms and resulting floods across the state, there will be an increased need to repair both private and non-private dams to ensure their operational condition for future storm events.

FUTURE NEED

Over 80% of the dams in Louisiana are privately owned. In addition, only a small number of applications have been submitted for new dams indicating a limited need for new dams at this time. However, the majority of the dams in Louisiana were built before 1960 so it is likely that they are approaching the end of their design life. The State provides inspection services for all dams, however, the cost for O&M and repairs must

be addressed by the private owner; state funds are not available. Many of the private owners do not have the resources to fund O&M of the dams. With the recent flooding across the State, dams may be a new way of mitigating impacts of large rain events. However, the foresight and funding very large water resources projects is not there to support these future needs.

PUBLIC SAFETY

Public safety is paramount when working with dams, and failure is not an option due to the direct impact to life and property. The state has taken steps to improve public safety at a number of the state owned/maintained dams, by updating the security measures, safety signage, and making repairs to markers and buoys around spillway structures. The state has also conducted several dam owner workshops to help educate owners on the responsibilities of being a dam owner. High hazard dams have the potential for loss of life in the event of failure. To support public safety, the

state executes an annual inspection of the high hazard potential dams. High hazard potential dams are required by law to have an EAP. Currently, all 42 high hazard dams in the state have an EAP. Currently the state owned/maintained dams receive limited O&M funding; costs are drawn from the State General Fund, which is always vulnerable to budget cuts. Recent state funding authorization is a positive step, and plans are underway to conduct repairs, but additional funding is needed to keep up with repairs to the aging infrastructure.

RESILIENCE

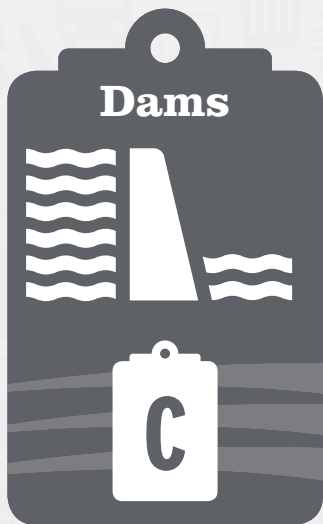
A dam's resilience is dependent on maintenance, management, and particularly, design. When it comes to dams, typically there is no redundancy in dam infrastructure, so if the dam fails, there will be impacts, even if minor. Overall, given the purpose of most dams, building redundant or duplicate infrastructure is not a

common design practice. The \$53M of HUD one time funding will be primarily used for structural hardening, such as soil cement, and spillway modifications at a number of state owned/maintained dams to provide flood resiliency and risk reduction.

INNOVATION

Innovative engineering solutions to inspect, repair and replace older dams can save time and money. This is an important factor when funding is limited. Newer technologies such as LiDAR, drones, thermal imaging, remote sensing and inspection software, are being used

to improve and streamline the inspection process. As newer technology continues to evolve, it is evaluated regularly for potential use in improving the inspection process of dams.



RECOMMENDATIONS TO RAISE THE GRADE

- Develop and implement public outreach to increase awareness of safety at dams;
- Increase annual investment levels for dam repair, reconstruction, renovation and identify grant opportunities;
- Continue to develop and apply remote sensing technologies to efficiently collect data on dams;
- Prioritize identifying potential funding sources for O&M and rehabilitation of private funded dams needing repair/assistance.

SOURCES

Review of Condition Assessments performed for Louisiana Dams, 2017-2023

Data compiled by La. DOTD Dam Safety Team - November 2023

DOTD Public Works and Water Resources Division in cooperation with the U.S. Geological Society, Water Resources Special Report No. 18, "Water Use in Louisiana, 2015", 2018.

U.S. Army Corps of Engineers, "National Inventory of Dams", n.d.

Louisiana Department of Transportation and Development, "Dams", n.d.

Drinking Water



GRADE
COMPARISON

LA: D

Nat'l: C-

Photo: Water treatment tank with wastewater, aeration process in blue color. DedMityay



DRINKING WATER

EXECUTIVE SUMMARY

Louisiana's drinking water systems face persistent challenges from aging infrastructure, limited funding, and increasing environmental stressors. More than half of the state's 954 public water systems were built before 1960, and many lack redundancy or capacity to meet future demand. System performance varies widely, with smaller and rural systems facing the greatest difficulties in maintaining safe and reliable service due to financial and operational constraints. The state estimates more than \$9 billion in investment needs over the next 20 years, primarily for distribution, treatment, and storage improvements. Recent initiatives, including the Louisiana Water Sector Program, have provided critical funding for repairs and system consolidation, supported by the American Rescue Plan Act (ARPA), Infrastructure Investment and Jobs Act (IIJA), and Inflation Reduction Act (IRA). Increasing risks from hurricanes, saltwater intrusion, and workforce shortages underscore the need for sustained investment and long-term planning to ensure safe, resilient drinking water across Louisiana.

BACKGROUND

Louisiana possesses a relative abundance of water from which to draw for domestic, industrial, and agricultural needs. Sources of water include eleven aquifers and aquifer systems as well as a number of reservoirs, rivers, and other surface water covering nearly 18% of the state's total area according to the United States Geological Survey (USGS).

Despite an ample supply of water, certain areas of the state, particularly rural areas still struggle to meet potable water demands at times. USGS estimates that approximately 9% (746 million gallons per day (Mgal/d)) of the water usage for Louisiana can be attributed to public drinking

water supply, the focus of this report, which covers 88% of the state's population. The remaining 12% of Louisiana's residents derive water from private wells which is beyond the scope of this report. Approximately 49% of public supply water is drawn from aquifers with the remaining 51% taken from surface water sources.

Louisiana has 954 public water systems servicing rural and metropolitan communities across the state. However, the increasing age of most systems has led to decreased efficiency and leakage which has in turn created issues with other infrastructure in the form of potholes and other visible signs of water loss.

CAPACITY

The U.S. Geological Survey (USGS) Lower Mississippi-Gulf (LMG) Water Science Center (WSC), through a cooperative effort with the Louisiana Department of Transportation & Development (DOTD) has published water use data and reports in 5-year intervals since 1960. The most recent data release was published on June 30, 2025, and reflects data collected and compiled in 2020. According to that data, water withdrawals in Louisiana totaled approximately 8,736 Mgal/d from ground and surface sources, up from 8,720 Mgal/d, reported in the 2015 study Water Use in Louisiana. The overall percentage of water use in Louisiana is heavily skewed toward industrial and power generation which account for over 71% of total daily use. Agriculture and aquaculture account for roughly 20%. Lastly, Public supply and rural domestic water account for about 759 Mgal/d or 9% of total daily usage, an increase of roughly 5 Mgal/d since the 2015 report.

As discussed in greater detail in the Public Safety section of this report, roughly one third of parishes are vulnerable to saltwater intrusion impact to their groundwater supply. Whether a result of groundwater drawdown inducing migration of the freshwater/saltwater interface or as

has been experienced in recent years, low flow of the Mississippi river resulting in upstream migration of the so-called saltwater wedge, these supply intakes must be temporarily shut down. The loss of viable source water in turn creates strains on public water supply capacity.

Approximately 30% of parishes are susceptible to saltwater intrusion. The state increased its groundwater usage by approximately 12% between 2010 and 2015, and that pumping rate has continued to increase largely to support industrial uses. This continued pumping poses a potential threat to water quality, primarily through the promotion of saltwater intrusion caused by increased drawdown of the potentiometric surface.

Data available through the Louisiana Department of Health (LDH) and current census data indicate that although there have been improvements since 2017, certain parishes, particularly rural parishes, still struggle to meet capacity and quality needs. With projected population growth through 2030, Louisiana will likely need to further increase supply and distribution to meet capacity needs.

CONDITION

Louisiana's drinking water infrastructure is aging, and although publicly available data and responses to surveys issued as part of the data collection for this report suggest that some improvements have been made since the last report card release, there is ample work left to be done across the state. As was the case in 2017, the LDH Public Water System (PWS) database shows that over half of the infrastructure in place was built before 1960. Due to persistent lack of funding and resources, issues with many systems are unable to be addressed until a failure necessitates repair and/or replacement. Data for each individual system was unavailable to assess specific needs; however, as noted in 2017, some materials used in older systems are likely no longer considered a design standard in the industry. Funding for these outdated systems has historically been insufficient, making upkeep difficult, particularly in rural communities. LDH assigns grades to public water systems based on performance and water quality as part of the Community Drinking Water Accountability Rule. Specific parameters considered for these grades include reported

water quality violations, financial sustainability, operation & maintenance, infrastructure, customer satisfaction, and secondary contaminants. LDH assigned the grade, F to 64 PWS and another 66 as D. These 130 PWS serve over 450,000 residents and largely serve rural communities with the exception of West Jefferson which services over 160,000 residents. The state's population centers of Baton Rouge, Lafayette, New Orleans, and Shreveport all received at least a C. The findings of the LDH report are not all directly relevant to infrastructure which is the scope of this report card. However, they do offer broader context of the challenges faced by Louisiana's drinking water systems.

A key finding of the 7th Drinking Water Infrastructure Needs Survey and Assessment (DWINSA) was the assessment of lead-containing service lines (LSL) and costs to replace them as mandated by America's Water Infrastructure Act of 2018 (Klobuchar D-MN). The total number of projected LSLs for Louisiana was determined to be 266,984 equaling 2.91% of the total service lines in the state.

OPERATION AND MAINTENANCE

As part of the research for this report, questionnaires were issued to system managers requesting them to cite specific examples of repair and/or replacement of system components. Many such examples were received and taken into consideration in the writing of this report. It should be noted that some of the more extensive replacements were made in response to a natural disaster compounded by aging infrastructure components. It was stated in the 2017 report card that due to the age of the current systems in place, the need for maintenance and replacement of components is expected to increase due to age-related deterioration. This remains true in most parts of the state and will likely lead to more frequent and costly repairs.

One challenge noted in the national infrastructure report card is the need to increase the workforce required to make improvements to our broader infrastructure network. This is also true of Louisiana. The Louisiana Workforce Commission (LWC) offers education, training, and support services through partnerships with the Louisiana Community and Technical College System (LCTCS) and Louisiana Economic Development Fast Start. Despite these programs, the state is reportedly experiencing a significant shortage of workers with only 55 job seekers

for every 100 open positions. It is not clear from the available data how many of these job seekers are directly relevant to drinking water infrastructure. However, the Greater Baton Rouge Industry Alliance estimates that the state will need an additional 5,400 skilled laborers across all industry over the next 2 years which will add additional demands on an already thinly stretched labor pool needed to service drinking water needs.

One key area of improvement is the implementation of the Louisiana Water Sector Program which helps to fund Operation and Maintenance (O&M) while also consolidating rural PWS under larger systems that have greater resources to manage and maintain safe operations. The program, which derives funding from the state's allocation of the American Rescue Plan signed into law by the Biden administration in March 2021, has a reported \$750 million available for water and sewer system improvements. As of March 2025, the program has held two application solicitations through which it received over 500 applications and awarded nearly \$300 million. Approximately 70% of that funding has gone toward water system projects split between small, medium, and large systems.

PUBLIC SAFETY

The Wellhead Protection Program (WHP) was created in 1989 by the Louisiana Department of Environmental Quality (LDEQ) as a result of the Safe Drinking Water Act Amendments of 1986 and was designed to protect public drinking water sources. Wellhead Protection Programs include contingency plans for water treatment, distribution, short term alternatives, as well as other elements to ensure the public well is safe and readily available for use by the public. As of the 2017 report, fewer than 70% of Louisiana's PWS utilizing aquifer sources have Wellhead Protection Plans in place and no new information regarding WHP was available at the time of this report.

Approximately 30% of parishes are susceptible to saltwater intrusion. The state increased its groundwater usage by approximately 12% between 2010 and 2015,

and that pumping rate has continued to increase largely to support industrial uses. This continued pumping poses a potential threat to water quality, primarily through the promotion of saltwater intrusion caused by increased drawdown of the potentiometric surface.

In addition to saltwater intrusion caused by groundwater pumping, a small population that relies on the Mississippi River for water is at risk from the northward movement of the saltwater wedge during periods of extremely low river levels—a condition that, while historically rare, occurred in 2022 and 2023 and is being closely monitored in 2024. Increased salinity can have deleterious effects on infrastructure and is of particular concern in LSL due to increased potential for corrosion and leaching of heavy metals into drinking water.

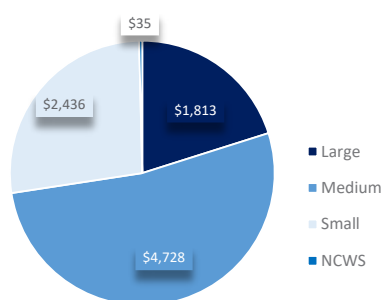
FUNDING

The previous two report cards found funding to be one of the primary shortfalls for the state's drinking water infrastructure.

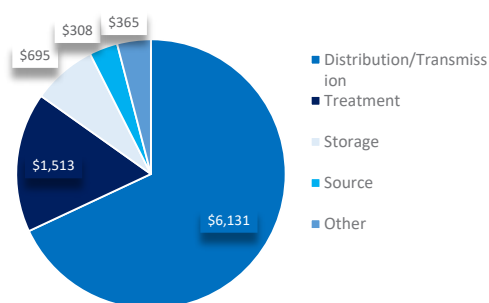
Figure 1: 20-Year Drinking Water Needs for Louisiana (7th DWINSA 2023)

Louisiana

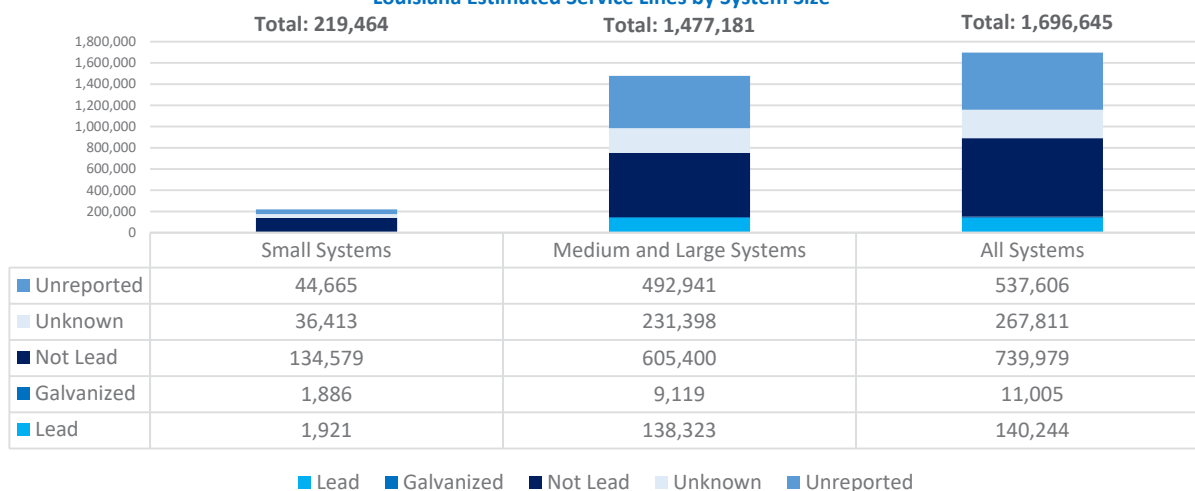
Louisiana Total Need by System Size
(in millions; January 2021 dollars)



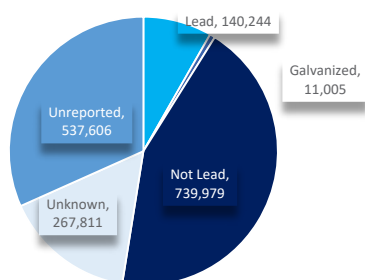
Louisiana Total Need by Project Category
(in millions; January 2021 dollars)



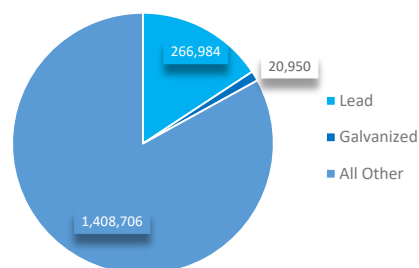
Louisiana Estimated Service Lines by System Size



Louisiana Service Lines - Estimated from Survey Responses



Louisiana Projected Service Lines



The signing of the IIJA into law in 2021, created a funding source for some of the most needed improvements to water infrastructure. The law which dedicated \$50 billion to drinking water, wastewater, and stormwater infrastructure was a step in the right direction but still fell drastically short of the nearly \$500 billion the EPA estimates is needed for the U.S. as reported in the 2018 Needs Assessment Report. That funding is also now a potential target of rescission by the current administration which has already cut key resiliency grant programs such as Building Resilient Infrastructure and Communities (BRIC). In April, over \$700 million in pending applications for resiliency projects in Louisiana were cancelled by the Trump administration which cited the BRIC program as “wasteful and ineffective.” The loss of these programs further threatens funding that could potentially be put towards critical infrastructure improvements.

