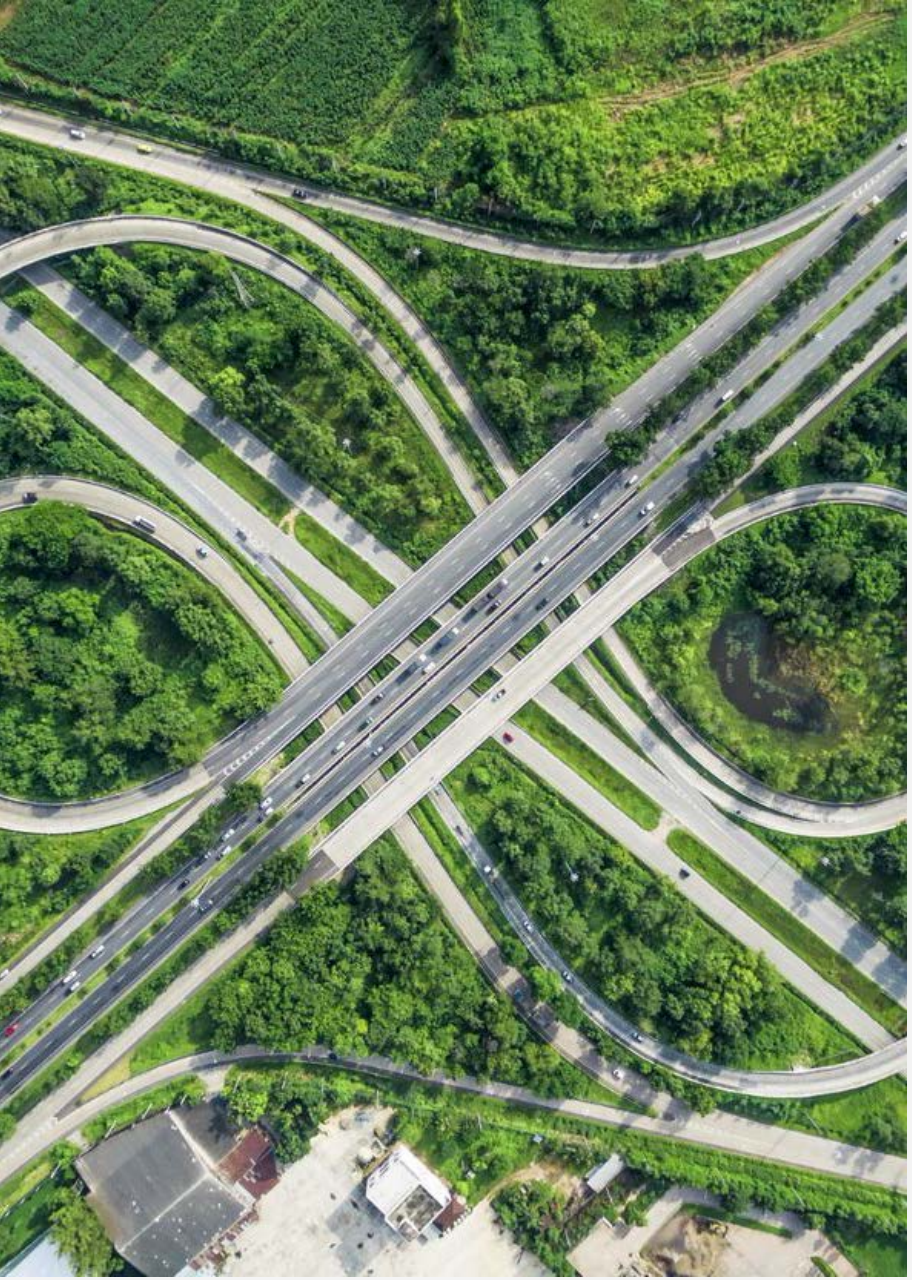
Guidehouse

Arkansas Highway Commission Review and Advisory Subcommittee Meeting

Recommendations Report Presentation

June 17, 2020

©2020 Guidehouse. All rights reserved. This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors.



