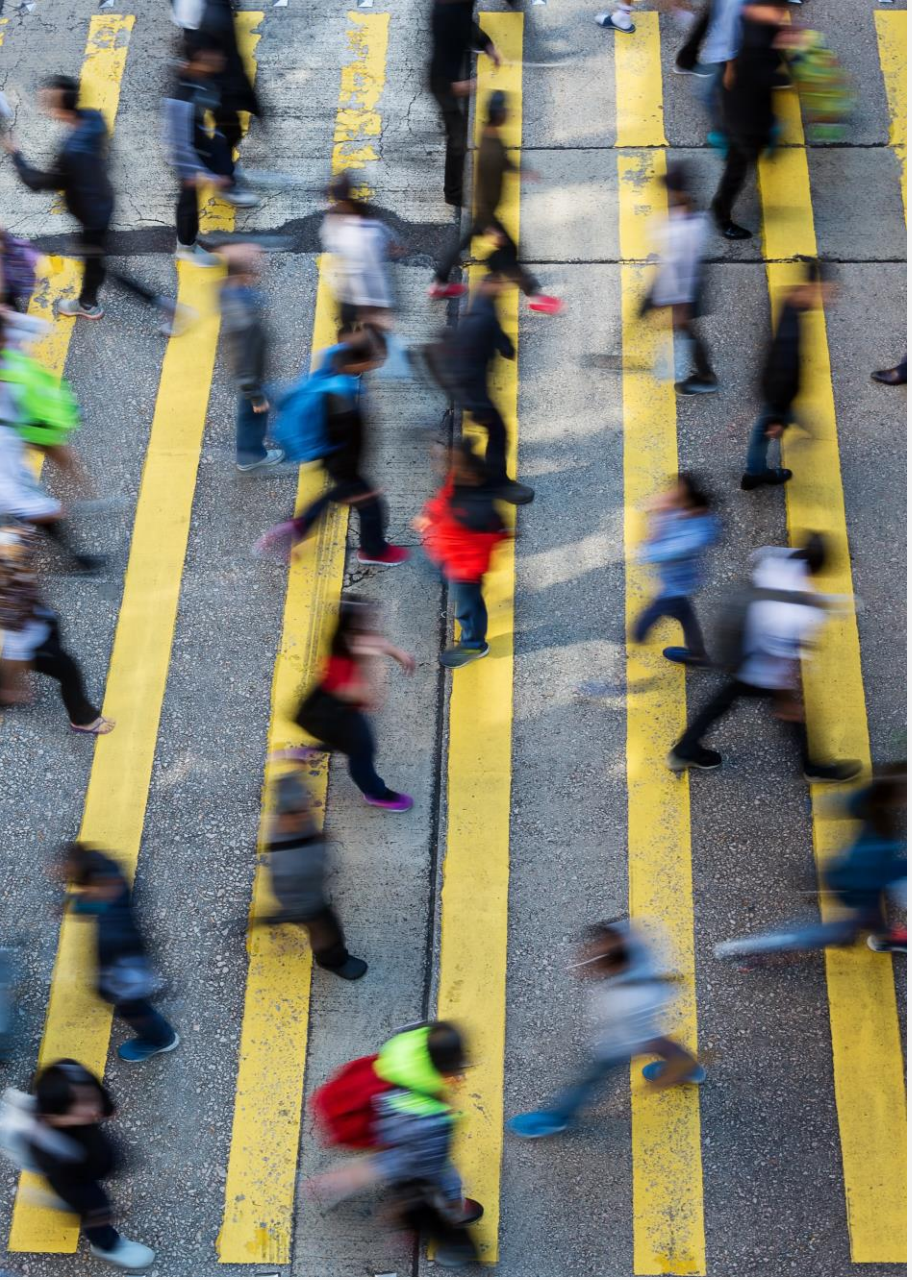
Guidehouse

Arkansas Department of Transportation Performance Review

Recommendations Report

April 20, 2020



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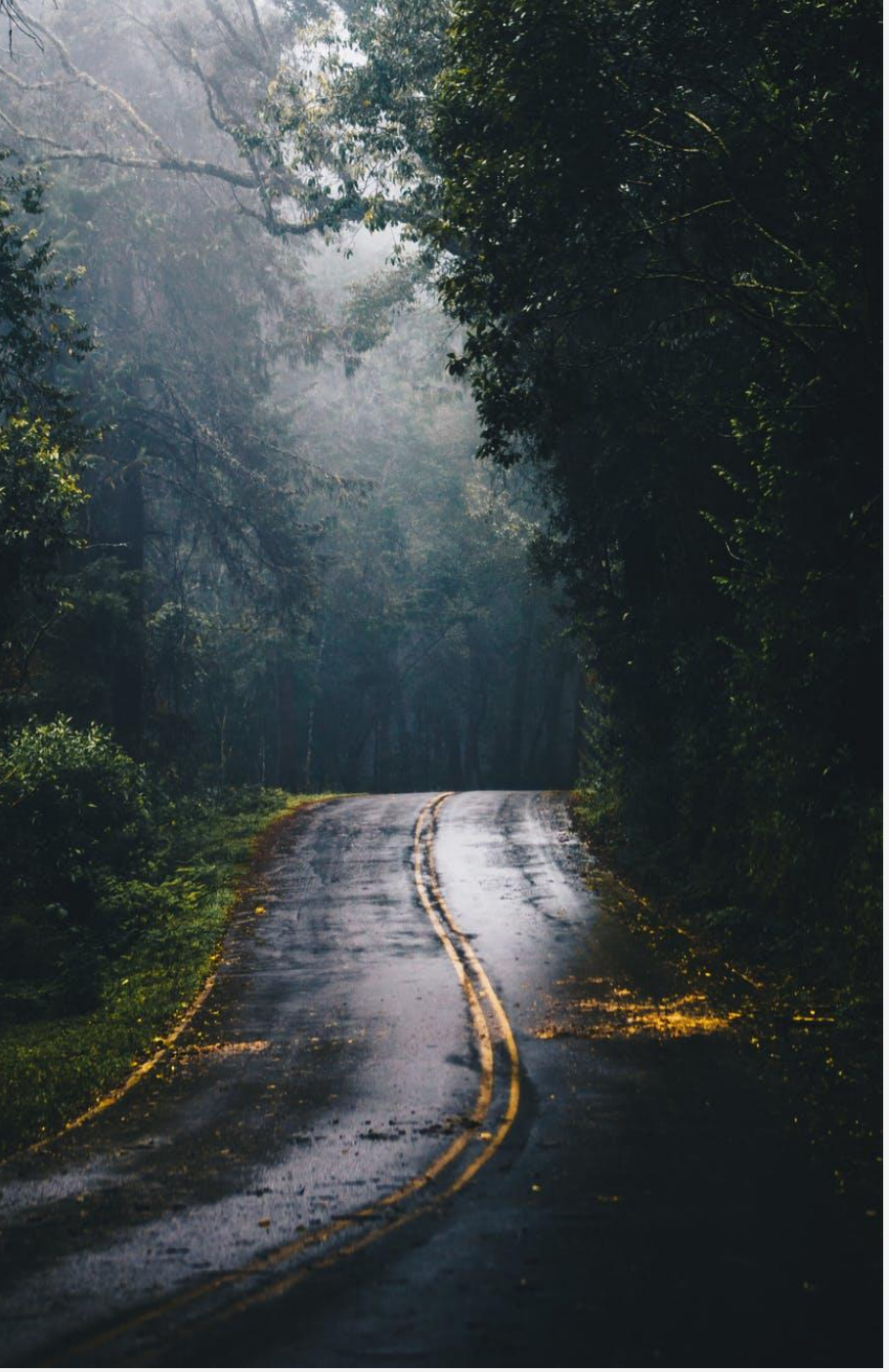


Acknowledgements

Guidehouse, once again, appreciates and wants to acknowledge the cooperation that the Arkansas Department of Transportation (ArDOT) provided during the course of the Current State review which informed the Current State Assessment Report (delivered on March 13, 2020), and laid the foundation for this Recommendation Report. We were impressed with the knowledge and level of engagement that ArDOT staff at all levels were able to provide during the Current State review.

This process would not have been possible without the countless individuals who agreed to be interviewed and provide documentation assistance. The quick and effective coordination with ArDOT staff was critical to the success of the Current State review.

Lastly, Guidehouse would also like to take time to acknowledge any other external stakeholders that also contributed to this process.

Executive Summary

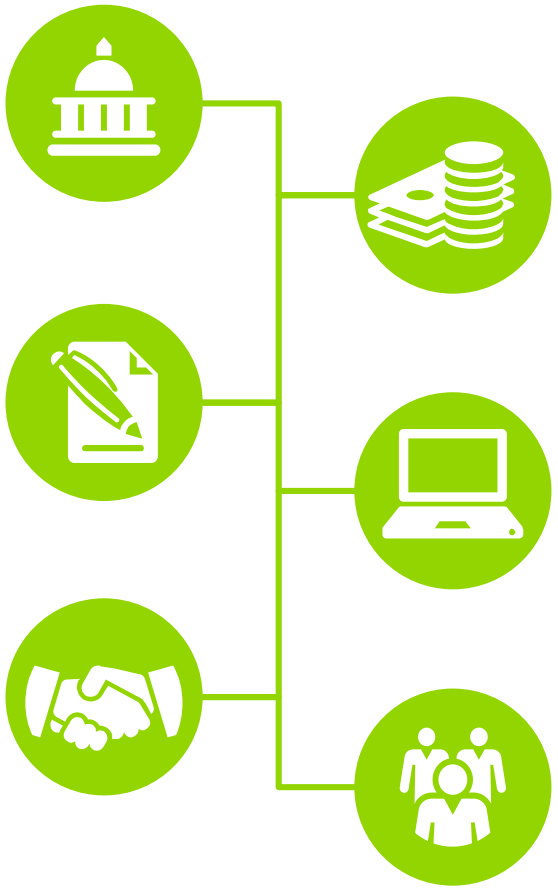
Current State

Opportunities & Challenges

ORGANIZATIONAL STRUCTURE
Unique governance structure; Lack of formal KPIs and knowledge management

PORTFOLIO PLANNING
Lack of proactive transportation program and project transparency; Need for maintenance portfolio planning recalibration

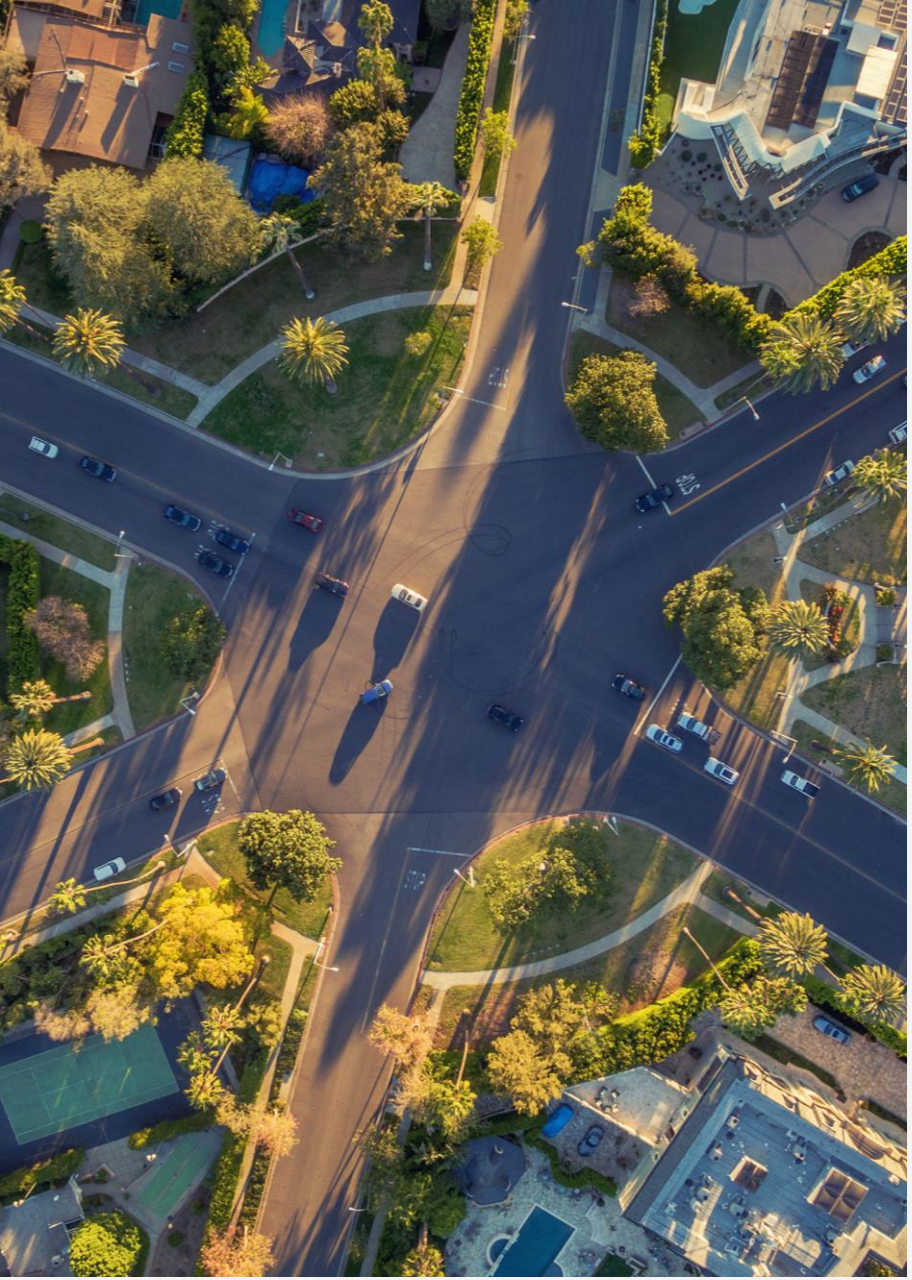
PROCUREMENT
Limited oversight; Need for trend analysis; Not able to screen for high-performing vendors; Lack of vendor performance management



EXPENDITURES
Lack of project and portfolio management tools and protocols; Lack of documentation and analysis to refine approaches

INFORMATION TECHNOLOGY
Focus on stabilizing current IT infrastructure; Limited long-term IT planning

PEOPLE CAPABILITIES
Industry competition; Increasing turnover; Lack of formal learning and career pathways



