

# Utilities 9

## Introduction

The City of Johnston has made significant investments in its sanitary sewer, municipal water, and storm drainage facilities since the completion of its last comprehensive plan, with a focus on implementing master planned utilities in developing growth areas of the community. In addition, the city has recently focused on reinvesting in older, established neighborhoods as existing utilities have become undersized with the community's overall growth, isolated or obsolete due to new development, or that have become a more serious maintenance issue for the community over time. The combination of these efforts are summarized in the comprehensive plan update, as well as recommendations for utility staging and implementation strategies in new growth areas identified by the Comprehensive Plan update reflecting future growth toward the horizon year of 2030.

Also addressed in this chapter are the city's policies and action steps, inventory and recommendations related to public and private utilities in the community owned and regulated by others or in partnership with the City of Johnston, including solid waste, electric transmission and distribution, fiber optics, renewable energy, telecommunications, and natural gas.

## General Utility Policies and Action Steps

In order to guide future utility expansions and replacement projects, the following general policies, and coordinating action steps, have been identified.

### General Utility Policies

Functional plans will define required levels of utility service for urban and rural areas. The City of Johnston, Des Moines area metropolitan service providers, or private companies will provide facility improvement standards where applicable, specify current and potential funding methods, and schedule facility maintenance and construction through capital improvement programs. The provisions of the Iowa Smart Growth planning principles shall apply to all utility plans and installations, and surface water resource management projects.

### Action Steps:

1. Utilities should be designed, located and constructed to avoid significant adverse environmental impacts and to protect valuable environmental features. Siting decisions should include all relevant planning policies, and should include the following actions:

- a). Necessary improvements should be provided where utilities are inadequate to serve existing development in urban areas. Utility capital improvement programs should give priority to improving systems with significant inadequacies.

b). Utility providers, including the city and Des Moines metropolitan service providers, should plan to eventually serve urban uses and densities throughout all urban areas and those rural areas where the comprehensive plan has determined that urban densities will be appropriate in the future.

c). Standards and plans for utility services in rural areas should be consistent with long-term, low-density development. Facilities that serve urban areas, but must be located in rural areas or resource lands, should be designed and scaled to serve primarily the urban areas.

d). Utilities should make joint use of utility rights-of-way whenever possible. Underground utilities should also be grouped together and easily accessible for maintenance, repairs, and expansions.

e). Above-ground utility installations should be designed and located to minimize unsightly views and environmental impacts. Power and telephone poles should be as far from right-of-way centerlines as possible.

f). Power and communication wires should be installed underground where feasible, particularly in newly-developing and high-density areas.



## Sanitary Sewer System

### Sanitary Sewer Service Policies

Adequate sewage treatment and disposal are essential to protect the public health and safety, and to maintain a high quality for all water resource users. The City of Johnston's wastewater is treated by a public sewer system which conveys wastewater to the Des Moines Water Reclamation Authority (DMWRA) central plant, where it is treated and released into the Des Moines River. The needs for sewer service are different for urban and rural service areas. The public sewer system can accommodate dense development and large quantities of wastewater. It is a large, complex, and expensive public utility system that can become cost-effective only at urban densities. The presence or absence of a public sewer system is, because of its expense, a major factor in the ability of both urban and rural areas to accommodate growth.



### Action Steps

1. Public sewers are the preferred method of wastewater treatment for development in urban service areas. Onsite systems should continue to be monitored and replaced with municipal systems according to public health issues and needs, and as determined appropriate by the City of Johnston.

2. Service areas for sewers should be designated only in urban areas and their identified expansion areas. In designating or adjusting service area boundaries, the following criteria should be applied:

a). Detailed land use plans and zoning for urban uses and densities support the proposed expansion;

b). Potential adverse impact of sewers on adjacent rural areas or resource lands, and environmentally sensitive areas will be mitigated;

c). Sewers are technically feasible within the proposed expansion area;

d). The proposed expansion can be served by gravity sewer, pressure line or similar approved method, to the existing service area; and

e). There is sufficient treatment plant capacity and interceptor capacity to serve the entire existing service area as well as the proposed expansion.

4. Onsite wastewater treatment systems should be monitored to protect water quality in the community's rivers, floodplains, wells, and aquifers.

5. The city should continue efforts to reduce the level of residential, commercial, and industrial inflow and infiltration into the sanitary sewer system.

6. Operation and maintenance standards should be established and continue to be reevaluated for both urban and rural service areas. Special programs should be established in areas with a high risk of system failure, depending on utility funding ability.

## Existing System

Johnston is a member of the Des Moines Wastewater Reclamation Authority (DMWRA), which provides sanitary sewer services to the Greater Des Moines area. Sanitary sewer service is provided to Johnston's residents, businesses, and public facilities through nearly 64 miles of collection lines and a series of lift stations. The City of Johnston has two connections to the DMWRA sewer, one located west of Merle Hay Road and one located adjacent to the old interurban (abandoned) railroad right of way. The Beaver Creek trunk sewer currently terminates on NW 86th Street approximately 2,000 feet south of NW 70th Avenue. The Beaver Creek trunk sewer provides up to a 24 inch pipe with a capacity of approximately 4.1 million gallons daily (mgd).

As a member of the DMWRA, the City of Johnston pays wastewater collection, operation and maintenance costs on a proportionate basis according to the annual proportional wastewater flows contributed. Johnston's municipal annual flow rate has increased from 261 million gallons per day (mgd) in 2002, to 506 mgd in 2009, a 94 percent increase during a 7-year period. The DMWRA's current agreement with Johnston provides the institutional structure needed to implement the requirements of Section 208 of Public Law 92-500 (duties and responsibilities of each constituent community as well as the proportionate funding for implementing the Des Moines Facilities Plan). The cost for implementation of the Facilities Plan is paid on a proportional basis according to the year 2005 population equivalent of the DMWRA member communities.

Johnston's existing sanitary sewer system is illustrated in Figure 9.1.



## Municipal Water System

### Municipal Water Service Policies

The City of Johnston provides municipal water service for all residential and commercial customers within the city limits. Federal and State laws govern water quality standards, and the city is responsible for engineering, building and operating a public water supply in conformance with these laws.

### Action Steps

1. Level-of-service standards for the water supply assure water quality, adequate municipal supply and fire-flow levels in urban and areas. Level-of-service standards for rural areas must also assure water quality and municipal supply, and provide fire-flow levels consistent with low residential densities.