Agenda

Executive Summary 2

Recommendations 8

Questions 28

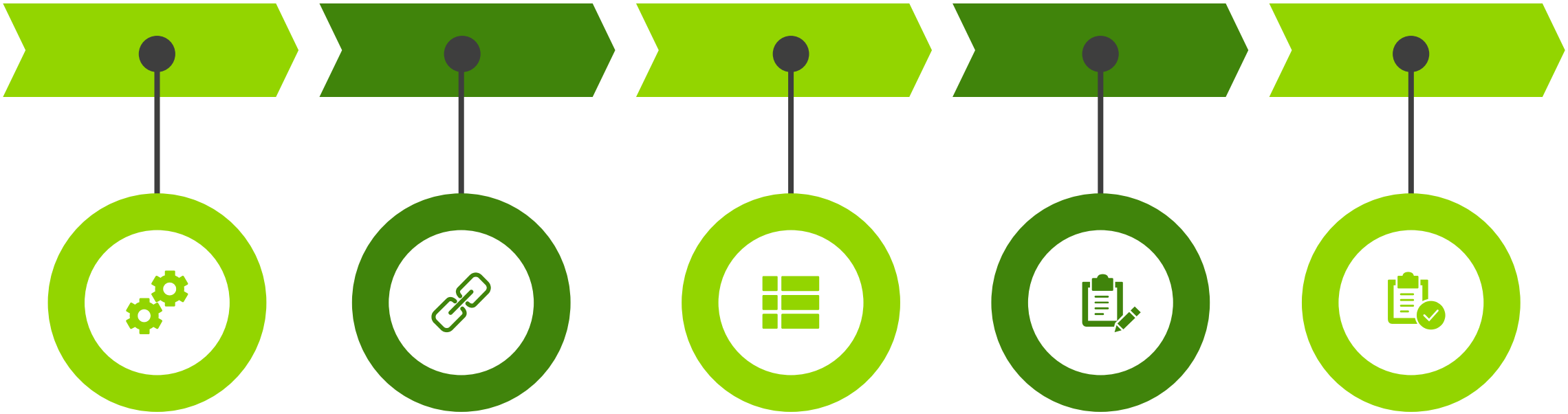
Appendix 29

Guidehouse

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

Executive Summary

Approach



FOCUS AREAS

Portfolio Planning
Procurement
Expenditures
Information Technology
Organizational Structure
People Capabilities

GROUNDWORK

Conducted 64 interviews during 4 site visits with 86 people, including: ArDOT staff across 4 branches, 18 divisions, 3 sections, and 4 districts, as well as FHWA staff and utility owners

ANALYSIS

Reviewed ~1,100 documents on policies and procedures, and analyzed data to assess performance in focus areas

REPORT

Current State Report with 23 key findings, summarized in a Current State Presentation (May 14, 2020) with 10 key takeaways

REPORT

Recommendations Report with 13 recommendations, summarized in a Recommendations Report Presentation (June 17, 2020)