Recommendations

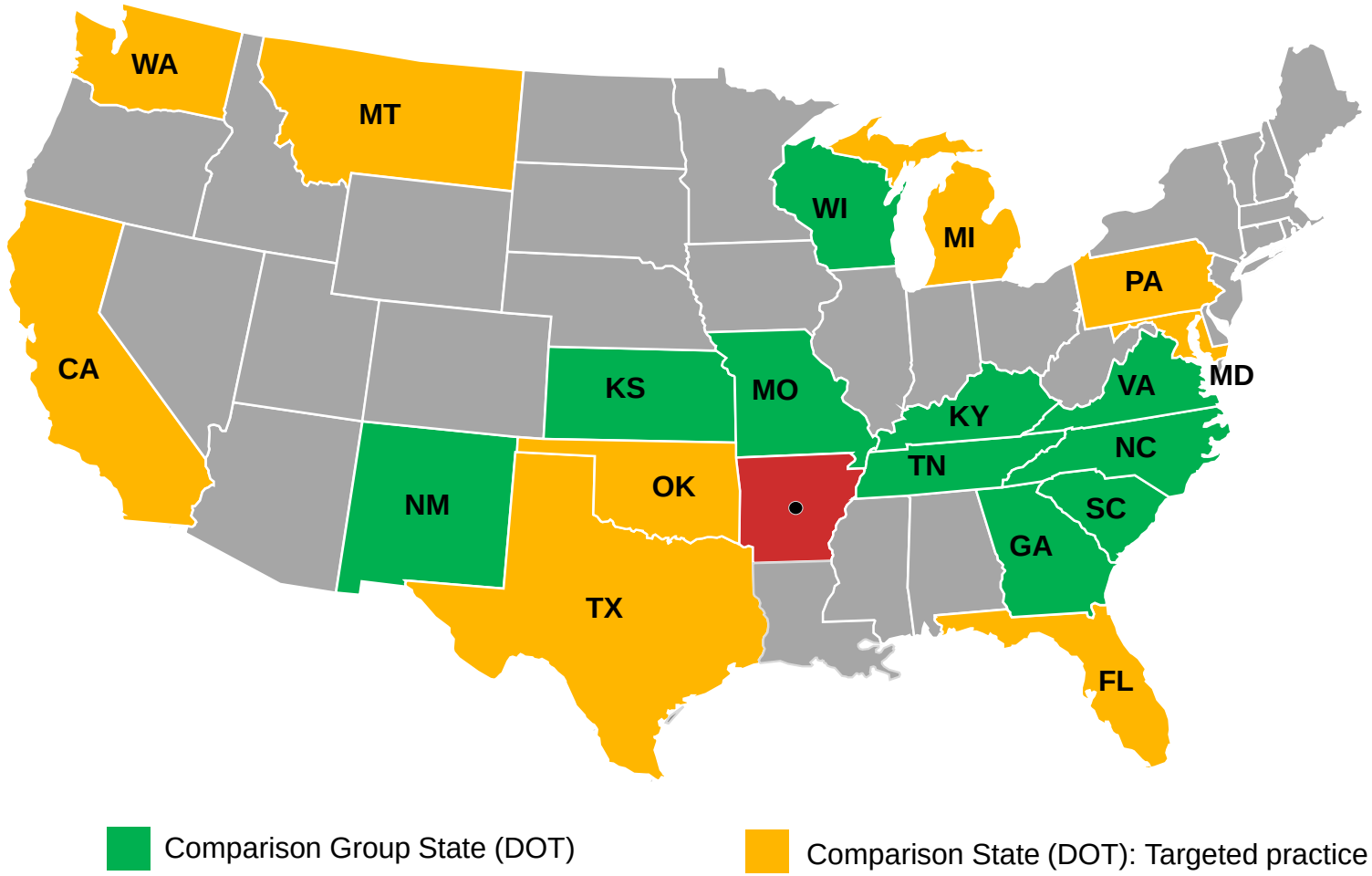
Evaluation Criteria

- Contributes to the objective of an effective, efficient ArDOT
- Has been implemented by leading DOTs, and where possible, proven with data
- Aligns with generally accepted industry standard, strategies, and frameworks

Leading Practices

Guidehouse identified a set of 10 comparison group DOTs that have realized robust performance on a set of Transportation specific measures, yet have similar or lower expenditures on a per lane mile basis (identified in green, see Map right). The appendix presents a detailed comparison of these DOTs to ArDOT. Where publicly available data yielded a comprehensive and coherent depiction of leading practices within a specific focus area, we summarize those practices in our recommendations.

In the remaining instances, Guidehouse sourced leading practices on an individual DOT basis (identified in yellow, see Map right); existing research commissioned or conducted by credible Transportation authorities such as the Federal Highway Administration (FHWA), Transportation Research Board (TRB), and National Cooperative Highway Research Program (NCHRP); or from leading industry authorities such as the Society for Human Resources Management (SHRM).



Future State

A Vision Forward

Strategic

Adopting a portfolio view to optimize investments and resource deployment; ensuring accountability

What It Looks Like

- Performance-based investments
- Resource planning to meet objectives
- KPIs to ensure internal accountability

Efficient

Documenting outcomes and analyzing trends to inform best practices; standardizing procedures for consistency

What It Looks Like

- Direct & indirect cost savings / avoidance
- Optimizing practices based on data analytics
- Policies and procedures repeatable efficiency

Optimized

Strengthening human capital and information technology to align with current and future business needs

What It Looks Like

- Maintenance of core institutional knowledge
- Engaged staff who are retained by ArDOT
- IT service that supports business objectives

Transparent

Communicating proactively with the traveling public, ArDOT employees, and other key stakeholders

What It Looks Like

- Visibility into goals, process, and progress
- Awareness of decision-making priorities
- Closing the loop on all public inquiries

Recommendations

Overview

		Recommendation	Strategic	Efficient	Optimized	Transparent
Organizational Structure	1	Finalize KPIs and implement performance management	✓	✓		✓
	2	Strengthen knowledge management in anticipation of increased retirement			✓	
Portfolio Planning	3	Publish status of construction projects and maintenance activities				✓
	4	Implement a platform that tracks all stakeholder inquiries to resolution	✓	✓		✓
Procurement	5	Implement efficiencies in procurement and purchasing	✓	✓		
	6	Implement construction contractor performance measurement	✓	✓		✓

Recommendations

Overview

		Recommendation	Strategic	Efficient	Optimized	Transparent
Expenditures	7	Implement project and portfolio management frameworks	✓	✓		✓
	8	Implement best practices in construction project design		✓		
Information Technology	9	Build an IT Governance Structure to guide the Department's IT investments	✓		✓	
	10	Implement mid-term IT initiatives that can optimize business operations		✓	✓	
	11	Develop critical pillars necessary to establish IT as an effective business partner	✓	✓	✓	
People Capabilities	12	Ensure staff can develop in their careers at ArDOT	✓	✓	✓	
	13	Improve staff capabilities to align with current / future organization needs	✓		✓	

Recommendations

Organizational Structure

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1.

Finalize KPIs and implement performance management

ArDOT has mature KPIs primarily for system condition and preservation. By adopting leading performance management practices, ArDOT should formulate and track a variety of operational effectiveness KPIs within a larger performance management framework.

Findings Addressed

OS2.2: Current Key Performance Indicators (KPIs) are limited to system condition. Operational effectiveness is not yet being measured

ArDOT Implementation

- Finalize existing KPIs and establish preliminary dashboard
- Establish baseline performance targets; connect to strategic plan
- Create and implement a roadmap for a comprehensive performance management plan

Anticipated Impact

Adopting FHWA's Transportation Performance Management (TPM) framework[1] and DOT leading practices may yield:

- Greater public transparency into, and accountability for, progress towards goals and objectives
- Assisting the legislature in informed policy and budget decisions[2]
- Actionable insights into initiatives that can achieve increased operational effectiveness

Considerations

- This is a long-term initiative and should be approached in phases
- This practice should be used to improve the Department and foster collaboration
- Communication, training, and change management may be required to socialize a new performance-based approach

GLOSSARY

KPI: Key Performance Indicators *FHWA: Federal Highway Administration* *TPM: Transportation Performance Management Framework*

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practices: Performance Reporting

FHWA's TPM framework and practices from other DOTs provide a template for ArDOT to report on the Department's performance and utilize that data to optimize funding and resources.

Description

FHWA offers a comprehensive TPM framework[1] comprised of 10 components that link strategic planning, performance reporting, and continuous improvement. The framework and associated toolkits are available to DOTs.

Many DOTs maintain a performance scorecard. Of the 10 comparison group DOTs, nine do so. Missouri DOT[2], Wisconsin DOT[3], and (although not a comparison group DOT), Maryland DOT[4] have the most more mature reporting systems.

Applied to ArDOT, these practices may yield:

- ***Ability to communicate overall Department-wide performance to the public***
- ***Ability to utilize performance data to improve efficiency and optimize transportation funding***

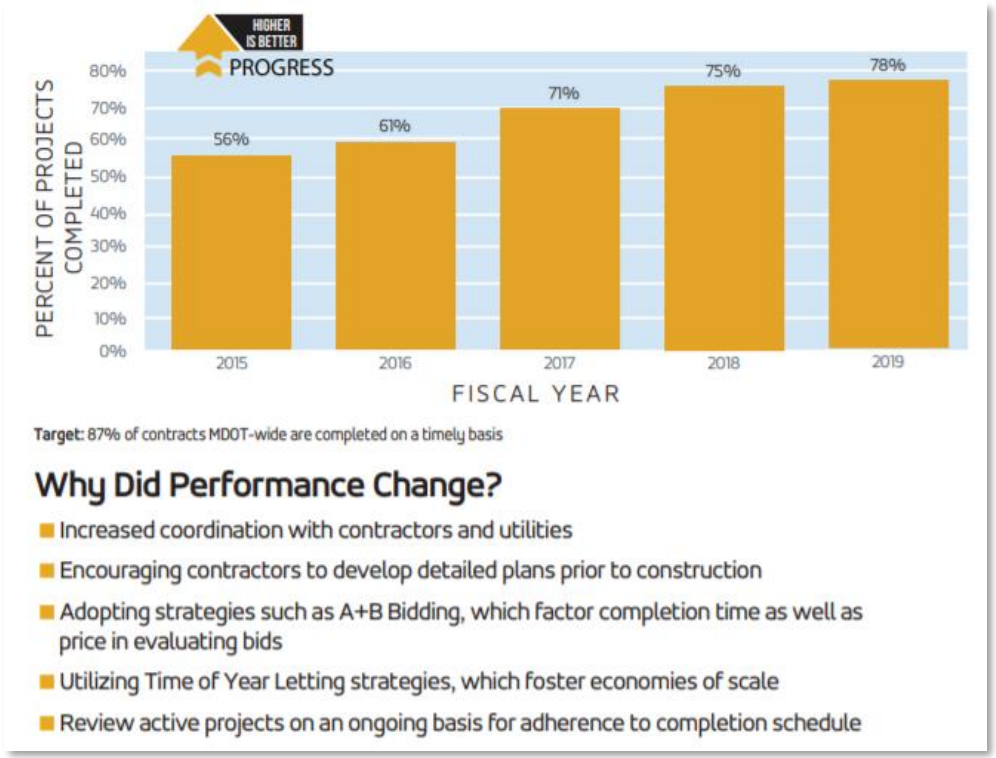

Image Source: Screen capture of 2020 Maryland DOT Attainment Report[6]

MDOT: Annual Attainment Report[5]

This report is published annually and articulates:

- *MDOT's progress on seven goals*
- *Performance against ~50 KPIs*
- *What contributed to the change in performance*
- *Planned initiatives to improve performance*

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GLOSSARY

FHWA: Federal Highway Administration *TPM: Transportation Performance Management* *MDOT: Maryland DOT* *KPI: Key Performance Indicator*

Implementation Roadmap

1 FINALIZE EXISTING KPIs

Benchmark KPIs against other peer states and verify relevance of KPIs with ArDOT stakeholders

Finalize ArDOT's identified KPIs[1] incorporating benchmark findings, stakeholder feedback, and a review of remaining report recommendations (and monitoring obligations)

Identify frequency of measurement and reporting

Establish preliminary dashboard to track performance on a regular basis

Consider making preliminary dashboard publicly available

2 ESTABLISH TARGETS

Establish Department-wide baseline targets and connect to the Department's strategic plan

Identify preliminary objectives that will yield identified performance targets

Translate goals and objectives to specific divisions and districts

Establish ArDOT leadership working group to monitor performance against targets with regular frequency; course correct as needed

3 CREATE A ROADMAP

Complete FHWA's TPM maturity level self assessment (or other comparable maturity assessment)

Identify gaps in key performance management components and in the underlying organizational and IT infrastructure

Create long-term roadmap to address gaps and achieve target maturity level

Establish a communications and change management plan to ensure staff members are informed and supported, and that performance framework meets stakeholder needs

Establish an annual review of KPIs to determine which ones truly measure and enhance Department performance

GLOSSARY

KPI: Key Performance Indicator *FHWA: Federal Highway Administration* *TPM: Transportation Performance Management*

2.

Strengthen knowledge management in anticipation of increased retirement

Knowledge management will be a key issue for ArDOT, yet their efforts to mitigate this challenge have not been fully implemented. Aligning these efforts to leading practices may allow ArDOT to mitigate knowledge loss due to turnover, identify operational efficiencies, and improve succession planning and training.

Findings Addressed

- OS3.1: SOPs are extensive, but not regularly updated
- OS3.2: Minimizing knowledge loss is a strategic priority for ArDOT, but efforts are not mature

ArDOT Implementation

- Identify near-term "At Risk" business practices
- Initiate near-term succession planning activities
- Lay groundwork for more formal knowledge management system
- Implement systems to sustain the desired change

Anticipated Impact

Adopting leading knowledge management practices may:

- Minimize institutional knowledge loss due to the **~26%** of staff eligible to retire in 10 years[1]
- Help identify operational efficiencies such as VDOT's **$1.4M** in transportation consultant cost avoidance[2] due to better resource sharing

Considerations

- New IT systems and software may be required to support SOP creation and centralize content
- Updating and creating new SOPs can be a significant undertaking; using a comprehensive inventory will help ArDOT prioritize
- Leadership support and change management may be needed for lasting change

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GLOSSARY

SOP: Standard Operating Procedures *KM: Knowledge Management* *ROW: Right of Way*

Leading State: Virginia DOT

In 2003, VDOT faced a potential wave of retirees, as ArDOT does today. In response, VDOT implemented a Knowledge Management Division (the first state to do so), yielding direct financial and human capital benefits for the Department .

Description

A Harvard Kennedy School Report[1] revealed that VDOT successfully implemented its knowledge management strategy by focusing on the following tools and techniques: communities of practice, knowledge mapping, process mapping, and frequent assessments.

$1.4M

Return on investment from ROW and Utility resource sharing[2]

$500K

Return on investment from use of the new KM system to launch VDOT's Project Record Keeping System[3]

Applied to ArDOT, these practices may yield:

- ***Maintenance of institutional knowledge amid turnover***
- ***Operational efficiencies such as reduced reliance on transportation consultants and former staff members***
- ***Strategic use of training to support knowledge management***

VDOT's pilot program led to VDOT being the recipient of the Harvard Innovations in Government Program in 2008[4]

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GLOSSARY

VDOT: Virginia Department of Transportation *ROW: Right of Way* *KM: Knowledge Management*

Implementation Roadmap

1 IDENTIFY NEAR-TERM "AT RISK" BUSINESS PRACTICES

Expand existing initiative to identify "at risk of separation" employees by:

- Identifying districts and divisions with greatest likelihood of turnover
- Cataloging high-risk processes, applications, and areas of subject matter expertise

Inventory existing Standard Operating Procedures (SOPs) and training mechanisms to understand documentation and knowledge transfer gaps

2 INITIATE NEAR-TERM SUCCESSION PLANNING

Designate candidate staff members and teams to be new owners of "at risk" business process knowledge and expertise

Identify pathways for effective knowledge capture and transfer:

- SOP creation
- Job shadowing
- Cross-training
- Communities of practice

Identify and execute on implementation timeline

3 LAY GROUNDWORK FOR FORMAL KM SYSTEM

Designate a knowledge management team (i.e. SIR)

Identify POCs within each district and division to:

- Catalog existing SOPs
- Identify SOP owners, users, and contributors
- Oversee SOP development and revision
- Lead Communities of Practice (CoP)

Create a centralized hub for Department-wide SOPs, policies, and training materials; link appropriately to public website

4 IMPLEMENT SYSTEMS TO SUSTAIN CHANGE

Conduct annual review of hiring and workforce data (e.g., at the 1-, 3-, 5-, and 10-year tenure marks)

Create and rollout a standardized system for regular SOP review

Provide staff with a formalized approach to coaching, mentoring, and CoPs for continuous knowledge management

Consider employee incentives, where possible

GLOSSARY

SOPs: Standard Operating Procedures *SIR: System Information and Research* *POCs: Points of Contact* *CoP: Communities of Practice*

Portfolio Planning

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3.

Publish status of construction projects and maintenance activities

ArDOT's existing communication of project and maintenance activities is disjointed and difficult to navigate. Improving the communication and reporting structure can enhance public visibility into, and accountability for, project performance; enhance project delivery; and yield better data to inform planning and budget appropriations.