As noted in the preceding section, the Louisiana Water

Sector Program has allocated over \$300 million in American Rescue Plan funds to Louisiana water projects and has additional resources available. However, given the immense current funding needs and expected increased funding shortfalls over the long term, Louisiana will not be able to solve their funding problems with federal sources alone. As stated by the Louisiana Department of Environmental Quality (LDEQ), the Clean Water State Revolving Fund administered by LDEQ provides financial assistance in the form of low interest loans to finance eligible projects and bring them into compliance with the Clean Water Act. Funding for this program is provided by federal grants and match funds generated by the program’s interest and loan repayments. Interest and loan repayments provide a permanent source for funding in future Louisiana projects. It may also be necessary to evaluate the adequacy of drinking water rates and make adjustments to keep up with current elevated rates of inflation.

The law which dedicated \$50 billion to drinking water, wastewater, and stormwater infrastructure was a step in the right direction but still fell drastically short of the nearly \$500 billion the EPA estimates is needed for the U.S. as reported in the 2018 Needs Assessment Report.

FUTURE NEED

The current population of the state is approximately 4.6 million, a slight decrease from 2017, but projected to surpass 5 million by 2030. The state is still fighting rural water supply challenges, and a growing population will further strain those systems, but there is more potential for funding opportunities than in 2017.

On September 6, 2023, the US Environmental Protection Agency (EPA) issued its 7th DWINSAs to Congress. As noted in the fact sheet, the survey assesses the nation’s public water systems’ infrastructure needs projected over the next 20 years and is used to allocate Drinking Water State Revolving Fund (DWSRF) grants. The report concluded that the 20-year investment gap is \$625 billion for the nation, a 32% increase over that of the 6th DWINSAs released in 2018 which was \$472.6 billion.

The total 20-year need for the state of Louisiana was determined to be over \$9 billion, see Figure 1, with the greatest needs being attributed to small and medium DWS, which account for over \$7 billion of the needed funding. Louisiana’s need types closely mirror that of the national needs with the vast majority being attributed to Distribution and Transmission (roughly 70% of the total). Treatment accounts for approximately 16% and storage approximately 8%. Source water and “other” combine to account for the remaining 6%.

Louisiana will need to replace a significant number of LSLs, aging infrastructure, and make other O&M investments as documented in DWINSAs. The cost and scale of future needs currently exceed the means to pay for such improvements and maintenance. As noted in the Funding section, as costs continue to rise

due to inflationary trade and economic policies, drinking water rates may be forced to adjust upward to keep

up with rising costs of O&M and necessary system improvements.

RESILIENCE

Since the publication of the 2017 Louisiana Infrastructure Report Card, the state has faced some of the strongest hurricane seasons on record punctuated by the 2020 and 2021 seasons which delivered Hurricanes Laura and Ida and other damaging events. These two storm seasons devastated communities across southern Louisiana and significantly impacted much of the state as they pushed inland. Hard hit areas such as Calcasieu and Plaquemines Parishes were left without reliable drinking water for weeks-to-months hindering recovery efforts to the surrounding communities. Although these are extreme events, emergency systems and added redundancy will only become more vital in the future as Louisiana communities face increased frequency and intensity of tropical weather.

The 2021 hurricane season was followed by a near historic low level in the Mississippi River. This sharp decline in river flow allowed a saltwater wedge to move upstream, posing a water quality threat not seen since 2012—and before that, 1988.

INNOVATION

Louisiana has continued to grow research partnerships through The Water Institute, an independent, non-profit, applied research organization, and Universities within the state of Louisiana. Additionally, The Louisiana Coastal Protection and Restoration Authority offer educational opportunities to students and the public which can aid in teaching the community about certain aspects of the water cycle and how they can help to protect drinking water sources.

According to the 2023 national Needs Assessment Survey, Louisiana lags behind the national average (5%) for percentage of “green needs” water infrastructure projects. Green needs have traditionally been defined as the environmental, social, and economic requirements for

Although also a very rare phenomenon in the state, Louisiana has experienced multiple ice storms in the past five years which created intermittent water service disruptions in certain areas. These environmental stressors to drinking water supply and distribution systems highlight the need for continued improvement of infrastructure and continued development of management plans that take into account ever-changing climate risks.

LDH suggesting the construction of additional backup power generators and other system redundancies. Since then, Louisiana was hit by repeated strong hurricane seasons that revealed other system insecurities resulting in numerous days without reliable water distribution and supply. Although precise data was not available for the total number of people impacted and the total duration of water service disruption, interviews and other first-hand accounts confirm that the loss of service was widespread and persisted for a significant duration.

providing a safe, affordable, and sustainable water supply. These programs can include restoration and protection of water sources, programs and technologies promoting conserving water, managing infrastructure sustainability, and addressing social and equitable needs such as improving access for underserved communities.

As noted in previous sections, the implementation of the Water Sector Program has promoted innovative O&M solutions such as consolidation of underserved communities into larger water service management thus facilitating better reliability. These innovations are primarily administrative and managerial changes intended to increase efficiency of operations and reduction of costs.



RECOMMENDATIONS TO RAISE THE GRADE

As part of the effort to research and compose this report, a number of questionnaires were distributed to water system managers and public works departments of parishes and municipalities around the state. Those questionnaires asked for needs, approximate downtime resulting from specific events such as hurricanes as well as general system fixes, and lastly what significant improvements have been made since 2017. The following items highlight the improvements reported during the collection of data for this report.

- Terrebonne Parish reported significant infrastructure improvements including pipelines, pump stations, and other distribution network features totaling over \$13 Million in upgrades.
- Cameron, one of the areas hardest hit by Hurricane Laura, rebuilt much of its system. The improvements are noteworthy; however it was also indicated that they are in need of the disaster funding promised to the community to help pay for the improvements as well as their upkeep.
- Calcasieu Parish reports plans of a new water treatment plant along with rehabilitation of existing plants following Hurricane Laura.
- All of the returned questionnaires indicated that funding is a persistent concern.

These improvements are commendable, and show that where funding has been made available, positive changes have been made. However, in areas of the greatest need, funding has not always been sufficient.

- **Evaluate and address system redundancy shortfalls identified during recent natural disasters.** In 2017, it was noted that the state struggles at times to provide potable water to all of its citizens under normal circumstances and that a natural disaster could greatly exacerbate the problem leading to greatly inhibited recovery efforts. This was exactly the case in the hurricane seasons of 2020 and 2021. We recommend that there be a continued push for greater redundancy, in the state's major population centers, particularly in areas at greatest risk of climate impacts.
- **Strengthen State-Federal partnerships to capitalize on investment opportunities created by the IIJA.** In past report cards, lack of funding has been a key struggle to improving the grade. Although that challenge persists, the passage of the IIJA presents an opportunity for significant infrastructure investment. It's incumbent on state agencies and government to make the most of that opportunity while continuing to work towards an increase in funding through state and federal grants, loans and other funding streams. Current threats to funding opportunities established prior to 2025 will demand robust advocacy to protect those funds from rescission.
- **Ensure the sustained sufficiency and reliability of the Revolving loan fund.** Just as was reported in 2017, it should be a priority of the state to ensure that projects listed in the Needs survey are completed and repaid in a timely manner. Adequacy of rates may need to be re-evaluated and adjusted due to uncertainty of federal commitment to funding infrastructure needs.
- **Evaluate and protect water sources through research and policy implementation.** Continued increases of pumping and surface water withdrawals should be monitored and managed to prevent an increase of saltwater intrusion and/or other potential threats to water quality.

Drinking Water



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Levees



GRADE
COMPARISON

LA: C
Nat'l: D+



LEVEES

EXECUTIVE SUMMARY

To protect property and lives from severe flooding, 21 Louisiana levee districts oversee more than 3,500 miles of levees that are critical flood protection for more than 3.5 million people, over \$380 billion in property and more than 19,000 square miles of land area. Of these, approximately 2,500 miles are river levees, and 429 miles are hurricane protection levees. Louisiana utilizes multiple Federal Project Authorizations to construct flood defenses including the Mississippi River and Tributaries Program (MR&T), the Hurricane Storm Damage Risk Reduction Systems in the Greater New Orleans Area, and several other programs designed to protect against riverine or tropical flooding events. Since the 2017 Report Card for Louisiana's Infrastructure, the Morganza to the Gulf system was authorized and began receiving federal funding. Additionally, the West Shore Lake Pontchartrain Project was fully funded and began construction. Further investment in hurricane protection and riverine systems is needed to strengthen Louisiana's flood resilience, as levee expansions remain short of desired design standards.

BACKGROUND

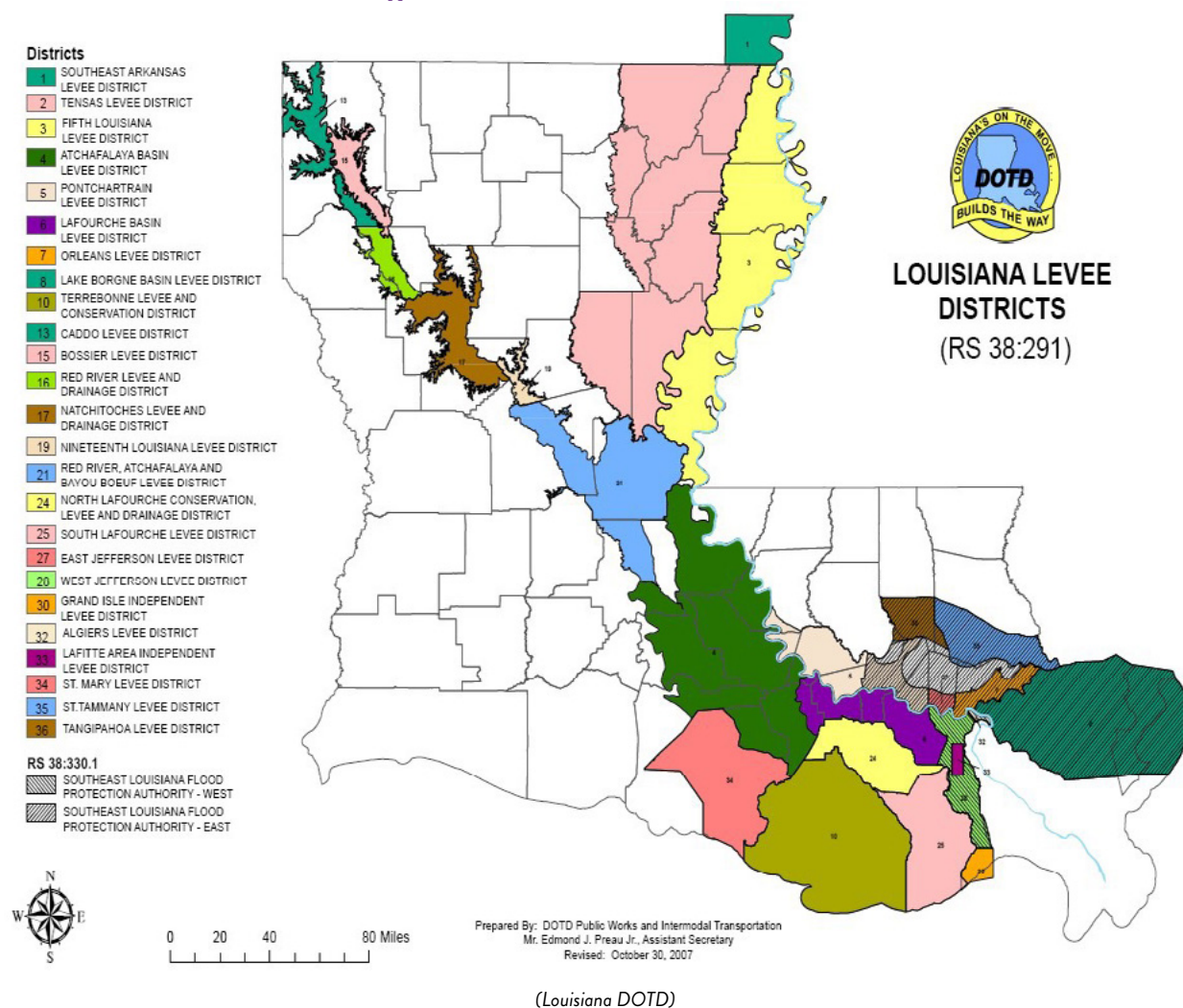
Louisiana sits at the base of the Mississippi River Drainage Basin – the third largest drainage basin in the world. Tributaries reaching into portions of 31 U.S. states and two Canadian provinces feed into the Mississippi River, see Figure 2, which snakes through Louisiana and into the Gulf of Mexico. Also, Louisiana's location on the Gulf of Mexico puts it in the path of

tropical storms and hurricanes with the potential to push tidal surges many miles inland.

Levees, floodwalls, control structures and gates are instrumental in ensuring that this water is controlled, especially in the case of floods and severe weather. The Mississippi River levees have evolved from the mid-1800s to today (see Figure 3).

Further investment in hurricane protection and riverine systems is needed to strengthen Louisiana's flood resilience, as levee expansions remain short of desired design standards.

Figure 1 – Louisiana Levee Districts



CAPACITY AND CONDITION

Louisiana's 21 levee districts oversee more than 3,500 miles of levees that provide essential flood protection for the state. Of this system, about 2,500 miles are river levees that manage seasonal flows and protect communities along the Mississippi and other waterways, while 429 miles are hurricane protection levees that serve as the front line of defense against storm surge and coastal flooding. 95% are earthen embankments and 5% are concrete floodwalls. Together, these levees form the backbone of Louisiana's flood protection infrastructure, safeguarding not only lives and property but also the state's economy, environment, and way of life.