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

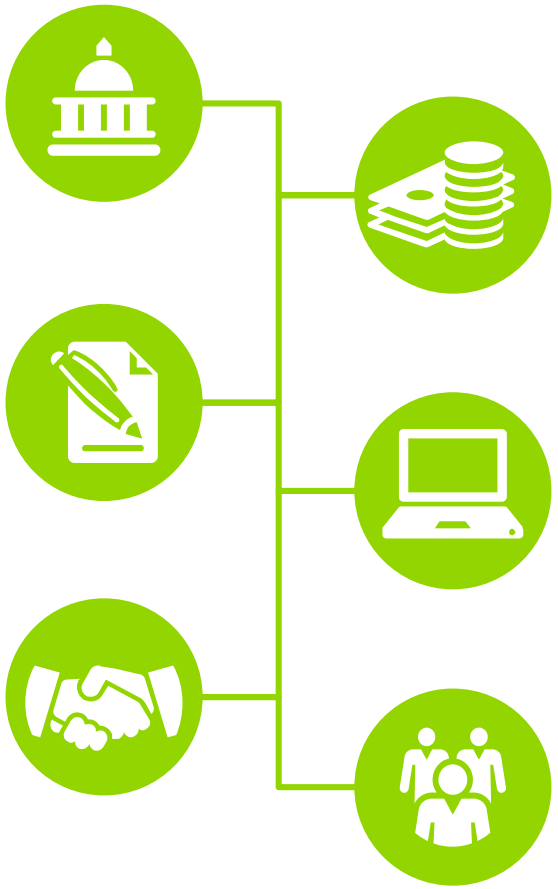
Current State

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



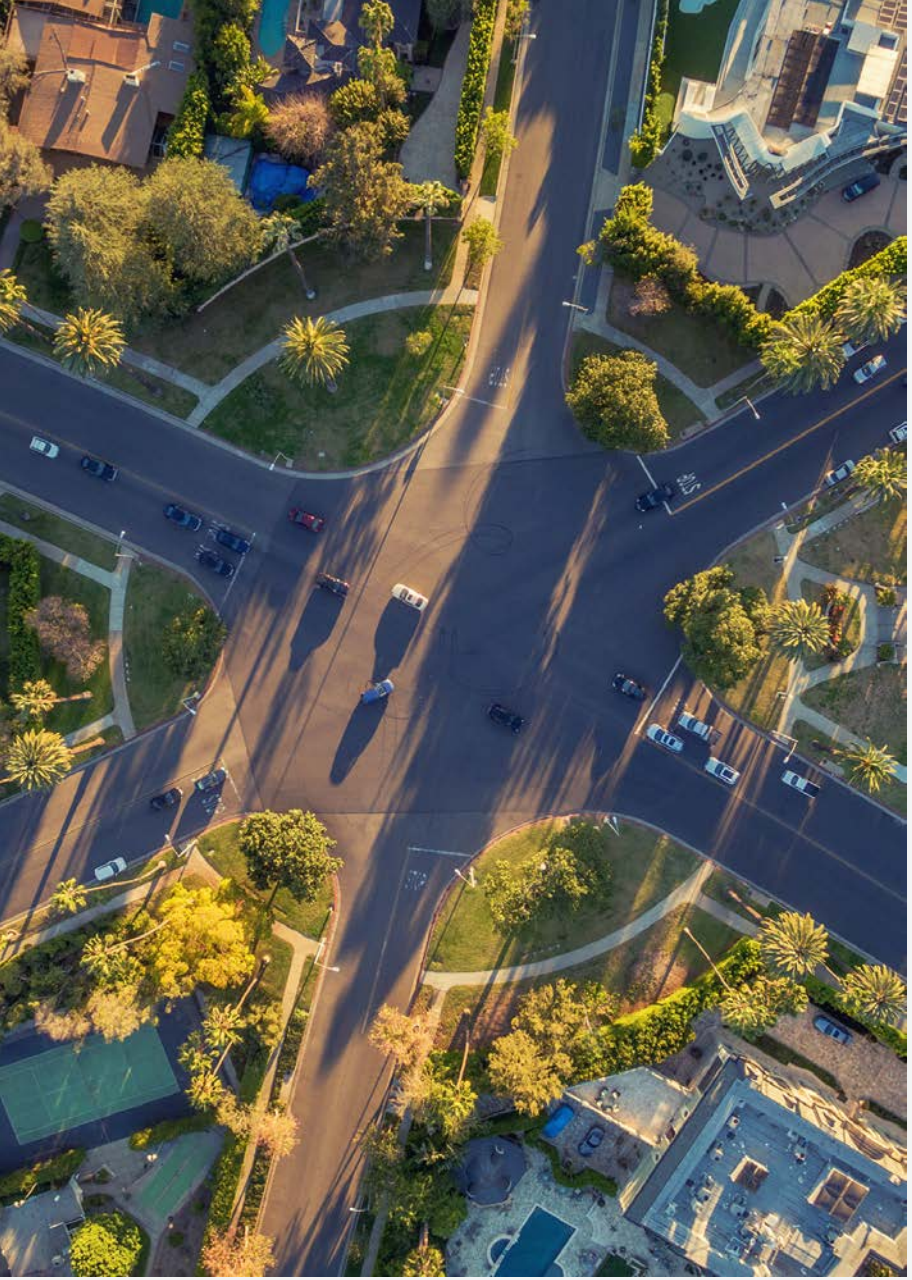
EXPENDITURES
Lack of project and portfolio management tools and protocols; Lack of documentation and analysis to refine approaches

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

Guidehouse

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.



