



12 CAPITAL IMPROVEMENTS

Quality of life and a high standard for public services and facilities are important components of living in the City of Gardner. The City provides facilities and services to residents and businesses within the city limits. These facilities and services include electric, potable water, wastewater, recreation, and transportation. New development, redevelopment, and growth in the community rely upon the availability of these facilities and services.

The Capital Improvements chapter of the Comprehensive Plan analyzes the existing and projected needs for City-provided capital facilities and services based on guidance from other Comprehensive Plan elements, projected population, existing demand for facilities and services, master plans that have been developed, and the City's Capital Improvements Program.

The Capital Improvements Element compiles the various infrastructure and facility/service needs related to growth and development that are identified in various documents so that needs are presented in a single document with schedules of capital improvements for 5 years, 10 years, and 10+ years.

For the purposes of the Capital Improvements chapter of the Comprehensive Plan, a capital improvement is defined as land, non-structural improvements to land, structures (including the costs for design, permitting, construction, furnishings, and equipment), technology, and facilities with a unit cost of \$25,000 or more. The capital improvements listed in the tables at the end of the element do not include all capital outlays of the City of Gardner. Those listed are specifically related to land, infrastructure, facility, and service requirements as they relate to existing and future development.

Payments for capital improvements may require multi-year financing. Capital improvements shown in the 5-Year Schedule of Capital Improvements do not include those that are the sole responsibility of another governmental unit.

The Capital Improvements Element does not include capital expenditures for routine maintenance such as roadway resurfacing. The primary focus is on capacity enhancements needed for projected growth or funding needed to maintain the existing service levels.



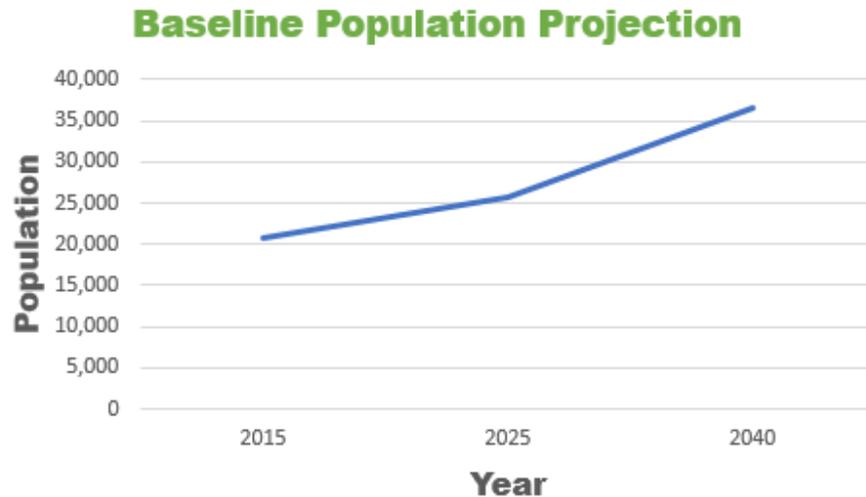
Maintaining the existing level of service and anticipating future needs based on population projections, planned growth areas (including areas that might be annexed) and the need to replace or expand existing systems is critical to the future growth opportunities for Gardner. The City of Gardner adopted a Growth Management Strategy (Resolution 1940) in November 2015. The Growth Management Strategy identifies areas appropriate for annexation.

The document gives consideration to improving community infrastructure, accommodating planned development, buffering existing neighborhoods, improving traffic flow through the city, improving future access to I-35 and development of the community through planned growth. These items are related to capital improvements planning. The Capital Improvements Element can assist with this process by anticipating the land acquisition, infrastructure, facility, and service needs of existing developed areas and future growth areas.

POPULATION PROJECTIONS

As of the 2010 Census, the City of Gardner population was 19,123. As of July 1, 2016, the Census estimate was 21,110. As part of an independent analysis in 2016, updated population projections were obtained for Gardner through the year 2040. According to the analysis prepared by GAI Consultants, Inc. (August 11, 2016 memo), these projections were based on trend lines, observed settlement patterns, and the market situation in the region.

The projections do not address the population if annexations of populated areas should occur. The complete population projection report is attached as an appendix to this document.



2015-2040 Summary Population Projections

	2015	2025	2040
Baseline Projection	20,868	25,790	36,580
CAGR ¹ (from 2015)		2.1%	2.3%
High Projection	20,868	29,000	51,270
CAGR (from 2015)		3.2%	3.6%
Low Projection	20,868	24,340	29,260
CAGR (from 2015)		1.6%	1.4%

¹CAGR means Cumulative Annual Growth Rate

Source: "Estimates and projections of population," Community Solutions Group. August 11, 2016.

