Chapter 6. Public Infrastructure and Facilities

Public infrastructure and facilities are a critical component of a comprehensive plan and key aspect for long term strategic planning within a city. Infrastructure related to water supply, electricity, natural gas, are a necessary requirement if new developments are to occur within the City. Facilities generally include city-owned structures such as fire departments, schools, and water treatment plants. Land that has access to municipal utilities is much easier to develop and has a higher value than land that does not have access. High quality facilities also have the ability to improve the quality of life within a municipality; conversely, low quality facilities may decrease the quality of life significantly by negatively impacting the health of residents, continuity of service, and economic standing of the City and its residents. High quality infrastructure and facilities are also a key factor for potential businesses and residents who are choosing where to locate.

The city of Mechanicsville manages much of the community's infrastructure, but important facilities are also managed by other government agencies and private businesses. In Mechanicsville, community facilities are a source of community pride as volunteers play a large role in providing Fire and Emergency Medical Services.

This chapter will provide an introduction to Mechanicsville's public infrastructure and facilities; furthermore, it will explore how these systems impact the community's potential for growth and development. This chapter includes an inventory of infrastructure and facilities and provides a list of recommendations that will help the City provide the highest quality community facilities to its residents in the future.

Public Infrastructure and Utilities

Water

A typical municipal water supply and distribution system contains four basic components: a water source, filtration and treatment, water pressure and storage tank, and local distribution pipes. Water treatment reduces undesirable contaminants to acceptable levels and provides water with an improved chemical balance. The treated water is pumped from the treatment source to a water storage tank. Water storage tanks are usually elevated water towers or reservoirs, the purpose of which is to provide pressure to water throughout the system. After the water leaves the storage tank, a system of underground pipes delivers the water to homes and businesses. According to the Iowa Geological Survey there are 2 municipal wells within Mechanicsville that serve as water sources; these well are labeled Well #2 and Well #3. Well #2 is located near City Hall on North Jackson Street, it was originally drilled in July, 1962 and is 455 feet deep. Well #3 is located near East End Park and was drilled in July, 1967 and also has a depth of 455 feet. Mechanicsville also has two Elevated Storage Tanks one near the east end of Mechanicsville, which has a storage capacity of 150,000 gallons of water, and the second tower near City Hall has a capacity of 65,000 gallons. The capacity of the water system is 150,000 gallons per day and an average consumption of 80,000 gallons per day.

Mechanicsville City Hall Water Tower

Wastewater

Most city wastewater treatment facilities collect wastewater through a system of pipes that are engineered to let waste flow by the force of gravity towards a waste treatment plant. Often, gravity flow is not possible for certain areas of a city, in that case, a lift station may be required to pump the wastewater uphill. Once the waste reaches the treatment plant, it must be separated into solids (sludge) and liquids (effluent). Sludge is often disposed of in a way that is economical and safe for the environment, and the effluent is discharged into a flowing stream or river, if it meets water quality standards.

The City's sewage treatment plant was originally constructed in 1987 as a two-cell aerated lagoon system. In 2005, a quiescent cell was constructed, converting the treatment facility to a 3-cell system. To reach IDNR compliance regarding Ammonia and E.coli levels, the City of Mechanicsville-Constructed an enhanced treatment aerated lagoon plant. The SAGR treatment system that Mechanicsville selected makes it one of the most sophisticated facilities in the state, as only 11 other facilities in Iowa are using a SAGR system. The average load of the sewage treatment system is 167,687 gallons per day with a maximum load of 2,269,000 gallons per day.

Electricity

Alliant Energy provides electricity and natural gas service to most residents within the City of Mechanicsville. Residential electricity rates in Mechanicsville were most recently estimated to be 12.82¢/kWh which was 18.48% greater than the Iowa average rate of 10.82¢/kWh. The average commercial electricity rate in Mechanicsville is 11.2¢/kWh which is 39.83% greater than the Iowa average rate of 8.01¢/kWh. Residential natural gas price in Mechanicsville averaged $12.65 per thousand cubic feet in December 2021. This was approximately 3.7% less than the U.S. average rate of $13.13 per thousand cubic feet for residential customers. The industrial natural gas prices in December 2021 averaged $9.17 per thousand cubic feet which was 36.1% more than the average rate $6.74 per thousand cubic feet in the United States as a whole.

Solid Waste Disposal and Recycling

The City of Mechanicsville provides curbside garbage and contracts out recycling collection to Oveson Refuse & Recycling, which collects once a week on Mondays.

