Louisiana Department of Transportation & Development *2024 Assessment*

June - September 2024

Prepared by Boston Consulting Group (BCG)

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Context, objectives, scope, and approach

Quality infrastructure is not just an operational necessity for Louisiana. As a critical driver of economic development and statewide prosperity, the right infrastructure provides the foundation for the efficient transportation of goods, services, and people. When roads and bridges are well-maintained and projects are strategically developed, businesses can operate more efficiently, reduce transportation costs, and attract new investments. These improvements can fuel job creation and boost local economies. High-quality infrastructure also improves the quality of life for Louisianans: reliable transportation networks reduce travel times, improve safety, and provide greater access to employment, education, and healthcare. In turn, these improvements lead to stronger communities, increased social mobility, and a more resilient economy.

The Louisiana Department of Transportation and Development (DOTD) develops and sustains the critical elements of the State's infrastructure, including highways, bridges, multimodal transportation assets, micro-mobility systems, and public works. DOTD's vision is to deliver a safe and reliable infrastructure system across Louisiana.

In Executive Order JML 24-60, Governor Landry stated that "long-standing deficiencies in the operation of the Department have fostered distrust of [DOTD] by the Legislature and the public, contributed to a serious decline in the adequacy, safety, and efficiency of Louisiana's transportation systems." He also highlighted that improving the State's roads, bridges, and ports is an important element of Louisiana's long-term economic viability. Boston Consulting Group (BCG) was engaged to support the effort to "recommend measures that will increase funding for the State's transportation infrastructure to address the existing backlog of projects and substantially improve the adequacy, safety, and efficiency of Louisiana's transportation systems."

BCG partnered with DOTD from June - September 2024 to conduct an in-depth assessment of how to optimize DOTD's funding, capital program, and maintenance activities. The overarching objectives of the assessment were to evaluate the Department's operations, understand how they compare to other state departments of transportation (DOTs), and lay the foundation for future efforts to improve the Department and enhance Louisiana's long-term economic competitiveness.

This effort involved four key components:

1. **Internal assessment and stakeholder input**: BCG gathered and baselined internal financial and operation data, interviewed key internal (e.g., DOTD leadership and district administrators) and external (industry partners and legislators) stakeholders. BCG also gathered publicly available operational metrics across the organization and built a fact base for analyzing priority areas.
2. **Benchmark and evaluation:** As part of this effort, BCG established key metrics across focus areas, conducted benchmarking against priority peer states, and developed gap analyses to identify areas of opportunity.
3. **Recommendations**: BCG developed a set of recommendations to improve effectiveness and efficiency, and jointly with DOTD, devised an initial implementation roadmap.
4. **Reporting and presentation**: BCG then prepared this final report for DOTD and the State Legislature.

Scope: This report focuses on key areas, including funding, capital program delivery, consulting services, maintenance and operations, and other key enablers in the organization. For full

transparency, an extensive list of challenges and feedback captured during interviews is provided at the end of the report.

Approach and methodology: BCG synthesized a set of qualitative and quantitative inputs to develop the findings and recommendations in this report.

Component	Activities, inputs, and approach
Internal review	• Reviewed final report and recommendations of the Governor's Transition Council on Infrastructure • Conducted 30+ interviews with various DOTD offices and industry partners to understand operations • Analyzed financial and budget data and trends • Analyzed capital delivery programming and letting performance • Developed model of maintenance costs by activity and evaluated equipment utilization • Developed model for funding need, capital delivery, and outsourcing to understand DOTD's capacity for additional investment

Benchmarking DOTD relative to other state DOTs	• Identified a selection of peer states based on shared characteristics with Louisiana (e.g., Department of Transportation [DOT] size and budget, geography, weather patterns, size of system, asset mix, regulatory/statutory structure) and use of innovative practices
	• Conducted external expert interviews with current and former DOT personnel from peer states (AL, FL, GA, MS, NC, NY, SC, TN, TX, VA) to understand best practices
	• Analyzed industry (American Association of State Highway and Transportation Officials [AASHTO], Federal Highway Administration [FHWA], American Road and Transportation Builders Association [ARTBA]) and public DOT reports to compare DOTD performance to benchmarks
	• Developed baseline of key functions across funding, capital projects, and maintenance and operations
	  ○ Funding: Investigated peer state gas tax rates, state-funded sources of revenue from fees and fines, share of federal and state revenues
	  ○ Capital program: Mapped project planning and programming process, benchmarked capital spend efficiency (e.g., salary and benefits and consulting spend of capital activities to capital awarded), performance of letting against published plans and identified implications for operating structure
	  ○ Maintenance and operations: Reviewed typical activities outsourced, outsourcing contracts, asset utilization, operating model

Findings, recommendations, and impact

Major Findings

Through internal review and benchmarking against other states, BCG identified the following findings:

Funding

- State revenue sources that are dedicated to DOTD are insufficient, have not kept pace with cost growth, are not sufficiently diversified, and often lack flexibility.
    - 52% of DOTD's budget stems from State sources, compared to an average of 63% for peer states.[1] The Transportation Trust Fund (TTF) is the primary source of State revenue, funded largely by the state fuel tax, which has remained stagnant since 1990 and has faced downward pressure from rising fuel efficiency and electric vehicle (EV) usage.
    - DOTD's debt service obligation is increasing. The dedicated 4-cent portion of the fuel tax is insufficient to meet the debt owed, and a growing amount of the 16-cent portion of the fuel tax has been used in recent years to meet the debt service obligation, from 0.5 cents to 1.1 cents in 2024, estimated to reach 2.4 cents by 2043. This has decreased the amount of TTF revenues used toward building and maintaining roads and bridges and has resulted in increasingly insufficient funding from TTF sources, forcing the State to delay critical work.
    - The TTF is also used to fund DOTD's operating costs, while for other large state agencies, the State General Fund is used to cover core components of the operating budget, including salaries and other administrative costs.
    - Inflation in construction costs have far outpaced Consumer Price Index (CPI) in recent years. The National Highway Construction Cost Index (NHCCI) grew at 10.8% compound annual growth rate (CAGR) from 2019 - 2024, and Louisiana's construction cost inflation grew at 13.5% CAGR from 2020 - 2024.
    - High reliance on federal funding and high degree of earmarking of State dollars for specific projects, especially in recent years, creates downstream delays and limitations on how the funds are spent. Projects that are funded by entirely non-earmarked State dollars would be subject to fewer requirements, enabling more agility and flexibility in execution.
- Funding is not tied to strategic goals or outcomes, as there is limited organizational understanding and outward communication of current and anticipated future needs. This has contributed to the challenges in ensuring adequate funding for the most needed projects and maintaining an even capital project pipeline.
    - The capital budget consists of three primary categories that represent the majority of capital spend: preservation (e.g., mill and overlay), safety (e.g., guardrail upgrade), and added or new capacity (e.g., new bridges). Certain categories of funding are allocated to specific priorities (e.g., within the Construction Subfund, 75% of funds are dedicated to capacity vs. 25% toward preservation). One-time, non-recurring funding may also be granted to accomplish specific priorities. The current allocation of funding may not align with transportation needs and should be re-evaluated.

[1] FHWA State Statistics (2022)

Capital program delivery and management

- There is a lack of consistent or systematic ranking of projects and limited transparency both internally and externally regarding the prioritization of projects, causing frustration for DOTD personnel, legislators, and the public. While DOTD matches and obligates all federal funds, in recent years, it has not been able to reliably deliver the projects identified in the public let list and in the Highway Priority Program.
    - In FY 2023, DOTD awarded $1.8B of projects, in line with the total expected "Ready to Let" value in the FY23 Highway Priority Program. However, only 26% of the specific projects (109 out of 414) identified as "Ready to Let" in FY23 were awarded in FY23.
    - For routine preservation projects, typically managed at headquarters, there is a perception of a lack of visibility at the district level around how projects are prioritized and advanced through the pipeline, limiting districts' ability to align timelines with local priorities and respond to inquiries from local stakeholders. There may thus be an opportunity to expand the role of districts in managing and executing these types of projects.
- Relative to benchmarked peers with a similar degree of outsourced engineering work (50/50), DOTD's indirect capital program management costs are on par or slightly higher, with a spend ratio per dollar of capital awarded of 22% vs. 21% for peers. This means that DOTD spends $22 to engineer, let, manage, and close out projects for every $100 spent on construction.
- Given the recent increases in the capital budget and the challenges in hiring and retaining staff, DOTD will need to leverage consultants to deliver significant amounts of incremental capital, naturally requiring a shift in the operating model and internal capabilities to accommodate a higher proportion of outsourcing.
    - DOTD would shift from a 55% outsourced model to an 80% outsourced model if it added $1B to its current yearly average let value of $1.2B.
    - A rise in the use of consultants will increase demand in the broader market, intensifying competition for top engineering talent. This shift would need to be accompanied by an effort to ensure employees are adequately compensated and incentivized to remain at DOTD, to ensure sufficient oversight and institutional knowledge remains within DOTD.
    - In some cases, increased outsourcing may also lead to higher costs, reduced quality, and delayed timelines, particularly for Construction Engineering and Inspection (CEI) activities. However, DOTs need staff in place – whether in-house or external – to deliver on their mandate, and many peer state DOTs leverage external consultants to ensure they can reliably deliver and manage a greater volume of projects. To mitigate the quality and timeline challenges, DOTD can adjust its operating model to ensure it is able to provide appropriate oversight.

Maintenance and operations

- Funding for the district budgets within the Office of Operations, largely dedicated to maintenance and operations, has grown at an average 1% CAGR over the past 10 years (excepting recent one-time infusions), not keeping pace with inflationary growth.
- Peer state DOTs have used maintenance contracts to augment the workforce and increase the amount of maintenance work completed, either for planned, cyclical maintenance activities that can be contracted economically or for highly specialized activities for which

expertise does not exist internally. This allows in-house teams to focus on addressing reactive, urgent maintenance needs in an efficient manner.

- Maintenance equipment utilization is lower than internal targets, due to an aged and larger-than-optimal fleet that requires repair. While there is likely opportunity to raise utilization through greater equipment sharing, monitoring, and increasing rentals – a shift that would require collaboration the Division of Administration – a certain base level of equipment is required to maintain the ability to conduct emergency operations. An increase in contracting for routine maintenance will reduce the amount of equipment required to be maintained in house.

Organization and people

- There is limited meaningful tracking of key performance indicators (KPIs) across the organization. While the collection and reporting of performance indicators is mandated by the Government Performance and Accountability Act of 1997, these indicators are not seen as meaningful or closely tied to employee or Department outcomes. There is an opportunity to institute more robust, data-driven KPIs tied to individual and team performance that directly drive the performance of the Department as a whole.
    - While there are some ways to manage performance and reward employees within the constraints of State Civil Service, clearly defined KPIs and related data are essential for holding employees accountable and enabling DOTD to use those tools. In the absence of clear KPIs, it is impossible for DOTD to drive long-term culture change or track and evaluate the success of individuals, teams, and the organization.
- Though lower than the State average, DOTD has seen high rates of staff turnover in recent years, with retirement at ~4%, involuntary turnover at ~3%, and voluntary turnover at ~10% - 11% in 2022 - 2023, due in part to the perception of inadequate compensation or incentives for key roles. This high rate of turnover contributes to knowledge loss and a widening experience gap between senior and entry-level employees.
    - As DOTD evaluates organizational changes, the agency can leverage this natural attrition to right-size the organization, maximize headcount efficiency, reallocate the workforce to the teams and roles with the greatest need, and reinvest in employee compensation.
- Peer state DOTs have undergone transformations similar to what DOTD aims to achieve. A critical component of these transformations has been having the right number and mix of people in the right roles, with aligned incentives between the Department's overall strategy and individuals' responsibilities.
- Support functions are perceived to be inefficient, in part because other state agencies place restrictions DOTD's activities and limit its ability to operate with agility and efficiency. For example, DOTD does not have control of its data or technology and must go through the Division of the Administration's Office of Technology Services (OTS) to access individual pieces of data (e.g., financial, project, workforce, or asset data), hindering its ability to efficiently analyze and process it.

Major Recommendations

1. Collaborate with stakeholders and make the case to expand revenue sources to ensure adequate, sustained, and flexible funding for transportation (**Section 1**)
    a. Using the 2022 State Highway and Bridge Needs Report as a starting point, initial estimates of total funding need suggest a high scenario of up to $4.3B in FY 2025 across operating and capital budget to maintain current operations, limit backlog

growth, eliminate the current backlog in 20 years, build four megaprojects,[2] and fund pass-through and non-appropriated items.[3] This represents an incremental $1.2B vs. the FY24 total budget of $3.1B, and would require a re-evaluation of the allocation of capital budget funds between preservation and capacity.

i. Given the magnitude of increase this represents from current funding levels, the State should aim to gradually ramp up revenue over time to reach this run rate (e.g., with the target of an additional $250M per year over the next ~5+ years). DOTD will first need to take action to demonstrate that it can effectively and efficiently manage its current program.
ii. If the 2019 - 2024 nationwide construction cost inflation trend continues, the funding need will increase to $9B - $20B per year by 2044. If Louisiana's construction cost trend continues, the funding need will be $15B - $33B by 2044. These figures underscore the importance of sustainable funding that keeps pace with construction inflation costs.

b. Engage legislators to understand potential funding mechanisms and ensure that revenue sources directly related to transportation are allocated toward capital projects. It is essential to have multiple recurring means of finance (MOF) to ensure that funds are flexible and sustainable. Several potential sources of state revenue exist, and would require legislative action to implement:
   i. Taxes and fees directly related to road usage/vehicles (e.g., indexed fuel tax, EV/HEV fee, toll lanes, road usage fee)
   ii. Taxes and fees indirectly related to road usage/vehicles (e.g., ride share fee, retail delivery fee, rental car fee)
   iii. Taxes and fees outside of road usage/vehicles (e.g., state sales tax, hotel or casino tax)
c. Work with stakeholders to mitigate the need for line-item appropriations and ensure that any line-item appropriations are effective. To free up existing funds, DOTD can also work with the Legislature to re-evaluate the feasibility and need of earmarked projects that are not fully funded. However, the agency will need to demonstrate credibility and ensure released funds would be deployed effectively to build trust with the Legislature.
d. As a next step, DOTD should refine future estimates of funding need (e.g., through its Statewide Transportation Plan update) and develop an outcome-based funding request that communicates the programmatic results of increased funding from the Legislature. The Department should partner with contractors to determine burn rate, or the rate at which funds are spent, to inform a funding ramp-up.

2. Improve processes and communication within the capital program to increase effectiveness, transparency, and efficiency of program execution (**Section 2**)
   a. Right-size the project delivery pipeline and successfully let 90%+ of projects listed in the public let list and Highway Priority Program.
   b. Improve communication of existing prioritization rationale with the public and the Legislature, and develop and implement score-based prioritization for capacity projects (including assessment of economic impact).

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[2] Including the Calcasieu Bridge, the Mississippi River Bridge, I-49 South through Lafayette, and I-49 North through Shreveport

[3] Including the debt service, Parish Transportation Fund, Statewide Flood Control, Port Priority Program, and Airport Priority Program

c. Over time, develop project management capabilities at the district level and systematically shift the delivery of preservation projects to districts, starting with low-risk, low-complexity projects. There is wide variability in the current state of project management capabilities across districts, with some districts more prepared to take on this responsibility than others. Thus, the shift would need to be rolled out gradually and accompanied by parallel efforts to improve management capabilities and capacity at the district level. This transition would help respond to the need to strengthen accountability, streamline processes, and increase districts' visibility and ownership over routine preservation projects.
d. Streamline processes to increase the effectiveness and efficiency of processes (e.g., design review) and demonstrate the ability to manage a large capital program.
e. Develop a robust set of KPIs that are published annually to drive accountability.

3. Prepare the organization to leverage consulting partners for a new influx of capital (**Section 3**)
    a. Streamline the efficiency of procurement and quality of consulting services through general engineering contracts with multiple pre-qualified firms, combining phases of project delivery, and bundling projects.
    b. Strategically organize personnel to manage consultants and retain in-house talent. This should include evaluating compensation and incentive structure across key titles and positions to ensure that critical roles are properly compensated, and employees are motivated to remain with DOTD rather than leaving to join the private sector.
        i. Define and institute a target operating model to monitor the quality of outsourced work, ensure that internal design reviews and processes do not unnecessarily bottleneck work, and empower consultants (particularly in CEI) to make decisions.
        ii. One example model for engaging consultants when specific projects have been identified is the Transportation Model for Economic Development (TIMED) program, which was designed in consultation with industry partners with the goal of overseeing and rapidly delivering a $5.2B infrastructure program. DOTD's approach to the TIMED program, which involved hiring a private entity to oversee project delivery and construction management, is often cited by DOTD partners as a model of success despite notable challenges (e.g., significantly underestimated initial cost estimates causing a high debt service that persists to this day).

4. Improve maintenance and operations performance (**Section 4**)
    a. Outsource routine maintenance activities to more effectively address the maintenance backlog, adequately provide safety-critical maintenance services to the public, and free up capacity for in-house staff to more efficiently manage reactive, time-sensitive maintenance activities.
    b. Recognizing that outsourcing more maintenance activities will require additional funding, the agency should articulate a clear set of target maintenance and operations outcomes and the associated funding required to achieve each of them to make the case to the Legislature for increased resources. This should include assessing requirements for in-house staff to more effectively conduct emergency maintenance activities, and defining how the agency will tap into contractor capacity for emergency support as contract usage increases.
    c. Assess operational need of equipment fleet and explore options for statewide equipment sharing, renting equipment from the private sector, or including a clause in contracts that places maintenance contractors and their equipment at

the disposal of districts in the event of a declared emergency. This will add efficiency and reduce costs by optimizing fleet size based on measured and predicted use.

5. Enable the organization (**Section 5**)
    a. Develop, track, and publicly report KPIs across the organization to drive accountability and process transparency. The design and implementation of KPIs will take time and may therefore require a phased approach. However, developing robust, data-driven KPIs is critical for driving long-term culture change and tracking and reporting on the success of individuals, teams, and the organization. This single step will set the tone for the remainder of this effort.
    b. Conduct detailed organizational assessment, including roles, salary scale, and career pathways to promotion. Use the assessment to ensure that DOTD has the optimal number and mix of people in the right roles, with compensation and incentive structures aligned to preferred outcomes.
        i. Consider leveraging headcount reduction and personnel savings from natural turnover in areas where there is opportunity to right-size the organization, reallocate staff to maximize efficiency, and reinvest savings in employee compensation for critical roles.
    c. Assess Office of Management and Finance (OMF) processes (e.g., financial documentation, reporting) and identify areas for improvement.
    d. Assess flexibility within the requirements of Civil Service, Office of State Procurement (OSP), and OTS. Identify constraints that, if relaxed, would unlock greater flexibility and improved performance within DOTD.
        i. This should include a detailed review of existing data governance policies and opportunities to improve access to relevant information (e.g., financial, project, workforce, and asset data) as needed.

Impact

If implemented correctly, these recommendations present a once-in-a-generation opportunity for DOTD to transform its performance and outcomes and, by extension, Louisiana's infrastructure and economic competitiveness. A well-orchestrated transformation can enable DOTD to deliver both effectiveness and efficiency gains. While components of the recommendations are tied to increased funding, many of them are within DOTD's control and will enable the agency to demonstrate improvements in efficiency and effectiveness as part of gaining trust and credibility with the State Legislature and the public.

Effectiveness of DOTD:

- Clear vision and long-term culture change with a focus on serving the people of Louisiana
- Greater transparency, accountability, reliability, and trust with the public and Legislature
- Faster, higher-quality project delivery and construction
- Improved planned maintenance and greater responsiveness to reactive maintenance
- Greater focus on economic development in project prioritization

Efficiency of DOTD:

- Higher productivity of DOTD engineering and construction management and increased ability to manage a significantly larger capital program with the same personnel costs
- Greater value from outsourcing to consultants through improved procurement processes and streamlined processes (e.g., risk-adjusted design review)

- Additional internal maintenance capacity for potential redeployment toward reactive, non-cyclical maintenance and/or savings
- Greater utilization of equipment and a reduction in the total number of required vehicles, enabling the sale of unused items and a shift toward cyclical equipment replacement

Risks and key enablers in implementation

A transformation of this scale will require key internal factors, such as support from leadership, as well as a governance structure that will enable true culture change and drive long-term organizational impact. There are also critical external factors, such as the approval of additional revenue sources and additional flexibility in hiring and compensation practices – although many of these factors are outside the direct control of the Department and will need to be achieved through close collaboration with the State Legislature and other State agencies (e.g., Division of Administration). DOTD should take steps to ensure that the following enablers are in place as it seeks to transform.

Key enablers:

1. A dedicated transformation team focused on impact and empowered by the Secretary to act decisively
2. A governance structure that enables informed decision-making and keeps leadership accountable for outcomes
3. Clearly defined implementation KPIs and milestones, as well as a process to validate impact. This will enable leadership to maintain visibility into progress and ensure that true behavior change is reflected across the organization.
4. Greater ownership of Human Resources (HR) decision-making; flexibility for DOTD to appropriately reward and manage performance and hire the required talent for critical roles. For example, DOTD should be able to:
    - More directly link elements of pay to specified performance measures
    - Increase the weight of qualifications and ability vs. tenure in hiring decisions
    - Provide more competitive salaries for critical roles in the organization
    - Develop career paths to fast-track high-potential leadership and managerial talent from within the organization
    - More efficiently remove or reassign employees who consistently underperform
    - Enhance competitive recruiting practices, for example, by extending offers to engineering students earlier in the school year
5. A close partnership with the Legislative and Executive branches and with other state entities (e.g., Division of Administration, State Civil Service) on the transformation, both to drive accountability and to help institute any required changes outside of DOTD's purview (e.g., changes to statute or policy)

Based on BCG's experience, the above enablers must be in place for the organization to realize the full potential value of its transformation efforts. DOTD should conduct a comprehensive assessment of the current state of these enablers and, where they do not already exist, take steps to ensure that they are in place as the agency initiates reform efforts.

Next steps

While many of these recommended actions require an increase in funding, DOTD can take a series of short-term actions to begin to demonstrate progress and build the foundation for long-term changes. DOTD must first take steps to strengthen internal processes and reform itself to

deliver on its mission more efficiently, which will, in turn, help build the credibility and trust needed to make the case for additional funding.

