INTERNAL AUDIT REPORT

2021

Efficiency Assessment

SCDOT Procurement of Professional Services

SOUTH CAROLINA OFFICE OF THE STATE AUDITOR

INTERNAL AUDIT SERVICES

March 30, 2021

1 EXECUTIVE SUMMARY

SCDOT Procurement of Professional Services Efficiency Assessment

OBJECTIVE:

SCDOT's objective is to execute professional services contracts so work can be completed as planned for SCDOT's bridges and roadways, while complying with applicable laws, regulations, and internal policies.

Our objectives were to:

- Identify changes made by management to the processes for selection and negotiation of professional services contracts, and
- Evaluate the efficiency of those processes after the changes were implemented.

BACKGROUND:

- Professional Services Contracting Office (Professional Services) provides guidance in acquisition of architectural and engineering (A&E) and other professional services that support the construction, maintenance and repair of bridges, highways and roads.

- In the fall of 2018, SCDOT management requested that we conduct an engagement to evaluate the efficiency of professional services procurement processes.

- We began evaluating efficiency data from 2018 while Professional Services implemented a procurement module to its P2S project software. We paused the engagement to allow management to implement these changes. After resuming the engagement in 2020, we used our 2018 analysis as a baseline to evaluate how the changes affected process efficiency.

CONCLUSION:

In our opinion, based on the assessment performed, improvements made by Professional Services for fiscal years 2019-2021 as compared to the baseline of fiscal years 2016-2018 resulted in nominal to significant efficiency gains:

- Selection Process – Significant Efficiency Gains
- Project-Specific Contract Negotiation Process – Nominal Efficiency Gains
- On-Call Contract Negotiation Process – Significant Efficiency Gains

In order to sustain success, it is important that Professional Services have visibility to key indicators to track changes in process performance. Professional Services has developed a spreadsheet to monitor the mean and median of process time and regularly reviews the data to ensure sustained efficiency.

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2 FOREWORD

AUTHORIZATION

The South Carolina Office of the State Auditor established the Internal Audit Services division (IAS) pursuant to SC Code Section 57-1-360 as revised by Act 275 of the 2016 legislative session. IAS is an independent, objective assurance and consulting function designed to add value and improve the operations of the South Carolina Department of Transportation (SCDOT). IAS helps SCDOT to achieve its objectives by bringing a systematic, disciplined approach to evaluating the effectiveness of risk management, internal control, and governance processes and by advising on best practices.

STATEMENT OF INDEPENDENCE

To ensure independence, IAS reports administratively and functionally to the State Auditor while working collaboratively with SCDOT leadership in developing an audit plan that appropriately aligns with SCDOT's mission and business objectives and reflects business risks and other priorities.

REPORT DISTRIBUTION

This report is intended for the information and use of the SCDOT Commission, SCDOT leadership, the Chairman of the Senate Transportation Committee, the Chairman of the Senate Finance Committee, the Chairman of the House of Representatives Education and Public Works Committee, and the Chairman of the House of Representatives Ways and Means Committee. However, this report is a matter of public record and its distribution is not limited.

PERFORMED BY

Amanda Newell, Senior Manager
Specializing in Efficiency Assessment

Justina Heath, Manager
Specializing in Assurance Services

REVIEWED BY

Wayne Sams, CPA
Director of Internal Audit Services

ACKNOWLEDGEMENT

We wish to thank members of management and staff in the Professional Services Contracting Office for their cooperation in sharing their knowledge and experience and implementing measures to improve efficiency.

3 INTERNAL AUDITOR'S REPORT

March 30, 2021

Ms. Christy A. Hall, Secretary of Transportation
and
Members of the Commission
South Carolina Department of Transportation
Columbia, South Carolina

We have completed an efficiency assessment of the South Carolina Department of Transportation's (SCDOT's) Procurement of Professional Services Activity. The objective of this assessment was to analyze processes for potential inefficiency that may impact the acquisition and provision of professional services necessary to achieve the Agency's strategic goals and performance targets.

We planned and performed the engagement with due professional care in order to obtain sufficient, appropriate evidence to provide a reasonable basis for our conclusions. We have no observations or recommendations stemming from our engagement.

