WATER RESOURCES

WASTEWATER AND COMPREHENSIVE SEWER PLAN

I. POPULATIONS SERVED BY THE CITY WASTEWATER SYSTEMS & OTHERS

The following tables detail the forecasted households and employment forecasts in 10-year increments through 2040, based on the Met Council's forecasts, served by the City of Jordan. wastewater treatment system as well as a limited number of sewage treatment systems within the City limits.

TABLE 4-1
FORECASTS

Forecast Year	Population	Households	Employment
2010	5470	1871	1587
2020	6900	2500	2200
2030	9600	3600	2500
2040	12200	4700	2800

TABLE 4-2
METROPOLITAN DISPOSAL SYSTEM FORECAST

Forecast Year	Population	Households	Employment
2010	0	0	0
2020	0	0	0
2030	0	0	0
2040	0	0	0

TABLE 4-3
COMMUNITY AND SUBSURFACE SEWAGE TREATMENT SYSTEMS FORECAST

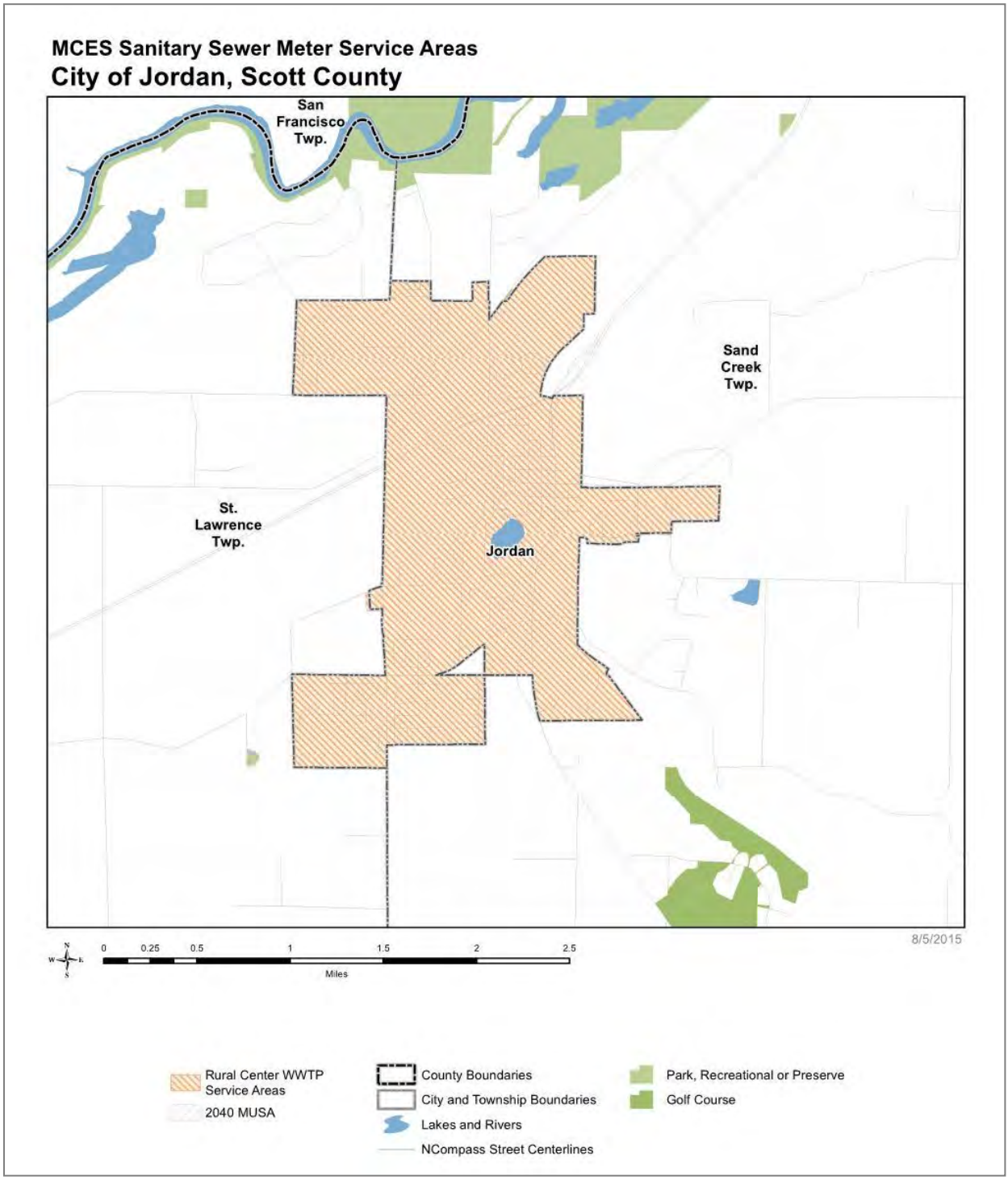
Forecast Year	Population	Households	Employment
2010	73	25	0
2020	58	20	0
2030	44	15	0
2040	29	10	0

TABLE 4-4
LOCALLY OWNED AND OPERATED TREATMENT SYSTEMS FORECAST

Forecast Year	Population	Households	Employment
2010	5397	1846	1587
2020	6842	2480	2200
2030	9556	3585	2500
2040	12171	4690	2800

Jordan provides its own wastewater treatment services through a municipally owned and operated facility. As such, the Metropolitan Council has no plans to provide regional wastewater services to the city.

MAP 4-1: MCES SANITARY SEWER METER SERVICE AREAS



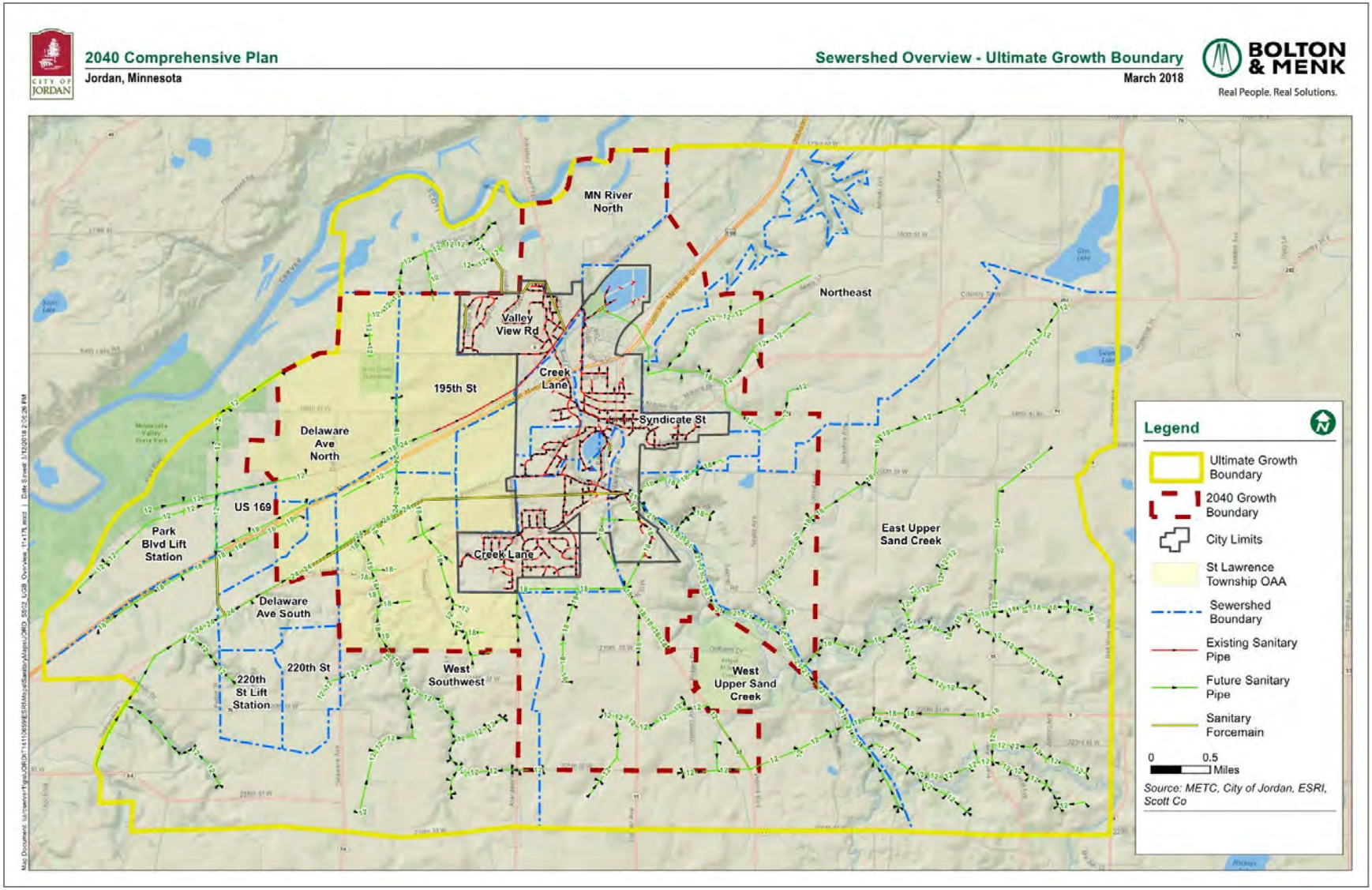
The City of Jordan sewage treatment facility and ponds were constructed in the 1970's. They were rebuilt in the 1980's and upgraded in 1993 but are currently largely unused. A portion of the pond system has been maintained to serve as a storage queue for wastewater when the mechanical plant is affected by inflow and infiltration (1&1). The City's wastewater treatment plant was constructed in 2001. The Jordan wastewater sewer system features a mechanical plant with a capacity of 1,298,000 gallons per day, a peak demand of 1,968,000 gallons per day, and an average demand of 580,000 gallons per day. As of March 2017, the City of Jordan provided service to approximately 1,833 accounts.

The City of Jordan believes the population and households will grow at a faster rate and therefore is planning for a population of 15,000 or 6,000 households. The City is not considering a potential connection to the Metropolitan Disposal System to serve its population prior to 2040, and therefore plans to continue to serve its 2040 population with its current wastewater treatment facility. From discussions with Met Council Staff, and investigations of the City's consultant, this connection is not likely for several decades and does not appear cost effective for the City until the Met Council's system is extended as a result of development north of Jordan. The closest metropolitan interceptor, at this time, is in Spring Lake Township, adjacent to the City of Prior Lake and Jackson Township adjacent to the City of Shakopee. The City is aware of the Metropolitan Council's conceptual plans to site a plant along the Minnesota River to serve the southwestern portions of Scott County, post 2040. One of the three sites historically in consideration was the Jordan wastewater treatment plant site, though significant considerations of an additional, future Met Council wastewater treatment facility along the Minnesota River have not been undertaken.

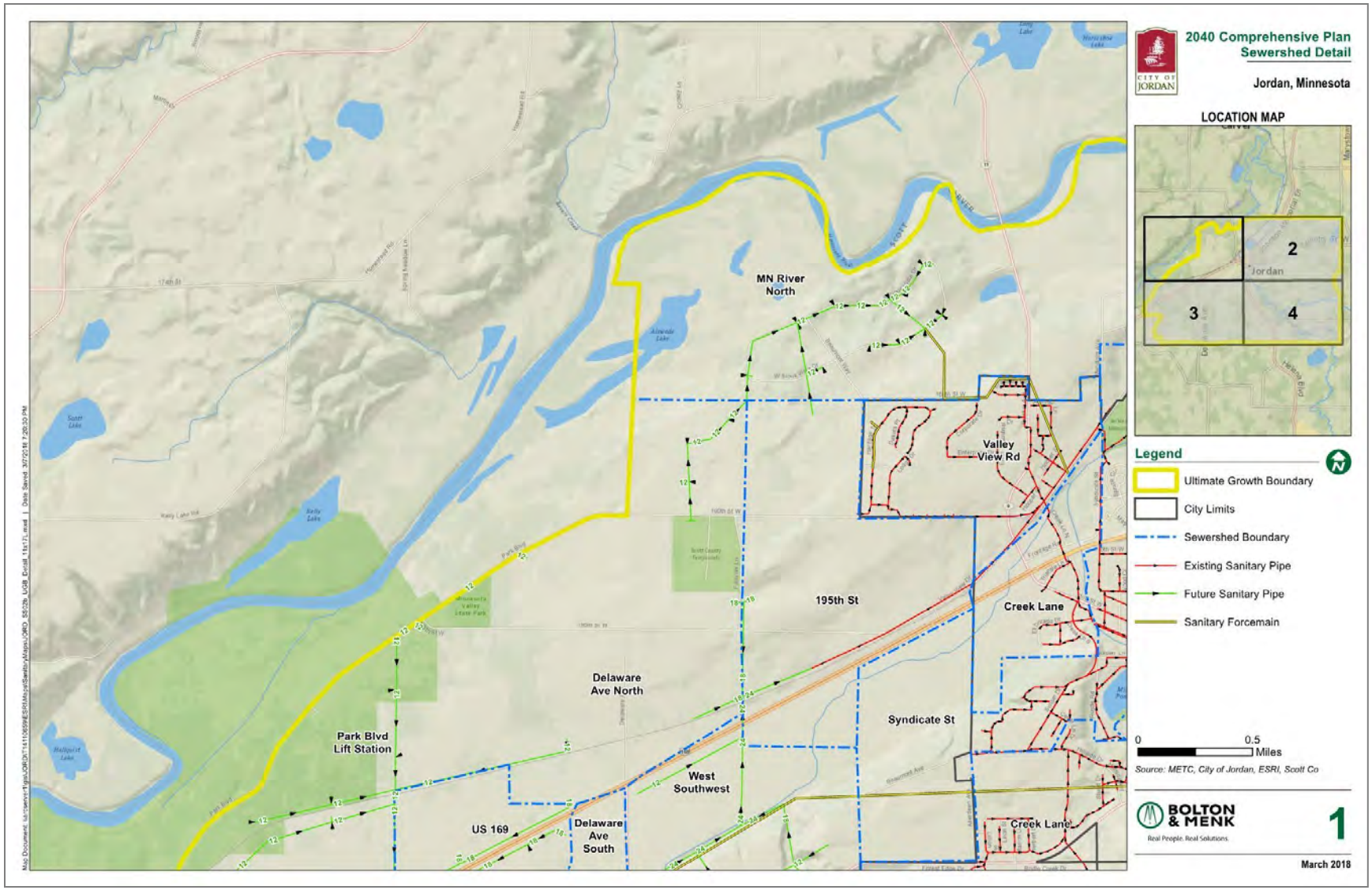
II. SANITARY SEWER COLLECTION FACILITIES

Map 4-2 illustrates the existing and future sanitary sewer collection system. Maps 4-3 through 4-6 provide a more detailed view of the existing and future sanitary sewer system.

