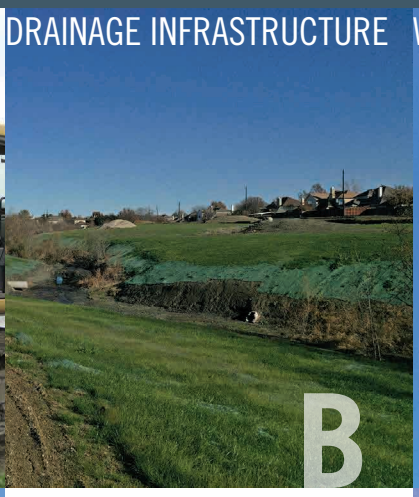
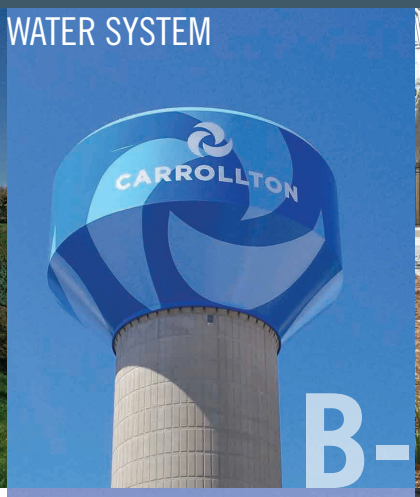
CARROLLTON
TEXAS

B-
2014 Grade
2018 Grade: B-

INFRASTRUCTURE REPORT CARD





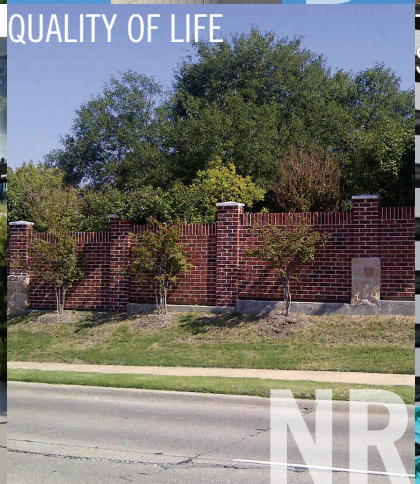


TABLE OF CONTENTS

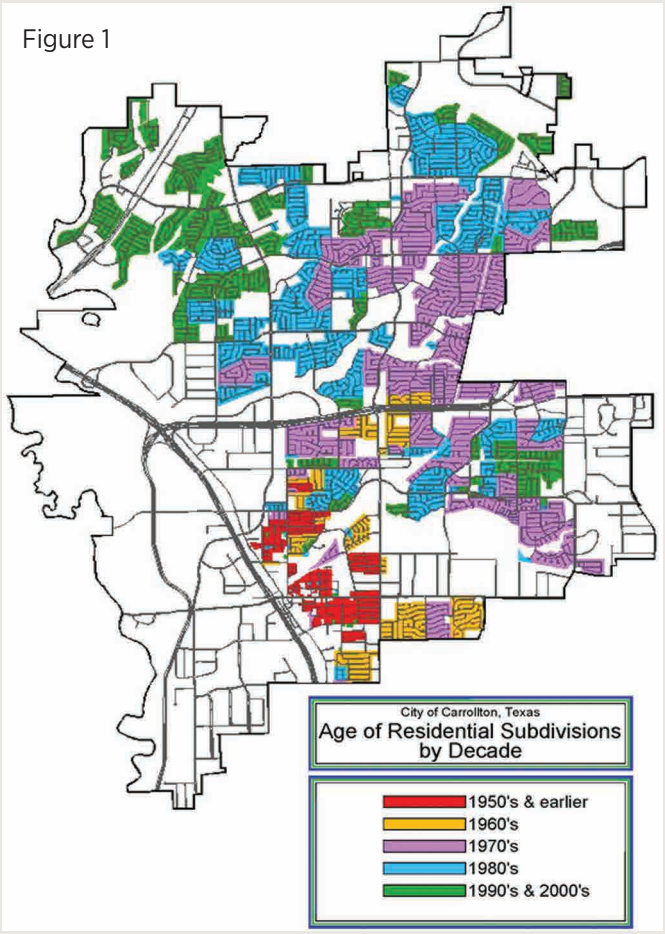
Background

The City of Carrollton celebrated its Centennial of Incorporation in 2013 and has grown from a population of 573 (1920 census) to more than 124,000. During Carrollton's dynamic history, the infrastructure has aged and been replaced at different rates.

The City maintains an extensive infrastructure system covering 38 square miles. These systems are broken down into the following categories: Surface Infrastructure, Drainage, Water, Wastewater, Facilities, Parks & Recreation and Information Technology. Overall, the City infrastructure is in above average condition, is generally very well maintained and has systems ranging from excellent and very good, to fair and poor. As would be expected, it is the latter categories that require costly and reactive maintenance, and are recommended for replacement in Bond Referendums and are the focus of replacement programs.

A rough estimate of replacing the City infrastructure is over $2 billion. Roads are generally expected to last 30 years and utility lines about 50+ years. In reality, Carrollton streets and utilities have required replacement at around the 40-year stage. Furthermore, because of corrosive and shifting soils, many ductile iron water lines have been replaced after 25 years because of the number of leaks that occurred on various line segments. Replacing these lines with PVC lines should result in much longer service lives than the lines that were previously replaced.

Figure 1



In 2014, the City spent $32 million on infrastructure replacement, which equates to replacing about 1.6% of the City's infrastructure value. This is an approximate 63 year replacement schedule which should be considered unsustainable long term. While a more sustainable replacement rate may be 40 years or approximately $50 million per year, this level of expenditure is difficult in the current economy. Therefore, it is incumbent that the City continues its aggressive maintenance and repair schedule to extend the life of the infrastructure and monitor the impact.

The biggest infrastructure challenge facing the City is from subdivisions built in the 1970s and 1980s. Figure 1 shows a map of the City's subdivisions and the decades in which they were constructed. Reconstruction efforts of the past decade have been directed at the neighborhoods built in the 1950s (shown in red) and 1960s (shown in yellow) but soon the neighborhoods built in the 1970s (shown in purple) will need replacement, or rehabilitation. **Our forecasting assumes the deterioration rate doesn't accelerate in the next five years for those 30-40 year old neighborhoods.** The City must at least continue spending maintenance/repair and capital dollars at its current rate (and possibly increase it slightly) to minimally maintain its infrastructure needs.

Consequently, our economy dictates that proposed funding expenditures are closely scrutinized and spent wisely. Our goal is to help the decision makers address, consider and provide the necessary funding to effectively sustain the City's infrastructure, in turn ensuring vibrant communities and productive businesses.

The Infrastructure Report Card Process

This 2014 Report Card is the Second Edition, following the inaugural 2011 document that was published for the purpose of raising public awareness of the many issues and decisions that face City leadership and citizens. The data was compiled and **analyzed by City staff** and subsequently reviewed and **endorsed by the Capital Improvements Plan Advisory Committee (CIPAC)**.

This edition continues that legacy by providing a comprehensive assessment of both current and future conditions of public infrastructure. Much like its predecessor, this report card is modeled after *The Report Card on America's Infrastructure* generated by the American Society of Civil Engineers (ASCE).

The 2011 Report evaluated infrastructure in the following selected critical categories: Surface Infrastructure (street, alleys, sidewalks and bridges), Drinking Water, Stormwater, Wastewater, Facilities and Parks & Recreational Space (see Appendix A for a listing of the 2011 grades per category). This 2014 Edition expands the assessment to include Parks & Recreation, Information Technology and Community Quality of Life requirements. **The criteria for the grading of the infrastructure are described in Appendix B.**

The City's Report Card is an improved version of the ASCE Model as the grades are intended to be a measure of the present condition of our infrastructure, as well as a future forecast based on proposed budget, Capital Improvement Bonds and other financial sources with associated strategies forecast through 2018.

How is the infrastructure funded? The day-to-day operations and maintenance of the surface infrastructure is provided by the general revenue fund. The major capital improvements are provided by the bond program. The City also receives annual grants from the U.S. Department of Housing and Urban Development (HUD) as part of the Community Development Block Grant Program (CDBG). The water distribution and waste water collection maintenance and the capital improvement projects are provided by the utility enterprise fund. The City also attempts to leverage other funding through federal, county or regional grants or similar programs.

As you review the report grades, one might better value our City's infrastructure and the importance of past investments if you comparatively read about a few key State of Texas' infrastructure facts[1]:

- 19% of Texas' bridges are structurally deficient or functionally obsolete.
- Texas' Grade for Roads: D
- Texas' drinking water infrastructure needs an investment of $212 billion by 2060.
- Texas' grade for Flood Control: D
- Texas Overall Grade: C

The City staff hopes the information contained in this report will help our citizens understand the magnitude and scope required to sustain and improve Carrollton's infrastructure. Unlike many municipalities in Texas as evidenced above, our past City leaders, staff and citizens have committed substantial resources in terms of time, effort and money to provide the infrastructure we have today. Past and current grades are primarily based on the resources available balanced against the competing budget needs of the City and the constraints associated with the dynamic changing needs. Our goal is to update the report card to align with the City's Bond Elections (every 3-5 years) to best highlight the financial needs.

The aging infrastructure needs continual attention using aggressive and sustainable maintenance and repair best management practices as well as capital improvements. The City's Asset Management Process addresses a deliberate life cycle sustainment process and different levels of investment as each asset moves through various service lives: minor maintenance/preventive maintenance, major maintenance, major repair or rehabilitation and, finally, replacement. A dollar invested in routine maintenance early may save $5 or more later in major replacement. ***Continued attention and financial support at equal or greater levels is critical to ensure the health, safety and quality of life for future generations.***

We want to continue to emphasize that the infrastructure of a City is the backbone that supports the health and safety of its citizens and is a major component of its economic vitality.

[1] *Texas Section of the American Society of Civil Engineers 2012 State of Texas Report Card located at texasce.org/?page=TexasIRC.*

EXECUTIVE SUMMARY

The Report Card's issued grades summarized below are based on a variety of measurable performance standards. The methodology considered, as available, the following: capacity, condition, funding, age, future need, operation and maintenance (including sustainability), public safety, resilience and technology (capacity, reliability and redundancy), deployment time and refresh schedule. More details are highlighted in each of the specific category sections following this summary.