Findings Addressed

- PP1.2: ArDOT's public communication related to project status, schedule and budget is disjointed and inconsistent
- PP2.3: There is no formal structure to coordinate maintenance workplans to the general public or interested stakeholders

ArDOT Implementation

- Inventory current reporting infrastructure
- Identify and implement short-term reporting enhancements
- Lay the groundwork for long-term reporting improvements

Anticipated Impact

Bringing ArDOT in line with comparison DOTs may:

- Improve public access to the prioritization and status of Department-wide and county projects and road maintenance
- Expedite project and maintenance delivery time
- Yield more precise data on maintenance needs to better inform planning and budget appropriations

Considerations

- ArDOT does not need to build out an entire platform to rapidly enhance reporting of readily available project status data: leverage existing platforms and tools, such as iDRIVE AR and district office websites
- An enterprise level approach will be required to provide true real-time access to project status

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practices: Construction Project Reporting

Enhancing project reporting will bring ArDOT in line with comparison DOTs. Project reporting practices from these DOTs reveal how ArDOT can better inform the public of the status and progress of its construction projects and utilize that data to enhance project delivery.

Description

Review of the 10 comparison group DOTs reveals that all provide interactive maps of projects:

- KDOT[1] and VDOT[2] have the most mature platforms, with **"one-stop"** to locate projects, access status, and view the entire portfolio
- Seven DOTs, such as GDOT[3], also provide a view of **future construction projects**
- Four DOTs, such as KTC[4], provide access to construction progress via **"Data Mart"** portals

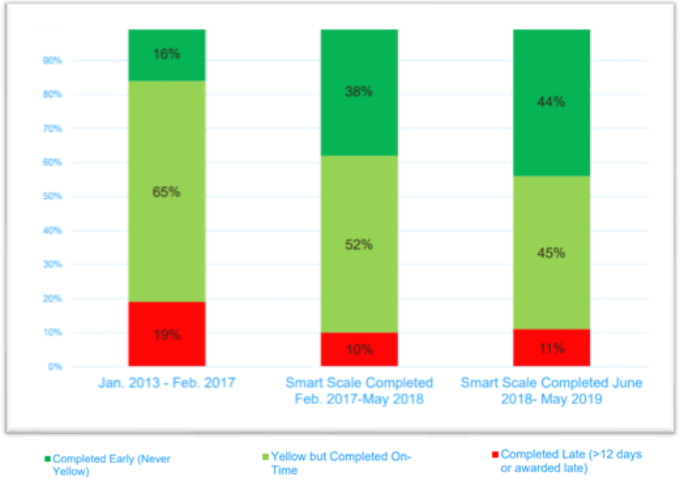
Applied to ArDOT, these practices may yield:

- ***Increased public visibility into, and accountability for, portfolio performance***
- ***Enhanced project delivery***
- ***Reduced project status inquiries***

Virginia DOT (VDOT): Portfolio View[5]

VDOT provide interactive portfolio/program level summaries of their major construction programs. These summaries, allow "click-through" access to view project information including project progress and performance.

Image Source: Screen capture of VDOT Smart Scale Dashboard [6]



Virginia DOT (VDOT): Project Performance Analysis[7]

VDOT attributes an increase in early delivery of construction activities (16% to 44%) to improved performance reporting and business rules.

Image Source: Screen capture of VDOT presentation[8] *at the Performance and Data in Transportation conference*[8]

GLOSSARY

KDOT: Kansas DOT VDOT: Virginia DOT GDOT: Georgia DOT KTC: Kentucky Transportation Cabinet

Leading Practices: Maintenance Activities Reporting

Increasing visibility into maintenance activities will bring ArDOT in line with comparison DOTs. Maintenance reporting practices from these DOTs reveal how ArDOT can communicate current and planned maintenance work, and utilize data for planning and budget appropriations.

Description

All but one of the 10 comparison group provide visibility into maintenance work plans or budgets:

- NCDOT[1] provides a listing of all active maintenance projects on its website
- PennDOT[2] districts publish weekly maintenance activities
- MoDOT[3] and KDOT[4] provide long-term workplans
- KTC[5] publishes State-level analyses of maintenance performance

Applied to ArDOT, these practices may yield:

- ***Increased public visibility into, and accountability for, portfolio performance***
- ***More precise maintenance needs data to better inform planning/budget appropriations***

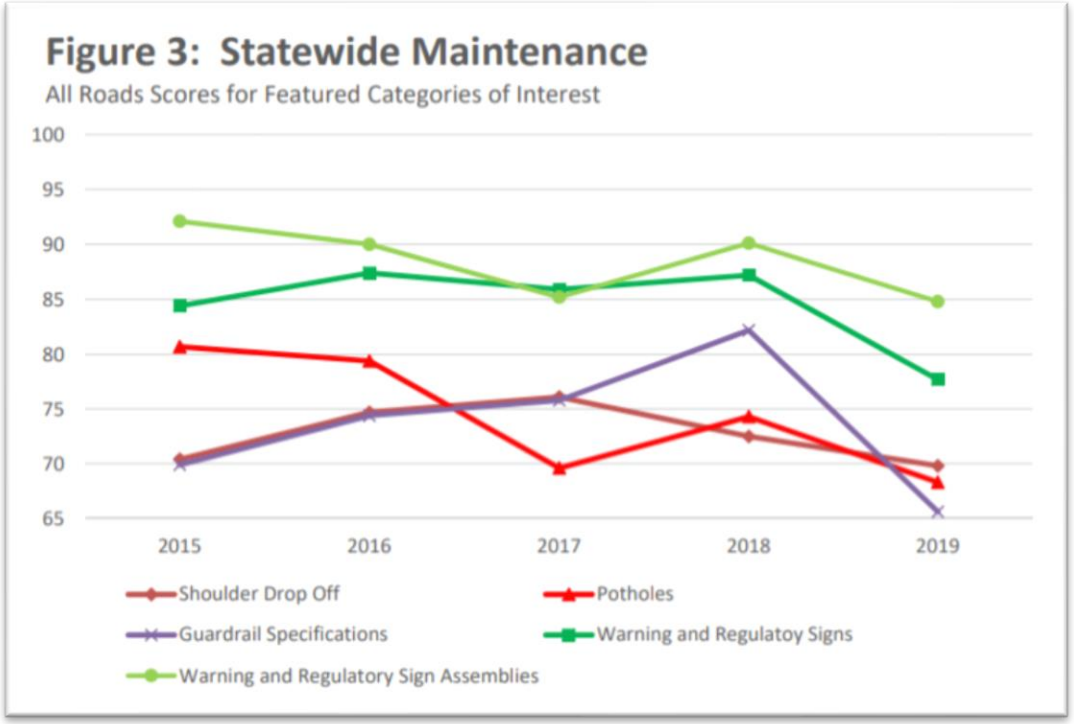


Image Source: Screen capture of KTC FY2019 Maintenance Condition Report[7]

KTC: Statewide Performance Reporting[6]

KTC publishes an annual report on routine maintenance activities at State and district levels. They also provide expenditure data on State and district maintenance

KTC uses the analysis to inform "planning and management decisions regarding maintenance activities and resources"

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GLOSSARY

NCDOT: North Carolina DOT PennDOT: Pennsylvania DOT MoDOT: Missouri DOT KDOT: Kansas DOT KTC: Kentucky Transportation Cabinet

Implementation Roadmap

1 INVENTORY CURRENT INFRASTRUCTURE

Catalog existing reporting platforms:
- iDRIVE Arkansas
- STIP website
- CAP website
- District office websites

Identify underlying data platforms:
- Staff Minutes database
- SiteManager and SARS
- Homegrown databases

2 IDENTIFY SHORT-TERM ENHANCEMENTS

Identify project data that can be provided via existing infrastructure:
- iDRIVE Arkansas: Identify future projects; Pre-Construction status and milestone dates; Project Change Order data, A+C Project completion percentages
- District office websites: County maintenance bi-weekly plans; district paving projects

Leverage CAP And IRP infrastructure to establish portfolio and county level reporting for all projects

Identify short-term implementation timeline

3 LAY GROUNDWORK FOR LONG-TERM IMPROVEMENTS

Identify additional reporting needs via customer service surveys
(See also Recommendation 1)

Ensure the MMS system can scale to provide State and district performance data and county level work plans
(See also Recommendation 7)

Ensure that the new construction Project Management framework facilitates detailed project status information reporting
(See also Recommendation 7)

In partnership with IT, build backend database to enable automated long-term reporting capabilities
(See also Recommendation 10)

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GLOSSARY

STIP: Statewide Transportation Improvement Program *CAP: Connecting Arkansas Program* *SARS: SiteManager Access Report System*

IRP: Interstate Rehabilitation Program *MMS: Maintenance Management System*

4.

Implement a platform that tracks all stakeholder inquiries to resolution

ArDOT primarily manages customer service by providing the public direct access to staff. Leading customer services practices suggest that ArDOT can improve its customer service, while simultaneously reducing the cost to the Department and surfacing new Department-wide operational efficiencies.

Findings Addressed

- PP3*:* Although ArDOT is responsive to public inquiries, it only offers a limited number of tools to capture and track them

ArDOT Implementation

- Understand customer needs
- Define a new customer experience vision
- Lay the groundwork for a new service approach, including adoption of a CRM tool
- Create and execute on implementation plan; and measure and communicate customer service performance

Anticipated Impact

- Brings ArDOT in line with other DOT's with more mature customer service platforms
- Reduces customer service and (long term) Department operating costs based on a review of Portland's 311 call- center implementation[1] a and McKinsey report[2]
- Increase in staff engagement by **Up to 50%**, according to a Tempkin Group survey[2]

Considerations

To avoid potential landmines and a particularly long timeline, lessons learned suggest:

- Clear vision, leadership buy-in
- Upfront investment for future ROI
- Project Manager passionate about customer service
- Right technology application identified early in the process
- In a phased approach, transition "services" not divisions

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GLOSSARY

CRM: Customer Relationship Management *ROI: Return on Investment*

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practice: Customer Service

Customer service practices and trends from DOTs, the private sector, and the broader public sector (specifically for 311 call-centers) illuminate the benefits of this practice and potential implementation strategies for ArDOT.

Description

A review of the 10 comparison group DOTs reveals DOT-specific structures to manage customer inquiries and measure service:

- Six DOTs ***measure and report on customer service/responsiveness***
- Eight DOTs have a ***centralized call-center*** or ***IVR system***, and allow the public to report a concern online

Portland's[1] and Philadelphia's 311[2] call-centers can serve as a model roadmap for a centralized customer service approach.

Applied to ArDOT, these practices may yield

- ***Improved customer service through better tracking and management of customer inquiries***
- ***Reduced operational spend via lower transaction costs, elimination of irrelevant customer services, and resource allocation aligned with stakeholder requirements***

15 – 25%

Typical cost reductions achieved through successful customer experience projects across a variety of industries[3]

$4.25 - $5.10

Projected Portland 311 call-center cost reduction per transaction in switching from phone agent to online self service[4]

Image Source: Screen capture of Missouri DOT 2019 Results Report[6]

Missouri DOT (MoDOT) measures customer service[5] on a quarterly basis and administers a biennial survey of ~3,500 customers to:

- Assess customer needs
- Evaluate ArDOT responsiveness
- Improve the MoDOT customer experience

GLOSSARY

IVR: Interactive Voice Response *MoDOT: Missouri Department of Transportation*

Implementation Roadmap

1 UNDERSTAND CUSTOMER NEEDS

Leverage existing resources to quantify the scope and type of customer inquiries:

- iDRIVE Arkansas
- Call Logs from Public Information Office, district offices, other divisions
- Interviews with key public facing staff

Conduct targeted survey of sample ArDOT customers to assess their needs

Create a comprehensive analysis of customer needs by key citizen segments

2 DEFINE CUSTOMER EXPERIENCE VISION

Conduct workshops with key ArDOT leaders to develop a customer experience vision and corresponding customer service journey maps

Leverage best practices to inform implementation frameworks and roadmaps

Identify a Project Manager and Governance team to ensure robust project sponsorship and effective delivery

3 LAY THE GROUNDWORK

Review key business processes through a customer service lens

Revisit existing customer inquiry intake and routing process to improve workflow

Identify new business and technology requirements for technology solutions

Identify metrics and service level agreements to track performance; document roles and responsibilities to ensure service meets expectations

4 FORM AND EXECUTE ON PLAN

Identify quick win improvements to generate momentum for the effort

Create a long-term implementation plan:

- Website upgrades
- Software tools, including CRM tools
- Expanded Customer Service Team; call-center

Establish reporting structure to communicate volume of customer service requests and ArDOT's management and resolution

GLOSSARY

CRM: Customer Relationship Management

Procurement

Guidehouse

5.

Implement efficiencies in procurement and purchasing

ArDOT prioritizes cost savings, but lacks the data to demonstrate what works and when. By optimizing and standardizing procurement and purchasing procedures, ArDOT may more effectively use resources and maximize costs savings Department-wide – including and beyond construction procurement.

Findings Addressed

- PR1.2: Low bid procurement
- PR4.1: Qualifications-based procurement methods
- PR4.2: Alternative contracting methods
- PR5.1: Trend analysis
- PR5.2: Procurement governance

ArDOT Implementation

- Use data-driven approaches like spend analysis and lifecycle costing to inform procurement and purchasing decisions
- Standardize usage of project acceleration techniques, procurement methods, and delivery methods
- Push efficiencies to districts

Anticipated Impact

- Applying policies similar to TxDOT's[1] change order policy, ArDOT could save **~1.4M (3.5%)**
- Adopting NIGP's[2] best practices in spend analysis, management, and oversight could reduce small order (<$20k) and competitive bid ($20K-$75K) costs by up to **~$1.8 to 7.1M (5-20%)**

Considerations

Effective implementation will require the following resources:

- IT systems to track data
- Staff capacity and expertise to conduct data analysis
- Assignment of responsibility between districts and divisions
- Change management to shift culture from low bid to best value

GLOSSARY

TxDOT: Texas DOT *NIGP: Institute for Public Procurement*

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practice: Procurement Decision Matrix

This tool will allow ArDOT to integrate their own analysis and priorities alongside generally accepted industry standards to yield a roadmap of when alternative strategies should be used to achieve desired outcomes.

Description

Transportation Construction Management (a working group of DOTs, AASHTO, FHWA, and researchers) commissioned a guidebook[1] for project delivery, procurement, and payment methods. The provided frameworks and tools enable DOTs to select the optimal methods for projects based on desired outcomes, constraints, and other factors.