2. The city should design system improvements and plan future annexations based on the following factors:

- a). Adequate system capacity to accommodate planned land use intensities in urban areas; and
- b). The planned area-wide, low residential densities and rural uses in rural areas.

3. The decision to provide municipal water to a local geographic section of a rural area should be based on the following factors:

- a). The section has been committed to municipal water service through a previous Polk County Comprehensive Plan; or



- b). Water quality problems that threaten public health exist which can best be resolved by municipal service.
4. Conservation measures should be included in municipal plans to support planned land uses with reliable service at minimum cost, and to assure maximum net benefit in the allocation of water for municipal and recreational uses.
  5. Public watersheds should be managed primarily for the protection of drinking water, but should allow for multiple uses, such as recreation, when such uses do not endanger water quality standards.

### Existing System

The City of Johnston constructed its first municipal water system in the mid-1970s. The municipal water system has developed over the past 20 years to serve most of the development within the City of Johnston. The City of Johnston currently purchases water from Des Moines Water Works in accordance with the agreement between the city and Des Moines Water Works. Presently, the city operates and maintains approximately 102 miles of water main distribution, 1,167 hydrants, 2,250 water valves, 1,536 manholes, and two water storage tanks that provide approximately 3 million gallons of municipal water. A third water storage facility has been sited and is under construction.

Johnston's existing municipal water system is illustrated in Figure 9.2.

## Storm Drainage Facilities

### Storm Drainage and Surface Water Management Service Policies

The management and control of storm and surface water has become more crucial as more of Johnston's land is covered by impervious surfaces such as streets, parking lots, and buildings. The purpose of surface water management is to minimize water quality degradation, flooding, erosion, and attendant property damage. In Johnston, surface water management is addressed through a plan that provides policies and guidance to implement the preservation of watersheds through the city's Community Development and Public Works departments that develops functional plans, operate and maintains area-wide facilities, and develop facility standards which are applied to both public and private development projects.

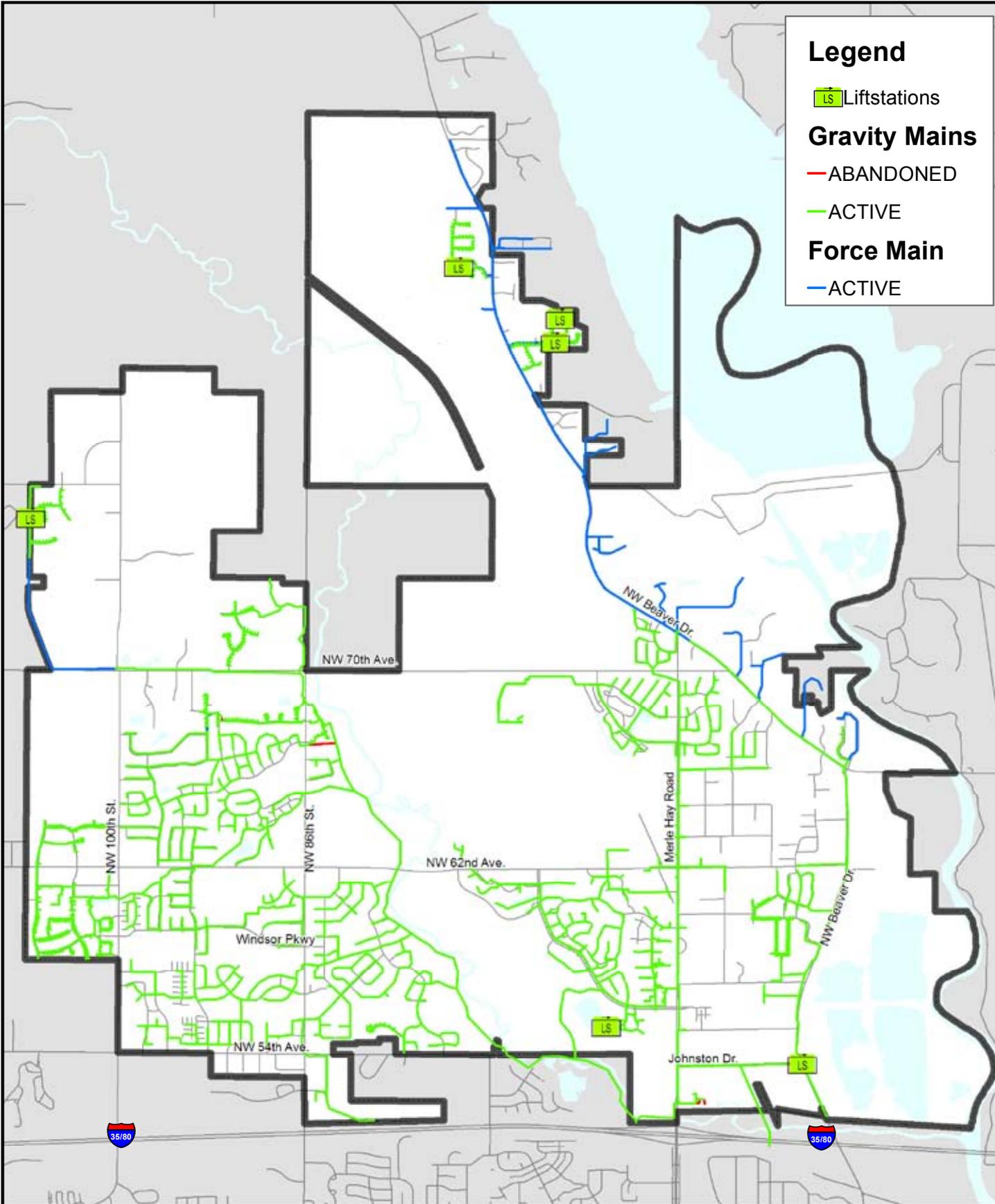


### Action Steps

1. Surface water management should use and protect natural drainage systems wherever possible.
2. A basin and watershed approach will be utilized in surface water management, with the responsibility shared between the various municipalities and Polk County.
3. Basin and watershed plans will provide for multiple uses, including recreation, fish and wildlife enhancement, flood protection, erosion control, public utility management and reclamation, and open space.
4. The city should continue the practice of updating its methodologies in addressing surface water run-off.
5. Surface water management facilities should be funded through adequate and equitable system fees on contributing and benefiting properties, with the facilities required for new development designed and built for low-cost, long-term maintenance and consistency with water quantity and quality standards.