Surface Infrastructure 2014 B- 2018 B-

The City maintains 1,176 lane miles of roadways, 189 miles of alleys and 67 bridges. Roadways are classified as Arterials, Collectors, Industrial and Residential. The Public Works Department has spent the last several years on panel replacements in arterial roads that are rated in average or better condition to keep them from having to do full replacements while the Engineering Department has focused on replacing streets that are beyond rehabilitation.

The City tracks the condition of all its roads and alleys with a system called the Infrastructure Management System (IMS). The rating is based on the surface condition and voids underneath the pavement. From this, a priority system is developed which is the basis of pavement replacement programs. Based on this system, the street categories and ratings are:

	2014	2018
Arterial Streets	A-	A-
Residential Streets	B-	B-
Sidewalks	C-[2]	NR

	2014	2018
Collector Streets	B-	B
Alleys	D-	D
Bridges	B-	B

[2] *Sidewalk data is based an early 2000 survey. The City commissioned a new survey in the fall of 2014. The results are not yet available as of this report.*

Drainage Infrastructure 2014 B 2018 B+

The City's drainage system consists of pipes, inlets and manholes within the road system and drainage channels. Carrollton has approximately 42 miles of channels, 228 miles of storm sewers and culverts, 6,938 inlets and 600 manholes and junction boxes. Extensive improvements have been made to the channel system over the last 20 years while new storm sewer lines are typically constructed with road projects. Maintenance is performed on an as-needed basis. The various components are rated as follows:

	2014
Storm Sewer Pipes	C+
Dams	B+

	2014
Channels	B+
Other Infrastructure	C+

Water System 2014 B- 2018 B-

The essential elements of the City's public drinking water system infrastructure include five ground storage tanks, five elevated storage tanks, three pump stations, one booster pump station, over 500 miles of distribution mains, 4,000 fire hydrants and over 40,000 service connections. Maintaining the water and wastewater system infrastructure has been in the forefront to ensure growth and sustainability within the community.

The system is generally in fair to good condition. There are concerns regarding the condition of older distribution mains which are being identified and replaced on an annual basis. These older lines are typically made of ductile iron. The funding for these activities will need to be sustained to ensure the reliability of the water delivery system. The various components are rated as follows:

	2014	2018
Storage Tanks	B	B
Distribution Lines	C	C+

	2014	2018
Pump Stations	B	B
Fire Hydrants	B	B

Wastewater System 2014 C+ 2018 B-

The essential elements of the City's wastewater collection system infrastructure include 19 lift stations, 448 miles of wastewater collection mains, 5,732 manholes, 2,025 main line clean outs and over 30,000 service connections.

The wastewater system is generally in fair to good condition. Most of the problem lines (lines that need to be cleaned every 30 days or sooner) have been replaced over the past five years which has significantly reduced maintenance. The City generated a program of rehabilitating one lift station each year to replace old pumps and electrical equipment with backup power generators to bring them into compliance with current TCEQ criteria. The funding for the rehabilitation of these mains and lift stations needs to be sustained to ensure the reliability of the wastewater collection system.

	2014	2018
Lift Stations	B	B+
Manholes	B	B+

	2014	2018
Collection Lines	C-	C+

Facility System 2014 C 2018 C

Most facilities are well designed and present a dignified, professional image to visitors and users. Many facilities have undergone major renovations over the last five years and we also have several new facilities. This helps bring the overall composite score of the audit to a "C". Unfortunately, the financial condition of the City has resulted in deferring "cosmetic" improvements to facilities (e.g. carpet and paint). We have been deferring these "cosmetic" projects since around 2007. On the positive side, mechanical system ages are above average and present a high confidence score. Summary scores are below:

	2014
Roof Systems	C
Mechanical	B-

	2014
Paint	D+
Carpet	D+

Parks System 2014 C 2018 C

The City parks system includes: one pool and one splash park, 14 concessions/restrooms, 18 courts, 38 athletics fields, 31 parking lots, 17 pavilions, 26 playgrounds and 25 trails. Ages of these amenities range from 48-years-old to just a few months. An A-F grading system was used with points assigned to each category/ grade. Overall grades by category are:

	2014
Aquatics	C
Concessions/Restrooms	D+
Courts	C-
Sports Fields	C

	2014
Parking Lots	C
Pavilions	B
Playgrounds	C+
Trails	B-

Quality of Life 2014 NR 2018 NR

This category captures the intangible infrastructure that enhances residents' desire to live in our community. This report identifies items such as railroad quiet zones, screening walls and City-wide corridor beautification. The items are not rated, but the expenditure is significant enough to warrant mentioning in its own section.

Technology Information System 2014 B 2018 B

Information Technology infrastructure is the integrated framework that supports the City's digital network. It consists of five major functional systems:

	2014	2018
Audio/Visual and Desktop	A	A
Network Connectivity	B	B
Environment	B	B
Public Safety Radio	D	B
Security Systems	B	B

B- 2014 Grade

B- 2018 Grade

SURFACE INFRASTRUCTURE

Final Grade

Applying equal weight to each of these system components, the overall grade for the surface infrastructure system is a "B-" which compares quite favorably to the national average grade of D+ recently given by ASCE (2013).

Recommendations

The City must at least continue to spend at current levels, but with all of the 1980s subdivisions entering a period when replacement becomes a consideration, increasing funding in future years must be considered. Panel replacements should be stepped up in areas where roads or alleys can be saved from falling into non-rehabilitation conditions. If conditions show accelerated deterioration, we should consider replacement at 2 to 2.5 percent of the infrastructure backlog per year.

Recommended Annual Infrastructure Funding $39,400,000

Funding GAP $22,138,000

The City maintains 1,176 lane miles of roadways, 189 miles of alleys and 67 bridges. The replacement cost of the roads and sidewalks is $1,400,000,000. The alleys are valued at $103,000,000, and the bridges at $73,700,000.

Roadways are classified as Arterials, Collectors, Industrial and Residential. The Public Works Department has spent the last several years on panel replacements in areas that are rated in average or better condition to keep them from having to do full replacements while the Engineering Department has focused on replacing streets that are beyond rehabilitation.

The City tracks the condition of all its roads and alleys with a system called the Infrastructure Management System (IMS). The rating is based on the surface condition and voids underneath the pavement. From this, a priority system is developed which is the basis of pavement replacement programs. For the remainder of this section the following grading system applies:

- A New or near new conditions
- B Very good condition; requires only minor maintenance
- C Good condition, but has some pavement cracking that requires crack/joint sealing or other forms of maintenance
- D Street is in serviceable condition, but has noticeable potholes and cracking. Major panel replacement work can bring the street back up to good condition.
- F Street is in poor or failed condition. Major panel replacement is not sufficient due to subsurface or base failures. Street will require total reconstruction to correct.
- NR Not rated.

Arterial Streets 2014: A- 2018: A-

The City has 304 lane miles of streets classified as arterial. These are 4, 6, or 8-lane divided thoroughfares. Of the 304 lane miles, 244 miles (81% of the total) are rated in very good or better condition, 49 miles (16%) in good condition, 7 lane miles (2%) are rated in serviceable condition, and approximately 3 miles (1% of the total) are classified as failed condition or in need of total reconstruction.

Collector Streets 2014: B- 2018: B

This category includes 2 and 4-lane residential collector streets as well as the 2 and 4-lane industrial streets. Of the 268 lane miles in this category, 186 miles (69% of the total) are rated as very good or better, 53 miles (20%) are in good condition, 24 lane miles (9%) are rated in serviceable condition, while 5 miles (approximately 2% of the total) are classified in failed condition.

Residential Streets 2014: B- 2018: B-

This is the largest category in the City with slightly more than 600 lane miles. In this category, 395 miles (65%) are rated in very good or better condition, 129 miles (21% of the total) are rated in good condition, 53 miles (9%) are rated in serviceable condition, and 27 miles (4% of the total) are in need of total reconstruction.

Alleys 2014: D- 2018: D

The City has 189 miles of alleys. Of these, 19 miles (10%) are in very good or better condition, 73 miles (38%) are rated in good condition, 61 miles are in serviceable condition and 36 miles (19%) are classified in failed condition and in need of total reconstruction. Overall, approximately 52% of our alleys are in the failed or serviceable category.

Note: Despite the low current grade for alleys, there was a focused effort in the past few years to put additional investment in alleys as the previous grade was an F, which illustrates progress.

Sidewalks 2014: C- 2018: NR

The City has approximately 575 miles of sidewalks. When the last assessment was done in 2001, approximately 118 miles (29%) were categorized as substandard. Substandard is defined as having cracks in the sidewalk, some amount of vertical displacement (which ranges from ¼ inch to several inches) and concrete spalling. Since 2011, 29.7 miles of sidewalks have been replaced throughout the City.

To better identify requirements for this sub-category, the City funded a new condition assessment which is expected to be complete in late Spring 2015. Additionally, the last Bond Election funded $80,000 annually plus $100,000 in the fifth year to positively affect improvements to the existing sidewalk system as well as construct required infill sidewalks missing in neighborhoods and along arterials.

Bridges 2014: B- 2018: B

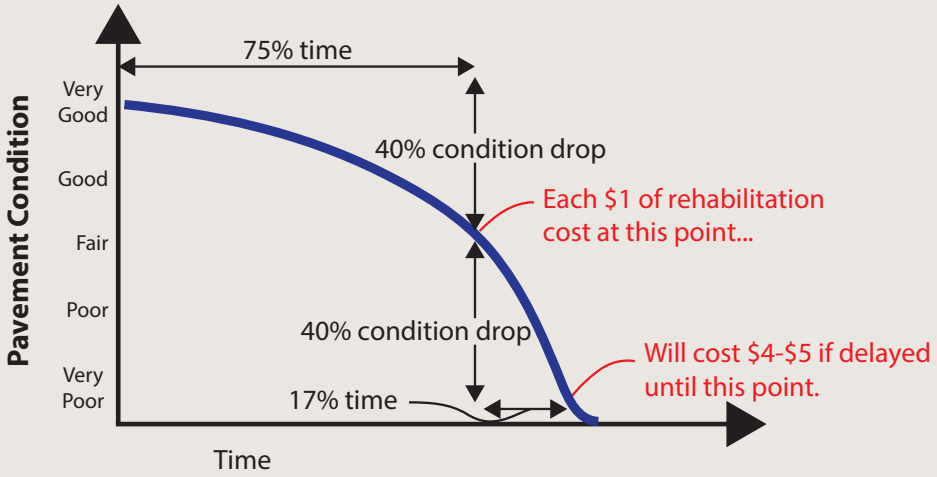
The Texas Department of Transportation (TxDOT) evaluates the City's 67 bridges on a biennial basis in a report entitled The Off-System Bridge Inventory, Inspection and Appraisal Program. The current report used for this grading is dated July 2013. No individual bridge was rated below the "Good Condition."