A Minnesota DOT study[2] on the efficacy of their alternative contracting policies reveals their value in helping identify optimal contracting and project delivery methods. For example, ***A+B contracts yielded comparable final contract amounts, but lower internal MnDOT costs***

Applied to ArDOT, these practices may yield:

- ***More strategic deployment of alternative strategies to maximize cost savings***
- ***Standardized practices to facilitate consistency for staff and the contractor community***

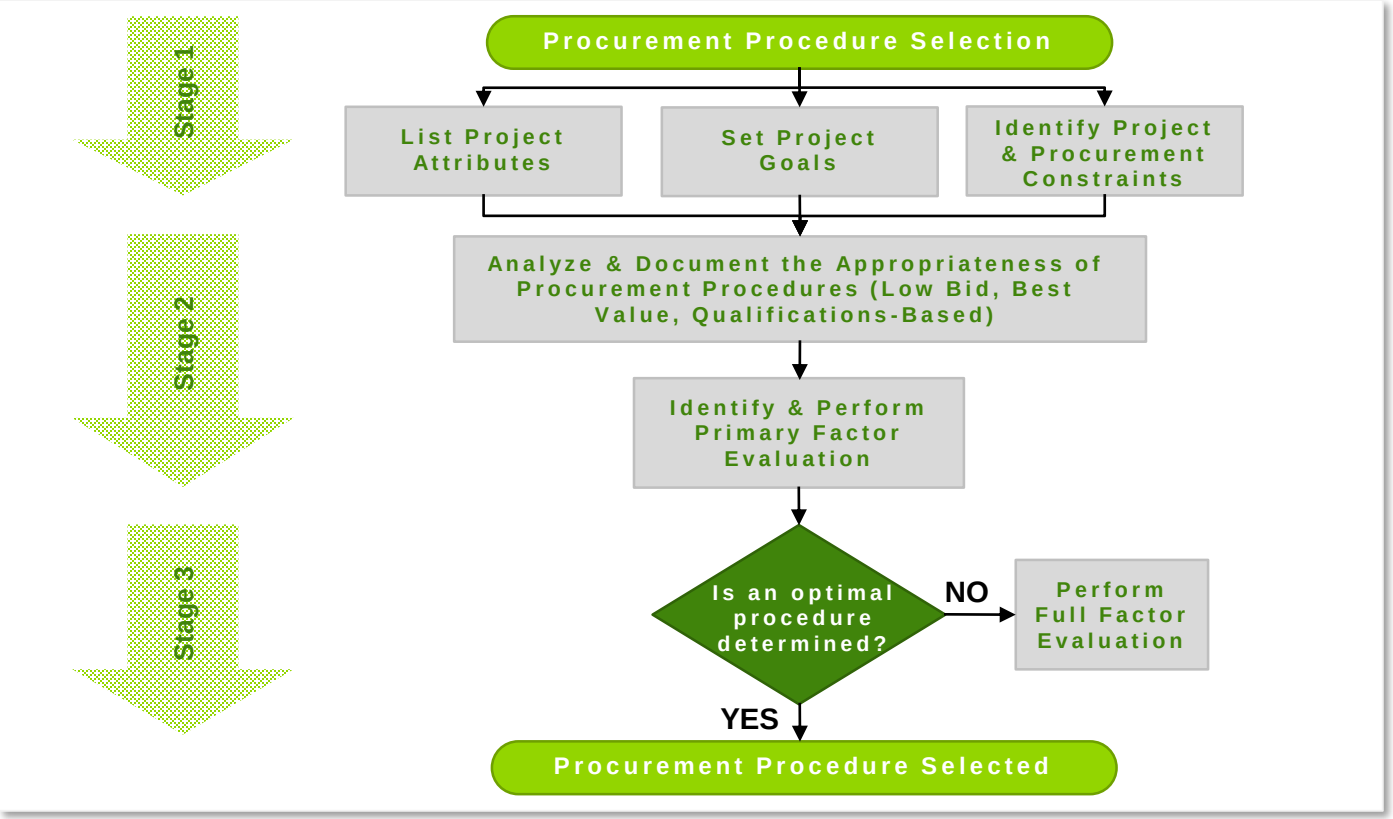

Image Source: Guidehouse recreation of "Procurement Procedure Selection Process" created by Next-Generation Transportation Construction Management[3] Transportation Pooled Fund Program Study TPF-5(260)

GLOSSARY

AASHTO: American Association of State Highway Transportation Officials *FHWA: Federal Highway Administration* *MnDOT: Minnesota Department of Transportation*

Implementation Roadmap

1 CREATE DATASETS

Identify focus areas:
- Procurement spend
- Equipment ownership cost
- Change orders
- Alternative procurement and purchasing strategies

Identify data points:
- Spend by district, category, season, total
- Lifetime cost of purchase, considering repair
- Change order by project, vendor, type
- Strategy by cost, ROI, schedule, safety, convenience

Assign data collection roles and set frequency

2 ASSESS TRENDS

Gain insights into:
- Supply trends
- Demand trends
- Term contracts / CBA
- Commodity price changes
- Ownership costs / CBA
- Change order amounts, consistency, and drivers
- Cost estimates (in comparison to bids)
- Project delivery methods effectiveness
- Procurement procedures effectiveness
- Purchasing methods effectiveness

Identify conditions under which practices are most effective at yielding results

3 INSTITUTIONALIZE BEST PRACTICES

Develop policies and procedures to implement best practices, such as:
- Decision matrix for when certain strategies are used
- Authority of divisions to push Department-wide efficiencies to districts and policies for consistency

Communicate policies to staff and vendors, outlining:
- Purpose of change
- Performance metrics
- Frequency of evaluation
- Owners of data and decision-making
- Opportunities for feedback
- Opportunities for training

4 MONITOR & REEVALUATE

Evaluate policies and procedures by continuing to monitor trends in key areas, at predetermined frequencies

Determine if revisions to policies and procedures are necessary to obtain desired outcomes, and if so, implement necessary revisions

Consider data points for inclusion in broader KPI monitoring and evaluation (i.e., change order volume)

GLOSSARY

ROI: Return on Investment *CBA: Cost-Benefit Analysis* *KPI: Key Performance Indicator*

Anticipated Impact Assumptions

1

~$1.4M (3.5%) in direct project savings by adopting TxDOT's[1] policy of limiting change orders

TxDOT reduced direct and indirect costs for project modifications by 3-4% by altering change order policies. ArDOT spends $40.4M on average in change orders annually

- 3.5% * $40.4M = $1.4M

2

~$1.8 to 7.1M (5-20%) in savings on small order (<$20K) and competitive bid ($20K-$75K) purchases by adopting NIGP's[2] best practices in spend analysis, management, and oversight

A 2015 Institute for Public Procurement report identified that State governments can save 5-20% of expenditures by improving procurement processes (i.e., spend analysis). ArDOT spends on average $22.5M annually on small order purchases (<$20K) and $12.8M on competitive bid purchases ($20K-$75K)

- At 5%, savings would be $1.1M and $639K respectively (total: $1.8M)
- At 20% savings would be $4.5M and $2.6M respectively (total: $7.1M)

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GLOSSARY

TxDOT: Texas DOT *NIGP: Institute for Public Procurement*

6.

Implement construction contractor performance measurement

ArDOT rigorously monitors contractor quality through inspections, but lacks a tool to screen for contractor quality during procurement. By implementing performance-based prequalification, ArDOT may improve work quality, safety, and timeliness; reward high-performing contractors; and encourage low-performers to improve.

Findings Addressed

- PR2.1: Pre-qualification and bonding do not screen for quality
- PR2.2: ArDOT's Standard Specifications (2014) do not screen for quality
- PR3: Opportunities to improve existing quality issues

ArDOT Implementation

- Identify quality indicators (i.e., repeated disincentives, claims, change orders, delays)
- Develop scoring system to quantify performance
- Track and monitor performance, using indicators and costs
- Integrate into prequalification

Anticipated Impact

By implementing performance-based prequalification, ArDOT may see similar improvements to those reported by implementing DOTs:

6 of 6 DOTs reported improvements in work quality

- **5 of 6** in safety
- **6 of 6** in timely work completion
- **5 of 6** in contractor cooperation

Data compiled by Guidehouse from two different surveys by NCHRP[1] and FHWA[2]

Considerations

- Consider impact for both small and large contractors[3]
- Emphasize quantitative approach to minimize any appearance of subjectivity[4] in scoring
- Consider an appeals[5] process for contractors to counter scores
- Ensure contractors have a clear path to raise[6] their scores

Leading Practice: Performance-Based Prequalification

This tool will allow ArDOT to integrate contractor's past performance on Department contracts into their prequalification to yield a modified bidding capacity score that incentivizes high-quality performance.

Description

An FHWA-commissioned study[1] proposed a quantitative, performance-based prequalification system. It evaluates contractors on **administrative**, **performance**, and **project-specific** (i.e., technical qualifications) factors. It incorporates elements of systems used in Florida, Michigan, Oklahoma, Utah, Virginia, and Washington – the DOTs that reported improvements in the surveys on the previous slide.

Applied to ArDOT, these practices may yield:

- ***Alignment of contractor performance evaluation with project objectives***
- ***High-performing contractors being rewarded***
- ***Low-performers encouraged to improve***

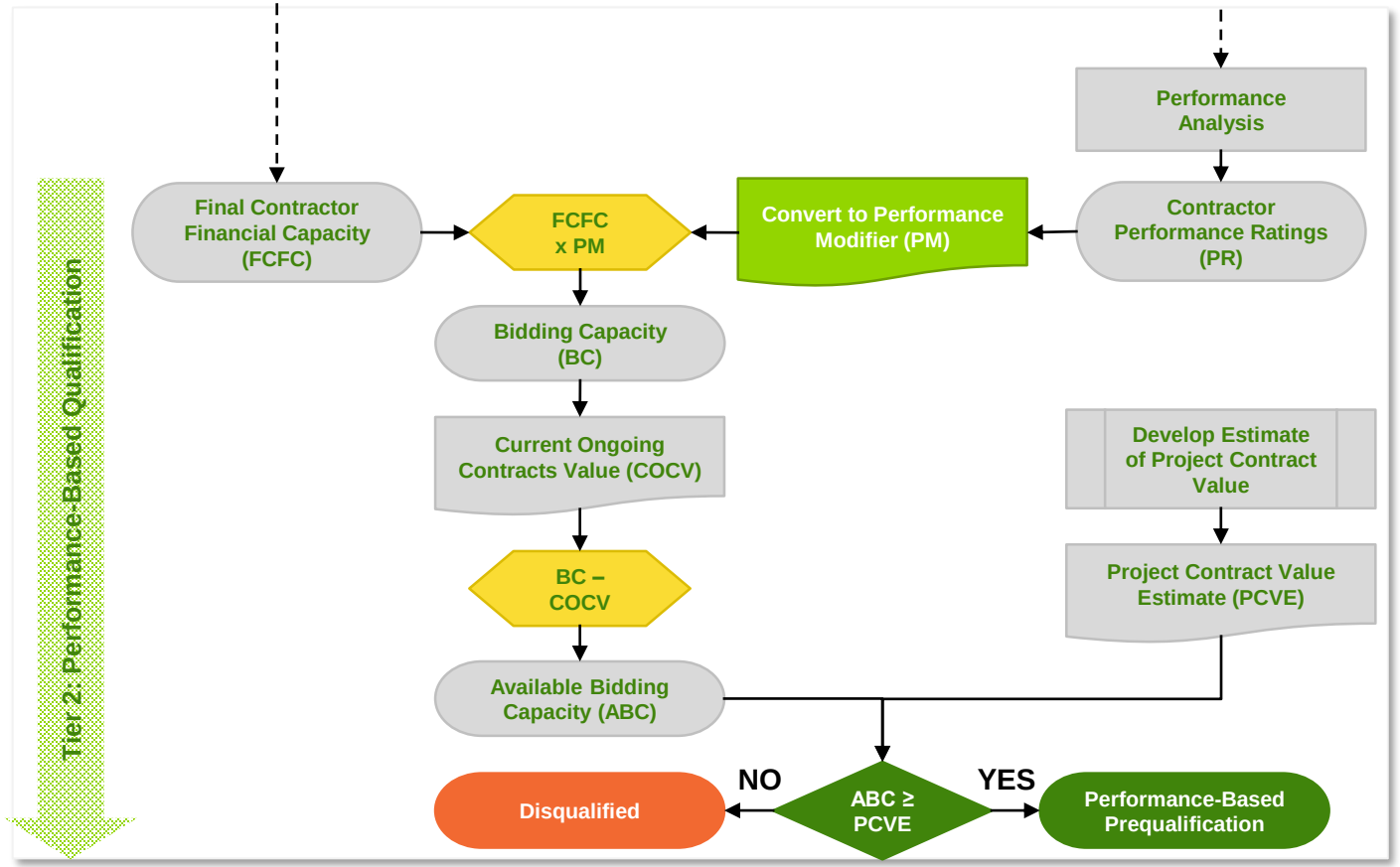

Image Source: Guidehouse recreation of an excerpted framework from the "Performance-Based Contractor Prequalification as an Alternative to Performance Bonds"[2] Study

GLOSSARY

FHWA: Federal Highway Administration

Implementation Roadmap

1 IDENTIFY QUALITY INDICATORS

Determine which indicators[1] define quality for ArDOT:

- Past performance (i.e., quality of workmanship)
- Managerial ability
- Safety record
- Technical capability
- Traffic and public impact
- Cooperation with ArDOT

Identify the ArDOT staff that will conduct performance evaluations and how their work product will be audited[2]

Determine frequency of performance evaluation

2 DEVELOP SCORING SYSTEM

Use an industry standard formula or algorithm to convert performance evaluations into bid capacity scores (see Leading Practices for an example)

Determine how bid capacity score will be used to modify bidders' submissions

Publicize process widely, for example through Q&As with contractors; integrate stakeholder feedback

Complete rulemaking process, as required

3 TRACK PERFORMANCE

Collect performance data at the closeout of each contract, and more frequently, in accordance with set policies (building up a full dataset will take time, and will vary by the number and length of projects ArDOT lets annually)

Continue to iterate on the scoring system while building up the dataset

4 INTEGRATE INTO PREQUALIFICATION

Determine monetary threshold at which process will be used (i.e., >$100K)

Determine which project types process will be used

Determine policy for contractors that are new to working with ArDOT

Begin to implement performance-based prequalification approach, in accordance with set policies

Evaluate regularly to ensure effectiveness and relevance

Expenditures

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7.

Implement project and portfolio planning frameworks

ArDOT's pre-construction, construction and maintenance Project Portfolio Management (PPM) systems vary in maturity. Enhancing these systems with leading PPM practices and a Project Management Office (PMO) may allow ArDOT to more effectively budget, plan, execute, and communicate on its portfolio of construction projects and maintenance activities.

Findings Addressed

- EX1: Construction (CST) and maintenance (MTC) resource planning
- EX4: CST project development management
- EX5.1: CST project management
- EX6: MTC project management
- PP2.1: MTC budget determination
- PP2.2: MTC project identification workplans

ArDOT Implementation

- Catalog existing PPM capabilities and identify baseline and target
- Identify gaps in PPM (e.g. pre-construction resource planning)
- Establish PMO and Governance, and build on existing strengths and capabilities
- Phase deployment, develop tools, and train staff members

Anticipated Impact

A more mature project management framework may allow ArDOT to realize **~$3.82M** in annual cost savings given:

- ArDOT's five year average of actual state funded internal pre-construction and construction costs[1]
- Industry findings[2] on project cost savings by developing a more mature PM infrastructure

Considerations

- Will require Department-wide effort to unify disparate initiatives and assets and build out PPM framework; a qualified vendor can expedite this process
- Implementation of PPM/PMO will be perceived as overhead, but will yield long-term benefits – highlight quick wins early on
- Change management and new IT applications may be required

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GLOSSARY

PPM: Project Portfolio Management *PMO: Project Management Office* *CST: Construction* *MTC: Maintenance*

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practice: Construction Portfolio Planning

The Project Management Institute provides a definitive framework for organizations to implement a Project Portfolio Management (PPM) system[1] that connects strategic planning to project execution; TxDOT demonstrates this framework in practice.