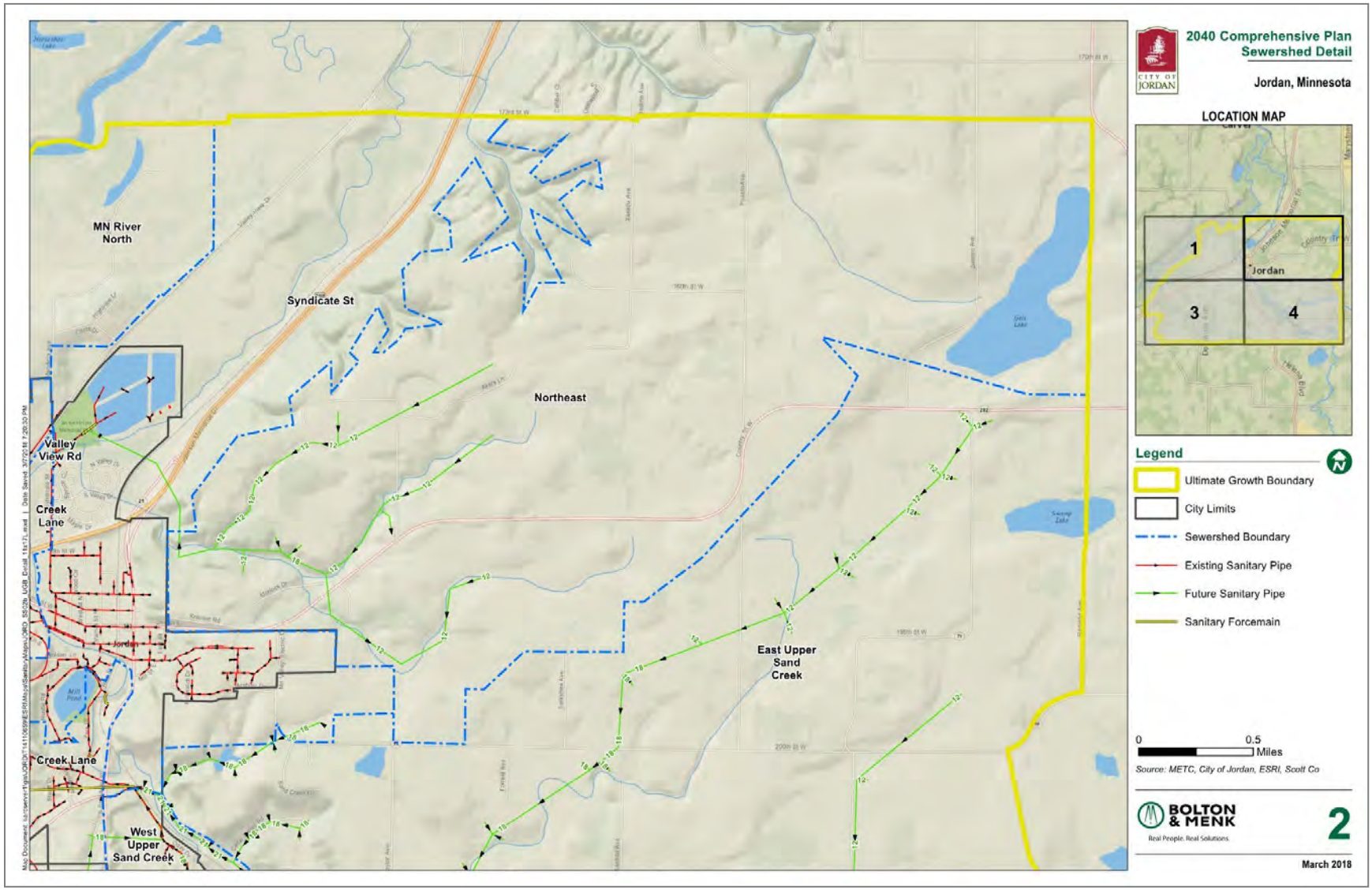
MAP 4-2: SEWERSHED OVERVIEW-ULTIMATE GROWTH BOUNDARY



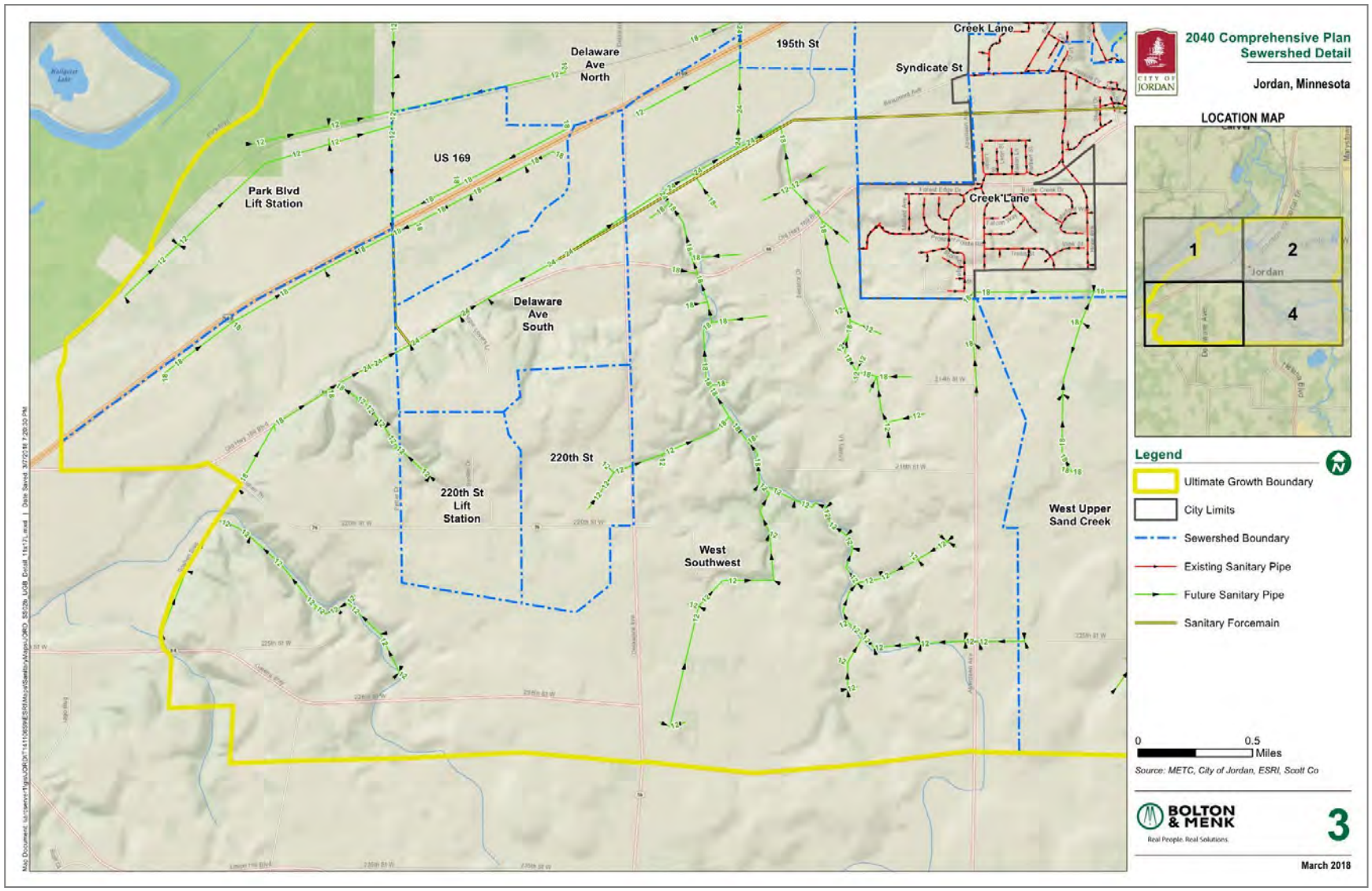
MAP 4-3: SEWERSHED DETAIL



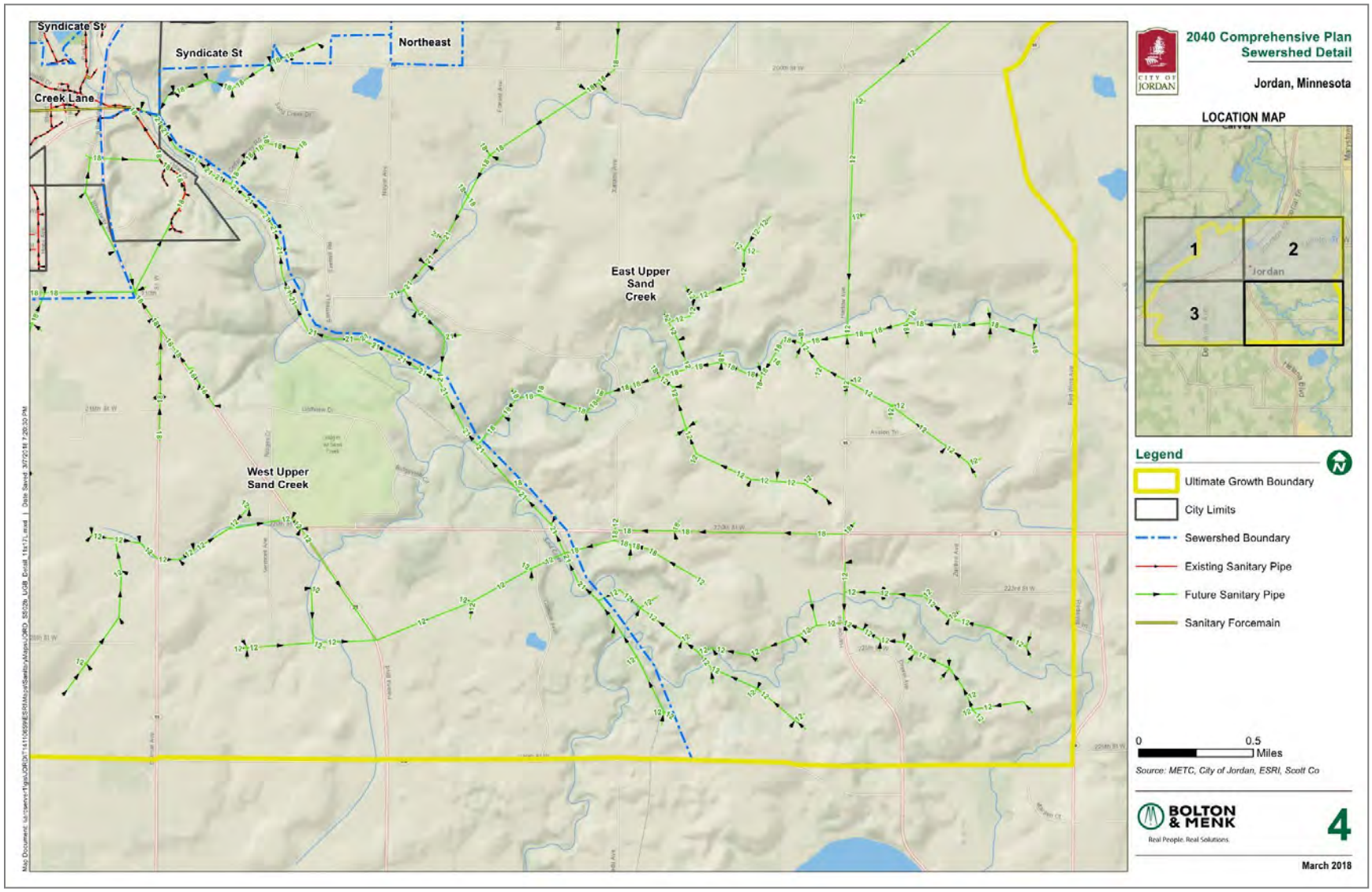
MAP 4-4: SEWERSHED DETAIL



MAP 4-5: SEWERSHED DETAIL



Map 4-6: SEWERSHED DETAIL



The existing wastewater collection system in the City of Jordan consists of a variety of sizes and types of pipe. Sanitary sewers range in size from 8 inches to 42 inches. Materials comprising the system include vitrified clay pipe (VCP), polyvinyl chloride (PVC) pipe, reinforced concrete pipe (RCP), and ductile iron pipe (DIP).