Key short-term activities include:

- Clearly communicate and articulate the go-forward strategic vision with key actions and accountability measures to internal and external stakeholders.
- Identify clear, measurable outcomes tied to a requested increase in funding to clearly articulate the objectives of reform and ensure alignment with key stakeholders
- Right-size the project delivery pipeline and ensure the public let list is up to date with monthly updates.
- Strengthen the partnership with the contracting and consulting community, including quarterly communication with updates on ongoing initiatives.
- Conduct process reviews to reduce red tape for execution (e.g., plan review standards, traffic studies).

For the long-term initiatives, DOTD should build the framework for implementation support, including:

- Develop a change management plan that highlights the vision and future goals with quarterly updates on progress toward achieving objectives
- Build implementation plan and evaluation of roles to create accountability, responsibility, and necessary support to drive changes
- Set up internal governance structure (e.g., transformation office) and reporting structures to ensure that initiatives progress and do not lose momentum.

Report Layout

Each of the following sections provides a deep dive into the five key recommendation areas noted above. Each section includes context, key findings, and a set of more detailed recommendations.

Detail on opportunities

Section 1 Collaborate with stakeholders to ensure adequate, sustained, and flexible funding for transportation

1.1 Context

To deliver on the service expectations from the Legislature and public, the Louisiana Department of Transportation and Development (DOTD) must ensure that there is sufficient and predictable funding to adequately address Louisiana's deteriorating infrastructure. In Fiscal Year 2024, DOTD had $751M in operating budget authority, $2.1B in capital budget authority, and $208M in non-DOTD appropriated budget,[4] including the one-time funding given to the agency by the Legislature to make up for revenue deficiencies. Assessment of funding indicates that DOTD's funding sources are:

- **Inadequate:** DOTD receives ~45% less funding per lane mile managed compared to peer states,[5] which has manifested in asset conditions deteriorating; Louisiana has approximately double the percentage of state roads deemed unacceptable compared to peer states.[6]
- **Not indexed to costs:** Funding from recurring sources of revenue has been insufficient to keep pace with rising costs. The fuel tax, which is the primary source of Transportation Trust Fund (TTF) revenues, has remained stagnant at 20 cents since 1990 and is not indexed for inflation. There has also been a reduction in gas consumption from increased fuel efficiency in automobiles and movement towards electric vehicles (EVs), resulting in a loss of purchasing power from fuel tax revenues over the past few decades.
- **Unpredictable:** DOTD has made up for the deficiency from recurring revenue sources with one-time funding injections from the Legislature. These general fund appropriations are not guaranteed each year, therefore limiting DOTD's ability to plan and shape the pipeline without the ability to predict future funding amounts.
- **Not diversified:** DOTD has a higher percentage of federal funding than state funding compared to peer states, which limits the use of its funds and can contribute to downstream delays. State revenue primarily comes from taxes and fees directly related to road/vehicle usage; there is limited use of taxes and fees indirectly related or not related to road/vehicle usage.
- **Inflexible:** Components of DOTD's budget authority are appropriated by line item, setting aside specific dollar amounts for specific projects. Many of these come from the Highway Priority Program (HPP), but current statutes allow for legislators to add additional line items, often past the budget deadline and with limited review. One-time funding appropriations from the Legislature are generally earmarked for specific projects that may not have been prioritized in the DOTD planning process and, therefore, may not have adequate feasibility or budget associated. This can lead to "trapped" funds that could have otherwise been spent on projects with higher priority or readiness to let.

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[4] DOTD OMF financial data (FY 2024)
[5] FHWA State Statistics (2022); Funding includes Highway-User Revenues, Appropriations, Imposts, Bonds, and Miscellaneous for state level, Payments from FHWA/Other Federal Agencies, Payments from Local Governments; Peer states: AL, AR, AZ, FL, GA, KY, MO, MS, NC, OK, SC, TN, TX, VA
[6] FHWA State Statistics (2022); Peer states: AL, AR, AZ, FL, GA, KY, MO, MS, NC, OK, SC, TN, TX, VA

Without adequate, sustainable, and flexible uses of funds, DOTD will not be able to keep up with inflation or plan for the future. While it will take time to demonstrate improved performance and outcomes in order to build credibility and trust and make the case for additional funding, it is essential for DOTD to work with the Legislature and change the funding approach to offer more flexibility, cover increasing costs, and maintain Louisiana's infrastructure.

1.2 Findings

Through stakeholder interviews and analysis, BCG identified the following about DOTD's overall funding need:

The state fuel tax is low compared to peer states and has remained stagnant. When comparing gasoline fuel taxes across all states, Louisiana ranks in the 10th percentile; peer states have an average fuel tax value of 27 cents.[7] It has been 34 years since the last fuel tax increase in Louisiana, the third-longest time period across all states.[8] Additionally, approximately 40% of states have a variable-rate component to their state fuel tax that is either indexed to inflation or a percentage of the price of fuel.[8]

Exhibit 1: Detailed breakdown of DOTD revenue sources[9]

DOTD's funding structure is dependent on federal funds and a shrinking tax base

● Recurring revenue ◐ Partially appropriated ○ Fully appropriated

Source	FY 2023 Annual Value(M)	FY 2024 Annual Value(M)	% of Budget	Description	Discretionary	Outlook
State Sources						
Transportation Trust Fund	602.7	890.2	26%	Funded by 16 of 20c per gallon of gas tax, special fuel tax, vehicle license tax, interest, fees, fines, transfers from SGF and transfers from State Highway Fund	●	Flat; variable YOY based on collections
Construction Sub-Fund	238.3	190.9	7%	Funded by one time payment from Deepwater Horizon settlement, motor vehicle sales tax, permit sales and transfers from SGF	◐	Allocation to DOTD ↑ due to MVST proceeds
Bonds	218.9	169.9	7%	Proceeds from transportation related bond issuances	○	Variable based on year and bond financing
State General Fund	147.8	97.0	4%	Legislature appropriated income, sales and corporate taxes allocated to education, safety and infrastructure	○	Annual appropriation from Leg. varies year over year based on budget surplus
Earmarked Appropriations	19.5	211.3	4%	General Fund money from income, sales and corporate taxes allocated to specific projects by state legislature	○	Varies based on legislature priorities and allocation
Interagency Transfers	65.7	60.9	2%	State agency transfers (mapping revenue etc.) and one time FEMA payments for emergency response	◐	Varies YoY depending on emergencies and interdepartmental ops
Self Generated	58.9	58.7	2%	Misc revenue and non-federal receipts collected by the state	●	Flat due to consistent operations
Undesignated Fund Balance	47.5	29.1	1%	Rollover funding from previous year	●	Varies based on previous years tax collection
Truck and Trailer Registration Fees	39.0	33.6	1%	Truck and trailer registration and license fees	●	Flat given consistent regulations
Other	2.1	2.3	0%	TTEC Fund, New Orleans Ferry Fund and other miscellaneous revenue	●	Flat due to consistent operations
Federal Sources	1,522.7	1,196.9	47%	Highway Trust Fund federal receipts, federal appropriations and grants	◐	Increased modestly over last 5 years
Delta between budget & actual	14.2	24.6	1%	Delta between capital/operating budget, 16c tax for TIMED debt, undesignated fund balance, & carry forward budget vs all DOTD MOF		
Total	$2,977.3	$2,965.3				

Source: DOTD FY10-24 Capital budget & Operating budget; DOTD FY 14-24 TTF Collections; DOTD FY 14-28 TTF Distributions; DOTD FY23 Capital Budget by MOF; Interviews with DOTD OMF, July 2024

[7] FHWA State Statistics (2022); Peer states: AL, AR, FL, GA, KY, MO, MS, NC, SC, TN, TX, VA
[8] Legislative Auditor's Report, Sufficiency of the Transportation Trust Fund in Meeting the State's Transportation Needs (Sept 2022)
[9] Analysis intended to provide insight into sources of revenue; will not exactly tie totals for operating budget and capital budget authority

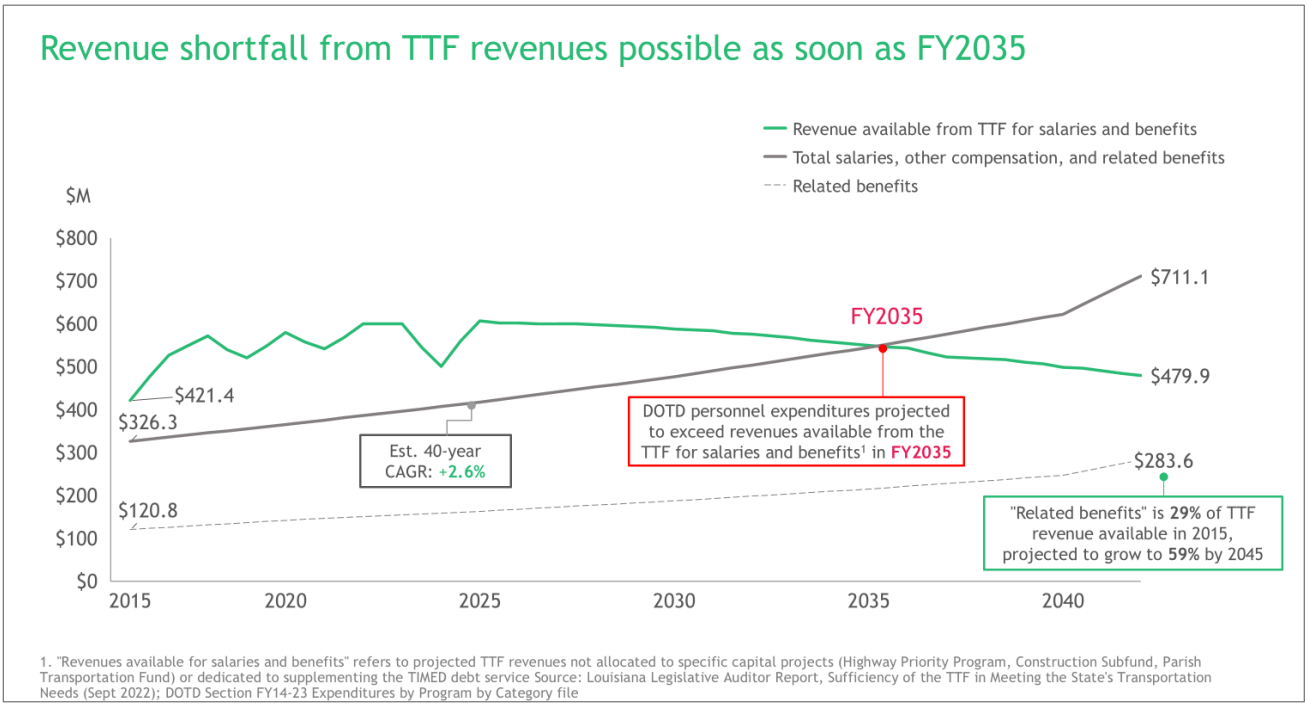
DOTD's debt owed from the Transportation Infrastructure Model for Economic Development (TIMED) program is due to increase, resulting in more Transportation Trust Fund (TTF) revenues dedicated to paying the debt service. After the TIMED program was launched in 1989, the significant initial underestimation of costs and delays in implementation resulted in the need to apply debt financing in 2002, substantially increasing the Department's debt burden. In addition to inflationary costs, DOTD will also face increases in debt service obligations until 2044, according to internal tracking. The current 4-cent portion of the fuel tax dedicated to TIMED projects is not enough to meet the debt service owed; 0.5 cents to 1.1 cents of the 16-cent portion of Louisiana's fuel tax have been used from 2014 to 2024 to meet the debt service obligation. This amount will continue to grow to meet debt service needs, increasing to 2.4 cents by 2043.[10]

TTF revenues for salaries and benefits will be insufficient to cover DOTD's necessary personnel costs by Fiscal Year (FY) 2035. DOTD is one of the only Louisiana state agencies whose salaries and benefits are not paid for by the State General Fund; rather, labor costs are covered by the TTF. When the TTF was established in 1989, the purpose was to dedicate the revenue "solely and exclusively for the costs for and associated with construction and maintenance of the roads and bridges of the state and federal highway systems." One year later, the State Attorney General stated that the Legislature intended to allow TTF funds to be available for payment of "salaries and related benefits of employees of DOTD whose work is directly related to highway programs or other programs." This did not have a large effect on the TTF at the time, but as labor costs have grown as a result of inflation and program expansion, an increasing proportion of TTF revenue is dedicated toward salaries and related benefits.

DOTD's revenues from the TTF that are available for salaries and benefits will decline after 2024 due to the rising debt service obligation. Meanwhile, DOTD's total labor costs (salaries, related benefits, and other compensation) grew at a 2.9% Compound Annual Growth Rate (CAGR) between FY19 and FY23, equivalent to ~$10M - $12M per year.[11] Personnel expenditures are expected to exceed revenues available from the TTF for salaries and benefits as early as FY 2035[12] – immediate investment is needed now to reverse the decline relative to cost. Meanwhile, one-time State General Fund appropriations have been used to fund construction projects, while more and more TTF revenues are spent on agency administrative costs. It is important to recognize that DOTD needs people to deliver on its mandate – whether in-house or outsourced – and a growth rate in wages would be expected for both in-house employees and outsourced consultants.

[10] DOTD OMF financial data, TIMED debt service (FY 2010-2044)
[11] DOTD OMF Financial Data, Operating Budget (FY 2010-2024)
[12] Legislative Auditor's Report, Sufficiency of the Transportation Trust Fund in Meeting the State's Transportation Needs (Sept 2022), DOTD OMF Financial Data, Operating Budget (FY 2010-2024)

Exhibit 2: TTF revenues for labor costs vs DOTD personnel expenditures



DOTD has a lack of diversified funding sources. 52% of DOTD's budget stems from state sources, compared to an average of 63% for peer states.[13] Greater reliance on federal sources results in limited flexibility to use discretion to allocate funds. DOTD's recurring state revenue sources are primarily taxes and fees directly related to road usage/vehicles, such as the fuel tax, motor vehicle sales tax, or vehicle license tax. Peer states have diversified and future-proofed revenue through multiple means of finance (MOF), including taxes and fees that are indirectly related to road usage. For example, Florida has implemented a fee for ride-share vehicles. Georgia and Arkansas have allocated revenue to transportation from hotel taxes and casino taxes, respectively. In addition to the limited diversity of funding sources, there is an effective 'double tax' on construction materials: construction materials are subject to a sales tax (flowing to the State General Fund), which is being effectively funded by the TTF, representing an estimated $60M.[14]

An increase in line-item additions without adequate feasibility and budget has led to challenges in spending additional budget authority. The number of line-item additions increased from 34 to 84 between 2018 and 2023, following a 2021 amendment to the Capital Outlay Act, RS 39:112, that increased exemptions for additions made after the November 1 budget proposal deadline.[15] These projects are not required to be cleared by DOTD for feasibility prior to budgeting, and legislators are given limited time to review them before approval. Additional line items are funded by General Obligation (GO) bonds but DOTD

[13] FHWA State Statistics (2022); Peer states: AL, AR, AZ, FL, GA, KY, MO, MS, NC, OK, SC, TN, TX, VA
[14] Based on interviews with contractors that conducted an estimate using tonnage of construction materials in one year
[15] Legislative Auditor's Report (Capital Outlay (House Bill 2) Transportation Projects - Response to House Resolution No. 169 of the 2023 Regular Legislative Session (Feb 2024)

consistently over-programs Priority 1 projects past allocated GO bond amounts. The lack of appropriate review also raises later costs as projects may not be adequately budgeted without advanced scoping and studies.

Since 2017, seven line-item projects valued at $228M have been canceled or put on hold, tying up limited cash lines of credit.[16] These projects are all either awaiting funding, not ready to start construction, or canceled due to infeasibility and related factors, all of which could be mitigated with proper DOTD and legislative review. Most other states have a lesser legislative role in their DOT budgeting process. At least 36 states have a limited/moderate role, with restricted power to select individual projects and affect project prioritization.[17] States like California and Texas mitigate line-item additions with programmatic appropriations, allocating money for broad functions, not by project. Individual projects must go through their respective state planning programs, similar to the HPP.

Additionally, the unpredictable nature of large pools of one-time funding from the Legislature presents significant challenges for DOTD around strategic planning and project execution. These funds are generally appropriated with little advance notice, leaving DOTD with limited time to allocate resources effectively. As a result, the Department must rapidly identify and prioritize projects that are ready for delivery, regardless of prioritization or impact, since infrastructure projects have a long timeframe for delivery. This reactive approach limits DOTD's ability to develop a balanced and well-prioritized project delivery pipeline, which can lead to inefficiencies and suboptimal use of resources.

There is limited understanding across DOTD of overall funding needs over the next 20 years, making it difficult to establish clear, long-term organizational goals. Historically, DOTD's funding philosophy has been to maximize federal funding and to obligate all funds available, including the occasional one-time infusion of state funding. While this ensures all available funds are captured and used, it has resulted in DOTD operating under a reactive strategy. Instead of being able to advocate for and secure the necessary funding based on long-term strategic needs and priorities, DOTD has found itself in a position where it must rely on and quickly allocate newly available funds to ready-to-deliver projects. This approach has not only strained the agency's ability to plan effectively but has also contributed to an inability to establish broader, long-term, outcome-oriented goals. This also contributes to DOTD's project-specific focus, as compared to the programmatic orientation of several peer states, such as South Carolina, described in the case study that follows.

DOTD is currently in the process of updating the Statewide Transportation Plan, which spans 30 years and is updated every decade. The Department is striving to make it more meaningful and user-friendly with need estimates, revenue projections and scenarios tied to outcomes, and details on the forecasted gap from 2022-2055. The updated version of this document – to be completed before the end of 2025 – should serve as the basis of communication around the Department's future funding needs. To truly shift to a programmatic ask, DOTD must first accurately identify its objectives and subsequent funding requirements, including inflation and all costs associated with construction.

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[16] Legislative Auditor's Report (Capital Outlay (House Bill 2) Transportation Projects - Response to House Resolution No. 169 of the 2023 Regular Legislative Session (Feb 2024)
[17] Legislative Auditor's Report, Sufficiency of the Transportation Trust Fund in Meeting the State's Transportation Needs (Sept 2022)

The Department is mandated by the Legislature to conduct an annual objective assessment of need, which it does through the State Highway and Bridge Needs Report ("Needs Report"), calculated annually to compare DOTD needs across years. Need in the context of the report is defined as the present-day costs of bringing pavement and bridge conditions to fair condition, at a minimum, and bringing roadways up to DOTD Engineering guidelines. However, while the report fulfills its legislative obligations, it does not reflect the entire cost of need due to the following:

- Pre-construction costs (e.g., design costs, environmental costs) are not included in the costs required for improvement, which account for ~20% of total project costs.
- Inflation in construction costs have far outpaced the Consumer Price Index (CPI) in recent years. Bridge improvement costs have used CPI to account for inflationary increases, which has understated bridge costs by 8% from 2008 to 2022 when compared to the National Highway Construction Cost Index (NHCCI) growth. Additionally, the NHCCI grew at 10.8% CAGR from 2019-24,[18] and Louisiana's construction cost inflation grew at 13.5% CAGR from 2020-24.[19]
- Needs Report reflects parametric right-of-way cost estimates, including certain recommendations with less feasible right-of-way requirements (e.g., lane widening on an urban highway).
- Capacity improvements tend to have higher construction costs than the costs reflected in the Needs Report; lower confidence in widening costs compared to other improvements.

Recognizing that the Needs Report has limitations as outlined above and is not intended to be used to forecast future funding needs, BCG leveraged the report as one of several inputs to serve as the basis of an initial estimation of future need. There are three different categories of funding need, separated into five different objectives below and in **Exhibit 3**.

Operating budget:

1. **Manage operations:** Maintain operations of DOTD at current levels.

Capital budget:

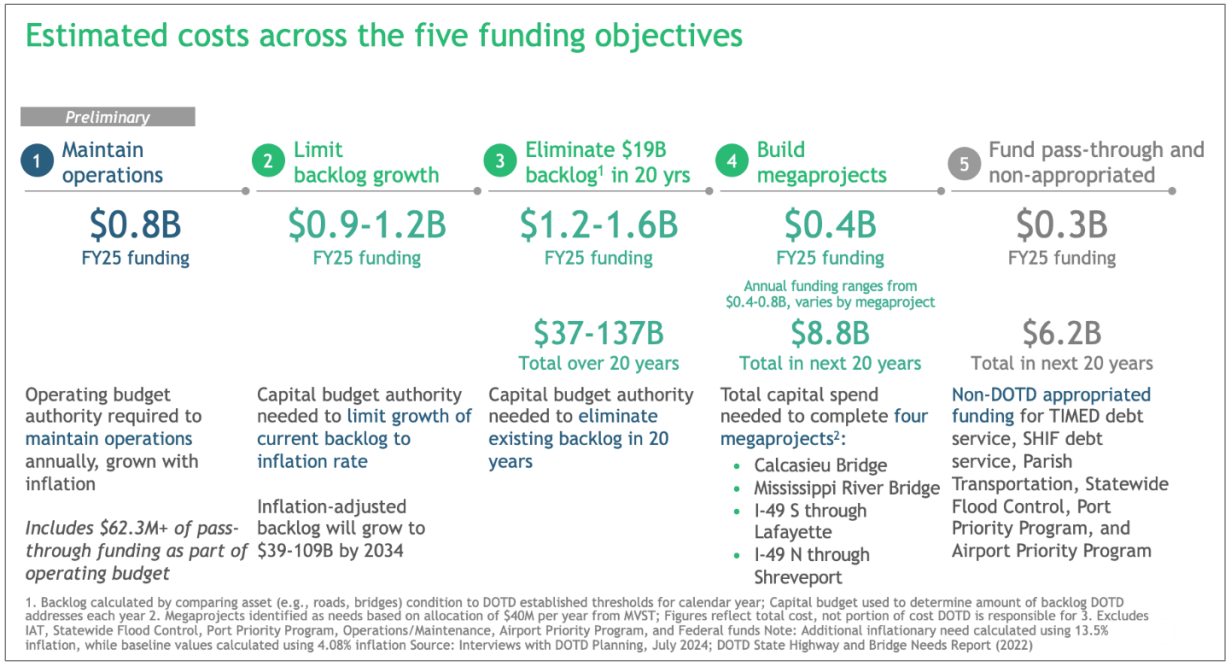
2. **Limit backlog growth:** Maintain current backlog asset size and deploy enough capital to ensure the value of the backlog does not increase while accounting for ongoing deterioration.
3. **Eliminate the backlog:** Over a period of 20 years, deploy enough capital each year to reduce the current $19B backlog to $0.
4. **Build megaprojects:** Build four megaprojects (Calcasieu Bridge, Mississippi River Bridge, I-49 South, I-49 North).