Description

TxDOT utilizes a "funnel" approach to PPM[2] that identifies the right portfolio of projects at the right time and allocates appropriate resources. TxDOT's TPP Division runs a quarterly "funnel" review designed to:

- Review performance against portfolio targets
- Verify that the mix of projects is aligned to TxDOT's strategic priorities; address any gaps
- Allocate financial and human capital resources
- Review the volume of projects at each stage to predict future workload and authorize budgets

Applied to ArDOT, these practices may yield:

- ***Alignment of STIP to ArDOT's resources to ensure necessary capacity to deliver on identified projects***
- ***Automated project reporting***
- ***Continuous project flow and mix monitoring to ensure strategic alignment and phase alignment***

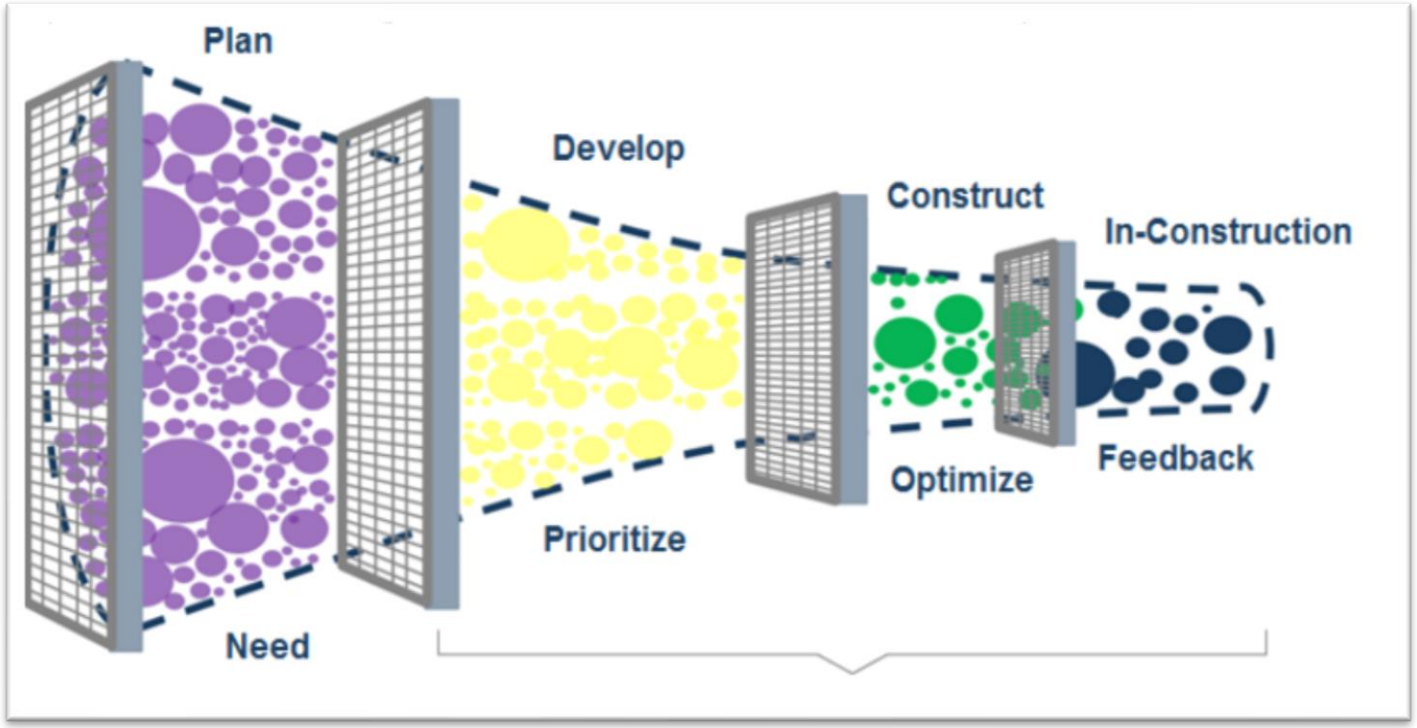

Image Source: Screen capture of the TxDOT funnel approach from TxDOT's website[3]

GLOSSARY

PPM: Project Portfolio Planning *TxDOT: Texas Department of Transportation* *TPP: Transportation Programing and Planning* *STIP: Statewide Transportation Improvement Program*

Leading Practice: Maintenance Portfolio Planning

NCHRP's LOS maintenance guide assists DOTs to determine their maintenance portfolio based on asset condition. Combined with its newly acquired MMS, ArDOT can use this guide to adopt a more robust approach to project identification and budgeting.

Description

NCHRP offers a performance-based guide[1] to establish a baseline catalog of roadway features, performance measures, and costs; identify and prioritize maintenance projects; and manage and report on performance.

Currently, seven DOTs implement such a system. WisDOT's performance-based system (Compass) dates back to 2002[2], and from 2011 to 2015, WisDOT saw similar or improved performance in 22 of 28 measures.

Applied to ArDOT, these practices may yield:

- ***Identification of maintenance projects and activities based on need and road user experience, and corresponding allocation of resources***
- ***Effective project management platform for maintenance activities and automated reporting***

Element	What are we spending? Dollars spent (in millions)[1] FY 11	FY 12	FY 13	FY 14	FY 15	Feature	How much of the system still needs work at the end of the maintenance season? Condition change: 2014 to 2015[2]	% of system backlogged 2011	2012	2013	2014	2015	How well maintained is the system? 2015 Feature grades A	B	C	D	F
Shoulders	11.05	11.08	8.16	7.79	8.91	Hazardous Debris	↑	7	7	7	7	6			C		
						Drop-off/Build-up (paved)	↑	3	1	4	4	2	A				
	11.64	11.44	8.31	7.80	8.91	Cracking (paved)	↑	60	55	54	69	67					F
	0.33	0.33	0.24	0.23	0.26	Potholes/Raveling (paved)	↑	6	6	7	8	6	A				
	0.34	0.34	0.24	0.23	0.26	Drop-off/Build-up (unpaved)	↓	37	36	36	41	42					F
						Cross-Slope (unpaved)	↑	27	26	22	27	25				D	
						Erosion (unpaved)	↑	2	1	1	3	2	A				
Drainage	8.54	7.90	7.10	7.04	7.58	Ditches	-	3	1	1	1	1	A				
	9.00	8.15	7.22	7.04	7.58	Culverts	↑	22	25	25	21	20				D	
	0.25	0.23	0.21	0.20	0.22	Under-drains/Edge-drains	↑	33	30	29	26	23			C		
	0.27	0.24	0.21	0.21	0.22	Flumes	↑↑	39	45	47	42	23			C		
						Curb & Gutter	↓	4	5	4	5	6	A				
						Storm Sewer System	↑	17	13	14	15	11			C		

Image Source: Screen capture of Wisconsin DOT 2015 Final Compass Report[3]

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GLOSSARY

NCHRP: National Cooperative Highway Research Program *LOS: Level of Service* *MMS: Maintenance Management System* *WisDOT: Wisconsin DOT*

Leading Practices: Construction Project Management

ArDOT can look to numerous industry agnostic frameworks to establish effective project management frameworks for pre-construction and construction monitoring activities. Several DOTs also offer mature frameworks that can serve as a launching pad for ArDOT.

Description

Six of the ten comparison group DOTs utilize project management frameworks (Virginia DOT) or offer project management training (Kentucky DOT) to ensure effective project delivery from development through construction monitoring. Caltrans offers one of the more mature project management frameworks[1], which they use to limit project development and administration costs to within a certain percentage of initial estimates.

Applied to ArDOT, these practice may yield:

- ***A unified project management approach for all construction and maintenance activities***
- ***Better communication relative to project level work throughout the Department***

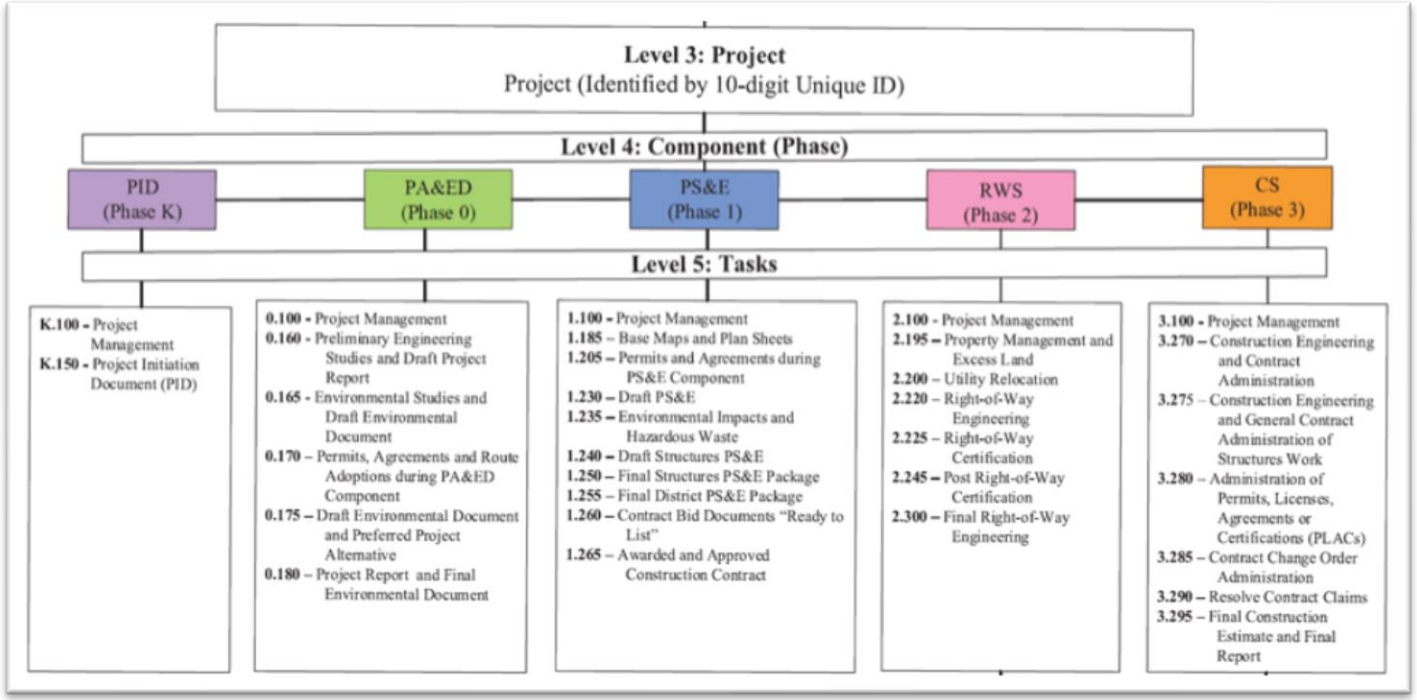

Image Source: Screen capture of the Caltrans Work Breakdown Structure (WBS) Diagram[2]

GLOSSARY

Caltrans: California Transportation Department *WBS: Work Breakdown Structure*

Implementation Roadmap

1 CATALOG EXISTING PPM CAPABILITIES AND TARGET STATE

Catalog current portfolio planning and project management protocols, capabilities, software applications, and reporting

Conduct landscape review of industry-approved frameworks and those used by State DOTs to identify baseline and target portfolio planning (e.g. WisDOT Compass) and project management frameworks (e.g. VDOT PM[1])

2 IDENTIFY GAPS IN THE CURRENT SYSTEM

Conduct internal review to identify system gaps in construction and maintenance; focus on:

Pre-construction and construction monitoring
- Resource and budget planning
- Project management

Maintenance
- Portfolio planning
- Resource and budget planning
- Project management

3 ESTABLISH PMO AND BUILD ON EXISTING STRENGTHS

Create PMO with identified governance and resources to oversee design and implementation of Project Portfolio Management across pre-construction, construction and maintenance activities

Leverage existing organization assets (e.g. IT PMO), practices (e.g. STIP process), resources (e.g. Garver PM supports) and software (e.g. new MMS) to kickstart PMO planning

4 PHASE DEPLOYMENT, DEVELOP TOOLS, TRAIN EMPLOYEES

Prioritize deployment based on organizational maturity and need; for example:
- 1a: Project management for pre-construction and construction activities;
- 1b: LOS portfolio planning framework for maintenance activities

Develop standards, toolsets, and formalize reporting, risk/issue management, and change control protocols

Train staff members, deploy resources, operationalize PPM and PMO processes

GLOSSARY

WisDOT: Wisconsin DOT *VDOT: Virginia DOT* *PM: Project Management* *PMO: Project Management Office* *STIP: State Transportation Improvement Plan*

MMS: Maintenance Management System *LOS: Level of Service* *PPM: Project Portfolio Management*

Anticipated Impact Assumptions

1

A more mature project management framework may allow ArDOT to realize ~$3.82M in annual cost savings

PMSolutions', Project Management Maturity & Value Benchmark Report[1] revealed:

- An organization with less mature project management platform realizes cost reductions of 6% per project
- The average cost savings for all organizations is 16% (This represents cost savings from an organization with an average level of project management maturity)

ArDOT's percentage cost savings by implementing a more mature project management platform:

- Assume ArDOT has a less mature project management platform and 6% cost savings are already factored into their internal construction costs.
- Assume implementation of a more mature project management platform ArDOT can yield the average cost savings per PMSolutions (16%). As a result, ArDOT can increase cost savings by 10%.

ArDOT's five year (FY2015 – FY2019) average internal state specific construction project costs based on actual pre-construction, construction engineering right of way, utility engineering, utility audit, misc. engineering, state force, EEO, and surveys expenditures*.

- ArDOT five year average state specific construction costs = $38,168,661[2]

Cost savings by implementing rising to an organizational average project management platform = $38,168,661 * 10% = ~$3.82M

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** Costs include 20% of Federal Participating and Billable costs; 100% of Non-Participating costs; 20% IRP Bond Funds to supplement Federal Participating costs; 100% of IRP Bond Funds to supplement Non-Participating costs*

8.

Implement best practices in construction project design

ArDOT lacks formal frameworks to ensure the consistent use of best practices in construction design, limiting their ability to demonstrate cost savings and strengthen institutional knowledge. By adopting such procedures, ArDOT may reduce project costs and improve achievement of system targets.

Findings Addressed

- EX2.1: Practical design protocols
- EX2.2: Value engineering frequency and timing
- EX3.1: Cost estimates not being evaluated based on outcomes
- EX5.2: Change orders not being analyzed for trends and insights

ArDOT Implementation

- Develop formal framework around use of performance-based practical design
- Conduct value engineering earlier in design (i.e., at 30% complete) and more often
- Evaluate gap between original bid and final payment amounts to inform best practices in design

Anticipated Impact

ArDOT cost savings may include:

- **~$664K** in cost savings per project by adopting formal framework for practical design[1]*
- Increased total project savings by bringing ArDOT up to national averages[2] of: annual number of VE studies (**~$1M**), cost savings generated per VE study (**~$7.7M**), or both (~**$15.8M**)

** ArDOT is already capturing some of these savings through informal use of practical design*

Considerations

- Not all projects are well suited to or would benefit from such approaches; frameworks should identify when to use them
- ArDOT is already employing many of these practices, so implementing recommendation will not require creation of new technical practices; rather, formalizing existing practices

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GLOSSARY

VE: Value Engineering

Leading State: Washington State DOT

Many DOTs use practical design, but vary in their approaches. In 2013, WSDOT was using practical design, but not consistently or strategically to maximize savings – similar to ArDOT's position. Their experience shows the potential outcomes of formalizing this practice.

Description

WSDOT[1] transformed its design approach from formulaic to flexible by updating outdated standards, adopting a "least cost" planning methodology, creating performance measures to evaluate alternative designs, and shifting its culture.