The City of Jordan has five existing sanitary sewer lift stations:

1. The wastewater treatment facility is fed from the Wastewater Treatment Facility (WWTF) lift station, which is located directly in front of the facility under its parking lot. The existing lift station pumps wastewater from the 42" trunk interceptor to the treatment facility. All flows in the City of Jordan travel through the WWTF lift station, which is effectively a component of the WWTF itself.
2. Sanitary sewer is collected in a gravity pipe in the rear yards of the Helena Street homes, discharging into the Helena Street lift station. The Helena Street lift station serves four properties, three of which are developed, and pumps its flow under Sand Creek to the gravity sanitary sewer main in Park Drive.
3. The South Broadway Street lift station, similar to the Helena St system, collects sewer from a gravity main in the rear yards of five properties. Once flow is collected the South Broadway lift station pumps its flow under Sand Creek to a manhole in the Mini Met parking lot, which flows by gravity to the Park Drive sanitary sewer main.
4. The Timberline lift station collects flow from approximately 110 properties in the north half of the Timberline neighborhood. The flow is pumped to the south to another sanitary sewer main in the Timberline neighborhood, which then flows to the 190th St interceptor.
5. The Bridle Creek lift station is a temporary sanitary sewer lift station that was installed in 2008 to serve the Bridle Creek 7th and 8th additions. The lift station will continue to serve these homes, as well as subsequent Bridle Creek additions, until the SW Interceptor is constructed in (estimated) year 2021. Upon completion of the SW interceptor, the influent gravity sanitary sewer pipe serving Bridle Creek 7th, 8th, and future additions will be directly connected to the interceptor and will freely flow by gravity to the City's WWTF.

The collection system utilizes two inverted siphons to transfer wastewater flow under Sand Creek from south to north:

1. The Creek Lane Interceptor siphon is a 15" pipe located near the Sunset Booster Station, located just east of (below) Nolden Lane and just north of Sunset Drive.
2. The Syndicate Street Interceptor siphon is a 15" pipe located just west of the Varner Street Bridge.

The inverted siphons transfer flow through a conversion of gravity flow, to pressurized flow under the creek, and back to gravity flow. On occasion in the past when segments of the siphons under the creek have been damaged, large amounts of creek water have directly entered the wastewater treatment system. After crossing Sand Creek, both sewers flow west down First Street (paralleling each other) and then flow north down Creek Lane and Syndicate street, respectively. It is recommended the City periodically meter the flow both upstream and downstream of its inverted siphons to determine whether any flow is leaking or whether any I&I is entering the siphon.

As part of the Comprehensive Planning process coupled with past analyses, the capacities of existing individual collector sewers were determined and compared to the design capacity required to serve the tributary area. Peaking factors were calculated based on an equivalent population using the Recommended Standards for Wastewater Treatment Facilities Ten States Standards (2014 p. 10-6). The assumed per capita wastewater flow to calculate an equivalent population given total wastewater flow including industrial and commercial contributions in 100 gpcd. This comparison was completed to identify the 'weakest link in the chain' in terms of sanitary

sewer capacity versus demand, thereby identifying areas of potential need or areas that should avoid receiving additional new flows/demands.

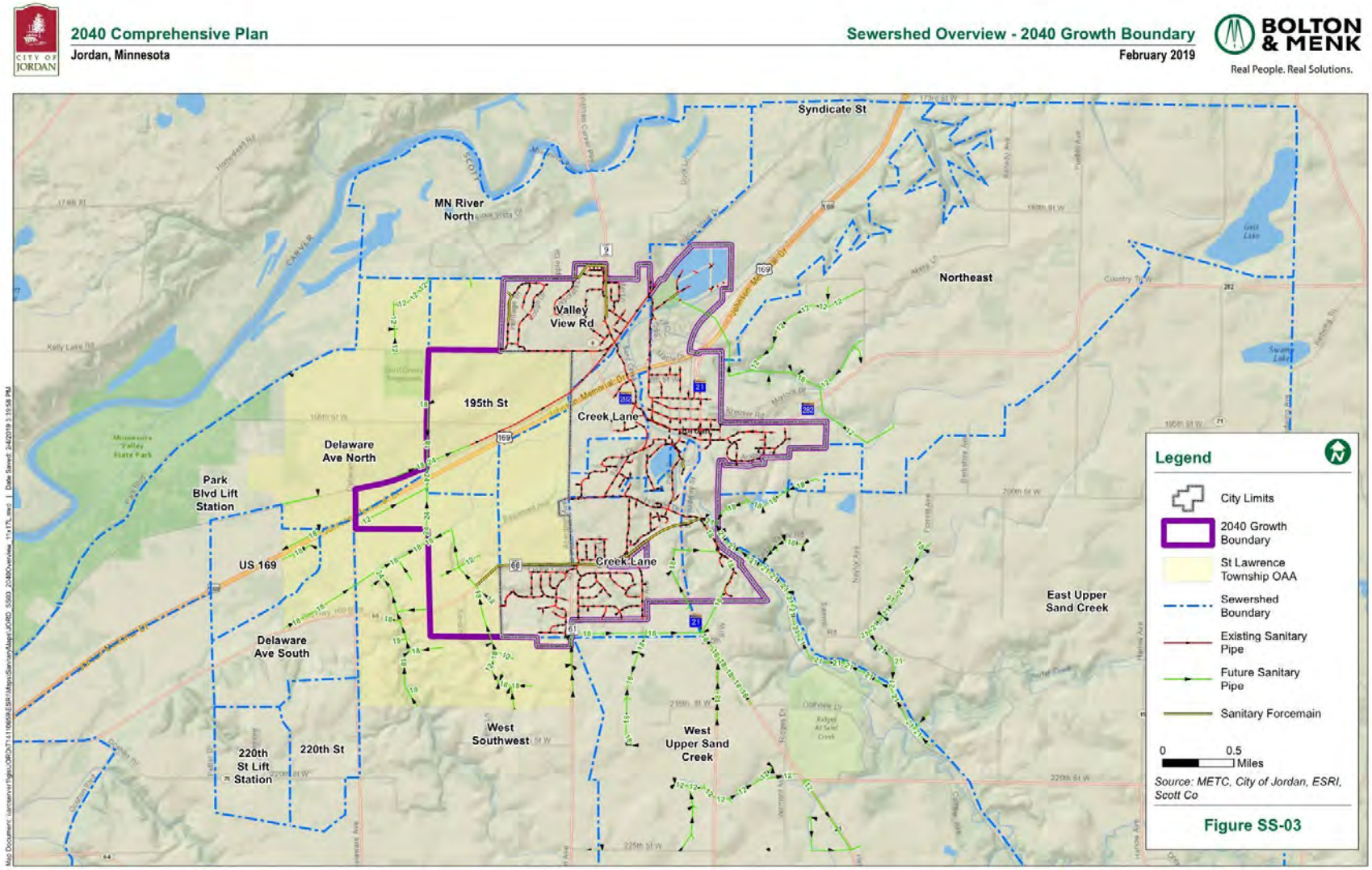
The flow at the City wastewater treatment plant is monitored daily. Over the last 5 years the average flow rate at the plant was 0.407 MGD. Future flow rates were also determined by using typical flow rates for each land usage by parcel within city limits. The future average daily and peak daily flow rates to the wastewater treatment plant were also calculated by land usage via both the 2040 growth boundary and 2040 population forecast. The 2040 growth boundary average daily and peak daily flow rates are 6.20 MGD and 15.8 MGD respectively. These 2040 calculations were made assuming full buildout of the 2040 boundary at prescribed densities and assuming a 1,500 gal/acre/day usage rate for commercial/industrial uses. Using the 2040 population forecast and assuming land uses similar to the existing distribution, the 2040 average daily and peak flow rates are 0.75 MGD and 2.27 MGD, respectively.

Finally, acknowledging lifespan of sanitary sewers far exceed the 22 year analysis time period ending in 2040, the resulting flow from a fully developed ultimate growth boundary was also quantified to provide some reference for large downstream sanitary sewer pipe sizing as well as allow for concept level planning of future sewer extensions in multiple directions. It should be understood the ultimate growth boundary will take many decades, perhaps well in excess of 100 years, to reach in full at any reasonable growth rate. It is also feasible however, that growth focuses on one direction (i.e. southwest or northeast) faster than other directions and approaches the ultimate growth boundary in that direction sooner and within the lifespan of a sanitary sewer pipe. Therefore, the full conceptual layout of the ultimate system also aids in the consideration of development staging constraints and benefits. The ultimate growth boundary has average daily and peak daily flow rates of 19.76 MGD and 26.41 MGD respectively. Relative to Jordan's sewer system these figures are quite large, though they are effectively theoretical in nature as the ultimate growth boundary is not anticipated to be reached for many, many decades. Therefore, the function of these estimated flow numbers can largely be ignored in a practical perspective but the conceptual ultimate service area sewer system layout is of value.

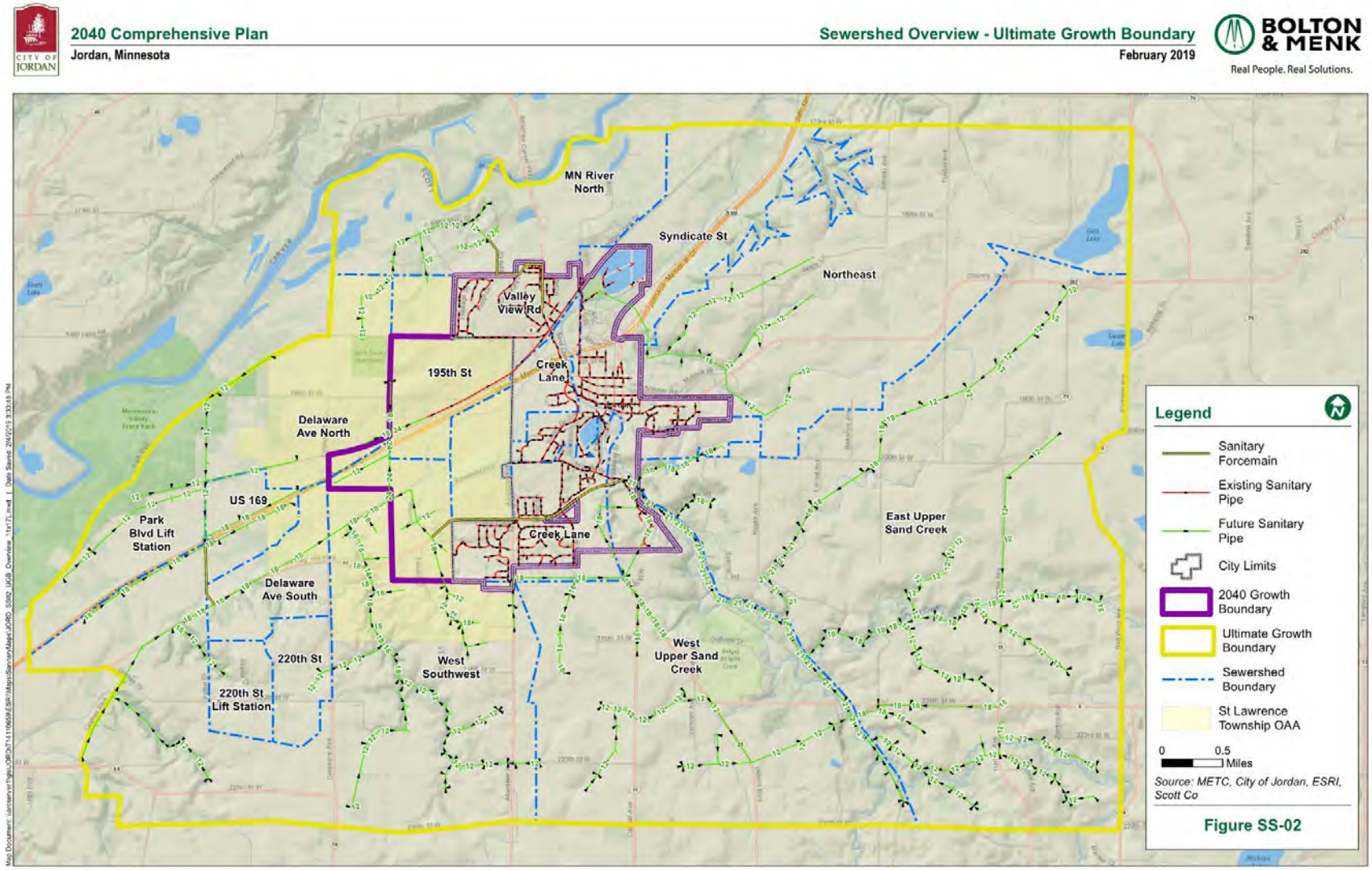
III. EVALUATION OF FUTURE SANITARY SEWER COLLECTION FACILITIES

Maps 4-7 through 4-9 illustrate current and future sanitary sewersheds (geographic service areas) within the city limits, the 2040 boundary, and the ultimate growth boundary.