George L. Kennedy, III, CPA
State Auditor

803-253-4160 803-343-0723 OSA.SC.GOV

4 ENGAGEMENT OVERVIEW

4.1 BACKGROUND

According to the South Carolina Revenue and Fiscal Affairs Office, the population of South Carolina (SC) has grown by 25% since 1990. Booming population in SC city centers has rendered many roads and bridges operating past capacity causing congestion and gridlock during peak travel times. With the 2017 passage of the SC gas tax bill, it is estimated that, by the year 2022, an additional $600 million will be generated annually. These funds will be used for upgrades to the existing transportation system.

Professional Services Contracting Office (Professional Services) provides guidance in acquisition of architectural and engineering (A&E) and other professional services that support the construction, maintenance and repair of bridges, highways and roads. The contracts established by Professional Services are often critical for getting work completed as planned. When this engagement was initiated, there was a perception that the process for awarding professional services contracts was unnecessarily lengthy and cumbersome. Professional Services' ability to award and execute contracts was bogged down by staff shortages and management changes.

In the fall of 2018, SCDOT management requested that we conduct an engagement to evaluate the efficiency of professional services procurement processes.

Prior to 2019, Professional Services had two access databases that housed information regarding selection and negotiation of contracts. These databases collected a great deal of information about the procurement of professional services but they were disconnected from each other and other information sources. At least a year prior to this engagement, management had been working with PMG, the P2S software developer, to add a professional services contract module onto SCDOT's existing P2S system. This new module connected professional services procurement data with other information sources across SCDOT.

We began evaluating efficiency data from 2018 while the P2S module pilot and switchover to the new system was unfolding in 2019. This was the first of several significant changes being planned to roll out over the next two years. We paused the engagement to allow management to implement these changes. After resuming the engagement in 2020, we used our 2018 analysis as a baseline to evaluate how the changes affected process efficiency.

4.2 OBJECTIVES

SCDOT's objective is to execute professional services contracts so work can be completed as planned for SCDOT's bridges and roadways, while complying with applicable laws, regulations, and internal policies.

Our objectives were to:

- Identify changes made by management to the processes for selection and negotiation of professional services contracts, and
- Evaluate the efficiency of those processes after the changes were implemented.

4.3 SCOPE

This assessment includes:

- Comparison of baseline performance data from November 2018 to performance data from November 2020 to measure and analyze the impact of implemented changes.
- Analysis of factors that contributed to changes in performance data in this period.

Key processes assessed during this engagement include:

1. **Selection**

   Professional Services facilitates the contract selection process when SCDOT identifies a need to acquire A&E and other professional services that support the construction, maintenance and repair of bridges, highways and roads. Selection includes the following steps:

   - Approve request for new contract for advertisement
   - Advertise Request for Proposal (RFP) posted in South Carolina Business Opportunities (SCBO) database
   - Receive, review and identify proposals that meet criteria
   - Assemble selection committee to evaluate proposals
   - Score proposals based on RFP criteria
   - Determine winner and request approval for selection
   - Receive approval for contract award
   - Send award letters to firms
   - Notify negotiators of contract award

   Selection of professional services contracts are determined based on the submitted plan that best meets the criteria identified in the advertised RFP. Once a proposal is selected, it moves to the Negotiation process.

2. Negotiation

The scope and budget must be negotiated between Professional Services negotiators and the selected firm. Professional services contracts are finalized, signed, and executed only after the negotiation process is completed. Negotiation includes the following steps:

- Define scope with SCDOT team
- Discuss, negotiate and finalize scope with awarded firm
- Conduct internal estimate
- Request estimate from awarded firm
- Compare internal and awarded firm estimates to identify variances
- Evaluate variances of 10% or more
- Determine if estimate is fair and reasonable
- Negotiate as needed to come to agreement on estimate
- Request approval for negotiation package
- Receive negotiation approval
- Send approved negotiation package to firm for approval
- Receive signed approval from firm
- Enter contract information into SCDOT databases

Once these steps are completed, the firm can begin billing SCDOT for work completed on the professional services contract.

4.4 CONCLUSION

In our opinion, based on the assessment performed, improvements made by Professional Services for fiscal years 2019-2021 as compared to the baseline of fiscal years 2016-2018 resulted in nominal to significant efficiency gains:

- Selection process – significant efficiency gains
- Project-Specific Contract Negotiation process – nominal efficiency gains
- On-Call Contract Negotiation process – significant efficiency gains

We applaud the success of Professional Services' efforts to improve process efficiency. Trends in the data indicated to us that process efficiency would continue to improve over time as staff become more comfortable with the changes and additional planned enhancements are implemented. In order to sustain success, it is important that Professional Services have visibility to key indicators to track changes in process performance. Professional Services has developed a spreadsheet to monitor the mean and median of process time and regularly reviews the data to ensure sustained efficiency. We have no observations or recommendations stemming from our assessment.