Pass-through and non-appropriated items:

5. **Fund pass-through and non-appropriated items:** Fund non-DOTD appropriated items, including the debt service, Parish Transportation Fund, Statewide Flood Control, Port Priority Program, and Airport Priority Program.

[18] National Highway Construction Cost Index, 2019-2024
[19] DOTD internal cost analyses, 2020-2024

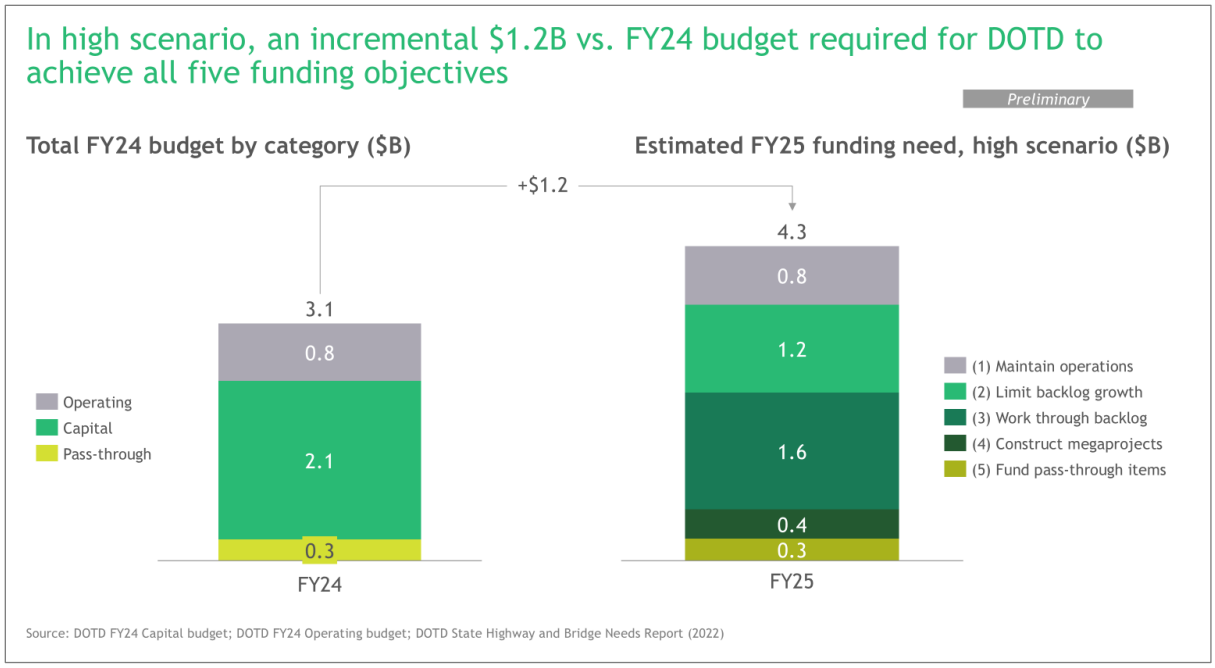
Exhibit 3: Cost estimates across five funding objectives



The five objectives assume a starting total budget of $0 and are additive to one another. The funding estimates for each objective can be used to both estimate the types of activities that can be accomplished with expected levels of funding and articulate a total target budget:

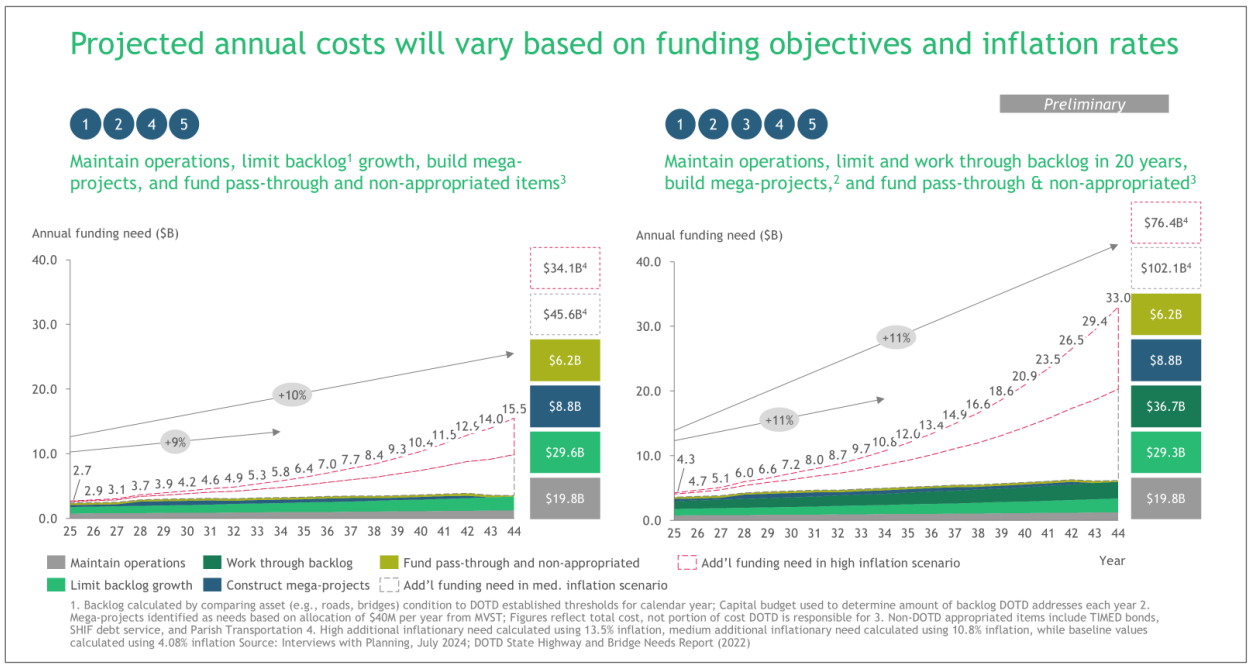
- **Funding (1), (2), (4), and (5) is possible in the near term with DOTD's FY24 budget of $3.1B.** Assuming current funding levels are maintained, the existing budget of $0.8B for operating, $2.1B for capital, and $0.3B for pass-through items could be allocated to fulfill the objectives of maintaining annual operations, limiting backlog growth, building the four megaprojects, and funding pass-through and non-appropriated items. However, it is important to recognize that a significant portion of DOTD's FY24 $2.1B budget authority consists of non-recurring revenue (including $437M of State General Fund transfers and $211M from earmarked appropriations). Furthermore, even if all FY24 funding were recurring, it would still be insufficient to reduce the $19B backlog over time, and without indexing the sources, would not keep pace with inflationary growth for objectives (1), (2), (4), and (5).
- **Funding (1), (2), (3), (4), and (5) would require $4.3B in total FY25 budget**, representing a ~$1.2B increase vs. the FY24 budget (see **Exhibit 4**).
    - Assuming a similar level of FY24 federal funding and a 20% match rate, this would include ~$1.2B in federal funds, of which ~$240M would be matched by State dollars. The remaining State funds above and beyond the federal match could then be dedicated to entirely State-funded projects, allowing for greater flexibility and accelerated execution.
    - Given the significance of this increase, DOTD should aim to gradually ramp up its revenues over time to reach this run rate (e.g., target an additional $250M per year over the next ~5-10 years).

Exhibit 4: Incremental cost required to achieve all five funding objectives



Regardless of the combination selected, inflation will increase the need to significantly larger figures by 2044. If the 2019 - 2024 nationwide construction cost inflation trend continues, the need would increase to $9B - $20B per year by 2044. If Louisiana's construction cost trend continues, the need would be $15B - $33B by 2044 (**Exhibit 5**), underscoring the importance of creating diversified, sustainable funding sources.

Exhibit 5: Projected annual costs for various funding category scenarios



Case Study: South Carolina DOT's Journey

Peer states have seen success increasing the diversity and sufficiency of their funding sources. A prime example is South Carolina. In 2015, SCDOT's $1B program was in a similar position to that of the DOTD. The agency had not earned confidence or trust from the Legislature and had a history of under-delivering on promises and past due bills. The primary priority was to obligate all federal funds, yet SCDOT did not clearly understand its strategic priorities and its funding needs. SCDOT also used a linear planning process, with uneven management of its capital delivery pipeline.

Over the next 10 years, SCDOT went on a journey to improve its operations. The critical first step was to accept that the agency had to change. Prior to the former Secretary's appointment, a consulting firm had completed an assessment of SCDOT and recommended changes for SCDOT. The former Secretary welcomed the changes and set the tone from the top that these recommendations were important to implement because they would yield improvements. The rest of the agency followed suit and grew into a $6.2B program, secured by building a strong partnership with stakeholders, including the public, legislators, and contractors. There was a targeted shift to focus on strategic priorities and program success (e.g., percent of roads in good condition, number of bridges rehabilitated) as well as more robust capital delivery pipeline management by re-organizing project delivery departments and metering out letting schedule through by building 2-3 years' worth of projects "on the shelf".

Key learnings from SCDOT journey:

Tied funding requests to overall system outcomes that moved from a project focus to statewide program focus. SCDOT laid out a "menu" of options for the Legislature that outlined the program outcomes that would occur for different levels of funding received. For example, if South Carolina received an additional $1B, all pavements would be brought to a state of good repair over the next 10 years.

Engaged with the contracting community. The agency understood that the private sector's help would be instrumental in achieving its goals. The former Secretary met with the contracting community to understand their near-term capacity and burn rate to ensure that workload increases were manageable for both parties, with a steady commitment to stable and consistent growth over time.

Developed 'report card' for leadership to ensure transparency in the process. SCDOT understood that the Legislature wanted greater understanding of how the agency worked and what outcomes were occurring. A report card method evaluated the agency across performance metrics and help leadership understand where there were areas for improvement. SCDOT also emphasized transparency with the public and the Legislature by publishing an annual accountability report that tracked asset performance.

Reduced vacancies and reinvested in higher FTE salaries. SCDOT received an influx of capital and had to evaluate how to manage the increased funds. Rather than making hiring changes or reducing FTE count, SCDOT reduced its 15% vacant positions. The savings from the reduced vacancies were reinvested into the current workforce.

1.3 Recommendations

- **Create "menu" of funding requests with outcome-based options to present to legislators.** Demonstrate to the Legislature how specific funding increases will lead to improvements in Louisiana's infrastructure using tangible outcomes, as suggested in Section 1.2. These outcomes should be more detailed than "eliminating the backlog" and focus on asset performance (e.g., 90% of roads in "good" condition or better in 10 years). While DOTD will first need to demonstrate its ability to reform and improve its performance before it can credibly make the case for additional funding, having a clear set of target outcomes will help to articulate the goal of these reforms and ensure alignment with key partners. DOTD is currently in the process of updating its Statewide Transportation Plan, which can serve as the foundation for this menu of options.

Exhibit 6: Example SCDOT 'menu' of investment options

Case study | SCDOT 'Menu' of Investment Options

Updated March 2017

Potential Transportation Asset Management Plan (TAMP) Performance Targets with Additional Annual Investments

	Option 1		Option 2		Option 3	
	$600M Additional Investment		$800M Additional Investment		≈$1B Additional Investment	
Priorities	Additional Annual Investment	TAMP Targets	Additional Annual Investment	TAMP Targets	Additional Annual Investment	TAMP Targets
Make Our Roads Safer	$50	Target our deadliest roads in rural communities. Nearly 30% of our rural fatalities and serious injuries are occurring on just over 5% of our network.	$50	Target our deadliest roads in rural communities. Nearly 30% of our rural fatalities and serious injuries are occurring on just over 5% of our network.	$50	Target our deadliest roads in rural communities. Nearly 30% of our rural fatalities and serious injuries are occurring on just over 5% of our network.
Improve Pavement Conditions	$300	Primaries to 58% GOOD Interstates to 95% GOOD FA Secondaries to 40% GOOD NFA Secondaries to 30% GOOD Target $50M to complement Safety Program	$400	Primaries to 58% GOOD Interstates to 95% GOOD FA Secondaries to 55% GOOD NFA Secondaries to 50% GOOD Target $50M to complement Safety Program	$500	All Pavements have been brought up to a state of good-repair.
Increase Mobility along Freight Network	$200	Additional investments for interstate widenings and launch a non-interstate freight mobility program.	$200	Additional investments for interstate widenings and launch a non-interstate freight mobility program.	$250	Additional investments for interstate widenings and launch a non-interstate freight mobility program.
Deliver Better Routine Maintenance	$60	Achieve a "C" Grade on our day-to-day maintenance operations.	$60	Achieve a "C" Grade on our day-to-day maintenance operations.	$117	Achieve a "B" Grade on our day-to-day maintenance operations.
Continue to Invest in Bridges			$46	Continue our journey to improve our substandard bridges. Initiate plans to replace our mega bridges along our critical routes.	$46	Continue our journey to improve our substandard bridges. Initiate plans to replace our mega bridges along our critical routes.
Enhance Mass Transit Services			$38	Increase drawdown of available federal funds. Increase efficiency in bus operations. Enable access to transportation for workers.	$38	Increase drawdown of available federal funds. Increase efficiency in bus operations. Enable access to transportation for workers.

Source: SCDOT Transportation Asset Management Plan Performance Targets, March 2017

- **Engage contractors to understand near-term capacity and burn rate to inform ability to conduct 'ramp-up' of funding.** Capacity and burn-rate information will help ensure that DOTD does not request more funding than the agency or industry can handle. Additionally, building a strong relationship with the contracting community will improve the partnership and execution of additional capital. Contractor capacity should then be used to revise the funding estimates.

- **Engage legislators to understand potential funding mechanisms to inform the feasibility of funding requests.** Legislators should be made aware of the necessity of adequate, sustainable, and flexible funding for DOTD – from multiple sources – to enable the Department to pursue its strategic priorities. As DOTD gains trust with the Legislature as reform efforts continue, it can work with the Legislature to re-evaluate earmarked projects that are not yet fully funded and can request the removal or adjustment of earmarks to re-allocate those funds to projects with higher priority and readiness to let.

- **Ensure revenue sources directly related to transportation are allocated toward capital projects rather than agency operating costs.** For example, TTF revenues are used to pay DOTD salaries and related labor costs, while other state labor costs are funded by the State General Fund. DOTD and the Legislature can ensure revenues from taxes and fees are used for their original intended purposes, such as redirecting TTF revenues to be spent on roads and bridges rather than agency labor costs, and consider using the State General Fund to cover employee compensation and other operating costs.

  There are many different revenue source options for DOTD to pursue to increase funding; below is a non-exhaustive list.

  - **Taxes/fees directly related to road usage/vehicles:**

  – Louisiana could increase the fuel tax and/or index the fuel tax to inflation to generate incremental revenue, as South Carolina and Arkansas did. Raising the fuel tax to the peer state average of 27.1 cents would result in $212M incremental annual revenue (an additional $30M per 1 cent increase).
  – DOTD receives 60% of state motor vehicle sales tax (MVST) collections. There is an opportunity to increase the amount of MVST allocated to DOTD; increasing to 100% would lead to $227M in incremental annual revenue.
  – Electric vehicle (EV) and hybrid EV (HEV) adoption is currently low; increasing registration fees, indexing registration fees to inflation, or charging an EV mileage tax could allow DOTD to capitalize on future adoption increases.
  – Leveraging public-private partnerships to institute tolling in high-occupancy toll (HOT) lanes has the potential to bring additional revenue, as seen in Florida and other peer states.
  – With rising fuel efficiency, there is long-term potential to supplement the fuel tax with a road usage fee to increase payment from those who use roads most. This would need to include a fair assessment between rural and urban users of the system that accounts for differences in required travel patterns as well as available cost-effective transportation options (e.g., availability of public transit options).

  - **Taxes/fees indirectly related to road usage/vehicles:**

  – A ride-share fee has high revenue potential with tourism in the state and is aligned with the user-pays principle.
  – Retail delivery fees have short-term and long-term revenue potential, with high growth (14.3%) in the retail delivery market. Instituting a 27-cent fee on retail delivery, as seen in Colorado, would result in $24M - $74M in annual revenue.

  - **Taxes/fees not related to road usage/vehicles:**

  – Allocating a portion of the state sales tax to transportation would transform the one-time funding appropriations from the Legislature to DOTD into recurring revenue. Directing 0.45% of the sales tax to DOTD would result in $455M in annual revenue.
  – A tax on hotel nights stayed has high-revenue potential from the tourism industry in Louisiana and has been implemented by Georgia. Applying Georgia's $5/night tax on hotel rooms would lead to $118M in annual revenue.
  – Oil extraction fees, as seen in Texas, are dependent on oil prices and production volumes.
  – A portion of revenues from casino taxes in Arkansas are allocated to transportation projects.

Revenue sources chosen are dependent on legislative and public appetite and require further analysis of revenue generation potential. Initial estimates for revenue generation were calculated based on DOTD data and industry benchmarks for select examples.

- **Work with legislators and internal stakeholders to mitigate the need for line-item appropriations and ensure any line-item appropriations are effective.** Internally, DOTD should increase communication and input opportunities during the Highway Priority Program (HPP) prioritization process. Increased HPP input may limit later additions by legislators who currently believe they have minimal input in programming. Transparency is a key part of the process, as legislators should be aware of which previously planned projects are in progress or awaiting funding. Legislators should also be able to know which projects have not completed feasibility studies and, therefore, should not be programmed. This can limit funds being tied to projects that are not a priority or not ready for execution.

  There are also actions legislators can take to limit effects, such as amending current budgeting practices to allow for programmatic appropriations as an alternative to line-item appropriations. Programmatic appropriations limit legislators' ability to enter/remove specific projects from budgeting and can empower DOTD to fully own the planning process. Limiting line-item additions after the initial budget proposal deadline could ensure all projects can be properly studied by DOTD and reviewed by other legislators. Additionally, legislators can mandate a full review of all line-item additions to ensure feasibility/planning has occurred prior to entry. Projects should not be added to the budget without DOTD acknowledging that they have been fully studied and scoped, with the limited exception of legislators allocating funding to conduct planning studies for certain projects to ensure accurate budgeting and future capacity planning.

Section 2 Improve processes to manage capital program to increase effectiveness, transparency, and efficiency

2.1 Context

BCG evaluated existing processes for DOTD's management of the capital program, which includes several key functions:

- **Programming and planning:** Allocating capital budget to pools of programmatic spend and identifying and prioritizing specific projects to deliver.
- **Pre-construction/project delivery:** Shepherding projects from inception through to letting (including environmental studies, right-of-way acquisition, design, etc.).
- **Construction management:** Managing and overseeing contractors to ensure timely, on-budget, and quality execution of projects.

Based on interviews and analysis, several key challenges were identified:

- The inability to deliver identified projects (on public let list and in HPP) on expected timelines drives low trust with the public and Legislature.
- Projects are de-prioritized and re-prioritized without sufficient transparency or understanding of logic and rationale; it is unclear how external input from the public and the Legislature into the prioritization process is incorporated into final project lists.

- Inefficient processes in both pre-construction and construction management create rework/unnecessary work and add to process time, delays, and friction with contractors.

It is critical for DOTD to improve the transparency, effectiveness, and efficiency of the capital program. Better transparency of DOTD processes will help foster trust internally and externally, ensuring the highest-need projects are prioritized, programmed, and delivered. Similarly, becoming more effective will provide a stable pipeline for projects and predictability for contracts and with the community. Finally, increasing efficiency will increase the speed of project delivery and completion, creating credibility and goodwill with the public.

2.2 Findings

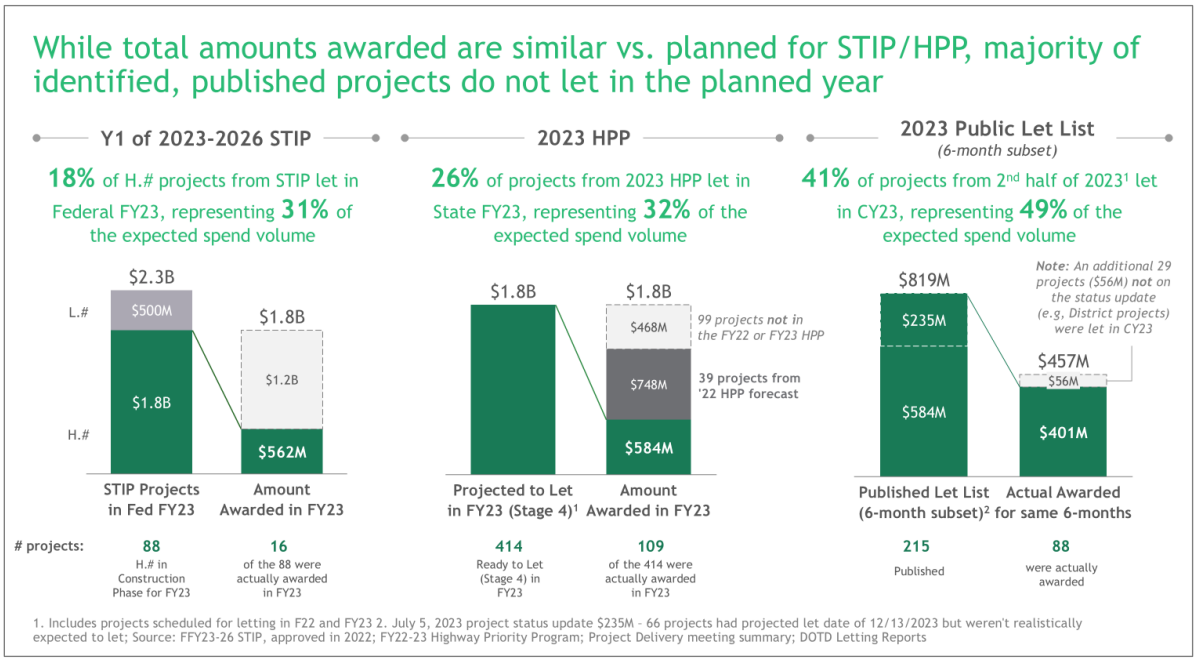
Based on analysis of internal and benchmark data and synthesis of stakeholder interviews, BCG surfaced a range of findings:

While criteria are used in prioritization of projects, the logic for prioritization is not maintained and communicated throughout the planning and project delivery process. For example, while pavement condition is a key input into prioritizing projects and is used to inform the initial list after project lists are submitted to the programming team, prioritization criteria are no longer recorded. This can lead to challenges in justifying project selection internally (e.g., to the districts) and to the public and Legislature. It also removes critical inputs from decision-making processes when re-prioritization of projects occurs (e.g., when a project is delayed and another needs to be accelerated).