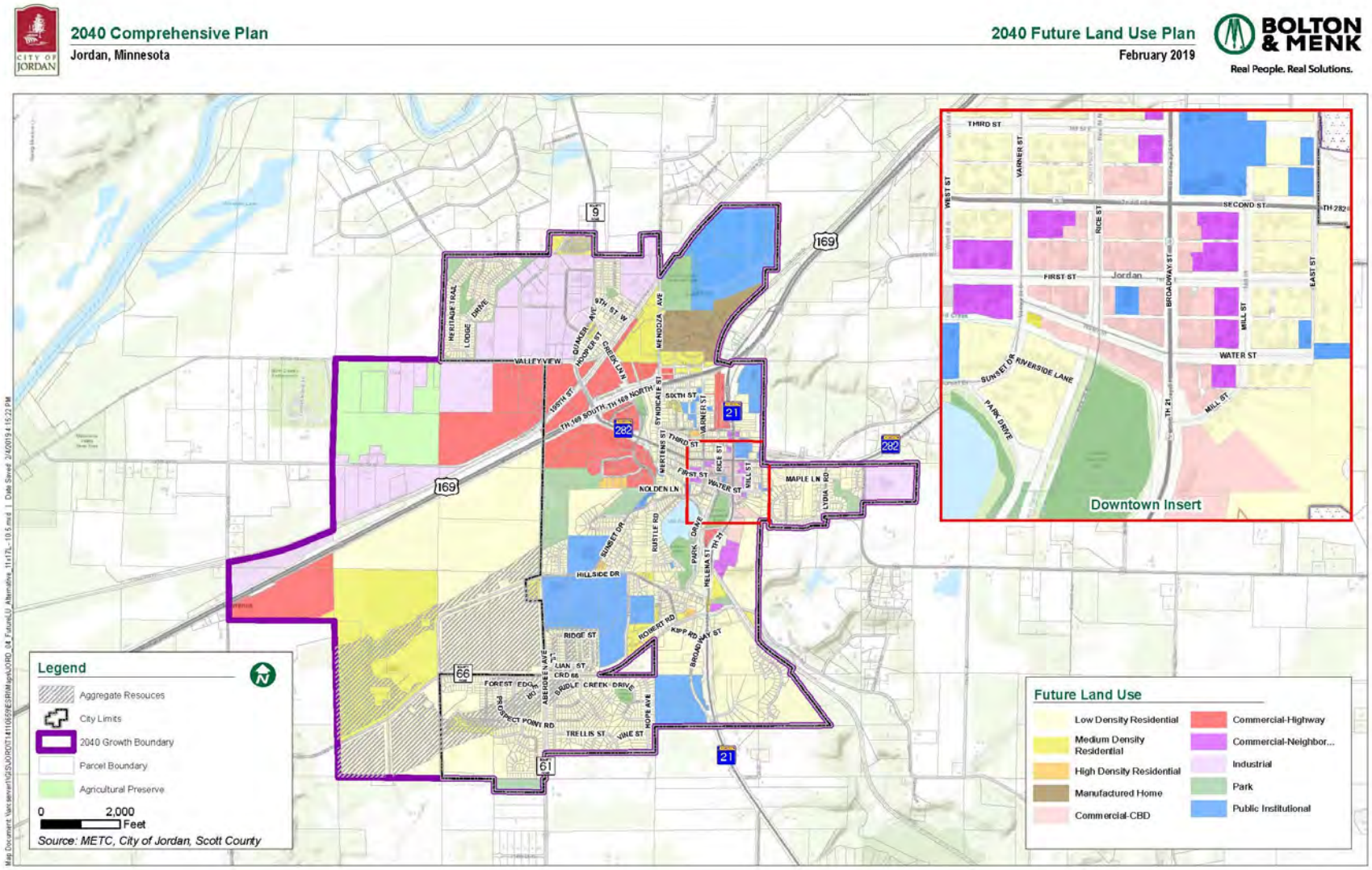
MAP 4-7: SEWERSHED OVERVIEW – 2040 GROWTH BOUNDARY



MAP 4-8: ULTIMATE GROWTH – FUTURE LAND USE AND DENSITY



MAP 4-9: FUTURE LAND USE – 2040 BOUNDARY



In late 2017 the City signed an orderly annexation agreement with St Lawrence Township to the west and southwest, and is nearing agreement with Sand Creek Township to the east. In early 2018 the City has received final plat submittals for 60 lots (doubling the Met Council forecasted growth rate) and estimates at least an additional 50-100 lots to be platted in 2019 as a result of development pressure. The growth of the community is inevitable as result of this development pressure and orderly annexation agreements. Effective management of the growth of the community will be achieved through proper planning of sanitary sewer infrastructure. The development of sewersheds enables downstream piping with a lifespan exceeding 100 years to be sized effectively for the forecasted 2040 population, which is anticipated to arrive only 22 years from the drafting of this plan, and beyond given.

The sewersheds have been named based on their location or based on the location of the downstream sanitary sewer pipe from which they are served:

1. Syndicate Street sewershed and existing interceptor
2. Creek Lane sewer shed and existing interceptor
3. Valley View Drive sewershed and existing interceptor
4. 195th Street sewershed and existing interceptor
5. Upper Sand Creek sewer shed and (partial) existing interceptor
6. West/Southwest sewershed and (partial) existing interceptor
7. Minnesota River Area sewershed (future)
8. Northeast sewershed (future)
9. Park Boulevard sewershed (future)
10. West US 169 sewershed (future)
11. Delaware Avenue N sewershed (future)
12. Delaware Avenue S sewershed (future)
13. 220th St sewershed (future)
14. Far West South of US 169 sewershed (future)
15. Far West North of US 169 sewershed (future)

Wastewater Treatment Facility

The City of Jordan mechanical treatment facility was constructed and placed online in October 2001. The mechanical facility consists of flow equalization, pretreatment, extended aeration activated sludge with biological phosphorous removal, final clarification, disinfection, aerobic digestion, and biosolids storage.

The wastewater treatment facility continues to use two of the stabilization ponds from the earlier facility for flow equalization. A third stabilization pond existed until it was decommissioned in 2008. The mechanical treatment facility is designed to treat an average wet weather flow of 1.289 million gallons per day (mgd) with a 5-day biochemical oxygen demand (BOD) of 1,045 pounds per day. The treatment facility discharges on a continuous basis to Sand Creek with the following limits: 15 mg/l Biochemical Oxygen Demand (BOD); 30 mg/l- Total Suspended Solids (TSS); 1.0 to 7.7 mg/l- Ammonia, Nitrogen (limit changes seasonally); and 1 mg/l- Total Phosphorous.

Currently the treatment facility is meeting all limits and treating approximately 0.400 mgd.

Evaluation of Treatment Facilities:

The wastewater treatment facility processes were evaluated using the criteria from the "Recommended Standards for Wastewater Facilities" or more commonly called "Ten State Standards". Using these standards and the population and flow estimates from above, each process was evaluated on when its capacity might be exceeded. Mechanical wastewater treatment facilities include two separate processes combined to form an integrated

treatment system. The processes are commonly referred to the "liquid stream" and the "solids stream." The liquid stream combines various treatment components to convert the wastewater into natural byproducts of biological stabilization and the capabilities of the liquid stream determine the quality of the effluent produced by the facility. The solids stream combines treatment components to stabilize, thicken and store the solids byproducts produced by the liquid stream for eventual incorporation into the soil. Some processes are evaluated on average wastewater flows whereas others are evaluated on peak flows. Results are tabulated in the following tables along with a brief description.

A Peaking Factor of 2.78 and a per capita wastewater flow rate of 85 gpcd were calculated based on historical data from the City's wastewater treatment facility and were used to project future flow rates based on population estimates.

Pretreatment facilities are provided to remove sticks, rags, grit and other materials to ensure that they do not interfere with subsequent wastewater processes. The pretreatment process consists of a mechanical fine screen, back-up manual screen and a grit removal system.

TABLE 4-5
WASTEWATER TREATMENT PLANT PRETREATMENT COMPONENTS

Equipment	Capacity, Peak (mgd)	Capacity (Year/Population)
Fine Screen	2.0	2028/8,805
Grit Removal	2.5	2036/10,916

As noted above, the pretreatment facilities were evaluated on peak flows and the fine screen is the limiting factor and additional pretreatment facilities would be required in 2028. Although the system has adequate capacity, the existing equipment is located in a corrosive environment and may need equipment replacements prior to 2028.

Aeration Basins

The City of Jordan operates an extended aeration activated sludge process. The major benefit of operating this type of process is the long retention times that allows for effective and efficient operation even when flows and strengths vary widely. Additionally, the activated sludge system is designed for biological phosphorous removal that occurs in two basins preceding the aeration basins. The City has two, 27-foot wide by 90-foot long and 16-feet deep aeration basins and an anaerobic and anoxic basin prior to the aeration basins for phosphorous removal. As shown below organic loading is the limiting factor for the activated sludge process with additional capacity required in 2024.

TABLE 4-6
WASTEWATER TREATMENT PLANT AERATION BASINS

Description	Design Requirement	Capacity (Year/Population)
Hydraulic Retention Time	18 Hours	2032/9,700
Organic Loading Rate	15 lb BOD/day	2024/7,953

Final Clarifiers

Activated sludge final clarifiers are designed to meet thickening as well as solids separation requirements. Scum collection and removal facilities are provided as well. The City of Jordan has two, 35-foot diameter clarifiers that operate at a 14-foot water level. Two clarifiers are required to meet the Ten State Standard criteria; however, in determining the Surface Overflow Rate, only one clarifier is used. As shown below the surface overflow rate governs with new clarifier(s) required in 2027.

TABLE 4-7
WASTEWATER TREATMENT PLANT FINAL CLARIFIER

Description	Design Requirement	Capacity (Year/Population)
Surface Overflow Rate	900 gpd/ sq. ft.	2027/8,658
Solids Loading Rate	35 lb/day/sq. ft.	2042/12,890
Weir Loading Rate	30,000 gpd/lin. ft.	>2060/29,220

Disinfection

A disinfection system is required to disinfect the treated wastewater prior to entering the receiving stream. As per the City's NPDES permit, they must disinfect and dechlorinate the treated wastewater for the months of April through October. The City of Jordan uses sodium hypochlorite to disinfect and sodium bisulfite to dechlorinate. The disinfection basin is a rectangular basin with interior walls to create a serpentine flow pattern and provide the proper detention time. According to Ten State Standards, disinfection systems must be designed to handle the peak flows, however, since the Jordan wastewater facility is designed for flow equalization, the average flows will be used for evaluation.

TABLE 4-8
WASTEWATER TREATMENT PLAN DISINFECTION

Description	Design Requirement	Capacity (Year/Population)
Disinfection	15 minutes	2046/14,530
Dechlorination	0.5 minutes	2048/15,133

Biosolids Processing

Wastewater biosolids consists of solids from raw wastewater and biological solids generated in the treatment process. The City of Jordan treats biosolids using an aerobic digester and then stores the treated biosolids in a storage tank. The City land applies the biosolids on a semi-annual basis. The biosolids system was designed to hold and treat the biosolids for 180-days at the original design population of 5,803 persons. The system can treat the biosolids for an approximate population of 6,000 persons. Currently the City is testing the use of biosolids bags to dewater the solids and create more storage on site. The City has yet to land apply dewatered solids from the bags and the feasibility of this as a biosolids treatment option will be further evaluated following the first land application of dewatered solids. If the dewatering bag method does not meet the City's goals, other alternatives the City may evaluate include adding additional storage, adding additional treatment processes, or implementing a regional treatment solution.

Future Wastewater Treatment Facility Considerations

Based upon the above discussion, estimates can be made for future expansion needs of the wastewater treatment facility. These estimates can be helpful for capital improvement budgeting, future project planning, and determination of Sewer Area Charges (SAC development fees). The treatment facility liquid portion is limited by the aeration basins and will require upgrading in approximately 2024 or a population of nearly 8,000 persons. The final clarifiers and pretreatment facility are forecasted require additional capacity in 2033 respectively. The solids portion, or biosolids treatment, has been nearing capacity and the City is currently utilizing biosolids bags to dewater the solids and create additional storage. The City has yet to land apply dewatered solids from the bags and the feasibility of this as a biosolids treatment option will be further evaluated following the first land application of dewatered solids. Since many of the liquid processes will be at capacity at nearly the same time, it is recommended to upgrade the pretreatment, activated sludge process and final clarification at the same time. The treatment facility was originally designed to add on additional aeration basins and final clarifiers, which will facilitate the integration of the new processes. Additional

pretreatment facilities could be added adjacent to the existing pretreatment facility. Any upgrade would also require additional piping, blowers, pumps, mechanical, and electrical systems. By adding additional processes, the operation and maintenance costs would also increase. When the time comes for expansion in the future, there is ample room for expansion on the plant site.

The expansion of the wastewater treatment facility's liquid portion is not anticipated for 15 years based upon assumptions made to develop Tables 4-5 through 4-8. While expansion of the City's wastewater treatment facility is not anticipated until 2024. This may change however depending upon:

1. The type/volume of commercial/industrial users which locate within the community. An industry which uses high levels of water could consume a large portion of the city's capacity. For planning purposes, Tables 4-5 through 4-8 were developed assuming 1500 gallons per acre per day for commercial/industrial properties. Industrial growth, as well as actual population growth, should be monitored and sewer capacity plans be made accordingly. The City has a "Premature Subdivision" section in its Subdivision Ordinance, which allows for the denial of plats if the City is unable to service the area with municipal sewer, among other services. The City should carefully monitor capacity, and if needed, implement and exercise a premature subdivision clause if capacity becomes limited before an expansion can be completed.

2. Any changes in wastewater permitted discharge limits to Sand Creek, which could result from either changes in state/federal law or the state's classification of the facility. If the state were to classify the facility in a different 'bracket', it is possible the City would be required to immediately or phase in additional treatment processes.