Twenty-eight percent of levee districts in the state

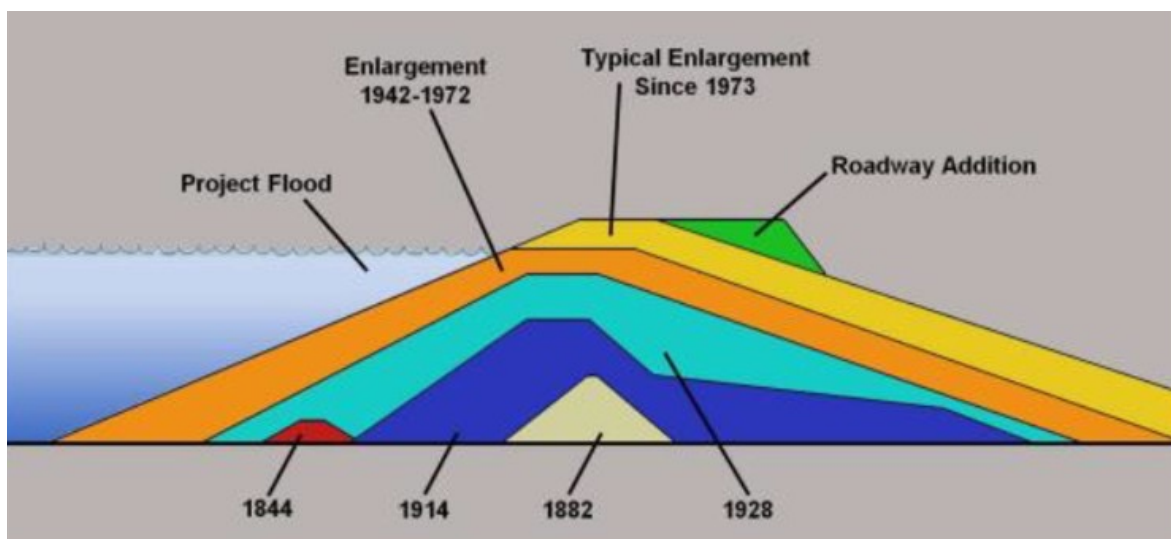
are prepared for 100-year flood levels, and 4% are prepared to handle 20-year floods or better, and the design criteria for the remaining 68% of the levees are unknown. The capacity of levee systems in Louisiana continues to improve annually with substantive investment from local, state, and federal interests. Because of Louisiana's unique position, it is critical that we continue to pursue increased risk reduction capacity for all residents. The average age of levees in the state is 69 years, compared to the national average of 61 years. As levees age, they demand more frequent maintenance and monitoring to ensure they can continue providing reliable protection for the communities behind them.

Figure 2 – Mississippi River Basin of the United States of America



(National Operational Hydrologic Remote Sensing Center)

Figure 3 – Evolution of Mississippi River Levees



(USACE, Vicksburg District)

PUBLIC SAFETY

Levees play an important role in protecting the public from flooding events in the state. Levees in the state protect more than 3.5 million residents, over \$380 billion in property, and roughly 19,000 square miles of land. Public safety is impacted both by the condition of the levee system as well as the impacts associated with failure. Well-maintained and low-failure impact systems provide strong public safety, but poorly maintained systems or well-maintained systems with high failure impacts reduce the public safety rating.

Beyond condition inspections, the National Levee Database (NLD) also assigns levees a risk level based on the potential consequences of failure. These categories—very high, high, moderate, low, and very low risk—reflect the expected impacts on life, property, the economy, or the environment if a breach or system malfunction were to occur. Importantly, risk ratings do not indicate the levee’s physical condition, but rather the severity of consequences should a failure happen.

According to the National Levee Database (NLD), 3.5% of levee systems are rated high risk, 5% are rated moderate risk, 13% are rated low risk and 78.5% have not been screened for a risk rating.

Substantive failures of levee systems were not uncommon prior to Hurricane Katrina in 2005. Following Hurricane Katrina, the newly constructed levee systems around New Orleans as well as the other levee systems under development along the coast have responded successfully to multiple surge events culminating in Hurricane Ida in 2021. Additionally, Hurricane Francine in 2024 provided the record surge to the Houma region and the Morganza to the Gulf System successfully defended against the surge with no structures inside of the flood protection impacted by surge induced flooding. While the risks associated with a failure can be great, the coastal flood protection systems have been severely tested and have stood up to these tests.

OPERATION AND MAINTENANCE

Operation and Maintenance (O&M) of levees within Louisiana is largely accomplished by local levee districts with money acquired through ad valorem taxes as well as state appropriations. The USACE funds provide most of the O&M criteria for major maintenance of Mississippi River levees.

State and local parish funding for general O&M is generally adequate and typically covers minor maintenance needs such as slough repairs, rutting, and mowing. However, coastal levees in South Louisiana

require ongoing investment to address settlement, geologic subsidence, and sea level rise. To maintain their protective capacity, these levees and floodwalls must be periodically raised.

Based on a survey conducted by ASCE, 30% of levee districts indicated that funds, equipment, and personnel are adequate to meet or exceed O&M requirements, whereas 70% found substantial needs in order to address O&M.

FUNDING AND FUTURE NEED

Funding for major maintenance for the MR&T is provided by the USACE and authorized by Congress. Through appropriations like the Disaster Relief Supplemental Appropriation Acts of 2022 and 2025, funding has been made available to the Mississippi Rivers and Tributaries program for repairs and enhancements to the MR&T program following High River events. Local levee districts and municipalities are responsible for operation and maintenance of their own systems

once completed. Previously, local taxes were generally sufficient for O&M and minor repairs; however, many of these local entities will not generate sufficient funding to adequately maintain their systems. For example, the Lake Borgne Basin has an annual shortfall of \$3.5 million as a result of O&M requirements of the Hurricane and Storm Damage Risk Reduction System (HSDRRS) features.

The MR&T Project, a comprehensive river management program managed by the USACE, provides protection to the 36,000 square-mile lower Mississippi Valley. A recent re-evaluation of the MR&T system's performance and capabilities to handle the project design flood was completed in 2018. The results of this study are guiding the USACE in their deployment of improvement funds for the MR&T project.

According to the 2023 "Comprehensive Master Plan for a Sustainable Coast", \$14 billion is needed for structural risk reduction in Louisiana. According to the Master Plan, this investment will save more than \$7.7 billion in annual economic damage by year fifty, meaning such investments will pay for themselves over the course of plan implementation. An additional

RESILIENCE

Levees need to have the capacity to resist scour and erosion for extended periods from currents or overtopping of flood waters and waves if conditions exceed the 100-year elevation. This is provided by armoring of levee slopes and with proper vegetation. Levees were judged based on armoring, vegetation, and seepage related issues. With the exception of the levees improved after hurricane Katrina in the New Orleans area by the additional of splash blocks and levees that have been or will be armored with vegetative mats, little has been done other than implementing lift programs for enhanced elevation since the last report card in

INNOVATION

The rapid adaptation of drone technology is being harnessed to map areas and populate geographic information systems at an astounding rate as demonstrated by the National Levee Database. This dataset has enabled more robust evaluation and communication of flood protection condition and helped to prioritize the proper funding streams for those areas that most impact life and property. Remote sensing and real-time monitoring continue to be an area of intense interest in the flood protection community. It is now possible to couple Shape Accel Array (SAA) inclinometers, GPS monitoring sensors, robotic

\$11.2 billion is needed for nonstructural risk reduction which could further reduce expected annual damage by an additional \$3 billion. The Coastal Protection and Restoration Authority (CPRA), the agency responsible for drafting and publishing the Master Plan, is dedicated to identifying projects to be included in the document as well as securing funding for project implementation.

Comprehensive Coastal Flood Protection will require the execution of the federally authorized surge risk reduction programs in coastal Louisiana. These programs include the St. Tammany Flood Risk Management Project, the Morganza to the Gulf Risk Reduction Project, the Southwest Coastal Louisiana Risk Reduction Project, and the Upper Barataria Basin Risk Reduction Project.

2017 to improve the resilience of levees in Louisiana.

All levee districts in the state stand ready to combat breaches in their respective systems to the extent possible in partnership and coordination with the USACE as well as the CPRA. Resources such as HESCO bastions, supersack sandbags, sand and rock stockpiles, and equipment as necessary for deployment are tracked annually to ensure that adequate resources can be supplied in support of any Levee District needing assistance.

total stations (RTS), strain gages, and vibrating wire piezometers that measure water pressure, through cost efficient data logging and communication technologies. These new instruments provide data to assess whether a levee is performing as designed. Another advanced technology implemented involves interferometric synthetic aperture (InSAR) monitoring of the HSDRRS system. This technology involves repeat measurements and processing of space and airborne radar scenes to determine whether vertical changes in elevation or subsidence of the ground surface and HSDRRS components are occurring.

Levees



RECOMMENDATIONS TO RAISE THE GRADE

- Encourage federal appropriations based on fully-authorized funding for adequate O&M for the new HSDRRS for the gates and pump stations, as well as future levee lifts to maintain the 100-year elevation as levees subside and sea level rises.
- Support elevation of low portions of levees above the freeboard grade (ultimate height above design flood event).
- Promote federal funding to update hurricane protection levees in Louisiana, such as The Morganza to the Gulf Project and the West Shore Lake Pontchartrain Project, that do not meet the 100-year level or do not meet current design standards. This current design event should be re-evaluated and revised to a higher level. Re-evaluation should consider potential risks and losses.
- Encourage federal funding to install, maintain, and monitor instrumentation for flood protection structures. This recommendation is made to mitigate risk and develop the design basis for future flood protection improvements.
- Propose alternative funding sources, or absence of funding, other risk reduction measures such as better outreach/education and warning and evacuation systems.

SOURCES

Coastal Protection and Restoration Authority, “Louisiana’s Comprehensive Master Plan for a Sustainable Coast”, 2023.

U.S. Army Corps of Engineers, “National Levee Database”, n.d.

Photo: Broken levees pouring water into towns, during massive floods;Topaz

Ports



Photo: Shipping and transportation on the Mississippi River at New Orleans; Steve

GRADE
COMPARISON

LA: D+
Nat'l: B



PORTS

EXECUTIVE SUMMARY

Louisiana's public ports system is composed of 40 port authorities and one private offshore port, the Louisiana Offshore Oil Port (LOOP). Both before and after the COVID-19 pandemic, top ports in the state handled between 500 and 550 million tons of goods with vessel dwell times mostly holding steady despite the supply-chain crisis. In 2016, funding for the Louisiana Department of Transportation and Development's (LADOTD) Port Construction and Development Priority Program (PPP) doubled to \$40 million annually, supporting important work. However, outstanding capital project needs outweigh existing funding.

BACKGROUND

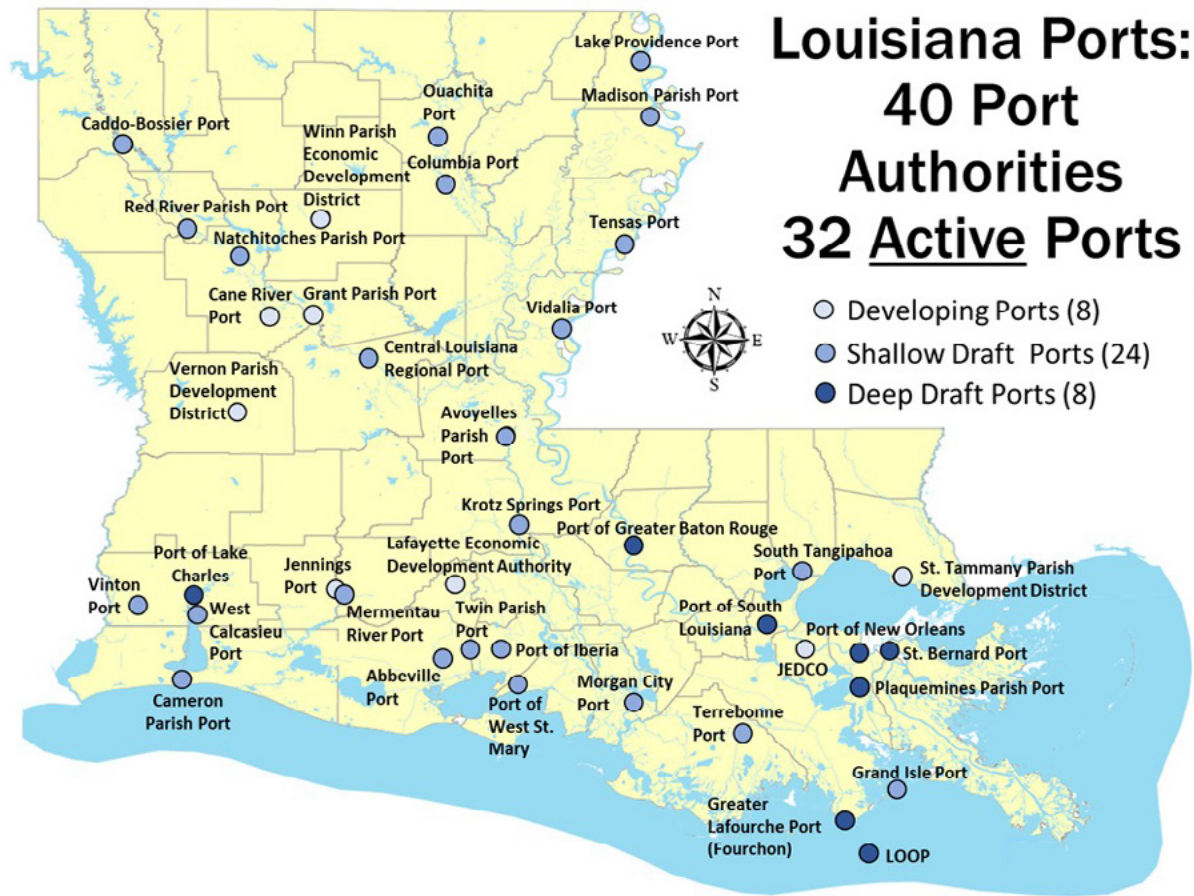
Ports in Louisiana are categorized into the following categories: deep draft, coastal shallow draft, inland shallow draft, and developing ports. The 40 ports break down, shown on Figure 1, as follows: LOOP, seven deep draft ports, 12 coastal shallow draft, 10 inland shallow draft, and eight developing. The seven deep draft, which on average have harbors 25-50 feet deep, ports focus on freight movement, the oil and gas service industries, shipbuilding, and fabrication. The 12 coastal ports concentrate on the oil and gas service industries, shipbuilding, and fabrication. The 10 inland ports service local and regional markets for cargo movement, manufacturing, and related service industries. The eight "developing ports" have no current port functions as they do not have access to commercially navigable waterways.

In May 2022, on behalf of the ASCE Louisiana Section, the Report Card authors issued a standardized survey to the Louisiana Ports. Of the 32 operational ports, 24 responded. Ports were asked a series of questions with

multiple options that were later assigned a grade. For example, when asked what the state of the port's funding was, funding was defined as "measured by the current level of funding already committed or available to your port compared to your port's capital funding needs." The port was then asked to choose between five statements that ranged from "Port has funding for the next 10 years for all capital improvement needs" to "Port has no funding available or committed for capital improvements." When all responses were in, the statements were assigned a grade A, B, C, D, or F. The resulting grades are what you see in the table below.

Changes in grades are being driven by capacity needs and extreme weather events that affect condition and public safety.