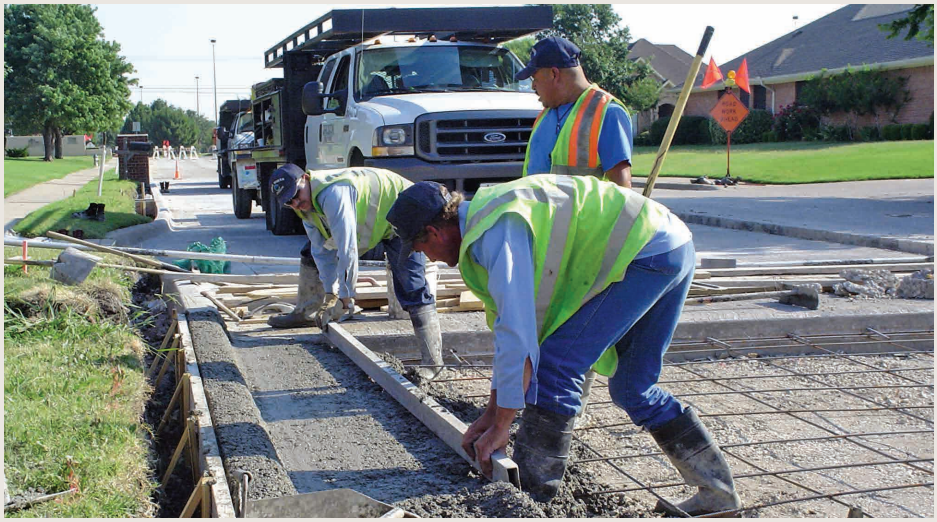
There are 40 bridges within Dallas County and 32 have comments categorized, "No action recommended other than routine maintenance." Similarly, of the 27 bridges located in Denton County, 19 have the same comments; for a total of 51 bridges requiring routine maintenance only.

The majority of the maintenance will be done with City Public Works staff. However, there are a number of repair requirements that are beyond their capability and require contract work. This type of work includes: repositioning or replacing bearing pads, repairing spalled columns and re-covering drilled shafts. This requirement is progressing through a collaborative Public Works-Engineering assessment team approach.

Investment Needs

The City recognizes the critical need to have a proactive and comprehensive Preservation Pavement Program as a Best Management Practice. An annual/recurring maintenance and repair process with City staff and some contract services promotes more cost effective asset management techniques. These practices include crack and joint sealing; asphalt/ concrete pothole repairs; mill and overlays, pressure grouting, street sweeping and limited/selective panel replacements. All of these practices make a difference and reduce the high cost reconstruction schedule. As noted in the attached chart, approximately $1 invested early in the maintenance cycle lengthens the time before more costly construction takes place.





Cost for Complete Reconstruction

Arterial Streets: 10.31 miles x $1,190,000/ln-mi	$ 11,031,700
Collector Streets: 29.42 miles x $1,190,000/ln-mi	31,479,400
Residential Streets: 79.65 miles x $1,190,000/ln-mi	85,225,500
Street Subtotal	$127,736,600
Alleys: 97.68 miles x $550,000/mi	53,724,000
Sidewalks: 166 miles x $105,600/mi	17,529,600
Bridges: 3 Bridge Decks x $1,100,000/deck	3,300,000
Total investment needs	$202,290,000

Note: The data used to base the street and alley conditions was collected in late 2012. This data was much more accurate and current than the data used in the 2011 report card.

Planned Projects

Projects to be Completed by 2015		
NOTICE Carrollton Downs Phase 1	$2,046,511	(also listed in Wastewater Section)
NOTICE Keller Springs Village Phase 4	$1,813,555	
Old Mill Road	$2,440,888	
NOTICE Carrollton Downs Phase 2	$2,600,000	
Perry Road Bridge and Sidewalks	$314,553	
Street Rehab Program	$3,160,000	
Projects to be Completed by 2016		
Neighborhood Project #2 (Woodlake #3)	$3,528,335	
NOTICE Carrollton Downs Phase 3	$2,600,000	
Whitlock Lane	$4,300,000	
Old Denton Road (PGBT to Frankford Road)	$6,600,000	
Street Rehab Program	$3,200,000	
Alley Project 2014	$1,400,000	
Meyers Street/Carroll Avenue	$375,000	
Projects to be Completed by 2017		
Alley Project 2015	$1,200,000	
NOTICE Santa Rosa Heights	$2,950,000	
NOTICE Jackson Arms	$1,700,000	
NOTICE Palo Alto Phase 1	$1,800,000	
Old Denton Road (Frankford Road to Rosemeade Parkway)	$5,900,000	
Downtown Parking Lots (140 spaces)	$626,000	
Street Rehab Program	$3,230,000	
3 Year Total	$51,784,842	
Average Annual Funding	$262,000	
Average Annual Funding (Percent of total infrastructure)	1.095%	

B 2014 Grade

B+ 2018 Grade

DRAINAGE INFRASTRUCTURE

Final Grade

For channel and storm drain improvements, the City should continue with the current level of funding. As Municipal Separate Storm Sewer System (MS4) regulations progress, the City should investigate the development of alternative funding sources to address the ongoing costs of infrastructure, water testing, enforcement and management of the federally mandated program.

Recommendations

For channel and storm drain improvements, the City should continue with the current level of funding. As MS4 regulations progress, the City should investigate the development of alternative funding sources to address the ongoing costs of infrastructure, water testing, enforcement and management of the federally mandated program.

The City's drainage infrastructure consists of a system of inlets, pipes, pump stations, dams and channels that carry storm water flow safely across the City, minimizing the potential for property damage due to flooding. Unlike most infrastructure that is used on a daily basis, the drainage system is typically only noticed when a major storm system arrives and there is a problem.

The City has used the design parameter of the one percent recurrence storm as the standard for designing infrastructure from inlets to open channels. The one percent recurrence is sometimes referred to as the '100 year storm', based on the one chance in 100 for the particular storm intensity to occur. While a system designed to this standard is assumed to be an 'A', it must be emphasized that this doesn't mean there is NO flood potential. Design of drainage systems assumes that the system is relatively clean, free from silt and blockages and reasonably well maintained. This is an ongoing process that is undertaken by Public Works. Without this ongoing maintenance, even the A system will perform at an F level.

In addition to providing flood protection, ponds and channels provide amenities to the community. Several areas along both Furneaux Creek and Hutton Branch have been improved in recent years, providing an aesthetic feature in the greenbelt and more effectively using the land area of the greenbelt for recreation and flood control.

Federal legislation continues to expand the role of drainage management by requiring water quality management features to be included in drainage design. The North Central Texas Council of Governments (NCTCOG) has developed design criteria which attempt to combine drainage quantity and quality factors. The City has done this to a very limited degree through the use of onsite detention ponds. While these are mainly designed to reduce peak storm drainage flows, they do provide some water quality enhancement through the reduction of floatables and sediment in the storm water.

An integral part of the drainage system is the street system, since, in many cases, the streets convey the flows to the inlets or other drainage structures. Since streets are graded elsewhere, the street condition is not considered here except for areas without curbs.

Storm Sewers C+

Carrollton has approximately 228 miles of storm sewers and culverts, 6,938 inlets and 600 manholes and junction boxes. The replacement value is about $140 million. Storm sewer lines are generally constructed with subdivision and/or road projects.

Referring to the map 'Age of Residential Subdivisions', the vast majority of the drainage systems built in the 1970s and earlier are built to a four percent design recurrence or less stringent standard. With the exception of NOTICE neighborhoods which have been recently re-built, much of these systems are undersized for current standards. This is a significant issue in the Historic Downtown area, where re-development associated with Transit-Oriented Development will exacerbate the problem. This area is also at the lower end of the drainage basin, therefore the structures are larger and more costly to replace.

By inspection of the system map, it appears that approximately half the system is designed to a level B and the remainder is mainly level C with some level D. There is a small area north of downtown without curbs that would fall into level F. Under a significant rainfall event, we do have some localized street flooding, but this typically passes fairly quickly, indicating that the system is in good condition. Some of the new development in the Historic Downtown area has new storm sewers connecting to systems that are inadequate, increasing the potential for flooding until downstream improvements are constructed. Plans for increasing downstream capacity are tied to improvements to be constructed with IH-35E. This should be completed by 2016.

Channels B+

Approximately 42 miles of drainage channels are located in Carrollton. These channels convey the bulk of drainage flows through the City to the Elm Fork of the Trinity River. There are four major creeks in the City—Furneaux Creek, Hutton Branch, Dudley Branch and Indian Creek. As part of the Department of Homeland Security FEMA Flood Insurance Program, the City manages these creeks. This includes limiting development within flood prone areas, maintaining the channel analysis and associated maps, public awareness programs and management of

modifications to the floodplain limits. FEMA has issued new floodplain maps for Carrollton based on a 2007 study that was completed through a partnership between FEMA and the City.

FEMA uses the Community Rating System (CRS) to encourage cities to undertake flood related activities that will lower the potential for flooding in a community and thereby reduce the insurance risk. Cities are rated on a scale of 1 (best) to 10 (worst) based on a variety of criteria and activities performed on an annual basis. These ratings translate to discounts for members of the community purchasing flood insurance. The City recently improved its CRS rating from 7 to 6. This translates to a 12-17% discount on flood insurance from the full rates.

The City has undertaken several projects over the past several years to improve water quality, reduce maintenance and enhance flood capacity on several sections of Furneaux Creek and Hutton Branch. Most of these projects are related to the reduction of erosion and sedimentation in the creeks, and improving the safety of the channels in park areas. These projects require approval through the US Army Corps of Engineers (USACOE) through the Section 404 Permitting process.