3. Population growth rates, if different from the Met Council forecasts given to the City. The City is of the opinion the growth forecasts are relatively low, as evidenced by the 2018 and 2019 planned residential expansions, which would imply expansion of the plant may be required sooner than illustrated in Tables 4-5 through 4-8.

Future Wastewater Collection System Improvements

Development within the 2040 Boundary will occur in stages over the upcoming 22-year period. For the planning purposes and to aid decision makers in understanding potential growth patterns, a development staging plan has been created to predict the order of development. This may be valuable for decision maker understanding, however it should be understood the actual development in the City of Jordan will occur based on: the timing of completion of the SW interceptor, ease of installation (by relative cost) of sanitary sewer system expansions, and location of recent development requests and inquiries received by the City. These factors were primary considerations in creation of the development staging estimate.

Syndicate Street Service Area (Existing Service Area)

The Syndicate Street Interceptor's current service areas are completely within the 2040 Planning Boundary. The sewers were extended to serve the bluff areas to the west and the area south of TH 282, to the east. The Syndicate Street district has a gravity sewer service boundary that includes some growth areas near the top of the bluff, just south of the existing Cedar Ridge and Heritage Hills developments. The existing Syndicate Street interceptor sewer does have adequate capacity to accept flow from these areas with the extension of 8" sanitary sewers. The Syndicate Street interceptor has historically been broken down into three sub-districts:

1. First / Syndicate Sub-District - From WWTF to the intersection of First & Varner - This is the major interceptor which accepts flow from the other trunk lines in this district. The graph

above includes full development of the tributary areas and the actual capacities generally exceed the necessary capacities, represented by the red line.

2. MN Valley Electric Sub-District - From First & Varner to MN Valley Electric - This sub-district of First and Syndicate collects the flow from the east leg of the Syndicate Street interceptor, along the south side of TH 282. The large 'actual' capacities are caused by the sewers that have increased slopes along the side of the escarpment. This sewer is already extended to its maximum gravity service area and its design and actual capacities are shown in the graph above.
3. Timber Ridge Sub-District - From First & Varner upstream to Aberdeen & Sunset, this collector runs around the north end of Mill Pond to serve the area along and above the bluff around Sunset Drive. The Syndicate Street interceptor is at its maximum service area. The Creek Lane district to the south prohibits any further expansion in that direction and the valley to the north makes expansion in that direction unnecessary. The conclusion is that the Syndicate Street interceptor is adequate to accommodate its district boundaries shown and development to "infill" the district at the designated densities can be permitted with little or no risk of overtaxing the collection system.

Creek Lane Service Area (Existing Service Area)

The Creek Lane Interceptor extends from the SW interceptor (at the intersection of Creek Lane and Valley View Drive), across Sand Creek just west of Varner Street, along Park Drive to the intersection of Hillside Drive where it forks into two significant subdistricts: a) to its upstream end at the Sawmill Woods Dog Park and b) to the new early 2000s development areas including Bridle Creek, River Ridge, Arborview, and Stonebridge. Between 2003 and 2006 the City approved preliminary plats in the Bridle Creek and Stonebridge area, which are continuing to expand in 2018, as well as areas south of the Sawmill Woods development. These areas greatly taxed the capacity of on the Creek Lane interceptor.

Until the SW interceptor is completed, future development will be somewhat limited by the capacity of the Creek Lane Interceptor. The Creek Lane interceptor appears to have sufficient capacity to manage growing flow rates and the current rate of development, but the Creek Lane interceptor is currently vulnerable to excess flow conditions during heavy rain events which will be more pressing as additional development flow areas are added.

Prior to construction of the Sawmill Woods 1st addition in 2004, the City constructed a special manhole to function as a future diversion chamber on the upstream end of the Creek Lane Interceptor located in what is now the Sawmill Woods Dog Park. Currently, this structure allows flow to travel by gravity under TH 21 to Hillside Drive (and then down Park Drive). In the future, this diversion chamber is intended to collect flow from Sawmill Woods and 'Upper Sand Creek' subdistricts located upstream. The structure will potentially allow a portion to continue to flow along its existing route by gravity but allow the excess to flow into a future lift station. This future lift station will pump flow through a future forcemain along Sawmill Road, west along CR 66, ultimately discharging into the SW interceptor pipe. Construction of the lift station and forcemain will not be necessary until continued expansion to the southeast overtaxes the existing Creek Lane (located downstream).

Three major and one minor sub-districts are tributary to Creek Lane, in addition to local connections. They are: Bridle Creek / Hillside Drive / Hope Avenue subdistrict, the Broadway South (minor) subdistrict, the Upper Sand Creek – West Side, and the Upper Sand Creek - East Side.

Sanitary sewers often follow ravines and waterbodies as a strategy to remain lower than the adjacent service areas. The East and West Upper Sand Creek subdistricts are formed along

the upstream areas of Sand Creek, located in the southeast corner of the City, on the east and west bluffs along Sand Creek. These are extensive, future/long term expansion areas for the City. Existing sanitary sewer is stubbed out of the Sawmill diversion manhole to the east, creating the start of the East Upper Sand Creek Subdistrict. By installing the East and West Upper Sand Creek interceptor pipes at the toe of bluff slope and keeping the invert above the floodplain, the sewers could then have a low enough elevation to serve required areas but most likely not require rock excavation. One or two inverted siphons may still be required to cross the Creek, especially in the more upstream area.

East Upper Sand Creek Subdistrict (Future Service Area)

In the period 2005 through 2007, the City reportedly committed to provide sanitary sewer service to Sawmill Woods 1, 2, & 3, Lloyd (PID 090350020), Ames (PIDs 099290310 & 229300020) and Mullin (PID 099290282) properties through plats or concept plans. Approval of these preliminary plats have since expired, therefore the consideration of any such preliminary plats contributing to the Creek Lane interceptor should be critiqued with respect to downstream capacity. Extensions further up Sand Creek, along Aberdeen Avenue, or County Road 66, could ultimately result in backups in the Creek Lane interceptor along First Street near West Street. Flow metering in June 2014 showed a clear relationship between Sand Creek flood stage and flow in the Creek Lane interceptor. These leads to three considerations:

1. It is recommended the City continue to periodically meter flow in the Creek Lane interceptor, particularly during the spring rainy season, to gauge the remaining capacity of the interceptor at critical points along its length. The two most critical points observed historically were at First Street/West Street, along Park Drive, and along CR 66 near Hope Avenue.
2. Capacity relief to the Creek Lane interceptor can be accomplished by diverting additional flow to the SW interceptor. With the planned completion of the SW interceptor to Bridle Creek in 2021, the diversion of some existing flows and much of the future flow will be diverted west. If metered flows indicate the Creek Lane interceptor is still continuing to trend toward its full capacity, it is recommended the City explore solutions to prevent inflows and infiltration by identifying potential sources and eliminating them. This could be accomplished through sanitary sewer pipe and manhole lining rehabilitation efforts.
3. If inflow and infiltration relief efforts are not cost effective or cannot sufficiently address the continued rising flows, the City will need to divert the Upper Sand Creek flow districts to the SW interceptor.

The areas to the southwest are tributaries of the Creek Lane interceptor through the Bridle Creek subdistrict. The Bridle Creek subdistrict is comprised of several developments, including Bridle Creek 1-7, River Ridge, Stonebridge, Arborview, the area north of CR 66 and west of Aberdeen Avenue, and (temporarily) Bridle Creek 8th and beyond. If this area becomes fully developed prior to completion of the SW interceptor, it is possible the sewers along CR 66 between Herbert Street and Hope Avenue would require upsizing to avoid backups. Given the anticipated schedule of the SW interceptor project, this would be a poor investment strategy. It is recommended the 48-acre tributary area (SW-3A) at the northwest corner of Aberdeen and Old 169, which is not yet developed or preliminarily platted, be guided toward the SW interceptor for sanitary sewer flow. The Timber Ridge interceptor will ideally not accept any additional area and if this area were directed to the SW interceptor when constructed, it would alleviate the problem between Herbert Street and Hope Avenue. Depending on the layout of the development in this area, it could require a small lift station to serve the 48 acres until it is fully built out – either to temporarily allow it to pump back toward Hope Avenue temporarily, or to permanently pump to the SW interceptor. In the long term, mechanical lift

stations are almost always more expensive to the public. Therefore, it is recommended development be guided to result in a permanent gravity flow toward the SW interceptor.

West Upper Sand Creek Service Area (Existing/Future Service Area)

The existing sanitary sewer into Sawmill Woods, along O'Day Drive to Wood Ridge Court are the beginning of the West Upper Sand Creek Subdistrict. Ultimately, the Upper Sand Creek Subdistrict sanitary sewer will be extended to serve future development areas toward the Ridge at Sand Creek Golf Course.

The southernmost portion of this service area is a long-range consideration, beyond what is anticipated to be served prior to 2040. The north frontage east of TH 21 is the Ridges at Sand Creek Golf Club has limited potential for the generation of wastewater. With such low flows, the most efficient way to service the SE-10B and SW-6C districts will be to construct a small lift station near TH 21 and County Road 8. A forcemain along TH 21 would carry the wastewater flow northward to near the northwest corner of the Golf Club where it can discharge into the SW-9B collector. Since the properties along Golfview Drive are already developed, the area may best be served with a pressurized sewer system.

Southwest Interceptor (W/SW) Service Area (Existing/Future Service Area)

In 2017 the City constructed the first phase of the SW interceptor from the WWTF toward Delaware Ave (CR 59), a total distance of about 2 miles. In 2018 the City is taking an opportunity created by a MnDOT construction project to open trench a casing across Highway 169 about 2000 feet east of Delaware Avenue. In 2021 the City plans to construct the remaining phase of the interceptor, starting from where it left off in phase 1, through the 2018 casing, adjacent to the westerly edge of the large Highway 169 wetland complex, and up a ravine in the bluff to connect to the west end of the Bridle Creek subdivision.

The SW interceptor is the critical backbone pipeline of the sanitary sewer system through which all current and future sewer flow is conveyed, with exception only to the future Northeast interceptor and service area. It will also serve as the gravity discharge point for a handful of other future areas discussed elsewhere in this document. In order, from downstream to upstream, the SW interceptor currently serves (or will serve) the following service areas / interceptors:

1. Syndicate Street (at the intersection with Syndicate Street)
2. MN River North (at the intersection of Valley View / Syndicate Street)
3. Creek Lane (at the intersection with Creek Lane)
4. Valley View / 190th St (just west of the intersection of Valley View Drive / Creek Lane)
5. 195th Street (future connections, but now available due to 2017 interceptor install)
6. Delaware Ave North (future) and Park Blvd Lift Station Area (future, beyond 2040)
7. US 169 Lift Station Area (future near Delaware Ave, 2040+)
8. Delaware Ave South (future near Delaware Ave south of 169, straddling 2040 boundary)
9. West Southwest Area (future direct connections and tributary spurs, immediately available upon installation of interceptor phase 2 in 2021)
10. 220th St, 220th St Lift Station (future connections 1 mile SW of existing City limits, 2040+)
11. Upper Sand Creek (straddling 2040 boundary)
12. Creek Lane (existing or near-term development areas to be routed west along CR 66)

The completion of phase 1 has immediately opened the previously unsewered area between 190th Street and Highway 169 for development. The completion of phase 2 will open additional area both north and south of Highway 169, just east of Delaware Ave. It will also facilitate continued development in the southwest part of the City without negative downstream

capacity issues that would have been created without the SW interceptor. Eventually in the long term, as significant development occurs in the southeast quadrant of Jordan's 2040 and ultimate growth boundary, this area will also serve the Upper Sand Creek subdistricts through the lift station to be constructed on Sawmill Rd near O'Day Dr and the forcemains along CR 66.

Until the SW interceptor is completed, future development will be somewhat limited by the capacity of the Creek Lane Interceptor. The Creek Lane interceptor appears to have sufficient capacity to manage growing flow rates and the current rate of development, but the Creek Lane interceptor is currently vulnerable to excess flow conditions during heavy rain events which will be more pressing as additional development flow areas are added. Phase 2 of the interceptor project will require acquisition of easements across private property and potentially significant, temporary wetland impacts. It is recommended some construction of the SW interceptor phase 2 be implemented during winter months when permitting of temporary wetland impacts is more readily received. It is recommended preliminary design and the land acquisition process be initiated 18 months prior to the intended award of a construction contract, or about 20 months prior to desired start of construction.

As development interests move beyond the current Bridle Creek / Stonebridge / Pieper property undeveloped areas, heading further west/southwest on top of the bluff line, another tributary spur from the SW interceptor can be extended at the toe of the bluff to a ravine west of Delaware Avenue. Trunk collector sewers may then be extended up the ravines to serve future development in the area.

195th Street Service Area (Existing Service Area)

The 195th Street area recently became sewered as a result of the 2017 SW interceptor extension. Manholes spaced at approximately 400-foot-frequency allow connection points for sewer tributaries to be extended north into undeveloped area. Land uses are projected to be a combination of commercial / industrial and residential as shown in the future land use maps found elsewhere in the Comprehensive Plan. Most notably, this area is a unique area of developable land available for creation of new commercial/industrial opportunities for which there are limited opportunities elsewhere in the current City limits.

Valley View Drive Service Area (Existing Service Area)

This existing service area is heavily subdivided and is currently serviced through the CSAH 9 collector sewer. The current density is relatively low, and the area is surrounded by other service areas in this study therefore it will not be expanded. Valley View Drive is the primary access route to the WWTF using the SW interceptor. Continued development within this area, such as at the Pearson property (PID 229130010) or Hauer property (PID 220920020) will enjoy direct, immediately available connection to the Valley View Drive Interceptor along 190th Street without any capacity constraint. No future major collector or interceptor sewers are required within this existing service area.