Figure 1: Louisiana Public Port System



(source: LADOTD, Port Construction and Development Priority Program 2025 Annual Report)

Table 1: Report Card Results

Report Card Topic	2022 Survey Grade	Comparison to 2017
Capacity	D-	↓
Condition	C	↓
Funding	D	=
Operation & Maintenance	C	=
Future Needs	C	=
Innovation	C-	=
Resilience	B-	↓
Public Safety	C+	↓

Changes in grades are being driven by capacity needs and extreme weather events that affect condition and public safety. On the one hand, the ports have grown and have been utilizing a larger percentage of their facilities, therefore they have larger capacity needs. Many opportunities in additional power and fueling

sources have surfaced over the last 5-8 years that have led to increased leases and commitments. This includes carbon sequestration, clean energy sources, and innovative fueling alternatives driven in large part by foreign shippers' needs.

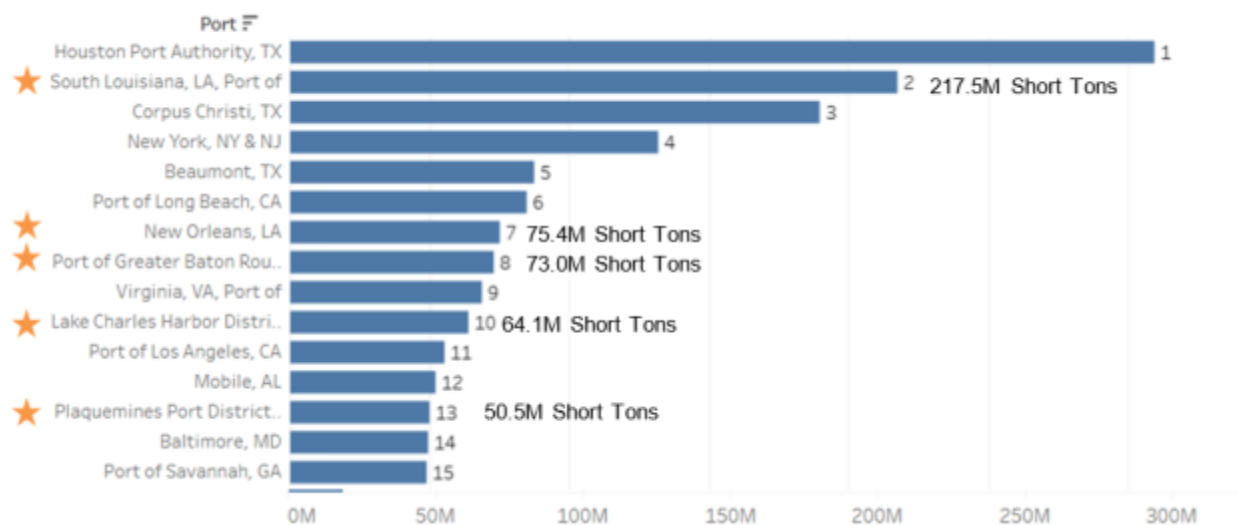
CAPACITY

Louisiana's ports create jobs and promote economic development. The state receives on average \$5 in taxes, jobs and benefits for every \$1 invested in ports. A 2023 analysis of Louisiana's water navigation system estimated that 525,000 jobs – one in five jobs within the state – are connected to the maritime industry, with waterborne freight generating more than \$182 billion in annual economic output. Moving goods on water is significantly more cost efficient and environmentally friendly than other modes of transportation. In 2020, 239 million tons of waterborne freight moved along

the Louisiana inland waterways system, an amount that could otherwise be carried by six million 80,000-pound tractor-trailers that congest and deteriorate roadways and produce greenhouse gas emissions.

The Lower Mississippi River is often called the "Gateway to the Americas" because it facilitates the movement of goods between a sprawling network of states. According to the BTS 2024 report to Congress on port performance, five of the country's top 15 ports by tonnage are in Louisiana (see Figure 2).

Figure 2: Port Rankings by Total Tonnage



(BTS 2024 report to Congress on port performance)

Louisiana is home to the intersection of the Mississippi River and the Intracoastal Waterway, through which roughly 97% of all U.S. tonnage passes. Exports from Canada and 28 states move down the Mississippi River, and 56% of U.S. grain exports travel through Louisiana ports. The coastal and shallow-draft ports provide a vital role in the nation's oil and gas industry, as Louisiana is

the nation's third-largest producer of natural gas. Also, Louisiana's Port Fourchon provides services to over 95% of the service vessels for the Gulf of Mexico's deep water energy production.

Most Louisiana ports feel that their capacity is either currently maximized or will be maximized within the next five years, though the Bureau of Transportation Statistics

(BTS) 2023 annual report to Congress suggests a longer runway. Only five ports reported that they believe their capacity will be serviceable beyond the next five years. Ports that have not had the opportunity to invest in expansions or new facilities are also concerned that without adequate funding, they will face limitations in attempting to accommodate forthcoming growth opportunities.

To address constraints, many of the ports have embarked upon expansion efforts in recent years. The Ports of New Orleans, Iberia, Morgan City, Lake Charles, West Calcasieu, St. Bernard, and Caddo-Bossier, among others, have refurbished wharves, bulkheads, and warehouses to accommodate growth and new tenants. The Port of New Orleans has purchased new cranes and

extended the crane rail for their current container yard, as well as initiated the construction for the Louisiana International Terminal, a new and larger container processing facility across the river in St. Bernard Parish (which lies wholly within the Port of New Orleans jurisdiction). The Port of Lake Charles is also developing another region of their jurisdiction, the Industrial Canal Complex, to add to their port operated City Docks (the only owner-operator port in the state) and their Bulk Terminal across the Calcasieu River. The Port of Morgan City is more than doubling their wharfage with the Western Dock Expansion Project, and many other ports are expanding their footprints by purchasing vacant properties, refurbishing and putting them back into commerce with new tenants.

CONDITION

Most ports can identify some major maintenance needed on 25%-50% of their infrastructure. These needed maintenance items may not substantially impact port business operations, however more than a third of ports in Louisiana that responded to ASCE's survey reported that more than 50% of its facilities have major maintenance needs and some port business operations will likely be disrupted during repairs. Ports struggling with funding are more likely to face deferrals on needed maintenance.

Most Louisiana ports suffered hurricane and extreme weather damage to cranes, warehouses, wharves, and docks, leaving them facing long timelines and heavy bureaucracy to secure funding through the Federal Emergency Management Agency (FEMA) for repairs or replacements. Louisiana's unstable soils from riverine land-building create stability challenges, driving frequent road and facility upgrades, while aging infrastructure compounds the strain: the Port of New Orleans is re-upgrading container yards, Morgan City

has rebuilt a laydown yard twice in five years, St. Bernard is reinforcing warehouse floors for heavier cargo, and Terrebonne stabilized soils to host a massive floating fish-processing vessel.

Louisiana's geomorphology creates constant dredging challenges, with northeast Mississippi River ports facing low-water restrictions during harvest season and the state's five deep-water ports contending with saltwater intrusion. The ports along the GIWW were impacted when Hurricane Ida moved masses of marsh flotant into the waterway, shutting it down completely, and the U.S. Army Corps of Engineers (USACE) constantly battles liquid mud to keep the Port of Morgan City open and operating. The Red River Waterway Commission is investigating the possibility of both deepening and extending beyond its current authorization upriver of Louisiana, and the Ouachita-Black system has been downgraded by the USACE, preventing growth of the Columbia and Ouachita Ports.

FUNDING

Most capital funds for port infrastructure in Louisiana come from the ports themselves in the form of bonds and capital reserves from self-generated revenue. These revenue sources are under considerable stress. Many ports have reached their bonding capacity, which is

laid out in their charters, and self-generated revenue is becoming harder to sustain in the current economic environment due to rising costs of labor and materials while leases are locked in at a steady rate. Although one-third of ports reported having funding for some capital

improvements over the next five years, the remaining ports reported they have very limited to no funding for any capital improvements during the same period.

Important additional capital funding for port infrastructure comes from state government sources, such as the LADOTD's Port Construction and Development Priority Program (Port Priority Program), the Capital Outlay Program implemented during the annual spring Louisiana Legislative Session, as well as occasional grants from Louisiana Economic Development (LED). LED is responsible for strengthening the state's business environment and creating a more vibrant Louisiana economy by cultivating jobs and economic opportunities for the people of Louisiana.

The 35-year-old Port Priority Program is a competitive grant requiring a public port authority sponsor to cover engineering, soft costs, and a 10% construction match; projects must show a Benefit-Cost Ratio above 1 and a State ROI over 2.375, with annual funding averaging \$20 million until FY 2016 and \$39.4 million since. These annual legislative appropriations are discretionary and not guaranteed, which creates uncertainty that port authorities find difficult to plan around. The \$39.4 million appropriation level from 2016 would now need to be \$50.1 million to keep pace with inflation. Without dedicated funding that includes escalation for inflation, it is difficult for planners to count on this funding to cover projects. The current backlog for the construction and development priority program is over \$200 million.

The Capital Outlay Program is the second most utilized state funding source for Louisiana public ports. In 2024, the program appropriated a total of \$93.7 million to 17 ports. These funds require a match of at least 25% of the total requested amount. In addition, submitting a Capital Outlay request typically requires the port to pay a \$30,000 fee. The average amount granted to ports from the Capital Outlay Program is roughly \$100 million, but these allotments are random and subject to political influence, not necessarily given according to what ports need to encourage growth of the entire port system.

Other important sources of funding are federal grants and loan programs. Federal grant opportunities have

significantly expanded in recent years, with the 2021 Infrastructure Investment and Jobs Act (IIJA) creating several new programs in various agencies. In 2024, the Port of New Orleans was awarded \$300 million for a new international container terminal. The new terminal will be able to accommodate larger vessels than the terminals located farther inland on the Mississippi River. One challenge to accessing available funds is that many, if not all Louisiana ports, or their projects, do not meet the minimum size criteria set up for some federal grant programs. For example, some rules outlined in Notice of Funding Opportunities (NOFOs) identify a port by the amount of tonnage they handle, size of the jurisdiction, or waterway draft that services the port. Rules like that make it so that only four or five ports on the east and west coasts are eligible to apply. Another example would be that originally the Port Infrastructure Development Program (PIDP) required a minimum project size of \$10 million or greater and a 20%+ cost share. Many projects do not meet this threshold, and access to match funds also proved challenging. However, PIDP recently included a small port set-aside, and the coastal shallow draft Port of Morgan City received \$10 million in FY 2022 for a new phase of its Western Dock expansion.

Despite these ample programs, ports still struggle to keep up with grant opportunities, particularly those with smaller staff or lack funding for consultants. A facilitating entity on funding opportunities can better assist smaller ports in navigating the application process. In some cases, ports will partner with their terminal operators and tenants to make capital improvements. In these cases, the tenants do this in return for reduced lease rates, which in turn reduces the Port's revenues and cash on hand to fund E&D, grant writers, and match funds.

Some Louisiana ports are pursuing new kinds of partnerships. A new public-private partnership at the Port of New Orleans will add a \$1.8 billion container facility – the Louisiana International Terminal – on the Lower Mississippi River. The terminal operator Ports America and the Mediterranean Shipping Company, two private organizations, committed \$800 million for the project, which will take advantage of a deeper Mississippi River Ship Channel and the location eliminates any height restrictions from the river-crossing bridges.

OPERATION AND MAINTENANCE

Maintaining aging infrastructure is essential to efficient operations and safety. While half of the ports indicated they have a routine, preventative maintenance program and a periodic inspection program to identify, budget, and schedule repairs, the available funding is less than what is needed. Unfortunately, a few ports are only able to address infrastructure maintenance when operational problems or non-compliance violations are reported.

At many Louisiana ports, slips and warehouses damaged by storms and left idle after delayed insurance or FEMA funding require major investment before they can return to use. Grants can help but face drawbacks, as seen at the Port of West Calcasieu, where a 2019 warehouse repair was delayed until late 2024 due to limited staff and complex

coordination with insurers, FEMA, and permitting agencies.

Workforce development is another issue for the state. The state university system, the community college (CC) system, trade schools, and industry have been working together to make great improvements and create new programs to educate and train the needed workforce. For example, the Nunez CC just launched a maritime operations certificate program, Nichols Maritime Academy was launched in 2024, and Weeks Marine invested in the Maritime Program at the Northshore Technical CC. However, a lack of affordable housing and availability of homeowners insurance in the coastal zone remains a challenge for workforce development for the whole state, not just ports.

PUBLIC SAFETY

Public safety is a team effort for ports, waterway stakeholders, vessel operators, dock owners, and government agencies, such as the USACE and the U.S. Coast Guard. In addition to durable goods like metals, ore, project cargo, super sacks, palletized and containerized goods, Louisiana ports move considerable agricultural and manufacturing inputs, including fossil fuels and toxic chemicals. Contamination from spills or other incidents poses serious hazards to the safety and welfare of the general public and natural ecosystems. Most Louisiana waterways have public access points with boat ramps near port activities.

In 2023, Louisiana State University (LSU) and some of Louisiana's largest ports established a partnership to further the cybersecurity capabilities of those facilities and invest in local students during a challenging time for workforce development. The agreement between LSU and port partners outlines opportunities for students and faculty members to work together to solve ongoing and emerging cyber challenges.

In FY 2023, FEMA awarded nearly \$5 million to

Louisiana Ports from the Port Security Grant Program. Program funds are used to develop and improve facility security plans among port authorities, facility operators, and state and local government agencies. Also in 2023, the state legislature allocated \$5 million for security projects that the ports applied to utilize. In 2024, a total of 11 ports applied for and all \$5 million were allocated to projects ranging from security fencing and guard stations to surveillance upgrades such as cameras and drones.

Almost all ports maintain safety records and a full two-thirds of respondents to the ASCE survey stated that the port infrastructure meets all applicable codes and regulations and has a very good safety record. Port responses showing reduced capacity and condition reflect compromises in safety. For example, if the maintenance on a port rail spur is deferred, the rail line that services the port can become unsafe, causing derailments or the mainline rail company ultimately refusing to service the port. When wharf or fender systems fall into disrepair, mooring bits can fail and vessels can be damaged or further damage the wharf, compounding the issue.

RESILIENCE

Louisiana has experienced many natural hazards, from Category 5 hurricanes and tornadoes to record rainfall, flooding, and ice storms. Ports have also experienced major hazardous material spills, from marine accidents in the waterways to the Deepwater Horizon oil spill along the Gulf Coast in 2010. According to NOAA's database, 57 major hurricanes (over \$1 billion in damage) have either made landfall in or have tracked over Louisiana since the mid-19th century through 2023, averaging one every three years.

What is most challenging about these storms is the lack of consistent recovery assistance. Although hurricanes in 2020 left southwest Louisiana in tens of billions of dollars in damage, no assistance was issued until almost a year later after Hurricane Ida hit, and that storm caused over \$20 billion in damage by itself. Then, there was only \$3.1 billion in assistance issued. Between severe winter weather, flooding and hurricanes, the Louisiana Office of Community Development Proposed Master Action

Plan found that 49 parishes (of 64) across the state received a disaster declaration for FEMA between 2020 and 2021.

Something positive that comes from these disasters is that ports build back stronger. Safety codes have become more stringent and newer, more durable products exist now that are marketed especially for adaptability and resilience. For example, to prevent water intrusion, newly introduced products include aqua-dam tubes, sandless sandbags, and mobile as well as permanent panel floodwalls. When new buildings are constructed, the land is built up, and when older buildings are refurbished, they are adapted for resilience. The Port of Iberia, conscious of their susceptibility to tidal flooding, has modified existing warehouse walls by installing louvers in frequently affected warehouses to allow flood waters to recede without damaging the buildings, and have mandated that any office spaces inside warehouses are elevated.