Current processes for collecting input on project prioritization do not adequately 'close the loop' on feedback received. As part of the HPP development process, DOTD and the Legislature conduct a series of legislative public hearings by region to gather input and feedback from the public and legislators. While ideas for projects are tracked and compiled, the feedback is not systematically shared with individuals who are responsible for project prioritization (e.g., districts and project selection teams), and there is no system for placing a project in the 'queue' to be evaluated. Additionally, there is no formal communication back to the public and legislators to address how a specific project request has been handled (e.g., already programmed, completed, de-prioritized due to X reason, or in the queue), contributing to the desire for legislators to influence project selection through the capital outlay process instead.

DOTD is not able to deliver specific identified projects on expected timelines. One of DOTD's few metrics for success is to match and obligate all federal funds, not to deliver the projects set forth in the public let list and in the Highway Priority Program. In FY 2023, DOTD awarded $1.8B of projects, in line with total expected "ready to let" value in the FY23 HPP. However, only 26% of the specific projects (109 out of 414) identified as "Ready to Let" in FY23 were awarded in FY23 (**Exhibit 7**).

Exhibit 7: 2023 letting projections and amounts awarded



***Methodology**: BCG evaluated data from three different sources to identify the number of projects planned to be released over a specific time period (by H.#) and reviewed whether that project was awarded in the planned time period. The three sources were Year 1 (FFY 2023) of the FFY 2023-2026 STIP, the 2023 HPP, and a 6-month subset of the 2023 Public Let List (automatically published monthly on the DOTD website).*

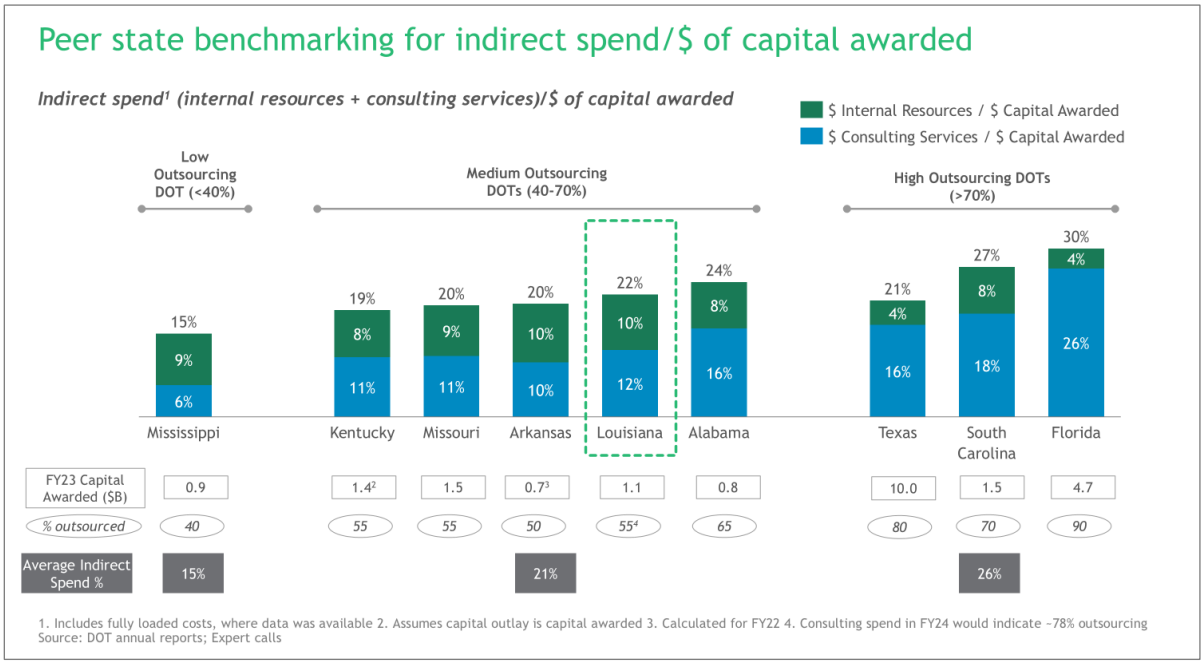
Challenges in reliably delivering specific projects stem in part from a lack of standardized processes and targets to manage the overall project pipeline. There is limited monitoring of the degree of over-programming from programming through project delivery of projects by phase, and no set targets for the degree of over-programming in each phase. One of the side effects of this is a higher volume of projects with planned letting dates in the current year than is realistic. Combined with a lack of prioritization logic across projects, this leads to project managers prioritizing effort based on closest letting dates rather than the criticality of the project and a sentiment internally that timelines are expected to slip. This lack of overall monitoring of the pipeline also leads to challenges in reliably maintaining a robust enough project pipeline in more nascent phases that will be ready in the out years and in ensuring there is a "shelf" of projects each year that is not in the HPP, but is near ready-to-let, in the event additional funding is granted.

Current systems do not provide a holistic view of project status and history: There is no "master summary" of projects, and project status details are siloed within individual spreadsheets. Communication on project updates is typically conducted via phone calls and emails, and updates are tracked in open entry fields within the system (LA.Gov). This creates challenges in determining both the current status and history of a project (e.g., number of times a project letting date has been amended).

Siloed teams by function within pre-construction contribute to limited accountability over overall timeliness and quality of project delivery. Project managers are dependent on other teams (design, right-of-way, environmental, etc.) for key pre-construction deliverables and milestones and are not empowered to hold individuals accountable to deadlines, driving frequent shifts in project letting dates.

DOTD is on par or slightly higher vs. peers on indirect spend required to manage the capital program. DOTD currently outsources ~55% of program delivery, and for every $100 of capital awarded, DOTD spends $22 on both internal and outsourced costs (pre-construction and construction management).[20] For state DOTs with a similar degree of outsourcing (40% - 70% outsourced), the average efficiency is 21% (full range from 19% - 24%), suggesting DOTD is within a similar range of efficiency vs. peers at similar outsourcing levels, though there is some room for efficiency improvement.

Exhibit 8: Comparison of indirect spend on capital program across selection of peer DOTs



***Methodology**: BCG estimated total spend on internal resources (salary and fully loaded benefits of associated employees) and consulting services for capital activities divided by the capital awarded by the state. Activities include all preconstruction activities (survey, environmental, right of way, design) and construction and engineering inspection. For more detail, see Appendix.*

Internal processes and standards are perceived to be inefficient and ineffective and can result in rework, higher costs, and longer process time. Some examples cited include:

- A plan quality review process and set of standards that is not adjusted for risk or value and results in revisions that do not improve the ability to let a project (e.g., table formatting) or lead to delays caused by specific activities (e.g., traffic studies).
- The specifications manual may not be in line with industry standards from similar neighboring states, resulting in challenges.
- A lack of clear and standardized processes and escalation for change orders and claims during construction management can lead to delays in construction and financial impacts on contractors.

[20] See Appendix 7.3 for sources and methodology

For routine preservation projects, there is an opportunity to gradually shift project management responsibilities to the district level. Most oversight and management of preservation projects are conducted at the headquarters level, which often limits districts' visibility, ability to ensure timelines are aligned with local priorities, and capacity to provide progress updates or respond to inquiries from the public or local elected officials. For many preservation projects where headquarters' technical or managerial capabilities are not essential, allowing the districts greater ownership of project management would help to drive greater accountability, strengthen local relationships, and consolidate points of contact, resulting in streamlined processes. Given the current variability in districts' project management capacity and capabilities, this shift of ownership could be gradually phased in over time, with an initial focus on low-risk, low-complexity preservation projects and an accompanying effort to strengthen project management capabilities at the district level.

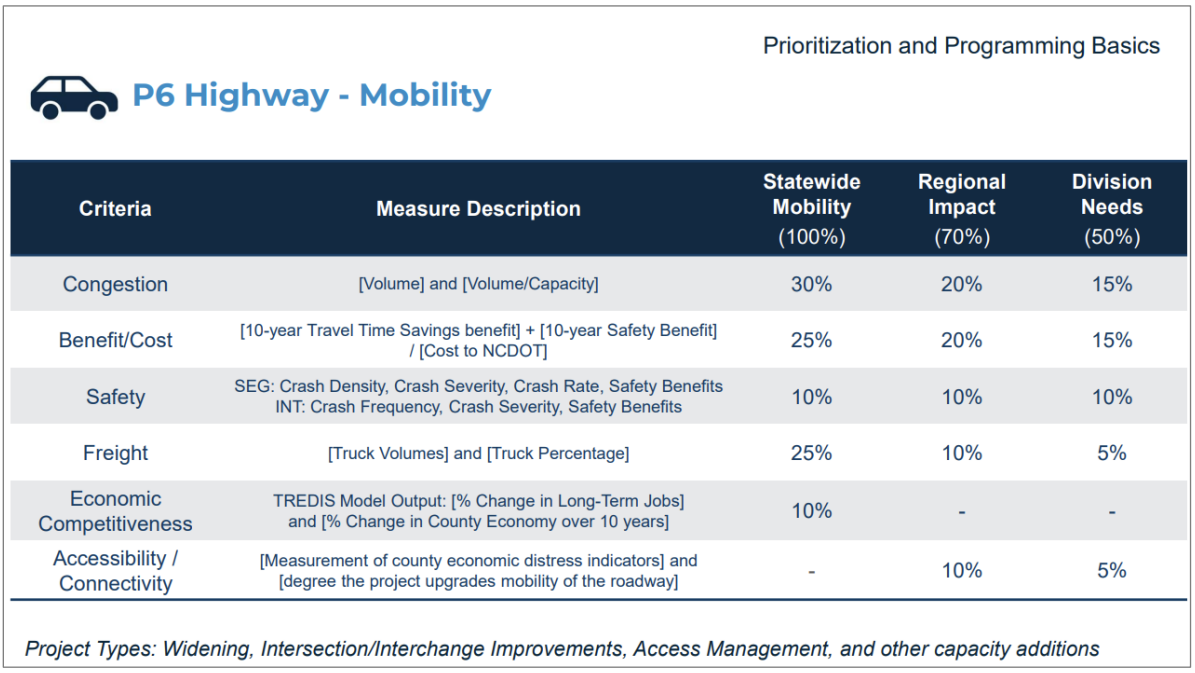
- Some states, such as North Carolina and South Carolina, have a mix of project delivery in the districts / regions and at headquarters, with simpler and less complex projects managed in the districts or regionally (e.g., preservation maintenance).

2.3 Recommendations

Programming and prioritization:

- **Use data-driven approach to set and adhere to overprogramming targets to manage project pipeline and build "on-the-shelf" projects.** DOTD can assess prior years' performance of identified projects and actual project let date to inform realistic programming targets. As part of this effort, DOTD can ensure that the public let list is updated and accurate, and look to build "on-the-shelf" projects to let in case additional funding becomes available.
- **Standardize project selection templates by program with data criteria and a governance process to communicate project selection rationale.** Publish a standard template for project selection by a program that includes the metrics used to prioritize projects. After program selection, publish the final program with commentary and notes that determine the final set of projects, including a common set of drivers that caused projects to be prioritized and deprioritized.
- **"Close the loop" on public and legislator requests for projects**. Share the feedback from the legislative public hearings with the Project Selection Teams to evaluate and integrate into next year's planning cycle. At each hearing, provide an update on the status of previous years' requests (e.g., evaluated and de-prioritized, not yet evaluated, already programmed, already constructed, etc.).
- **Develop a score-based prioritization system for capacity projects**. Peer state DOTs (e.g., Virginia, North Carolina) have developed weighted formulas to objectively assess project criteria and importance. DOTD should explore developing a similar approach that can remove bias during project selection, provide a more objective justification of prioritization, enable a ranked list as new priorities get added each year, and ensure critical factors such as economic development are systematically considered.

Exhibit 9: North Carolina DOT sample formula to assess projects during prioritization[21]



Prioritization and Programming Basics

P6 Highway - Mobility

Criteria	Measure Description	Statewide Mobility (100%)	Regional Impact (70%)	Division Needs (50%)
Congestion	[Volume] and [Volume/Capacity]	30%	20%	15%
Benefit/Cost	[10-year Travel Time Savings benefit] + [10-year Safety Benefit] / [Cost to NCDOT]	25%	20%	15%
Safety	SEG: Crash Density, Crash Severity, Crash Rate, Safety Benefits INT: Crash Frequency, Crash Severity, Safety Benefits	10%	10%	10%
Freight	[Truck Volumes] and [Truck Percentage]	25%	10%	5%
Economic Competitiveness	TREDIS Model Output: [% Change in Long-Term Jobs] and [% Change in County Economy over 10 years]	10%	-	-
Accessibility / Connectivity	[Measurement of county economic distress indicators] and [degree the project upgrades mobility of the roadway]	-	10%	5%

Project Types: Widening, Intersection/Interchange Improvements, Access Management, and other capacity additions

Project delivery and construction management:

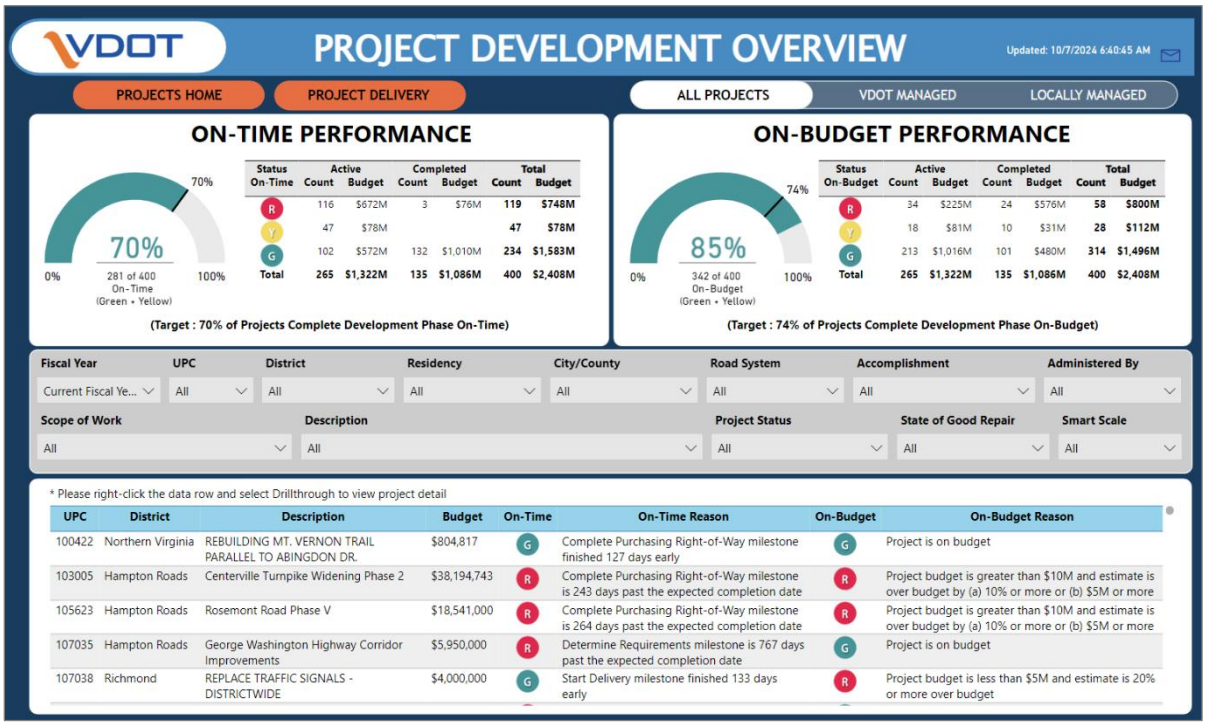
- **Gradually shift project management responsibilities to districts for routine preservation projects**. Projects typically originate in the districts, and district officials are incentivized to see projects through, given their relationships with local stakeholders and knowledge of local needs and priorities. There is an opportunity to empower districts by granting them the ability to oversee and manage their preservation projects. This transition could be phased in over time, starting with low-risk, low-complexity projects and accompanied by training to enhance project management skills at the district level and an evaluation of capacity and resources required as the program scales.
- **Update project software systems to increase transparency and identify bottlenecks**. DOTD can develop an integrated schedule management tool to automate processes and view project schedules to manage workloads. Similarly, DOTD can synchronize project delivery status updates that are internally tracked to externally facing websites.
- **Regularly update project milestone dates and public letting expectations.** Keep public website lettings up to date with goal of 90%+ accuracy of delivering lettings in upcoming quarter to give construction community predictability and reliability of projects, and to build trust between DOTD and the private sector.
- **Evaluate internal processes to streamline delivery**:
    - **Optimize plan quality and review**: Ensure plan reviews align effort with project risk and complexity.

[21] NCDOT STI Training Presentation (2023)

- **Standardize change order and claims processes and assign escalation timelines and responsibility**: Create consistency across change order templates, assign clear timelines to respond, and identify responsible parties associated with processing change orders (under development). Consider streamlining the review process by re-evaluating change order decision authority based on risk and cost.
- **Update specifications:** Leverage best practices from other states and integrate input from the community, including contracting and material supply industry players, to update specifications with a focus on value and interpretability.

- **Develop a robust set of KPIs that are published annually to drive accountability.** Each program should deliver a "scorecard" that assesses performance against targets set by Planning/Program Managers to increase ownership, identify bottlenecks, and communicate accomplishments. Results should also be made available online so the public can view the status of projects. For example, Virginia DOT[22] has an online dashboard of construction projects that tracks on-time and on-budget performance with reasons individual projects may slip (See
- **Exhibit** 10).

Exhibit 10: Virginia DOT sample performance dashboard



UPC	District	Description	Budget	On-Time	On-Time Reason	On-Budget	On-Budget Reason
100422	Northern Virginia	REBUILDING MT. VERNON TRAIL PARALLEL TO ABINGDON DR.	$804,817	G	Complete Purchasing Right-of-Way milestone finished 127 days early	G	Project is on budget
103005	Hampton Roads	Centerville Turnpike Widening Phase 2	$38,194,743	R	Complete Purchasing Right-of-Way milestone is 243 days past the expected completion date	R	Project budget is greater than $10M and estimate is over budget by (a) 10% or more or (b) $5M or more
105623	Hampton Roads	Rosemont Road Phase V	$18,541,000	R	Complete Purchasing Right-of-Way milestone is 264 days past the expected completion date	R	Project budget is greater than $10M and estimate is over budget by (a) 10% or more or (b) $5M or more
107035	Hampton Roads	George Washington Highway Corridor Improvements	$5,950,000	R	Determine Requirements milestone is 767 days past the expected completion date	G	Project is on budget
107038	Richmond	REPLACE TRAFFIC SIGNALS - DISTRICTWIDE	$4,000,000	G	Start Delivery milestone finished 133 days early	R	Project budget is less than $5M and estimate is 20% or more over budget

[22] Virginia DOT Dashboard

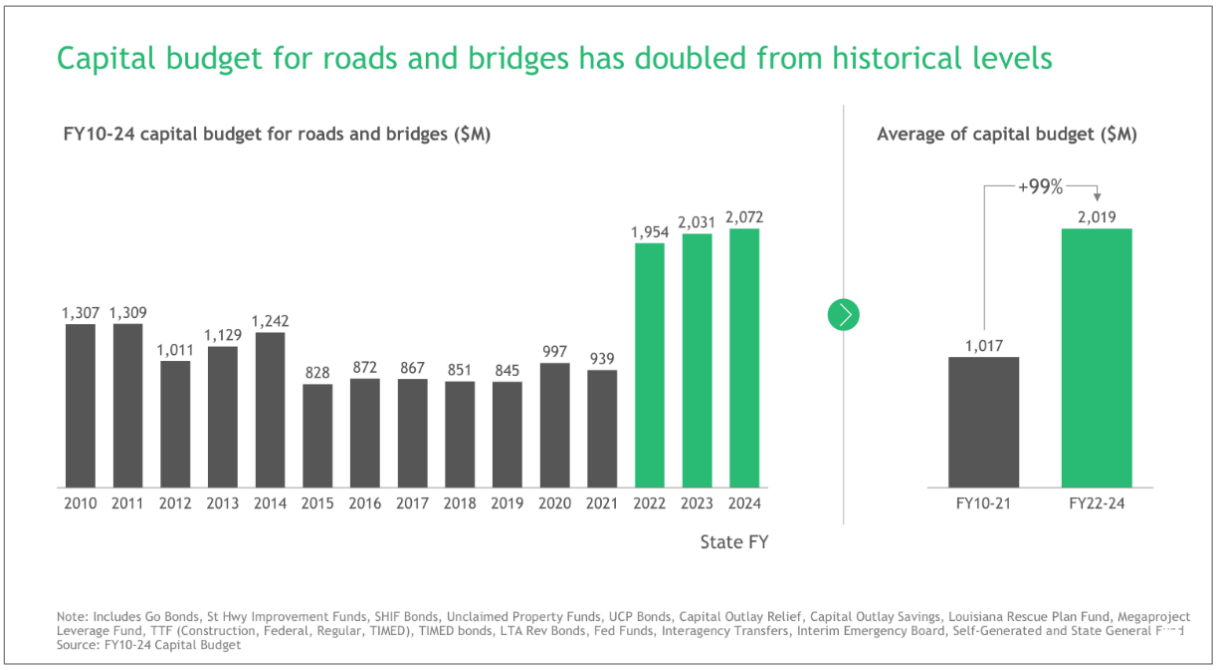
Section 3 Prepare organization to leverage consultants for new influx of capital

3.1 Context

From FY 2010-2021, the capital budget for roads and bridges ranged from $800M - $1.3B (average $1B) but nearly doubled in FY 2022-2024 to ~$2B,[23] driven by infusions of one-time funding. Given the challenges in hiring and retaining talent internally, DOTD will need to more effectively use existing staff and increase its usage of consultants to manage this larger capital program.