Recommendations

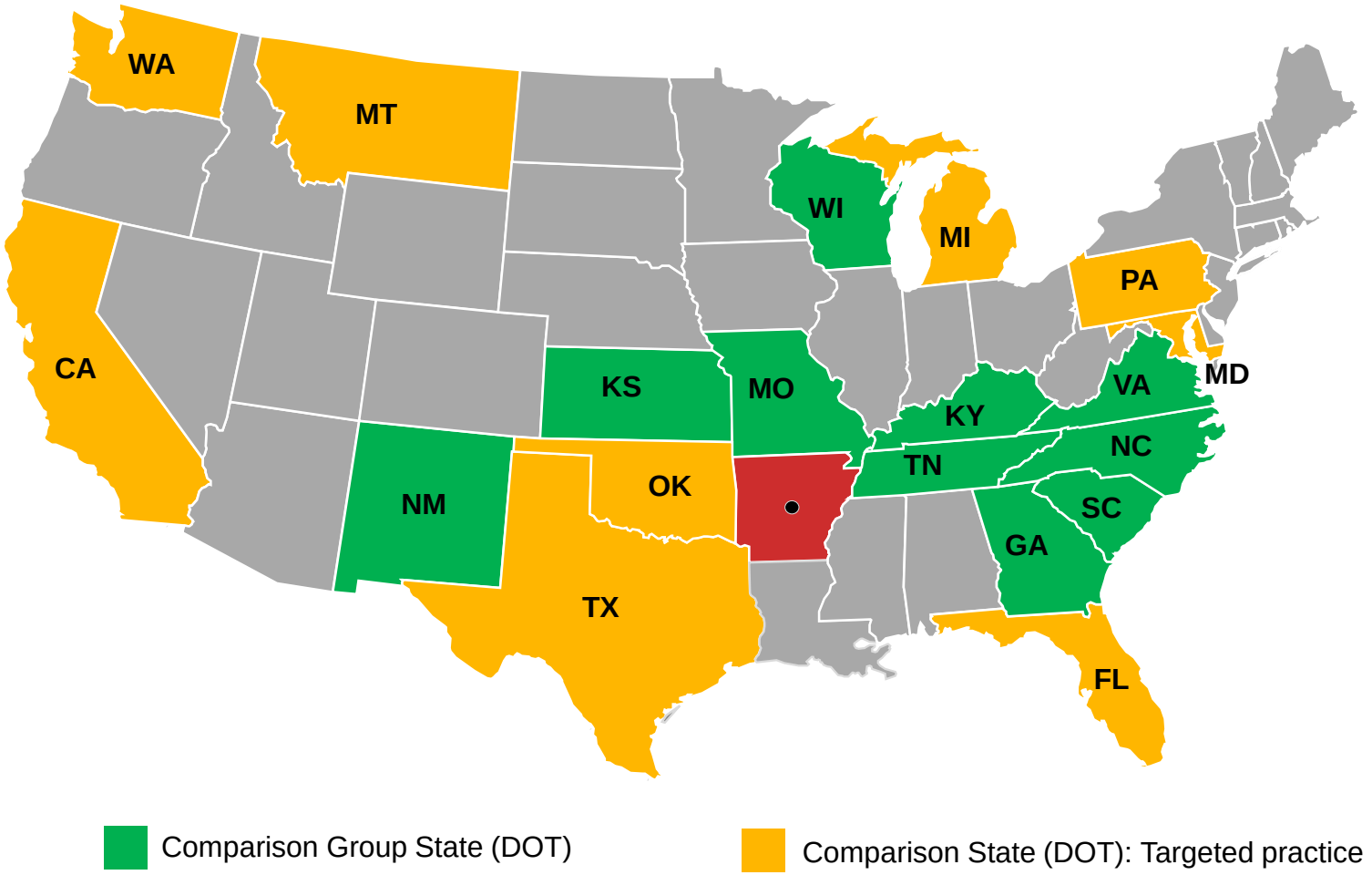
Evaluation Criteria

- Addresses current state opportunities and challenges
- 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

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

Leading Practices
Sources

- 10 Comparison Group State DOTs that realized robust Transportation specific performance, yet have similar or lower expenditures on a per lane mile basis
- Promising practices from targeted State DOTs
- Existing research commissioned or conducted by credible Transportation authorities such as the Federal Highway Administration (FHWA), or from leading industry authorities such as the Society for Human Resources Management (SHRM)



| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

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 to sustain efficient practices

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

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

Recommendations

Organizational Structure

Guidehouse

1. Finalize KPIs and implement performance management

ArDOT has mature KPIs primarily for system condition and preservation. Adopting leading performance management practices will allow ArDOT to expand, track and act on operational effectiveness KPIs.

Anticipated Impact

- ***Greater public transparency and accountability*** related to Department goals
- ***Assist the legislature*** in informed policy and ***budget decisions***
- Actionable insights into ***initiatives that can achieve increased operational effectiveness***

Considerations

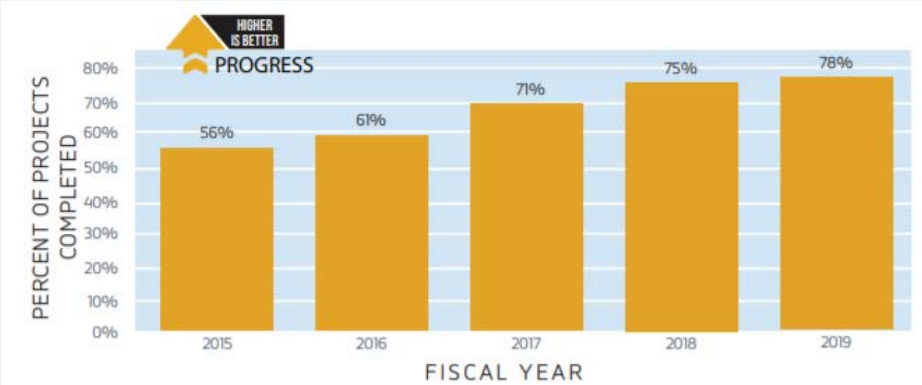
- ***Long term initiative*** that should be approached in phases
- ***Focus on Department improvement*** and enhancing ***collaboration***
- ***May require change management*** to usher in implementation

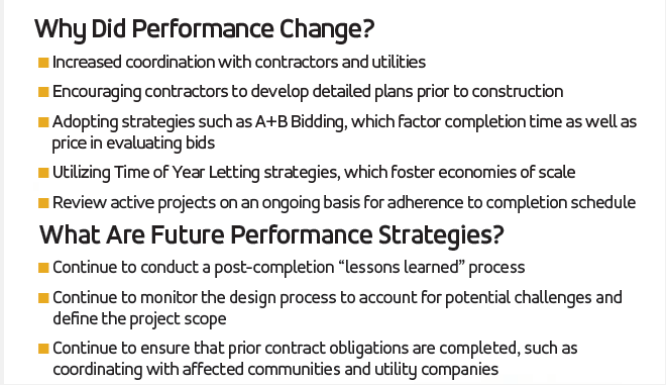
Implementation Summary

- ***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

Leading Practices

- ***FHWA offers a comprehensive TPM framework*** that links strategic planning, performance reporting, and continuous improvement.
- ***Nine of the 10*** comparison DOTs maintain a ***performance scorecard*** not exclusively tied to system condition
- Although not a comparison group DOT, Maryland DOT has one of the more mature reporting systems (see right).





Source: Maryland Department of Transportation

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

KPIs: Key Performance Indicators *TPM: Transportation Performance Management*

2. Strengthen knowledge management in anticipation of increased retirement

ArDOT's efforts to address knowledge management (KM) 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.