The assumptions associated with each of these population projection scenarios are shown in the Community Solutions Group memo. For the purposes of the 5-Year Schedule of Capital Improvements, the Baseline Projection is used as the most likely scenario. The Baseline Projection assumes annexation of less than 1 square mile; natural population growth (birth and death rates) consistent with the national trend; maintaining the recent average flow of net migration in Johnson County; and maintaining a consistent net migration capture of 8-15% for City of Gardner.



RECREATION

As stated in the Parks, Open Space & Environmental Features Element of the 2014 Comprehensive Plan, “a robust network of parks, open space areas, and natural areas is one of the key components for the overall vision of Gardner.”

The most recent update to the Park System Master Plan occurred in 2009. The recommended level of service (LOS) for park acreage is 12 acres per 1,000 residents for 2020. Based on the 2025 Baseline Projection from Community Solutions Group, that would require approximately 309.5 acres of parklands by 2025 ($25,790/1,000 \times 12$). That acreage need is currently being met because the 2017 total park acreage is 340 acres. Of this total, 319 acres are developed and 21 acres are undeveloped. There are 63 additional park acres that are maintained by the Parks and Recreation Department but are not owned by the City of Gardner (some of the 63 acres that are associated with a wetland park owned by Kansas City Power and Light may be deeded to the City).

Using the 2040 Baseline population from Community Solutions Group, the projected population increase to 36,580 would require approximately 439 acres of parkland. This represents an addition of 99 additional park acres by 2040 (this represents an average annual need for 4.5 additional park acres from 2018 to 2040).

The 5-Year Schedule of Capital Improvements includes components for land acquisition and construction for the St. Johns Trace Neighborhood Park to meet some of this projected need. In addition, land acquisition for Greenway & Bike Trail land is shown in the 10-Year Schedule of Improvements. Additional land acquisition needed for the Westside Sports Complex Improvements & Development and the Community Center & Sports Complex are also shown in the 10-Year Schedule of Capital Improvements.

Some of the high priority recommendations for park facilities in the Park System Master Plan have been achieved. This includes trail reconstruction work.

It should be noted that the 2009 Park System Master Plan projected a population of 44,600 in 2020 for Gardner. Since 2009, population growth has slowed, and that projection is high especially when considering that the most recent Baseline projections show a lower population in 2040 (36,850) than the Master Plan projected for 2020.

In previous years, joint use of public school recreation facilities occurred. This joint use may be limited in upcoming years, which will require the City of Gardner to provide additional facilities.



The goals established in the 2009 Park System Master Plan are as follows:

1. Conduct a Community Center Feasibility Study
2. Expand the Greenway and Trail System
3. Acquire additional park land
4. Improve and maintain existing facilities
5. Develop new facilities and amenities to meet the needs of a rapidly growing population
6. Adopt and enforce Trail System Design Guidelines
7. Adopt and enforce Landscape Guidelines

The Capital Improvements Element specifically relates to Goals 2, 3, 5. As indicated previously, the 5-Year Schedule includes funding for land acquisition and park development for the St. Johns Trace Neighborhood. The 10-Year Schedule also shows additional land acquisitions for parks and recreational facilities.

The Parks, Open Space & Environmental Features Element of the Comprehensive Plan contains recommendations for the City. The recommendations specifically related to this Capital Improvements Element are:

- Continued implementation of the 2009 Park System Master Plan that includes acquisition of additional parkland and installation of new recreational facilities where feasible.
- Identification of funding sources for future park expansion, maintenance, and operations.
- Budget within the CIP for the acquisition and construction of new greenway rights-of-way.
- Ensure that all residential areas are adequately served by neighborhood and community parks through easements or subdivision regulations that require dedicated and attractive open spaces.

One of the recommendations from the Recreation Element concerning “ensuring that all residential areas are adequately served by neighborhood and community parks through easements or subdivision regulations that require dedicated and attractive open spaces” has been implemented in the City’s Land Development Code.

For additional information, please see the City of Gardner Parks and Recreation Master Plan and 2009 update to the Plan.



ELECTRIC

The most recent Electric Master Plan (Meers Engineering, Inc.) is for the years 2007-2020 and it was produced in November 2006. Population growth has slowed since that time due to the long-term impacts from the recession.

Given the fact that the Electric Master Plan is over 10 years old and does not account for population growth changes due to the recession, a new 2017 Electric Master Plan Summary of System Improvements was provided by the City of Gardner Utilities Director.

