

Appendix



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)

Recommendation 7 - Anticipated Impact Assumptions



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 \times 10\% = \sim\3.82M

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)

Recommendation 10 - Anticipated Impact Assumptions



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:

- $20\% * \$5.3M = \$1.06M$

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



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