5 ANALYSIS

5.1 APPROACH

We collected contract performance data from 2018. Subsequently, Professional Services initiated the following changes between April 2019 and June 2020 to improve process efficiency.

- Implemented the P2S Professional Services Contract Module to provide transparency in the selection and negotiation process
- Established clear expectations of timelines for completion
- Instituted monitoring and accountability
- Streamlined selection tools
- Developed a reference database
- Implemented a two-tiered selection process

We compared 2018 baseline performance data with data collected after the above changes were fully implemented to measure the impact of those changes.

Professional Services rolled out the P2S Professional Services Contract Module in early 2019 and migrated the data from the existing two access databases into P2S. The system was tested for several months to assure that the bugs were worked out before going live in April 2019.

5.2 ANALYSES

The data used in this engagement is a sample of completed selections and negotiations from fiscal years 2016-2018 and 2019-2021. We excluded data that was incomplete or had obvious errors, and extreme outliers to allow for analysis that would produce conclusive results. We noted that project-specific negotiations are more complex and are expected to take longer than on-call negotiations so we compared those processes separately.

Selection Process

Figure 1

Selection Descriptive Statistic	FY2016-2018	FY2019-2021	% Change
Mean (Average)	100	61	-39%
Median	94	58	-38%
Standard Deviation	28	49	+71%
Completed Selections	62	85	+37%

We noted a marked reduction in the average and median number of days to select and award professional services contracts from data gathered from November 2018 to November 2020. *Figure 1* shows selections have increased in quantity by 37% and are taking an average of 39% less time to complete than in the previous timeframe. The median number of days has reduced

by 38%. The improved central tendency and data distribution indicates that more selections are being completed significantly faster than in the previous timeframe.