Northeast Service Area (Future Service Area)

The northeast service area straddles the 2040 boundary and is currently an unsewered area requiring a new interceptor sewer route to wastewater treatment plant (WWTF). The planned path would follow the ravine at the southeast corner of TH 21 and US 169. From that point, trunk collector sewers may be extended up the various ravines to the top of the bluff. These extensions will be capable of directly serving the gravity service portion of the area. The far northeast most portion of the Northeast service area more difficult to be served directly by the gravity collection system due to topography. Either another interceptor along US 169 or a lift station with forcemain would be required to pump flow back to the main, northeast

interceptor. Evaluation of this routine should be investigated prior to development of a northeast interceptor project. Properties located in this area may be best served with pressurized sewers.

The installation of new trunk interceptors such as the northeast interceptor are an expensive investment. The City's recent investment in the SW interceptor and its installation in 2017-2021 make development pressure more likely to be met in the southwest and southeast quadrants of the community, prior to the northeast quadrant atop the bluff.

Minnesota River North Service (Future Service Area)

This area lies on the side-slope of the Minnesota River, north of the city and will be served in two directions. In previous reports, the Sioux Vista area and areas downstream (NE) were discussed as requiring construction of a new interceptor sewer from near the intersection of Valley View Drive and Syndicate Street. This was originally presented in the Northwest Quadrant Growth Study Report completed in the early 1990s. Near the intersection of Valley View Dr and Syndicate Street the MN River North sewer interceptor will discharge into the Southwest Interceptor and flow south to the WWTF. Significant portions of Sioux Vista have been developed as unsewered hobby farms. For long term planning, it should be acknowledged that future redevelopment and lot splits may occur, and the density could increase. However, the ultimate density will always be relatively light. The 740 MSL contour generally defines the limit of areas within Sioux Vista that can be serviced directly by gravity flow to the WWTF. The properties located between the 740 contour and the floodplain boundary of the Minnesota River must be serviced with on-site systems, pressurized sewers or a small lift station. The area to the west and further upstream from Sioux Vista along Park Boulevard will be served by the construction of an approximately 1,427-gpm lift station. The Sioux Vista area itself could be served in either of these directions depending on timing and detailed design of the system.

Before extension of sewer to these areas, it is recommended a feasibility study be completed to quantify the costs of sanitary sewer extension. Identified costs should be compared to the benefit of adding this lightly developed area to the City. It may be prudent to plan to accept only portions of the MN River North service area, such only that area which will be developed in a denser pattern thereby making sanitary sewer extension more cost effective for sewer rate payers.

West US 169 Service Area (Future Service Area, 2040+)

The area on either side of US 169 from ½ mile to 1 mile west of Delaware Avenue will require the installation of a 3,200-gpm lift station on the south side of US 169. The lift station will serve everything in the west and southwest portions of the Ultimate Service Area. The 220th and 228th Street service areas will discharge through the ravine east of Delaware and flow north to 169 where they can connect to the 169 Interceptor. The forcemain from the lift station will discharge to the gravity sewer installed to serve the frontage road businesses. The discharge manhole should be near Suzette's Restaurant.

Delaware Avenue North Service Area (Future Service Area)

Portions of the Delaware Avenue Service area will be served via the SW interceptor trunk sewer which can be partially extended northward in Delaware Avenue from US 169 to serve this area. This trunk will also receive the flow from the Park Boulevard lift station, which serves the upstream (westerly) portion of the Minnesota River service area. Other portions of the Delaware Avenue North Service area will be fed via the future Sioux Vista service area which will also be pumped back to the gravity sections of the Delaware North Service Area's main and ultimately discharged to the SW interceptor.

Delaware Avenue South Service Area (Future Service Area, 2035 - 2040+)
Service to the bluffs on the south side of US 169 will be provided by the extension of a trunk sewer south in Delaware Avenue from US 169. Generally, it will be constructed near the bottom of the bluff and individual collectors will be extended up the ravines to the south.

220th Street Service Areas (Future Service Area, 2040+)
The area on the north side of 220th Street W is broken into two service areas. The westerly portion (SW-7C&D) will be served by a 346 gpm lift station. The forcemain will extend easterly, as shown, and discharge into the second service area (SW-7B). Ultimately, the flow from the 220th Street W service areas will flow across Delaware Avenue to the northeast and down the ravine to the north. Eventually, it will connect to the Southwest interceptor along US 169.

220th Street Lift Station (Future Service Area, 2040+)
On the most western portion of this area, gravel mining has historically been performed on some specific sites. Therefore, it is recognized that the topography will be changing. The northwesterly portion of the area can be served with straight forward connections across 220th Street. The southwest corner will require a pump station to accommodate the 316 acres. The flow from this area will be to the east to the first ravine east of Delaware and then north to US 169.

220th Street, west of Delaware Street (Future, 2040+)
In the very southwest corner of the Ultimate Service Area is a comparatively small district that must be served by its own 600 gpm lift station. The discharge will be to the east in District SW-5I and flow into the collector in the first ravine east of Delaware.

Park Boulevard Lift Station Area (Future, 2040+)
This area is within the ultimate growth boundary along Park Blvd and US Hwy 169, about 1 mile west of Delaware Ave. This area will utilize gravity sewers to collect flow and route flow via a lift station back to the SW interceptor.

Upper Sand Creek Lift Station / Force Main
This will require a dual forcemain (14" & 10") to reach the West / Southwest Interceptor. Initially, there will be insufficient flow to operate a large diameter main; therefore, the smaller one is required. But in the future, as the area develops a single smaller diameter forcemain would be inadequate to carry the flow. The City has constructed the lift station diversion chamber with the Sawmill Road project in 2005. The design of the diversion chamber allows the installation of control gates in the future. By automatic monitoring the flow in the downstream Creek Lane interceptor, the gates will be capable of allowing gravity flow into Creek Lane when it is capable of accepting it. This will permit limiting operation of the lift station to times that the flow demands it. The interceptor and arterial sewers within the Southwest service area will require over sizing to accept the capacity of the pump station.

Service Area Collector Sewers
Other, less critical, interceptor and trunk collectors are necessary throughout the study area to deliver the wastewater to the WWTF. Specific reaches of these sewer routes may extend through areas in which the sewer can directly service neighboring properties; however, for the purposes of this study, it was assumed that no portion of the cost would be directly assessable. The approximate routes and sizes are shown on individual maps for each of the service areas.

Estimated Costs and Recommendations

Basis of Cost Analysis - For the purpose of estimating cost, it is assumed that there will be no easement or right-of-way costs involved with any of the proposed improvements.

TABLE 4-9
NEWLY SERVED SANITARY SEWERED AREAS WITHIN 2040 BOUNDARY

Service Areas Within 2040 Planning Boundary	New Area Served (Acre)	
	Residential	Commercial
Syndicate Street Service Area Extension	277	30
Southeast 10 Collector (C.R. 8 extended westerly)	278	28
Southeast 9-b Collector	232	0
Southeast 9-a Collector	358	0
Upper Sand Creek – West Side (Directly Tributary)	86	0
Broadway Interceptor – South – SE – Taken to Sand Creek	30	0
Bridle Cr / Hillside Dr / Hope Ave Interceptor	344	0
West and Southwest Interceptor	1776	283
195th St Collector	0	172
Valley View Service Area	30	0
MN River Interceptor	857	0
Approximate New Acreage Served Within the 2040 Planning Boundary	4268	513

TABLE 4-10
NEWLY SERVED SANITARY SEWERED AREAS WITHIN UGB AREA

Service Areas Between the 2040 Planning Boundary and the Ultimate Growth Boundary	New Area Served (Acre)	
	Residential	Commercial
Northeast Growth Area – TH 282 Interceptor	992	107
Northeast Growth Area – US 169 Interceptor	369	0
Upper Sand Creek – East Side (Directly Tributary)	399	0
Southeast 2 – Sawmill Rd	109	0
Southeast 7 Collector	861	0
Southeast 8 Collector	337	0
Park Boulevard Service Area	627	27
Delaware Avenue North Service Area	82	369
West US 169 Service Area	238	91
Delaware Avenue South Service Area	259	113
220th Street Service Area	378	0
Approximate New Acreage Served Between the 2040 Planning Boundary and the Ultimate Growth Boundary	4651	734

TABLE 4-11
COST ESTIMATE OF PROPOSAL SANITARY SYSTEM 2040 EXPANSION

Service Area	Estimated Cost
Southwest Interceptor Phase 2	$3,423,000
Old US 169 Forcemain	$1,570,000
Sawmill Lift Station	$490,000
Sawmill Interceptor Extension	$3,130,000
Upper Sand Creek Interceptor	$6,470,000
Northeast Interceptor Phase 1	$3,040,000
Southwest Interceptor Phase 3	$3,600,000
Delaware Interceptor and Forcemain	$3,690,000
Delaware Lift Station	$490,000
Oversizing Costs – Individual Developments	$2,400,000
Total Estimated Cost	$28,320,000

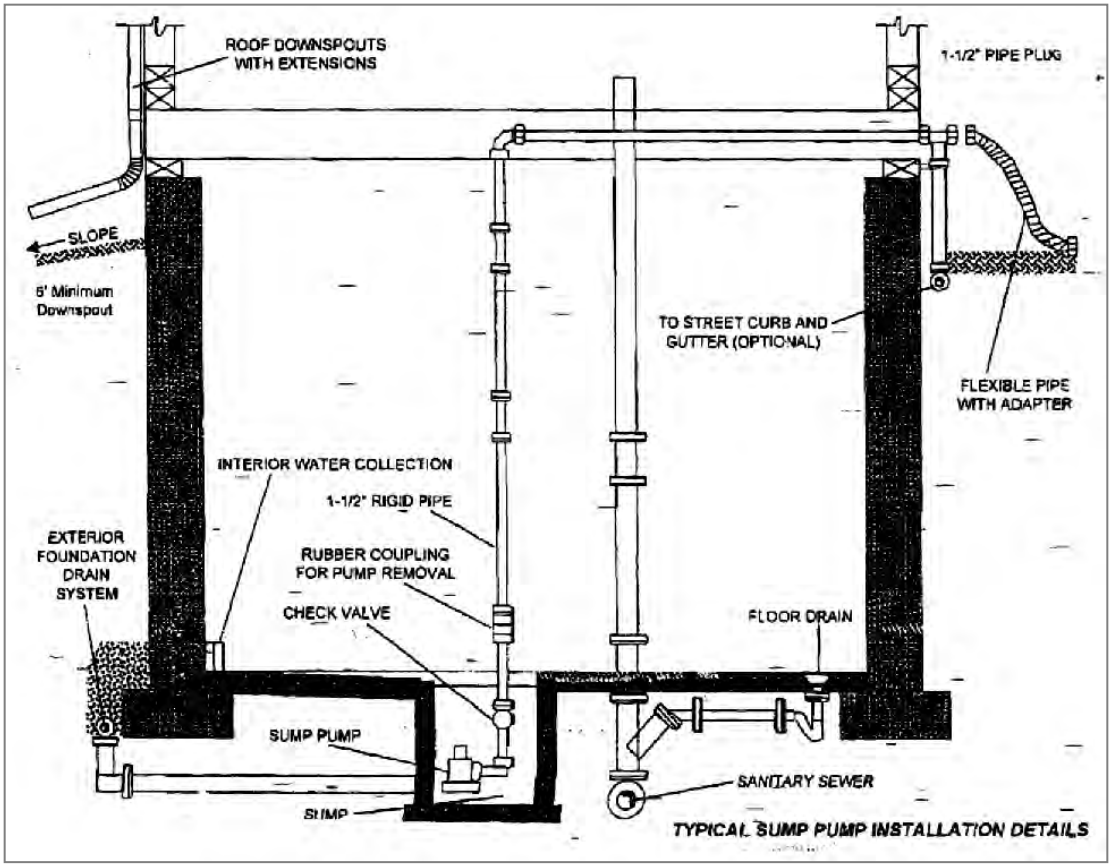
Cost Analysis

Assuming the City pursues these recommendations, the estimated total cost of the collection system is $ 28,320,000. Given the approximate new area served, the City's current single family residential fee per acre of $5,862.52 is appropriate to cover the City's participation for the construction, right-of-way acquisition, financing, etc. Attempts were made in this study to limit the tributary area calculations to developable property and omitting the escarpments, floodplains, ravines, etc. If the gross areas were included in the design, the capacities of the sewers would have been inflated which would have inflated the cost projections. The current City policy applies the Sewer Area / Capital Charge to the gross area of each property. As development expands into less efficient topographic areas, the City may want to consider limiting charges to the "net" area of a development. This could only exclude areas prohibited from development by existing ordinances, i.e., the escarpments, floodplains, wetlands, etc.

Management of Inflow & Infiltration to Reduce Infrastructure Expansion Needs

The City of Jordan Public Works Department monitors flows at the municipal wastewater treatment plant for any unusual activity which may be associated with infiltration. Additionally, the City owns and its City Engineer operates two flow meters used each spring for strategic metering of sanitary sewer flows. The goals of the City's flow metering efforts are twofold; 1) to identify areas where sewer flow is nearing capacity and 2) to compare base flows to peak flows so as to identify the proportion of sewer flow due to inflow/infiltration. Currently the City's WWTF is capable of managing its peak flows, and pipe size is the first constraint at some points in its system. Prior to implementation of future expansions of the system, the City will consider implementation of strategic sewer pipe and manhole lining improvements with benefit of this data. As part of the construction contract for the 2017 SW interceptor project, the City's Public Works Department took ownership of a sanitary sewer televising system to enable it to inspect potential sources of inflow/infiltration throughout the community without the need to hire outside contractors.