Figure 3: Hurricane Ida Damage at Port Fourchon



(AP Photo/Gerald Hebert)

Past recovery and restoration efforts have offered lessons for ports. Most ports now have formal, written hazard mitigation plans, disaster recovery plans, port security plans, resiliency plans, and provide staff training for disasters. Almost all ports staff are aware of the most likely and most damaging threats to their facilities,

but there are still a few that have not considered pre-planning or training for multi-hazard threats. As natural hazards increase in frequency and intensity, and port activity grows, Louisiana should continue identifying and funding projects to maximize resilience.

INNOVATION

Considering the duration required in the current standard process to plan, design, and perform major maintenance and repairs while building new port infrastructure, some port owners have used alternative means of project delivery when legislatively approved to do so. For example, they may use Construction Manager at Risk (CMAR) contractor relationships rather than Design-

Bid-Build. This method is ideal at older ports that have multiple generations of old and existing infrastructure, and when the port needs continuous operations during construction. Both the Port of Lake Charles and the St. Bernard Port have taken advantage of the CMAR process with others considering it.

Figure 4: CMAR Berth Rehabilitation at Port of Lake Charles



(Photo courtesy of the Port of Lake Charles)

Ports have also reported incorporating new technologies and sustainability practices, though such technological advancements are more difficult for smaller ports. One example of this is at Port Fourchon, where they installed an array of air quality and greenhouse gas emission sensors in 2022 as part of an effort to track environmental hazards released as part of port activity. Shore power has

been installed, and the port can now track the impacts. The facility also uses sediment materials from dredging new slips to grow the port as inputs into its construction projects as well as building and reclaiming land to operate on. The Port has also begun work to support offshore renewable energy projects, which require large-scale shoreline infrastructure.

The Bar Channel at the Port of Morgan City, the last 18 miles to the Gulf of Mexico from Morgan City, was subject to large infilling rates of fluid mud referred to as “fluff”. The refill rate in that area was three feet per month upon completion of each dredging cycle, and there was only enough funding to dredge once a year, or sometimes less frequently. The Port, the USACE, Halimar Shipyard, and Brice Civil Constructors, Inc. worked together to build an agitation dredge that achieved a sole-source contract from the USACE that is funded for years at a time to run 24/7. The operation of the specialty-built dredge on the Atchafalaya River is proving that innovative dredging techniques can provide an efficient and cost-effective, with costs at approximately 15 cents/cubic yard, solution for channel maintenance.

Port Fourchon installed an array of air quality and greenhouse gas emission sensors in 2022 as part of an effort to track environmental hazards released as part of port activity. The facility also uses sediment materials from dredging as inputs into its construction projects as well as building and reclaiming land to operate on. The port has also begun work to support offshore renewable energy projects, which require large-scale shoreline

infrastructure.

In addition, Louisiana recently received a \$3 million Climate and Air Quality Planning (CAQP) Competition grant from the Environmental Protection Agency’s (EPA) Clean Ports Program. This was an especially groundbreaking award as all active ports in the state are participating together. This grant, which supports efforts to reduce pollution and transition to zero-emissions operations by evaluating each port’s current emissions inventory and evaluates opportunities for the port to implement reduction measures, covers all 32 operational ports in Louisiana.

Ports have also reported incorporating new technologies and sustainability practices, though such technological advancements are more difficult for smaller ports.

FUTURE NEED

About one third of ports surveyed identified funding sources for 50% or more of their infrastructure needs. Another third identified future funding sources that can support only about 25% of their infrastructure needs. The last third identified funding sources for 10% or less of their needs. In 2016, the Louisiana State Legislature increased the annual funding for the Port Priority Program to \$39.4 million. Although this was a much needed and greatly appreciated increase, it was still less than the \$50 million recommendation in the 2012 ASCE Report Card for Louisiana’s Infrastructure. In 2023, the legislature appropriated a one-time increase of \$25 million from state budgetary surplus funds that allowed for all projects on the program, including the newest ones just submitted, to receive funding. This is a good indicator for another annual funding increase recommendation.

As part of the ongoing work of putting together a strategic plan for the entire state port system, ports submitted summaries of their current and future needs. This included a range of projects such as dredging,

access roads and internal roads, marsh creation, cranes and loading equipment, power supply and upgrades, and more. Please note that these are not prioritized in any way, just a list of common project types needed all over the state. In addition to ports’ infrastructure, unmet needs exist on road and bridges interfacing with ports and intermodal facilities; an opportunity exists to partner with LADOTD to identify and prioritize funding to these surface transportation needs. A comprehensive prioritization of these needs is not available.

The Ports and Waterways Investment Commission, mentioned in the Innovation Section, did a survey of all ports’ needs in the coming years. They found that for planned spending through 2030 on capital costs as well as operations and maintenance activities, there was a funding gap of over \$1.1 billion. The projects included were already identified and cost-estimated, meaning the funding gap does not reflect future needs resulting from market shifts or unanticipated damages.

Ports



RECOMMENDATIONS TO RAISE THE GRADE

- Direct funding to eliminate the \$200+ million backlog of the Louisiana Port Construction and Development Priority Program (Port Priority Program) and increase the Port Priority Program's annual funding from \$39.4 million to \$65 million and ensure that it becomes a dedicated, escalating amount indexed to inflation or other economic conditions.
- Continue to develop and fund the Louisiana Ports and Waterways Investment Commission.
- Encourage the Louisiana Ports and Waterways Investment Commission to work with Louisiana Economic Development (LED) to leverage public funds to maximize federal and private investment in port infrastructure projects.
- Encourage the Louisiana State Legislature to set aside a portion of the Capital Outlay Program to facilitate the projects identified as critical by the Louisiana Ports and Waterways Investment Commission's Statewide Port Strategic Plan.
- Establish a division housed within the Ports & Waterways group inside the Louisiana DOTD Office of Multimodal Commerce (LADOTD OMC) or inside LED in partnership with the OMC that assists ports with regularly updating or creating individual master plans and strategic plans, then incorporate these to support the Louisiana Ports and Waterways Investment Commission in creating and updating a state-wide master plan with a coordinating strategic plan to be updated at least every 3-5 years.
- Establish a division housed within the Ports & Waterways group in LADOTD OMC or inside LED in partnership with the OMC that assists smaller ports with pursuing (writing and applying for) federal grants and providing matching funds.
- Urge LED to implement regular economic evaluations of the ports, individually and for the system as a whole, at least every 3-5 years with outputs to assist the ports with marketing.
- Establish an Infrastructure Loan Program in collaboration with the Port Priority Program offering lower interest rates to port-specific projects and grants to disadvantaged communities.
- Urge the LADOTD to work with ports to identify and prioritize the ports' funding needs for surface transportation projects like roads, railroad crossings and bridge projects that lead to and from the ports to improve first and last mile intermodal connectivity and have a measurable impact on the port's, and therefore, the state's economic wellbeing.

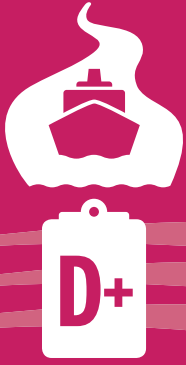
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Roads



GRADE
COMPARISON

LA: D
Nat'l: D+

Photo: Interstate Highway I-10 along Little Woods and Read Boulevard East urban neighborhoods in New Orleans; trongnguyen



ROADS

EXECUTIVE SUMMARY

Louisiana's 61,000-mile roadway network is vital to commerce and mobility but continues to deteriorate. Nearly half of major roads are in poor or mediocre condition, while traffic has grown 13% since 2017, costing residents and businesses \$4.1 billion annually in congestion and wasted fuel. Road funding comes from state and federal sources, yet fuel tax rates have not been updated in over 30 years. The Infrastructure Investment and Jobs Act (IIJA) has provided more than \$5 billion for roads and bridges. Still, the state faces a \$24 billion project backlog, compounded by aging equipment, staff shortages, and limited maintenance funding. From 2019 to 2023, crashes killed over 4,200 people, of which nearly one-quarter were pedestrians or bicyclists. Both the Louisiana Department of Transportation and Development (DOTD) and cities are pursuing Vision Zero, resilience upgrades, and advanced technologies—including drones, GIS, and intelligent systems—to improve safety, adapt to climate risks, and enhance performance.

CAPACITY AND CONDITION

Louisiana is home to approximately 61,300 miles of public roadways, with about 16,700 miles (27%) owned and maintained by DOTD. Nearly half of the state- and locally maintained major roads are rated in poor or

mediocre condition. This deteriorating infrastructure comes at a high cost: the average Louisiana driver spends an additional \$858 per year on vehicle operating costs due to rough roads, amounting to \$2.9 billion statewide.

Table 1. Pavement Conditions in Louisiana.

Location	Poor	Mediocre	Fair	Good
Baton Rouge	33%	27%	15%	25%
Lafayette	43%	22%	12%	24%
New Orleans	33%	22%	13%	31%
Shreveport	35%	25%	14%	27%
Statewide	26%	24%	17%	33%

Source: TRIP analysis of Federal Highway Administration data

Traffic congestion is also on the rise across the state. In 2023, Louisiana’s transportation system supported 55.9 billion vehicle miles traveled (VMT), marking a 37% increase since 2000 and nearly a 13% increase since the last Report Card in 2017. The COVID-19 pandemic caused a sharp, temporary drop in travel—VMT fell by 36% in April 2020 compared to the same

month the previous year—but traffic levels have since rebounded. By 2024, VMT in Louisiana surpassed pre-pandemic levels by 9%. Congestion now significantly hinders both commuting and commerce, costing Louisiana drivers an estimated \$4.1 billion annually in lost time and wasted fuel.

Table 2. Pavement Conditions in Louisiana.

Location	Hours Lost to Congestion	Average Congestion Cost per Driver	Average Gallons of Fuel Wasted per Driver
Baton Rouge	64	\$1,632	30
Lafayette	32	\$918	18
New Orleans	52	\$1,591	30
Shreveport	32	\$1,019	21

Source: TRIP analysis of Federal Highway Administration data

OPERATION AND MAINTENANCE

DOTD handles road and bridge maintenance through its Office of Operations. Maintenance work includes mowing, patching potholes, and operating movable bridges. Maintenance crews are organized at the parish, district, and statewide levels. In Fiscal Year (FY) 2023, the total cost of in-house maintenance activities—including employee wages, benefits, and equipment-related expenses—was \$212.3 million.

DOTD has struggled to keep up with maintenance needs due to limited funding. District maintenance budgets have only grown about 1% per year over the past decade, not keeping pace with inflation. As a result, some preventative maintenance, like regular mowing, has been delayed so crews can focus on urgent safety issues like guardrail repairs. These funding challenges have contributed to a growing backlog of maintenance work—estimated at \$243 million as of 2022.

Currently, district maintenance funding is based mostly on historical allocations, though DOTD is working on a more equitable formula that considers road mileage and population density. One-time funding from the State Legislature is often divided equally across districts, regardless of actual need.

Crews update maintenance priorities every two weeks based on road condition inspections. However, urgent issues that arise midweek—like fallen trees or other safety hazards—often force crews to shift focus, delaying planned work and adding to the backlog.

Most maintenance is performed in-house. In FY 2023, DOTD tracked over 230 types of maintenance activities. Only a few activities—such as mowing, guardrail repairs, and litter pickup—are outsourced regularly. These contracted services are funded through a dedicated operations budget. However, about 75% of total maintenance work is tracked in DOTD’s system; the rest includes administrative and non-maintenance tasks.

DOTD manages a fleet of over 6,700 vehicles and machines to support road maintenance across the state. However, equipment usage is often low. In FY 2023, nearly half of maintenance equipment was used less than 15% of the time. One major reason for this is the age of the fleet; more than half of the equipment is past its useful life, leading to frequent breakdowns, costly repairs, and long wait times for replacement parts. Some equipment, like sand spreaders and tractors, is only used seasonally or during emergencies, which naturally lowers their year-round usage.

FUNDING

Louisiana's road infrastructure is funded through a combination of federal, state, and local sources. Federal funding, primarily from the Highway Trust Fund and competitive grants, requires the state to provide matching funds. The Highway Trust Fund receives funding from the federal fuel tax, which has not increased since 1993. At the state level, Louisiana collects two fuel taxes totaling 20 cents per gallon—16 cents for general transportation needs and 4 cents dedicated to debt service for the Transportation Infrastructure Model for Economic Development (TIMED) Program. This rate has remained unchanged since 1989, making it one of the lowest state fuel tax rates in the country. In addition, approximately 1.1 cents of the 16 cents are now being diverted to debt service for the TIMED Program. Due to inflation, the purchasing power of the remaining 15 cents of tax revenue has eroded significantly and is now equivalent to less than 7 cents in today's dollars.

Additional state transportation funding comes from vehicle-related fees, including a \$100 annual electric vehicle (EV) registration fee. Louisiana also administers the Parish Transportation Fund, which dedicates in excess of 1 cent of the fuel tax to local governments. These funds—distributed based on a formula considering population and road mileage—support local road maintenance and often serve as the required match for federal grants.

FUTURE NEED

Louisiana faces significant challenges in funding its road infrastructure, driven by aging assets, rising construction costs, and decades of underinvestment. DOTD's 2024 backlog identifies a \$24 billion funding gap for roads and bridges to address needs related to congestion, capacity, safety, pavement condition, and operations. This amount marks an increase from the 2022 estimate of \$19 billion, due in part to the inclusion of pre-construction costs and inflationary adjustments. Meanwhile, maintenance budgets have grown at about 1% annually over the past decade, failing to keep pace with inflation. These persistent funding shortfalls—compounded by a flat state gas tax and rising project costs—constrain the state's ability to address deferred maintenance and invest in long-term transportation improvements.

To supplement its stagnant gas tax, the State Legislature recently approved legislation to dedicate a portion of state vehicle sales tax revenue to the Transportation Trust Fund (TTF), with deposits specifically allocated to the Construction Subfund beginning in FY 2023. This measure was intended to strengthen infrastructure funding without raising the gas tax. However, it was redirected to the State General Fund in the fall of 2024, presumably for a period of two years before returning to the Transportation Trust Fund. Alternatively, the State Legislature has appropriated end-of-fiscal-year surplus revenues to transportation in recent years. Without more sustainable, long-term revenue sources, Louisiana risks leaving many infrastructure needs unmet and may struggle to provide the matching funds necessary to fully leverage federal dollars.

Louisiana has also benefited from new federal funding opportunities through the IIJA. The state is expected to receive approximately \$5.9 billion over five years through formula-based federal funding for roads and bridges. As of January 2025, Louisiana had secured nearly \$5.1 billion in IIJA funding through competitive and formula programs. This funding includes a \$59.6 million grant to the City of Baton Rouge and the Parish of East Baton Rouge to upgrade a five-mile segment of U.S. Route 190. The project will add new lanes, improve turn lanes, and enhance connections to public transit, bicycle, and pedestrian networks.

To guide future investment, Louisiana maintains a long-range Statewide Transportation Plan, which is currently being updated and scheduled for release in 2025. This plan sets priorities across all modes—highways, freight, passenger rail, public transit, aviation, ports, waterways, and active transportation—through the year 2055. The most recent plan was published in 2015. For near-term needs, DOTD produces an annual Highway Priority Program (HPP) that identifies construction projects slated for the next fiscal year, based on relevant condition and performance data and public input. DOTD also conducts road safety assessments (RSAs), a cost-effective tool used to identify critical safety improvements across the system.

