



AUDIT OF CAPITAL PROJECTS ADMINISTRATION

Planning & Design

ABSTRACT

Inconsistencies in planning and review processes have resulted in project delays in the past. These issues appear to be generally improving; however, documentation is limited. Developing, formalizing, and implementing additional processes could facilitate consistent management practices across capital projects in the future.

City Auditor's Office



Table of Contents

Executive Summary	3
Introduction	6
Management Responsibility	6
Audit Objectives, Scope, and Methodology.....	6
Background	7
What Works Well	11
Funding of New Projects Appear to Have Been Better Planned.....	11
Debt Capacity Evaluation is Adequate	12
All Design Amendments were Appropriately Approved	13
Opportunities for Improvement	14
Project Planning Inconsistencies May Have Resulted in Additional Costs	14
Design Quality Review and Assurance Processes Should Be Further Refined.....	17
Project Performance Monitoring & Evaluation Processes Can Be Further Improved	19
Current CIP Design Procurement Method May Present Risks	20
Appendix A: Management Response Summary	23
Appendix B: Comparison of Debt Burden	25
Appendix C: Design Agreement Timeline & Summary	28

Executive Summary

Honorable Mayor and members of the City Council,

The City Auditor's Office has completed a performance audit of the Capital Projects Administration Planning & Design processes. The objective of this audit was to evaluate if the City's resources are being used economically and efficiently, and adequate controls over capital project planning and design processes.

Salient Findings:

- Projects we reviewed were generally initiated by previous Engineering Services management and appear to have typically been underfunded causing delays in the schedule. This situation led to the issuance of additional debt and the postponement of some previously proposed projects. The current administration's improved budgeting practices have significantly decreased these funding gaps in the past year.
- While amendments to a design contract may sometimes be necessary, they may also indicate a possible lack of proper planning. For this reason, we reviewed each design agreement amendment to determine the cause of the change:
 - The majority of design amendment changes (about 65% of cost) were caused by issues with the previous administration's planning processes, costing the City time and money.
 - About 19% of other amendment costs were to amend the design contracts to include additional right of way acquisition services. Though originally unplanned, Engineering Services felt these services were needed due to unanticipated staffing shortages in the City's Real Estate Division.
 - The remaining 1% of amendment costs were discussed as part of the Bonnie Brae and Scripture Roundabout Investigation, which was presented to the City Council on February 25th, 2020.
- Multiple design agreements were issued for three projects indicating that there were some planning issues as follows:
 - Plans were completed for the Hickory Creek II project, but construction was delayed for about 10 years by the previous administration. This required the current administration to revise the plans before completing construction. Revisions cost the City about \$200,000, which was avoidable if the construction had begun more timely.
 - About \$300,000 were spent on a design agreement to prepare up to the 30% design plans for Bonnie Brae IV by the previous administration. Due to the previous administration's lack of planning, a second agreement then had to be issued to complete this design by the current administration. It is not clear how much of prior work was useful in the final design.

- About \$800,000 were spent on a Design-Build¹ contract executed by the previous administration to develop 30% schematics for McKinney Street improvements from Woodrow Lane to Grissom Road. A second Design-Bid-Build² agreement was issued by the current administration to complete construction from Loop 288 to Grissom, which is a subset of the previous scope. At this point, the City chose not to move forward with the originally planned design-build method due to time restrictions on regional funding that were not fully considered before the original contract was executed.
- For the Project Planning Phase, the Project Management Manual (Dec. 2017) requires Engineering Services to develop a Project Charter and a Project Plan; including a Communication Plan, Responsibility Plan, and Risk Management Plan; for each project. We observed that this documentation was not complete during work accomplished by the previous and the current administrations.
- For the Project Design Phase, the Manual requires Engineering Services to develop Plans Specifications and Estimates (PS&E) to be used in the Bid Phase for each project. Denton's Engineering Services, like many organizations, uses a 30-60-90% design process for its general government capital improvement projects. This process is intended to provide the stakeholders multiple opportunities to review the project's design while also focusing efforts to ensure that the project's final plans, specifications, and estimates meet the stakeholder's needs.

However, we found that only one project (Bonnie Brae Phase IV) had retained sets of plans at all three design stages; additionally, two projects had plans up to their current design stage (Bonnie Brae VI and Hickory Creek III). All other projects were missing at least one set of design plans that should have been available for review – including those projects whose design begun under the current administration. Without these plans it is difficult to tell when each stage of design was complete.

- The Project Management Manual provides a list of the project manager's responsibilities during the design phase. The Manual does require the project manager to perform design quality assurance and quality control. The Project Manager is responsible for ensuring that design is completed at each stage and the stakeholders' input from is received for making improvements in the plans. We found that documentation of design review was missing for a substantial number of projects in both administrations.
- The Project Management Manual requires Engineering Services' project managers to provide Project Status Reports during the Construction Phase of the project. Feedback received from City Manager's Office, City Attorney's Office and Purchasing Division was not documented, which potentially resulted in this direction being lost or interpreted incorrectly.
- According to State law, the City may not select a provider of architectural, engineering, or land surveying services on the bases of competitive bids. Instead the Texas Government Code §2254 (i.e. the Professional Services Procurement Act) requires governmental entities to use certain

¹ Under a Design-Build contract one firm is selected to design and build a project. The City's typical CIP procurement method is Design-Bid-Build, under which different vendors are selected to design and build the project.

² Under a Design-Bid-Build contract, a firm is hired to design the project and a separate firm is hired via the invitation to bid process for construction.

process when contracting for the professional services of architects, engineers, or surveyors. The Engineering Services Department did not comply with these provisions when selecting professional services listed above for some of the projects we reviewed. The City must comply with State procurement laws and regulations as non-compliance may subject the City to judicial challenge. Section 2254.005 of the Texas Government Code states that “a contract entered into or an arrangement made in violation of [the Professional Services Procurement Act] is void as against public policy.” There may be a risk that the City could be left with little recourse if such an agreement was entered into in violation of the Professional Services Procurement Act. Without adequate documentation there is little assurance that the current procurement practices comply with procurement laws.

We appreciate Engineering Services staff for their co-operation. We made seven recommendations in this report. Engineering Services has concurred or partially concurred with all recommendations.

Sincerely,

Umesh Dalal, City Auditor

Introduction

The City Auditor is responsible for providing: (a) an independent appraisal³ of City operations to ensure policies and procedures are in place and complied with, inclusive of purchasing and contracting; (b) information that is accurate and reliable; (c) assurance that assets are properly recorded and safeguarded; (d) assurance that risks are identified and minimized; and (e) assurance that resources are used economically and efficiently and that the City's objectives are being achieved.

The City Auditor's Office has completed a performance audit of the Capital Projects Administration Planning & Design processes. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Management Responsibility

City management is responsible for ensuring that resources are managed properly and used in compliance with laws and regulations; programs are achieving their objectives; and services are being provided efficiently, effectively, and economically.

Audit Objectives, Scope, and Methodology

This report is intended to provide assurance that the City's resources are being used economically and efficiently by evaluating the existence and adequacy of controls over capital project planning and design processes.