### Existing System

The City of Johnston's municipal storm drainage system has developed over the past 30 years as the city has grown. Major roadway improvement projects along the city's minor arterial and collector street corridors have provided opportunities over the years to implement off-site drainage collection from adjacent developments. Plans and studies have been conducted to adequately size storm drainage systems in Johnston's most



**Legend**

- LS Liftstations
- Gravity Mains**
- ABANDONED
- ACTIVE
- Force Main**
- ACTIVE



**Existing Sanitary Sewer System**



Source: City of Johnston, Polk County, HKGi, HR Green

Figure 9.1 Existing Sanitary Sewer System

recently constructed subdivisions.

Sustainable stormwater management practices continue to evolve and as the City of Johnston embraces “smart” planning principles, it will also seek ways to manage drainage and new infrastructure in accordance with processes that provide the proper balance between the human and natural environment needs. Presently, the city is in the process of implementing such improvements and continues to work with residents of the Green Meadows neighborhood to resolve differences between established and planned future drainage practices.

According to the city’s 2009 Watershed Assessment and Stormwater Management Plan, most of the storm sewer infrastructure within the city is relatively new, and designed with proper capacity to convey typical storm events (10-year storm events or less). The largest issue identified as part of the storm drainage assessment is the potential damage to the system that could be caused by erosion downstream of storm sewer outfalls, either near downcutting stream channels or downstream of storm outlets discharging near the top of a steep grade. Some outfalls may require additional protection or other enhancements to address these issues. Threatened, undermined, exposed or damaged public and private improvements include storm sewer outlets that have been impacted by channel erosion, sanitary sewers that have been exposed by scour from increased flow volume from both small and large storm events, and manholes that have become exposed from collapsed or eroding soils.

In older developed portions of the city located east of Merle Hay Road, drainage systems are designed with rural street sections with shallow ditches, or with undersized storm sewers. Most of these areas have soils with good infiltration capability, but there are some areas that do not have adequate paths for large storm conveyance or are prone to standing water during periods of wet weather. As redevelopment occurs in some of these areas, a balance is needed to preserve the natural hydrology of the area, while providing for safe conveyance of large storms.

Johnston’s existing storm drainage system is illustrated in Figure 9.3.

## **Other Public and Private Utilities**

In addition to sanitary sewer, municipal water, storm drainage facilities, development in the community relies on private utilities, including electric, gas and communications services, and solid/yard waste and recycling services.

There is a high demand from other telecommunication industries for the installation and use of fiber optic cable in the city’s right-of-way. New technologies have spurred higher demand for varied communication services. While meeting this demand is important, it is also important for telecommunication companies to pursue ways of sharing conduit and other facilities to provide for the most efficient provision of services with limited negative visual impacts and non-duplicative use of the right-of-way.

The City of Johnston currently contracts with Waste Management of Iowa for solid waste hauling services. Weekly collection services are provided to residential and institutional properties, and businesses. Recycling and composting services are also provided to Johnston consumers through the Metro Waste Authority’s Curb It! and Compost It! Programs. The Curb It! recycling bin is placed at the curb every other week, following a calendar attached to the bin. Yard waste is collected each week during April - November.

## **Energy Service Policies**

Electrical and gas services in Johnston are provided by MidAmerican Energy. Many large generation and transmission facilities in Johnston are regional facilities subject to federal or state law. Local distribution, transmission, and reception facilities, however, are the responsibility of the city to regulate in order to safeguard public health and safety, and to

control aesthetic impacts.

### Action Steps

1. Energy distribution and transmission facilities, such as substations, pump stations, major power lines and pipelines, biofuels and wind energy generation, and transmission and reception towers, should be located in industrial areas and resource lands when possible. They should be located in residential areas only when necessary to provide an efficient and cost-effective method of utility service.
2. The city's siting decisions for energy facilities should be based on the following factors:
  - a). Minimal health risks to residents of neighboring properties, whether from noise, fumes, radiation or other hazards;
  - b). Minimal visual impacts, achieved with buffering through distance and/or landscaping;
  - c). No adverse impacts on aviation traffic patterns from power lines, transmission towers, or reception towers; and,
  - d). Convenient access to a street.



### Telecommunications and Wireless Data Transmission Service Policies

Since the last Johnston comprehensive plan update, mobile telecommunications and wireless data transmission have created a marketplace with new, more efficient technologies. These technologies should encourage economic development by creating jobs and helping local businesses remain competitive. At the same time, the influx of new telecommunication providers poses a challenge to the city as it performs its traditional land use responsibilities.

### Action Steps

1. Telecommunication distribution and transmission facilities, such as relay stations and transmission and reception towers, should be located outside residential areas when possible.
2. The city should presume a wireless telecommunications facility is safe if it meets the technical emission standards set by the Federal Communications Commission. The facility should not create interference with any other communication signals.
3. The city should encourage the principle of co-location, which affords two or more utility providers the ability to place their transmitting facilities in the same location or on the same tower or pole.

### Solid Waste Service Policies

Solid waste management within the City of Johnston governs refuse at every stage, including storage, collection transfer, resource recovery, and disposal. Most solid waste is collected, taken to transfer stations for recycling or temporary storage, or taken directly to landfills. Solid and yard waste disposal and recycling services will continue to be provided by a private contractor to the City of Johnston; however, to the extent practicable, the city should engage in providing contractor guidance based on the use of its public streets and other facilities to provide such services.

### Action Steps

1. Solid waste should be collected and disposed of in ways that minimize land, air, and water pollution.
2. Inefficient collection methods that cause additional wear or damage to Johnston's public streets or private driveways shall be monitored and reported.
3. Changes in collection methods that minimize airborne or water-eroded material collection shall be monitored and reported (i.e., lids on recycling bins).