Section 52.05 (D) of the City Code restricts connection of sump pumps to the sanitary sewer system, stating, "No sump pumps or tiles around perimeters can be allowed to drain into the sanitary sewer." The City Code notes failure to comply may result in penalties including charges of a misdemeanor. The City Code also illustrates the required plumbing of a sump pump, as depicted in the following image:



Facility Planning

Currently there are not any existing facility planning reports for the wastewater treatment plant. The City is currently awaiting approval of their new NPDES permit and will likely develop a facility plan based on any new requirements in the new NPDES permit.

National Pollutant Discharge Elimination System (NPDES) Permit

A copy of the most current NPDES permit for the Jordan Wastewater Treatment Facility is included in the appendix.

IV. COMMUNITY AND SUBSURFACE TREATMENT SYSTEMS

As of January 2017, there were twenty-five (25) residential units and businesses in the city limits serviced by individual sewage treatment systems (ISTS). Minnesota Rules Chapter 7080 governs construction and abandonment of ISTSs. The City has contracted with Scott County Environmental Services office to implement MN Rules 7080 locally. Scott County requires ISTS's be pumped every three years by a licensed company. A list of sites with ISTS's follows, with a map of sites attached (Map 10-4). A copy of the Ordinance is attached as Appendix to this Plan. The City also regulates ISTSs in the City Code, Section 3.04, Rules and Regulations Relating to Municipal Utilities. There are no known non-compliant ISTS systems within the City at the time this Plan was drafted.

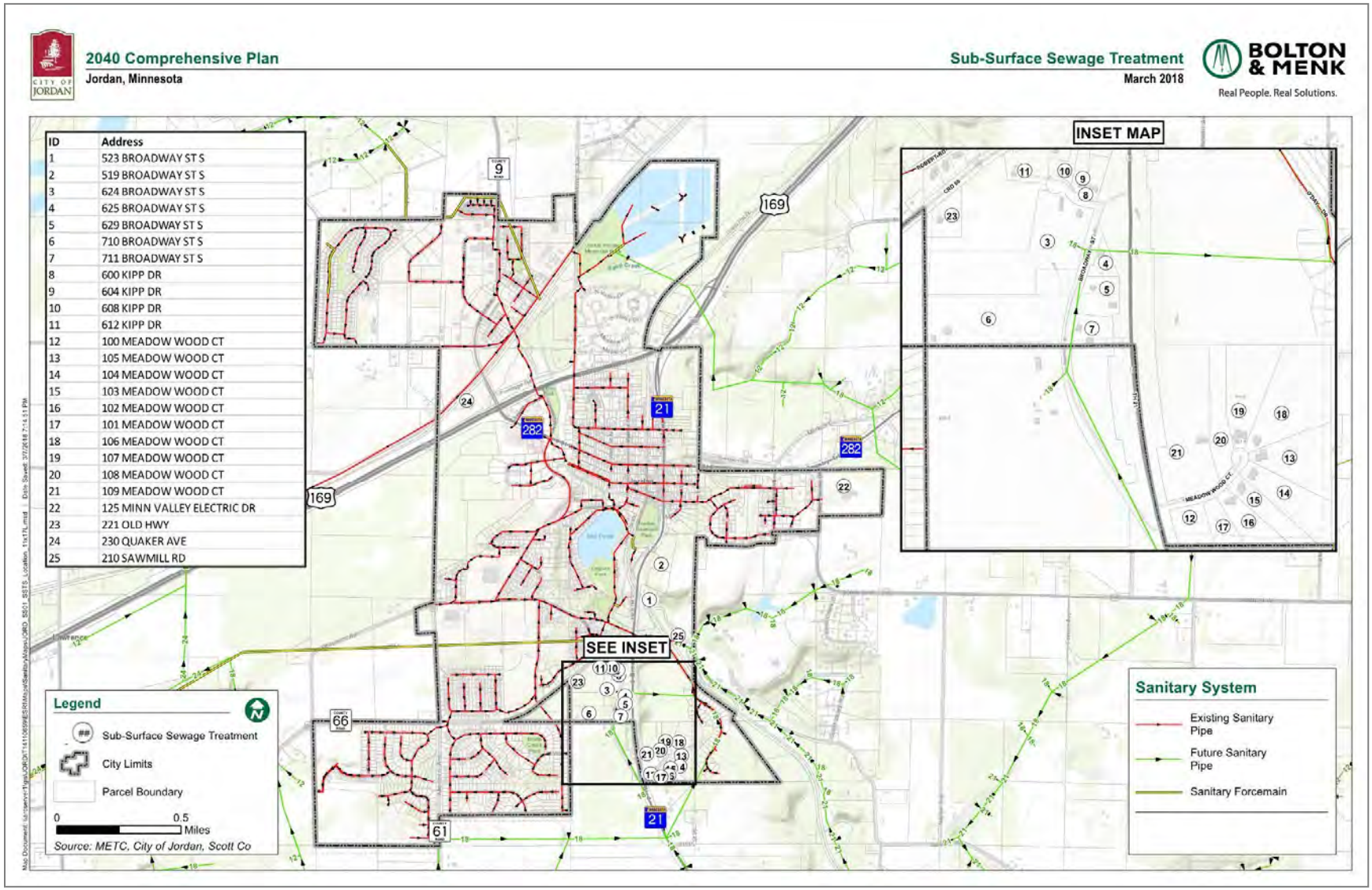
TABLE 4-12
INDIVIDUAL SEWAGE TREATMENT SYSTEMS IN CITY LIMITS

Address	Install Date
519 BROADWAY ST S	8/19/1989
523 BROADWAY ST S	1/1/1950
624 BROADWAY ST S	10/16/1981
625 BROADWAY ST S	1/1/1950
629 BROADWAY ST S	1/1/1950
710 BROADWAY ST S	1/1/1981
711 BROADWAY ST S	1/1/1950
600 KIPP DR	6/3/1994
604 KIPP DR	8/20/1992
608 KIPP DR	6/15/1995
612 KIPP DR	7/1/2010
100 MEADOW WOOD CT	10/25/2000
101 MEADOW WOOD CT	7/24/2001
102 MEADOW WOOD CT	1/1/1993
103 MEADOW WOOD CT	1/1/1997
104 MEADOW WOOD CT	10/26/1993
105 MEADOW WOOD CT	11/9/2010
106 MEADOW WOOD CT	1/1/1996
107 MEADOW WOOD CT	5/19/1995
108 MEADOW WOOD CT	10/6/2015
109 MEADOW WOOD CT	7/22/2003
125 MINN VALLEY ELECTRIC DR	5/15/2003
221 OLD HWY 169 BLVD	1/1/1990
230 QUAKER AVE	1/1/1974
201 SAWMILL RD	1/1/1950

Source: Scott County Environmental Services (January 2017)

There are no private treatment systems in the City of Jordan. All systems are either public or private sub-surface sewage treatment systems. Known sub-surface sewage treatment systems are shown on Map 4-10. The City of Jordan would not consider the approval of private sewer treatment plants or cluster systems for industries or manufactured home parks, as this would not be consistent with the City's long-range sewer plan.

MAP 4-10: SUBSURFACE SEWAGE TREATMENT



V. AREAS SERVED BY THE REGIONAL SYSTEM

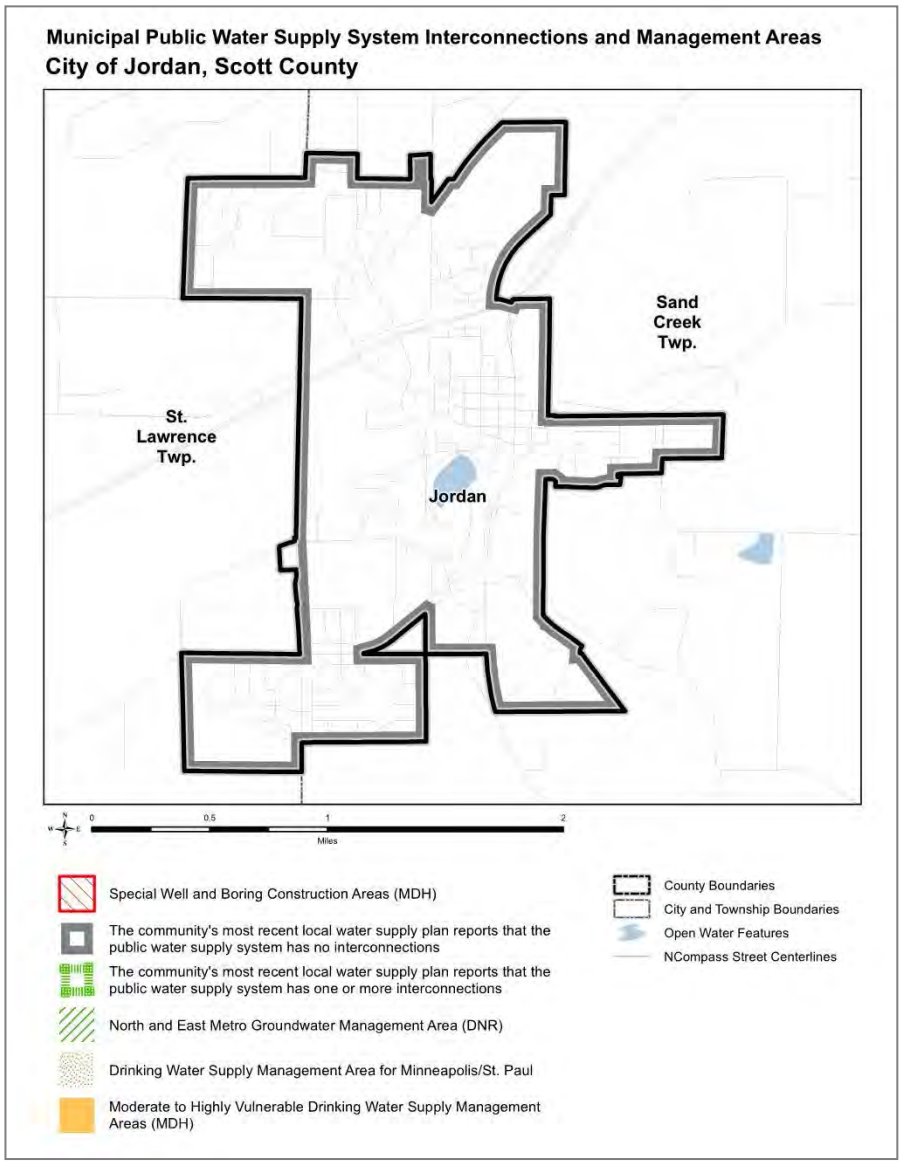
The City of Jordan owns and operates its own wastewater facility. It is not a part of the Metropolitan Council's wastewater treatment system; therefore, a number of requirements for the 2040 Comprehensive Plan relating to the sewer chapter (e.g. maps of connection points to the Metropolitan Disposal System) are not applicable and therefore, not included in this document.

WATER SUPPLY PLAN

I. AREAS SERVED BY LOCAL WATER SUPPLY SYSTEMS

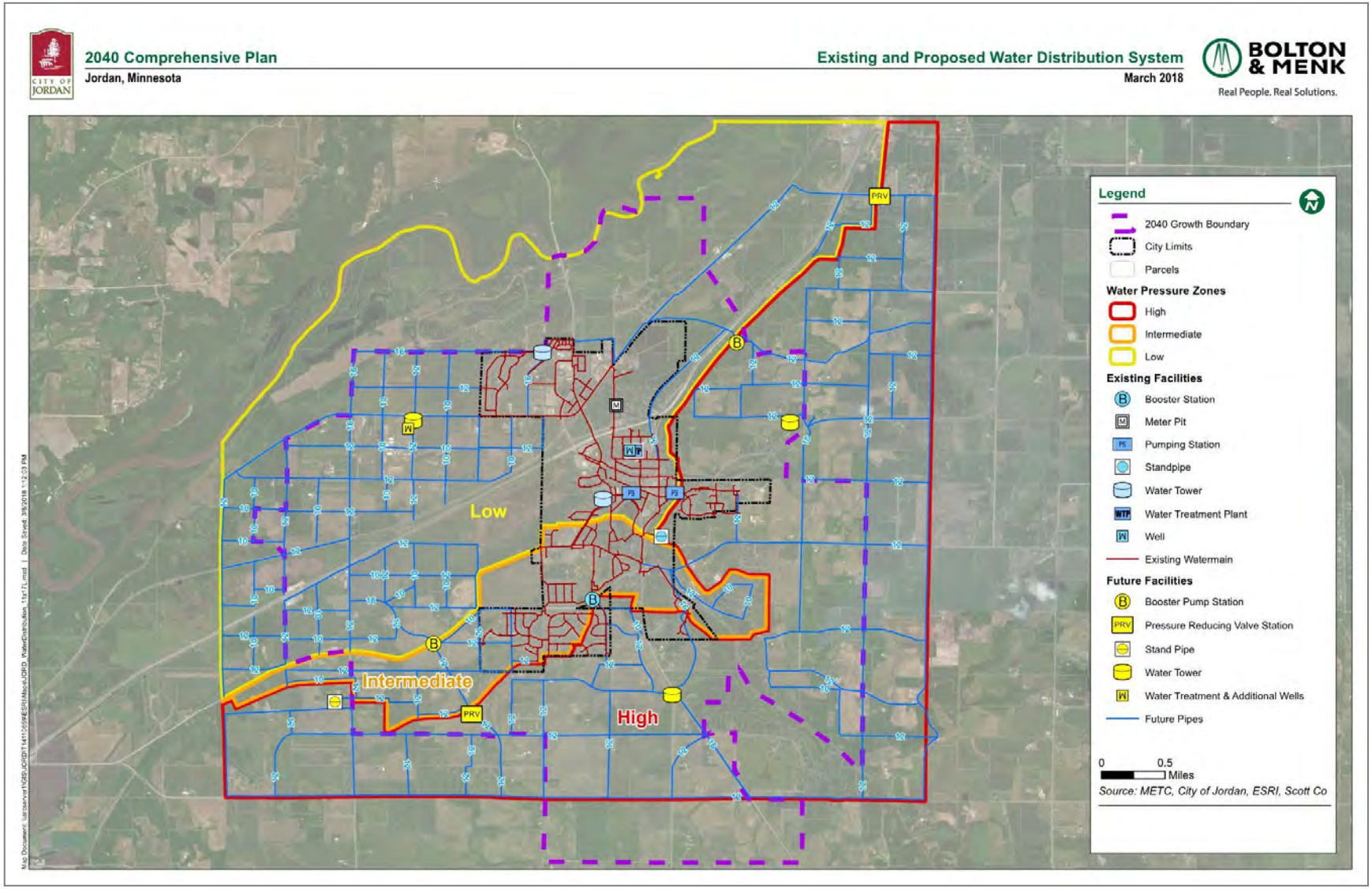
The City of Jordan completed its 3rd generation Water Supply Plan in 2017 and the following data has been taken from that plan. The full Water Supply Plan can be found in the appendix. This report contains a summary of water demand, water storage and treatment, source water condition, water conservation, emergency preparedness, and the Capital Improvement Plan (CIP). As shown below, there are no interconnections.