Anticipated Impact

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

Considerations

- ***New IT systems*** and software may be required
- Creating a comprehensive SOP inventory will help ***ArDOT prioritize efforts in what could be a significant undertaking***
- ***Leadership support*** and change management may be needed for ***lasting change***

Implementation Summary

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

Leading Practices

- A 2014 National Cooperative Highway Research Program (NCHRP) study reveals ***that key drivers*** for DOT knowledge management initiatives are ***minimizing knowledge loss due to staff turnover, and driving efficiency and innovation***.
- In addition to $1.4M in cost avoidance savings, VDOT realized a ***$500k Return on Investment*** by leveraging it's KM system to launch a Project Record Keeping System

KM Drivers

- ✓ Loss of most experienced staff
- ✓ Organizational efficiency and innovation
- ✓ Workforce desire for electronic learning
- ✓ Management of exponential increase in information

KM Value

- ✓ Resilient and effective structures to share knowledge
- ✓ "Intelligent" decision making
- ✓ Effective and innovative organizational policies and practices

Source: NCHRP

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

KM: Knowledge Management SOP: Standard Operating Procedures NCHRP: National Cooperative Highway Research Program

Portfolio Planning

Guidehouse

3. Publish status of construction projects and maintenance activities

ArDOT's existing communication of projects and maintenance activities is disjointed and difficult to navigate. Improving the communication structure can increase public visibility and accountability; enhance project delivery; and yield better data to inform planning and budgeting.

Anticipated Impact

- ***Improve public access to the prioritization and status*** of construction 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

- ***Existing platforms*** (e.g. iDRIVE AR and district office websites) and tools ***can be leveraged to rapidly enhance reporting*** of readily available project status data
- ***An enterprise level approach*** will be required ***to provide true real-time access to project status***

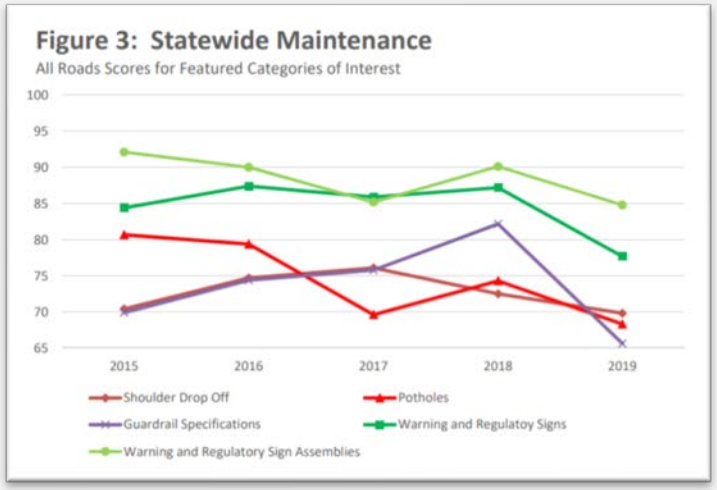
Implementation Summary

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

Leading Practices

- ***Seven of the 10*** comparison DOTs ***provide a view of future construction projects.***
- ***Nine of the 10*** comparison DOTs provide ***visibility into maintenance workplans/budgets***
- Virginia DOT provides a ***"one-stop"*** shop to ***locate projects and access status***
- Kentucky DOT publishes ***State-Level analyses of maintenance performance***

Source: Virginia Department of Transportation



Source: Kentucky Transportation Cabinet

The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

4. Implement a platform that tracks all stakeholder inquiries to resolution

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

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***
- ***Increase in staff engagement by up to 50%***

Considerations

- A ***Clear vision,*** and ***leadership buy-in*** will be critical at the outset
- ***Upfront Investment will be required*** for future ROI, especially as it relates to a technology solutions
- ***A Passionate*** Project Manager should be appointed
- In a phased approach ***"services" should be transitioned before divisions***

Implementation Summary

- 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***

Leading Practices

- Portland's and Philadelphia's 311 call-centers can serve as a ***model roadmap for a centralized customer service approach***
- Six DOTs ***measure customer service or responsiveness***
- Missouri DOT measures customer service on a quarterly and biennial basis to assess ***customer needs***, evaluate ***responsiveness,*** and ***improve customer experience***

Source: Missouri Department of Transportation

$4.25 - $5.10

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

Source: City of Portland

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

ROI: Return on Investment *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 including and beyond construction.