All of these channel improvements have been permitted using Nationwide General Permit 27, Aquatic Habitat Restoration, Establishment and Enhancement Activities (NW 27). This is a simplified approach to securing a 404 permit, but it typically takes 9 to 12 months along with mitigation considerations and other hurdles. Since the purpose of NW 27 is to improve wildlife and create a habitat, it is considered to be 'self-mitigating' as an impact to the environment. For projects that do not qualify for the NW 27 permit, environmental mitigation is required. If this cannot be accomplished on City land near the site (and approved by the Corps of Engineers), it must be purchased from approved mitigation banks. As demand increases for these mitigation credits, the price has exploded with costs easily exceeding $100,000 for a small creek restoration. This may impact future channel improvement costs.

We are currently moving forward with the design of channel improvements on Indian Creek, south of Hebron Parkway. This will address significant erosion concerns near the channel on the east side of the creek. The section of Indian Creek from Hebron Parkway north to Old Denton Road is currently planned for design in 2016-2017.

Based on channel analysis, our major drainage ways can accommodate a one percent recurrence flood, with only a few isolated lots impacted by floodwaters. While we have made efforts to address water quality, this has not been the focus of the floodplain management and additional measures will likely be required in the future. It should be noted that our channels are designed to address the basic requirements for storm drainage and to meet the environmental concerns from the USACOE to maintain channels in as close to a natural habitat as possible. If required to add more aesthetic features in the future, this could significantly increase costs.

Dams B+

The Texas Commission on Environmental Quality (TCEQ) has recently established requirements for annual inspection and regular maintenance of dams across the state. Enforcement consists of a TCEQ inspection of all dams every five years and notification of deficiencies identified in the inspection. The City has two dams, Woodlake and Josey Ranch Lake Dam. These are both classified as small, high hazard dams. City staff recently addressed TCEQ comments concerning maintenance of both dams, prepared breach analysis and an Emergency Action Plan for each dam and submitted these to TCEQ for their review and approval.

Both dams meet state requirements for safety.

Information was submitted to TCEQ concerning the condition of the dam and the potential damage associated with a failure of the dam in 2011/2012 in accordance with the new dam regulations. The City has received no feedback on this information.

Other Infrastructure Items C+

The City's drainage infrastructure includes pump stations and small ponds that may or may not act as detention/retention facilities. Major pump stations include one at Belt Line Road and IH-35E and one in the Valwood Improvement District. It should be noted that the Valwood area has a special tax levy which pays for the cost of drainage-related improvements. Due to the hydraulics associated with the Elm Fork of the Trinity River, it is difficult to assess whether these can truly convey a one percent recurrence design storm as floodwaters from the Elm Fork would inundate the area.

The drainage improvement plans for IH-35E include a significant drainage capacity improvement under the highway immediately south of Belt Line Road. This will remove a bottleneck that has prevented achieving an acceptable level of flood protection in the Historic Downtown area. This work is being performed by TxDOT with financial support from the City. In addition, the City is adding a major drainage culvert from Broadway to IH-35E. Once this is in place, the potential for Historic Downtown flooding will be drastically reduced.

Drainage in the Valwood Improvement District is heavily influenced by backwater from the Elm Fork of the Trinity River. There is some concern over the pump station on Hutton Branch – the capacity is limited and as upstream areas (such as the Historic Downtown area) are redeveloped, there is potential this will become a bottleneck. This was partially addressed in the downtown detention pond.

Due to concerns over the capacity of these pump structures and the age and maintenance requirements of the pumps, this part of the drainage infrastructure is rated "C+".

Another issue related to the drainage infrastructure is reviewing and updating the 2000 Stormwater and Flood Protection Ordinance. This update was completed in 2014, with anticipated adoption in 2015. While design parameters have not changed, issues addressed such as proportionality of developer/City infrastructure cost sharing may have an impact on future drainage improvements.

Investment Needs

The City is required by federal law to manage the water quality of storm drainage through regulations which designate the City as a Municipal Separate Storm Sewer System (MS4). A plan has been developed, submitted and approved by TCEQ that sets forth measures the City will perform to improve water quality at discharge points in the storm drain system. While the initial requirements were relatively minor and straightforward, moving deeper into the program requires capital expenditures to meet both water quality and quantity requirements.

As MS4 regulations become more stringent, water quality management has become a bigger issue, especially along the creeks. This may include modifications to existing inlets, more water retention facilities, trash/floatable collection devices at outfalls, monitoring systems in inlets or a host of other items. It is not feasible to quantify these improvements at this time since it will need to be a comprehensive program across the system.

The November 2013 Bond Program provides funding for channel projects on Indian Creek, drainage system improvements in the downtown area and other drainage improvements.

Storm drain piping systems are being replaced as necessary with new pavement rehabilitation.

Planned Projects

Projects to be Completed by 2015	
Hutton Branch (Mill Trace drainage)	$650,000
Projects to be Completed by 2016	
Downtown Drainage Improvements Phase 1	$1,640,000
Raiford Road (north/south tributary)	$1,000,000
Projects to be Completed by 2017	
Downtown Drainage Improvements Phase 2	$1,880,000
Upper Indian Creek Phase 2	$4,250,000
3 Year Total	$9,420,000
Average Annual Funding	$3,140,000

B- 2014 Grade

B- 2018 Grade

WATER

Final Grade

Applying a weighted grade to each of these categories gives an overall grade for the City's drinking water systems of "B-".

Recommendations

The City should continue on the current pace to rehabilitate or replace older facilities and infrastructure to ensure a maintainable Public Drinking Water System and the safety of the public's health.

The City of Carrollton uses approximately 7.8 billion gallons of water annually. Looking toward the future, increased efficiency in water use and conservation will be essential to maintaining water demand and a cost effective service. Carrollton's water quality was found to exceed the regulatory standards and earned an "A;" however, problems do occasionally occur requiring facilities to be temporarily removed from service. Future investment will be needed to prevent electrical and mechanical breakdowns. Current funding pertaining to water distribution main replacement will need to continue to address the aging infrastructure. As the cost of the wholesale water supply increases, the cost to provide safe water will continue to increase.

The City has been implementing the 2001 Water System Master Plan over the past 10 years and almost has the system built out (exclusive of the potential Transit-Oriented Development (TOD) area). The last large project in the Master Plan is the replacement of the 1.5 million gallon (MG) Josey Elevated Storage Tank with a new 3 MG tank, scheduled for 2017.

Pump Stations 2014: B 2018: B

The City has four pump stations (PS); Don Cline, Columbian Club, Bobby Ballard and Golden Bear Booster. The Don Cline PS is the main pump station and serves the central two-thirds of the City. Columbian Club PS, which serves the eastern quarter of the City, is capable of serving virtually the entire City with its power generator back up system should an extreme emergency occur. The Bobby Ballard PS, located in far north Carrollton, was constructed in 1999 and serves that area of the City. The Golden Bear PS, located within the Columbian Club service area, provides increased water pressure to a small area on the extreme eastern edge of the City southwest of Trinity Mills Road and Midway Road.

Energy reduction is a major goal of the department and an energy study was conducted in 2012. Implementation of the study findings has been initiated and consists of power monitoring software with the upgrade to the SCADA (Supervisory Control & Data Acquisition) system. Other items such as motor replacements will be phased in as replacement becomes necessary.

Modernization of the CCTV (closed-circuit television) and SCADA security systems throughout the network are in the process of evaluation and implementation.

Storage Tanks 2014: B 2018: B

The City has five ground storage tanks; two 10 million gallon (MG) tanks at the Don Cline PS, a 5 MG and 6 MG tank at the Columbian Club PS and a 3 MG tank at the Bobby Ballard PS. Elevated tanks are located near Hutton at Belt Line (2 MG), Josey at Jackson (1.5 MG), Hebron at Juniper (3 MG), Marsh at Marsh Ridge (3 MG) and Marsh at Keller Springs (2 MG). The replacement cost of the storage tanks is estimated at $25 million. Currently all ground storage and elevated storage tanks are in fair to good condition based on the 2014 inspection reports but the Hutton and Marsh South tanks are in need of repainting. Hutton was repainted in early 2015 and Marsh South over the winter of 2015/16, each at a cost of approximately $700,000. No major structural deficiencies were found during the annual inspection process.

Distribution System 2014: C 2018: C+

The City's water distribution system is comprised of over 570 miles of mains ranging in size from 6 to 54-inches, 12,872 valves, 5,000 fire hydrants and over 45,000 service connections. The current efforts of the capital improvement program and in-house water line replacement program have replaced an average of 35,000 feet of distribution water mains annually to reduce major leaks and ensure sustainability of the distribution system. In the last five years there have been a total of 622 major leaks throughout the water distribution system compared to the previous five years when there were 859 leaks. The current trend shows a continuous reduction in unplanned emergency repairs. Approximately 36 percent of the infrastructure has exceeded its life expectancy. The current American Water Works Association national average benchmark is 4.34 main leaks per mile. In 2012 Carrollton's water distribution system had 4.32 main leaks per mile which is slightly lower than the national average. Through the water distribution replacement program, we have seen a slight improvement for the last few years on this average.

The trend clearly shows the two pronged approach of using both contractors as well as City staff to replace the aging systems is continually effective.

Major Water Distribution System Leaks Historical Data	
Year	**Number of Major Leaks**
2009	174
2010	145
2011	134
2012	128
2013	79
2014	82

Fire Hydrants 2014: B 2018: B

Currently there are over 5,000 fire hydrants within the water distribution system. In-house crews conduct preventive maintenance measures on each one annually to ensure fire protection for citizens and business owners.

Investment Needs

Replacement of aging water distribution pipelines is an ongoing need. The City should, as a minimum, continue to replace mains at its current pace, which is approximately $3 million annually. The Water Department has the ultimate responsibility to ensure a safe and reliable drinking water system and by adhering to regulatory health standards and making necessary improvements.

Planned Projects

Projects to be Completed by 2015	
SCADA (Supervisory Control & Data Acquisition)	$500,000
Hutton Elevated Storage Tank Repainting	$673,640
Projects to be Completed by 2016	
Marsh South Elevated Water Tank Repainting	$700,000
Water Replacement 2014	$1,500,000
Water Replacement 2015	$1,000,000
Projects to be Completed by 2017	
South Josey Elevated Tank Replacement	$3,200,000
Water Replacement 2016	$1,000,000
Year Total	$8,573,640
Average Annual Funding	$2,850,000

C+ 2014 Grade B- 2018 Grade

WASTEWATER

Final Grade

Applying equal weight to each of these system components, the overall grade for the wastewater system is a "C+" which compares quite favorably to the national average grade of "D+" recently given by the American Society of Civil Engineers (ASCE).