Audit fieldwork was conducted during September and October of 2019. The scope of review varied depending on the procedure being performed. The following list summarizes major procedures performed during this time:

- Reviewed documentation to develop criteria including industry standards, best practices, policies, and procedures;
- Developed a process narrative to identify current control activities, which was certified by the Deputy City Engineer;
- Reviewed a targeted sample of capital projects to determine if all controls activities were documented and functioning;
- Verified procurement law compliance for a selection of design agreements executed as part of the general government capital projects delivery process;
- Interviewed City staff to better understand the history of targeted capital projects including the planning, design, and funding processes;

³ The City of Denton Internal Auditor's Office is considered structurally independent as defined by generally accepted government auditing standard 3.56.

- Examined minutes and meeting materials from the Special Citizens Bond Advisory Committee from May 2019 through August 2019.

Background

As of December 2017, The City of Denton’s Engineering Services had established and formalized general project management and delivery procedures in the Project Management Manual, which is based on the Project Management Institute’s Project Management Body of Knowledge (PMBOK). This Manual generally divides the capital improvement project (CIP) management process into six phases as shown below.

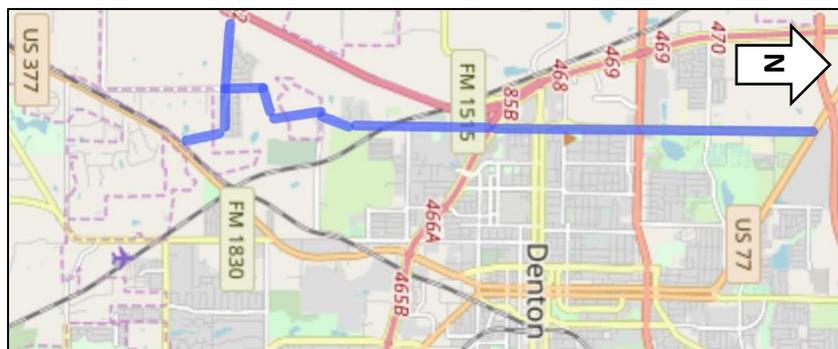
1. Initiation	4. Bid
2. Planning	5. Construction
3. Design	6. Close out

This audit report generally covers Engineering Services’ processes and controls in the first three project phases.⁴ This being said, the report also reviews the management of debt as it relates to funding capital projects, which is the responsibility of the Finance Department, and the procurement of project design services, which is primarily the responsibility of the Purchasing Division.

In this context, the report focuses on the administration of four major general government CIP programs. Most projects reviewed were initiated by the prior administration – prior to December 2017 – unless specifically identified as follows:

- Bonnie Brae Street roadway improvements;
 - Phases I, II, and III comprises improvements to Bonnie Brae from Vintage Boulevard to Interstate 35E, including improvements on Vintage from Fort Worth Drive (US 377) to Interstate 35W;
 - Phases IV and V comprises improvements from I-35E to University Drive (US 380); and
 - Phases VI and VII comprises improvements from University Drive to Loop 288 – initiated after December 2017.

Picture 1: Bonnie Brae Blvd CIP



- Hickory Creek Road roadway improvements and realignment;

⁴ The Bid, Construction, and Close Out phases will be covered in a separate audit report.

- Phases I comprises improvements from Barrel Strap to Teasley Lane;
- Phase II comprises improvements from Teasley Lane to Riverpass Drive;
- Phase III comprises the improvement and realignment of Hickory Creek from Riverpass straight to Country Club Road (FM 1830) – initiated after December 2017; and
- Phase IV comprised of improvements from Country Club to Fort Worth Drive – initiated after December 2017.⁵

Picture 2: Hickory Creek Rd. CIP



- Mayhill Road roadway improvements from University Drive to Colorado Boulevard; and

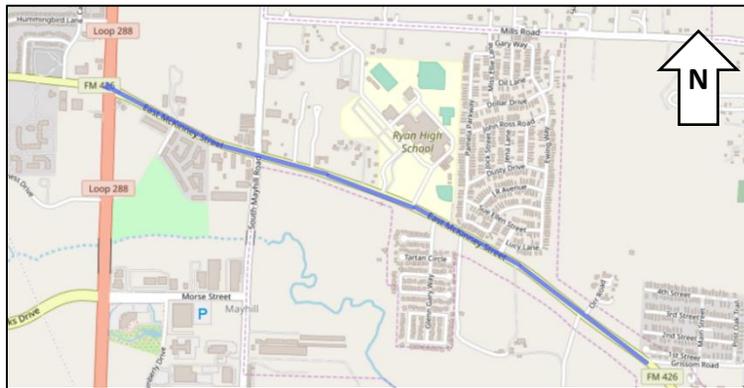
Picture 3: Mayhill Rd. CIP



- McKinney Street roadway improvements from Loop 288 to Grissom Road.

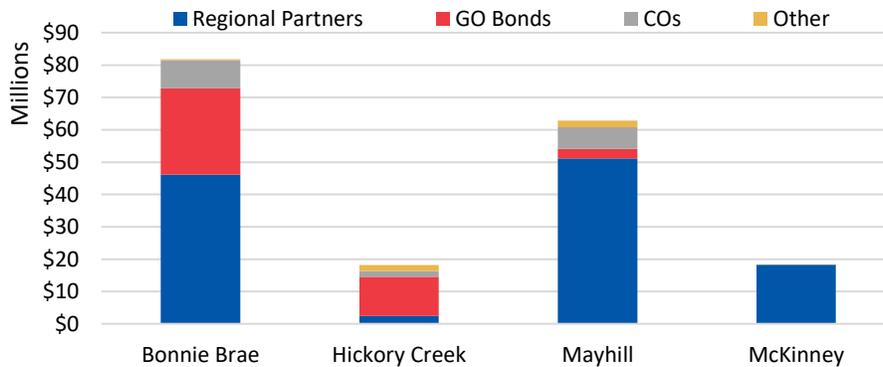
⁵ As of December 2019, Hickory Creek Road Phase IV appears to have been put on hold.

Picture 4: McKinney Street CIP



At the City of Denton, major capital improvement projects are generally funded through the issuance of debt such as general obligation (GO) bonds and certificates of obligation (CO), which are backed by the full faith and credit of the issuing jurisdiction,⁶ or revenue bonds, which are secured by a specific revenue stream. In addition, the City may receive additional monies from regional partners such as Denton County, Denton Independent School District, the Texas Department of Transportation, and the North Central Texas Council of Governments (NCTCOG) for certain transportation projects. The budgeted funds for each of the four selected capital improvement programs in our scope as of February 2020 are broken out by source in Figure 1:

Figure 1: Select CIP Budgeted Funding Source As of February 2020 (In Millions)



The four major CIP programs under review in our audit are typically broken into multiple phases resulting in 16 unique projects. Table 1 shows the status of each of these projects and expected completion date as of February 2020:

⁶ While both types are backed by the full faith and credit of the issuing jurisdiction, GO Bonds require voter approval before issuance whereas COs do not.