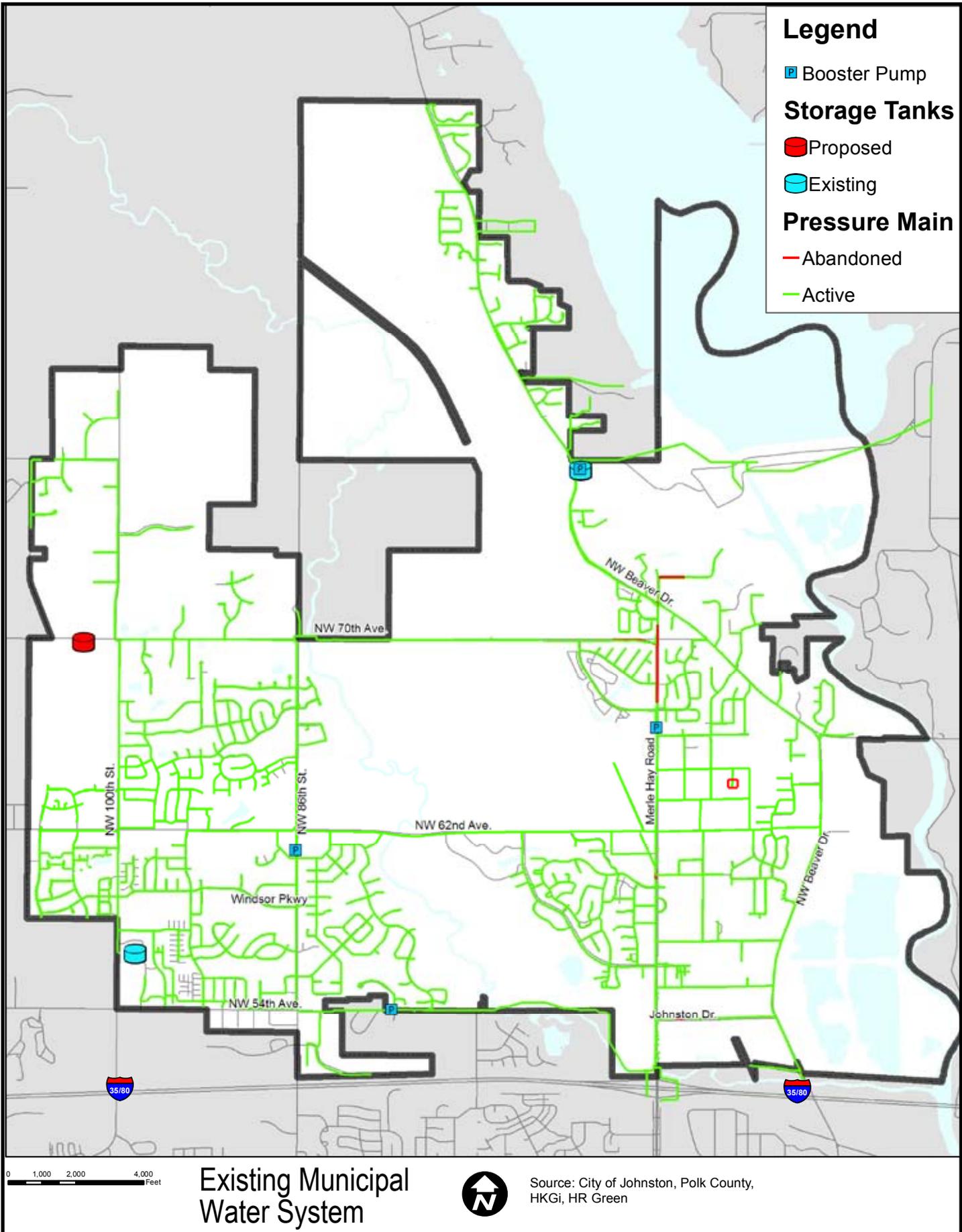
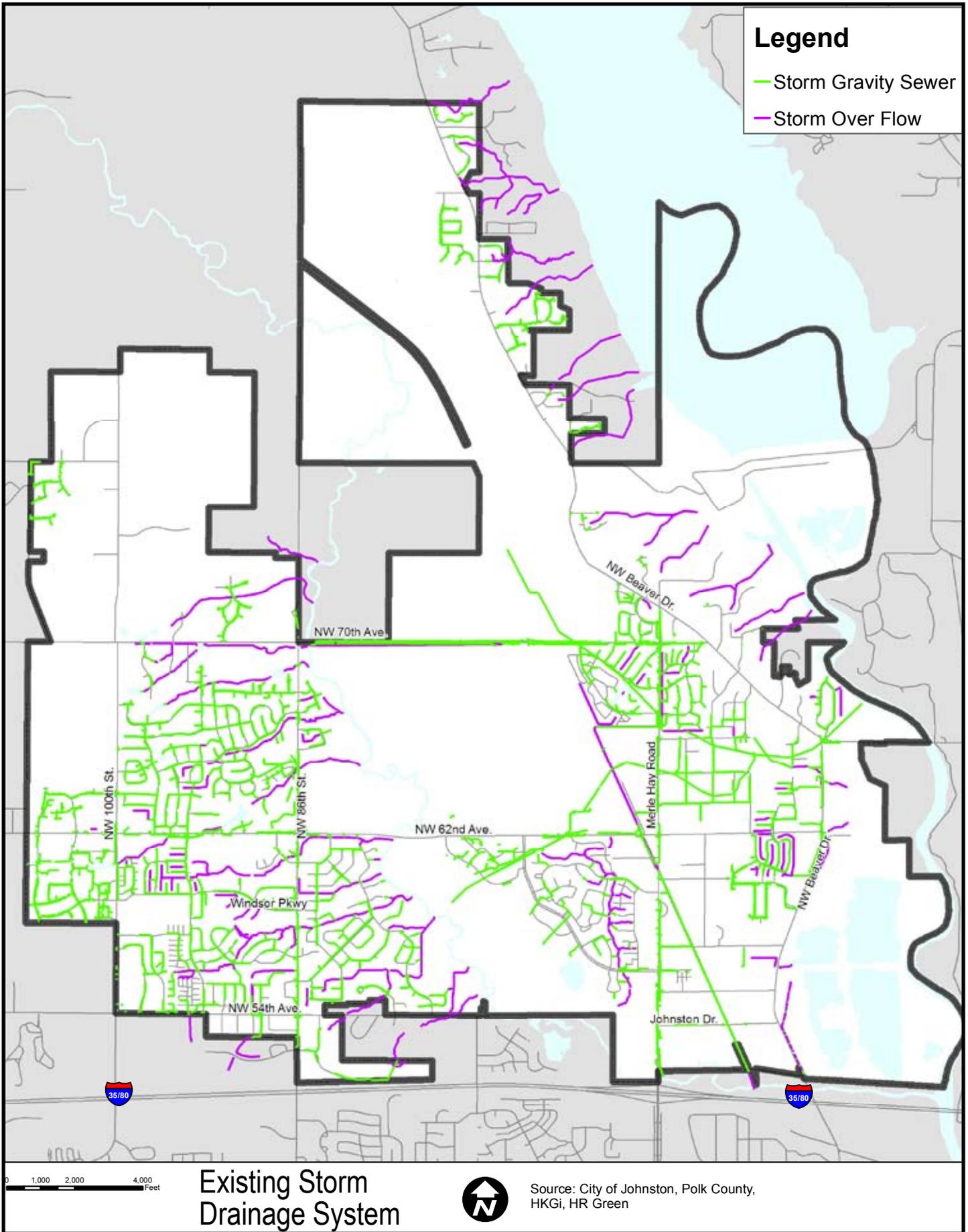