Recommendations

- Support continued funding at the same or greater level for the capital improvement program to protect public health and safety.
- Support funding for closed-circuit television (CCTV) inspection of the collection system to determine structural integrity.
- Continue manhole rehabilitation program.
- Continue smoke testing program to locate infiltration and inflow (I/I) sources.
- Maintain current funding level at approximately $3,000,000 in annual expenditures.

The essential elements of the City's wastewater collection system infrastructure include 19 lift stations, 413 miles of wastewater collection mains, 5,478 manholes, 2,025 main line clean outs and over 30,000 service connections. The wastewater system is generally in fair to good condition; however, there are concerns regarding the condition of older clay tile mains and concrete interceptor mains. Approximately 28 percent of the system still consists of clay. Even though most of the problem lines have recently been replaced, funding for the rehabilitation of these mains needs to be sustained to ensure the reliability of the wastewater collection system.

Environmental stewardship: For the last 10 years the City has averaged about five sanitary sewer overflows annually, which is an excellent rate for this size system. This is a result of aggressive maintenance as well as replacement.

Lift Stations 2014: B 2018: B+

There are 19 lift stations within the wastewater collection system. Sixteen of the lift stations are in good condition and have sufficient capacity. Two have reached their life expectancy, and require significant improvements to upgrade deteriorated conditions to keep them functioning properly. These two locations, the IH-35E and Cotton Belt lift stations, are currently under construction.

Without considering the condition of the lift stations, two of the stations only have one pump which is not in accordance with TCEQ criteria and, after 2014, only four will have dual power sources (Fyke Road, Monetary, IH-35E and Cotton Belt). This will be the focus of upgrading the City's lift stations in the upcoming years.

Wastewater Collection Mains 2014: C- 2018: C+

The City's collection system is divided into four major basins; Hutton Branch, Furneaux Creek, Dudley Branch and Indian Creek, and has nearly 413 miles of wastewater mains ranging in size from 6 to 42-inches in diameter. Of this total approximately 28% is clay pipe which is the focus of replacement projects. The City has replaced most of its interceptor mains over the past 10 years to accommodate the build out population and to eliminate old deteriorating pipe. With this, infiltration and inflow (I/I) has been significantly reduced to the point where Carrollton's system is the tightest in the Trinity River Authority's (TRA) service area. The City has also spent over $4 million in the past six years to eliminate problem lines that had to be maintained on a monthly basis to ensure lines would not overflow or backup due to structural defects, inadequate capacity or obstructions in the lines. Also, due to the NOTICE program, many of the City's oldest and worst lines have been replaced. However, about 35 percent of the system still exceeds its life expectancy.

A flow metering study was performed a few years ago to prioritize rehabilitation efforts in the 34 measured sewer sub basins. With this information, the Public Works Department has developed and implemented a plan to smoke test and internally inspect collection lines to find I/I sources and other system defects. Significant defects are repaired by City crews when they are found.

Overall, with the work that has been completed over the last decade, the City's collection system performs quite well. Backups, when they occur, are usually the result of foreign debris in the lines or from backups in the TRA interceptors. Problem areas are addressed every year in a replacement program which has systematically been replacing problem lines.

Manholes 2014: B 2018: B+

The City has 5,478 manholes in the collection system. Public Works routinely evaluates these and rehabilitates approximately 460 every year. Overall, manholes are in good condition but there are many that are in need of rehabilitation to correct structural and I/I defects.

Investment Needs

The estimated five-year operation and maintenance budget for the wastewater system is $41.2 million. In addition to this, all condition "C" and "D" components should be upgraded, rehabilitated or replaced. The necessary capital improvement costs to accomplish this goal over the next five years are estimated to be $7.5 million.

Planned Projects

Projects to be Completed by 2015	
IH-35E Lift Station	$296,740
Cotton Belt Lift Station	$716,772
Indian Creek Interceptor	$1,972,000
Carrollton Downs Sewer Replacement	$2,046,511
Sanitary Sewer 2015	$1,000,000
Projects to be Completed by 2016	
Frankford Lift Station	$600,000
Sanitary Sewer 2016	$1,000,000
Lift Station 2015	$500,000
Projects to be Completed by 2017	
Sanitary Sewer 2017	$1,000,000
3 Year Total	$9,132,023
Average Annual Funding	$3,044,000

C 2014 Grade C 2018 Grade

FACILITIES

Final Grade

The overall facilities grade is a "C."

Recommendations

The City should continue to support ongoing maintenance for facility projects. Recommend using the long range planning table to assist with the selection of future Capital Improvement Program (CIP) facility projects during the next bond election cycle.

Facility	Roof	Score	Mechanical	Score	Carpet	Score	Paint	Score
Animal Shelter	2010	A	2010	A	2010	C	2010	F
Bobby Ballard Pump Station	1998	D	1998	D	1998	F	2007	F
Central Service Center	2014	A	2007	B	2006	F	2013	B
City Hall	1999	D	2006	B	2015	A	2014	A
Columbian Club Pump Station	2010	A	2010	A	N/A		2010	F
Crosby Recreation Center	2010	A	2010	A	2010	C	2010	F
Don Cline Pump Station	2007	B	2005	B	2004	F	2004	F
Elm Fork Nature Preserve	1997	D	1997	D	2011	B	1997	F
Fire Station #1	2004	C	2004	C	N/A		2014	A
Fire Station #2	2004	C	2004	C	N/A		2014	A
Fire Station #3	2000	C	2006	B	N/A		2008	F
Fire Station #4	2009	B	2006	B	N/A		2008	F
Fire Station #5	2005	B	2007	B	N/A		2011	D
Fire Station #6	2015	A	2005	B	N/A		2011	D
Fire Station #7	1999	D	2015	A	N/A		2006	F
Fire Station #8	2014	A	2014	A	2014	A	2014	A
Fire Training	2015	A	2003	C	2010	C	2008	F
Gravley Center	2003	C	2003	C	2013	A	2013	B
Hebron & Josey Library	2004	C	2001	C	2015	A	2013	B
Indian Creek Golf Course	1992	F[3]	2002	C	2015	A	2008	F
Josey Ranch Lake Library	2004	C	2004	C	2004	F	2013	B
Justice Center	2015	A	2002	C	2002	F	2002	F
Oak Creek Tennis Center	2001	C	2012	A	2001	F	2009	F
Perry Museum	2012	A	2010	A	N/A		2007	F
Police Station	2005	B	2011	A	2012	B	2012	C
Rifle Range	2009	B	2009	B	N/A		2009	F
Rosemeade Recreation Center	1999	D	2003	C	2003	F	2013	B
Sandy Lake Service Center	1997	D[3]	2007	B	2009	C	2009	F
Senior Center	2003	C	2003	C	2013	A	2013	B
South Service Center	2015	A	2005	B	1992	F	2014	A
AVERAGE SCORES	**B**		**B**		**D**		**F**	

Legend	A	B	C	D	F
Roof	0 to 5	6 to 10	11 to 15	16 to 20	21+
Mechanical	0 to 5	6 to 10	11 to 15	16 to 20	21+
Carpet	0 to 2	3 to 4	5 to 6	7 to 8	9+
Paint	0 to 1	2	3	4	5+

[3]Funded project, see Planned Projects.

Investment Needs

The projected three-year operation and maintenance budget for the facility system is $4.04 million. The necessary capital improvement costs to accomplish this goal over the next three years to maintain the system at its current level is estimated to be $2.9 million.

Planned Projects

Projects to be Completed by 2015

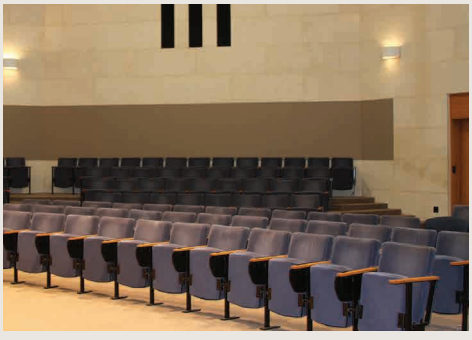
Hebron @ Josey Library Remodel	$173,000
Sandy Lake Service Center Office Building	$495,000
Fire Station #6 Roof	$44,300
HVAC Fire Station #7 and Columbian Club Pump Station	$42,086
Other Facility Maintenance Projects 2015	
• City Hall carpet replacement	$150,000
• City Hall chambers seating and carpet	$48,000
• City Hall restrooms renovations	$255,000
• Fire Training roof	$82,000
• Hebron & Josey Library carpet replacement	$122,000
• Justice Center roof	$250,000
• Indian Creek Golf Club clubhouse roof	$93,000
• Paint multiple facilities	$58,000
• South Service Center roof	$101,000

Projects to be Completed by 2016

Central Service Center Parking Lot	$1,850,000
Senior Center Upgrades	$1,720,000
Facility Maintenance Projects 2016	
• HVAC replacements at City Hall and Hebron & Josey Library	$282,000
• Justice Center energy management system replacement	$200,000

Projects to be Completed by 2017

New Police Station	$12,700,000
Second Splash Park (Location TBD)	$480,000
Facility Maintenance Projects 2017	
• Justice Center HVAC replacements	$125,000
• Roof replacements	$441,000
• Indian Creek Golf Club HVAC replacements	$100,000
3 Year Total	$19,656,386
Average Annual Funding	$6,550,000



Long Range Planning

This section quantifies long range (10 years or greater) needs to assist in facility Capital Improvement Program (CIP) planning during future bond election cycles. Staff has identified all current facilities and included the dates each facility was acquired or built (see table below). Staff assumes any facility will require either a major renovation or a complete reconstruction at about 35 years. Based on this table, the next major CIP project is the police station, currently planned. The next facilities to reach the 35 year threshold include the older portion of Rosemeade Recreation Center in 2017, the A.W. Perry barn in 2021, the Central Service Center in 2021, Fire Station #5 in 2021, City Hall in 2022 and older portions of Rosemeade Aquatic Complex in 2022.