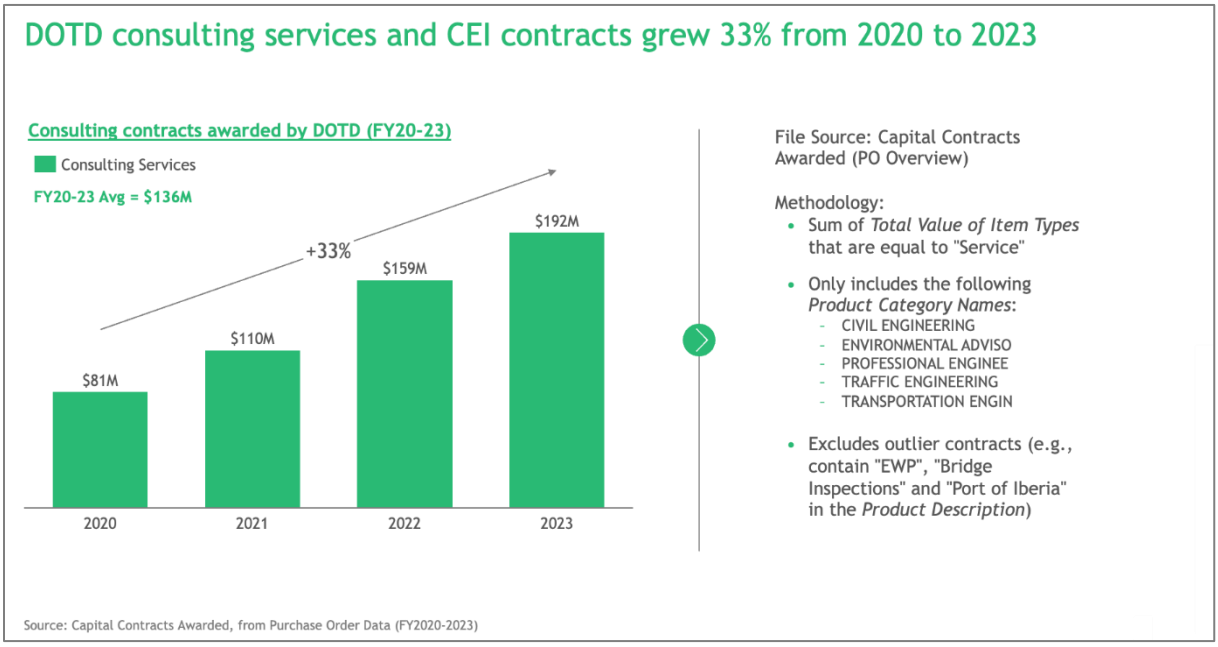
In recent years, DOTD has steadily increased spend on consultants, from $81M in 2020 to close to $200M[24] in 2023. As DOTD begins to manage a larger capital budget, it will be critical to ensure it has the right operating model and internal capabilities to shift its focus from executing projects to effectively managing consultants.

Exhibit 11: Capital budget from FY 2010-2024



[23] FY 2010-2024 Capital Budget
[24] Capital Contracts Awarded from Purchase Order Data (FY 2020-2023)

Exhibit 12: Consulting service spend from FY 2020-2023



3.2 Findings

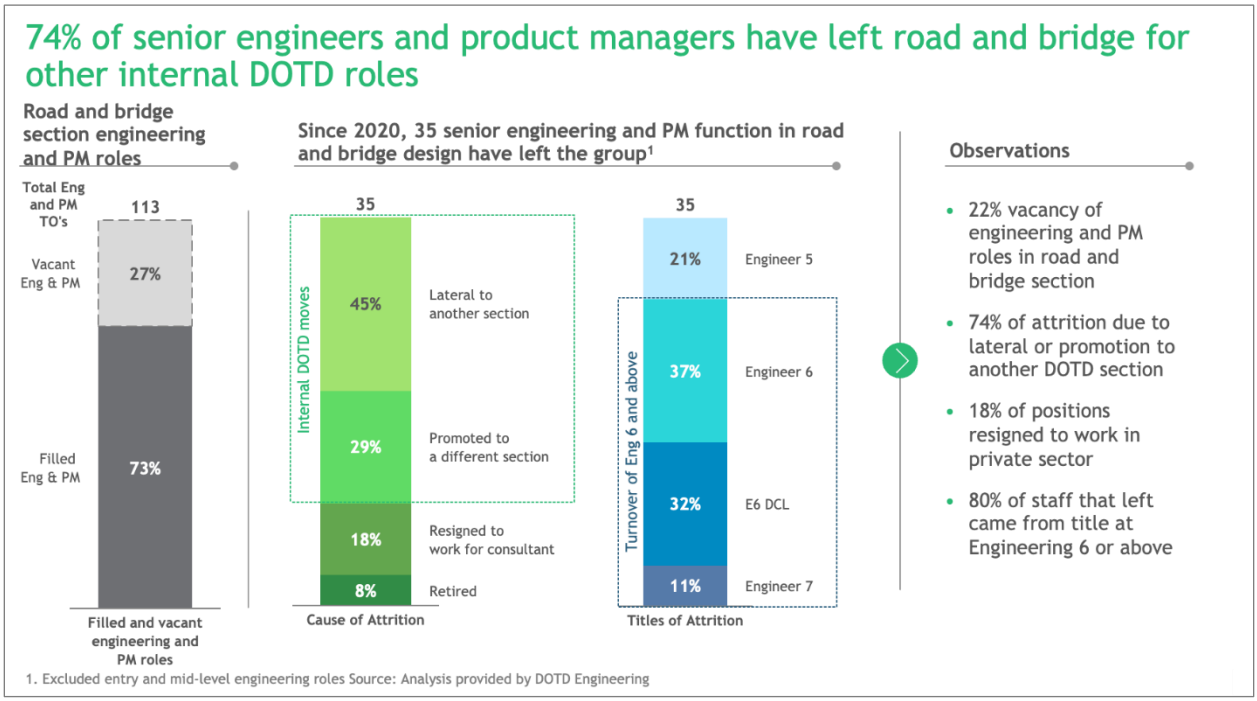
An extensive review of DOTD's existing capital program and outsourcing practices of peer state DOTs revealed the following:

DOTD faces persistent challenges in hiring and retaining talent in key roles. Some of the challenges stem from the inability to appropriately compete with the private sector due to inadequate compensation for technical roles (e.g., for Project Engineers and Engineering Technicians performing construction inspection and management in the districts). Other challenges stem from internal competition for DOTD resources and the ability for individuals to shift from critical project delivery functions to less high-profile, lower-pressure roles in other parts of the organization while maintaining their compensation level. There is a risk that an increase in outsourcing will pressure external consultants to expand their capacity, intensifying competition for top talent. Even state DOTs with high degrees of outsourcing (e.g., Texas, Florida) stress that it is important to retain a critical mass of in-house expertise to provide adequate oversight and ensure institutional knowledge remains within DOTD. Given this, a shift to a high outsourcing model would need to be accompanied by a concerted effort to ensure in-house talent is properly compensated and incentivized to remain at DOTD.

- **Exhibit 13** highlights the high rate of turnover. Since 2020, 35 senior engineers from road and bridge design, defined as personnel with titles of "Engineer 5" or above, have left the section. Of the 35 that left, 74% moved within DOTD to other internal roles, and 18% resigned to work in the private sector.[25] This indicates a potential opportunity to improve compensation and incentives for employees in the road and bridge design sections and in other high-demand roles facing similarly high rates of turnover.

[25] Turnover data provided by Office of Engineering

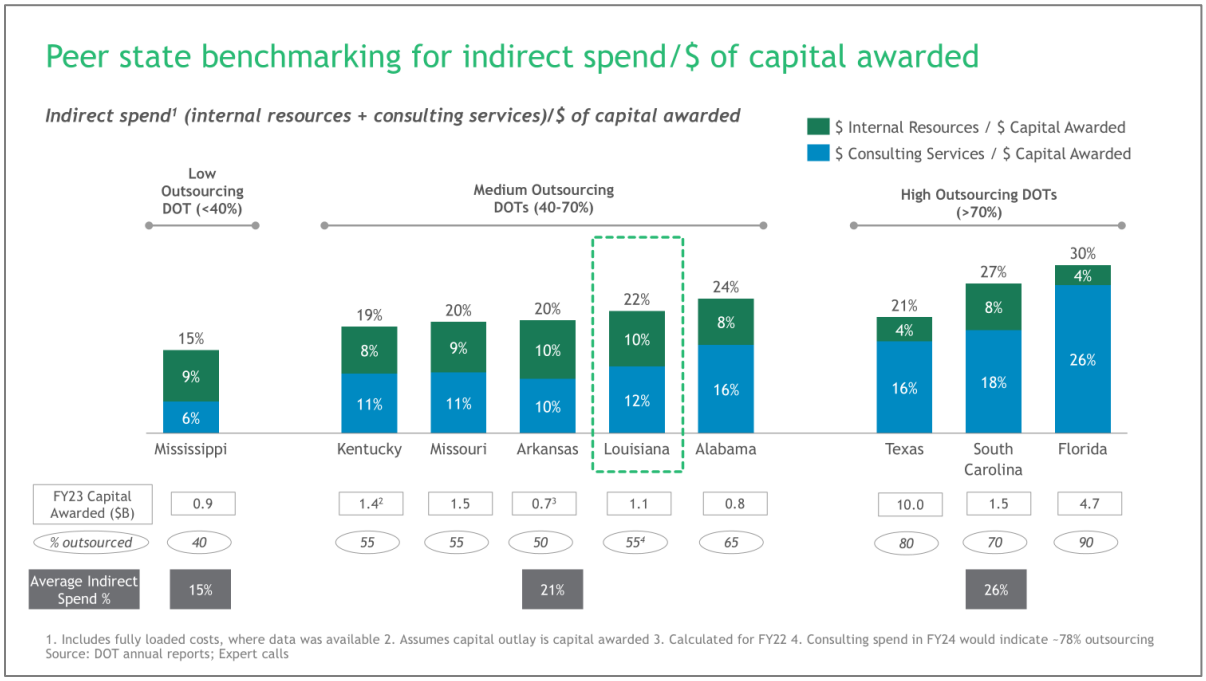
Exhibit 13: Senior turnover in road and bridge design sections



A high outsourcing model tends to be more costly and may lead to lower-quality or less efficient work in some areas (e.g., Construction Engineering and Inspection [CEI]), but enables states to accommodate hiring constraints and to more effectively manage the capital program. Some states (e.g., TX, SC, FL) outsource over 70% of project delivery (i.e., pre-construction, CEI) at an efficiency of 26% on average (vs. 21% for states with medium outsourcing).[26] Although it is more expensive, these states have been able to grow their capital program and award more construction contracts with the increased capacity that external consultants provide. Moreover, to mitigate the quality risk, several states have instituted processes to clearly define the expected standard of work and monitor the quality of consultant activities.

[26] See Appendix 7.3 for sources and methodology

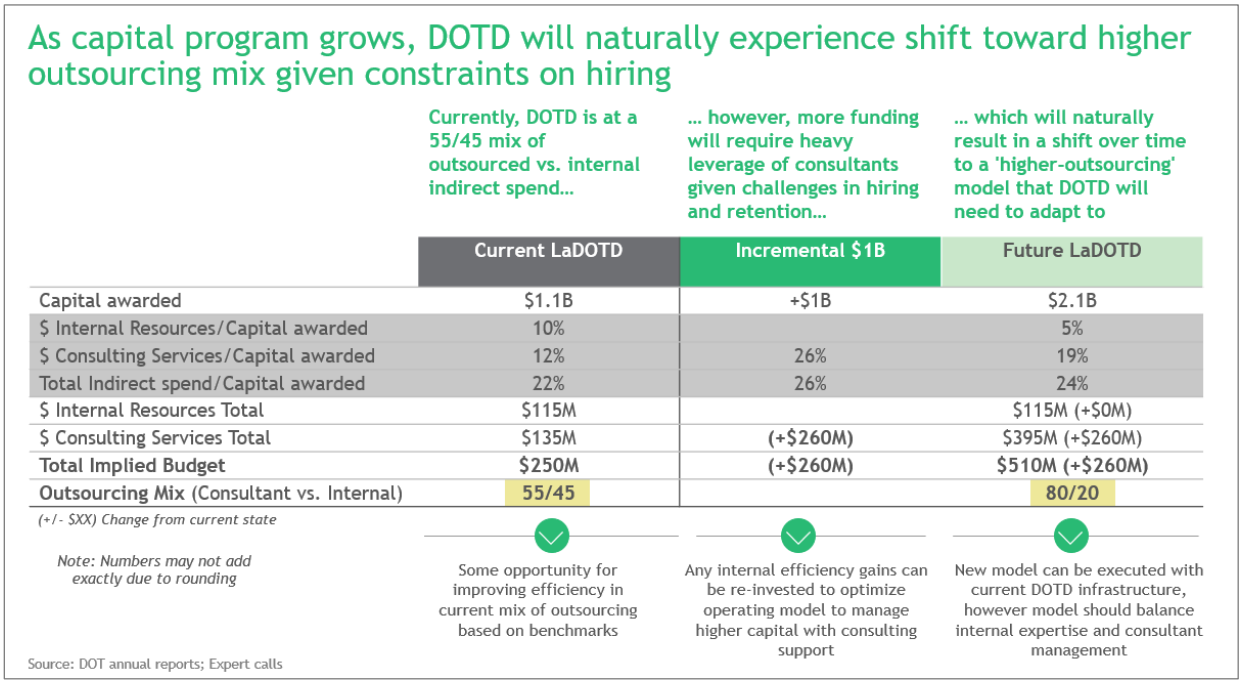
Exhibit 14: Comparison of indirect spend on capital program across selection of peer DOTs



Note: *The above exhibit is repeated for ease of reference and is the same as Exhibit 8. For full detail on the methodology, refer to the Appendix.*

DOTD currently has sufficient capacity to support a $1B+ increase in capital awarded if it leverages outsourced consultants more heavily. Currently, DOTD delivers an average of $1.1B in capital awarded, with a 55% outsourced model and $115M in spend on internal resources to do so (10% of the 22% indirect spend ratio). If DOTD increased its capital awarded by $1B by leveraging consulting services and maintained its current spend on internal resources, the resulting mix would yield an 80% outsourced model, with indirect spend ratios in line with benchmarked high-outsourcing peers (FL, TX, SC). Note that this exercise is based on high-level benchmarks and is useful to understand the overall staffing needs, but it does not imply that the organization as it is operating today is equipped to manage this shift in its operating model.

Exhibit 15: Implied outsourcing mix as capital awarded and consulting spend scales



As capital program grows, DOTD will naturally experience shift toward higher outsourcing mix given constraints on hiring

	Currently, DOTD is at a 55/45 mix of outsourced vs. internal indirect spend...	... however, more funding will require heavy leverage of consultants given challenges in hiring and retention...	... which will naturally result in a shift over time to a 'higher-outsourcing' model that DOTD will need to adapt to
	Current LaDOTD	Incremental $1B	Future LaDOTD
Capital awarded	$1.1B	+$1B	$2.1B
$ Internal Resources/Capital awarded	10%		5%
$ Consulting Services/Capital awarded	12%	26%	19%
Total Indirect spend/Capital awarded	22%	26%	24%
$ Internal Resources Total	$115M		$115M (+$0M)
$ Consulting Services Total	$135M	(+$260M)	$395M (+$260M)
Total Implied Budget	**$250M**	**(+$260M)**	**$510M (+$260M)**
Outsourcing Mix (Consultant vs. Internal)	55/45		80/20
(+/- $XX) Change from current state	Some opportunity for improving efficiency in current mix of outsourcing based on benchmarks	Any internal efficiency gains can be re-invested to optimize operating model to manage higher capital with consulting support	New model can be executed with current DOTD infrastructure, however model should balance internal expertise and consultant management

Note: Numbers may not add exactly due to rounding

Source: DOT annual reports; Expert calls

Peer state DOTs have reorganized or changed their operating model to accommodate a higher utilization of consulting services. For example, states like South Carolina and Tennessee have reorganized internal structures and processes, including:

- Ensuring sufficient capacity in contract management and negotiation teams
- Instituting an in-house training program to strengthen program management and contract management capabilities
- Creating professional pathways for employees with stronger business and management (vs. technical) capabilities to accelerate more rapidly to managerial roles
- Streamlining processes to review and oversee consultant work to remove internal unnecessary duplication of design

DOTD's current procurement processes for consultants are not optimized for speed, value, or quality:

- DOTD typically uses single-source consultant contracts. Several peer state DOTs (e.g., NY, NC, SC) leverage non-single-source contracts, or general engineering contracts, with multiple firms on the same contract vehicle. These firms are pre-qualified, with rates negotiated based on established qualification standards and the agency's definition of a "fair and reasonable price." The DOT can issue a task order for a project, and each pre-qualified firm can provide an estimate of the level of effort and availability of staff to complete the given task. This allows the DOT to select a firm that is pre-qualified while considering other factors (e.g., availability of staff), in a process that is more efficient than sequential evaluation and negotiation with separate firms. Several peer state DOTs use this approach in compliance with federal regulations, including the Brooks Act.
- Many of DOTD's Indefinite Delivery, Indefinite Quantity (IDIQ) contracts are narrowly defined (e.g., surveying). Peer state DOTs more frequently combine multiple phases of work for turnkey delivery (e.g., environmental to right-of-way) and scopes across multiple

projects. Combining phases of projects or scopes across projects provides volume and predictability of work to incentivize contractors to pursue projects, reduces the administrative burden on the DOT to manage multiple, smaller contracts, and drives higher accountability to a single point of contact.

DOTD's TIMED program is widely cited as a potential model for outsourcing of specific, large-scale projects. The TIMED initiative was a $5.2B transportation infrastructure program launched in 1989 to widen or improve over 500 miles of state highways on 11 project corridors, three major bridges, and a major port and airport. In 2002, with the program significantly behind schedule and over budget, DOTD applied debt financing and hired a private entity – a consortium of industry players – to oversee an accelerated timeline and manage program delivery, financing, pre-construction, and construction administration.[27] The decision to use state-issued revenue bonds to fund the program allowed greater flexibility as compared to federally funded projects, enabling DOTD to administer the program entirely through contracted resources and leading to greater efficiency in execution. However, these revenue bonds significantly contributed to the Department's debt service, which persists to this day. Setting aside issues related to the initial underestimation of project costs, there may still be learnings from this model when considering the future delivery of a set of large, discrete projects (vs. a mixed portfolio of many smaller preservation projects).

3.3 Recommendations

- **Develop multi-source general engineering contracts**. Shift from sole-source contracting to multiple-source contracts to allow streamlined execution of task orders to a pool of pre-qualified vendors with pre-negotiated rates. This will enable faster procurement timelines and greater ability to balance workload across firms.
- **Consolidate more project phases and bundle similar, smaller projects into a single contract.** Assess project portfolio for project synergies that can be combined for a single contractor to execute to achieve economies of scale and reduce procurement lead times.
- **Strategically organize personnel to manage consultants and retain in-house talent**. DOTD should reassess its organizational structure to ensure that the right people are in the right roles, equipped with the right skills and compensation. As part of this, DOTD must evaluate how to appropriately train, compensate, and reward individuals in managerial roles to ensure that the Department has adequate in-house capabilities and remains competitive with the private sector. For example, Tennessee developed integrated, multi-disciplinary project delivery teams to remove silos and drive accountability with clear, outcomes-based performance measures that impacted pay. This also helped to create specific career pathways for employees with differentiated skill sets and served to empower those with leadership/managerial capabilities.
- **Consider alternative models for deploying private sector consulting capacity.** For example, for large capacity projects, DOTD could collaborate with industry partners to adapt the TIMED approach to current conditions and objectives, with the goal of overseeing and rapidly delivering a large-scale program designed to address the infrastructure backlog, while ensuring a more strategic and forward-looking use of debt financing.

[27] FHWA Project Profile: Louisiana TIMED Program

Section 4 Improve maintenance and operations performance

4.1 Context

DOTD's maintenance and operations work is conducted by the Office of Operations. It includes maintenance relating to state-owned roads and bridges (e.g., mowing, moveable bridge operation, pothole patching). There are three main categories of crews that conduct maintenance work: parish maintenance crews, district maintenance crews, and statewide maintenance crews.

Interviews with DOTD and legislators indicate it has been challenging for DOTD to meet maintenance needs. The budgets for districts within the Office of Operations have not kept pace with inflation, having grown at a 1% CAGR over the past 10 years. Maintenance and operations are key elements of the services DOTD provides to the public, can impact the total cost of ownership, and have an outsized impact on public perception. It is critical to ensure maintenance and operations activities are sufficiently funded and performed effectively and efficiently.

4.2 Findings

An assessment of maintenance operations activities across districts surfaced the following:

Maintenance work is underfunded. The Office of Operations budget has not kept pace with inflation, having grown at a 1% CAGR for the district budget and 2% CAGR overall since 2010.[28] Interviews with DOTD district staff revealed that funding is known to be insufficient, and districts are sometimes forced to stop preventative maintenance activities to fund safety-related maintenance needs (e.g., stopping mowing cycles to fund guardrail repair). This has created a backlog of maintenance work; as of 2022, there is a $243M maintenance backlog that DOTD aims to address.[29]

Funding allocation to districts varies, with an initiative under development to create a formulaic allocation. Currently, the recurring maintenance budget (except for the equipment budget) is allocated to districts based on historical allocations. The Office of Operations is working on developing a formula that allocates funding more equitably and has already developed a formula based on lane miles and population density to allocate equipment budget to districts. However, any one-time funding appropriations from the Legislature must be allocated in the manner the Legislature dictates; in the past, this has generally been an even allocation across districts.

Districts' planned maintenance priorities can shift due to safety-critical needs. Maintenance crews assess priorities every two weeks with a Road Condition Safety Inspection that prioritizes maintenance work based on impact. However, as the week goes on, crews' priorities shift based on critical safety needs that come up (e.g., a tree is about to fall into the road), which can pause priorities and require crews to refocus on critical tasks. When crews refocus, it adds to the backlog of maintenance work in the previous finding.[30]

The majority of maintenance and operations work is currently done in-house. For the purposes of the following analyses, maintenance and operations work refers to work tracked

[28] Operating Budget Expenditures by Office and Category (FY 2014-2024)
[29] DOTD State Highway and Bridge Needs Report (2022)
[30] DOTD State Highway and Bridge Needs Report (2022)

in the Agile Assets database and work that is contracted out and overseen by the districts and statewide maintenance crews.

- In FY23,[31] 238 maintenance activities were tracked in Agile Assets, compared to 6 activities that are outsourced on a regular basis (mowing and litter, guardrail repair, cable barrier repair, impact attenuator repair, rest area maintenance and operations, and sweeping and bridge deck drains), along with city agreements for signal repair and municipal agreements for mowing. These activities are budgeted for in the contracting budget for the Office of Operations ($34.0M in FY23);[32] other activities are outsourced ad hoc based on operational need, though they are not included in the contracting budget.
- The Agile Assets database is used by the Office of Operations to track the work order maintenance done by parish maintenance crews, districtwide maintenance crews, and most statewide maintenance crews. Work tracked in Agile Assets is approximately 75% of work being done by maintenance personnel, as there are other tasks (e.g., administrative work, non-maintenance tasks) that are not tracked in Agile Assets.[33]

BCG analyzed the full cost of maintenance activities, including other compensation and related benefits in labor costs and equipment maintenance and depreciation in equipment costs. Fully loaded costs for all in-house maintenance activities were $212.3M for FY 2023, additionally, the cost of each maintenance activity in the top 20 can be seen in Exhibit 16. Further detail and methodology can be found in the Appendix.