Figure 2

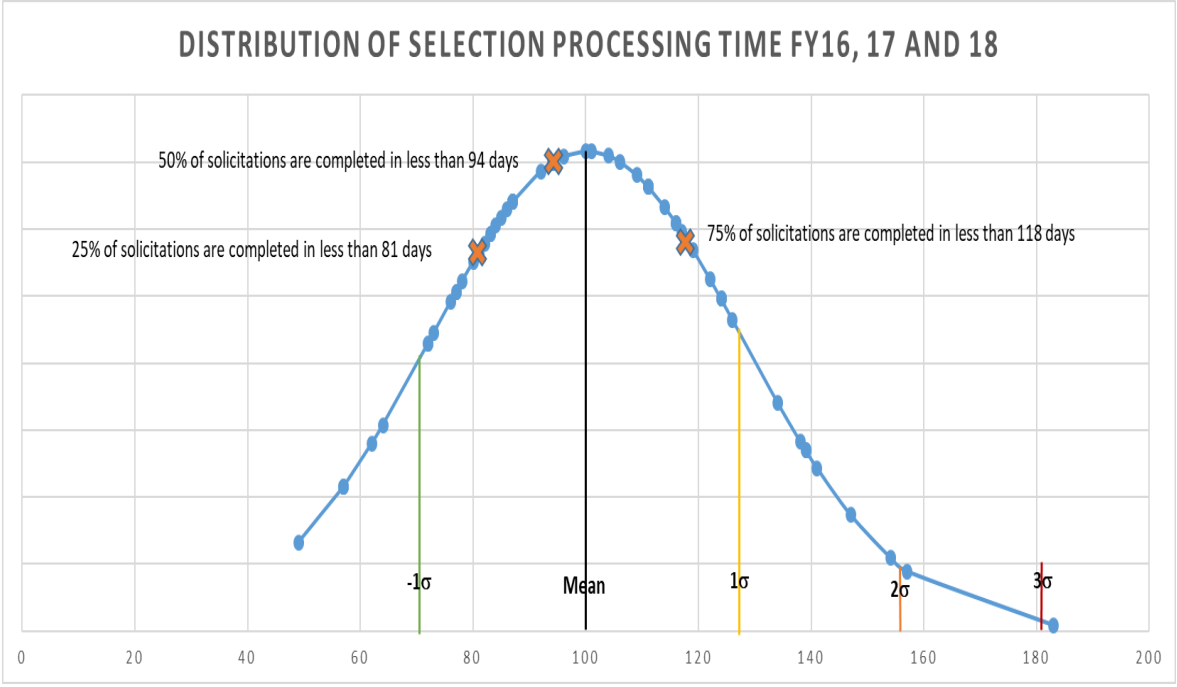
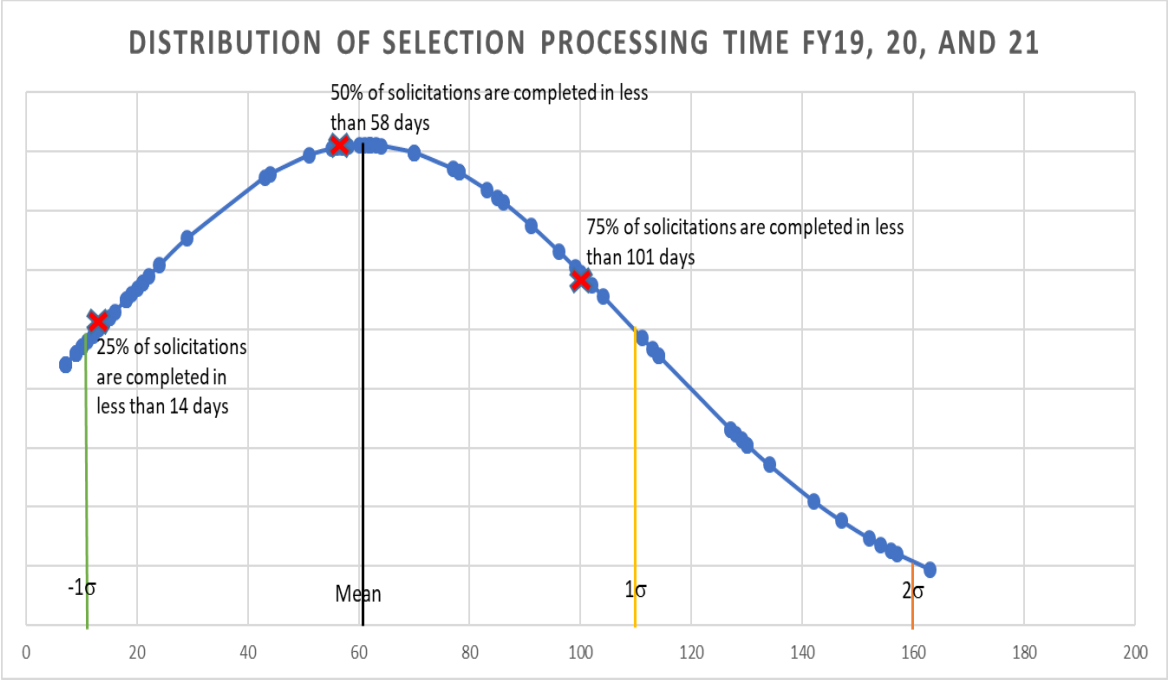


Figure 3



A comparison of *Figures 2* and *3* show the bell curve has shifted significantly to the left beyond the realm of normal variations in the process.

The standard deviation increased as compared to the baseline. Given the reduced quartile distribution, (notated with red x's on the bell curve in *Figures 2* and *3*) this appears to be a result of employees learning how to handle anomalies and adjusting to significant changes in the selection process over the past two years. We expect the standard deviation will decrease and normalize over time as employees continue to adapt to the changed processes.

Project-Specific Contract Negotiation Process

Figure 4

Project Specific Descriptive Statistic	FY2016-2018	FY2019-2021	% Change
Mean	197	186	-4%
Median	173	185	+8%
Standard Deviation	120	99	-18%
Executed Contracts	56	24	-67%

Figure 4 shows that negotiations are taking an average of 4% less time to complete and the standard deviation has decreased by 18%. This indicates that the number of days to complete a negotiation is both lower and more consistent than in the previous timeframe. *Figure 4* also shows that the number of completed negotiations in the current timeframe has decreased by 56%. At the time of this analysis, there were 36 additional negotiations in progress, putting professional services on target to complete 60 negotiations in the current timeframe. When these additional 36 negotiations are completed this will be an 11% increase in the number of negotiations initiated and processed in this timeframe.