Facility Name	Original Construction Date	Renovation(s)	Assumption Date	Estimated Life 35-40 yrs. Projected Renovation or Major Reinvestment[1]
A. W. Perry Homestead Museum	1909		1909	N/A
A. W. Perry Homestead Museum Barn	1986		1986	2021
Animal Services and Adoption Center	2010		2010	2045
Bobby Ballard Pump Station	1998		1998	2033
Central Service Center	1986		1986	2021
City Hall	1987	1989, 1993	1987	2022
Columbian Club Pump Station	1971/1985	2012	2012	2047
Crosby Recreation Center	1961	1975, 1988, 2010	2010	2045
Don Cline Central Pump Station	1988	2002	2002	2037
Elm Fork Nature Preserve	1997		1997	2032
Fire Station #1	2004		2004	2039
Fire Station #2	2004		2004	2039
Fire Station #3	1980	2008	2008	2043
Fire Station #4	1980	2008	2008	2043
Fire Station #5	1986		1986	2021
Fire Station #6	1988		1988	2023
Fire Station #7	1999		1999	2034
Fire Station #8	2013		2013	2048
Fire Training	1975	2008	2008	2043
Gravley Center	1964	2003, 2013	2013	2048
Hebron & Josey Library	2001		2001	2036
Indian Creek Golf Club - Club House	1994	2003	2003	2038
Josey Ranch Lake Library	2004		2004	2039
Justice Center	1979	2002	2002	2037
Oak Creek Tennis Center	2001		2001	2036
Police Station	1978	1986, 1993, 2012	2012	2015
Rifle Range - Training, Storage Building	2008		2008	2043
Rosemeade Rainforest Aquatic Complex	1981	1987	1987	2022
Rosemeade Recreation Center	1982	2003, 2012	1982	2017
Sandy Lake Service Center (Bldg A, New Shop)	2007		2007	2042
Senior Center Josey Ranch Lake	2003		2003	2038
South Service Center	1963	1990	1990	2025

[1] *Prior to any major renovation/re-investment, a full facility audit will be completed of all structural, mechanical and finish products.*

C 2014 Grade C 2018 Grade

PARKS & RECREATION

Recommendations

The City should continue to support funding of Parks & Recreation projects at the same level as the 2014 budget.

Funding for Parks & Recreation comes from several sources: General Funds, General Obligation Bonds, Revenue Bonds, Grants – Texas Parks & Wildlife Department (TPWD), Dallas County Park & Open Space Program, NCTCOG, TxDOT, Private Donations, Joint Use Agreement/Cost Sharing and Partnerships.

A summary of priority items can be found in the 2014 Park Master Plan update.

In late 2014, Parks & Recreation staff and Park Board members conducted evaluations for the first time on all Park & Recreation amenities to determine the current condition and to prioritize the areas that need attention. Criteria were developed and can be found in Appendix A. Only current grades are presented. Forecasting of future projects is not provided. Also note that the major customer-populated recreational buildings such as senior and fitness centers' report card grades are summarized in the Facilities Category.

The Parks & Recreation report card covers eight categories: aquatics, concessions/restrooms, courts, fields, parking lots, playgrounds, pavilions and trails. Staff and Park Board members visited every amenity in our system, and using set criteria, established a grade for each. Our overall grade is 72.39.

Aquatics 2014: C

	Year	Grade
Rosemeade Pool	1987	C-
Thomas Splash Park	2011	C+

Concessions/Restrooms 2014: D+

	Year	Grade
Jimmy Porter	1975	F
Josey East	1989	C-
Josey #1-4	1989	D+
Martha Pointer	2001	D
Mary Heads Carter	2001	C+
McInnish Soccer	2008	B-
McInnish #1-4	2011	B+
McInnish #5	1982	F
McInnish #6-9	1982	D-
McInnish #12-15	1982	D
R. E. Good	1992	D
Thomas #1-2	1966	F
Thomas Splash Park	2013	A-
Rosemeade Pool	1987	C-

Courts 2014: C-

	Year	Grade
Branch Hollow Park	2008	B
Croft Courts	2009	B
Francis Perry Park	1998	C+
Harold Bessire Park	1998	C-
Harvest Run Park	1998	C
Jimmy Porter Park	1994	D
Keller Springs Park	2005	D-
Martha Pointer Park	2001	C-
Mill Valley Court	1985	D-
Oak Creek Park	2007	B-
Oak Creek Tennis Center	2003	C+
Oak Hills Park	1999	B+
Rhoton Park	2006	F
Senior Center	2003	C+
Thomas Park	2005	F
Timbercreek Park	1999	C
Ward Steenson Park	2003	B
Woodlake Courts	1980	C-

Sports Fields 2014: C

Fields include football, baseball, softball, soccer and cricket.

	Year	Grade
Jimmy Porter #1	1975	F
Jimmy Porter #2	1975	F
Josey Ranch #1	1989	D+
Josey Ranch #2	1989	D+
Josey Ranch #3	1989	C-
Josey Ranch #4	1989	D+
Josey Ranch #5	1989	C
Josey Ranch #6	1989	D+
McInnish #1	1982	C-
McInnish #2	1982	C-
McInnish #3	1982	C
McInnish #4	1982	C+
McInnish #5	1982	D+
McInnish #6	1982	C
McInnish #7	1982	C
McInnish #8	1982	C+
McInnish #9	1982	C+
McInnish #10	1982	C-
McInnish #11	2009	B+
McInnish #12	2009	B+
McInnish #13	2009	A-
McInnish #14	2009	A-
McInnish #15	2009	B
McInnish #16	1982	D-
McInnish #17	1982	F
McInnish A	2008	B+
McInnish B	2008	A-
McInnish C	2008	B+
McInnish D	2008	B+
McInnish E	2008	A-
R. E. Good #1	1992	C
R. E. Good #2	1992	C-
R. E. Good #3	1992	D+
R. E. Good #4	1992	C
R. E. Good #5	1992	C-
Thomas #1	1966	C-
Thomas #2	1966	C-
Thomas #3	1966	D+

Parking Lots 2014: C

	Year	Grade
Branch Hollow Park	2008	B
Clifford Hall Park	2002	B+
Crosby Recreation Center	1976	C
Elm Fork Nature Preserve	1986	C
Greenbelt Area 4	2009	B
Harvest Run Park	1998	C+
Indian Creek Ranch Park	1999	B-
Jimmy Porter Park	1994	C-
Josey Ranch Complex	1989	D+
Keller Spring Park	2005	A
Martha Pointer Park	2001	C
Mary Heads Carter Park	1992	C-
McInnish #1-5	1982	F
McInnish #6-9	1982	D+
McInnish #10	1982	C
McInnish #11	2009	B
McInnish #12-15	1982	D+
McInnish A-E	2008	B
Oak Creek Tennis Center	2001	B
Oak Hills Park	1999	B-
Perry Museum	1981	C-
R. E. Good Soccer Complex	1992	D
Rhoton Park	2006	A-
Rosemeade Pool	1987	D
Rosemeade Park	1982	C+
Rosemeade Recreation Center	1982	D
Senior Center	2004	A-
Thomas #1-2	1966	D
Thomas #3	1966	D+
Thomas Splash Park	2005	C-
Ward Steenson Park	2003	B+

Pavilions 2014: B

	Year	Grade
Branch Hollow Park	2008	B-
Cedar Elm Park	2008	A
Clifford Hall Park	2002	A-
Greenbelt Area 2	?	C-
Harold Bessire Park	1998	B+
Harvest Run Park	1997	A

Pavilions - Cont. 2014: B

	Year	Grade
Indian Creek Ranch Park	2001	A
Jimmy Porter Park	1994	F
Mary Heads Carter	1992	B+
McInnish Soccer Complex	2009	A+
Oak Creek Park	2007	A
Oak Hills Park	1999	A
Oakwood Springs Park	1999	A
R. E. Good Complex	1992	B-
Rhoton Park	2006	D
Timbercreek Park	1999	B+
Ward Steenson Park	2003	A-

Playgrounds 2014: C+

	Year	Grade
Branch Hollow Park	2008	A-
Cedar Elm Park	2008	B-
Clifford Hall Park	2002	C
Del Santer Park	2002	D+
Francis Perry Park	1998	D+
Greenbelt Area 3	2005	B
Greenbelt Area 4	2009	A-
Harold Bessire Park	1998	C
Harvest Run Park	1998	C
Indian Creek Ranch Park	1999	C
Jimmy Porter Park	1994	D+
Josey Ranch Complex	2005	B-
Keller Springs Park	2005	B+
Martha Pointer Park	2001	C
Mary Heads Carter Park	2014	A
McInnish Fields 12-15	2009	A
Oak Creek Park	2007	B
Oak Hills Park	1999	C
Oakwood Springs Park	1999	C
R.E. Good Park	1992	C
Rhoton Park	2006	C+
Rosemeade Park	1992	C+
Rosemeade Recreation Park	?	F
Timbercreek Park	1999	B
Ward Steenson Park	2003	B
W.J. Thomas Park	2005	B

Trails 2014: B-

Trails are a major success story for Parks & Recreation. They are a high priority in citizen surveys. The City maintains approximately 26 miles of completed trails, with another two miles currently under design and scheduled for construction in spring 2015. Trails and paths have been built over many different bond programs and have utilized funds from various sources. The bulk of the funds came from the 2004 bond program ($2.45M), the 2007 bond ($3.15M), and the 2013 ($4.9M). Combined, these trails help connect citizens and visitors throughout the City.

	Year	Grade
Cedar Elm Park Loop	2008	B
Clifford Hall Park Loop	2002	B+
Eisenhower Trail	6-10 yrs	B+
Elm Fork Nature Preserve Trail	16-20 yrs	B-
Furneaux Creek Blue Trail	1-5 yrs	A
Furneaux Creek Orange Trail	20+ yrs	D
Gravely Park Loop	16-20 yrs	C
Harold Bessire Park Loop	1998	C+
Harvest Run Loop	1998	C
Hutton Branch Green Trail	1-5 yrs	A+
Hutton Branch Purple Trail	1-5 yrs	A
Indian Creek Ranch Loop	1999	B
Josey Ranch Path	20+ yrs	D
Martha Pointer Park	2001	B+
Mary Heads Carter Park Loop	1992	C
Oak Creek Park Loop	2007	A
Oak Hills Park Loop	1999	B-
Oakwood Springs Loop	1999	B+
Rhoton Loop	2006	D
Rosemeade Pool Path	1992	D
Senior Center Pond	6-10 yrs	B+
Standridge Memorial Loop	16-20 yrs	D-
Timbercreek Park Loop	1999	C+
Ward Steenson Park Loop	2003	A-
Woodlake Tennis Courts Path	16-20 yrs	D-

Near Term Investment Needs

City Council approved $425,000 in the FY 14-15 Budget for repairs or improvements to some of the sites graded F, D and D-. Staff prepared a list of projects with estimated costs shown below and presented it to City Council. Council approved the list and the work began in January 2015.