Louisiana, home to about 4.6 million people and growing at roughly 0.2% annually, is projected to see rising vehicle miles traveled and in-state migration, leading to increasing congestion in the coming years. In response, the Statewide Transportation Plan incorporates congestion management strategies and multimodal investments, including transit, freight rail, and pedestrian and bicycle infrastructure, to help meet future travel

demand. The HPP and Statewide Transportation Improvement Program (STIP) outline targeted projects to address bottlenecks and improve performance; STIPs are federally required four-year plans listing projects eligible for or requiring federal approval.

PUBLIC SAFETY

From 2019 to 2023, some 4,234 people were killed in traffic crashes across Louisiana. In 2023, the state recorded 1.42 traffic fatalities per 100 million VMT, ranking as the 14th highest fatality rate in the nation and exceeding the national average of 1.26 fatalities per

100 million VMT. Traffic deaths rose sharply in 2020 and 2021, likely influenced by changes in travel behavior during the COVID-19 pandemic, before declining in 2022 and 2023.

Table 3: Louisiana Traffic Fatalities and Fatality Rate

	2019	2020	2021	2022	2023
Traffic Fatalities	727	828	971	906	802
Fatalities per 100 million VMT	1.42	1.71	1.77	1.60	1.42

Source: TRIP, National Highway Traffic Safety Administration Fatality Analysis Reporting System data.

Between 2018 and 2022, pedestrians and bicyclists accounted for 23% of all motor vehicle crash fatalities in Louisiana (791 pedestrian deaths and 164 bicyclist deaths), highlighting the urgent need to protect vulnerable roadway users.

Traffic crashes in Louisiana came at a significant economic cost. In 2022, they imposed \$8.6 billion in total costs, including lost productivity, medical expenses, emergency services, property damage, and legal and court costs. Of that total, crashes in which inadequate roadway safety features were a contributing factor accounted for \$2.9 billion in economic losses.

To address these ongoing safety challenges, DOTD has adopted a Strategic Highway Safety Plan (SHSP) titled Destination Zero Deaths. Initially adopted in 2009, the plan was last updated in 2022. This statewide plan outlines a data-driven approach to reducing traffic fatalities and serious injuries, with a long-term vision of eliminating them altogether. The SHSP focuses on

four emphasis areas: distracted driving, impaired driving, occupant protection, and infrastructure and operations. The infrastructure and operations section promotes the use of proven, low-cost countermeasures such as rumble strips, upgraded signage, roadway lighting, and lane narrowing, particularly in high-risk and rural areas. It also prioritizes the safety of vulnerable users, encouraging the implementation of Complete Streets principles, dedicated pedestrian and bicycle facilities, and safer crossings. DOTD emphasizes a systemic, proactive approach that integrates safety improvements into routine construction and maintenance, supported by interagency collaboration and regular performance evaluation.

At the local level, Baton Rouge and New Orleans have formally adopted Vision Zero plans, committing to eliminating traffic deaths and serious injuries through capital investments, policy changes, and coordinated action among city agencies and community partners. It is too early to assess the impacts of these plans.

RESILIENCE AND INNOVATION

The resilience of Louisiana’s roadway network has been increasingly tested since the 2017 Report Card. Between 2020 and 2024, the state experienced 34 billion-dollar severe weather events, resulting in estimated losses between \$50 billion and \$100 billion. Many of these events triggered mandatory evacuations due to storm surge and high winds, leading to widespread damage, prolonged power outages, and deaths.

In response, Louisiana continues to pursue funding to strengthen key evacuation routes, including Louisiana Highway 1, U.S. Route 61, and Interstates 20, 49, 10, and 12, while enhancing connectivity across heavily traveled corridors. The state has also prioritized alternative routing strategies, recognizing the importance of redundant infrastructure, such as major river crossings, that can provide critical detours during emergencies or disasters.

As part of its 2025 Statewide Transportation Plan, DOTD is conducting a climate resilience assessment to evaluate vulnerabilities related to flooding, storm surge, and extreme weather. This complements broader hazard mitigation efforts being led across the state.

DOTD’s Hydraulics Section plays a central role in improving drainage infrastructure, applying updated design standards and modern hydraulic modeling tools to ensure culverts and stormwater systems are appropriately sized for local flood risk. In partnership with the Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC) grants, DOTD has carried out projects—such as those in St. Bernard Parish—that replaced undersized culverts with larger, clear-span structures, enhancing both flood flow capacity and storm surge resilience.

These efforts closely align with statewide resilience initiatives such as the Louisiana Watershed Initiative and parish Hazard Mitigation Plans (which complement the statewide HMGP under FEMA) and leverage federal recovery programs to build more robust infrastructure. The overarching goal is to design and maintain a transportation system capable of withstanding Louisiana’s growing climate risks—reducing long-term

vulnerability and supporting safe, reliable mobility even during severe weather events.

DOTD has implemented a range of innovative programs to improve travel efficiency, data accuracy, and project delivery across the state. DOTD operates a statewide 511 traveler information system, accessible by phone, computer, and smartphone. It provides real-time traffic updates and integrates with an expanding network of Intelligent Transportation Systems (ITS) infrastructure, including ramp metering at key interchanges to manage congestion more effectively. To enhance planning and design, DOTD’s Location & Survey Unit uses drones equipped with LiDAR and high-resolution imagery to collect small-area data more efficiently. This information feeds into the agency’s Enterprise GIS system, supporting improved drainage analysis and right-of-way mapping—especially critical in Louisiana’s high-precipitation environment. DOTD has also partnered with Waze through the company’s Connected Citizens Program to share real-time data between the Waze platform and the state’s ITS system, helping both DOTD and road users stay informed about traffic conditions, incidents, and road closures.

In terms of project delivery, DOTD has embraced design-build construction on select projects, enabling faster timelines by integrating design and construction phases. The agency is also authorized to pursue public-private partnerships (P3s), which offer opportunities to accelerate high-value infrastructure projects with reduced upfront costs to taxpayers. Active P3 projects include the Belle Chasse Bridge and Tunnel Replacement and the replacement of the I-10 Calcasieu River Bridge.

DOTD is putting in place an initiative called T4: Transforming Transportation with Transparency and Teamwork. DOTD says this initiative will involve organizational change within the department that will positively impact program and project delivery, technology and tools, and communications. As this initiative is just getting underway at DOTD, it has had no objective impact on Louisiana’s roads yet.



RECOMMENDATIONS TO RAISE THE GRADE

- Increase sustainable, long-term funding by raising or indexing the state gas tax to inflation and exploring additional recurring revenue sources to address the growing \$24 billion backlog and fully leverage available federal funds.
- Modernize maintenance practices and equipment. Update DOTD's equipment fleet and adopt data-driven maintenance allocation formulas to improve efficiency, reduce downtime, and address the \$243 million deferred maintenance backlog.
- Advance safety improvements by accelerating the deployment of proven safety countermeasures, particularly for vulnerable users, and support implementation of Vision Zero strategies at the local and regional levels.
- Strengthen climate resilience across the roadway system. Integrate updated flood modeling, culvert design standards, and hazard mitigation planning into all phases of roadway design and construction to protect infrastructure from the growing number of extreme weather events.

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Solid Waste



GRADE
COMPARISON

LA: C+
Nat'l: C+

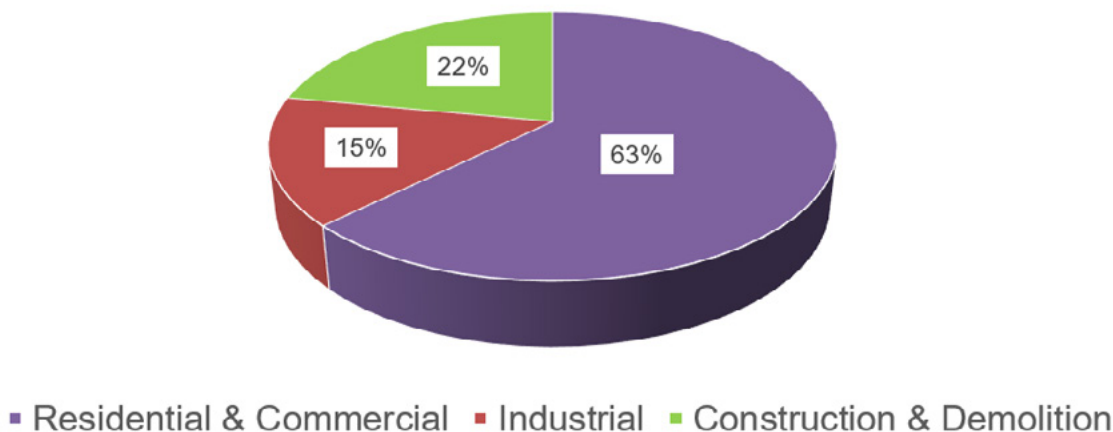


SOLID WASTE

EXECUTIVE SUMMARY

Louisiana discards approximately 4.5 million tons of residential and commercial waste per year. Recycling and other waste diversion measures recover approximately 295,000 tons of waste per year, and the remainder is disposed of in landfills. There are three main types of waste: non-hazardous industrial waste (Type I), residential/commercial (Type II, also known as municipal), and construction and demolition debris (C&D – Type III). There are 26 permitted active commercial landfills for Types I and II and 28 landfills for Type III. Landfills statewide receive approximately 7.2 million tons of waste per year. This report doesn't include the landfills at private industrial facilities which are permitted to receive only waste generated on-site. Solid waste disposal is a vital and necessary public health function. Planning, design, permitting and construction of new landfills can take as much as 10 years and cost millions of dollars, so awareness of capacity for existing facilities is critical.

Figure 1: Percentage of Waste Disposed of in Commercial Landfills in Louisiana by Landfill Type



(2022-2023 Reporting Year)

CAPACITY

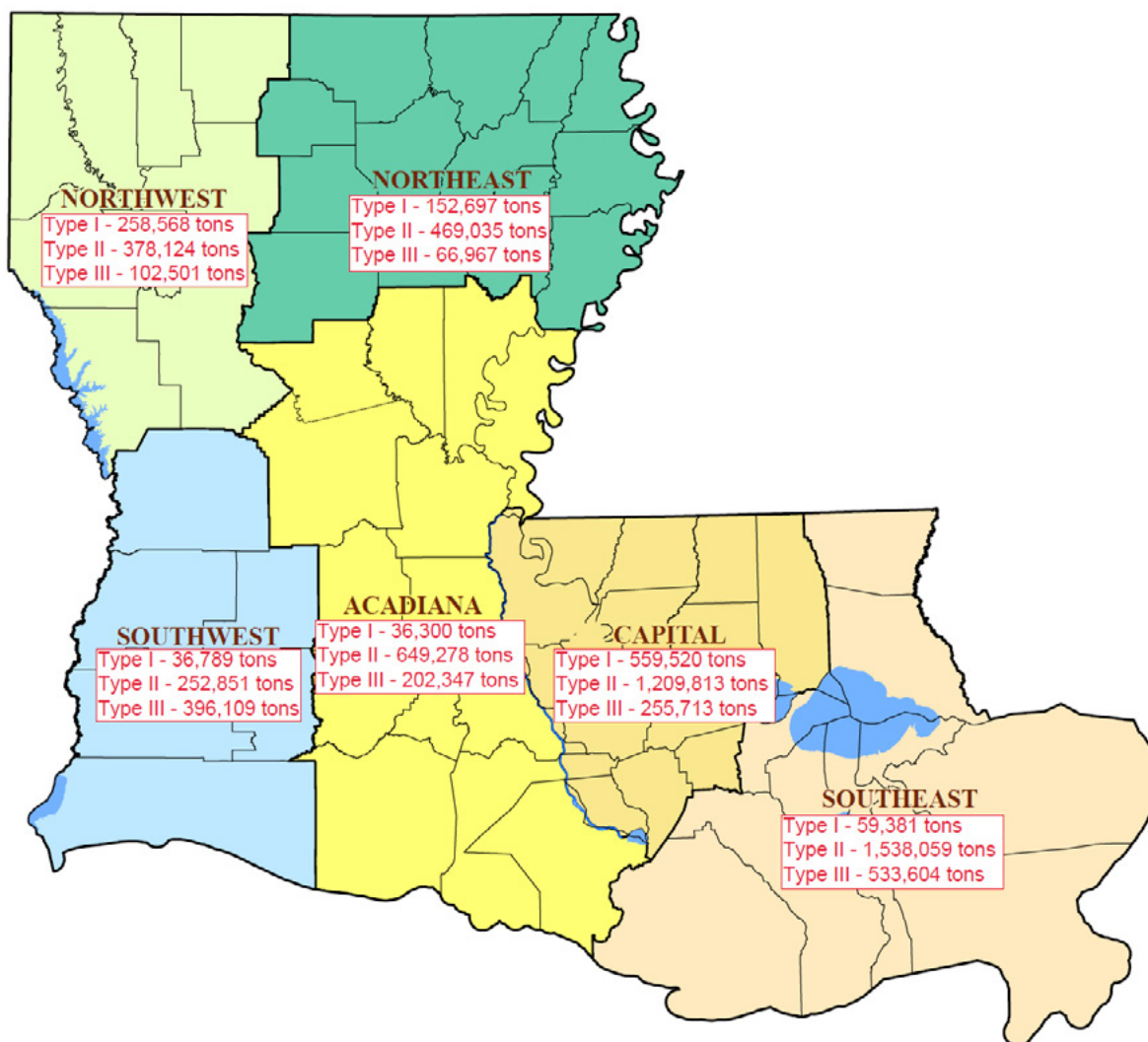
Louisiana's Type II landfills have the capacity to receive an additional 200 million cubic yards of residential/commercial solid waste. Considering a 10-year average disposal rate, these landfills will provide capacity for the next 22 to 90 years, depending on the region of the state (see Figure 4). Similarly, permitted Type III landfills have the capacity to receive 66 million cubic yards which will provide capacity for the next 21 to 70 years for C&D debris disposal, depending on the region of the state.

Curbside recycling is available in most Louisiana major cities and parishes, however on a very limited scale. Curbside and drop-off recycling in Louisiana removes

approximately 3% of the waste from landfills. Nationwide, the percentage is 32% according to U.S. Environmental Protection Agency (2018). Diversion programs that include separate collection and composting of vegetation may increase diversion significantly.

Most Louisiana residents have access to programs that collect household hazardous materials and reduce their disposal in landfills. While landfills are designed to contain these materials, reducing their presence will minimize the potential for environmental degradation, particularly groundwater contamination.