Figure 5

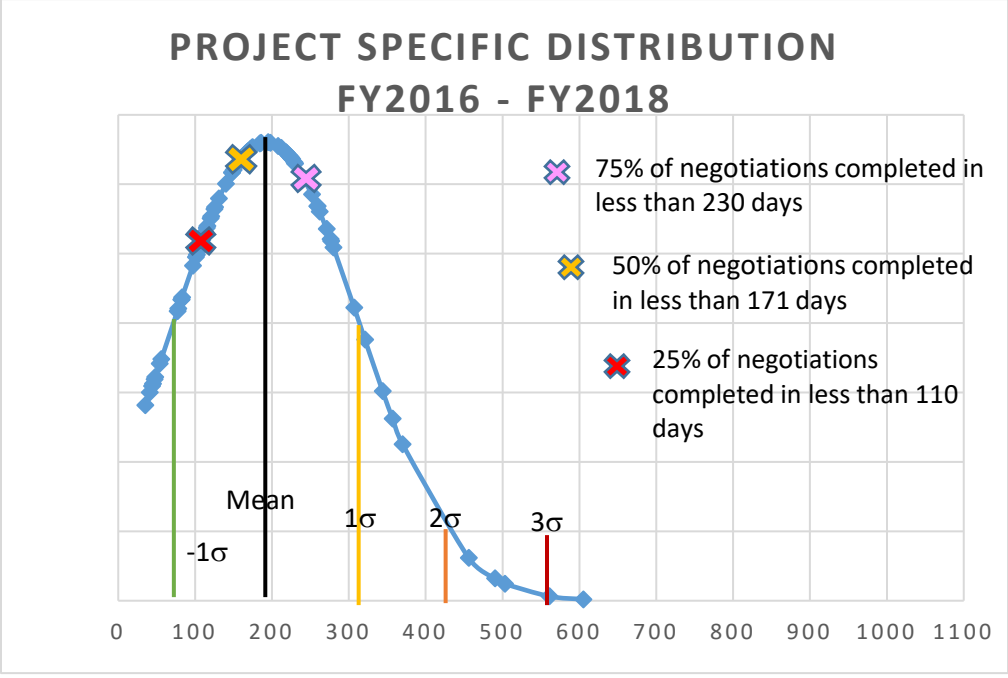
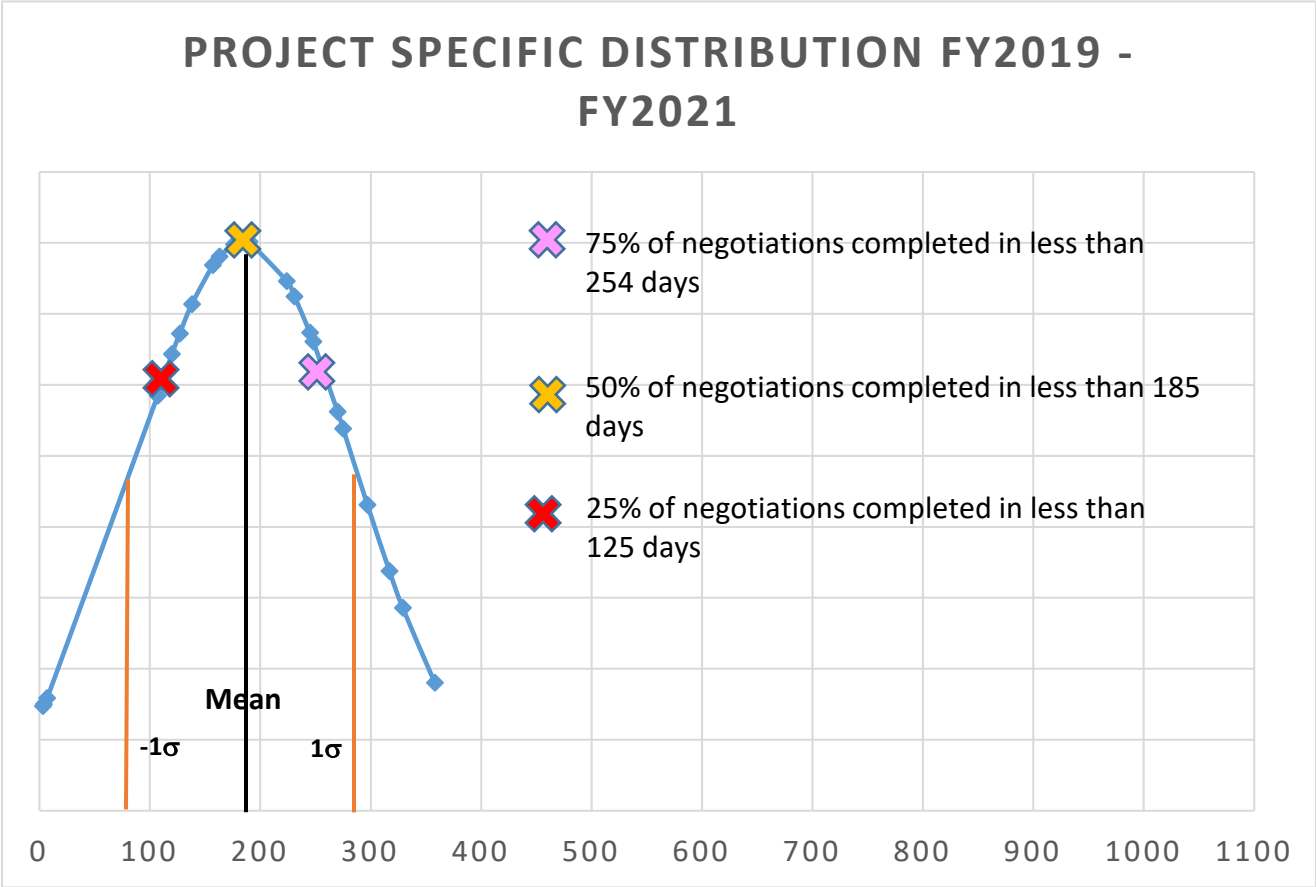