Planned Projects (includes CIP funding)

Projects to be Completed by 2015	
Broadway Trail Phase 2	$700,000
Bridge Replacement at Indian Creek Golf Course	$49,902
Downtown Gazebo/Pioneer Park	$755,923
Rosemeade Recreation Center Practice Fields	$378,000
Rosemeade Dog Park	$108,000
McInnish Dog Park	$240,000
Thomas Athletic Complex Improvements	$475,000
Senior Center Addition	(shown in Facility section)
Park Maintenance Facility	$600,000
Projects to be Completed by 2016	
Restroom Improvements	$530,000
Projects to be Completed by 2017	
Broadway Trail Phase 3	$675,000
Second Splash Park Location (TBD)	(shown in Facility section)
3 Year Total	$4,511,825
Average Annual Funding	$1,500,000

Investment Needs

Grade F Items				
Item	**Project/Location**	**Description**	**Estimated Cost**	
1	**Concessions/Restrooms**	Total	$	-
	Thomas #1-2	Budgeted in bond program.	$	-
	Jimmy Porter	Not used as concession. No organized games. Do not replace at this time.	$	-
	McInnish #5	Used as storage and not concession/restroom.	$	-
2	**Courts**	Total	$	29,000
	Rhoton Park	Tennis court - resurface.	$	6,000
	Thomas Park	Tennis court (3) convert to multi-purpose.	$	16,000
	Thomas Park	Replace fence.	$	7,000
3	**Athletic Fields**	Total	$	30,000
	Jimmy Porter #1-2	Practice fields (2) resod and level.	$	6,000
	Jimmy Porter #1-2	Replace fence.	$	24,000
	McInnish #17	Practice field in flood plain (not at this time).	$	-
4	**Parking Lots**	Total	$	92,000
	McInnish #1-5	Mill and overlay both lots.	$	92,000
5	**Pavilions**	Total	$	-
	Jimmy Porter	NAC is replacing this year.	$	-
6	**Playgrounds**	Total	$	45,000
	Rosemeade Recreation Center Preschool Area	Replace playground equipment.	$	45,000
7	**Trails** (none at this time)	Total	$	-
		Total Grade F Items	**$**	**196,000**

Grade D and D- Items				
Item	**Project/Location**	**Description**	**Estimated Cost**	
1	**Courts**	Total	$	12,000
	Mill Valley	Tennis	$	6,000
	Keller Springs	Basketball	$	6,000
2	**Athletic Fields**	Total	$	20,000
	McInnish #5 & #16	Material	$	20,000
3	**Parking Lots**	Total	$	74,000
	Thomas #1-2	Mill and overlay	$	40,000
	Rosemeade, Thomas #3, Crosby Recreation Center	Mudjack, patch small areas of concrete	$	34,000
4	**Playgrounds**	Total	$	60,000
	Del Santer	New playground	$	60,000
5	**Trails**	Total	$	20,000
	Woodlake Tennis Path	Old trail replacement	$	20,000
6	**Fencing**	Total	$	40,000
	Thomas Baseball	Replace mesh and poles	$	40,000
7	**Trails** (none at this time)	Total	$	-
		Total Grade D and D- Items	**$**	**226,000**

Totals: F, D, and D-				
		Grade F Items	$	196,000
		Grade D and D- Items	$	226,000
		GRAND TOTAL	**$**	**422,000**

NR NR

2014 Grade 2018 Grade

COMMUNITY QUALITY OF LIFE

This category was added as there are other infrastructure components within a City that can affect its residents' and businesses' satisfaction or attractiveness. The areas receiving attention include whole streets or streetscaping elements such as corridor beautification that address landscaping and enhance the beauty as one transits through the City. The City has set aside $1.25 million and has planted 1,400 trees as of the publication of this report. Wayfinding signage has been upgraded to promote City branding efforts. A major initiative is the development of railroad quiet zones. As this area has a strong constituency base and specific budget support we have kept it as separate category in the report card.

The City began investigating railroad quiet zones in the early 2000s. At that time, federal law was changing to allow municipalities more authority to implement railroad quiet zones as long as a standardized menu of safety improvements were either in place or would be installed prior to the crossing going quiet. An early inventory of RR crossing completed in 2004 indicated that Carrollton had, at the time, 56 RR crossings with 32 locations within a ½ mile of existing residential homes. Of the 32 crossings, 17 were owned or operated by BNSF Railway, 12 by DART/DGNO and 3 by KCS.

Further studies by staff lead to the conclusion that the BNSF corridor impacted the largest amount of Carrollton residents. This was further supported by the number of complaints staff received related to railroad horns/noise. Between February 2005 and January 2009, staff received 28 such complaints of which 22 where along the BNSF corridor.

In October 2006, the City Council budgeted $425,000 for an initial pilot program for railroad quiet zones. Based on the information at the time, the Engineering Department began

investigating placing the initial pilot quiet zone on the BNSF corridor. During the initial investigations, it was discovered that the City of Plano had already established a quiet zone on the BNSF at Parker Road. By the summer of 2007, it determined that the initial quiet zone was to be placed at the intersections of Hebron Parkway and Plano Parkway. This would create one continuous quiet zone from north of Parker Road to south of Hebron Parkway—a distance of over two miles.

The pilot project was completed in early 2011 and the Federal Railroad Administration (FRA) authorized the quiet zones to become operational at the end of April 2011. Total cost for the pilot was $582,000.

In early 2012, the City Council authorized a second quiet zone project. The second project would extend the original quiet zone on the BNSF line by making improvements at the BNSF and the following crossings: Rosemeade, Peters Colony, Frankford, Old Mill, Trinity Mills (WB), Trinity Mills (EB), Keller Springs, Josey and Perry/Ryan. The initial budget was set at $1,500,000. At this time, construction is underway with the expected date of operation sometime in Spring 2015. Current cost to date is just over $2,300,000.

The City has 182,302 linear feet of masonry screening walls. In recent years, there has been an increased emphasis placed on maintaining current walls and construction of new screening walls. Recent projects include a new screening wall on Old Denton Road between Peters Colony Road and Derby Run which was completed in 2013 and on Frankford Road between Rockett Drive and Tree Line Drive completed in 2012.

In addition, there are “living” screening walls, typically a landscape such as bushes and screening metal/chain link fencing that need refreshing or replacement. These are predominantly located on Rosemeade Parkway.

The City is currently working on other projects that fit in this category. One such project involves upgrading the aesthetics of several bridges including Rosemeade Parkway over Furneaux Creek, on Marsh Lane north of Country Place, on Keller Springs near Columbian Club and on Josey Lane near Cherokee Path. $250,000 was originally budgeted in FY 2015 for this project; however, Council reallocated $200,000 of this amount to be used toward aesthetic improvements on IH-35E and a new parking lot under IH-35E at Belt Line Road.

In 2014, City Council set aside $358,000 to pay for decorative bridge railings at the Belt Line Road and Dickerson Parkway interchanges that will be built with the IH-35E expansion projects. These rails are the same types used on the Dickerson Bridge over Furneaux Creek that was built in 2010.

B 2014 Grade B 2018 Grade

INFORMATION TECHNOLOGY SERVICES

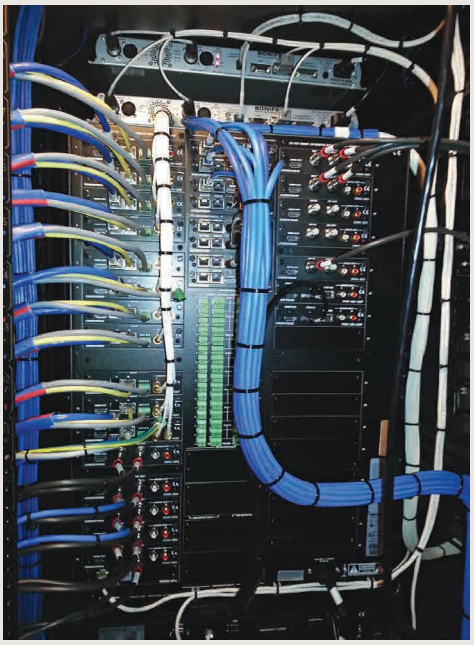
The Information Technology (IT) Infrastructure is managed by Xerox in a strong partnership that spans 17 years and includes management of all related third party vendors. The IT Department provides services, support and maintenance of all core systems, which provide the basis for operations in meeting their primary business purposes and goals in the City of Carrollton.

Information Technology Infrastructure is the integrated framework that makes it possible for digital networks to operate. It is the physical hardware used to interconnect users and devices through telephone lines, satellites, antennas, routers, transmission media and cable television lines. It can refer to interconnecting hardware and software.

For the purposes of this report card, the five IT categories that were assessed are as follows:

Audio/Visual and Desktop Systems — 2014: A — 2018: A

- Audio equipment
- Visual equipment
- Supporting equipment



Network Connectivity Systems — 2014: B — 2018: B

- Lease Lines
- Microwave
- Point to Multi-Point lines
- Point to Point lines
- Wiring

Environment — 2014: B — 2018: B

- A/C Air conditioning
- UPS

Public Safety Radio 2014: D 2018: B

- Simulcast Transmitters (Motorola)
- Prime Site Connectivity
- Administrative Equipment

Security Systems 2014: B 2018: B

- Burglar Alarms
- Cameras
- Card Access
- Doors
- Gates
- Fire Alarms

IT Devices	Audio	Visual	Supporting			Overall Average
A/V (Audio/Visual	A	A	B			A
	Leased Lines	**Microwave**	**Point to Multi-Point**	**Point to Point**	**Wiring** (Cabling)	**Overall Average**
Connectivity	A	B	B	B	C	B
	A/C (Air Conditioning)	**UPS**				**Overall Average**
Environment	B	B				B
	Simulcast Transmitters (Motorola)	**Prime Site Connectivity**	**Administrative Equipment**			**Overall Average**
Radio	D	C	D			D
	Burglar Alarms	**Cameras**	**Card Access**	**Doors/ Gates**	**Fire Alarms**	**Overall Average**
Security	B	C	A	A	C	B

Investment Needs and Planned Projects - Major Initiatives and Conclusion

In order to address the IT Infrastructure Score Card areas in immediate need of improvement (such as: end-of-life equipment, existing technical design, lack of redundancy, solutions/equipment that cannot be supported, etc.), the IT Department will focus on executing several key large-scale initiatives in 2015:

- Continuous modernizing of camera and alarm systems City-wide (from analog to digital, refreshing to newer technology, installing new equipment as required), including security cameras and DVRs, fire alarms, burglar alarms, etc.