Telephone, Internet, and Cable

A critical issue facing rural communities is gaining access to high-speed internet. High quality internet access is incredibly important to the quality of life and competitiveness of communities operating in an increasingly connected world. Mechanicsville Telephone Company offers Internet and cable services. High-speed fiber optic internet infrastructure has recently been extended to the City of Mechanicsville via the Mechanicsville Telephone Company, which also provides service to Lisbon and Mount Vernon.

Community Facilities

Law Enforcement

The City of Mechanicsville maintain its own police department for law enforcement services. Most recent information indicates that there are at least two sworn officers within the department.

Fire Department and Emergency Medical Services

Mechanicsville also maintains its own volunteer Fire and EMS department, which share a single station attached to city hall. There are roughly 25 volunteer firefighters and 8 volunteer EMS members. The department serves all of Mechanicsville and helps aid surrounding communities in Cedar County. The response times for Fire/EMS average less than 5 minutes within Mechanicsville. The department owns two ambulances and two fire engines.

Mechanicsville Fire Department

Emergency Communications

Cedar County Emergency Management Agency receives 911 and non-emergency call for all of cedar county. The calls are then dispatched out to each of the EMS, law enforcement, and fire agencies that serve the county. The Cedar County Emergency Management office is located at 1410 Cedar St, Tipton, and it has 2 full time staff.

Schools

The North Cedar Community School District provides K-12 education, and it serves 700 students from Clarence, Lowden, Mechanicsville, and Stanwood. The district contains one Junior/Senior high school, two elementary schools, district offices, and a football/track complex. As its namesake suggests, Mechanicsville Elementary is located within the City of Mechanicsville and serves children in preschool through sixth grade.

Infrastructure Maintenance

All infrastructure and public facilities whether it is a road, bridge, or sidewalk has a life cycle. As development occurs, new water and sewer pipes, street, and electrical lines are installed to serve it. This new infrastructure will remain in service for many years, but over time it will deteriorate and eventually need to be replaced. Replacement is inevitable and is the most expensive part of the infrastructure life cycle. However, municipalities can maximize the lifespan of their infrastructure through investments in routine maintenance. A city that defers routine maintenance will often save money in the short term, but it will likely pay significantly more in the long run for emergency repairs and eventual reconstruction as the infrastructure deteriorates at a faster pace.

Capital Improvements Program

The City can plan for future infrastructure maintenance projects by Identifying and prioritizing them in its Capital Improvements Program (CIP). The CIP is a tool for scheduling, planning, and financing large construction projects and major pieces of equipment. The CIP is a written document that links together the City's comprehensive plan with its annual budget.

The City uses its CIP process to identify needed infrastructure projects and rank them based on their importance to the community. Once the projects are ranked, the City uses the CIP to develop its annual budget, identify project funding sources such as grant or loan programs, and to set rates for utilities like water and sewer.

The goal of the CIP is to inform the City Council's decision-making process by providing the big picture view of all projects. Without a CIP, the City Council would be aware of the need for many capital projects, but they would likely have questions about how to pay for them, when to construct them, and how to prioritize them. The City of Mechanicsville should consider creating a CIP that is up to date with the Comprehensive Plan. Once created a CIP should be updated on an annual basis, this gives the opportunity to add, revise, or remove projects from the CIP.

Public Infrastructure and Facilities Recommendations

The following recommendations are intended to guide the City of Mechanicsville in providing high quality infrastructure and facilities for all residents of the city.

Public Infrastructure and Facilities

- Begin/update the City's Capital Improvement Program on an annual basis.
- Invest in infrastructure projects that yield private sector investments that can sustain the long-term costs of infrastructure.

- Perform routine maintenance and support ongoing improvements that will extend the life of infrastructure systems.
- Encourage development and redevelopment that take advantage of existing infrastructure and assets.
- Plan for, build, and improve infrastructure systems to meet anticipated growth and development needs.

Public Safety

- Monitor public safety facilities, equipment, and procedures to ensure that adequate service is provided.
- Encourage cooperation and resource sharing among local public safety agencies.
- Coordinate with local police and fire departments to ensure that new developments can be served by existing facilities and equipment.

Educational Facilities

- Coordinate with local school and Cedar County education institutions to provide adequate educational facilities and improve educational opportunities for students.
- Identify opportunities and partnerships with organizations such as the Mechanicsville Public Library to serve adult learners.
- Communicate with local schools to ensure that a proposed development can be served by existing educational facilities.