The 2017 Electric Master Plan lists capital improvements needed through the year 2040.

Additional electric projects beyond the 5-year timeframe are shown in the 10-Year schedule of Capital Improvements and the 10+ Year Schedule of Capital Improvements.

For additional information, please see the Electric Master Plan 2007-2020 (Meers Engineering, Inc.) and the 2017 Electric Master Plan Summary of System Improvements.

POTABLE WATER

The Water Master Plan was recently updated in May 2017 by Professional Engineering Consultants. As stated in the report, “the City of Gardner’s water supply and distribution system consists of raw water intake and pumps at Hillsdale Reservoir, Hillsdale Water Treatment Plant (WTP), high service pumps and storage reservoirs at the WTP, and storage facilities, low service/booster pump stations, and waterlines throughout the City’s distribution system.”

The Water Master Plan Update notes the following:

- A large number of components in the system are either nearing capacity or are already under capacity to meet current maximum day (MD) demands.
- The system lacks redundancy to maintain adequate operation under a large emergency event.

The Master Plan Update also recommends that the City’s existing raw water intake capacity and existing Hillsdale Water Treatment Plant capacity be designed and upgraded to meet the maximum day demand.

Listed capital improvements in the 5-Year Schedule include capacity enhancements to meet current water demands (2.0 MGD expansion) and improvements/upgrades to existing facilities.

The Master Plan recommends that planning begin for a new water treatment plan that has 6.0 MGD capacity and associated high speed pumps and clearwells to be implemented in 2027. The projected cost is in the range of \$42,000,000 to \$50,000,000. This is shown in the 10-Year Schedule of Capital Improvements along with other capacity enhancements.

There are additional potable water improvements shown in the 10+ Year Schedule of Capital Improvements.

For additional information, please see the City of Gardner Water Master Plan Update dated May 2017.





WASTEWATER

The 2009 Wastewater Master Plan was recently updated in May 2017 by HDR. As stated in the HDR update, “the wastewater master plan update identifies projected wastewater peak flows and evaluates the capacity of the existing collection and conveyance system to convey these projected peak flows without backups of wastewater into residences and businesses and without sanitary sewer overflows.” The updated Wastewater Master Plan establishes the facilities needed for conveyance and treatment of wastewater generated within current Gardner city limits and anticipated growth areas (annexation areas) beyond the City’s current boundaries. The Update provides a 10-Year Capital Improvements Plan. Projects that fall within the 2019-2023 timeframe are shown in the 5-Year Schedule of Capital Improvements.

Projects that fall within the 2024-2028 are shown in the 10-Year Schedule of Capital Improvements. And, there are additional projects that fall in the 10+ Year Schedule of Capital Improvements.

Several of the projects listed in the HDR report were listed as being at the City’s discretion. These were not included in the Capital Improvements Element, but they can be added in an annual update as the City determines whether to implement them.

For additional information, please see the City of Gardner Wastewater Master Plan Update by HDR dated May 2017.



TRANSPORTATION

The City's transportation system consists of roadways, trails, sidewalks, transit services, and airports. The City of Gardner is responsible for the local streets. Maintenance of state and federal highways is under the purview of the Kansas Department of Transportation. Transit service ("JO") to specific locations in Gardner is operated by the Johnson County Transit Department.

New development in Gardner increases the number of trips (vehicle, bicycle, and pedestrian) on the transportation system. Additionally, trips and traffic congestion impacting Gardner can occur due to development in surrounding localities.

As stated in the Transportation & Mobility Element of the Comprehensive Plan, "the Gardner Transportation Plan identifies a number of future roadway segments that would enhance connectivity throughout the community and support future land use..."

The list of transportation projects is based on an HDR update of the 2010 Transportation Master Plan. The list was developed with City staff based on existing conditions, existing congestion issues, and long-term growth projections.

The transportation capital improvements projects are shown in the 5-Year, 10-Year, and 10+ Year Schedules.

For more information about the individual transportation projects, please see the Gardner Transportation Master Plan and Draft Transportation Projects List (May 12, 2017).



IMPLEMENTATION & FUNDING

The Capital Improvements Element and 5-Year Schedule of Capital Improvements are powerful planning tools for the City of Gardner to use for implementing its Comprehensive Plan, Growth Management Strategy, and master plans.