40%

Average project cost savings from practical design (from a sample of 10 projects)

$21.5M

Average project cost savings from practical design (from a sample of 10 projects)

Applied to ArDOT, these practices may yield:

- ***Reduced project costs***
- ***Improved achievement of system targets***

Practical design solutions used by WSDOT:
Redesigning to reduce right-of-way costs • Adjusting project staging to increase efficiency • Opting for low-cost enhancements (e.g., rumble strips) instead of realignment • Adjusting design or alignments to reduce environmental costs

Implementation Roadmap

1 DEVELOP FRAMEWORKS

Determine methodologies, timing, and frequency of analyses for:

- Practical design
- Value engineering
- Engineers estimates compared to final cost

For example, FHWA[1] suggests VE studies for:

- High-cost and/or high-priority projects
- Complex or challenging projects with multiple stages / traffic control
- Projects involving multiple stakeholders

2 TRACK OUTCOMES & REVIEW TRENDS

Conduct analyses and track outcomes in accordance with set policies, for example:

- Benefits, cost savings and ROI from practical design and value engineering

Identify trends and leverage learnings to strengthen design approach:

- Project types most likely to have change orders due to plan error or omission
- Projects that have exceeded timelines
- Project types likely to benefits from certain practice design solution

3 MONITOR & REEVALUATE

Evaluate policies and procedures by continuing to monitor trends in key areas, at predetermined frequencies

Determine if revisions to policies and procedures are necessary to obtain desired outcomes

If so, implement necessary revisions

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GLOSSARY

FHWA: Federal Highway Administration *VE: Value Engineering* *ROI: Return on Investment*

Anticipated Impact Assumptions

1

~$664K in cost savings per project by adopting formal framework for practical design[1]

MoDOT saved 13% on average in its first year of implementing a formalized practical design program. ArDOT's average contract amount 2014-19 is $5.1M.

- 13% * $5,113,314 = $664K

2

Increased total project savings by bringing ArDOT up to national averages[2] of: annual number of VE studies (~$1M), cost savings generated per VE study (~$7.7M), or both (~$15.8M)

ArDOT can increase its cost savings from value engineering by: 1) increasing the % of cost savings yielded per study (i.e., by conducting studies earlier in the design process, generating more recommendations per study); 2) increasing the # of studies, or 3) both. ArDOT currently conducts an average of 1.75 VE studies per year (total project costs $181M), generating 0.7% in project costs saved (~$1.3M). The national average is 3.30 studies per year and 5.0% of savings. Note: applied to ArDOT, 3.30 studies per year would yield a proportional project cost of $343M.

- Increasing %: 1.75 studies of projects totaling $181M @ 5.0% cost savings = $9.1M (= $7.7M greater than current savings)
- Increasing #: 3.30 studies of projects totaling $343M @ 0.7% cost savings = $2.4M (= $1.0M greater than current savings)
- Both: 3.30 studies of projects totaling $343M @ 5.0% cost savings = $17.2M (= $15.8M greater than current savings)

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GLOSSARY

MoDOT: Missouri DOT *VE: Value Engineering*

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Information Technology

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9.

Build an IT Governance Structure to guide ArDOT's IT investments

ArDOT's IT investments have grown 155% since FY2016 to $23M in FY2020[1] under unclear enterprise level guidance. Leading practices suggest that establishing a formal governance structure will enable the IT Division to support business objectives, help optimize Department operations, manage enterprise risk, and meet internal and external stakeholder needs.

Findings Addressed

- IT2.1: ArDOT has not developed a Governance Structure to ensure IT investments support objectives, manage enterprise risk, and meet external stakeholder needs
- IT2.2: There is no overarching enterprise architecture or blueprint to standardize, organize, and align IT infrastructure and solutions with business goals

Anticipated Impact

- Improved ArDOT performance on business outcomes such as system condition and operational effectiveness measures, based on an ISACA survey and study[2]
- Strengthened enterprise level IT capability and performance[3]
- Reduced security and disaster-related risk per a Forbes Insights report[4]

ArDOT Implementation

- Lay the groundwork to establish a robust governance structure
- Establish a governance structure that identifies a cross-section of business and IT personnel to create a charter and decision making framework
- Create and execute on a governance roadmap; measure and communicate progress

Considerations

This is an ongoing process; lessons learned suggest it requires:

- Leadership support
- Emphasizing how IT enables business performance and reduces risk, not the framework
- Cascading of enterprise level goals through the IT Division to actual underlying processes

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practices: Building IT Governance

ArDOT can leverage any number of resources to establish an effective IT Governance structure that will enable the IT Division to strengthen business performance, reduce risk and maintain compliance with applicable regulations.

Description

Forrester, a leading Enterprise IT research group, suggests three key objectives for IT Governance[1]:

- Ensure business value and alignment by only approving projects aligned with strategic business objectives and balancing future investments and current operations
- Manage risk, as an increasing percentage of ArDOT's operating structure is supporting by underlying IT platform
- Hold IT leadership accountable for ROI and service delivery

Applied to ArDOT, these practices may yield:

- ***Enhanced ability to improve State's transportation assets***
- ***More efficient and effective operations***
- ***Greater ability to meet the needs of stakeholders***
- ***Improved security and disaster related risk management***

90%

Business leaders that believe strong technology governance leads to improved business outcomes[2]

63%

Percent of IT executive respondents reporting root cause of ineffective IT departments as a lack of a well defined IT operating model and clarity related to IT's role and services[3]

There are numerous "off the shelf" IT Governance frameworks that can be tailored or combined to meet ArDOT's needs, including:

COBIT[4] // ITIL[5] // CMMI[6]

GLOSSARY

COBIT: Control Objectives for Information Technologies *ITIL: Information Technology Infrastructure Library* *CMMI: Capability Maturity Model Integration*

Implementation Roadmap

1 LAY THE GROUNDWORK

Build on Info-Tech report to assess the maturity of the Department's current IT Governance Structure

Identify current structure of IT operations and potential future states:
- Centralized
- Decentralized
- Federated

Conduct an analysis of existing IT Governance frameworks to identify a potential best fit such as:
- COBIT[1]
- ITIL[2]
- CMMI[3]

2 ESTABLISH A GOVERNANCE STRUCTURE

Identify a formal IT Governance committee with appropriate representatives from around the Department such as:
- Assistance Chiefs
- Key Division Heads

Create a reporting structure directly beneath the ArDOT Director

Select a governance framework and establish a charter

Identify IT domains and processes that require governance such as IT investments, data management, business continuity, and cybersecurity

3 CREATE AND EXECUTE ON A GOVERNANCE ROADMAP

Establish governance priorities and create corresponding subcommittees:
- Portfolio management
- Data governance
- Service management
- Technology standards
- Project management

Create high-level governance roadmap and subcommittee charters

Establish Governance committee and subcommittee meetings and reporting frequency

Develop success measures (KPIs) and an IT performance scorecard

GLOSSARY

COBIT: Control Objectives for Information Technologies *ITIL: Information Technology Infrastructure Library* *CMMI: Capability Maturity Model Integration*

KPI: Key Performance Indicator

10.

Implement mid-term IT initiatives that can optimize business operations

ArDOT spends ~$5.3M on software applications and has 300+ databases. Implementing leading data management and software application rationalization practices can deliver cost savings and unlock data value.

Findings Addressed

- IT1.1: ArDOT appears to be approaching data center modernization phases, but without a formal integration plan
- IT1.2: ArDOT has preliminarily identified software needs, but efforts to align IT purchases across the Department has not been universally implemented

ArDOT Implementation

- Build software application and database inventory
- Assess and score each software application and database
- Identify target state for each application and database
- Build phased roadmap for migration processes

Anticipated Impact

- Through robust software application management, ArDOT may save **up to $1M**, per Gartner analysis[1]
- Through leading data management practices, ArDOT could increase already captured savings (**$600K**)[2]
- Improved data analytics may increase Department productivity[3]
- Establishing open data access can unlock data value and private sector innovation per CIO Magazine and McKinsey reports[4,5]

Considerations

- Requires upfront investment to yield mid- to long-term savings
- Requires leadership buy-in and change management to overcome resistance and assist staff in shifting to a new model
- Requires software application such as the planned ITSM tool
- Requires implementation plan for continuity of operations

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GLOSSARY

ITSM: IT Service Management

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practices: Mid-Term IT Initiatives

Already common in the private sector, application rationalization and master data management are emerging initiatives in the public sector that can reduce costs and unlock significant value.

Description

Leading IT industry research reveals:

- Software application rationalization cuts costs by eliminating redundancy, consolidating usage, and reducing internal application development and operations costs[1]
- Optimizing data cuts costs by eliminating redundancy, reducing support costs, and improving decision making[2,3]
- Strategic deployment of data unlocks value by optimizing IT investments and enabling private sector innovation[4,5]

20%

Application rationalization cost savings in a 12-month period[6]

5%

Productivity difference between “top one third Data Driven” companies and their competitors[7]

Applied to ArDOT, these practices may yield:

- ***Reduced application and data management costs***
- ***Increased reliability***
- ***Improved productivity and decision making***
- ***Enhanced private sector planning and innovation***

Data assets represent ~25% of an organization’s assets[8]. To unlock the value of their data assets, several DOTs including Virginia[9] (left), Kentucky, and New York provide free access to public data through open data portals

Image Source: Screen capture of Virginia DOT Open Data Portal Landing Page[10]

Implementation Roadmap

1 BUILD APPLICATION AND DATABASE INVENTORY

Determine preliminary enterprise-wide data governance and application development/operations standards

Complete existing application and database inventory data per standards

Conduct targeted interviews with SMEs and external stakeholders

Review relevant policies, procedures, trainings, and database schema

Develop preliminary catalog of applications and databases by business function

2 ASSESS APPLICATION AND DATABASE INVENTORY

Update preliminary standards per findings in Step 1

Develop application and database scoring methodology based on business relevancy, technology risks, total cost of ownership

Score each application and database via scoring methodology

Review and validate scoring assessments with internal SMEs

Create an assessment for the entire portfolio of applications and databases

3 DEVELOP TARGET STATE AND ROADMAP

Determine high-level database architecture, implementation methodologies, and business intelligence approach

Determine target state for each application and database, for example: retain as is; eliminate, re-engineer, and migrate

Develop implementation road map subdivided into phases:

- Phase 1: Retain As Is/Eliminate
- Phase 2: Re-Engineer
- Phase 3: Migrate

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GLOSSARY

SME: Subject Matter Expert

Anticipated Impact Assumptions

1

Up to $1M in savings from application management, per Gartner analysis

A 2009 Oracle Report[1] quotes a Gartner analysis which reveals that Chief Information Officers report application rationalization combined with business process optimization can yield on average 20% cost savings within one year. ArDOT spent ~$5.3M on software in FY2019[2]. It does not appear that ArDOT separately tracks software license expenditures or application development/support. As a result, using the total software expenditure as a proxy for the costs that could be reduced as a result of application rationalization, and applying the 20% cost savings from the Oracle report yields:

- 20% * $5.3M = $1.06M

11.

Develop necessary pillars to establish IT as an effective business partner

Currently, ArDOT's IT Division is not able to definitively articulate what services it will deliver, when it will deliver them, and its standards for effective delivery. Implementing an ITSM framework may yield enhanced IT service delivery, improved internal customer satisfaction, and reduced IT costs.

Findings Addressed

- IT2.3: ArDOT lacks a service catalog and defined service level expectations, yielding confusion on what IT will deliver, when, and how support is distributed
- IT2.4: ArDOT's efforts to establish a project management infrastructure to ensure effective delivery of IT projects is still in its infancy

ArDOT Implementation

- Establish baseline policies and procedures, and preliminary service catalog
- Select appropriate software tools
- Establish a long-term IT Service Management Plan that includes appropriate communications and training to staff, and mature service catalog

Anticipated Impact

- ArDOT will realize a fundamental enhancement to IT service delivery, as indicated by a Forbes Insight report[1] on IT Service Management
- Reduction in IT service delivery costs of **up to 26%**, per a PMSolutions Project Management Maturity and Value benchmark study[2]

Considerations

- Yield quick wins by establishing a basic service catalog and standards, capturing IT demand, and tracking requests
- Include PM infrastructure in the long-term ITSM plan
- Communication and training will be critical to mitigate resistance to change

GLOSSARY

PM: Project Management *ITSM: IT Service Management*

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Leading Practices: IT Service Management Pillars

IT Service Management (ITSM), which includes project management, is rapidly being adopted as a framework to allow IT departments to deliver quality service, lower costs, and yield high levels of customer satisfaction.

Description

Leading IT industry research reveals :

- Effective PM yields alignment between business and IT operations, project savings, and fewer failed projects[1,2]
- Robust ITSM implementation yields cost savings, increased productivity, and faster response times to customers[3]
- ITSM implementation is long-term, but PM practices and standards can be rapidly implemented: Texas DIR provides a "PM Lite" [4] version of its framework for rapid scaling

42%

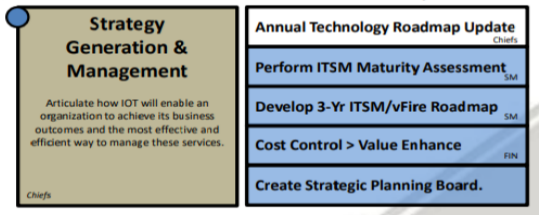
Surveyed executives who agree that ITSM has reduced business costs[5]

26% vs. 6%

Cost savings per project for firms with mature PM infrastructure versus those firms with less mature PM infrastructure[6]

Applied to ArDOT, these practices may yield:

- ***Fundamentally enhanced service delivery***
- ***Improved customer satisfaction***
- ***Reduced IT service delivery costs***



The Indiana Office of Technology (IOT) launched its ITSM initiative in 2016. Its implementation roadmap is based on ITIL and is publicly available[7] (*see graphic, left, for one component*). IOT Customer Satisfaction ratings increased from 94.1% in 2018 to 98.3% in 2020 [8,9].

Image Source: Screen capture of IOT ITSM implementation roadmap[10]

Guidehouse

GLOSSARY

ITSM: IT Service Management *PM: Project Management* *Texas DIR: Texas Department of Information Resources* *ITIL: Information Technology Infrastructure Library*

Implementation Roadmap

1 ESTABLISH BASELINE STANDARDS AND POLICIES

IT project management:
- Adopt a preliminary set of project management standards and protocols
- Create a preliminary set of PM tools, templates, and project success metrics (e.g. DIR PM Lite[1])
- Establish and provide necessary training to staff members

IT Service Management (ITSM):
- Identify and socialize core service offerings in an IT Service Catalog
- Create initial service policy and standards for existing IT offerings
- Identify success metrics relevant to business need

2 SELECT APPROPRIATE SOFTWARE TOOLS

Identify a proven ITSM framework such as ITIL[2] to establish a baseline

Select ITSM tool and prioritize the "out of the box" ITSM capabilities:
- Service desk capabilities, including incident and problem management, and fulfillment request management,
- Service catalog management, risk management, vendor management
- Demand and capacity measurement
- Asset catalog and IT configuration
- PM capabilities including PM plan creation, project progress and performance dashboarding, change management,

Ensure ITSM tool scales to include a comprehensive ITSM Model build out

3 ESTABLISH A LONG-TERM ITSM PLAN

Synthesize existing IT demand and service data, and conduct an ITSM maturity analysis

Identify ITSM maturity gaps and create a multi-year roadmap

Create a communications and rollout plan with engagement of change champions across the Department, and appropriate training for staff

Integrate project management maturity within the ITSM roadmap

GLOSSARY

PM: Project Management *ITSM: IT Service Management* *ITIL: Information Technology Infrastructure Library*

People Capabilities

12.

Ensure staff can develop in their careers at ArDOT

Inadequate career development is the leading driver[1] of resignations in the US. Nearly half of ArDOT staff do not believe they can advance their careers there,[2] and its turnover is rising.[3] By developing career ladders and lattices, ArDOT may increase retention, reduce turnover-related costs, strengthen its talent pipeline, and improve morale.