Anticipated Impact*

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

**See Appendix for calculation assumptions*

Considerations

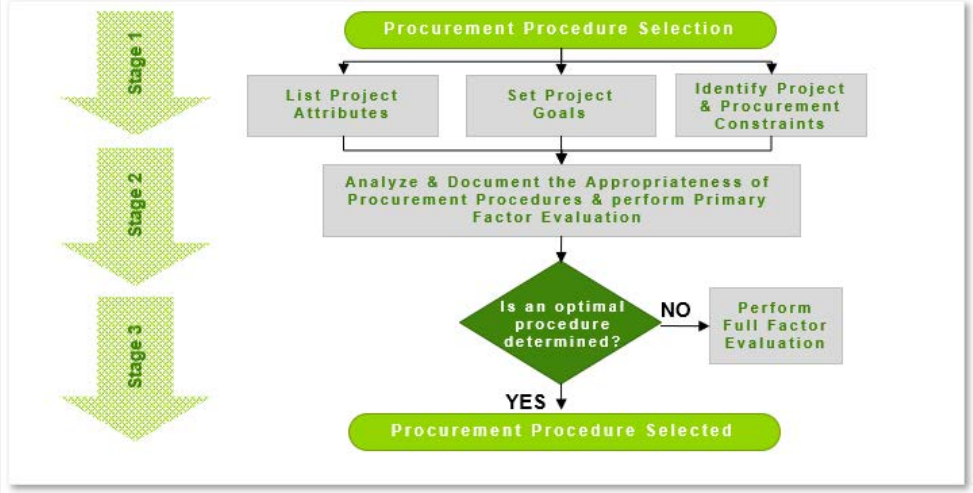
- ***IT systems,*** such as the ***new Oracle platform, will facilitate*** collection and tracking of data
- ***Staff capacity and expertise*** may need to be developed to conduct ***data analysis***
- ***ArDOT may need to re-align responsibility*** between districts and divisions, and shift culture from ***low bid to best value***

Implementation Summary

- Design and implement ***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 beyond Design- Build and CMGC
- ***Adopt policies and procedures at the district level***

Leading Practices

- Transportation Construction Management (a working group of DOTs, AASHTO, FHWA, and researchers) commissioned a guidebook (see right) for project delivery, and procurement. The provided frameworks and tools ***enable DOTs to select the optimal methods for projects based on desired outcomes, constraints, and other factors***
- A 2015 Institute for Public Procurement report indicates that State governments can ***save "5% to 20% of expenditures by improving procurement processes"***



Source: Transportation Construction Management

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

TxDOT: Texas DOT AASHTO: American Association of State Highway Transportation Officials FHWA: Federal Highway Administration

6. Implement construction contractor performance measurement

ArDOT lacks a comprehensive tool to screen for contractor quality during procurement. By implementing performance-based prequalification, ArDOT may improve project delivery; reward high-performing contractors; and encourage low-performers to improve.

Anticipated Impact

ArDOT may see similar improvements to those reported by implementing DOTs, such as, improved:

- ***Safety***
- ***Timely work completion***
- ***Contractor cooperation***

Considerations

- There may be ***differing impact on contractors of various sizes***
- Emphasis on a ***quantitative approach could minimize any appearance of subjectivity*** in scoring
- Contractors should have a ***clear path to raise or appeal their scores***
- In preventing contractors in L/D from bidding, ***a "precedent" exists***

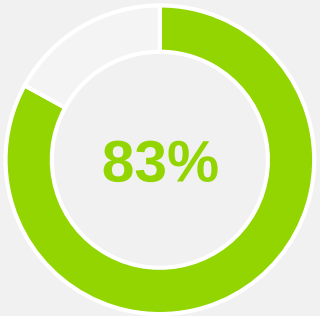
Implementation Summary

- ***Identify performance quality indicators*** (e.g. repeated disincentives, delays, etc..)
- ***Develop scoring system*** to quantify performance
- ***Track and monitor performance***, using indicators and costs
- ***Integrate into prequalification***

Leading Practices

- An FHWA-commissioned study ***provides a framework for a quantitative, performance-based prequalification system***.
- The framework ***evaluates contractors on administrative, performance, and project-specific*** (i.e., technical qualifications) ***factors***.
- Finally, the study report revealed that performance bonds provide "***no guarantee against a contractor's marginal quality of work***, so long as the contractor's failures are not large enough to trigger a default"

Percentage of surveyed DOTs (6) reporting improvement in work quality factor



Safety

Timely Work Completion

Contractor Cooperation

Source: FHWA and NCHRP

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

L/D: Liquidated Damages *FHWA: Federal Highway Administration*

Expenditures

Guidehouse

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 may allow ArDOT to more effectively budget, plan, execute, and communicate on its construction and maintenance projects.

Anticipated Impact*

- A more ***mature project management framework*** may allow ArDOT to realize ***~$3.82M in annual savings*** related to ***internal pre-construction and construction costs***

**See Appendix for calculation assumptions*

Considerations

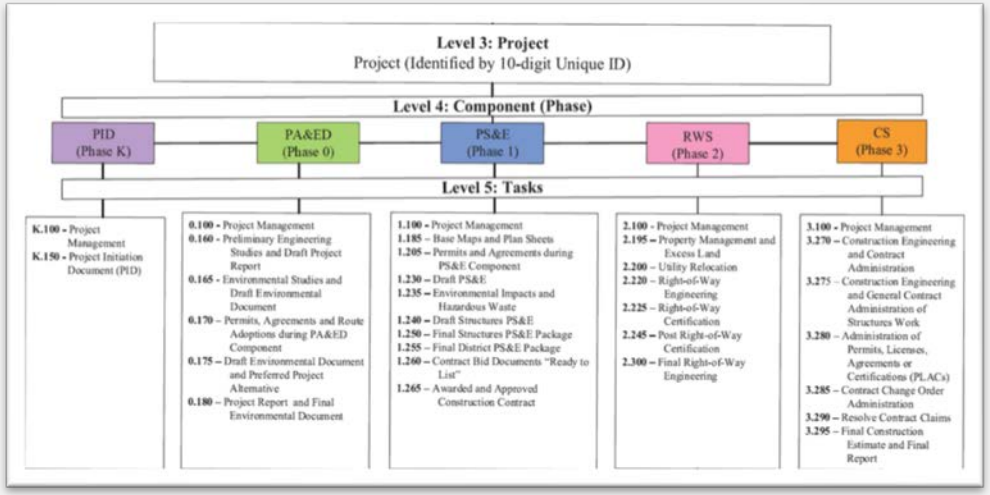
- Will require a ***Department-wide effort to unify disparate initiatives and assets*** and build out PPM framework
- Implementation of PPM/PMO ***will be perceived as overhead, but will yield long-term benefits***
- ***Change management and new IT applications*** may be required