Figure 9.2 Existing Municipal Water System



**Legend**

- Storm Gravity Sewer
- Storm Over Flow

**Existing Storm Drainage System**



Source: City of Johnston, Polk County, HKGi, HR Green

Figure 9.3 Existing Storm Drainage System

## **Growth and Redevelopment Areas – Long Range Utility Studies, Plans and Recommendations**

From 2003 to 2010, the City of Johnston studied sanitary sewer, municipal water system, and storm sewer staging or replacements in four subareas of the community. These four areas are known as Beaver Ridge, the Northwest Planning Area, the Central Basin area and, most recently, an expanded area of the Central Basin associated with a Capital Improvement Plan project east of Merle Hay Road in the established area of the community south of NW 62nd Avenue.

An overview of these studies is presented below as they pertain to the Johnston 2030 Comprehensive Plan. Each of the study area recommendations are in various stages of completion as development has proceeded over the past seven years, and therefore, are considered a “work in progress” for the city. (The reader is referred to the City of Johnston for more information about these studies.)

### **Beaver Ridge - 2003**

Beaver Ridge follows the ridge of NW Beaver Drive from NW 66th Avenue to the north city limits, in close proximity to Saylorville Lake and Camp Dodge. While most of Johnston is relatively level, this area of the community is located on a terrace plain that includes the floodplain of Beaver Creek. The Beaver Ridge area includes bluffs that are 130 feet above the Des Moines River to the east and therefore much of the ridge’s drainage courses flow to Saylorville Lake. With the growth in new development, although isolated subdivisions do not present large areas of development density, much of the area remains on rural utility systems. The U.S. Army Corps of Engineers, responsible for the maintenance of Saylorville Lake, has requested that the City of Johnston continue to monitor and encourage residential connections to city sewer where possible to improve the water quality of the lake.

### **Northwest Planning Area - 2004**

The Northwest Planning Area is that area of the community generally bounded by NW 70th Avenue, NW 107th Street/NW 78th Avenue/Highway 141, and Little Beaver Creek. The Northwest Utility Service Master Plan, approved in 2004, included planning for all municipal utilities, but focused on the availability of sanitary sewer service in the Northwest Growth Area. (In the 2030 Comprehensive Plan, this area is now referred to as “North Johnston”.)

Specifically, the master plan calls for the extension of the Beaver Creek trunk sewer northward to NW 70th Avenue and westerly along NW 70th Avenue from 86th Street to NW 100th Street, with future connections to NW 78th Avenue and NW 107th Street. The preferred alternative follows along Beaver Creek. The City of Johnston established a sanitary sewer district with a connection fee schedule (applicable to certain locations) to recover sanitary sewer installation costs. A key “trigger” for sewer sizing in this area is the annexation of the NW Saylorville Drive Expansion Area, generally following along either side of NW Saylorville Drive between the Mile-long Bridge over Saylorville Lake and Highway 141, northwest of Camp Dodge. The plan recommended larger sewer sizing (18 inch diameter pipe) should the community pursue annexation in the Northwest Saylorville Drive Expansion Area.

Water main extensions in the Northwest Planning Area included the recommended installation of 12-inch mains along major roadways south of NW 70th Avenue, and 8-inch mains north of NW 70th Avenue. Since 2004, the City of Johnston has extended 8-inch mains to NW 78th Avenue and 12-inch loop mains will continue to be installed in the developing areas west of NW 100th Street, between NW 62nd and NW 70th Avenues. The city requires a connection fee of new developers to recover water main installation costs.

Drainage systems in this area are planned to be a combination of stormwater detention ponds and culverts. The master plan recommends drainage follow natural channels to the Beaver Creek basin, but in areas where natural drainage is undefined, the adequacy

of downstream storm water culverts is of concern to ensure that downstream areas are not inundated during significant storm events. A long-range improvement plan was recommended to ensure that adequate study would be undertaken to evaluate the adequacy of downstream channels, ponds, and culverts prior to development approval in this area.

### **Central Basin Plan – 2004/2006**

Improvements to sanitary sewer, municipal water distribution, and storm drainage systems were studied in the area of the community then known as the Jerry's Homes, Polich, and Greedy properties, generally bounded by NW 57th and 62nd Avenues, west of NW Beaver Drive. The original plan was to extend water main, and sanitary and storm sewer utility extensions through undeveloped properties west of NW Beaver Drive and between Johnston Drive and NW 59th Avenue; however, due to a lack of property owner consensus, an alternative Central Basin Utility alignment was chosen to access existing municipal utilities in NW Beaver Avenue by requiring fewer property owners to consent, utilizing a corridor following NW 57th Avenue. While this provided a solution to the city for the development of the three properties stated above, it did not resolve the issue of undersized downstream sewer and water mains, or septic system replacements needed in this area. Although unsuccessfully implemented in its entirety at the time, the master plan helped establish utility responsibilities and cost participation policies to accommodate a mix of retrofitted and vacant parcel utility extensions, something Johnston had not encountered before. The policies called for establishment of a stormwater utility or use of a storm sewer special assessment. Policy changes were also implemented to enact shared agreements between the City of Johnston and developers to assign costs between offsite sanitary, storm sewer, and municipal water main (city) and on-site development costs (developer).