Table 1: Select CIP Schedule Summary

Project	Phase	Design Agmt. Executed	Exp. Completion
Bonnie Brae I	Construction	Oct. 2010	Jun. 2020
Bonnie Brae II	Construction	Oct. 2010	May 2021
Bonnie Brae III	90% Design	Oct. 2010	Sep. 2022
Bonnie Brae IVA	Construction	Mar. 2018	Mar. 2020
Bonnie Brae IVB	100% Design	Jan. 2017	Oct. 2022
Bonnie Brae V	60% Design	Aug. 2013	Aug. 2022
Bonnie Brae VI	30% Design	Sep. 2018	Aug. 2022
Bonnie Brae VII	Initiation	TBD	TBD
Hickory Creek I	Bid	May. 2018	May 2021
Hickory Creek II	Construction	Apr. 2001	Apr. 2021
Hickory Creek III	60% Design	Feb. 2019	Apr. 2022
Hickory Creek IV	On Hold	NA	NA
Mayhill Road I	Construction	Oct. 2010	Apr. 2020
Mayhill Road II (DCTA Bridge)	30% Design	Apr. 2019	Dec. 2022
McKinney I	Construction	Oct. 2018	Mar. 2020
McKinney II	Construction	Oct. 2019	Mar. 2022

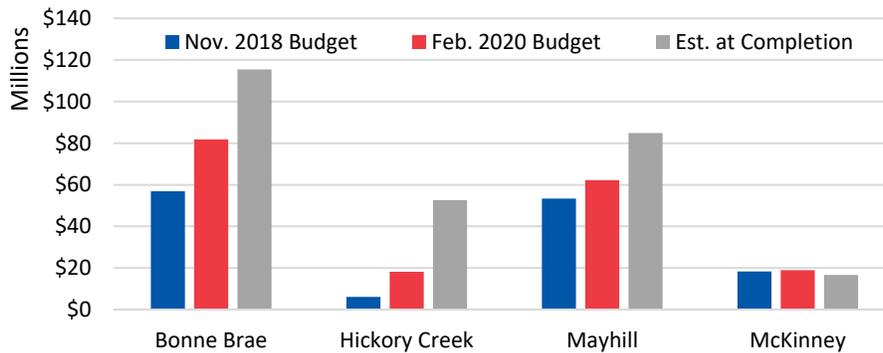
What Works Well

Funding of New Projects Appear to Have Been Better Planned

The Project Management Manual identifies several key deliverables based on the Project Management Institute’s PMBOK best practices; for the Project Initiation Phase, the Manual requires Engineering Services to develop high-level objectives, scope, and constraints, including schedule and budget, for each project. The auditors found the following:

- The identification of general government CIP is primarily driven by the general obligation bond program process. This process involves a committee of citizens vetting the reasoning and funding of each staff-proposed project and providing a recommendation to the City Council. This recommendation is then reviewed by the City Council who may call a bond election to acquire citizens approval for the proposed debt issuance.⁷
 - Projects in our scope were generally initiated by previous Engineering Services management and appear to have typically been underfunded (see Figure 2) causing delays in the schedule, resulting in the issuance of more debt, and the postponement of some previously proposed projects. The current administration’s improved budgeting practices have significantly decreased these funding gaps in the past year.

Figure 2: Select CIP Funding Gap (Millions)



- Based on our review of the most recent Citizen Bond Advisory Committee’s meetings (i.e. 2019 Bond Program), staff presented the required high-level information for several potential road CIP projects. These are summarized in Table 2:

Table 2: 2019 Bond Election Proposed Road CIP Projects

Project	Total Cost	City Funding of Total Est. Cost (Millions)	Expected Finish	Lane Miles
Bonnie Brae (V, VI, VII)	\$111.5	\$27.0	May 2022	3.00
Hickory Creek (III & IV)	\$160.0	\$34.0	March 2025	5.75
Ryan Road	\$4.0	\$4.0	March 2024	2.00

⁷ Though there is an expectation that the projects vetted by the citizens committee will be completed with debt approved to be issued by the bond election, bond funds may be used to complete other projects allowed under the bond proposition language.

- The most recent bond improvement program’s cost estimates include the following:
 - Construction and right of way acquisition costs, which are estimated based on historic costs of previous projects and predicted right of way needs;
 - Incentives and disincentives budget to motivate the construction contractor to finish the project ahead of schedule; and
 - All other costs are based on the construction and right of way acquisition cost estimates including: design and construction consultant services costs, City staff’s design and construction labor costs, expected inflation (about 1% a month), and contingency funds.

Debt Capacity Evaluation is Adequate

The Government Finance Officers Association (GFOA) capital planning best practices recommend that the full extent of CIP be considered when developing a multi-year capital plan. As debt is often the City’s primary funding source for CIP, the City’s debt capacity and debt affordability are critical to understanding these financial impacts. The GFOA recommends considering the following factors when evaluating debt capacity:

- Statutory or constitutional limitations affecting the debt that can be issued;
- Other legal limitations, such as coverage requirements or additional bonds tests imposed by bond covenants;
- Measures of the tax and revenue base;
- Evaluation of trends relating to the government’s financial performance;
- Debt service obligations;
- Measures of debt burden on the community; and
- Tax-exempt market factors affecting interest costs.

Similarly, the GFOA recommends benchmarking to peer cities to determine an “affordable” level of debt; however, this is largely a judgement of management and the City Council. While the management of debt significantly impacts Engineering Services, the evaluation of debt capacity and affordability are the responsibility of the Finance Department. The auditors found the following:

- The City of Denton has a comprehensive debt management policy that requires staff to present a comprehensive analysis of debt capacity to the City Council prior to issuing bonds; this analysis includes all factors recommended by the GFOA.
 - The City’s debt affordability analysis for the potential impacts of the 2019 Bond Program meets these requirements and was generally conservative when forecasting revenues that will pay for expected debt.
- The City of Denton appears to have a relatively higher debt burden than its peer cities; however, the City has unique infrastructure (e.g. the Denton Energy Center, municipal-owned Sanitation, Water, and Electric, etc.) that may in part require a higher debt burden. This subject is further explored in Appendix B.

All Design Amendments were Appropriately Approved

The City of Denton’s Materials Management and Payment Procedures Manual (updated in May 2018) establishes the following purchasing thresholds:

- The City Council has extended a \$100,000 authority to the City Manager to approve purchases for general expenditures,⁸ which includes: fees, professional services, personal services, and other categories exempted from the bid process by the Texas Local Government Code Chapter 252.022; and
- The City Manager has extended authority to the Purchasing Manager to approve purchases and change orders up to \$50,000;
- Individual expenditures and contracts in excess of \$100,000 must be approved by City Council.

While the procurement function significantly impacts and is initiated by Engineering Services, compliance with procurement laws and regulations is the primary responsibility of the Purchasing Division. The auditors found the following:

- All eleven design agreements reviewed were appropriately approved by the City Council via ordinance.
- Eighteen design agreement amendments (for additional details refer Table 12 in Appendix C) were executed for the selected CIP during the audit period as follows:

Table 3: Summary of Design Agreement Amendment Approvals

Approval	Amendments	Value
By City Council	8	\$3,851,568
By the City Manager	5	\$278,197
By Purchasing	5	\$46,700
Total:	18	\$4,176,465

- Based on the Materials Management and Payment Procedures Manual, all amendments were approved according to the delegated authority limits for the City Council, City Manager, and the Purchasing Division.

⁸ Capital improvement project design agreements are not subject to Chapters 252 or 271 of the Texas Local Government Code.

Opportunities for Improvement

Project Planning Inconsistencies May Have Resulted in Additional Costs

In total, the 11 professional services agreements reviewed had 18 amendments, which are summarized in Table 4 below. A timeline of design agreements and associated amendments is presented in Table 11 in Appendix C. While amendments to a design contract may sometimes be necessary, they may also indicate a possibility of a lack of proper planning. For this reason, we reviewed each design agreement amendment to determine the cause of the change.