Implementation Summary

- ***Catalog existing and in-flight PPM capabilities*** and identify baseline and target state (e.g. new MMS)
- ***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

Leading Practices

- ***Six of the 10*** comparison DOTs utilize ***project management frameworks*** or offer ***project management training***
- ***Seven DOTs*** implement a ***performance-based maintenance management system***
- ***Caltrans offers a mature project management framework*** that helps constrain project development and administration costs (see right)
- TxDOT's approach to PPM identifies the ***right portfolio of projects at the right time and allocates resources***



Source: CalTrans

GLOSSARY

MMS: Maintenance Management System PPM: Project Portfolio Management PMO: Project Management Office

8. Implement leading practices in construction project design

While ArDOT implements these leading project design practices, they lack formal frameworks to ensure their consistent use. By adopting such procedures, ArDOT may strengthen institutional knowledge, reduce project costs, and improve achievement of system targets.

Anticipated Impact*

- ***~$664K*** in cost savings per project by ***adopting formal framework for practical design***
- ***Between ~$1M and ~$15.8M*** in additional cost savings by bringing ***ArDOT up to national averages for Value Engineering (VE)*** studies

**See Appendix for calculation assumptions*

Considerations

- ***Not all projects are well suited to*** or would benefit from ***such approaches***
- This recommendation will not require creation of new technical practices but will require ***formalizing and expanding existing practices***

Implementation Summary

- ***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***

Leading Practices

- Nationally State DOTs average ***~3.3 VE studies per year with savings close to $22M***, far exceeding what ArDOT has been able to achieve through its VE program
- ***Several States*** have seen considerable ***cost savings*** through robust ***Practical Design protocols***. For example, WisDOT adopted a flexible design approach including a ***"least cost" methodology,*** creating performance measures, and shifting 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)

Source: Washington DOT

The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

VE: Value Engineering *WisDOT: Wisconsin Department of Transportation*

Information Technology

Guidehouse

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

ArDOT's IT investments have grown to $23M in FY2020 under unclear enterprise level guidance. Establishing a formal governance structure may enable the IT Division to better support business objectives, help optimize Department operations, and meet stakeholder needs.

Anticipated Impact

- ***Improved ArDOT performance on business outcomes*** such as system condition and operational effectiveness measures
- ***Strengthened*** enterprise level ***IT capability and performance***
- ***Reduced security and disaster-related risk***

Considerations

- Implementing IT Governance is an ongoing process and will require sustained ***Leadership support***
- ***IT should consistently track and communicate how it enables business performance*** and ***reduces risk***
- Enterprise ***goals should cascade to*** actual underlying ***IT processes to strengthen connection*** of business goals and IT efforts

Implementation Summary

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

Leading Practices

- ***Numerous resources*** are available to ArDOT to establish an effective ***IT Governance structure***
- Leading practice research reveals ***four key objectives for IT Governance:***
  - Only ***approve projects aligned*** with strategic objectives
  - ***Balance future investments and current operations***
  - ***Focus on Risk Management***
  - Hold ***IT accountable*** for ***ROI and service delivery***

90%

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

Source: ISACA

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

Source: McKinsey & Company

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

ROI: Return on Investment

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.

Anticipated Impact*

- Software ***application management*** can yield ***cost savings*** of up to ***~$1M***
- ***Increase*** already captured ***data management savings*** of ~$600K
- Improved data analytics may ***increase Department productivity***
- ***Open data access*** can ***unlock data value*** and private sector ***innovation***

**See Appendix for calculation assumptions*

Considerations

- ***Upfront investment*** should ***yield mid- to long-term savings***
- Implementation plan and change management can ***help overcome resistance*** and ***assist staff in shifting to a new model***
- ***Requires software application*** such as new ITSM Tool

Implementation Summary

- ***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

Leading Practices

- ***Application rationalization*** can yield up to ***20% cost savings*** in a 12-month period
- **"Top one third data driven"** *companies are* **5% more productive** *than their competitors*
- ***Data*** represents ***~25% of an organization's assets***
- ***Several DOTs*** such as Virginia (see right), New York, and Kentucky ***unlock the value of the data*** by providing ***open data portals***

Source: Virginia Department of Transportation

GLOSSARY

ITSM: IT Service Management

11. Develop necessary pillars to establish IT as an effective business partner

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 enhance IT service delivery and internal customer satisfaction; and reduce IT costs.