Exhibit 16: Cost of top 20 maintenance activities, FY 2023

Full labor cost higher than in Agile Assets, with variance across equip. costs

	FY23 Agile Assets cost ($M)				FY23 Full cost ($M)				Cost to outsource ($M)[6]
Top 20 Activities	Labor[1]	Equipment[2]	Materials[3]	Total	Labor[4]	Equipment[5]	Materials[3]	Total	
Mowing	4.8	3.7	0.0	8.6	11.5	4.5	0.0	16.0	12.0 - 24.0
Pothole Patching - Hand Method	3.7	2.3	0.8	6.9	8.9	1.2	0.8	10.9	
Clean and Reshape Ditches	3.7	3.6	0.0	7.4	8.9	1.9	0.0	10.8	8.1 - 16.2
Movable Bridge Operation	3.1	0.1	0.0	3.1	7.3	0.1	0.0	7.4	
Sign And Sign Support Repair	2.0	1.1	0.8	3.9	4.9	1.7	0.8	7.3	
Reshaping/Restoring Non-Paved Shoulders	1.9	1.8	0.5	4.2	4.7	1.4	0.5	6.5	4.9 - 9.7
Leveling Hot Mix Overlay	1.0	1.2	3.1	5.2	2.3	0.8	3.1	6.2	4.6 - 9.2
Traffic Control	1.7	1.3	0.0	3.1	4.1	0.8	0.0	4.9	
Clean and Maintain Drainage Structures	1.7	1.0	0.0	2.7	4.0	0.8	0.0	4.8	3.6 - 7.2
Tree/Brush Trimming	1.5	1.2	0.0	2.7	3.6	1.0	0.0	4.6	3.5 - 6.9
Upgrade Signal/Flashing Beacon/Flashing Sign	1.0	0.3	1.5	2.8	2.5	0.4	1.5	4.4	3.3 - 6.6
Herbicide Application - Machine Method	0.8	0.9	1.6	3.3	1.8	0.6	1.6	4.1	3.0 - 6.1
Pavement Striping - Machine Method	0.5	0.5	2.0	3.0	1.2	0.5	2.0	3.7	2.8 - 5.6
Erosion Control And Repair	1.2	1.1	0.1	2.3	2.8	0.8	0.1	3.7	2.8 - 5.5
Full Depth Patching	0.9	0.9	0.5	2.3	2.2	0.6	0.5	3.3	2.5 - 5.5
Pothole Patching - Machine Method	1.0	0.9	0.3	2.2	2.5	0.5	0.3	3.3	
Bridges (Over 20' Length) Construction	0.6	0.2	1.5	2.3	1.5	0.2	1.5	3.2	2.4 - 4.8
Tree Removal - 18" Dia. and Above	1.0	0.8	0.0	1.8	2.3	0.6	0.0	2.9	2.2 - 4.4
Pile Repair - Timber	0.9	0.2	0.2	1.2	2.0	0.3	0.2	2.5	
Grinding Bumps	0.8	0.8	0.0	1.7	2.0	0.5	0.0	2.5	1.9 - 3.7
All activities	**67.6**	**39.2**	**17.7**	**124.5**	**160.6**	**34.1**	**17.7**	**212.3**	**159.2 - 318.5**

1. Includes labor and K-time costs from Agile Assets 2. FEMA equipment rental rates from Agile Assets 3. Includes materials and other costs from Agile Assets 4. Includes salaries, related benefits, and other compensation for 1848 FTE in Agile Assets 5. Includes depreciation, maintenance, and fuel costs 6. Cost to outsource 100% of activity, assuming 75-150% of internal cost
Source: FY18-24 Agile Assets work orders; FY18-24 Agile Assets equipment work orders; FY18-23 All Fleet usage; FY18-23 All Machine usage; Interviews with DOTD Operations, July 2024

[31] DOTD Agile Assets Work Orders, (FY 2018-2024)
[32] Operating Budget Expenditures by Office and Category (FY 2014-2024)
[33] Interviews with DOTD Office of Operations, July - August 2024

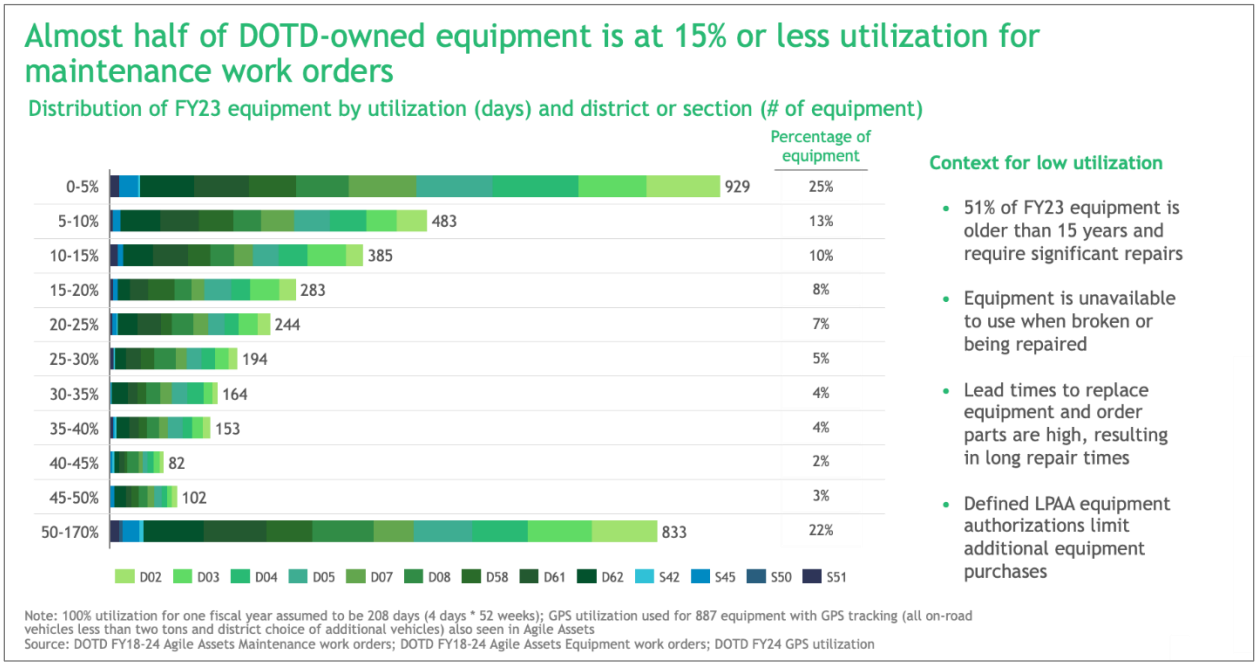
Peer states leverage contracts to augment staff and to increase the total amount of maintenance work done by contracting planned, cyclical activities. States such as North Carolina and South Carolina use outsourcing to augment workforce needs and execute on more maintenance priorities, based on their existing capacity and expertise.[34] When assessing which activities to keep in house, peer states typically keep reactive, high-risk activities that are critical to safety or require timely response and for which they already have existing internal expertise (e.g., pothole patching after a weather event) in house. There are two types of activities that DOTs generally contract out. The first is routine, planned maintenance that is cyclical in nature (e.g., routine pothole patching, ditch cleaning, herbicide) since there is more predictability and lower risk for contractors and often insufficient capacity internally. The second is non-emergency activities that require a higher degree of specialization than DOTs have the internal capabilities to perform or where there is a large quality difference between in-house and contracted work (e.g., striping). Across all activities, in general, peer states prefer to conduct reactive, unplanned activities with DOT personnel while hiring contractors to complete routine, planned activities.

Equipment utilization is low, in part due to an aging fleet and operational need; however, opportunity for equipment optimization exists. DOTD has 6,738 vehicles and machines in its equipment fleet.[35] Recurring equipment funding has been constant since 2018, with occasional one-time funding from the Legislature. Districts currently share equipment based on need (i.e., if a district's paver is down, other districts will send their own) for equipment that is required in every district.

BCG worked with the Office of Operations to analyze equipment utilization. 48% of equipment used for maintenance work was utilized between 0% - 15% in FY 2023.[36] Part of this is due to the age of the fleet; 55% of equipment is past its useful life.[37] The age of equipment results in costly repairs, with high lead times to replace equipment and order parts. Additionally, there are tranches of equipment (e.g., sand spreaders, tractors) that are seasonal and/or required for emergency response and, therefore, will have low utilization during off-cycle months. Though certain equipment is needed on hand for emergencies, other types of equipment can be rationalized via fleet reduction or leasing to improve utilization and reduce equipment repair costs. Additionally, the sale of unnecessary or obsolete equipment, particularly as contract maintenance ramps up, can provide cost savings to the agency.

[34] Interviews with peer state DOT personnel, June - August 2024
[35] DOTD All Fleet and Machine Usage, (FY 2018-2023)
[36] DOTD Agile Assets Maintenance Work Orders (FY 2018-24); DOTD Agile Assets Equipment Work Orders (FY 2018-2024); DOTD FY24 GPS Utilization
[37] DOTD All Fleet and Machine Usage, (F Y2018-2023)

Exhibit 17: Equipment by utilization and district/section, FY 2023

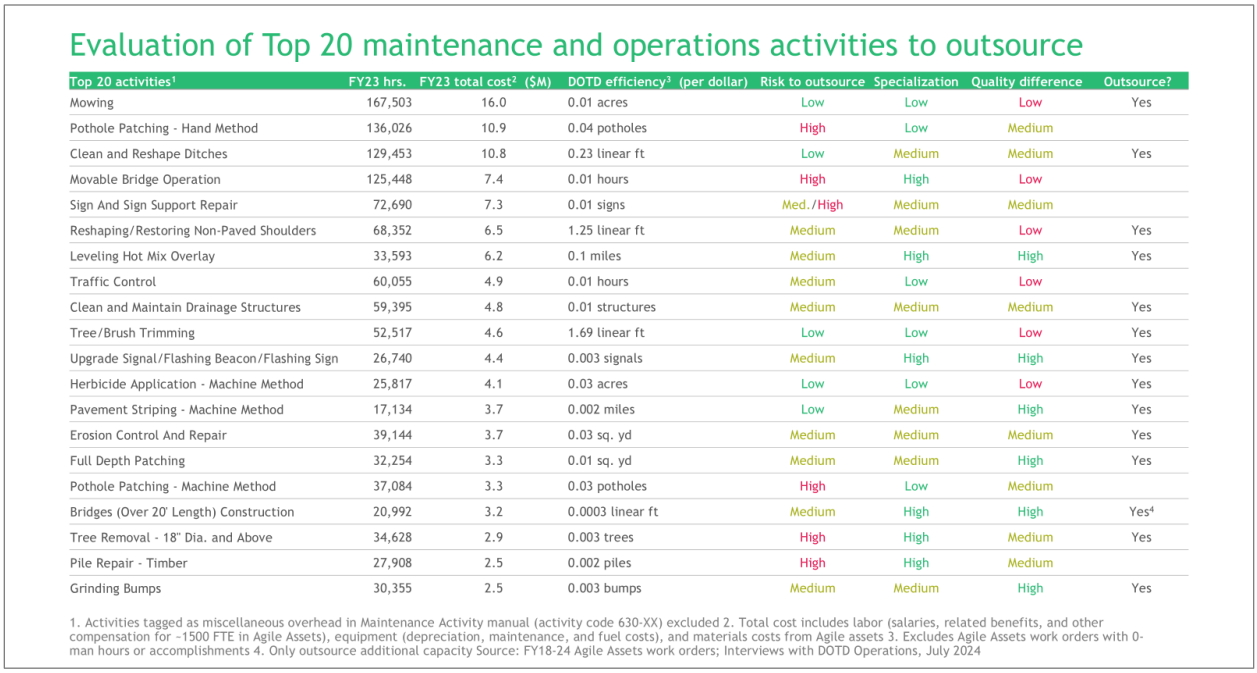


4.3 Recommendations

Based on our findings, there are a few actions DOTD should take to improve maintenance and operations performance:

- **Increase the number of outsourced maintenance and operations activities**. Working with the Office of Operations, 14 of the top 20 most expensive in-house activities were identified as candidates for regular outsourcing, based on degree of specialization and DOTD operational need. Activities were deemed quality candidates for outsourcing primarily if there was not a high risk to outsourcing, though degree of specialization and quality difference were evaluated as well.

Exhibit 18: Evaluation of top 20 maintenance and operations activities, FY 2023



Evaluation of Top 20 maintenance and operations activities to outsource

Top 20 activities[1]	FY23 hrs.	FY23 total cost[2] ($M)	DOTD efficiency[3] (per dollar)	Risk to outsource	Specialization	Quality difference	Outsource?
Mowing	167,503	16.0	0.01 acres	Low	Low	Low	Yes
Pothole Patching - Hand Method	136,026	10.9	0.04 potholes	High	Low	Medium	
Clean and Reshape Ditches	129,453	10.8	0.23 linear ft	Low	Medium	Medium	Yes
Movable Bridge Operation	125,448	7.4	0.01 hours	High	High	Low	
Sign And Sign Support Repair	72,690	7.3	0.01 signs	Med./High	Medium	Medium	
Reshaping/Restoring Non-Paved Shoulders	68,352	6.5	1.25 linear ft	Medium	Medium	Low	Yes
Leveling Hot Mix Overlay	33,593	6.2	0.1 miles	Medium	High	High	Yes
Traffic Control	60,055	4.9	0.01 hours	Medium	Low	Low	
Clean and Maintain Drainage Structures	59,395	4.8	0.01 structures	Medium	Medium	Medium	Yes
Tree/Brush Trimming	52,517	4.6	1.69 linear ft	Low	Low	Low	Yes
Upgrade Signal/Flashing Beacon/Flashing Sign	26,740	4.4	0.003 signals	Medium	High	High	Yes
Herbicide Application - Machine Method	25,817	4.1	0.03 acres	Low	Low	Low	Yes
Pavement Striping - Machine Method	17,134	3.7	0.002 miles	Low	Medium	High	Yes
Erosion Control And Repair	39,144	3.7	0.03 sq. yd	Medium	Medium	Medium	Yes
Full Depth Patching	32,254	3.3	0.01 sq. yd	Medium	Medium	High	Yes
Pothole Patching - Machine Method	37,084	3.3	0.03 potholes	High	Low	Medium	
Bridges (Over 20' Length) Construction	20,992	3.2	0.0003 linear ft	Medium	High	High	Yes[4]
Tree Removal - 18" Dia. and Above	34,628	2.9	0.003 trees	High	High	Medium	Yes
Pile Repair - Timber	27,908	2.5	0.002 piles	High	High	Medium	
Grinding Bumps	30,355	2.5	0.003 bumps	Medium	Medium	High	Yes

1. Activities tagged as miscellaneous overhead in Maintenance Activity manual (activity code 630-XX) excluded 2. Total cost includes labor (salaries, related benefits, and other compensation for ~1500 FTE in Agile Assets), equipment (depreciation, maintenance, and fuel costs), and materials costs from Agile assets 3. Excludes Agile Assets work orders with 0-man hours or accomplishments 4. Only outsource additional capacity Source: FY18-24 Agile Assets work orders; Interviews with DOTD Operations, July 2024

BCG estimated costs and unlocked capacity based on different outsourcing scenarios. Two different levels of outsourcing work were considered: outsourcing an incremental amount of work done and/or outsourcing internal work. A 30% increase in incremental work was chosen to reduce the maintenance backlog in 10 years. Conversations with DOTD personnel revealed that 50% of internal work could be planned and, therefore, outsourced. Working with the Office of Operations, three hypothetical scenarios of outsourcing were determined to evaluate cost and unlocked capacity.

- The first scenario is to supplement need by increasing the amount of work done by 30% for all 14 of the activities identified as good candidates for outsourcing, with 100% of the incremental work outsourced.
- The second scenario is a targeted capacity increase by outsourcing the work determined in scenario 1, and in addition, outsourcing 50% of internal capabilities for five priority activities for DOTD: mowing, striping, herbicide application, tree/brush trimming, and full depth patching.
- The third scenario is a maximum capacity increase by outsourcing the work determined in scenario 1, and in addition, outsourcing 50% of internal capabilities for all activities identified for outsourcing, except for bridge construction (based on conversations with the Office of Operations). Given the amount of outsourcing this would entail and the number of personnel within the Office of Operations, this scenario would need to be gradually phased in over time.

Each scenario represents an increase in contracting costs, while scenarios 2 and 3 unlocked internal capacity with the outsourcing of some internal work. This unlocked capacity is in labor, equipment, and material, which can either be reallocated to reactive maintenance capacities or released for efficiency gains. Further evaluation of need must be conducted by the Office of Operations to understand where and what amount of unlocked capacity should be redeployed versus released. **Exhibit 19** details the different activities outsourced in each scenario, and the methodology can be found in the Appendix.

Additionally, there is potential to bundle activities outside of the top 20 for outsourcing (e.g., outsourcing vegetation removal with tree/brush trimming). Further evaluation of need is required to determine the types and amount of work to bundle via contracting.

Exhibit 19: Activities outsourced in each contracting scenario

Maintenance and operations activities outsourced in each contracting scenario

	Activities	Currently outsourced?	A Supplement need: Incremental 30% outsourced	B Targeted capacity increase: Incremental 30% outsourced	B Targeted capacity increase: 50% in-house work outsourced	C Maximum capacity increase: Incremental 30% outsourced	C Maximum capacity increase: 50% in-house work outsourced
Top 20 Activities by Total Spend	Mowing	✓	✓	✓	✓	✓	✓
	Pothole Patching - Hand Method						
	Clean and Reshape Ditches	✓	✓	✓		✓	✓
	Movable Bridge Operation						
	Sign And Sign Support Repair						
	Reshaping/Restoring Non-Paved Shoulders		✓	✓		✓	✓
	Leveling Hot Mix Overlay	✓	✓	✓		✓	✓
	Traffic Control						
	Clean and Maintain Drainage Structures	✓	✓	✓		✓	✓
	Tree/Brush Trimming	✓	✓	✓	✓	✓	✓
	Upgrade Signal/Flashing Beacon/Flashing Sign		✓	✓		✓	✓
	Herbicide Application - Machine Method		✓	✓	✓	✓	✓
	Pavement Striping - Machine Method	✓	✓	✓	✓	✓	✓
	Erosion Control And Repair		✓	✓		✓	✓
	Full Depth Patching		✓	✓	✓	✓	✓
	Pothole Patching - Machine Method						
	Bridges (Over 20' Length) Construction		✓	✓		✓	
	Tree Removal - 18" Dia. and Above	✓	✓	✓		✓	✓
	Pile Repair - Timber						
	Grinding Bumps		✓	✓		✓	✓
Addt'l Outsourced Today	Cable barrier repair	✓					
	Impact attenuator repair	✓					
	Guardrail repair	✓					
	Sweeping and bridge deck drains	✓					
	Rest area maintenance and ops	✓					

✓ Regularly outsourced ✓ Ad-hoc outsourced

Source: Interviews with DOTD Operations, July 2024

Exhibit 20: Contracting costs and unlocked capacity estimates in each contracting scenario

Additional funding will enable shifting to contracts to augment workforce and free up internal resources to ensure critical maintenance work is completed

	A Supplement need Outsource increase in planned maintenance	B Targeted capacity increase Outsource planned maintenance for 5 priority activities	C Maximum capacity increase Outsource planned maintenance for all outsourced activities
FY24 M&O cost[1]: $314M	Δ+$15-35M Contracting cost[2]	Δ+$30-60M Contracting cost[2]	Δ+$45-90M Contracting cost[2]
Capacity implication[3]	0% Unlocked internal capacity	5% Unlocked internal capacity	12% Unlocked internal capacity
Labor capacity:	$0M	$10M (118 FTE)	$25M (288 FTE)
Equipment capacity:	$0M	$4M	$7M
Materials capacity:	$0M	$2M	$5M
Outsourcing methodology	• **Increase quantity of work by 30%** for activities that meet qual. for outsourcing and outsource increase	• **Increase quantity of work by 30%** for activities that meet qual. for outsourcing and outsource increase • Outsource **50% of internal maintenance** for priority activities: – **Mowing, striping, herbicide, tree / brush trimming, full-depth patching**	• **Increase quantity of work by 30%** for activities that meet qual. for outsourcing and outsource increase • Outsource **50% of internal maintenance** for **all activities** that meet qual. for outsourcing and contract out

1. Cost includes labor cost of statewide maintenance crews, districtwide maintenance crews, parish maintenance crews, and repair costs; non-labor costs of supplies, equipment, maintenance contracts 2. Assumed contracting costs are 0.75x - 1.5x of in-house costs; dependent on local market and bids received 3. Total FTE count of 1848 (Agile Assets representation of FTE count) Source: DOTD FY18-24 Agile Assets maintenance work orders file; DOTD FY18-24 Agile Assets equipment work orders file; DOTD FY18-23 All Fleet usage; DOTD FY18-23 All Machine usage; Interviews with DOTD Operations, July 2024

- **Refine assessment of additional funding and mix of outsourced contracts**. DOTD must leverage contracting to increase the amount of maintenance work done and refocus in-house capabilities on more reactive maintenance that is difficult to predict. To do so, it is necessary to refine initial estimates of outsourcing based on operational needs and understand the capacity and pricing of the local contracting market. Developing a predictable program with multi-year lettings for service contracts will yield competitive pricing in a viable local market. The first step is to understand the amount of maintenance work required to meet maintenance objectives. Then, an assessment of how much work should be contracted vs. how much work should be done in-house is necessary to finalize outsourcing estimates. For activities where outsourcing can replace in-house capabilities, DOTD must evaluate how much unlocked capacity needs to be retained for reactive maintenance or released for efficiency gains.
- **Develop outcomes-based articulation of funding need**. The impact of increased contracting on the maintenance and operations budget must be assessed. Based on refined assessments of additional funding and the mix of outsourced contracts, DOTD can identify outcomes of increased contracting on maintenance priorities and refine the ask to the Legislature based on outcomes (e.g., tons of potholes patched each year, miles of deficient lanes striped, etc.). Tracking should then be put in place to measure outcomes and track progress internally and for the Legislature.
- **Rationalize vehicle fleet based on need, and shift to cyclical replacement for remaining vehicles.** DOTD must continue assessing the operational need of equipment, including types and amount of equipment that is necessary in emergency response situations, to identify opportunities for fleet reduction via statewide sharing or rental/leasing opportunities. DOTD could also consider including a clause in maintenance contracts placing the contractor and its equipment at the disposal of districts in a declared emergency. The current equipment budget can then be used to cyclically replace the optimized fleet.