Findings Addressed

- PC1: Recruitment and retention
- PC2.1: Dissatisfaction with compensation
- PC2.2: Competition for talent
- PC3.2: Flexible work strategies
- PC4.1: Career paths not defined
- PC4.2: Performance evaluations not understood or trusted

ArDOT Implementation

- Verify roles at high risk of turnover and important to succession planning
- Conduct compensation study
- Develop and publicize career, skill, and salary progression
- Promote buy-in among staff for the performance-based pay and evaluation practice

Anticipated Impact

- For ArDOT, improved retention could increase cost avoidance per year by **~$5M**, based on cost estimates from Tran-SET[4]
- Adopting HBR's[5] best practices in career development may increase likelihood ArDOT staff are retained to seek promotion at the Department rather than at a competitor by **~5.0%**

Considerations

- Ability to promote may be limited by low turnover in desirable positions – consider career lattices when traditional career ladders are inaccessible
- Career development activities are closely aligned with training and knowledge management

GLOSSARY

Tran-SET: Transportation Consortium of South-Central States

HBR: Harvard Business Review

Leading Practices: Growth Opportunities

ArDOT can consider strategies used by other DOTs to strengthen growth opportunities for employees.
Many DOTs share ArDOT's turnover challenges and constrained resources to compete with the private sector for talent

Description

Workforce development interventions are tailored to the skills, culture, and goals of the implementing organization. The solutions here reflect a range of strategies by DOTs to strengthen growth opportunities in response to turnover. Few have published outcomes, though their approaches align with generally accepted standards.[1]

Applied to ArDOT, these practices may yield:

- ***Reduced turnover***
- ***Strengthened talent pipeline***
- ***Improved morale***

State DOT	Intervention
Oklahoma[2]	• Commissioned compensation study of all DOT roles • Implemented pay raises averaging 7% • Turnover fell from 12% to 11% in first year
Florida[3]	• Commissioned compensation study of DOT management roles
Missouri[4]	• Commissioned compensation study of all State roles (including DOT) • Implemented pay raises of at least 3% for all DOT staff, with higher percent increases for lower salaried staff
Texas[5]	• Supervisors responsible for career planning with reports • Financial assistance for engineers training to obtain licensing • Special bonuses for high performers and long tenured staff
Montana[6]	• Implemented career ladders in: engineering, construction contracting, info services, maintenance, motor carrier services, and safety & health

13.

Align staff capabilities with current and future organizational needs

ArDOT staff and supervisors report that training resources are limited. By strengthening training, ArDOT may improve job satisfaction and retention, increase productivity, and instill confidence in staff who then become more willing and able to take on greater responsibility within the Department.

Findings Addressed

- PC3.1: Staff have positive relationships with managers
- PC5.1: Training is offered, but lack formal learning pathways
- PC5.2: On-the-job training is preferred, but difficult to institutionalize

ArDOT Implementation

- Align trainings to job descriptions and career planning activities
- Identify and fill training gaps
- Assign trainings as part of performance evaluation process
- Reinstitute manager training
- Consider cross-training in high turnover districts and positions
- Consider formalizing on-the-job, practical training

Anticipated Impact

Skill development is common at top companies, where **73%** of staff update their skills biannually. By implementing "opportunities to learn and grow"[1] ArDOT may increase:

- Job satisfaction and retention
- Staff confidence and motivation
- Staff ability and interest in taking on more work

Considerations

- Training will likely need to be updated[2] over time, for example as new equipment is used or new programs are developed
- Training need not be restricted to entry-level roles: senior level[3] employees can benefit as well
- Priorities must be identified to focus rollout on training where it will have the most impact

Leading Practice: Individualized Training Plans

ArDOT staff report[1] that existing training resources are not necessarily relevant to their work, and supervisors are unsure[2] how to set learning objectives for their reports. PennDOT shows how to align training with job competencies and support career planning.

Description

PennDOT[3] uses a standardized approach to identify the skills, knowledge, and competencies for each key component of a role. It then identifies all related training opportunities available, and provides a suggested curriculum from a selection of these trainings. Staff discuss their learning plans with supervisors, and create individualized learning plans based on their performance evaluations.

Applied to ArDOT, these practices may yield:

- ***Improved job satisfaction and retention***
- ***Increased productivity***
- ***Confident staff willing and able to take on greater responsibility within the organization***

SUGGESTED CURRICULUM FOR DISTRICT BRIDGE INSPECTION MANAGER/SUPERVISOR

Phase One	Phase Two
Alkali-Silica Reactivity Workshop-Lithium Impact APRAS Basic Bridge Safety Inspection Course BMS Bridge Scour Evaluation Business Writing Crystal Reports for BMS Users Design and Operation of Work Zone Traffic Control	Advanced Section 4(f) Context Sensitive Solutions Training Environmental Permit Requirements for Maintenance/Inspection Around Streams: The Dos and Don'ts Fundamentals of Project Management With Open Plan LRFD for Highway Bridge Substructures
Phase Three	**Phase Four**
ECMS ECMS (Engineering and Construction Management System) Wave 3 -PennDOT EMPLOYEES ONLY Microsoft Access, Level 2	Dynamic Time Management: Critical Elements Effective Presentations Engineering dataset programs Evelyn Wood Reading Dynamics for Business Professionals

Image Source: PennDOT[4] –District Bridge Inspection Manager/Supervisor Position Analysis Workbook (Image has been edited to fit)

GLOSSARY

PennDOT: Pennsylvania DOT

Implementation Roadmap*

1 IDENTIFY TALENT NEEDS

Identify the skills and roles essential to the Department's success, based on:

- ArDOT's strategic plan
- Over- and under-utilized teams across districts and divisions

Validate current and anticipated talent gaps via:

- Analysis of high turnover positions and teams
- Finalizing succession planning analysis

Conduct compensation study to validate appropriateness of salary bands

2 DEVELOP CAREER PATHS

Identify existing career paths within ArDOT, based on:

- Existing job descriptions and detailed competencies
- Data on past promotions
- Interviews with District Engineers and Division Heads

Identify gaps in career pathways, and determine if new roles should be created

Adjust compensation as needed based on study; ensure salary progression along career paths is competitive and appropriate

3 PUBLICIZE CAREER PATHS

Document steps required for advancement along career paths, including:

- Competencies
- Years of experience
- In-house trainings
- External certifications

Develop materials for staff, supervisors, and recruiters to facilitate understanding of the steps required and, for supervisors, be able to support direct reports through the process

4 ALIGN WITH TRAINING & EVALUATION

Training:

- Catalog training resources by related competency
- Develop suggested curriculum for roles
- Consider training performance in evaluation

Evaluation:

- Formalize career planning with supervisors as part of annual evaluation
- Refer staff to specific training resources for performance improvement

** Note: This roadmap combines suggested implementation plans for Recommendation 12 and Recommendation 13.*

Anticipated Impact Assumptions

1

~$5M in cost avoidance per year by averting projected turnover increases (instead maintaining current 8.6% rate), based on cost estimates from Tran-SET[1]

A report from the Transportation Consortium of South-Central States identified the cost of turnover as exceeding 100% of the annual compensation of the resigning employee. Applied to ArDOT, this yields a 2019 turnover cost of ~$11.8M (320 staff, $36.9K salary). Based on available data for 2015-2019, the turnover rate is increasing ~15.3% annually. If unchecked, the rate will rise from 9.6% in 2020 to 14.9% in 2024. This translates to:

- $13.3M in 2020, $14.9M in 2021, $16.7M in 2022, $18.7M in 2023, $21.0M in 2024; 5-year total: $84.6M
- If ArDOT maintains the current rate of turnover, it will instead spend $11.8M per year; 5-year total: $59.2M (a difference of: $25.4M, or ~$5M/year)
- Note: We assume no change in salary, as between 2014 and 2019, salaries remained fairly flat at -0.58%
- Note: MoDOT has reported an even higher cost: ~$54K per person, with annual costs ~$32.5M (as of 2019)[2]

2

~5.0% increase in likelihood staff are retained to seek promotion at ArDOT rather than at competitor, by adopting HBR's[3] best practices in career development

A study published in Harvard Business Review found that raising a company's Glassdoor "career opportunities" rating by one star (out of five) was "associated with a five-percentage-point higher chance that workers would stay for their next role."

- ArDOT's current "career opportunities" score is 3.6; raising it by 1 star to 4.6 would be associated with a 5% higher chance that staff will remain at ArDOT for their next role, rather than leaving to pursue advancement elsewhere

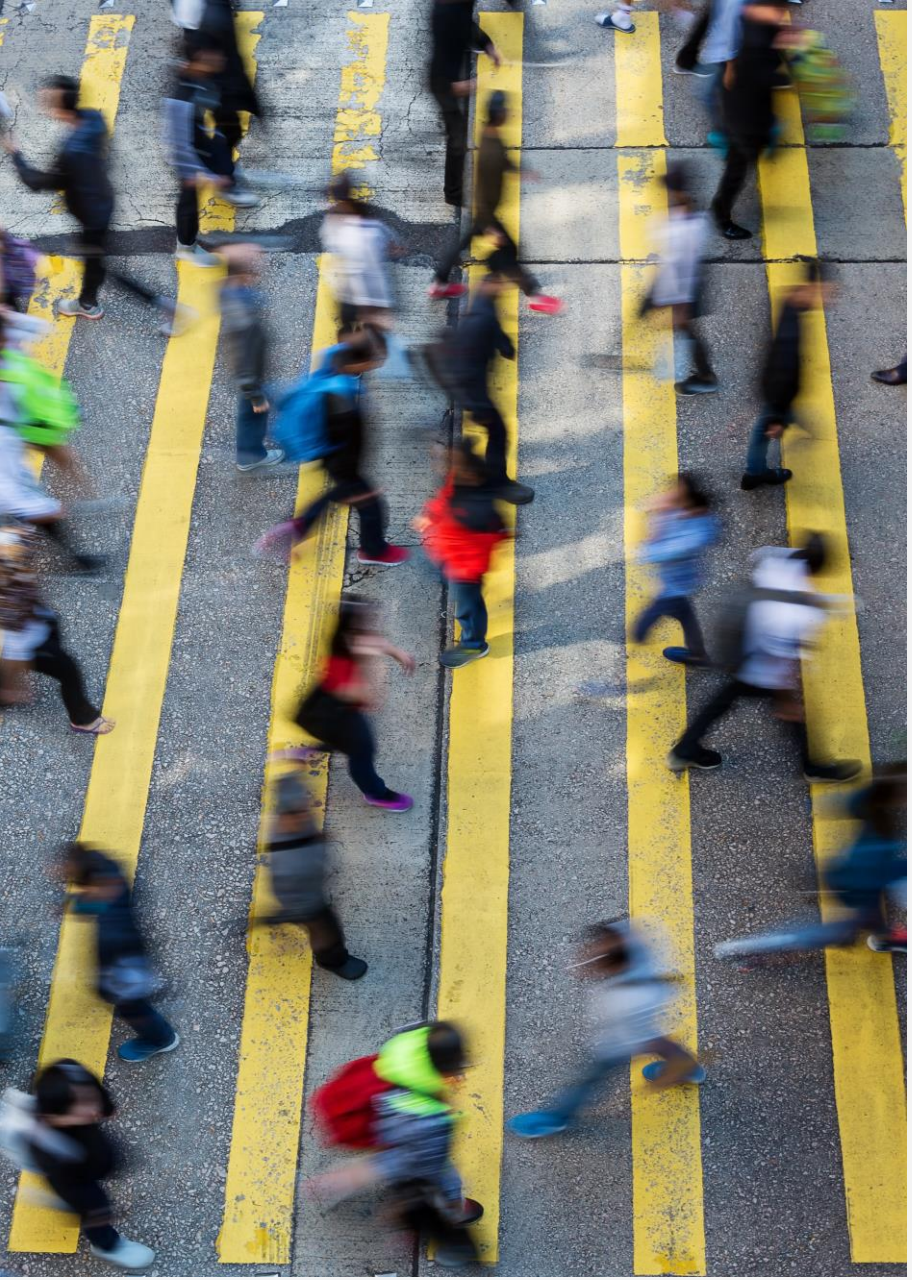
Guidehouse

GLOSSARY

Tran-SET: Transportation Consortium of South-Central States

Disclaimer: Anticipated Impacts are estimates, directional in nature, and represent the upper end of the savings range

Appendix



Appendix Contents

Leading Practices: State Selection

Similar to many DOTs across the country facing declining resources and increasing business costs, ArDOT is continuously searching for more effective and efficient methods to deliver transportation solutions to the State. To better understand the effectiveness and efficiency of ArDOT's business practices, Guidehouse conducted a targeted analysis of a set of comparison group State DOTs. The methodology for identifying this comparison group is described to the right, and their performance data is described in the following pages.

Sourced Data

- To ensure a fair comparison across State DOT's, Guidehouse used the Federal Highway Administration nationally normed 2018 Highway Statistics Data[1]
- Expenditure[2], mileage[3], system condition[4], and bridge deficiency[5] data was harvested to structure the comparison

State Selection

- Guidehouse approximated the cost effectiveness of each State DOT by calculating the aggregate pre-construction, construction, maintenance, and administrative expenditures per lane mile
- Each DOT was ranked using this cost effectiveness measure, and those with lower or similar expenditures per lane mile to ArDOT were selected into a preliminary comparison DOT group
- Guidehouse refined this preliminary group to form a final comparison DOT group by:
    - Selecting only those DOTs who generally performed better on system performance measures such as pavement condition, bridge condition, and fatality rate
    - Eliminating State DOTs whose geographic location would not yield a meaningful comparison with Arkansas (e.g. Montana)
- As a result, Guidehouse was able to identify ten comparison group DOTs that were similarly or more cost effective than ArDOT, yet realized similar or better transportation outcomes

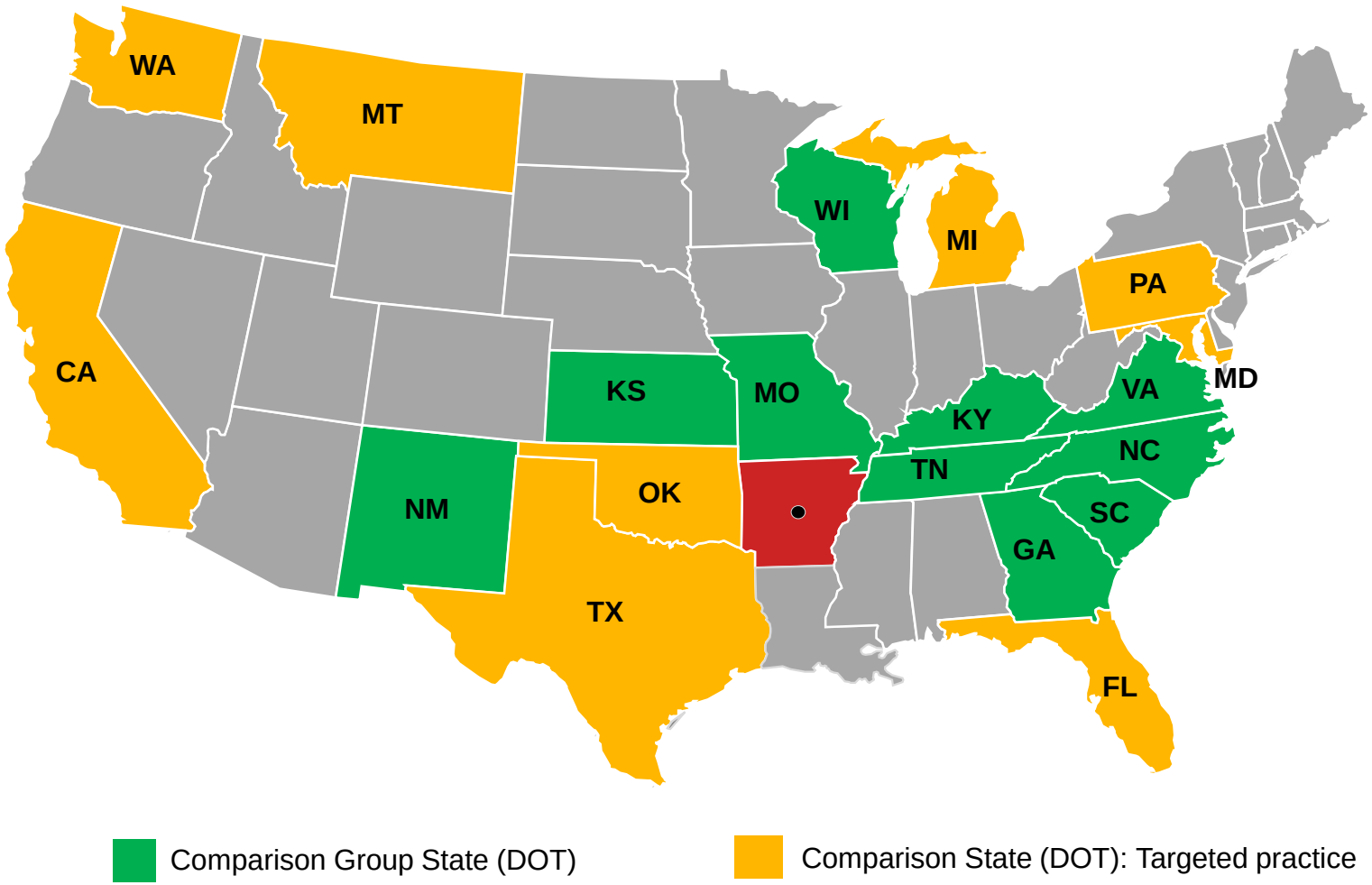
Considerations

- Guidehouse utilized this methodology to select a set of comparison group DOTs from which to conduct a leading practice review; Guidehouse does not guarantee that identified practices will yield the anticipated impact identified in the report
- In some instances, publicly available data did not yield a promising practice, and so Guidehouse identified practices from other sources as described in the following page