To be most effective, the following recommendations are included:

- The 5-Year Schedule should be updated annually in association with the City's 5-Year Capital Improvements Program to reflect project completions, new projects and facility needs, and revised project schedules. Revisions to the 10-Year Schedule and 10+ Year Schedule also should occur annually and as master plans are updated.
- The 5-Year Schedule should reflect the priorities set in the Comprehensive Plan and by the City Council to correct deficiencies, maintain existing levels of service, allow for growth and development in the community, and accommodate annexations that may occur.
- As annexations occur, the public facility and service needs of the annexed area should be reviewed in relation to the Capital Improvements Element, 5-Year Schedule of Capital Improvements, 10-Year Schedule of Capital Improvements, Master Plans, and funding sources.
- The City should review its development fees associated with utilities, transportation, and recreation to ensure that new development is paying its fair share costs of the infrastructure and services needed to support the development.

5-Year Schedule of Capital Improvements 2019-2023

Project	2019	2020	2021	2022	2023
Electric Utilities					
Install Switches (3) at Distribution Points Ph. 1	100,000				
Replace Lube Oil Coolers Unit 2	100,000				
Substation 3 Interconnection with Westar		1,500,000			
Smart Meters Implementation		3,000,000			
Replace Lube Oil Coolers Unit 1		100,000			
Install Switches (3) at Distribution Points Ph. 2		100,000			
Replace Diesel with Electric Start Unit 1			150,000		
Install Loop Feed on Existing Tline			2,000,000		
Circuit 31 Overhead Rebuild			150,000		
Gardner Elementary Underground Project				30,000	
Upgrade Combustion Turbine Controls				450,000	
35-45 Padmount Switchgear Cabinet Replacement					50,000
Parks & Recreation					
Trail Reconstruction	155,000				
Quail Meadows Neighborhood Park Development	350,000				
West Fork Kill Creek Trail	311,400				
Reconstruct Celebration Parking Lot	1,150,000				
St. Johns Trace Neighborhood Park Development		375,000			
St. Johns Trace Land		150,000			
Outdoor Fitness Court					120,000

Project	2019	2020	2021	2022	2023
Potable Water					
Smart Meter Implementation		1,000,000			
Repair/Replace Water Driveway	100,500				
Above/Below Ground Storage Facility Rehab	240,000				
N. Moonlight Rd. to Copper Springs Loop Feed	240,000				
Rebuild High Service #3	60,000				
Replace Carbon Feed System	180,000				
Lightning Arrestors	100,000				
183 rd Street Tower Rehab	160,000				
2 MGD Expansion Hillsdale WTP			15,000,000		
Replace Media Filter				170,000	
Quail Meadows Water Main Extension					500,000
Line Maintenance Building					437,500
Wastewater					
Replace BDP Belt Press at Kill Creek Facility	500,000				
Remove Temporary Lift Station	200,000				
WWTP Clarifier 1&2 Improvements	400,000				
Replace/Rebuild Grinder at Big Bull Creek Lift Station	70,000				
Replace two pumps at East Lift Station	150,000				
Replace UV System		550,000			
Nike Lift Station & Forcemain Improvements		365,000			
Remove Willbrook Lift Station		300,000			
Remove Sunset Lift Station		177,500			
South: Parallel Relief Lines				1,680,000	1,120,000
Advanced Nutrient Removal at WWTP					5,850,000
Line Maintenance Building					437,500

Project	2019	2020	2021	2022	2023
WWTP Parallel Relief Lines (See 2024)					1,487,000
East Lift Station Improvements Phase 1 - Upgrade					435,000
Nike: New Gravity Interceptor					809,000
Transportation					
I-35 & Gardner Road Interchange Improvements	3,750,000				
Moonlight Road Safe Routes to Schools	362,000				
Moonlight & Madison Traffic Signals	20,000	294,000			
Waverly Road Reconstruction from 175 th to Madison	3,200,000				
Moonlight Road Rehab (I-35 to Buffalo Trail)		25,000	384,000		
Center Street Rehab (Main to 167 th)			10,000	461,000	
Center Street Sidewalks Improvements					315,000
Transportation – Airport					
Sanitary Sewer Service	240,000				
Acquire Land – Gardner Property		402,500			
Terminal Building and FBO Hangar					499,500