### **Capital Improvement Program (CIP) Utility Replacement - Areas East of Merle Hay Road – 2009-2010**

As a follow-up to the Central Basin Master Plan, capital improvements planning was prepared to update the utilities commensurate with updated street reconstruction standards. The result will be a significant reinvestment in the earliest neighborhoods of Johnston, with the installation of new utilities and street amenities, including curb and gutter and sidewalks.

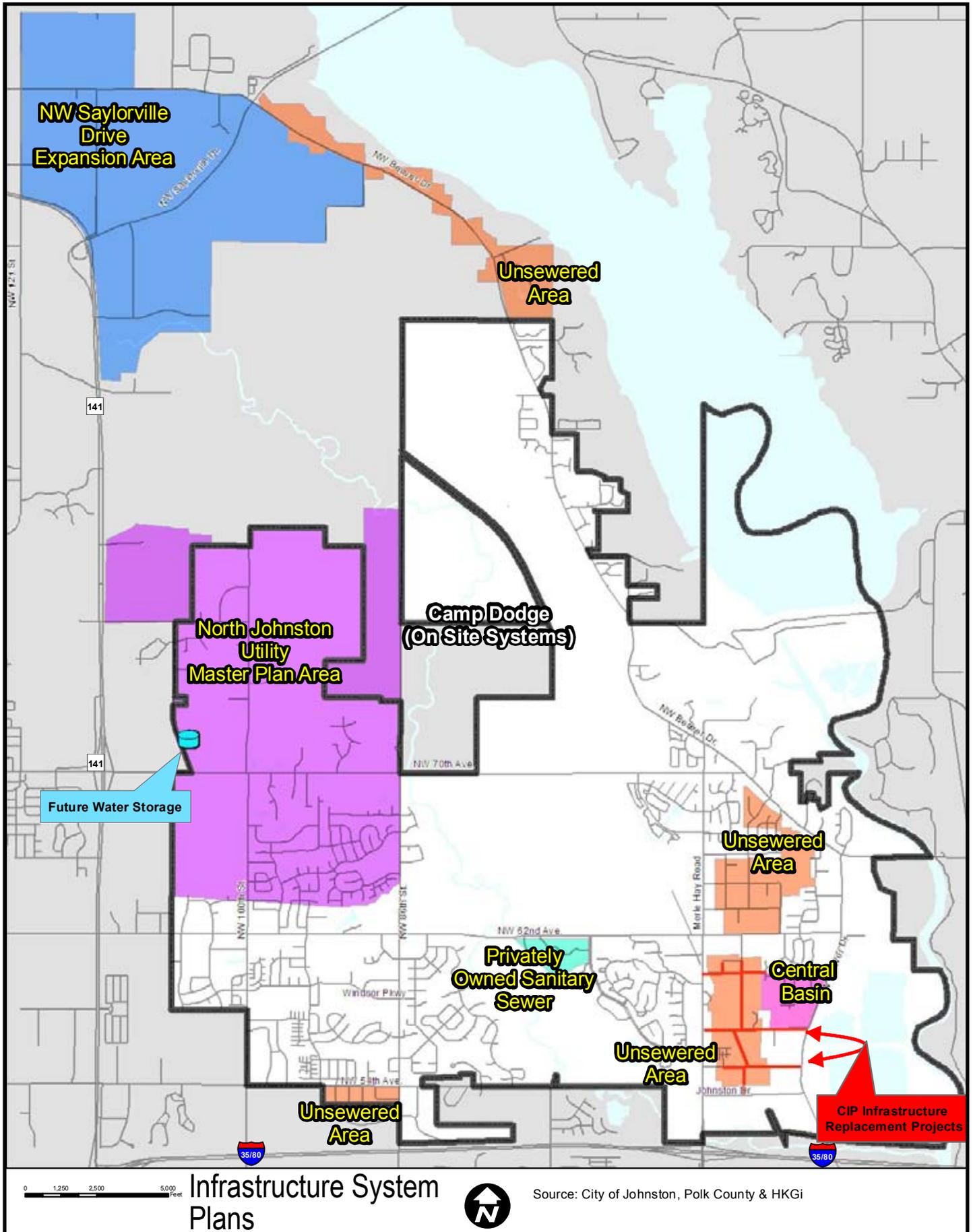
Figure 9.4 illustrates areas of ongoing municipal utility improvements from previous and current studies for Johnston's Growth and Redevelopment areas. Unsewered areas are also illustrated within the city limits and in unincorporated Polk County along NW Beaver Drive, which may be affected by future utility replacements with the development of the NW Saylorville Drive Expansion Area.

## **Long-Range Storm Drainage Planning and Watershed Improvements**

In 2009, after a thorough assessment of the water resource planning needs, the City of Johnston adopted an aggressive watershed action plan to set storm drainage policies and implement a number of critical projects to correct long-standing drainage deficiencies, repair environmental and city infrastructure damages, and improve the ability to manage drainage costs in the future.

Throughout the citywide watershed assessment process, more than 80 locations were identified that were in need of some level of improvement or repair that could warrant consideration as a city-funded project. It was realized very early that funding sources would not be available to address all of the identified issues using local funds, and a need to narrow the list of projects to a more select group that could be reviewed in more detail was developed. Problem areas were evaluated by a set of preliminary screening criteria, such as the potential danger posed to public and private infrastructure, expectations for