Anticipated Impact*

- ***Improved internal customer service***, and more ***efficient delivery of IT solutions***
- Reduction in IT service delivery costs of **up to ~26%**

Considerations

- ***Establish quick wins*** by creating a basic ***service catalog***, ***capturing IT demand***, and ***tracking requests***
- ***Include PM infrastructure*** in the long-term ***ITSM plan***
- ***Emphasize communication and training*** to ***mitigate resistance*** to change

Implementation Summary

- ***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

**See Appendix for calculation assumptions*

Leading Practices

- ***Numerous resources*** are available to ArDOT to establish an effective ***IT Service Management Plan and PM framework***
- Leading practice research reveals that**:**
  - ***Effective PM yields*** alignment between business and IT operations, ***project savings***, and ***fewer failed projects***
  - ***Robust ITSM implementation yields cost savings***, increased ***productivity***, and ***faster response times*** to customers

42%

Surveyed executives who agree that ITSM has reduced business costs

Source: Forbes

26% vs. 6%

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

Source: PM Solutions

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

GLOSSARY

ITSM: IT Service Management PM: Project Management

People Capabilities

12. Ensure staff can develop in their careers at ArDOT

Approximately half of ArDOT staff definitively agree that they can advance their careers there, and turnover is rising. By developing career ladders and lattices, ArDOT may increase retention, reduce turnover-related costs, strengthen its talent pipeline, and improve morale.

Anticipated Impact*

- For ArDOT, improved retention could ***increase cost avoidance*** per year by **~$5M**
- ***Adopting leading 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%**

**See Appendix for calculation assumptions*

Considerations

- ***Consider career lattices*** when traditional career ladders are inaccessible
- ***Align career development*** activities with ***training and knowledge management***

Implementation Summary

- ***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***

Leading Practices

- ***Workforce development interventions are tailored*** to the skills, culture, and goals of the implementing organization.
- ArDOT can consider ***strategies used by other DOTs to strengthen growth opportunities for employees*** (see right).

State DOT	Intervention
Oklahoma	• Commissioned compensation study of all DOT roles • Implemented pay raises averaging 7% • Turnover fell from 12% to 11% in first year
Texas	• 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	• Implemented career ladders in: engineering, construction contracting, info services, maintenance, motor carrier services, and safety & health

The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

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 may be able to take on greater responsibility within the Department.

Anticipated Impact

By implementing "opportunities to learn and grow" ArDOT may increase:

- ***Job satisfaction and retention***
- Staff ***confidence and motivation***
- Staff ***ability*** and interest in ***taking on more work and assuming greater responsibility***

Considerations

- Consider ***updating training*** over time to account for ***changes in programs and equipment***
- ***Provide training at all levels above entry-level roles***: senior level employees can benefit as well
- ***Prioritize training*** to areas that will deliver the ***greatest impact***

Implementation Summary

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

Leading Practices

- 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
- ***Pennsylvania DOT*** 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 (see right)

SUGGESTED CURRICULUM FOR DISTRICT BRIDGE INSPECTION MANAGER/SUPERVISOR

Phase One	Phase Two
Alkali-Silica Reactivity Workshop-Lithium Impact	Advanced Section 4(f)
APRAS	Context Sensitive Solutions Training
Basic Bridge Safety Inspection Course	Environmental Permit Requirements for Maintenance/Inspection Around Streams: The Dos and Don'ts
BMS	Fundamentals of Project Management With Open Plan
Bridge Scour Evaluation	LRFD for Highway Bridge Substructures
Business Writing	
Crystal Reports for BMS Users	
Design and Operation of Work Zone Traffic Control	

Source: Pennsylvania Department of Transportation

| The recommendations and findings included in the presentation are a point in time representation and are subject to change. Also, Anticipated Impacts are estimates, directional in nature. Please see the assumptions slide in the appendix for further details.

Questions?

Guidehouse

Appendix

Guidehouse

Recommendation 5 - Anticipated Impact Assumptions

1

~$1.4M (3.5%) in direct project savings by adopting TxDOT's 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 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)

Guidehouse

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

Recommendation 7 - 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 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

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

Guidehouse

** 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*

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

Recommendation 8 - Anticipated Impact Assumptions

1

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

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 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)

Guidehouse

GLOSSARY

MoDOT: Missouri DOT VE: Value Engineering

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

Recommendation 10 - Anticipated Impact Assumptions

1

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

A 2009 Oracle Report 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. 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

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

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

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

~5.0% increase in likelihood staff are retained to seek promotion at ArDOT rather than at competitor, by adopting HBR's 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

Assumptions

1. The recommendations included in the presentation and in the corresponding Recommendations Report are based on a point in time Current State Report delivered to the Highway Commission and Advisory Subcommittee on March 13, 2020. This Current State Report was based on interviews conducted with the Arkansas Department of Transportation (ArDOT) staff members and various external stakeholders and a review of documents ArDOT provided to Guidehouse from September 2019 – February 2020. Recommendations and Findings are subject to change based on mitigating documentation and clarifications provided by ArDOT subsequent to the publication of this report.
2. The Anticipated Impacts identified within this presentation and the corresponding Recommendations Report are estimates, directional in nature, and represent the upper end of the savings range