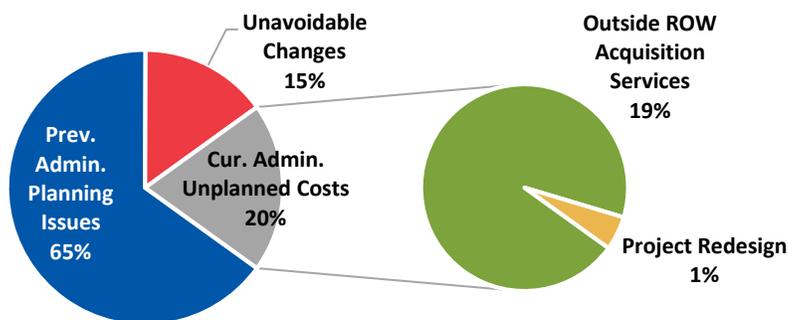
Table 4: Design Agreement Summary

Project(s)	Total Design Value	Design Amendments ⁹	Estimate at Completion ¹⁰
Bonnie Brae I, II, & III	\$5,444,253	\$0	\$60,529,000
Bonnie Brae IVA & IVB	\$1,569,982	\$1,277,406	\$17,700,000
Bonnie Brae V	\$1,103,010	\$271,813	\$9,376,040
Bonnie Brae VI	\$2,429,240	\$397,760	\$27,800,000
Hickory Creek Road I	\$296,884	\$56,884	\$3,000,000
Hickory Creek Road II	\$441,250	\$225,550	\$6,600,000
Hickory Creek Road III & IV	\$3,342,509	\$0	\$43,000,000
McKinney I & II	\$3,382,100	\$2,023,800	\$16,683,000
Mayhill Road I & II (DCTA Bridge)	\$7,059,738	\$2,558,208	\$84,794,999
Total Design Agreement Value:	\$25,068,965	\$6,811,421	\$269,483,039

What We Found?

- The majority of design amendment changes (about 65%) were caused by issues with the previous administration’s planning processes – costing the City time and money (see Figure 3):

Figure 3: Explanation of Design Amendment Costs



- Unavoidable changes include amendment costs (about 15%) incurred in order to respond to external forces. For example, certain regulations changes or the

⁹ Amendment Values include the cost of secondary design agreements (i.e. those entered into after an original agreement had been executed).

¹⁰ Estimates at completion are based on Engineering Services CIP Reporting Dashboard as of 2/21/20.

construction of facilities by non-City organizations necessitated the redesign of some projects.

- About 19% of amendment costs were to amend the design contracts to include additional right of way acquisition services. Though originally unplanned, Engineering Services felt these services were needed due to unanticipated staffing shortages in the City's Real Estate Division. Engineering Services staff has begun including these as optional services in all design agreements to supplement Real Estate's capacity for CIP workload, which must also manage other departments land acquisition requests.

The final 1% of amendment costs (\$45,000) were due to a breakdown in department communication during the Bonnie Brae IVA project.¹¹ This resulted in design changes being necessary after the construction contract was awarded to reincorporate waterlines that had been removed from the project's scope. In addition, the City was unable to acquire two parcels of land before construction began – resulting in a scope reduction of 0.81 lane miles. These redesigns in part delayed construction by about 1 week.

- In addition, multiple design agreements were issued for three projects indicating that there were some planning issues as described below:
 - 1) Plans were completed for Hickory Creek II, but construction was delayed for about 10 years by the previous administration. This required the current administration to revise the plans before completing construction. It is possible that construction was put on hold because of insufficient funding to complete construction or other planning issues. Revisions to these plans cost the City about \$200,000, which may have been avoided if the previous administration had begun construction soon after design was complete.
 - 2) About \$300,000 were spent on a design agreement to prepare up to the 30% design plans for Bonnie Brae IV by the previous administration. Due to the previous administration's lack of planning, a second agreement then had to be issued to complete this design by the current administration. We were unable to determine how much of the work conducted during the previous design agreement was used as part of the second design agreement.
 - 3) About \$800,000 were spent on a Design-Build¹² contract executed by the previous administration to develop 30% schematics for McKinney Street improvements from Woodrow Lane to Grissom Road. A second Design-Bid-Build¹³ agreement was issued by the current administration to complete construction from Loop 288 to Grissom, which is a subset of the previous scope. At this point, the City chose not to move forward with the originally planned design-build method due to time restrictions on regional funding that were not fully considered before the original contract was executed. Conceivably, a part of the original spending may have been wasted due to

¹¹ Additional issues identified as part of the Bonnie Brae IVA project were investigated by the City Auditor's Office and are further detailed in a separate report. This report was presented to the City Council on February 25th, 2020.

¹² Under a Design-Build contract one firm is selected to design and build a project. The City's typical CIP procurement method is Design-Bid-Build, under which different vendors are selected to design and build the project.

¹³ Under a Design-Bid-Build contract, a firm is hired to design the project and a separate firm is hired via the invitation to bid process for construction.

the reduction in scope, however, the major objective of the original contract (i.e. 30% design) was completed.

- For the Project Planning Phase, the Manual requires Engineering Services to develop a Project Charter and a Project Plan – including a Communication Plan, Responsibility Plan, and Risk Management Plan – for each project. Table 5 below shows the results of our review:

Table 5: Planning Documentation Review Summary

Documentation	Previous Admin.		Current Admin.	
	Projects	% Available	Projects ¹⁴	% Available
Project Charter	12	0%	2	100%
Communication Plan	12	42%	2	50%
Responsibility Plan	12	8%	2	0%
Risk Management Plan	12	8%	2	0%

Why Does It Matter?

The project charter and project plan provide the structure for a project. Successfully implementing the approved project planning techniques should create a roadmap, facilitating the completion of the project. There does appear to have been some improvement in planning processes in recent years, however, some key planning documents are missing from projects initiated under the current administration (see Table 5). Without creating and utilizing proper planning, sub-processes and procedures may be performed inconsistently leading to inefficiencies in the project life cycle, especially if these phases are rushed. These types of planning issues may have resulted in waste in the past.

Based on discussions with Engineering Services Management, procedures in the Project Management Manual were not followed for projects initiated by the previous administration due to pressure to complete the projects that the City had previously proposed but not delivered yet. This pressure created a sense of urgency in the Department that may have caused some planning procedures to be performed superficially or skipped entirely. In addition, Engineering Services’ CIP Delivery team has not always possessed the necessary project management experience; however, all project managers and program managers have complete one week of PMBOK training within the last year. In addition, one project manager is a certified Project Management Professional.

Finally, Engineering Services’ CIP Delivery function has undergone several organization restructures since fiscal year 2017, including the addition of 6 new positions in the Engineering Division. Additionally, the Director of Capital Projects has changed twice, and the direct supervisor of the Capital Projects Delivery Function has changed three times. Such turnover in essential supervisory positions may have hindered the enforcement of policies and procedures in the past.

Recommendations:

1. Require Project Managers to follow procedures established in the Project Management Manual including documenting applicable project plans.

¹⁴ Projects initiated under the current administration include Bonnie Brae VI and Hickory Creek Road III.

Engineering Comments: Project Managers were directed to upload all available documentation including project plans to the project folders prior to the initiation of the Audit. The Program Managers are required to check and confirm this on a regular basis. Majority of the projects or their phases were old projects that were not well electronically documented which resulted in the findings of this Audit report.

2. Continue to develop and implement project manager training to ensure that the Project Management Manual is implemented.