Figure 6



A comparison of *Figures 5* and *6* shows the bell curve's greatly reduced range and a slight shift to the left. We observed that in 2020, negotiation of a project-specific contract took a maximum of about 350 days while in 2018 this same activity took a maximum of about 600 days. The range in the baseline period was reduced by 37% since 2018. Based on the trends we observed in the data, the shift in performance appears to result from process improvements rather than from normal variations.

On-Call Contract Negotiation Process

Figure 7

Descriptive Statistic	FY2016-2018	FY2019-2021	% Change
Mean	109	31	-72%
Median	57	8	-86%

Standard Deviation	131	43	-67%
Executed Contracts	301	145	-52%

Figure 7 shows that the average number of days to execute an on-call contract negotiation decreased by 72% from the previous period and the Median decreased by 86%. In addition, the standard deviation has decreased by 52%.

We noted that on-call negotiations have decreased in quantity since 2018. The decrease in quantity may be attributed to contracts in FY2019-2021 still being negotiated and an increase in standardization of on-call contracts. Thus, the data may shift as more negotiations are completed and fewer on-call negotiations are necessary because they have already been established. The quantity of on-call negotiations has decreased which may partially account for faster processing but does not fully account for the observed improvement.

Figure 8

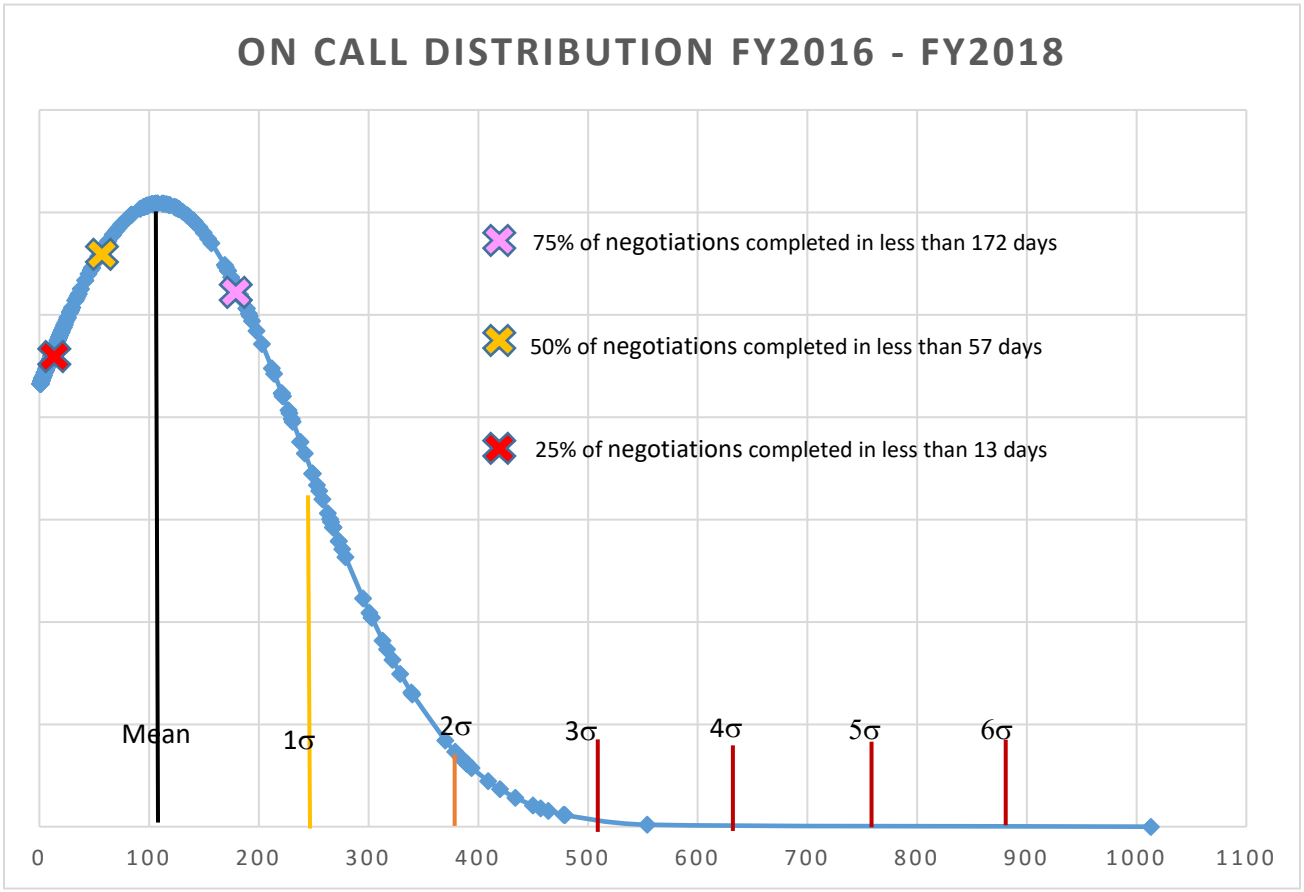
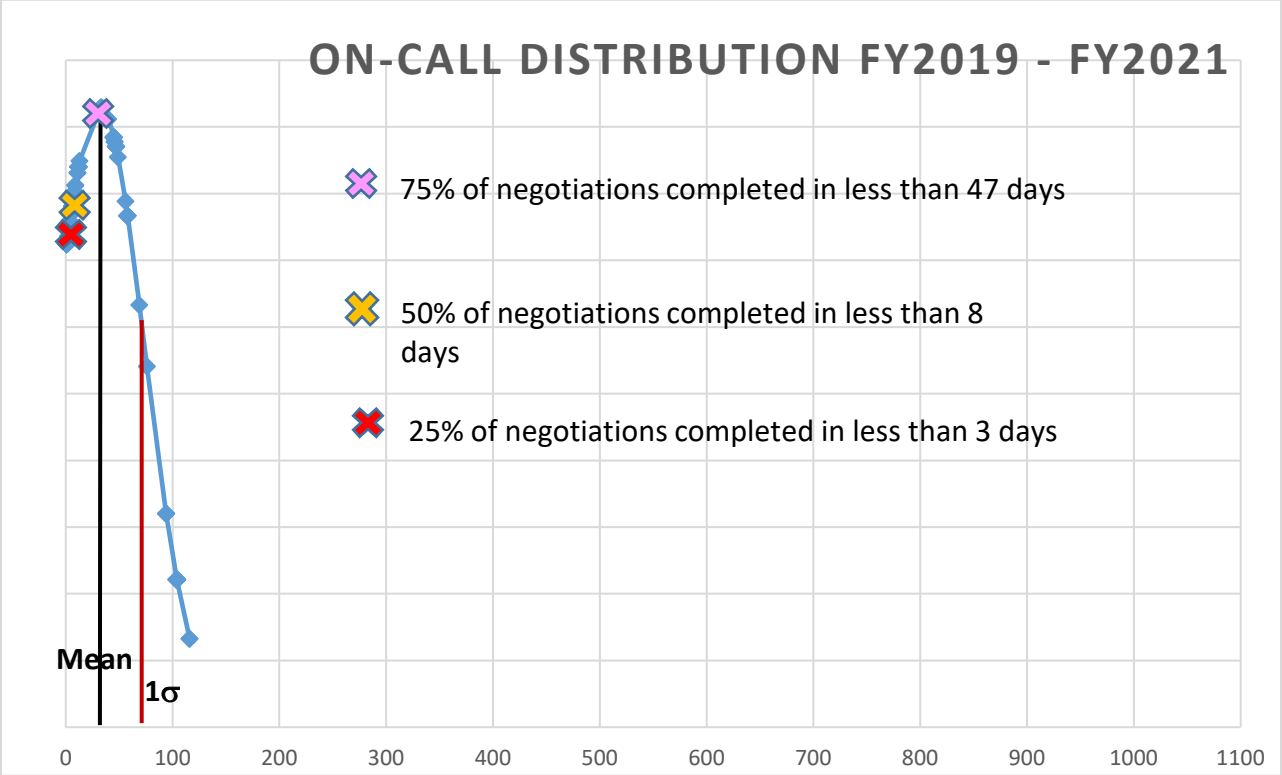