Figure 2: Waste Disposed of in Commercial Landfills in Louisiana by Landfill Type



(2022-2023 Reporting Year)

Figure 3: Percentage of Waste Disposed of in Commercial Landfills in Louisiana by Region

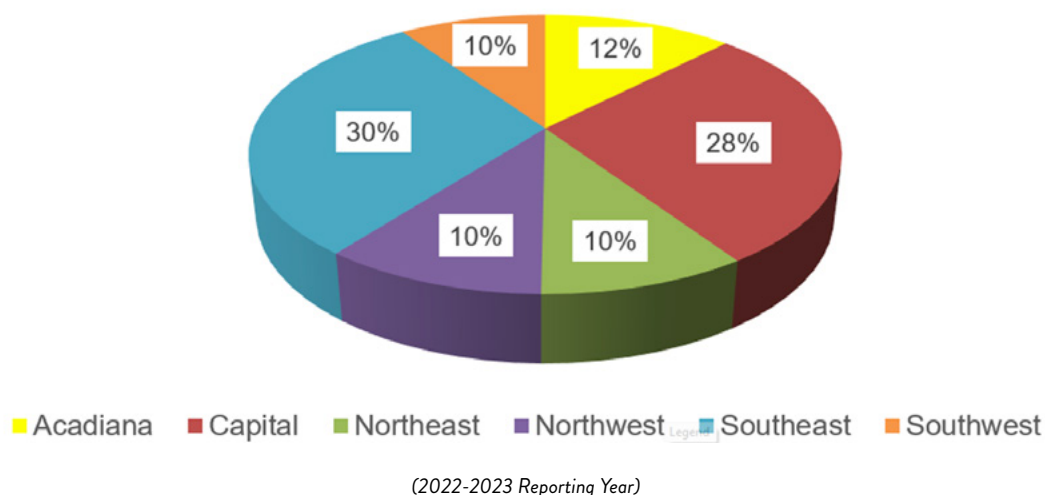
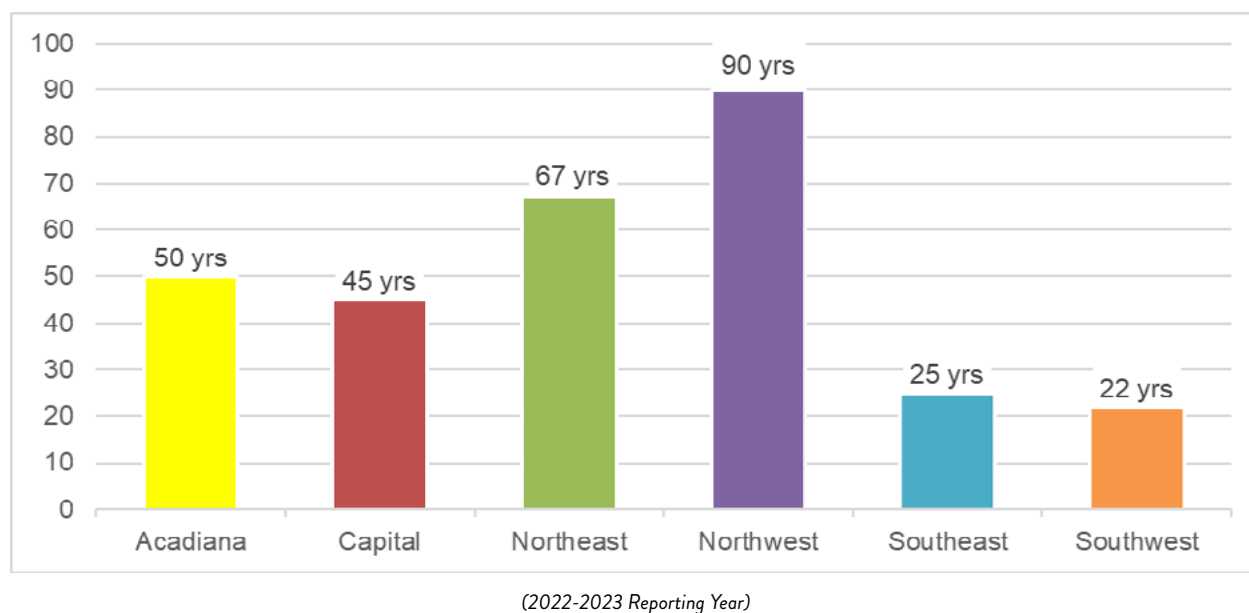


Figure 4: Estimated Remaining Years for Type II Landfills in Louisiana by Region



CONDITION, OPERATION & MAINTENANCE, AND PUBLIC SAFETY

The Louisiana Department of Environmental Quality (LDEQ) is tasked with regulatory oversight of solid waste management facilities. LDEQ regulations require groundwater monitoring at Type I/II landfills, requirements for the qualifications and number of trained operators, and provisions for inspections and enforcement actions. LDEQ responds to self-reported issues and citizens' complaints.

Type I/II landfills collect groundwater samples from multiple wells twice annually for detection monitoring. Exceedances are detected and, if confirmed, alternate sources are identified, or assessment monitoring (a more intense level of monitoring) is initiated. Five landfills have detected contaminants which require assessment monitoring.

Fires or other unauthorized discharges have been reported at three landfills during the 2021-2022 reporting years. LDEQ has investigated seven landfills

for citizens' complaints between 2021 and 2023, and 16 landfills have been issued compliance orders by LDEQ between 2021 and 2023.

FUNDING

Solid waste management infrastructure is funded by a mixture of public and private funds. Some landfills are publicly owned and operated; some are publicly owned but operated by private contractors, while many others are privately owned and operated. Private landfills are funded by tipping fees, the fees collected from waste generators for disposal. Public landfills may be funded by a combination of tipping fees and public taxes.

Waste tires present a significant fire hazard in landfills and whole tires tend to "float" to the surface through daily cover. LDEQ prohibits waste tire disposal in landfills and manages a Waste Tire Trust Fund which is supported by a \$2.25 fee collected on new tire sales. LDEQ permits six contractors to process and recycle waste tires with designated reimbursement from the trust fund. Most recycling projects that utilize waste tire material are used as fill or bank stabilization. High order uses such as pyrolysis for waste tires is not performed on a large scale.

An overall absence of public-funding programs to help parishes to create and maintain waste diversion programs that will save landfill airspace is noted in Louisiana. With only 3% of waste being currently diverted from landfills and with the capacity of landfills rapidly decreasing, the statewide implementation of waste diversion programs is an imminent necessity. Louisiana regulations, more specifically, LAC 33:VII.10301, establish a goal of reducing the amount of solid waste being disposed of in the state by 25% by December 31, 1992. However, the goal was never met.

Also noted is the absence of public-funding programs to help public landfills to treat emergent contaminants that will soon be regulated at a federal level (and, therefore also at state level). Treatment of leachate to account for the emerging contaminants, such as polyfluoroalkyl substances (PFAS), will significantly increase the operational costs of landfills.

An overall absence of public-funding programs to help parishes to create and maintain waste diversion programs that will save landfill airspace is noted in Louisiana.

LDEQ regulations require Type I/II landfills to estimate the cost of closure (final cover installation) and post-closure maintenance for 30 years, which can total millions of dollars. Type III landfills are also required to estimate the cost of closure and post-closure; however, the post-closure period for these facilities is three years. These estimates are based on a third party having to close the largest area that will require final cover at one time (an area specified in the permit). All landfills must provide a mechanism, such as a bond or trust fund, to ensure the funds for closure are available in the event of an unexpected closure. Landfills permitted by local or parish governments have the option to guarantee the closure costs with a local government test, provided sufficient assets exist. LDEQ is currently reviewing the closure and post-closure estimates and associated financial assurance mechanisms for all solid waste facilities to ensure compliance with the regulations and permits.

Most local governments prudently save dedicated funds for the closure/post-closure costs, but not all. These cities/parishes comply with the regulations through either the local government financial test or by requiring the landfill operating contractor to provide a bond. The total estimated closure cost of the 16 publicly owned landfills is over \$209 million.

Failure to provide these funds will place a burden on future generations to pay this expense related to current disposal activities.

FUTURE NEED

Landfills are very expensive to develop and permit, and they may also raise significant environmental concerns. Many communities and private companies are developing alternatives to landfills for solid waste management. These facilities utilize a number of emerging conversion technologies to process MSW and recover recyclable materials, energy or high-value products (like methanol). The costs of new facilities may be prohibitive and investments expanding curbside recycling and extending the useful life of current landfills may be the less expensive option.

In Louisiana, LDEQ's most recent capacity assessment indicates that while statewide landfill capacity is adequate

overall, some regions, particularly in the southeast and southwest, have fewer than 20 to 25 years of airspace remaining. At the same time, audits have highlighted gaps in how consistently closure and post-closure funding requirements are met at individual facilities. These findings reinforce that, in addition to investing in new technologies, local governments must ensure that financial assurance mechanisms are sufficient and that regional capacity planning is carried out well in advance of a site reaching its limit.

A comprehensive local solid waste management plan which considers all options for MSW collection, sorting, processing, recovery, and disposal is needed to plan for cost-effective future solid waste management.

RESILIENCE

In addition to the immediate impact on landfill capacity, natural disasters can also limit access to some landfills through flooding or road damage. Access to alternative landfills within a reasonable haul distance can facilitate rapid response to natural disaster clean-up and return to normalcy.

Most of the parishes and major municipalities have debris management plans in anticipation of natural disasters, but they are not required to be recorded by the state. LDEQ

maintains a debris management plan and requires pre-approval of temporary debris management sites within parishes and municipalities. These sites can be permitted to receive debris, sort, and process debris, reduce volume, recover recyclable materials, and load-out debris residue for disposal. A total of 539 emergency debris sites in 60 parishes (from a total of 64 parishes) are currently approved by LDEQ. These sites can be activated by the parish by notification after a declaration of emergency.

INNOVATION

LDEQ regulations permit the use of alternative liners, daily cover, and final cover, if the alternative is proven to be equivalent to the regulatory standards. LDEQ reviews the proposed alternative liners and covers during the permit application process. The alternatives may reduce installation costs, increase capacity, reduce post-closure costs, or provide another advantage over the regulatory standard. All Type I/II landfills that receive waste generated off-site utilize either an alternative liner, daily cover or final cover.

Beyond these engineering innovations, Louisiana is also seeing progress in repurposing waste and capturing value from the waste stream. Examples include:

- Methane gas collection and beneficial reuse projects at several landfills, which capture landfill gas for energy or renewable natural gas.
- Organics diversion and composting programs piloted at the parish level to reduce food waste entering landfills.
- Glass-to-sand recycling initiatives that transform waste glass into aggregate for coastal restoration and construction.
- Waste tire programs that process rubber for use in road base, playground surfacing, and lightweight aggregate mixes.

These efforts complement regulatory flexibility on landfill design and demonstrate how Louisiana can both extend landfill life and generate new economic or environmental benefits from materials that would otherwise be discarded.



RECOMMENDATIONS TO RAISE THE GRADE

- Implement effective curbside recycling or other waste diversion in all major municipalities and parishes and set the goal to divert 25% of MSW from Type I/II landfills within 10 years. This would extend the average Type I/II landfill life by 10 years if recycling is increased to 25% over 10 years and waste intake rates stay the same.
- Enhance local funds for the closure and post-closure care of all public landfills. Increase annual dedicated funding to ensure that future generations are not burdened with these costs associated with current disposal practices.
- Provide adequate treatment of leachate, including treatment for emerging contaminants, such as PFAS, especially for public landfills. Treatment of leachate will significantly increase the operational costs of landfills within the next decade.
- Maintain sufficient funding to the Waste Tire Trust Fund to ensure that permitted contractors receive full payment for the collection, processing, and beneficial reuse of waste tires. Find alternate end-use high order projects that recover waste tire material into virgin products.
- Initiate local-led comprehensive solid waste management planning to incorporate emerging technologies at the appropriate time. Given the long lead times and significant investments required, active planning and monitoring of new technologies will reduce future solid waste management costs. The implementation of waste-to-energy projects, for example, can help local governments to fund the incorporation of emerging technologies at their solid waste facilities.

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Wastewater



Photo: Sewer pipe; Happyphotons

GRADE
COMPARISON

LA: D+
Nat'l: D+



WASTEWATER

EXECUTIVE SUMMARY

Louisiana's wastewater infrastructure has seen modest improvements since 2017, supported by increased investment through the Clean Water State Revolving Fund and Water Sector Program. More than 475,000 onsite systems treat roughly 55 billion gallons annually, but many smaller and rural systems still face aging infrastructure and limited funding access. Larger utilities, such as the Sewerage and Water Board of New Orleans, have secured \$38 million in SRF loans for capacity and efficiency upgrades. Workforce shortages remain a pressing concern, with certified operator numbers falling from 2,473 to 2,215 between 2022 and 2023 and wages 26% below the national average. Despite these challenges, no illnesses have been linked to treated discharges, and utilities are shifting to safer ultraviolet disinfection. Storm-hardening projects have strengthened resilience, yet \$2.4 billion in infrastructure needs persist. Expanding funding access, investing in workforce development, and modernizing rural systems will be essential to sustain progress.

CONDITION AND CAPACITY

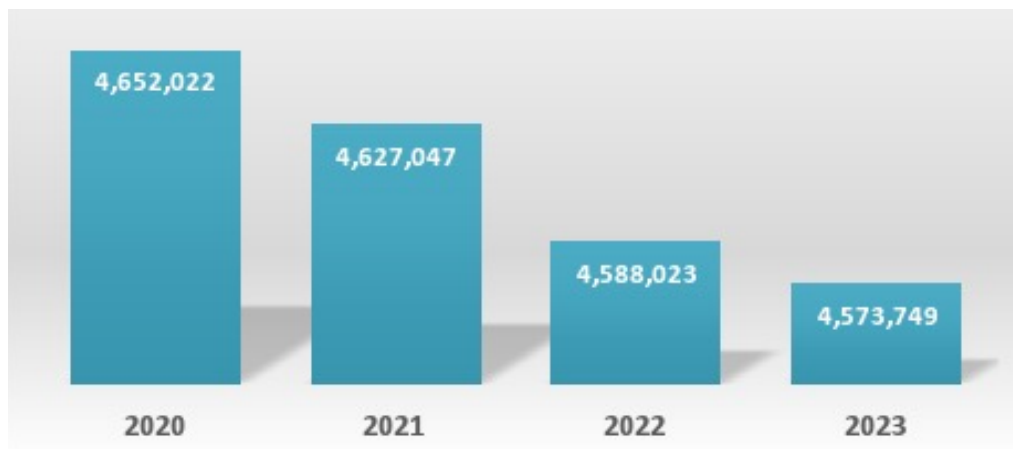
Wastewater systems in Louisiana have attempted to increase capacity since 2017 through treatment plant expansions and collection system upgrades. Collection system upgrades and repairs aimed at reducing I&I (Inflow and Infiltration; the condition where storm water runoff is entering the sewer collection system) for some of the larger systems in the state which has the anticipated result of less flow entering treatment plants due to I&I, freeing up capacity for treatment of municipal flows.

Wastewater in Louisiana is treated in both public and private systems. Comprehensive data breaking down the types of wastewater treatment systems in the state is not available. As of August 2023, a total of 475,299 onsite water treatment systems had been permitted, and nearly 55 billion gallons of wastewater are treated per year by

onsite wastewater treatment systems in the state.