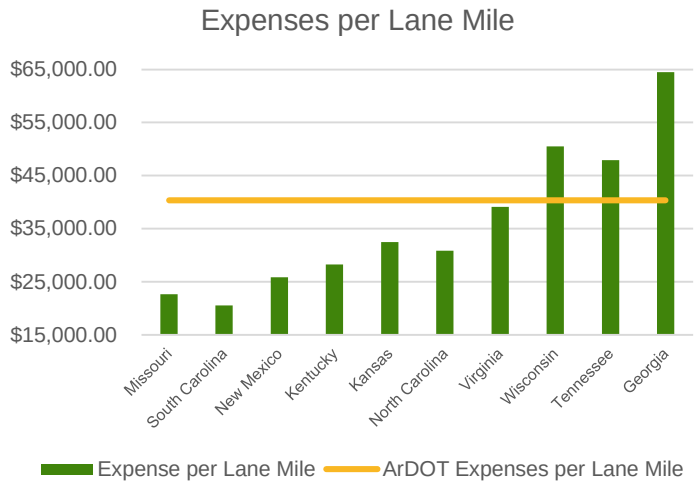
Leading Practices: Identified States and Sources

The set of ten comparison group State DOTs that Guidehouse selected from which to conduct a leading practice comparison are identified in green in the Map to the right. These DOTs have realized strong performance on a set of Transportation specific measures, yet have similar or lower expenditures on a per lane mile basis. The following pages provide a detailed comparison of these States. Where publicly available data yielded a comprehensive and coherent depiction of leading practices within a specific focus area, we summarize those practices in our recommendations.

In the remaining instances, Guidehouse sourced leading practices on an individual DOT basis identified in yellow on the Map to the right; existing research commissioned or conducted by credible Transportation authorities such as the Federal Highway Administration (FHWA), Transportation Research Board (TRB), and National Cooperative Highway Research Program (NCHRP); or from leading industry authorities such as the Society for Human Resources Management (SHRM).

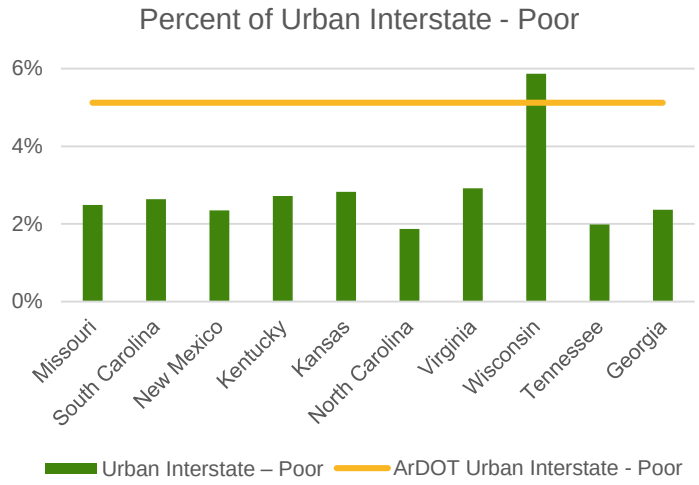


Comparison Group DOTs – Benchmark Highlights



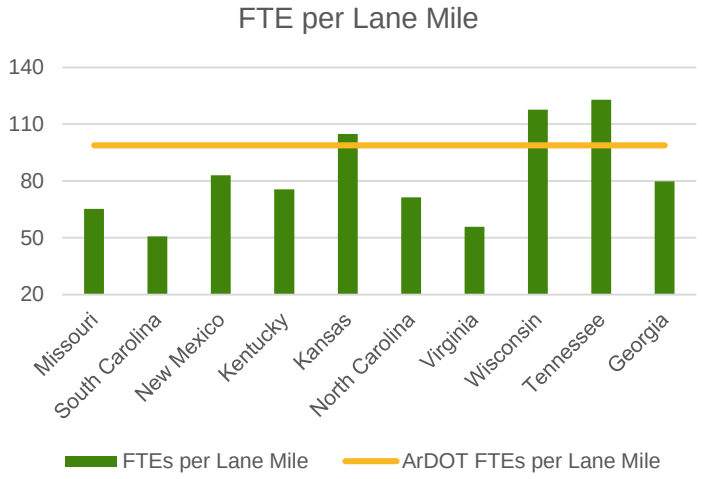
FTE per Lane Mile

Staff per lane mile provides an indicator of how DOTs are deploying resources to attend to meeting transportation needs. Compared with the comparison group, Arkansas' FTE per lane mile figure ranks 4th highest, deploying ~ 99 FTE per lane mile.[3]



Expense per Lane Mile

State controlled highway (lane) mileage is an indicator of the overall responsibility of a DOT, and by this measure Arkansas is the 16th largest system in the nation.[1] Against comparison group DOTs and by virtue of the comparison methodology, Arkansas ranks 4th highest in pre-construction, construction, maintenance, and administrative spend: ~$40k/lane mile.[2]



System Condition

Arkansas performs well amongst comparison group DOTs in Bridge Condition,[4] ranked 4th best. However, it lags behind these DOTs when fatality rate and percentage of roads in poor condition are considered: Arkansas is ranked 4th worst in fatality rate,[5] and 2nd worst in percentage of rural and urban interstate roads in poor condition.[6]

Comparison Group States – Summary Data

This table provides the data utilized to identify comparison State DOTs. DOTs are listed, from left to right, in ascending order of total capital, maintenance, and administrative costs

DOTs	Missouri	South Carolina	New Mexico	Kentucky	Kansas	North Carolina	Virginia	Arkansas	Wisconsin	Tennessee	Georgia
Total Lane Miles[1]	77,708	90,524	29,500	62,216	24,005	172,887	128,377	37,951	29,739	37,424	49,339
Total Center Miles[2]	33,838	41,296	11,953	27,671	10,288	80,011	59,020	16,467	11,743	13,920	17,946
Total Vehicle Miles Traveled per Lane Mile (Thousands) [3]	986	627	925	796	1,341	701	665	966	2,215	2,173	2,664
Staff Size[4]	5,079	4,594	2,448	4,700	2,516	12,337	7,176	3,749	3,499	4,600	3,941
Total Expenses (Thousands)[5]	$1,759,994	$1,857,361	$763,059	$1,757,712	$779,025	$5,329,768	$5,018,223	$1,530,369	$1,501,301	$1,792,354	$3,182,070
Total capital, maintenance, and admin costs per lane mile*,[6]	$19,547 (3)	$19,794 (4)	$25,477 (7)	$28,004 (8)	$28,053 (9)	$31,686 (12)	$37,950 (16)	$38,255 (17)	$47,853 (19)	$49,076 (21)	$60,497 (26)
Total Law enforcement and safety costs per lane mile*,[7]	$3,221 (23)	$1,152 (10)	$505 (3)	$1,649 (12)	$4,024 (27)	$1,059 (8)	$1,968 (14)	$2,301 (17)	$2,432 (19)	$962 (7)	$5,822 (33)
System condition performance measures*:											
% Rural interstate – Poor*,[8]	.60% (11)	.74% (16)	1.22% (27)	1.03% (17)	.48% (8)	1.08% (21)	.31% (4)	2.03% (38)	3.51% (47)	.59% (10)	1.86% (35)
% Urban interstate – Poor*,[9]	2.49% (17)	2.64% (18)	2.35% (15)	2.72% (19)	2.83% (21)	1.87% (7)	2.92% (22)	5.12% (34)	5.87% (37)	1.99% (8)	2.37% (16)
% Rural arterial – Poor*,[10]	1.12% (19)	.94% (15)	7.23% (46)	.77% (13)	.41% (8)	2.02% (29)	.22% (2)	1.76% (26)	4.00% (40)	.33% (6)	.45% (10)
% Urban arterial – Poor*,[11]	5.66% (18)	4.33% (11)	12.85% (35)	4.76% (14)	3.73% (7)	5.19% (15)	4.47% (12)	6.34% (20)	14.76% (39)	4.26% (10)	2.56% (2)
% Deficient Bridges*,[12]	8.60% (34)	8.50% (32)	5.80% (21)	7.10% (26)	5.20% (17)	10.20% (41)	4.60% (12)	4.60% (12)	7.40% (28)	4.30% (10)	3.30% (8)
Fatality Rate*,[13]	1.20% (33)	1.83% (51)	1.43% (42)	1.46% (45)	1.25% (34)	1.19% (32)	.93% (14)	1.41% (41)	.89% (9)	1.28% (35)	1.14% (27)

** National rankings are shown in parentheses; a lower value implies better performance*

GLOSSARY: *Total capital, maintenance, and admin costs per lane mile: Capital Outlay, Admin, ROW, Maintenance, Traffic, Operations, and SRIC, Preconstruction Expenses per Lane Mile*

% Rural Interstate - Poor: Percentage of rural interstate roads in poor condition *% Urban Interstate Poor: Percentage of urban interstate roads in poor condition*

% Rural Arterial – Poor: Percentage of Rural arterial roads in poor condition *% Urban Arterial – Poor: Percentage of urban arterial roads in poor condition*

Fatality Rate - Numbers of fatalities recorded per vehicle miles traveled (in millions)

Current State Key Findings Glossary

Focus Area	#	Description
Organizational Structure	OS1	ArDOT shares several characteristics with other State DOTs; some are unique to Arkansas.
	OS2	Current Key Performance Indicators (KPIs) are limited to system condition. Operational effectiveness is not yet being measured.
	OS3.1	Standard operating procedures (SOPs) are extensive, but not regularly updated.
	OS3.2	Minimizing knowledge loss is a strategic priority for ArDOT, but efforts are not mature.
Portfolio Planning	PP1.1	ArDOT has a formal and quasi-objective process to identify construction projects, prioritize those projects, ensure public involvement, and secure required approvals.
	PP1.2	ArDOT's public communication related to project status, schedule and budget is disjointed and inconsistent. It requires the public to navigate different sources to secure information.
	PP2.1	The Annual maintenance budgeting process is based on Historical Precedent.
	PP2.2	Maintenance workplans are designed to deliver historically rooted activities rather than specific service conditions.
	PP2.3	There is no formal structure to coordinate Workplans within or across districts, or communicate these workplans to the general public.
	PP3	Although ArDOT is responsive to public inquiries, it only offers a limited number of tools to capture and track them.

Current State Key Findings Glossary

Focus Area	#	Description
Procurement	PR1.1	ArDOT adheres to State procurement and transportation laws that limit its flexibility and do not necessarily apply.
	PR1.2	Low bid procurement is viewed by staff as a cultural and financial necessity.
	PR2.1	Pre-qualification and bonding approximate likelihood of project completion, but do not screen for quality.
	PR2.2	The Standard Specifications mandate certain performance criteria, but do not screen for quality.
	PR3	Anecdotes and data suggest some existing quality issues that may be improved through alternate contractor strategies.
	PR4.1	ArDOT takes advantage of legislation that allows consideration of qualifications in some procurement.
	PR4.2	Alternative contract methods have allowed ArDOT to influence contractor behavior.
	PR5.1	ArDOT is not using data to understand procurement trends and identify efficient practices.
	PR5.2	E&P has minimal authority to facilitate implementation of efficient procurement practices.
Expenditures	EX1	Project development, construction, and maintenance functions present unique resource management challenges.
	EX2.1	Formal protocols around the use of practical design are lacking.
	EX2.2	ArDOT has not taken advantage of the full benefits of Value Engineering.
	EX3.1	Engineer's estimates are not formally evaluated to identify future design cost efficiencies.
	EX3.2	Right of Way (ROW) faces external obstacles to reducing costs.
	EX4	The construction project development process may be enhanced through formalized project management tools that increase accountability, identify process efficiencies, and facilitate collaboration across teams.
	EX5.1	Existing project management tools may have broader applications for construction staff.
	EX5.2	Change orders are not formally reviewed to identify potential efficiencies or problematic contractors.
	EX6	Scheduling and evaluation of maintenance activities may be improved through the use of project management tools.
	EX7.1	ArDOT is taking steps to strengthen its internal audit practices.
	EX7.2	External audits are primarily conducted by Legislative Audit and FHWA.

Current State Key Findings Glossary

Focus Area	#	Description
Information Technology	IT1.1	ArDOT appears to be approaching data center modernization phases, however, there does not appear to be a formal plan for integration.
	IT1.2	ArDOT has preliminarily identified staff's software needs but efforts to align technology purchases across the Department has not been universally implemented.
	IT1.3	ArDOT has enlisted a number of vendors to rapidly implement Enterprise Infrastructure upgrades.
	IT1.4	ArDOT recognized that IT customer support is of critical importance and is looking to secure a supporting ITSM tool.
	IT1.5	Although ArDOT is making progress on developing Disaster Recovery (DR) platform, they currently lack a cyber security function, policies, and standards.
	IT2.1	ArDOT has not developed a Governance Structure to ensure IT investments support objectives, manage enterprise risk, and meet external stakeholder needs.
	IT2.2	There is no overarching Enterprise architecture or "Blueprint" to standardize and organize IT infrastructure and solutions to align with business goals.
	IT2.3	ArDOT has not adopted a service catalog nor defined service level expectations which has led to confusion on what IT will deliver, when it will deliver it, and how support is distributed.
	IT2.4	ArDOT's efforts to establish a project management infrastructure to ensure effective delivery of IT projects is still in its infancy.
People Capabilities	PC1	Employee engagement and retention are challenges for ArDOT.
	PC2.1	ArDOT staff value the Department's benefits, but dissatisfaction with compensation is widespread.
	PC2.2	ArDOT faces strong competitors who offer higher wages for both entry-level and experienced professionals.
	PC3.1	Staff have positive relationships with managers, but lack confidence in leadership.
	PC3.2	ArDOT is exploring flexible work strategies to alleviate staffing challenges.
	PC4.1	Career pathways are not defined or clearly communicated to staff.
	PC4.2	Staff lack confidence in the performance evaluation process.
	PC5.1	While training is offered, there are no formal learning pathways that define training plans.
	PC5.2	On-the-job training is often preferred, but difficult to institutionalize.

Recommendation Citations

Recommendation	Page #	Citation
1. Identify operational KPIs and implement performance management	12	1. FHWA. *Transportation Performance Management (TPM) Framework and Toolbox*. https://www.tpmtools.org/ 2. Pew. *The Role of Outcome Monitoring in Evidence-Based Policymaking*. https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2018/08/the-role-of-outcome-monitoring-in-evidence-based-policymaking#0-overview
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