Engineering Comments: The Project and Program Managers have attended the Project Management Body of Knowledge (PMBOK) training session (40 hrs) in the last 18 months. Additionally, staff is encouraged to attend additional PMBOK training this year and secure the PMP (Project Management Professional) certification.

Design Quality Review and Assurance Processes Should Be Further Refined

For the Project Design Phase, the Manual requires Engineering Services to develop Plans Specifications and Estimates (PS&E) to be used in the Bid Phase for each project. Denton's Engineering Services, like many organizations, uses a 30-60-90% design process for its general government capital improvement projects. This process is intended to provide the stakeholders multiple opportunities to review the project's design while also focusing efforts to ensure that the project's final plans, specifications, and estimates meet the stakeholder's needs.

What We Found?

- All projects had a corresponding professional services agreement for the project's design which generally require the design consultant to provide 30-60-90% plans. In addition, all projects that had reached the Bid phase had 100% design plans, specifications, and estimates.
 - However, we found that only one project (Bonnie Brae Phase IV) had retained sets of plans at all three design stages; additionally, two projects had plans up to their current design stage (Bonnie Brae VI and Hickory Creek III). All other projects were missing at least one set of design plans that should have been available for review – including those projects whose design begun under the current administration. Without these plans it is difficult to tell when each stage of design was complete.
- The Project Management Manual provides a list of the project manager's responsibilities during the design phase; however, it only requires one deliverable – the final PS&E.
 - The Manual does require the project manager to perform design quality assurance and quality control. However, the Manual does not require documentation to ensure this task is being performed adequately.
 - According to discussion with Engineering Services management, review comments for each plan set are prepared as part of the design quality control process; however, only one project (Bonnie Brae VI) had review comments documented for all submitted plans. The Project Manager is responsible for ensuring that design is completed at each stage and the stakeholders' input from is received for making improvements in the plans. Based on these records, we do not have assurance that these events occurred.

Table 6 shows the percentage of each type of documentation that was available for our review by the administration that started the design process:

Table 6: Design Documentation Review Summary

Documentation	Previous Admin.		Current Admin.	
	Projects	% Available	Projects ¹⁵	% Available
30% Schematics	7	29%	6	83%
30% Review Comments	7	14%	6	17%
60% Plans	7	29%	5	60%
60% Review Comments	6	0%	4	50%
90% Plans	6	50%	4	50%
90% Review Comments	6	0%	4	50%

Why Does It Matter?

Stakeholder reviews are essential to ensuring that the product meets the needs of users and that the construction process runs smoothly. In addition, if proper documentation is not retained, it is very difficult to determine if all comments have been addressed appropriately and could ultimately affect the quality of the product or efficiency of the project. Finally, without a formalized design review and quality assurance process, the PS&E may not include the necessary details to provide for a fair and smooth bidding process.

Recommendation:

3. Develop a formalized design review and quality assurance procedure. Consider developing a quality assurance checklist to ensure all necessary stakeholder reviews and actions have occurred at the 30%, 60%, and 90% design stages. Such a checklist would also help to formalize the identification and involvement of stakeholders. Maintaining review comments provides a reference for design changes to be made, facilitating the quality control process.

Engineering Comments: A design review and quality assurance procedure has been implemented and staff is currently working on preparing the documentation and the Standard Operating Procedure (SOP) for this procedure.

¹⁵ Design start dates are based on the date the design agreement was executed; design agreements executed under the current administration include Bonnie Brae VI, Hickory Creek I and II, and McKinney I and II. Mayhill at DCTA Bridge and Bonnie Brae IVA were also considered projects designed under the current administration as there was a clear design agreement amendment that began the design of those projects.

Project Performance Monitoring & Evaluation Processes Can Be Further Improved

The Project Management Manual requires Engineering Services' project managers to provide Project Status Reports during the Construction Phase of the project. According to the Project Management Institute's PMBOK best practices, monitoring and controlling processes should occur during the entire project and require tracking, reviewing, and regulating the progress and performance of the project.

What We Found?

- Each quarter Accounting and CIP department leadership discuss the status of each project with the CIP Committee, which includes the City Manager's Office, the City Attorney's Office, and the Purchasing Division. This Committee provides feedback and direction on these projects; however, these meetings are not always documented, potentially resulting in this direction being lost or interpreted incorrectly.
- Though the Manual requires project status reports, it does not specify how often these should be prepared and only requires them during the Construction Phase of the project. This being said, Engineering Services' Program Management Office (PMO) requires Engineering Services' Project Managers to submit project status reports weekly in order to update the Capital Improvement Reporting Dashboard, which includes pertinent information.
- The Project Management Manual does not detail any procedures for evaluating the performance of a project; however, PMO has developed a Risk Report that is presented to Engineering Services' staff each month. These Reports compare each project's current costs (based on information from the City's financial system) to the estimate at completion and the project's progress (based on weekly Project Manager reports) to the baseline schedule.

This being said, true performance reporting has not been possible for the projects we reviewed because estimates at completion and baseline schedules have not been solidified and so changes to these baseline metrics have been frequent. PMO has developed automated processes to notify Engineering Services management of changes to estimates at completion; however, these processes have been implemented too recently to adequately judge their effectiveness at this time.

Why Does It Matter?

Formalizing reporting requirements and expectations in the Project Management Manual facilitates consistency and obligates employees to follow these procedures. Similarly, consistently documenting direction received at the quarterly CIP Committee meetings will facilitate assurance that City management's direction is understood and followed through with by department leadership.

Finally, reporting and monitoring project performance is integral to improving the CIP delivery function. Establishing baseline expectations for key metrics during the Planning Phase of future projects should allow Engineering Services management to more effectively understand and manage CIP resources. This change may also enable the Department to demonstrate performance improvement over time and so the monitoring and reporting improvements implemented by PMO should continue to be supported.

In addition, the Project Management Institute's best practices recognize four key project performance metrics – cost, schedule, quality, and user satisfaction. While PMO has developed processes for cost and schedule, consideration should be given to monitoring and reporting on project quality and stakeholder satisfaction in the future.

Recommendations:

4. Formalize Project Status Report requirements and expectations during the entire project (the Planning, Design, Bid, and Construction phases) in the Project Management Manual.

Engineering Comments: The 'Project Status Report' section (5.3) in the Project Management Manual will be updated to include specific requirements and expectations for Capital Projects at every phase of the project.

5. Document direction given to department leadership during quarterly CIP Committee meetings to facilitate monitoring of staff performance.

Engineering Comments: Based on the input/direction received during the previous CIP Committee meetings, staff has completely updated the tracking and reporting of all CIP projects which has resulted in the CIP dashboard. The projects are now tracked on a weekly basis with a monthly risk report that tracks the performance of the Project managers. The meeting minutes for all CIP Committee meetings will be formally documented.

6. Continue developing formalized processes for evaluating project performance that compare expectations of cost, schedule, and quality as expected at the planning stage to project results. Include processes for officially adopting new expectations if the scope of a project significantly changes.

Engineering Comments: Currently, CIP projects are tracked through all phases (design, Right-of-Way, Construction) on a weekly basis. As the current projects go through a complete cycle (planning through acceptance), staff will develop and fine tune a formalized process for evaluating project performances as they relate to cost, schedule and quality.