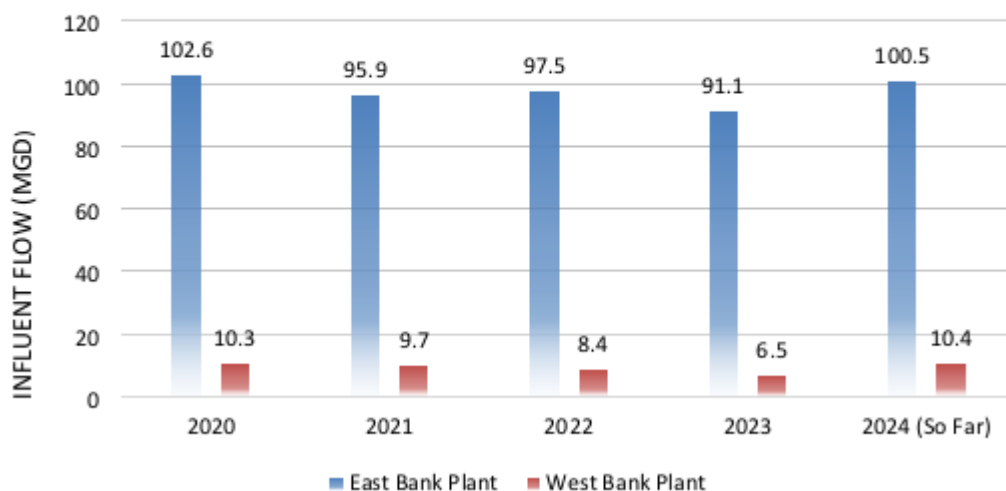
According to the US Census Bureau, Louisiana's population has declined from 4.67 million in 2017 to 4.59 million in 2022. Census data also showed the estimated population for the City of New Orleans has decreased from 383,997 in April of 2020 to 364,136 in April of 2023. However, influent data from the Sewerage and Water Board of New Orleans's (SWBNO) East and West Bank treatment plants show that, despite the significant decrease in population, there has been no noticeable decrease in influent flows. This points to the influent flows being more a function of the condition of the collection network combined with wet weather events rather than changes in population.

Figure 1: Louisiana Population Data 2020-2023



(source: U.S. Census Bureau)

Figure 2: Sewerage and Water Board of New Orleans Average Influent Flow Data



(source: SWBNO)

Many of the larger wastewater systems throughout the state have projects underway to improve I&I reduction and upgrade treatment plant facilities. For example, SWBNO has received \$38 million in Louisiana SRF loan funding for upgrades at their East and West Bank treatment plants. These upgrades include the repair and replacement of process equipment to make the overall treatment process more efficient. However, many systems in the southern part of the state are still in

need of repairs for damage sustained during Hurricane Ida which made landfall in Louisiana in August of 2021. The smaller wastewater systems in the more rural areas of the state are still dealing with aging infrastructure conditions with significant improvement needs.

Failing or inoperable pumps at lift stations within the collection system are common. For example, Jefferson Parish's sewage system faces long run times of collection

system pumps due to rain events, grit collection, and the presence of FOG (fats, oils, and grease) leads to reduced life expectancy for the pumps and deteriorates the sewer pipe material.

The Louisiana Department of Health (LDH) has also reported an uptick in the number of wastewater projects that have applied for a construction permit. In 2023,

260 wastewater projects were submitted for permitting. Furthermore, LDH reported that as of July 29th, 223 wastewater projects had been submitted for permitting in 2024. LDH staff attributes this increase in permit application to more funding coming available through SRF programs and the Louisiana Water Sector Program.

OPERATION & MAINTENANCE

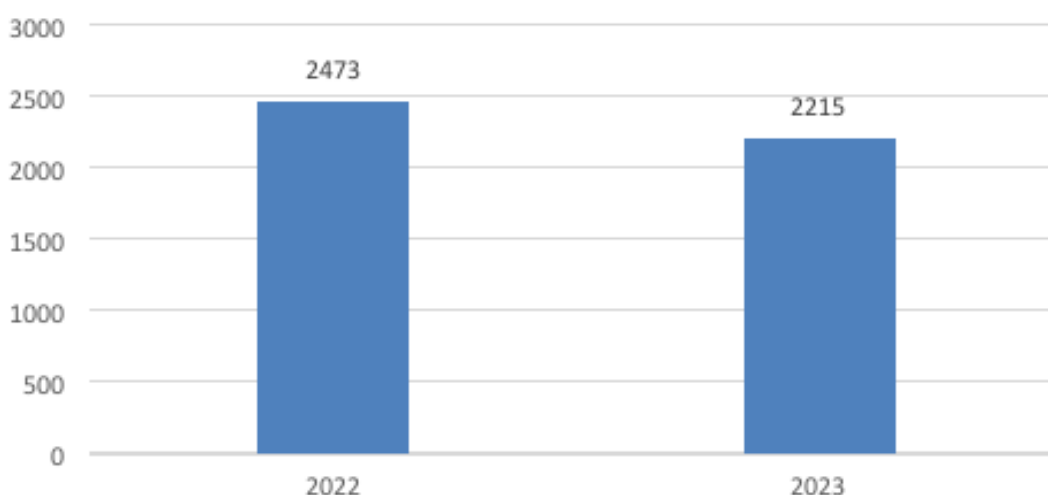
Wastewater operation and maintenance in Louisiana involves regulatory oversight from the LDH and requires proper licensing for operators. Municipal or parish-level utility or sewage departments are responsible for operation and maintenance (O&M) of public systems, and owners of private systems are responsible for O&M of their systems, requiring systems to be checked every six months by someone qualified to service it (subject to fines if in violation). Key maintenance activities include routine cleaning, repairs, and component checks, as well as the operation of physical, biological, and chemical treatment processes to remove contaminants and meet discharge standards.

O&M has faced increased challenges since the 2017 report with systems throughout the state finding it more difficult to hire and retain qualified operators and administrative staff. SWBNO administrators have

indicated that even though they have been able to hire and train new staff for their water lab, they still have approximately 400 job vacancies as of January 2024. Large and small utility systems, as well as regulators, across the state have expressed concerns with industry-wide hiring shortages.

According to the Water/Wastewater Operator Certification Program within LDH, there were 124 new wastewater operators certified between July 1, 2022, and June 30, 2023. However, the number of certified wastewater operators went from 2,473 in 2022 to 2,215 in 2023, a drop-off of more than 10%. (Note: LDH personnel did mention that a portion of this drop-off can be attributed to a data purge to remove duplicates within their database but did not provide an estimate on the number of duplicates removed).

Figure 3: Number of Certified Wastewater Operators in Louisiana



(source: Louisiana Department of Health)

According to the U.S. Bureau of Labor Statistics, salaries for certified wastewater operators in Louisiana fall well below national averages. The mean annual wage for water and wastewater operators throughout the U.S. is \$58,050 while the annual mean wage for water and wastewater

operators in Louisiana is \$43,060. Continuing education of operators has also been a challenge, as employees often work long shifts that make it difficult to commit to the 32-hour Operator Certification Training needed to become a Class IV operator.

Table 1: Wastewater Operator Wages
(source: BLS)

	Mean Hourly Wage	Mean Annual Wage	Wage RSE
National	\$27.91	\$58,050	0.30%
Louisiana	\$20.70	\$43,060	2.00%

Larger systems in the state have seen improvements with new equipment installations and have been making steps to improve their hiring process. However, smaller

package plant systems and individual systems that do not require mandatory maintenance programs continue to deal with aging equipment.

PUBLIC SAFETY

Louisiana continues to not show any number of reported diseases or death related to treated wastewater discharges. The Epidemiology department within LDH has not attributed any incidents of illness/disease with insufficient wastewater treatment since the previous 2021 Report.

According to the 2022 Louisiana Water Quality Inventory: Integrated Report prepared by the Louisiana Department of Environmental Quality (LDEQ), there are currently no reported wastewater outfall streams that pose an immediate threat to public health, either from residential or industrial wastewater.

There has also been a push to move away from using gaseous chlorine at Louisiana's sewer treatment plants for the final disinfection process. Gaseous chlorine is very toxic, and a leak can cause disastrous health issues for treatment plant staff, residents of neighboring

communities, and to the surrounding ecosystem. Sodium Hypochlorite (bleach) is a safer option than gaseous chlorine, but still poses the risk of presenting residual chlorine (and associated disinfection byproducts such as trihalomethane and haloacetic acids which are known carcinogens) into the environment, impacting the ecosystem of the receiving streams and ultimately Louisiana's overall water quality. Terrebonne Parish Consolidated Government – Pollution Control Division (TPCG) plans to install a new ultraviolet (UV) disinfection system at its North Wastewater Treatment Plant which serves the City of Houma. St. Tammany Parish Department of Utilities also plans to implement UV disinfection at all of its new Regional Wastewater Treatment Plants which are being designed and built as part of the Parish's plan to consolidate sewer services throughout the Parish.

Table 2: Benefits of UV Disinfection Compared to Chlorine

Benefits of UV Compared to Chlorine		
Disinfection Type	Chlorination	Ultraviolet
No Storage of Hazardous Chemicals	x	✓
No Disinfection By-products (DBPs)	x	✓
Non-corrosive	x	✓
Effective Against Cryptosporidium and Giardia	x	✓
No Safety Risks to the Surrounding Community	x	✓

(source: Water Environment Federation (WEF) and the International Ultraviolet Association (IUVAA))

Emerging contaminants in wastewater, particularly per- and polyfluoroalkyl substances (PFAS), pose significant risks to public health in Louisiana. PFAS are man-made chemicals widely used in products such as firefighting foam, cookware, food packaging, and household items, and are resistant to degradation in the environment. Scientific reviews have found that compounds like PFOS and PFOA are likely immune hazards and may be linked to elevated cholesterol levels and increased risks of testicular and kidney cancers. Testing of surface water treatment plants in Orleans, Jefferson, St. Charles, St. John, and Ascension Parishes—all of which draw from the Mississippi River—detected at least one type of PFAS in treated drinking water, with New

Orleans recording the highest level at 4.3 ng/L of PFOA.

The U.S. Cybersecurity and Infrastructure Security Agency (CISA) highlight the water and wastewater sector as a critical infrastructure increasingly vulnerable to cyber threats, including ransomware, unauthorized remote access, and attacks on industrial control systems. Cyber incidents can disrupt essential services, compromise water quality, and endanger public health. For Louisiana, where utilities already face challenges from natural disasters, strengthening cybersecurity is especially important to ensure reliable operations and protect communities from both physical and digital risks.

FUNDING AND FUTURE NEED

Funding for wastewater systems throughout the state has increased since the 2017 report with federal and state funding becoming available in recent years through the Water Sector and SRF programs. Many of the larger wastewater systems have been able to secure grants and low interest loans to help with improvement projects. For example, SWBNO has been able to secure \$39 million through an SRF loan for improvements to its East Bank WWTP which serves one of the most densely populated areas of the state.

Smaller wastewater systems in the more rural areas of the state have faced challenges in securing funding through these same programs, mainly due to issues with accessibility. These rural systems are typically short-staffed and are often unaware of how to access this

funding. Louisiana Rural Water Association (LRWA), a non-profit resource for rural water and wastewater systems in Louisiana, has made significant efforts to help these smaller systems gain access to funding for improvements, but the challenges of aging personnel and lack of qualified new hires still persists.

The figures below include CWSRF and Water Sector Program applications and disbursement amounts in recent years. Notice that CWSRF disbursement amounts have declined since 2020. LDEQ staff indicated this was largely due to the COVID pandemic and the implementation of the Water Sector Program which provides federal grant money as opposed to low-interest loans provided by the CWSRF program. Also, LDEQ provided information showing that the number

of CWSRF applications have increased significantly since 2022 which should correlate with a significant increase in CWSRF disbursement amounts in future

years. This coincides with the implementation of the Infrastructure Investment and Jobs Act (IIJA) which provides additional funding for wastewater projects.

Table 3: Clean Water SRF Funding Disbursed by Year

Calendar Year	CWSRF Amount Disbursed
2023	\$49,670,000
2022	\$33,270,000
2021	\$40,030,000
2020	\$66,480,000
2019	\$65,380,000

The dollars are truncated at the \$10,000 value.

Timeframe	Number of CWSRF Applications
SFY24 (7/1/2023-6/30/2024)	28
SFY23 (7/1/2022-6/30/2023)	37
SFY22 (7/1/2021-6/30/2022)	6
SFY21 (7/1/2020-6/30/2021)	17
SFY20 (7/1/2019-6/30/2020)	8
SFY19 (7/1/2018-6/30/2019)	14

Note that CWSRF applications are based on Louisiana's fiscal year (July 1-June 30).

(source: Louisiana Department of Environmental Quality)

Table 4: Clean Water SRF Funding Committed

Timeframe	Water Sector Program Amount Committed	Round
Jan/Feb 2023	\$1,830,000	2
Jan-23	\$21,730,000	2
Dec-22	\$130,630,000	2
Jan-22	\$104,080,000	1
Dec-21	\$22,980,000	1

These above funds were committed to Sewer projects but not disbursed. These are truncated at the \$10,000 value.

(source: Louisiana Department of Environmental Quality)

According to the 2022 Clean Watersheds Needs Survey conducted by the U.S. Environmental Protection Agency, Louisiana has \$2.4 billion in wastewater infrastructure needs—such as water treatment and

sewer replacement and rehabilitation. This represents a significant decrease since the needs identified in the 2012 needs survey (See table 5).

Table 5: Wastewater Infrastructure Needs in Louisiana
(source: EPA Clean Watersheds Needs Survey, 2012 and 2022; BLS Inflation Calculator)

Category	2012 needs (\$M)	Inflation-adjusted 2012 needs (\$M)	2022 needs (\$M)
Secondary Water Treatment	\$1,657	\$2,055	\$306
Advanced Water Treatment	\$109	\$135	\$446
I/I Correction	\$130	\$161	\$327
Sewer Replacement/Rehabilitation	\$1,130	\$1,402	\$876
New Collector Sewers and Appurtenances	\$866	\$1,074	\$401
New Interceptor Sewers and Appurtenances	\$209	\$259	\$48
Total	\$4,101	\$5,086	\$2,404

RESILIENCE AND INNOVATION

The resilience of Louisiana’s wastewater infrastructure has continued to improve since the last 2017 report, mainly due to improvement projects for older systems and the use of newer construction materials. Utilities have also incorporated planning for disaster and emergency events into the design of their system upgrades. Storm events such as Hurricane Laura in 2020 and Hurricane Ida in 2021 caused significant damage to wastewater infrastructure, and the subsequent repairs to these systems have been made with the intent of withstanding future storm events. For example, Terrebonne Parish, who experienced significant damage to its wastewater infrastructure, now requires wind resistant roof covers and weatherproofing for all of its control panels.

Larger treatment facilities in the state have also been undertaking projects to reduce energy consumption and greenhouse gas emissions. Examples include SWBNO and TPCG (Terrebonne Parish Consolidated Government), who are selecting high efficiency,

variable speed pumps as they replace collection system and effluent pumps as part of their ongoing capital improvements efforts. This is helping them increase efficiency and cut down on energy costs.

Large collection systems such as Jefferson Parish Sewerage Department have been exploring new odor control technologies at lift stations, as well as Smart Run Pumping systems to keep wastewater from turning septic.

There has also been the use of more trenchless piping technology which has improved the cost and rate at which collection system improvements can be made. However, there is still room for improvement when it comes to exploring new advanced treatment technologies and wastewater recycling.

Small rural systems are still unable or hesitant to explore innovative collection and treatment techniques due to a lack of funding and smaller budgets.

Wastewater



RECOMMENDATIONS TO RAISE THE GRADE

- Increase investment from all levels of government and the private sector, to replace older treatment, and collection systems including additional federal funding for the State Revolving Fund Loan program.
- Perform rate studies so that sewer utilities can determine appropriate collection fees for its customers that would cover the full cost of operation, maintenance, and capital needs.
- Promote state and local funding programs to support rapidly growing parishes with individual and package treatment systems by constructing central collection and treatment systems to improve overall discharge quality.
- Enhance LDEQ with adequate staff and funding to provide more intensive monitoring of stream quality assuring the highest level of use for stream and lakes within the state. Implement programs for alternative projects to address the large quantity of impaired streams that are not the result of wastewater discharges.
- Expand programs to train new operators and provide continuing education for all operators at facilities across the state so attendance can be accommodated within reasonable distances for all communities.

Wastewater



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