10-Year Schedule of Capital Improvements 2024-2028

Project	2024	2025	2026	2027	2028
Electric Utilities					
Substation 1 Upgrade T2 to 30 MVA		850,000			
New Feeder Breakers for T2		450,000			
12.5kV Distribution Feeder Construction		350,000			
New 30 MW Generation Capacity					30,000,000
Potable Water					
New 6.0 MGD WTP, HSPS, Clearwells				42,000,000-50,000,000	
Redundant 16-inch Treated Water Transmission Line			7,150,000		
Redundant 8-inch Raw Waterline			970,000		
Upgrade Raw Water Pump Station			630,000		
Wastewater					
Kill Creek: New Gravity Interceptor					1,071,000
Bull Creek: Parallel Relief Lines				975,000	
White Drive Gravity Main Replacement		165,000	2,035,000		
WWTP: New Gravity Interceptor 1 & 2		686,000	1,095,000		
Bull Creek: Parallel Relief Lines			975,000		
Nike: New Gravity Interceptor	809,000				
South: New Lift Station & Forcemain	2,560,000				
WWTP Parallel Relief Lines (See 2023)	1,216,000				
North Parallel Relief Lines	1,980,000	1,620,000			
East Parallel Relief Lines	350,000				
East Parallel Forcemain	207,000	1,517,000			
Kill Creek: New Gravity Interceptor				1,071,000	

Parks & Recreation 10-Year Schedule of Capital Improvements 2024-2028

Project	Year	Projected Cost
Wetland Park Improvements	2024-2028	100,000
Greenway & Bike Trail Land Purchase	2024-2028	150,000
Dome for Sports & Special Events & Trade Shows	2024-2028	5,000,000
Amphitheater	2024-2028	500,000
Westside Sports Complex Improvements & Development, Land Purchase	2024-2028	1,555,000
Regional Sports Tourism & Training Complex	2024-2028	19,000,000
Community Center & Natatorium	2024-2028	29,000,000
Land Acquisition for Community Center & Sports Complex	2024-2028	4,000,000

Transportation 10-Year Schedule of Capital Improvements 2024-2028

Project	Year	Projected Cost
Moonlight RD 3-lane section (Warren ST to Grand ST)	2024-2028	2,300,000
Center ST 3-lane Section (Madison ST to 167 th ST)	2024-2028	500,000-1,000,000
175 th ST and Clare RD Intersection Improvements	2024-2028	500,000
US-56 & New Century Parkway Interchange Reconstruction	2024-2028	1,000,000-2,000,000
Gardner Road, widen to 4 lanes from I-35 south to City Limit	2024-2028	4,000,000
I-35 / Gardner RD Interchange Improvements	2024-2028	15,000,000
191 st Street, widen to 3 lanes from Gardner Road west to City Limit	2024-2028	2,000,000
East Santa Fe, widen to 3 lanes from Cedar Niles to Moonlight	2024-2028	5,000,000
Transportation - Airport		
Property Easement Acquisition 16 acre	2024-2028	149,500
AGIS Survey	2024-2028	100,000
Runway 8-26 – Turf	2024-2028	201,000
T-Hangar Construction	2024-2028	950,000
Primary Runway 17-35	2024-2026	3,400,000

10 + Year Schedule of Capital Improvements 2029-2048

Project	Year	Projected Cost
Electric Utilities		
Land Acquisition for Cedar Niles Substation Construction	2029	400,000
Cedar Niles Substation New Construction	2032	3,800,000
New 30 MW Generation Construction	2033	30,000,000
Substation 3 Upgrade/Construction	2033	3,200,000
New 30 MW Generation Capacity	2038	30,000,000
Cedar Niles Substation Upgrade	2040	2,250,000
Potable Water		
Upgrade new WTP to 8.0 MGD	2037	7,500,000
Upgrade WTP to 10.0 MGD+	2047	7,500,000
Acquire Additional Water Rights	2040	Varies
Wastewater		
Wastewater Treatment Plant Expansion	2032	16,820,000
Transportation		
I-35/US-56 Interchange Improvements	2029-2040	15,000,000- 20,000,000
175 th ST Widen to 4-lanes (I-35 to Hedge Lane)	2033-2040	12,000,000
167 th ST 3-lane Section (Center ST to Moonlight RD)	2033-2040	4,000,000-12,000,000
Moonlight & Main Intersection Improvements (Study)	2033-2040	50,000
US-56 & 175 th ST & Poplar Street Intersection Improvements	2033-2040	3,000,000
Cedar Niles Road Extension	2033-2040	5,000,000-7,000,000
US-56 Widen to 6 Lanes (Moonlight Road to I-35)	2033-2040	10,000,000-15,000,000
New I-35/183 rd Interchange	2033-2040	25,000,000
White Drive Connection (Main Street to Warren)	2033-2040	10,000,000-20,000,000
Transportation – Airport		
Environmental Assessment	2029-2040	80,000
Pavement Management	2029-2040	250,000
Master Plan and ALP	2029-2040	100,000
Terminal Apron	2029-2040	945,000
Taxiway Lighting System	2029-2040	175,000
17-35 Parallel Taxiway	2029-2040	1,150,000