  The Office of Operations is currently identifying equipment that could be shared statewide to reduce redundancies across districts without impacting operations. One example is cranes, where instead of each district having their own crane, three districts could share a crane.

Section 5 Enable the organization

5.1 Context

In addition to the initiatives specific to funding, capital delivery, and operations and maintenance, a set of broader changes impacting the entire organization are required to fully enable DOTD to be successful. While many of these changes fall outside the direct remit of the agency itself and must be approved by the Legislature or other State agencies, there is a set of actions that DOTD can take immediately.

It will be critical to ensure DOTD has the ability to measure, track, and hold itself accountable to performance standards, put the right people in the right roles, and remove bottlenecks in central support functions.

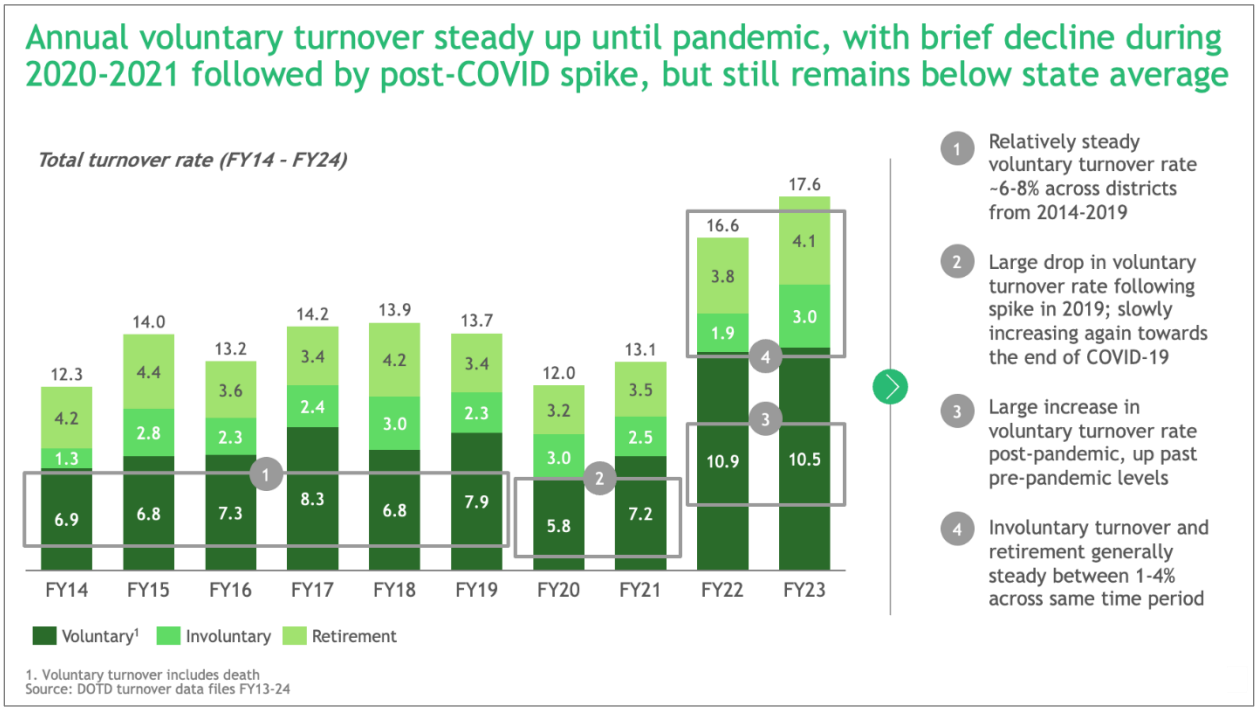
5.2 Findings

Through extensive interviews and analysis, BCG identified the following organizational challenges:

Limited tracking of key performance indicators (KPIs) creates challenges in measuring employee and Department performance. Interviews with department heads indicated that few substantive KPIs, if any, are measured outside of obligating all DOTD funding. While the Government Performance and Accountability Act of 1997 mandates the tracking and reporting of certain performance indicators, there is a perception that these indicators are not particularly meaningful or tied to individual or Department-wide outcomes. This has made it impossible to define and measure success in a robust, data-driven manner or to evaluate the outcome of changes implemented. KPIs are also not tracked transparently; the most recent public tracking was DOTD's public dashboard, which was discontinued in 2012.

DOTD has seen a rise in voluntary turnover, increasing to 10% - 11% from a historical average of 6% - 7%. Overall turnover has increased in the aftermath of the COVID-19 pandemic, jumping overall to ~17% from a historical average of ~13%, though attrition still remains lower than the State average. The largest contribution to turnover came from voluntary turnover (~10% - 11%) and retirements (~4%), with involuntary turnover steady at ~2% - 3%. The high rate of voluntary turnover is due in large part to inadequate compensation and incentives for key roles. This high turnover rate contributes to the loss of knowledge with employee retirement and the perceived experience gap between senior and entry-level employees.

Exhibit 21: DOTD total turnover rate (FY 2014-2024)



DOTD faces challenges in ensuring it has the right people in the right roles, driven by several factors:

- Pay is currently tied to job title; however, the same title might work across roles that require different skill sets and more demanding responsibilities (e.g., project managers). This has caused turnover in important technical functions where individuals are moving to other offices or teams within DOTD.
- Pay compression has occurred over time, with jobs with fewer requirements paying comparable to jobs that require more experience and are more demanding, resulting in dissatisfaction.
- Interviews suggest it is challenging to successfully make the case for dismissal for an employee, which limits managers' utilization of performance management tools.
- Hiring criteria and processes are perceived to place weight on tenure within the Civil Service, limiting the ability to accelerate the promotion of high-potential talent from within and the ability to hire qualified talent externally from the private sector.
- Certain hiring practices, such as the inability to provide offers to potential employees more than 90 days before their anticipated start date, make it difficult to recruit top talent (e.g., graduating engineering students seeking jobs in the fall semester).
- Historically, DOTD has emphasized hiring and promoting employees with a strong engineering/technical skillset, leaving a critical gap in business/management-related capabilities across the organization.

Peer states have undergone similar transformations. A transformation of this magnitude requires many functions to operate proficiently, which requires a high degree of employee expertise and capability. Peer states such as South Carolina and Tennessee have re-assessed their organizational structure and defined a target operating model that places project delivery into focus, holds teams and individuals accountable for outcomes, and incentivizes performance.

Support functions are perceived to be inefficient, driving duplication, decentralization, and lack of visibility. For example:

- District Administrators cited the need to hire additional human resources staff due to concerns that central HR was not prioritizing their hiring needs.
- Certain finance and budget functions are decentralized and managed by respective offices, which limits central visibility into granular budgets and expenditures.
- Current reporting of financial data is disparate and manual, and there is no single, unified source of truth that can be transparently and easily accessed or linked to all other sources.

Other state agencies impose restrictions on the activities of DOTD, limiting its ability to operate with agility and efficiency. Examples of constraints posed by state agencies:

- State statute requires procurement contracts above $30,000 that are not directly related to the construction or maintenance of roads or bridges (e.g., office equipment, IT services) to be awarded through a competitive sealed bidding process managed by the Office of State Procurement (OSP), which can delay purchasing timelines and project deadlines and limits DOTD's ability to create long-lasting change.
- The Office of Technology Services (OTS) is responsible for data services and IT procurement; DOTD pays OTS ~$34M per year (average from FY'22-24) for these services. Interviews suggest OTS's purview over data services and procurement prevents DOTD from rapidly accessing its data to make management decisions and hinders adoption of

new technologies. The need to request individual pieces of data from OTS (e.g., financial, project, workforce, asset data) severely hamstrings DOTD's ability to efficiently analyze and process it.
- Civil Service pay bands designed to promote pay equity can inhibit DOTD's ability to attract talent from the private sector and promote attrition to other state agencies.

While state agencies may pose constraints, there are actions that DOTD can take to operate within these limitations. Examples of actions DOTD can take:

- DOTD can explore developing expedited review processes for routine or low-risk contracts to increase efficiency. Additionally, there is an opportunity to explore increasing non-engineering/non-construction contract thresholds for OSP review (e.g., to $60,000) to focus resource allocation on high-impact contracts.
- Monthly meetings with OTS, Civil Service and OSP, as conducted by previous heads of the Office of Management and Finance (OMF), can help ensure that goals are aligned, and progress is being made. Touchpoints can also help identify roadblocks and paths forward to ensure technologies are adopted seamlessly.
- Civil Service has pay-for-performance programs, where DOTD can reward participating sections/districts that perform above a predetermined benchmark (language in Civil Service Rule 6.16.1). Other options to explore include optional pay to compensate employees for performing additional duties (6.16.2) and individual pay adjustment (6.16c). These benchmarks and additional duties would need to be carefully applied to ensure they promote a visible positive change in performance.
- DOTD can explore revising job descriptions to better reflect responsibilities, increase flexibility in hiring and compensation practices, and assess the potential for declassifying certain positions.

5.3 Recommendations

Based on our findings, there are several actions DOTD should take to set up the organization for success.

- **Develop and regularly track a set of comprehensive, data-driven KPIs for each department, team, and individual to drive accountability, transparency, and long-term culture change** with several use cases:
    - **Incentivize individual performance** by using KPIs as input into performance evaluations (including compensation and promotion decisions) to hold individuals accountable for outcomes.
    - **Expand leadership awareness** of performance by office and by team to direct focus for attention and resources.
    - **Provide public transparency** into performance by publishing a detailed online dashboard to build trust and momentum around DOTD wins and drive accountability to the public.
    - **Assess DOTD's external engagement** by establishing a set of internal KPIs that incorporate feedback from external stakeholders and serve to foster improved collaboration with the broader transportation community.

Exhibit 22: Sample KPIs for key areas

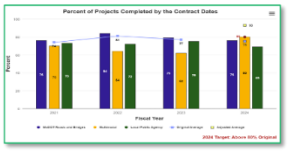
Publicly reporting KPIs can help drive accountability, track accomplishments, and build trust with the public

Non-exhaustive

Key Areas	Sample KPIs	DOTD	TxDOT	MoDOT	VaDOT
Project Delivery	% final bid is +/- HPP			✓	✓
	# of projects let on time				✓
	# of project bids				
Construction	% of projects completed at budget		✓	✓	✓
	% of projects completed on time		✓		✓
	# of change orders			✓	
	% of DBE utilization		✓	✓	
Maintenance and Ops	Avg. time to clear			✓	✓
	% of equipment in need of replacement			✓	
	$ of backlogged maintenance				
	% of planned maintenance completed			✓	
Workforce	Rate of employee turnover			✓	
	% of workforce satisfaction			✓	
	# of vacancies				
	# of worker accidents		✓	✓	
Asset Performance	% of roads in good condition	✓	✓	✓	✓
	% of bridges in good condition	✓	✓	✓	✓
	Avg. road delays		✓	✓	
	# of pedestrian improvements			✓	

DOTD previously published KPIs on public dashboard; discontinued in 2012

Examples of peer state DOT public dashboards for KPI tracking



Source: DOTD Bids Result Summary; DOTD Operations Scorecard, FHWA Highway Statistics; VDOT Dashboard, MoDOT Tracker, TxDOT Performance Dashboard, DOTD Highway Priority Program, DOTD KPI Dashboard (2012)

- **Conduct a detailed organizational assessment**. DOTD must ensure that it has the right number and mix of people in the right roles, with skillsets and incentive structures aligned to preferred outcomes. The first step is to assess the organization across all dimensions, including an evaluation of roles, premium pay, and new needs that will arise due to new initiatives undertaken, such as a greater need for business/management skillsets. Assess the potential benefits of programs (e.g., Management and Extension of Staff programs) to address the experience gap between senior and entry-level employees and reduce the risk of knowledge loss. Identify where recruiting practices can be strengthened to increase competitiveness with the private sector. This assessment can then provide areas for improvement across DOTD.
- **Conduct a diagnostic of key processes within OMF and prioritize critical processes to fix**. A few examples of process improvements to pursue are:
    - Process standardization within the Finance department to improve financial reporting and budget efficiency. For example:
        - Develop standardized guidelines and a single point of ownership for maintaining and updating financial reports and conduct regular financial training for district personnel to ensure accuracy and consistency.
        - Track budget and actuals separately instead of replacing budget data with actuals after each year.
        - Standardize practices for assigning expenses to a General Ledger (G/L) code, or the code used to categorize financial transactions specific to a project, and proactively communicate any adjustments to G/L codes back to districts.
    - Human resource process empowerment to address DOTD's human capital challenges.

        - Audit and define the responsibilities of each entity involved in HR processes to avoid duplication of efforts and ensure accountability.
        - Partner closely with Civil Service to understand the menu of options able to meet specific people objectives and any levers available for exceptions or additional flexibility.
    - Data and technology access to improve DOTD's management and use of relevant information (e.g., financial, project information, workforce management, asset management).
        - Collaborate with OTS and other stakeholders to identify strategies for expediting the process for collecting and accessing data relevant to the agency's mission.

Section 6 Roadmap and path forward to implementation

BCG has worked with DOTD to develop a comprehensive roadmap that identifies clear timelines for delivering the initiatives identified above. The roadmap contains a detailed and ambitious plan to transform the agency with clear outcomes that can be achieved with concerted effort across the agency. While change will take time and cannot happen all at once, moving too slowly poses a risk of losing momentum. The organization must rapidly act on the next steps to build the foundation for true reform.

Based on BCG experience, transformations of this scale require support from leadership and a structural setup to create impact in the long term. First, DOTD leadership must accept the need to change. Then, to ensure alignment of focus, DOTD needs to take a holistic view across both new and existing initiatives that enables steering, acceleration, or de-prioritization of initiatives for the overall success of the transformation. Leadership must clearly communicate the vision and individuals' roles within the change. The effort must be supported by a dedicated transformation team that is focused on impact and empowered by the Secretary to act decisively.

When looking ahead to implementation, DOTD needs to establish a clear baseline for the current state of enablers, KPIs, accountability, and process for impact validation. By doing so, the agency can understand where it currently stands, where it needs to improve, and how to measure this progress throughout the transformation. Leadership must also create well-thought-out and execution-ready workstreams, initiatives, and milestones for ease of implementation, with well-constructed program governance overseeing the effort. Leadership must be willing to hold initiative owners accountable for both timeline and value delivery to ensure success.

There are also multiple other key dependencies – e.g., with OTS, OSP, Civil Service – that the Department will need to navigate to deliver on the initiatives required to transform. Without appropriate oversight, and dedicated capacity, there is a risk that DOTD would not be able to fully realize the potential of this transformation – or worse, further erode trust with key stakeholders.

Section 7 Appendix

7.1 Other potential opportunity areas

Below is a synthesis of perceived challenges and potential opportunities that surfaced during interviews with both internal and external stakeholders. BCG focused on investigating and detailing the highest-value opportunities highlighted in the previous sections, and it did not validate the challenges or opportunities listed below. Thus, these should not be seen as a list of recommended actions but as suggested topics to explore further. As a next step, DOTD should evaluate these challenges in depth and decide which, if any, of these opportunities will be pursued and incorporated into its transformation plan.

Capital Delivery

Current challenges in capital delivery include issues with lines of communication, expediting design and permitting, and areas for increased internal collaboration or outsourcing. Potential opportunities to explore further are as follows:

- **Improve utility surveying, institute penalties on utility owners for lack of timely relocation and increase collaboration to ensure projects can start on time.** Utilities are not always relocated prior to construction, leading to delays and additional costs.
- **Create and adhere to a clear set of timelines and escalation protocols for claim resolution (e.g., MDOT).** As it currently stands, claim resolution processes lack clear timelines and escalation owners.
- **Adopt joint project-signal permitting and improve the existing permitting timeline.** Project and traffic signal permits currently work on separate schedules, and delays in either can require the issuance of new permits.
- **Evaluate the current design process; move away from a 'one-size-fits-all' approach toward design review and approval for alternative delivery models, where applicable.** The current application of traditional Design-Bid-Build standards to Alternative Delivery projects creates excessively stringent requirements which limits necessary flexibility and creativity for the contractor.
- **Allow third-party materials testing to expedite testing and ensure required changes can be made prior to project completion.** Current materials testing is all in-house, which can lead to slower testing results (e.g., if the sample is not collected or delivered promptly to the testing lab by the inspector), impacting payment and the ability to remediate while the project is still ongoing.
- **Increase ownership and involvement from the Project Engineer in the pre-bid process.** Project Engineers are currently not always involved in the pre-bid process and may offer conflicting decisions once construction begins.
    - **Set and adhere to deadlines on traffic study durations.** Traffic studies can take years, slowing projects or forcing engineers to omit intersections.
    - **Reassess the current IDIQ/retainer fee structure to offset distance and complexity for right-of-way appraisals.** The current appraisal fee/contract system may not appropriately compensate limited appraisers for their level of work.
    - **Launch a specialized program to develop local contractors for Construction Manager at Risk (CMAR) roles.** This program should prioritize contractors that are licensed in Louisiana and should focus on CMAR projects under $20M.

- **Digitize and better track ROW using GIS tools at the state level.** There is a current lack of up-to-date knowledge on existing utility/ROW mapping, which leads to utility disruption and project delay.

Maintenance and Operations

Current challenges in maintenance and operations include concerns around funding and communication. Opportunities to address these challenges are as follows:

- **Boost responsiveness to local needs and allow for overlap of duties regardless of road ownership.** Currently, localities have little say in DOTD maintenance prioritization and cannot operate outside of their jurisdiction. DOTD could increase its use of shared service agreements to alleviate jurisdictional issues and govern the balanced exchange of materials, services, and funds.
- **Improve internal communications around budgeting in maintenance and operations (e.g., recurring bidirectional communication and automatic system alerts).** There is a lack of proactive communication between districts and HQ on the availability of funds and limited prior notice when funds are insufficient or must be reallocated across districts.
- **Track budget across districts to limit overspending and enforce accountability if district is over-budget.** There is currently a lack of accountability when districts are over budget and budget is reallocated from districts that are underbudget.
- **Track completion of public complaints in singular/connected database(s) to monitor resolution of complaints.** Public complaints are not tracked through completion with disconnected databases for complaints vs. work orders completed.
- **Establish district-level rapid response teams.** Launch on-call maintenance crews, composed of either DOTD maintenance staff or pre-contracted private firms and equipped with multi-disciplinary capabilities (e.g., design engineers, contractors) to address emergencies as they arise (e.g., bridges out of service, road washouts, crash or hurricane-inflicted damage). This would help free up bandwidth for other maintenance crews to focus on longer-term, programmed priorities.

Economic Development

A core element of DOTD's mission is to enhance economic opportunity through the planning, design, construction, and maintenance of a multimodal transportation and infrastructure system. Potential opportunities to increase DOTD's ability to deliver this mission include:

- **Improving collaboration with Louisiana Economic Development (LED).** To maximize the economic benefits of transportation and more proactively advance the state's economic development priorities, DOTD and its Office of Multimodal Commerce (OMC) should strengthen its engagement with Louisiana's economic development agency. This should include coordinating with LED to promote industry activity in the state and to secure additional federal grant funding for economic development.
- **Take action to make Louisiana more economically competitive with neighboring states.** Several processes and requirements, such as the permit process, are seen as overly complicated and burdensome, which may discourage commerce in the state. Potential actions include simplifying and expediting the permit application process, maintaining labeling and advance warning on bridge heights, increasing the requirement for civilian escort, and increasing the requirement for annual permits for all types of freight.
- **Establish a legislative liaison role to advocate for DOTD priorities.** In addition to improving coordination with the Legislative and Executive branches, this liaison could

help to promote DOTD's role in economic development and oversee DOTD's compliance with relevant laws and statutes.

- **Elevate rail in statewide transportation planning and enhance grade crossing safety.** Though a majority of rail lines in Louisiana are privately owned and operated, rail should be elevated in all master planning, given its critical role in driving connectivity and commerce. This would also enable DOTD to lead a coordinated effort to secure federal funding for grade separation and reduce grade crossing risks.
- **Sell unutilized real estate.** DOTD can generate additional revenue and free up dormant property for business activity by pursuing the sale or leaseback of parcels of land purchased for projects that will never be used.

Local Public Agencies

Local Public Agencies (LPA) represent an important link between the DOTD and local infrastructure assets. DOTD acts as a conduit to provide local agencies access to federal funding while giving municipalities the capability to manage localized infrastructure projects. LPAs typically rely on consultants to help execute these infrastructure projects. DOTD faces challenges in navigating the balance between oversight and execution. For example, LPA plans are often reviewed and reworked because they do not meet DOTD standards, which contributes to delays and frustration.

Peer states have also faced similar challenges and tried various approaches to streamline the coordination with LPAs, including:

- **Frequent training and certifications with LPAs and contractors**. Peer states, including Tennessee, have found that instituting quarterly training, refreshers, and even tests for LPAs and contractors on topics such as state and federal regulations and common mistakes and pitfalls and providing a forum for discussion has helped improve the efficiency of LPA projects.
- **Preferred or authorized list of contractors for LPAs to leverage**. Some states prefer consultants and contractors who have either extensive work experience with DOTD or have completed certification training that ensures a thorough understanding of DOTD requirements.
- **Outsourcing LPA project management**: Some state DOTs conducted a review of internal capacity and priorities and decided to outsource project management for LPA programs and allocate internal resources towards more strategic initiatives.

Louisiana Transportation Research Center (LTRC)

LTRC was established by the Louisiana Legislature in 1986 to merge state government and university resources to promote training and introduce new technologies. As mandated by FHWA, LTRC provides research, technical assistance, training, continuing education, and technology transfer through two divisions: (1) Technology Transfer, Training, and Education, and (2) Research and Development. LTRC is largely federally funded, with $17.4M (nearly 90%) of its $19.5M total FY24 budget funded by FHWA – 100% of the training and education program and 80% of the research program. In interviews with internal and external stakeholders, key challenges surfaced, including:

- **Limited understanding of LTRC's role.** There are widespread misconceptions among external stakeholders about the role and scope of LTRC. For example, there is a public perception that LTRC 'overdesigns' specs, thus hindering spec development and innovation. In reality, LTRC conducts research that is used to inform spec development, with the final decision made by the Chief Engineer. There is also a misconception that

LTRC duplicates the work of the Materials and Testing Labs. There is an opportunity to communicate LTRC's role more proactively and identify ways that LTRC can work more collaboratively with relevant stakeholders, including the contracting community.