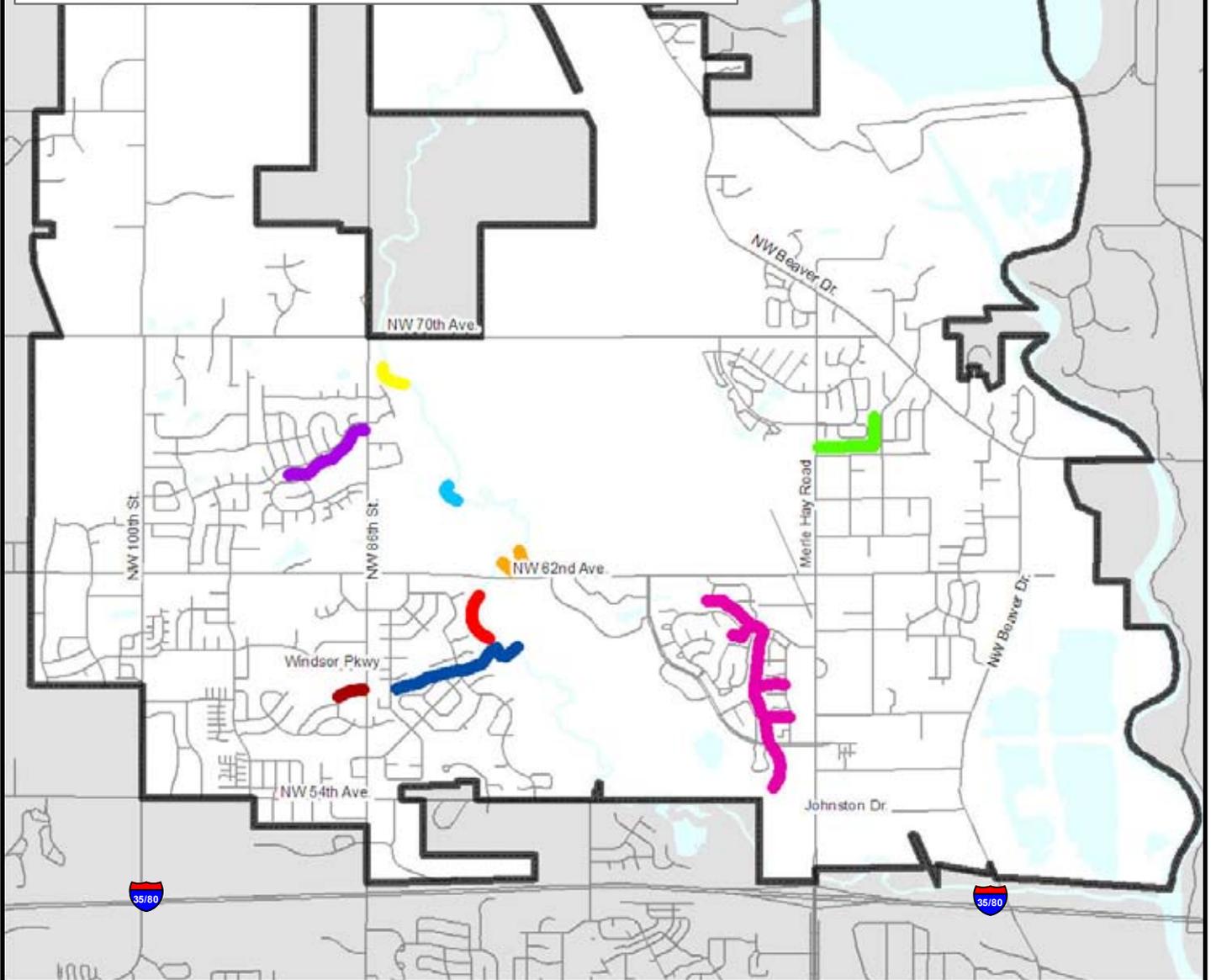
Source: City of Johnston, Polk County & HGI

# Infrastructure System Plans

Figure 9.4 Infrastructure System Plans for Growth and Redevelopment Areas

## Legend

- Green Meadows West Central Tributary Water Quality Basin
- Green Meadows West Central Tributary Repair
- Beaver Creek Shoreline Stabilization - Augustine
- Beaver Creek Shoreline Stabilization - Future Trail
- Beaver Creek Shoreline Stabilization - North of NW 62nd Ave
- Beaver Creek Shoreline Stabilization - South of NW 62nd Ave
- Northglenn Drainageway and Bioretention Improvements
- Green Meadows Flume Removal and Bioretention Network
- Newgate Drive Stream Corridor Restoration



0 1,250 2,500 5,000 Feet

## Watershed Improvement Projects



Source: City of Johnston, Polk County & HKGi

Figure 9.5 Watershed Improvement Projects



additional damage without action, provisions for access, and the general scale of cost. Problem areas that did not threaten existing improvements, affected only a few property owners or had poor access from existing roads were most likely to be set aside from further consideration. Just over twenty projects warranted further evaluation with city staff. The initial criteria were reviewed in more detail, along with new parameters that considered the overall watershed benefits and characteristics, habitat improvements, connectivity with other practices and the educational value of the project.

From this evaluation, nine projects were identified as the most critical for capital improvement planning purposes. The purpose of the initial review was to identify projects that could be eligible for a watershed improvement grant, but the understanding was that most of these projects were considered strong candidates for inclusion in the city's long term capital improvements plan. The location of these nine watershed improvement projects is indicated on Figure 9.5. (The reader is referred to the City of Johnston for additional information on the city's Watershed Assessment and Stormwater Management Plan.)

## **Long-Range Municipal Utility Planning – NW Saylorville Drive Expansion Area**

The NW Saylorville Drive Expansion Area was examined by the community in a 2003 annexation study. At the time, it was referred to as “Far North” and encompasses the area roughly bounded by Camp Dodge on the south, NW Beaver Drive on the east, 110th /106th Avenues NW on the north, and NW 121st Street/Highway 141 on the west. The NW Saylorville Drive Expansion Area is bisected by NW Saylorville Drive, which along with Highway 141 and NW Beaver Drive, are the primary sources of access to this area.

The annexation study addressed the provision of municipal utilities in this area, including the roles of current and adjacent service providers in this area, including the City of Granger, Xenia Rural Water District, Des Moines Metropolitan WRA, and Polk County, as well as variables or alternatives for the City of Johnston to serve this area independently with its own utilities or cooperatively with other entities.

Notable findings of the annexation study include the following:

- » *The NW Saylorville Drive Expansion Area is generally conducive to traditional storm drainage design. A combination of flat storm sewers or drainage channels may be used in some areas south of NW Saylorville Drive.*
- » *Municipal water service can be provided from a variety of sources, short-and long-term, including the City of Granger, Xenia Rural Water District, and the City of Johnston. Long-term considerations for Johnston include main extensions from the west service area (north of NW 100th Street) and NW Beaver Drive.*
- » *Sanitary sewer extension to the existing service area would require the development of a sewer system tributary (local sewer system) with a least one pump station to convey the flow southerly to the city's main service area. The preferred sanitary sewer route would follow Beaver Creek.*

## **2030 Comprehensive Plan Considerations**

### ***Storm and Surface Water Drainage***

An update to the Watershed Assessment and Stormwater Management Plan is needed to amend this area in the current plan. The NW Saylorville Drive Expansion Area's inventory needs to be completed such that landscape constraints and potential opportunities can be identified, and water resource guidance can be provided as input to development petitions. New storm sewers will generally follow new street construction; however, a variety of water conveyance and settlement techniques will be appropriate in this area and measures to minimize downstream flow will be important to relieve system congestion and preserve capacity.