Current CIP Design Procurement Method May Present Risks

According to State law,¹⁶ the City may not select a provider of architectural, engineering, or land surveying services on the bases of competitive bids. Instead the Texas Government Code §2254 (i.e. the Professional Services Procurement Act) requires governmental entities to use the following process¹⁷ when contracting for the professional services of architects, engineers, or surveyors:

1. Select the most highly qualified provider of those services on the basis of demonstrated competence and qualifications;
2. Attempt to negotiate with that provider a contract at a fair and reasonable price.
3. If a satisfactory contract cannot be negotiated with the most highly qualified provider, the entity shall formally end negotiations with that provider;

¹⁶ Government Code Chapter 2254 Professional and Consulting Services (i.e. the Professional Services Procurement Act).

¹⁷ The City Auditor's Office obtained a legal opinion from the City Attorney's Office to verify our understanding of the law. This opinion has also been provided in a separate report to the City Council.

4. Select the next most highly qualified provider and attempt to negotiate a contract with that provider at a fair and reasonable price.
5. This process then continues until a contract is executed.

What We Found?

- In March 2018, the City of Denton issued a Request for Qualifications (RFQ) for seven categories of professional CIP services, including:
 - Project Management
 - Development Review
 - Design of Roads, Bridges, & Intersections
 - Design of Traffic Signals & Street Lights
 - Design of Storm Water Infrastructure
 - Design of Water Infrastructure
 - Design of Wastewater Infrastructure

Based on this RFQ a “short list” of consultants were evaluated, ranked, and approved to be eligible to receive professional services agreements for three years.

- As of October 2019, this RFQ has been used to enter into more than 50 professional services agreements for CIP; four of these agreements were reviewed as part of our scope.
 - Multiple providers were selected based on the same RFQ evaluation for similar CIP (see Table 7). There was no documentation of negotiation with the highest ranked providers for the same project or documentation of why a highest ranked provider was not considered the most highly qualified for each project. No documented explanation was available for why a significantly lower ranked provider was selected without negotiating with higher ranked providers.

Table 7: RFQ Evaluation Ranks by Design Agreement

Agreement	RFQ Evaluation Ranks				
	Storm Water	Wastewater	Water	Roads	Signals
6590-011	8 th	17 th	9 th	12 th	7 th
6590-032	NA	3 rd	13 th	1 st	NA
6590-040	NA	12 th	8 th	16 th	NA
6590-049	NA	NA	NA	7 th	2 nd

- According to Engineering Services staff, design consultants identified through this RFQ process are reevaluated to determine which consultant is the most highly qualified for each capital improvement project based on its unique specifications; however, the results of these reevaluations were not documented.

Why Does It Matter?

The City must comply with State procurement laws and regulations as non-compliance may subject the City to judicial challenge. Section 2254.005 of the Texas Government Code states that “a contract entered into or an arrangement made in violation of [the Professional Services Procurement Act] is void as against public policy.” There may be a risk that the City could be left with little recourse if such an agreement was entered into in violation of the Professional Services Procurement Act. Without adequate documentation there is little assurance that the current procurement practices comply with procurement laws.

Recommendation:

7. Follow the Professional Services Procurement Act for qualification and selection of providers for the design of each capital improvement project to minimize associated procurement risk. Engineering Services management should work with the City Attorney's Office and Procurement to develop a process to adequately document the selection of the most highly qualified provider.

Procurement Comments: *Prior to March 2018, the City selected engineering services without a competitive process as allowed by Texas Government Code 2254. While this approach is allowed by State procurement law, it creates operational risk of contracting with a small number of highly qualified vendors for multiple projects and not extending work to a wider variety of vendors. In an effort to increase transparency, create more competition, and use resources more efficiently, the City changed its engineering services selection process for horizontal capital projects in 2018 to a "qualified list" approach. The City issued a Request for Qualifications for seven categories of professional engineering services to create a "short list" of qualified vendors to design horizontal capital projects as needed. The approach was intended to create a pool of design firms to choose from for each individual project, allowing for the City to engage with multiple design firms on a variety of projects. Each vendor on the "qualified list" is highly qualified and may be uniquely suited for a specific project based on their firm's experience, project team expertise, and previous experience with similar projects. When the City issues a new RFQ to replace RFQ 6590 for professional engineering services, Procurement and Capital Projects staff will coordinate with the City Attorney's Office before issuing a solicitation. Until a new RFQ is created and approved by Council, Capital Projects will evaluate each firm based on the criteria for the project, rank the firms based on criteria, and select the most highly qualified firm based on the project requirements. Procurement will assist Capital Projects with documenting the evaluation and selection process for each project.*

Engineering Comments: *The City follow Government Code 2254 when soliciting professional engineering services. Capital Projects has been following the City Attorney's guidance since 2018 for selection of professional engineering services using a 'eligible list' approach for all design projects. Capital Projects issued an RFQ for engineering services which developed an eligible list of consultants (short list of most qualified firms) to use when selecting design consultants for engineering projects. Consistent with legal guidance, staff reviews the short-listed firms and selects the most qualified firm for a particular project. In the past, during the selection of the 'most qualified' firm, staff had minimal documentation of the process. Moving forward, staff will ensure that evaluation and selection of firms for individual projects is formally documented.*

Appendix A: Management Response Summary

The following summarizes the recommendations issued throughout this report. The auditors found that staff and the Department were receptive and willing to make improvements to controls where needed. Management has provided their response to each recommendation.

1	<i>Require Project Managers to follow procedures established in the Project Management Manual including documenting applicable project plans.</i>	Concur	Expected Completion: Completed
<p><u>Engineering Comments:</u> Project Managers were directed to upload all available documentation including project plans to the project folders prior to the initiation of the Audit. The Program Managers are required to check and confirm this on a regular basis. Majority of the projects or their phases were old projects that were not well electronically documented which resulted in the findings of this Audit report.</p>			Responsibility: Deputy City Engineer
2	<i>Continue to develop and implement project manager training to ensure that the Project Management Manual is implemented.</i>	Concur	Expected Completion: Completed
<p><u>Engineering Comments:</u> The Project and Program Managers have attended the Project Management Body of Knowledge (PMBOK) training session (40 hrs) in the last 18 months. Additionally, staff is encouraged to attend additional PMBOK training this year and secure the PMP (Project Management Professional) certification.</p>			Responsibility: Deputy City Engineer
3	<i>Develop a formalized design review and quality assurance procedure.</i>	Concur	Expected Completion: Six months
<p><u>Engineering Comments:</u> A design review and quality assurance procedure has been implemented and staff is currently working on preparing the documentation and the Standard Operating Procedure (SOP) for this procedure.</p>			Responsibility: Deputy City Engineer
4	<i>Formalize Project Status Report requirements and expectations during the entire project, (the Planning, Design, Bid, and Construction phases) in the Project Management Manual.</i>	Concur	Expected Completion: Six months
<p><u>Engineering Comments:</u> The 'Project Status Report' section (5.3) in the Project Management Manual will be updated to include specific requirements and expectations for Capital Projects at every phase of the project.</p>			Responsibility: Deputy City Engineer
5	<i>Document direction given to department leadership during quarterly CIP Committee meetings to facilitate monitoring of staff performance.</i>	Concur	Expected Completion: Completed
<p><u>Engineering Comments:</u> Based on the input/direction received during the previous CIP Committee meetings, staff has completely updated the tracking and reporting of all CIP projects which has resulted in the CIP dashboard. The projects are now tracked on a weekly basis with a monthly risk report that tracks the performance of the Project Managers. The meeting minutes for all CIP committee meetings will be formally documented.</p>			Responsibility: Deputy City Engineer
6	<i>Continue developing formalized processes for evaluating project performance that compare expectations of cost,</i>	Concur	Expected Completion:

	<p><i>schedule, and quality as expected at the planning stage to project results.</i></p> <p><u>Engineering Comments:</u> Currently, CIP projects are tracked through all phases (design, Right-of-Way, Construction) on a weekly basis. As the current projects go through a complete cycle (planning through acceptance), staff will develop and fine tune a formalized process for evaluating project performances as they relate to cost, schedule and quality.</p>	<p>Six to Nine Months</p> <p>Responsibility: Deputy City Engineer</p>
<p>7</p>	<p><i>Follow the Professional Services Procurement Act for qualification and selection of providers for the design of each capital improvement project to minimize associated procurement risk.</i></p> <p>Partially Concur</p> <p><u>Procurement Comments:</u> Prior to March 2018, the City selected engineering services without a competitive process as allowed by Texas Government Code 2254. While this approach is allowed by State procurement law, it creates operational risk of contracting with a small number of highly qualified vendors for multiple projects and not extending work to a wider variety of vendors. In an effort to increase transparency, create more competition, and use resources more efficiently, the City changed its engineering services selection process for horizontal capital projects in 2018 to a “qualified list” approach. The City issued a Request for Qualifications for seven categories of professional engineering services to create a “short list” of qualified vendors to design horizontal capital projects as needed. The approach was intended to create a pool of design firms to choose from for each individual project, allowing for the City to engage with multiple design firms on a variety of projects. Each vendor on the “qualified list” is highly qualified and may be uniquely suited for a specific project based on their firm’s experience, project team expertise, and previous experience with similar projects. When the City issues a new RFQ to replace RFQ 6590 for professional engineering services, Procurement and Capital Projects staff will coordinate with the City Attorney’s Office before issuing a solicitation. Until a new RFQ is created and approved by Council, Capital Projects will evaluate each firm based on the criteria for the project, rank the firms based on criteria, and select the most highly qualified firm based on the project requirements. Procurement will assist Capital Projects with documenting the evaluation and selection process for each project.</p> <p><u>Engineering Comments:</u> The City follow Government Code 2254 when soliciting professional engineering services. Capital Projects has been following the City Attorney’s guidance since 2018 for selection of professional engineering services using a ‘eligible list’ approach for all design projects. Capital Projects issued an RFQ for engineering services which developed an eligible list of consultants (short list of most qualified firms) to use when selecting design consultants for engineering projects. Consistent with legal guidance, staff reviews the short-listed firms and selects the most qualified firm for a particular project. In the past, during the selection of the ‘most qualified’ firm, staff had minimal documentation of the process. Moving forward, staff will ensure that evaluation and selection of firms for individual projects is formally documented.</p>	<p>Expected Completion: April 2020</p> <p>Responsibility: Deputy City Engineer</p>

Appendix B: Comparison of Debt Burden

According to the GFOA, “there is no measure or fiscal indicator that evaluates the wisdom or necessity of capital expenditures that are associated with bonded debt. That is largely the judgement of management, other participants in the budget process, and the elected officials.” It is then potentially relevant to compare the City of Denton’s current debt burden with peer municipalities.

Based on an evaluation of population, population growth, income per capita, and estimated college enrollment, our office selected nine¹⁸ peer cities to be included as part of a debt burden benchmarking exercise. These cities and their associated metrics are shown in Table 8:

Table 8: Peer City Outstanding Debt Summary

City	Population (2018)	Income/Capita (2017)	Prop. Tax Value Millions (2018)	Est. University Enrollment
Killeen	149,103	\$21,751	\$5,750.7	2,500
McAllen	143,433	\$21,683	\$9,311.9	28,500
Mesquite	142,816	\$22,088	\$8,973.6	12,000
Midland	142,344	\$39,499	\$12,241.8	0
Denton	138,541	\$26,165	\$10,936.1	53,500
Waco	138,183	\$21,444	\$9,204.8	17,200
Richardson	120,981	\$38,149	\$14,084.6	28,800
Odessa	120,568	\$29,607	\$7,418.1	5,800
College Station	116,218	\$24,640	\$7,906.1	63,700
Lewisville	106,586	\$29,197	\$9,352.3	0
<i>Average</i>	<i>131,877</i>	<i>\$27,422</i>	<i>\$9,518.0</i>	<i>21,200</i>

It should be noted that while all the municipalities included in the peer group issue debt for general government activities such as roadways, facility, and fleet improvements, not all peer municipalities have the same utility structure.¹⁹ For instance, the City of Denton owns and operates its own power plant, which is unique compared to all other cities in the peer group. Similarly, some of the municipalities are “Power to Choose” cities, meaning that they do not operate an electric utility. In addition, some of the municipalities do not operate their own solid waste collection or may have an independent public utility board.

For instance, about 73% of the City of Denton’s tax backed debt is for these “business-type” activities (i.e. utility activities), which is a much higher percentage than the peer group average of 29%. This may imply that much of the City of Denton’s tax backed debt may actually be paid with revenues from utility fees despite being backed by the “full faith and credit” of the issuing municipality. Still, a municipality’s debt burden ultimately rests with the taxpayers whose property taxes, sales taxes, and utility fees fund these capital improvements.

Compared to these peer cities, the City of Denton appears to have a relatively higher debt burden in all debt categories. Figure 4 illustrates this by showing the general obligation outstanding debt – or Tax Backed Debt – per \$100 of taxable property value for each peer city; the dashed line represents the peer group – including the City of Denton – average (\$3.16).

¹⁸ The City of Carrollton was originally included in our peer cities; however, relevant debt burden measures could not be calculated because they had recently experienced a cyber-attack.

¹⁹ The City of Denton operates Solid Waste, Water, Wastewater, and Electric utilities as well as an airport.