- **Perceived lack of transparency around research proposal acceptance processes and criteria.** Due to LTRC's funding constraints, not all research proposals can be accepted. Stakeholders cited a lack of understanding of how projects are accepted or how external input is considered and a concern that high-priority research proposals, including those submitted by districts, are infrequently accepted. LTRC may consider more proactively sharing updates on its proposal review process and working closely with districts and other stakeholders to understand top priorities.
- **Potential disconnects between research agenda and DOTD priorities.** LTRC research findings are not always implemented at DOTD, and LTRC lacks a mechanism to ensure the research it conducts is actively leveraged by the broader organization. Research implementation had previously been assessed as a performance metric, but is no longer tracked, thus limiting accountability.
- **Opportunity to explore alternative models for transportation research.** While much of LTRC's work is both critical and federally mandated, other states have implemented research models that allow for more agility and reduced overhead costs. For example, some state DOTs operate lean research centers that issue Requests for Proposals (RFPs) for defined topics to multiple universities or research facilities, selecting the lowest bidder and acting primarily as funders and reviewers. One potential drawback of this model is that a lack of qualified bids would hinder the DOTD's research agenda. DOTD could evaluate LTRC in depth and consider adopting a similar model.

Partnership with Utilities

- **Allow for two driveways on substation project sites for equipment and trucks to more easily maneuver and save time.** Current restrictions on having one driveway make moving equipment difficult at project sites.
- **Eliminate requiring additional permission for utility relocation and upgrades with existing joint-use agreements.** DOTD requires express permission from power companies for Telecommunication companies to use the poles, despite existing joint use agreements.
- **Classify equipment replacement as maintenance work that does not necessitate a permit.** Replacing wooden poles and other equipment currently requires a permit, decreasing speed and work efficiency.

7.2 List of stakeholder interviews and input solicited

DOTD stakeholders	Office of the Secretary: • Secretary Joe Donahue • Deputy Secretary Barry Keeling • Peggy Jo Paine Office of Management and Finance: • Barbara Aguillard • Michael Proctor • Lesha Woods • Brad Doucet • Michelle Sanders • Mark St. Cyr

	• Clyde Ashley Office of Engineering: • Chad Winchester • David Smith • Mike Vosburg • Edward Knight • Matt Jones • Laura Riggs • Joseph Brown • Barbara Ostuno • Tanya Moore • Brian Richard • Sam Cooper • Tyson Rupnow • Mary Leah Coco Office of Planning: • Connie Porter-Betts • Michelle Horne • Trey Jesclard • Adriene McRae • Dawn Sholmire • Jared Ray Office of Operations: • Todd Donmyer • Chad Roubique • Kevin Reed • Scott Boyle (District 02) • Eric Dauphine (District 03) • David North (District 04) • Jeffrey Connella (District 05) • Seth Woods (District 07) • Dalton Williams (District 62) • Various other district personnel Office of Multimodal Commerce: • Julia Fisher Cormier • Randall Withers • Brad Brandt • Dean Goodell • Stephen Holliday • Phil Jones
Industry working groups	• Bridge contractors • Economic development • Engineering • Legal • Legislative • Local government • Management and finance • Multimodal commerce

	• Permits and regulations • Real estate • Research and materials • Right of way • Road contractors • District operations
Louisiana Coalition to Fix Our Roads (LCFOR)	Board Members • Erich Ponti • David Madden • Terry Baugh • Barker Dirmann • Joey Coco • John Austin • Reldon Owens • Michael Demouy • Chance McNeely • Adam Knapp • Matt Gresham Ad Hoc Members • Jay Winford • John Madden

7.3 Methodology

7.3.1 Needs Assessment Methodology

DOTD's budget represents three major categories of funding: the operating budget, the capital budget, and non-DOTD appropriated funding (debt service and pass-throughs). The following sections detail what is included in each category when assessing need.

This analysis calculated an initial estimation of need over the next 20 years by breaking need into five categories: 1) manage operations; 2) limit backlog growth; 3) eliminate backlog in 20 years; 4) build megaprojects; and 5) fund non-DOTD appropriated items. The following sections detail the methodology of estimating each need category.

1. **Manage operations:** The FY24 operating budget of $751M has grown at 2% - 3% CAGR between 2014-2024. This rate was used to project forward inflationary growth in the operations budget need. Note that this category includes $62.3M+ of operations pass-through funding that is part of DOTD's ability to manage operations.[38]

2. **Limit backlog growth:** Limiting backlog growth was defined as only letting the backlog grow with inflation and not increasing the amount of assets in need of improvement. This was calculated by finding the backlog growth without inflation or capital spend from 2010 to 2019; Needs Report methodology changed in 2020. The re-estimated backlog values

[38] Includes pass-through for buses, the New Orleans Ferry Fund, the Watershed Initiative, Calcasieu Dredging, and municipalities

were used to more accurately reflect the true cost. The 2010 backlog then grew at an annual rate of 4.1% inflation (NHCCI inflation from 2003 – 2019) to understand how much the backlog would have grown solely due to inflation. This amount was then subtracted from the re-estimated backlog of $18.8B in 2019 and added to the capital budget spent on roads and bridges (excluding pass-through funding and parish transportation funding). This yielded backlog growth without inflation or capital spend from 2010 to 2019, a value of $6.7B.

This was then divided by the number of years to find the annual spend needed to limit the backlog growth in 2019, or $742M. This budget was grown at a rate of 5.7% (NHCCI inflation from 2003 – 2024) until 2022, which is the most recent year of the State Highway and Bridge Needs Report. From 2023 onwards, the budget was grown at different rates of inflation for different scenarios. The low inflation scenario used inflation from NHCCI 2003-2019 (4.1%). The medium inflation scenario used inflation from NHCCI 2019-2024 (10.8%). The high inflation scenario used inflation from DOTD internal Louisiana construction cost increases from 2020-2024 (13.5%).

3. **Eliminate backlog in 20 years:** Eliminating the backlog in 20 years was defined as reducing the re-estimated $23.9B backlog *(see next section for details on revised estimates)* to 0 by 2044. Three scenarios of inflation were used. The low inflation scenario used inflation from NHCCI 2003-2019 (4.1%). The medium inflation scenario used inflation from NHCCI 2019-2024 (10.8%). The high inflation scenario used inflation from DOTD internal Louisiana construction cost increases from 2020-2024 (13.5%).

   The yearly amount of capital budget needed for roads and bridges was calculated by applying the relevant inflationary rate to the budget needed and subtracting from the re-estimated backlog grown at a rate of inflation until the backlog reached $0 in 2044.

4. **Build megaprojects:** Four megaprojects that receive $40M each from the Motor Vehicle Sales Tax were included in the need assessment. The four projects are the Calcasieu Bridge, the Mississippi River Bridge, I-49 North through Shreveport, and I-49 South through Lafayette. The timelines and cost estimates were obtained from the project managers responsible for each project.

5. **Fund non-DOTD appropriated items:** This consists of debt service and capital budget pass-throughs. The TIMED debt service and SHIF debt service obligations for FY24-44 were identified using DOTD OMF internal estimates. The pass-throughs (Parish Transportation, Statewide Flood Control, Port Priority Program, Airport Priority Program) were held constant at the FY24 values.

7.3.1.1 Needs Report Methodology

BCG used the DOTD State Highway and Bridge Needs Report as the basis for the initial estimates of funding need. The needs report represents a formula-based approach to estimating the total size of the backlog using a snapshot in time and is updated annually. There are several notable limitations to the report as a source to assess the total funding need for DOTD – it does not reflect all modes of transportation, nor does it incorporate wholly new capacity (only capacity additions to the current system. DOTD is currently revising the Statewide Transportation Plan, which reflects a 30-year view of needs that addresses the omissions above and will form the basis of a revised funding needs assessment.

Given the State Highway and Bridge Needs Report was the best available source of data when this effort was undertaken, the BCG team worked with the Office of Planning to identify and refine potential cost discrepancies in the Needs Report.

An exercise was undertaken to re-estimate the backlog based on the cost discrepancies to calculate the true cost of improvements. A 25% increase was added to the Congestion/Capacity, Safety, and Condition improvements to account for pre-construction costs. Another 8% increase was applied to On-system Bridge Needs improvements to account for the difference in Consumer Price Index inflation vs National Construction Cost Index inflation between 2008 and 2022—2008 being the most recent year bridge improvement costs were calculated using the Pontis' Implementation Project.

These calculations brought the re-estimated backlog cost to $23.9B, or a 26% increase from the $19B cost. This 26% increase was applied to historical Needs Report totals to estimate the true cost of improvements in 2022.

Exhibit 23: Revised estimate of 2022 Needs Report backlog

Needs report costs generally understated when assessing full cost of improvement

Category	Type of Improvement	Cost ($M)	Degree of cost confidence	% cost change	Cost change rationale	Revised cost ($M)
Congestion/Capacity	Major Widening/Adding Lanes/TSM	6,999	Low	+25%	Add'l pre-construction costs	8,749
Safety	Isolated Reconstruction	231	Medium	+25%	Add'l pre-construction costs	289
	Minor Widening	54	Medium	+25%	Add'l pre-construction costs	68
	Minor Widening and Isolated Reconstruction	9	Low	+25%	Add'l pre-construction costs	11
	Resurfacing and Isolated Reconstruction	1,202	Medium	+25%	Add'l pre-construction costs	1,503
	Shoulders	187	Medium	+25%	Add'l pre-construction costs	234
	Vertical Clearance	2	Medium	+25%	Add'l pre-construction costs	3
	Railroad Crossing	200	Medium	+25%	Add'l pre-construction costs	250
Condition	Resurfacing Only	5,474	Medium	+25%	Add'l pre-construction costs	6,843
	On-system Bridge Needs	4,286	Medium	+33%	Add'l pre-construction costs, inflation	5,690
Operations/Motorist Services	ITS - Capital Equipment Replacement	15	High			15
	Signals	96	High			96
	Interstate Striping	20	High			20
	Interstate Signs	43	High			43
	Rest Areas and Weigh Stations	59	High			59
	On-System Moveable Bridges	10	High			10
	Ferries	4	High			4
	Roadway Flooding	6	High			6
Totals		18,897		+26%		23,890

1. Pre-construction costs add additional 25% increase in cost; delta between NHCCI inflation and CPI inflation between 2008-22 was 8%; Source: DOTD Planning data; DOTD State Highway and Bridge Needs Report (2022); Interviews with Planning, July 2024

7.3.1.2 Methodology and assumptions for benchmarking indirect spend required to manage capital program

The purpose of this benchmarking exercise was to 1) compare the level of indirect spend required to manage the capital program relative to peers; and 2) understand the implications on indirect spend of shifting to a high outsourcing model.

The three elements of this analysis are:

1. **Internal resources** (salary and benefits of associated employees) associated with delivering and managing the capital program
2. **Consulting services** associated with delivering and managing the capital program

3. **Capital awarded** by the state

Activities include all preconstruction activities (survey, environmental, right of way, design), construction management, and engineering inspection.

For DOTD, the following methodology was used:

- **Internal resources:** A combination of office descriptions and job titles were used from "DOTD FY24 Filled and Vacant Positions" to determine relevant positions of project delivery multiplied by the average salary of Engineering and Operations departments
    - Headquarters offices include: *Secretary's Office (S01), Materials and Testing (S22), Real Estate (S23), Road Design (S24), Bridge and Structural Design (S25), Traffic Eng. Development (S27), Environmental (S28), Location and Survey (S30), Hydraulics (S32), Critical Projects (S35), Publication and Plan Quality (S36), Construction (S40), Chief Engineer (S53), Pavement and Geotechnical Services (S67) and Contract Services (S80)*
    - District offices include: Administration (G001), District Labs (G150-158), Design (G170), and Construction (G200-293). Public works was excluded from the analysis
    - Job titles included those that contained "Engineer," "Env," "Right of Way," and "Surveyor"
    - Average salaries were calculated as salary and benefits of the department divided by total employees in FY 2023, for both the Office of Operations and the Office of Engineering
- **Consulting services:** An average of consulting spend from FY 2020-2023 from "Capital Contract Purchase Order" data set provided by OMF. Consulting services were isolated by "Item Type" equal to "Service" and the following Product Category Names: "Civil Engineering," "Environmental Adviso," Professional Enginee," "Traffic Engineering," "Transportation Engin."
    - Removed consulting contracts containing "EWP," "Bridge Inspection," and "Port of Iberia" from the analysis, reflecting feedback from the Office of Engineering
- **Capital awarded:** Average of construction contracts from FY 2020-2024 from "Construction Bid and Estimates" data provided from the Office of Engineering. This excluded Design-Build contracts.

Similar data, with comparable filters, for peer state DOTs were collected based on publicly available information from annual reports, published data, and interviews with former staff. Sources and assumptions are outlined below.

Exhibit 24: Indirect spend for capital program sources and assumptions

Detail | Benchmarking sources

State	Consulting Services	Internal Resources (i.e., Engineering + CEI Salary)	Capital Awarded
Louisiana	From DOTD Capital Contracts Awarded - Item Type = "Service," combines the following Product Category Names: civil engineering, environmental adviso, professional enginee, traffic engineering and transportation eng for FY20-23	Calculated as **# of engineers** (DOTD FY24 Filled and Vacant Positions - relevant organizational units and job titles) x avg **engineer and operations salary** (DOTD FY14-23 Section Expenditures by Category)	Average "Bid Amounts" from FY20-24 (Construction Bid and Estimates); Includes road and bridge construction and excludes Design-Build
Florida	From FDOT Fiscal 2022/2023 Performance and Product Review - Executive Summary (page 5)	From FDOT FY23 Program and Resource Plan, combines salaries and benefits for turnpikes and highways, preliminary engineering, right of way, planning/environment, CEI, and design consult	From FDOT Fiscal 2022/2023 Performance and Product Review - Executive Summary (page 5)
Texas	From TXDOT FY23 Annual Financial Report, from Total Professional Fees and Services (page 159)	From TXDOT FY23 Annual Financial Report, combines "Salaries and Wages" and "Payroll Related Costs" (page 213). Assumes 34% of spend is engineering (Agency Workforce Plan, page F8)	From FY2023 Letting Volume from Texas Historical Project Information Dashboard - FY2023, Project Type = "Construction"
South Carolina	From SCDOT FY23 Expenditures by Program, combines external spend for Bridge Inspection, Design/Build, Engineering and Inspection, Engineering Design, Environmental, Right of Way, Safety, Surveys, Traffic Engineering, Transportation Planning, Utilities and Railroad Coordination, LPA Administration and Environmental Mitigation for SFY2023 (page 5)	From SCDOT FY23 Expenditures by Program, combines "Engineering Admin and Project Management" and the 65% of "Employer Contributions" (ratio of Engineering spend with General Administration)	Interview with DOTD personnel, July 2024; Excludes Design Build
Alabama	From AL FY25 State Budget, from total ALDOT professional services	From AL FY25 State Budget, assumes 30% (from expert calls) of total ALDOT salary and benefits is for engineering	From ALDOT 2023 Annual Report, Total Amount Awarded of contracts less "State Maintenance (page 80)
Kentucky	From KYTC FY23 Financial Report, combines "personal service contracts" for construction and engineering	From KYTC FY23 Financial Report, combines "personnel costs" for construction and engineering	From KYTC FY23 Financial Report, combines capital construction from road fund, federal fund and agency fund
Missouri	From MODOT FY23 Budget, from total professional services	From MODOT FY23 Budget, assumes 30% (from expert calls) of total salary and benefits is for engineering	From FY23 Bid Totals, combines Total Award Amount of District/Statewide Subtotal + Let by Others
Arkansas	From ARDOT FY22 Legislative Audit, Exhibit B from total professional services (Exhibit B - page 7)	From ARDOT FY22 Legislative Audit, assumes 30% (from expert calls) of total salary and benefits is for engineering (Exhibit B - page 7)	Combines Awarded Amount from August 2021 to June 2022 dates
Mississippi	Interview with DOTD personnel, July 2024	Interview with DOTD personnel, July 2024	MDOT Annual Report 2023 awards on road and bridge contracts

7.3.1.3 Maintenance Activity Outsourcing Methodology

BCG explored an exercise to identify maintenance activities for outsourcing. Since there are 238 activities, BCG evaluated only the top 20 activities with the highest internal cost. Internal costs per activity were calculated using the Office of Operations' Agile Assets maintenance work orders, Agile Assets equipment work orders, and all fleet and machine usage files. BCG then used the following methods, summing up to calculate the total cost per activity:

- Labor costs: After conversations with the Office of Operations and reviewing HR's ZP19 report, BCG determined that 1,848 employees input their time into Agile Assets. The salaries, other compensation, and related benefits cost of these employees were calculated using the proportion of 1,848 employees in Agile Assets to the 3,402 employees in the Office of Operations and multiplying it by the total labor cost for the Office of Operations in FY 2023 ($161M). The Agile Assets labor cost was calculated by adding the labor cost and K-time cost in Agile assets, resulting in a total of $68M in FY 2023. This yielded a multiplier of 2.38 that was applied to the labor and K-time costs per work order in Agile Assets to calculate the true labor cost per work order. The labor cost per activity was then summed for all work orders regarding the activity in FY 2023 to calculate the total labor cost for an activity.
- Equipment costs: DOTD was able to provide the acquisition, useful life, maintenance, and fuel costs of each piece of equipment in its fleet. BCG calculated the annual cost of a piece of equipment by adding the depreciation cost (if the equipment was not past useful life), the maintenance costs, and the fuel cost of the equipment. Each equipment was then assigned a daily rate, which was the annual cost divided by the number of days it had been taken out during the year. The daily rate was the equipment cost for a work order that used that piece of equipment. The equipment cost per activity was then

summed for all work orders regarding the activity in FY 2023 to calculate the total equipment cost for an activity.

- Material costs: The material costs were calculated by adding "Material Cost" and "Other Cost" fields for each work order in Agile Assets. The total material cost for an activity was then summed for all work orders relevant to that activity in FY 2023.

The top 20 activities were then evaluated based on the risk of outsourcing, degree of specialization, quality difference between internal capabilities and private sector, and operational need to identify which activities had potential for outsourcing. Two different levels of outsourcing work were considered: outsourcing an incremental amount of work done and/or outsourcing internal work. A 30% increase in incremental work was chosen to reduce the maintenance backlog in 10 years. Conversations with DOTD personnel outlined that 50% of internal work could be planned and, therefore, outsourced.

Working with the Office of Operations, three hypothetical scenarios of outsourcing were determined to evaluate cost and unlocked capacity.

- The first scenario is to supplement need by increase the amount of work done by 30% for all 14 outsourcing candidates and outsource 100% of the incremental work.
- The second scenario is a targeted capacity increase by outsourcing the work determined in scenario 1 and outsourcing 50% of internal capabilities for five priority activities for DOTD: mowing, striping, herbicide application, tree/brush trimming, and full-depth patching.
- The third scenario is a maximum capacity increase by outsourcing the work determined in scenario 1 and outsourcing 50% of internal capabilities for all activities identified for outsourcing, except for bridge construction.

For each scenario of outsourcing, the contracting cost and unlocked capacity were calculated. Contracting costs were ranged using an assumption that the private sector cost of an activity would be 75% to 150% of the full in-house cost, based on interviews with peer state DOT personnel. Unlocked capacity was calculated by applying the percentage of outsourced internal work (50%) to the internal labor, equipment, and material costs of each activity. The number of FTE unlocked was calculated by dividing the unlocked labor cost by the average cost of each FTE (labor cost of employees in Agile Assets divided by the number of employees in Agile Assets).

7.3.1.4 Equipment Utilization Methodology

Equipment utilization was calculated using Agile Assets equipment work orders from the Office of Operations. Utilization was measured by the unique number of days the equipment was used; if a piece of equipment was used on two work orders on the same day, it would count as one day of utilization, regardless of hours used or number of work orders the equipment was used on. Full utilization was 208 days (52 weeks multiplied by 4 days a week), as maintenance crews tend to work ten hours for four days. The number of unique days the equipment was used divided by 208 days yielded the utilization rate of equipment on Agile Assets work order maintenance.

Equipment that is used on-road and is less than two tons, along with select pieces of equipment decided by districts, are tracked via GPS and therefore have more precision in the utilization rates than Agile Assets, where human error can result in equipment use not being tracked. The FY 2024 GPS utilization was used for any piece of equipment for which it was available; all utilization for other pieces of equipment reflects the Agile Assets utilization.

7.4 Acronym and definition list

Funding:

- Budget authority: Authority from the Legislature for DOTD to spend a certain amount
- Burn rate: Rate at which funds are spent over a specific period for a given project
- CAGR (Compound annual growth rate): Average annual growth of an expense or revenue
- General Ledger (G/L) Code: Code used to categorize financial transactions
- Pass-through funds: Funding that is part of DOTD's budget and then distributed or allocated to local governments, other agencies, or specific programs without DOTD retaining significant control over the funds
- Parametric cost estimates: Costs estimated by using a statistical relationship between historical data and other variables (e.g., square footage in construction) to calculate an estimate for activity parameters, such as cost, budget, and duration
- Needs Report: Annual report put out by DOTD that establishes an objective assessment of need; replicable and comparable between years
- Backlog: Assessment of need from the Needs Report; dollar measure of bringing all state-owned roads and bridges up to at least fair condition or up to DOTD guidelines

Capital program:

- IDIQ (Indefinite Delivery, Indefinite Quantity): Contracts with vendors for certain services (e.g., environmental, right-of-way, etc.) that are initiated through a task order over the life of the contract
- Indirect spend: Total expenditures on salaries and benefits of internal resources and spend on consulting services for capital program delivery
- Project delivery: Pre-construction activities that get a project to letting. Includes feasibility, environmental, funding, and design phases and associated activities
- Public let list: Online publication of DOTD anticipated projects to let in 12 months (https://wwwapps.dotd.la.gov/engineering/lettings/lets8230.aspx)

Maintenance and operations:

- Planned maintenance: Maintenance that can be regularly scheduled, addressing pre-identified needs
- Reactive maintenance: Maintenance that is addressing ad hoc needs, often due to critical, safety-related, or time-sensitive priorities
- Utilization: Days out of the year a piece of equipment is used