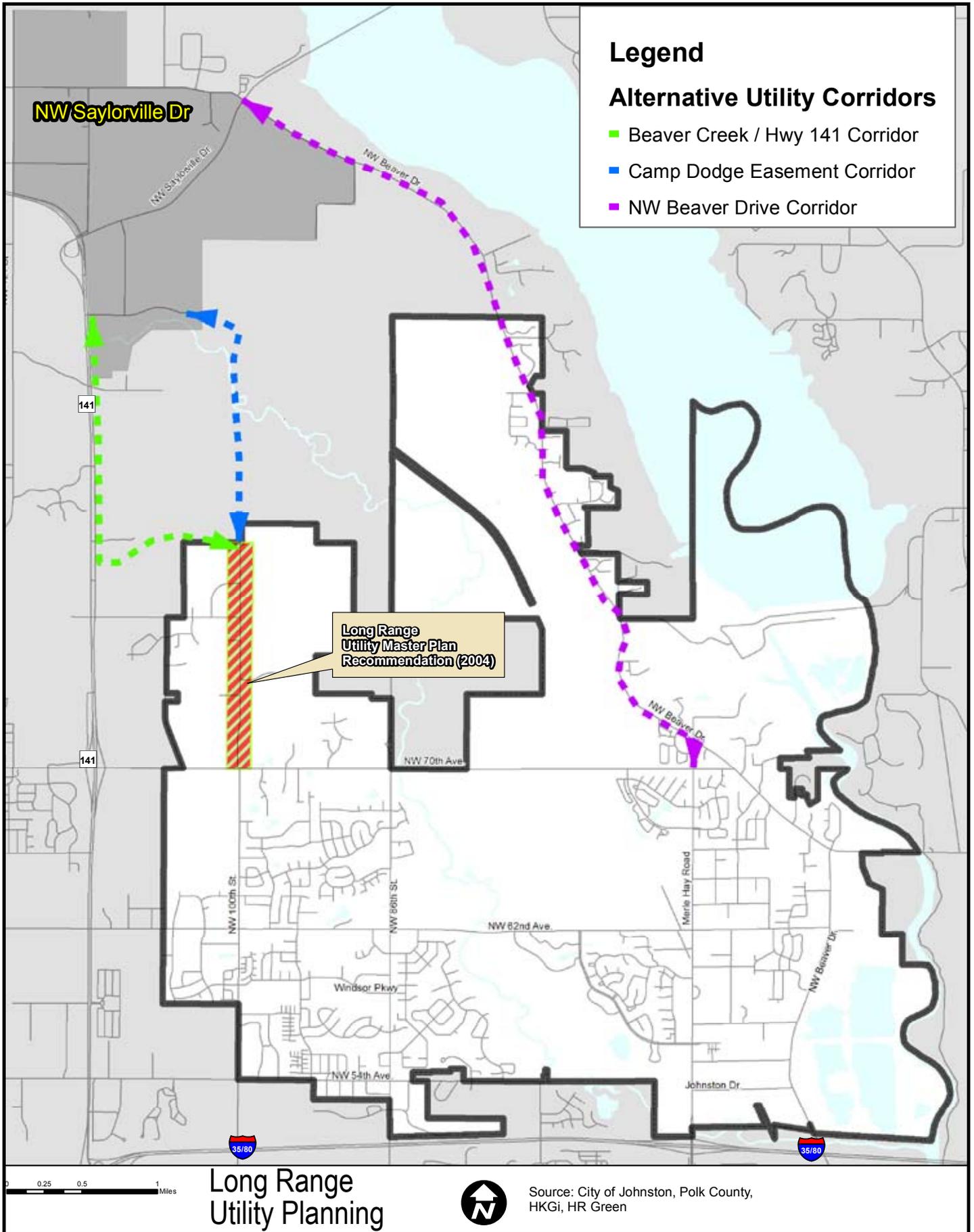


Figure 9.6 Long Range Utility Planning - Northwest Growth Area

## ***Municipal Water Supply and Distribution***

Short-term and long-term service provisions should be discussed with the City of Granger/Xenia Rural Water until services can be extended (long term) if a significant or large scale development petition is received. At that time, due to the remoteness of the site from the remainder of the city's water system, the city should install additional booster pumping capacity in existing facilities along NW Beaver Drive and consider providing additional water storage capacity (at the NW Beaver Drive facility and in the NW Saylorville Drive Expansion Area) for drinking water and fire flow.

## ***Sanitary Sewer***

Two primary opportunities exist to supply sanitary sewer service for the NW Saylorville Drive Expansion Area. The first option would be to coordinate with the Des Moines Metropolitan WRA and City of Granger on forecasted growth for this portion of the Des Moines Metropolitan Area and identify the expected timeframes of initial and long-range build-out in the NW Saylorville Drive Expansion Area. The Des Moines Metropolitan WRA has discussed the need to provide sanitary sewer service to the City of Granger in the future, but it has not been identified in its 2024 Facility Plan because the NW Saylorville Drive Expansion Area was not fully envisioned at the time of its preparation. If this schedule changes, and demand for capacity is accelerated to the NW Saylorville Drive Expansion Area, the Des Moines Metropolitan WRA's trunk service to Granger could be used in the NW Saylorville Drive Expansion Area. The second option would be to further explore alternatives to extend sanitary trunk sewer service to this area, which will include recommendations from the NW Northwest Planning Area study to extend sanitary sewer north of NW 70th Avenue and 100th Street and along Highway 141 right of way, extensions from NW Beaver Drive, and a possible new connection through the Camp Dodge property. A system that follows Beaver Creek would be preferred, however, will require an easement and cooperative agreement with the US Department of Defense (Camp Dodge). If such a utility corridor could be established, other utilities (including water and storm water) could also be provided and extended to the principal connection of NW 100th Street and NW 70th Avenue.

Long-range utility planning for the NW Saylorville Drive Expansion Area in Johnston is illustrated in Figure 9.6.