Figure 4: Tax Backed Debt per \$100 of Taxable Property Value Comparison

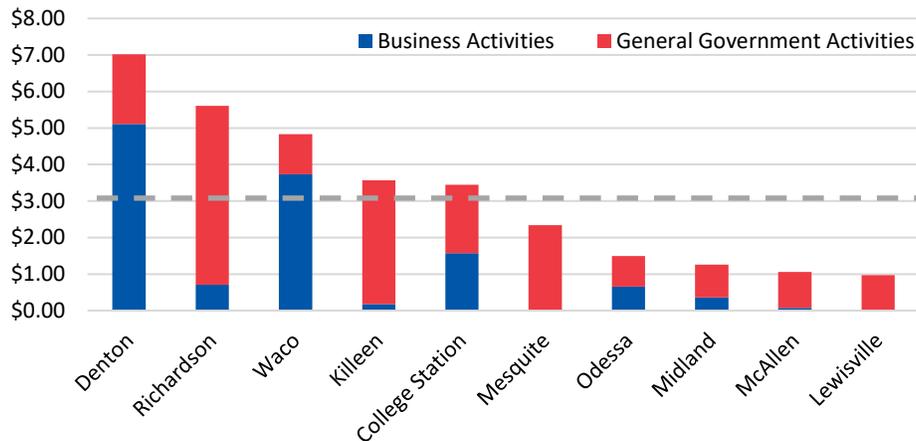
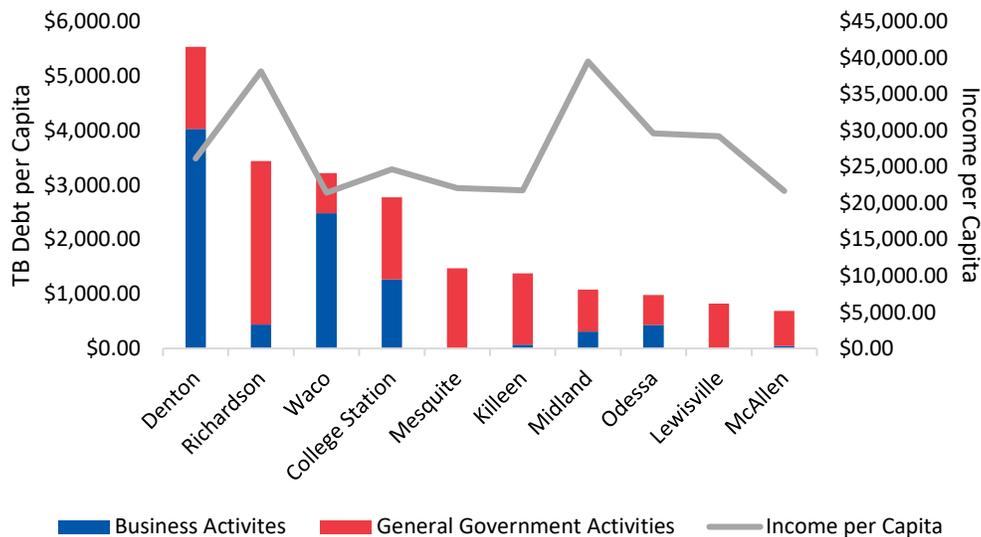


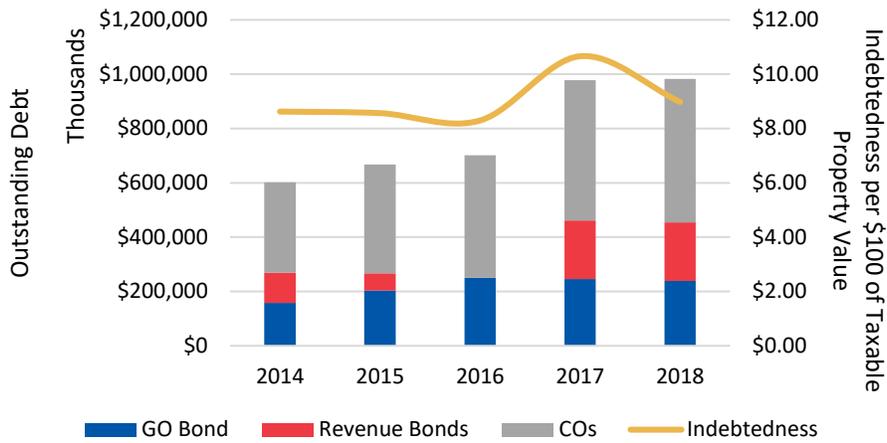
Figure 5 illustrates the tax backed debt burden per capita for each peer city, which adds an affordability element to the analysis. The City currently has the largest tax backed debt burden per capita than other peer cities with about \$5,500 of debt per capita – about 21% of the City’s income per capita.

Figure 5: Tax Backed Debt Burden per Capita



According to the GFOA, “if one considers that [these] debt outstanding indicators are relative measures reflecting the impact of outstanding debt on the tax base, then a further analysis of that base is warranted.” For at least the past five years, Denton’s tax base has been growing: assessed property values grew by about 57% from 2014 to 2018 and population has grown by about 19% from 2010 to 2018. Still, Figure 6 on the next page shows that the City’s indebtedness has increased by about 4% – indicating that the City has been issuing new debt about as fast as this tax base growth.

Figure 6: Outstanding City of Denton Debt Over Time



As mentioned in the body of the report, the City appears to be analyzing debt affordability appropriately before issuing any new debt. Still, it is helpful to understand how the City of Denton’s debt burden compares to other peer municipalities.

Appendix C: Design Agreement Timeline & Summary

Table 11 below illustrates the timeline of design agreements and associated.

Table 11: Design Agreement Timeline

	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Bonnie Brae I, II, III	Agmt. Exe.				Amd. 1	Amd. 2	Amd. 3		
Bonnie Brae IV			Agmt. Exe.				Agmt. 2 Exe.	Amd. 1	Amd. 2
Bonnie Brae V			Agmt. Exe.					Amd. 1	
Bonnie Brae VI								Agmt. Exe.	Amd. 1
Hickory Creek I								Agmt. Exe. & Amd. 1	
Hickory Creek II²⁰							Agmt. 2 Exe. & Amd. 1	Amd. 2	Amd. 3 & 4
Hickory Creek III & IV									Agmt. Exe.
Mayhill	Agmt. Exe.		Amd. 1 & 2				Amd. 3	Amd. 4	Amd. 5
McKinney								Agmt. Exe.	Agmt. 2 Exe. & Amd. 1

²⁰ The original Hickory Creek II design agreement was executed in 2001.

Table 12 summarizes the approvals and values of each design agreement and its associated amendments.

Table 12: Design Agreement Summary

Agreement	Project	Approval	Value
2670	Hickory Creek II	Ord 2001-157	\$215,700.00
4511	Mayhill	Ord 2010-269	\$4,501,530.00
	Amendment 1	CMO Jan. 2013	\$50,377.00
	Amendment 2	Ord 2013-203	\$488,835.00
	Amendment 3	Ord 2017-013	\$602,590.00
	Amendment 4	CMO Feb. 2018	\$52,196.00
	Amendment 5	Ord 19-753	\$1,364,210.00
4520	Bonnie Brae I, II, III	Ord 2010-268	\$5,444,253.00
	Amendment 1	None	\$0.00
	Amendment 2	Purch Sep. 2016	\$0.00
	Amendment 3	Purch Jan. 2018	\$0.00
5329	Bonnie Brae IV	Ord 2013-200	\$292,575.68
5330	Bonnie Brae V	Ord 2013-201	\$831,196.50
	Amendment 1	Ord 18-413	\$271,813.08
6285	Bonnie Brae IV	Ord 2017-010	\$900,256.25
	Amendment 1	Ord 18-413	\$303,960.25
	Amendment 2	CMO Jul. 2019	\$73,189.75
6401	McKinney	Ord 2017-320	\$1,358,300.00
6427	Hickory Creek II	CMO Apr. 2017	\$93,500.00
	Amendment 1	Ord 2017-194	\$39,800.00
	Amendment 2	Purch Feb. 2018	\$40,400.00
	Amendment 3	Purch Oct. 2018	\$6,300.00
	Amendment 4	CMO Dec. 2018	\$45,550.00
6590-011	Hickory Creek I	Ord 18-830	\$240,000.00
	Amendment 1	CMO Oct. 2018	\$56,884.00
6590-032	Bonnie Brae VI	Ord 18-1429	\$2,031,479.50
	Amendment 1	Ord 19-602	\$397,760.00
6590-040	McKinney	Ord 18-1660	\$1,641,200.00
	Amendment 1	Ord 19-526	382,600.00
6590-049	Hickory Creek III & IV	Ord 19-351	\$3,342,509.00
		<i>Total:</i>	\$25,068,965.01