Figure 9



We compared fiscal years 2016-2018 (*Figure 8*) with fiscal years 2019-2021 (*Figure 9*) and noted the bell curve in *Figure 9* shows a greatly reduced range and a large shift to the left that is beyond the realm of normal variations. *Figure 9* shows that 75% of on-call negotiations were completed in 47 days or less while this same activity took 172 days in the baseline period (*Figure 8*). This is a 73% reduction in third quartile data distribution from the previous timeframe and is a strong indicator that the changes we observed are due to process improvements.

5.3 PLANNED IMPROVEMENTS

Professional Services has implemented the following additional improvements stemming from the internal audit report Procurement of Professional Services dated September 21, 2020:

- Development of training for all staff who participate in the professional services procurement process
- Policy requiring all staff involved in the professional services procurement process to complete training
- Update to the Professional Services policy manual

The implementation of these improvements occurred subsequent to our fieldwork; thus, we did not include them in our assessment. However, we expect these improvements will strengthen process efficiency. The policy manual and training on professional services should help employees participating in the professional services contract process have up-to-date information on the process, and provide them with a full description of their responsibilities as a participant in the selection and negotiation of professional services contracts.

5.4 SUCCESS FACTORS

We determined that the Professional Services process improvements stem from SCDOT's commitment to continuous improvement. We noted several factors implemented by Professional Services that likely contributed to the improvements in selection, project-specific contract negotiation, and on-call contract negotiation processes. These include:

- Lower turnover of Professional Services management and staff
- Access to communication technology such as MS Teams, Webex and Zoom that enabled more efficient collaboration with internal and external parties especially necessary during the COVID-19 work-from-home order for the period April 2020 through August 2020
- Clear expectations of timelines and target dates for procurement completion
- Two-tier selection process - reduces likelihood of a biased committee selecting a favored firm by redistributing and streamlining decision-making authority.
- P2S Professional Services Contract Module with the following transparency and tracking features:
    - Electronic record of the process
    - Status updates available in real time
    - Organized and standardized electronic records of the process
- Monitoring and accountability activities:
    - Ongoing supervisor monitoring of performance (generally reviewing monthly at a minimum)
    - Reviewing P2S status reports
    - Following up on any procurements that are outside of the target range.

In addition to the above, the following changes, implemented since 2018, also likely attributed to the selection process' efficiency improvement:

- Schedule compression techniques including scheduling meetings when the selection is advertised to assure that the committee's selection is not delayed

- Streamlined selection tool (Project Wise software forms for selection) in which information is entered directly into score sheets that score automatically. This results in:
    - Reduced time required to transcribe and calculate scores
    - Decreased possibility of human error
    - Less time to process the committee's selection
- Streamlined process for the reference database that:
    - Automatically sends references
    - Keeps records of previous references
    - Reduces the time required to obtain references