- Install or replace UPS devices at all pertinent locations across the City
- Continue the refresh and installation of redundant links for our wireless point to point communication ring and Wireless network equipment replacement
- Improve the fiber and cable infrastructure at several key locations (e.g. Police Department, South Service Center, Justice Center, etc.)
- Project funding allocation estimates for IT infrastructure are listed in the following table:

ITS Projects for 2015-17: Criticality 1 and 2 from IT Core Matrix (March 2015 edition)

Item	Criticality	Description	FY15	FY16	FY17
1	1	Wireless Network Infrastructure Equipment	$25,000	$100,000	$100,000
2	1	Microwaves for Local LAN Network Ring	$100,000	$100,000	$100,000
3	1	Data Storage Transition to Cloud Services	$50,000	$50,000	$50,000
4	1	Facility Alarm Replacements (analog to digital)	$300,000	$100,000	$100,000
5	1	Security Camera Replacements (analog to digital)	$100,000	$100,000	$25,000
6	1	Burglar Alarm Replacements (analog to digital)	$75,000	$75,000	$25,000
7	1	Public Safety Disc Encryption	$70,000		
8	1	Public Safety RFID Authorization	$80,000		
	1	Criticality Level 1 Recurring	$40,000	$26,250	$18,750
		Critical Level 1 Subtotal (one-time)	$800,000	$525,000	$375,000
		Critical Level 1 (recurring)	$40,000	$26,250	$18,750
9	2	Internet Web Surfing Filtering Replacement	$140,000	$40,000	$40,000
10	2	Spam Filter Replacement	$80,000		
11	2	C-Net Intranet Website Upgrade			$50,000
12	2	HTE Work Order and Billing System Replacement (UCS, Building Inspection Permits)		$500,000	
13	2	Lawson Finance and HR System Upgrade	$175,000		$125,000
14	2	Kronos Timekeeping System Upgrade		$50,000	
15	2	Data Center Infrastructure Upgrades	$100,000	$25,000	$50,000
16	2	NICE Dispatch/Resolution Center Voice Recording (upgrade & replacement)	$100,000		$25,000
17	2	Parks & Recreation Security Cameras	$50,000		
	2	Criticality Level 2 Recurring	$32,250	$30,750	$14,500
	2	Criticality Level 2 Recurring	$13,200	$13,200	$13,200
		Critical Level 2 Subtotal (one-time)	$645,000	$615,000	$290,000
		Critical Level 2 Subtotal (recurring)	$45,450	$43,950	$27,700

SUCCESS STORIES

The City of Carrollton was designated as a **Crown Community for its Overall Overhaul** in 2014 by *American City and County Magazine*. The efforts highlighted for this award were: corridor beautification, Project Raiford, Railroad Crossing Quiet Zones, Retail Rehabilitation Program and Downtown Carrollton redevelopment initiatives. The award narrative states, "The City has undertaken a multi-pronged public works initiative and made it a model for suburban Dallas communities."

Effective and efficient infrastructure is an underlying linchpin to attract business and commerce. The Carrollton Economic Development Agency reported $387 million in deals in 2012 and $318 million in 2013, among the best in the Dallas-Fort Worth area.

In 2014, the Carrollton Water Utilities Division received the **Texas Public Works Association Sustainability Practices Award**. The recognition highlighted cost efficient maintenance and operations best practices, excellent water conservation techniques and a low rate structure for its customers.

The Engineering Department was recognized for several Texas Public Works Projects of the Year Awards. The criteria in the selection process are: the use of excellent construction management techniques, good community relations/interaction with the public, good environmental stewardship and general safety performance.

- **2011 Transportation Category/Projects less than $2 million—South Main Street Reconstruction:** Established the TOD and streetscape standards for the City and also built the City's first "green" parking lot at Vandergriff Drive and Broadway Street.
- **2012 Environment Category/Projects less than $2 million—The Fyke Road Wastewater Lift Station:** improved operational performance met stringent compliance requirements and despite its function, enhanced community appearance.
- **2013 Environment Category/Projects of $2 million but less than $5 million—Furneaux Creek Channel 5 and Trail Improvements:** addressed critical erosion deficiencies to stabilize the creek system, enhanced the appearance and added trail system to further promote vibrant community activities.

APPENDIX A-2011 GRADES

2011 Infrastructure Report Card

Overall Grade B-

Surface Infrastructure C

- Arterial Street A-
- Collector Street C.+
- Residential Street C+
- Alleys F
- Sidewalks C-
- Bridges B

Waste Water System C

- Lift Stations B
- Collection Lines C-
- Manholes B-

Facility Systems C

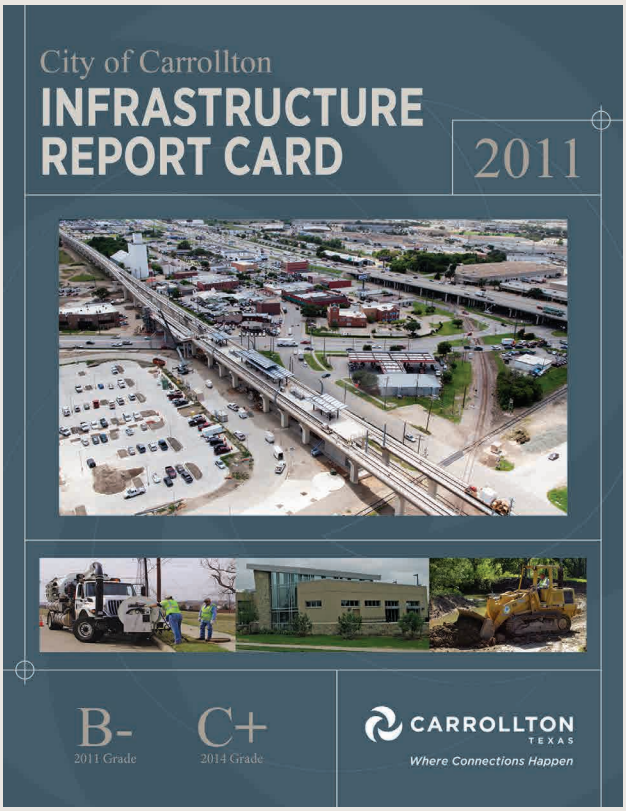
- Roof C
- Paint D+
- Mechanical B-
- Carpet D+

Drainage Infrastructure B

- Storm Sewer Pipes C+
- Channels B+
- Dams B+
- Others C+

Water System B-

- Storm Tanks B
- Pump Stations B
- Distribution Lines C-
- Fire Hydrants B



APPENDIX B–GRADING CRITERIA

General Criteria and Evaluation

The following criteria were used to establish grades for each category. Similar to educational report cards, scores generally correspond to grades as follows: A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: 0-59. Adjustments for specific category assessments or other operational considerations modified the grades in some categories as described below:

Streets

Condition ratings as established by the consultant Infrastructure Management Services, Inc. (IMS). Surveys are completed using a Laser Road Surface Tester (RST). Information gathered in this process includes rutting, roughness, cracking and inventory data. Inventory data is gathered by the RST Operators where they note the curb/drainage type, surveyed lane, direction, predominant pavement surface type on a section by section basis and the presence of failed or broken slabs. The assessment rates the pavement from a 0-100 index.

Grade	Range	Definition
A	85 and above	New or near new conditions. Sections may require some minor joint and crack sealing.
B	80-84	Very good condition. Sections may require joint and crack sealing plus occasional slab replacement.
C	70-79	Good condition. Sections will require joint and crack sealing plus some selective slab replacement.
D	60-69	Serviceable but considerable potholes and cracking. Sections will require extensive slab replacement.
F	40-59	Poor condition. Sections will require reconstruction and possibly some subgrade stabilization.
F-	0-39	Failed condition. Sections will require total reconstruction with subgrade preparation.

Storm Drainage

Grading for this section is as follows:

- **A**: System provides both 1% design criteria for flood water and water quality management techniques to improve storm water quality.
- **B**: System provides 1% design criteria for flood water, but provides little, if any water quality management measures.
- **C**: System provides 4% design criteria for flood water and no water quality management measures.
- **D**: System provides 10% design criteria for flood water and no water quality management measures.
- **F**: System provides less than 10% design criteria, system is in very poor condition, streets have no curbs or other factors that do not allow the system to perform in an acceptable manner.

Note: A grade is reduced by the condition of the system; good condition is the full grade, fair condition is a minus grade and poor condition is a grade level less.

Bridges

Bridges are inspected every two years by the Texas Department of Transportation. The Reports are entitled the Off-System Bridge Inventory, Inspection and Appraisal Program. A condition rating is established for each of seven elements of the structure: deck, superstructure, channel, culverts, approaches and miscellaneous items. The grades and associated ratings are as follows:

- **A**: 9/Excellent Condition; 8/Very Good condition
- **B**: 7/ Good condition; some minor problems
- **C**: 6/Satisfactory Condition; minor deterioration of structural elements (limited)
- **D**: 5/Fair condition; minor deterioration of structural elements (extensive)
- **F**: 4-0/ poor to failed condition; deterioration seriously affects structure to bridge, closed beyond repair

Parks & Recreation

Each of the eight categories was evaluated in six areas that contributed to the overall score/grade: age, cleanliness, safety, structural, appearance and functionality.

The overall weight of each score: Age: 15%; cleanliness: 10%; safety: 25%; structural: 20%; appearance: 10%; functionality: 20%.

The total score is associated with a grade as follows:

- A+ 97.5-100
  A 89-97
  A- 86-88.5
- B+ 82.5-85.5
  B 79-82
  B- 76-78.5
- C+ 72.5-75.5
  C 69-72
  C- 66-68.5
- D+ 62.5-65.5
  D 59-62
  D- 56-58.5
- F less than 55

Information Technology (IT)

The criterion considers three areas:

1. Technology: reliability, redundancy, capacity
2. Deployment Time
3. Refresh Schedule

The grades are as follows:

- **A**: Recent Replacement New (replaced in the last year)
- **B**: System up and running normally
- **C**: System running, additional maintenance required
- **D**: System running normally, coming toward end of life cycle (must plan replacement)
- **F**: Failing system, refresh/upgrade/ replacement needed