MAP 4-11: WATER SUPPLY SYSTEMS INTERCONNECTIONS



Map 4-12 illustrates the existing and future layout of Jordan's water distribution network and water supply infrastructure.

MAP 4-12: EXISTING AND PROPOSED WATER DISTRIBUTION SYSTEM



II. WATER DEMAND

The historic water demand in the City of Jordan is shown in Table 4-13.

TABLE 4-13
HISTORIC WATER DEMAND

Year	Avg. Day (MGD)*	Estimated Population	Avg. Day per Capita (GPCD)**	Max Day (MGD)*	Peaking Factor (Max. Day / Avg. Day)
2005	0.417	4750	87.7	1.04	2.50
2006	0.477	5000	95.4	1.10	2.31
2007	NA	5040	NA	1.40	NA
2008	NA	5316	NA	1.10	NA
2009	NA	5350	NA	1.10	NA
2010	0.458	5470	83.6	0.85	1.85
2011	0.493	6253	78.9	0.89	1.80
2012	0.499	6255	79.7	1.20	2.41
2013	0.477	5873	81.2	1.00	2.10
2014	0.463	5970	77.6	1.04	2.25
2015	0.611	6150	99.3	1.20	1.96
Avg. 2010-2015	0.500	5955	83.4	1.03	2.06

**MGD – million gallons per day*
***GPCD – gallons per capita per day*

Anywhere that NA is listed in Table 4-13, data was not available for that year. In 2015 the water demand spiked well above previous years. Since completion of the Water Supply Plan, the City is investigated the cause of the apparent increase in water demand (usage) and found it was the result of a metering issue at the water treatment plant which was incorrectly outputting data (i.e. water demand was actually not increasing in 2015). In general, the average water use per day has remained consistent even though the population has increased. Average water use per capita has decreased.

Current population projections indicate that the City of Jordan will grow from a population of 6,357 to an estimated 12,200 by the year 2040. Water use trends from the past can be used to forecast future water demands. Demand projections associated with the population growth projections indicated the following 2040 Design Water Demands: Average Day Demand: 0.82 MGD and Peak Day Demand: 1.83 MGD.

TABLE 4-14
FUTURE WATER DEMAND PROJECTIONS

Year	Projected Total Population	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
2016	6,357	6,357	83	0.53	1.18
2017	6,493	6,363	83	0.53	1.20
2018	6,629	6,496	83	0.54	1.22
2019	6,765	6,630	83	0.55	1.25
2020	6,900	6,762	83	0.56	1.28
2021	7,170	7,027	83	0.59	1.30
2022	7,440	7,291	83	0.61	1.33
2023	7,710	7,556	83	0.63	1.36
2024	7,980	7,820	83	0.65	1.38
2025	8,250	8,085	83	0.67	1.41
2030	9,600	9,600	83	0.80	1.77
2040	12,200	12,200	83	1.02	2.25

III. WATER STORAGE AND TREATMENT

The City of Jordan must be able to provide treatment and storage to meet future water demands. Water treatment is done to ensure that water quality standards are met. Storage is important for a few reasons:

- Elevated storage provides pressure for the water distribution system.
- Additional storage aids in meeting peak water demands.
- An emergency supply of water is stored in case of something like a power outage.

The tables below show the characteristics and capacity of the water treatment plant and water storage facilities.

TABLE 4-15
WATER TREATMENT

Treatment Site ID	Year Constructed	Treatment Capacity (gallons per day)	Treatment Method	Treatment Type
WTP No. 1	Originally built in 1991 and updated in 2008	3,456,000	Gravity filtration	Fe/MN and Radium removal

TABLE 4-16
WATER STORAGE

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Gallons)
CORP Tower	Elevated Storage (Pedestal)	2005	Steel	500,000
Sunset Tower	Elevated Storage (Pedestal)	1971	Steel	300,000
Broadway Tower	Other – Standpipe	1991	Steel	500,000
Total				1,300,000

The average daily demand projection for 2040 is 1.02 MGD. Both the treatment plant, capacity of 3.5 MGD, and water towers, combined capacity of 1.3 MGD, have sufficient capacity for the projected population growth.

IV. ASSESSING AND PROTECTING SOURCE WATER

Supplying water to a distribution system, requires drawing water from a source like groundwater, surface water, or interconnections with other water suppliers. The City of Jordan has four wells that provide water to the City. Data about these wells is shown in the table below:

TABLE 4-17
WATER SOURCE DATA

Resource Type	Resource Name	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection)	Does this Source have a Dedicated Emergency Power Source?
Groundwater	Well No. 5	1991	450	287	Active	Yes
Groundwater	Well No. 6	1999	750	295	Active	No
Groundwater	Well No. 7	2003	500	547	Active	Yes
Groundwater	Well No. 8	2008	1500	550	Active	Yes

All of Jordan's water is pulled from groundwater sources. Well No. 5 and Well No. 6 draw from the Ironton / Galesville aquifer, and Well No. 7 and Well No. 8 draw from the Mt. Simon aquifer. Water levels within these wells are monitored on a daily basis using Supervisory Control and Data Acquisition (SCADA). Well No. 6 has rising water levels. All of the others have a stable water level at this time.

Water withdrawals from a source can have an impact on natural resources. The City must identify the greatest risks to the natural resources and asses these risks. Both aquifers are at risk of water level decline and degrading water quality trends. The water levels will continue to be monitored, and tests will be conducted on water quality. The City will need to increase conservation practices and change groundwater pumping patterns if a problem is identified.

Another at risk water resource in Jordan is Sand Creek. The creek is at risk of a decline in water level and degrading water quality. Currently the creek is listed by the Minnesota Pollution Control Agency (MPCA) as an impaired water. The impairments include turbidity, nutrient eutrophication, and chloride. The City is making efforts to increase conservation in regards to the creek. Water levels and water quality will be compared to historical data to determine trends and evaluate condition.

Water Conservation and Reuse

To preserve water sources and water quality the City must implement water conservation practices and policies. Since 2006, the City of Jordan has taken the following conservation actions:

- Water rates structure has been changed to provide conservation pricing.
- Water supply system improvements (e.g. leak repairs, valve replacements, etc.) have been undertaken.

- Educational efforts have been made.
- New water conservation ordinances were put into practice.
- Violation of conservation actions were enforced.

As a result of these actions, the City has seen a decrease in residential and total per capita demand. The average day demand and maximum day demands have also remained consistent despite increasing population. This shows that conservation measures have helped to reduce water use per capita during average and peak demands.

With the population projected to increase, the City must continue to increase conservation efforts. The following actions will be incorporated to continue reducing demand per capita:

- Revise city ordinances/codes to only allow odd/even day watering for lawn use.
- Continue to make water system infrastructure improvements.
- Switching from bimonthly to monthly billing.

'Unaccounted for water' is a valuable statistic that can be used to evaluate water conservation. All water connections in Jordan are metered, allowing the City to monitor water usage and unaccounted-for water. In Jordan, like all cities, the volume of water pumped during a year does not equate exactly to water metered at point of sale. There are several reasons for 'unaccounted for water' including hydrant flushing, leaks, and other system maintenance operations which discharge water unmetered. The American Water Works Association (AWWA) recommends that the amount of unaccounted for water be less than 10%. The MnDNR uses this figure as a benchmark to gauge a City's accounting for its water usage. Historically the City has had a low average unaccounted-for water. From 2010 to 2013 the unaccounted-for water was 4.2%.

To track success over the next ten-year period the City will continue tracking residential and total per capita water demand to see if they remain consistent or decline. The City will continue to monitor unaccounted for water to ensure proper metering and appropriate water use monitoring practices are used within the City.

Emergency Preparedness

The City of Jordan has a federal emergency response plan in accordance with the Safe Drinking Water Act. Contamination, loss of production, infrastructure failure, and executive order by the governor are all emergency triggers. Notification of a water emergency is sent out through the City website, social media, and a press release. A list of emergency contacts can be found in the Water Supply Plan in the appendix. In the case of an emergency, water use will be reduced to the minimum amount needed. Priority will be given to residential use followed by commercial/institutional/industrial use.

V. CAPITAL IMPROVEMENT PLANNING

The existing infrastructure within the City of Jordan is able to meet the current water demands; however, the City has plans to increase capacity and improve infrastructure to meet future demands and to improve water conservation. The proposed CIP for the water supply system is shown in the table below:

TABLE 4-18
WATER SYSTEM CIP

System Component	Planned Action	Anticipated Construction Year
Wells/Intakes	Drill new well No. 10	2025
Water Storage Facilities	Add a 500,000 gallon elevated storage tank to support continued development in the SE corner of the City	2023
Water Treatment Facilities	No planned expansion	
Distribution Systems (pipes, valves, etc.)	Distribution pipe replacement and upgrades for new development and water looping in distribution system	2018-2040
Pressure Zones	Rehab pressure reducing valve station No. 1	2021
	Rehab pressure reducing valve station No. 2	2027
Other: Booster Pump Station	Rehab existing booster pump stations	2023

LOCAL WATER MANAGEMENT PLAN

I. EXECUTIVE SUMMARY

The City of Jordan's Comprehensive Surface Water Management Plan (Plan) was prepared, in part, as an update to the previous Surface Water Comprehensive Plan (updated November 2007). The intent of this revised Plan is adoption in conjunction with the Scott Watershed Management Organization (Scott WMO) Comprehensive Water Resource Management Plan (CWRMP) and accompanying Rules, as amended, to meet the requirements of the Scott WMO regulations as well as applicable regulations specific to the State of Minnesota and Scott County. The City of Jordan (City) will utilize this Plan, the accompanying Rules, and existing and new Ordinances as the basis for managing wetlands, surface, storm, flood, and groundwater within the municipal boundary. The Plan incorporates hydrologic surface water modeling not only for the area within the existing municipal boundary but also for the area extending out to the City's ultimate growth boundary.

This Plan, accompanying Rules, and revised Ordinance, when adopted in conjunction with the Scott CWRMP and Rules, as amended, will provide the management goals, policies, and objectives the City will implement to protect, improve, and preserve wetlands, surface, storm, flood, and groundwater resources within the City. It will also address the topics required to meet Scott WMO criteria for a Local Water Plan for submittal, acceptance, and approval under Minnesota Statutes 103B and Minnesota Rule 8410.

The Plan has been prepared with cooperation of the City of Jordan staff and the Jordan City Council to address the concern for the City's bluffs, wetlands, surface, storm, flood, and groundwater impacts resulting from continued development and growth both in and adjacent to the City of Jordan.

This Plan addresses various methods of ensuring that continued growth and development does not adversely affect the city's natural resources as well as the existing storm sewer, open channel, and regional pond networks. Acceptance of this Plan by the Scott WMO identifies the City of Jordan as the Local Government Unit (LGU) for matters related to protection, preservation, use, and regulation of surface and groundwater resources. In addition, this Plan includes a review of the surface water related costs associated with continued development in the city. It identifies a basis and a methodology for storm sewer infrastructure related charges associated with the corresponding development and provides a framework for managing the city's natural resources in relation to continued development and urban growth. The costs and regulatory efforts are proportional to the burdens that urban development places on existing and future public infrastructure as well as the city's natural resources. Given this information, the findings and goals of this Plan are summarized as follows:

A. The majority of the existing storm sewer and regional detention basin networks serving the developed portion of the city is adequately sized to accommodate the design storm runoff from the existing service area given current land use data.

B. The existing storm sewer conveyance and regional detention systems do not have capacity to accommodate future development within the city's ultimate growth boundary.

C. The existing natural resources within the city must be preserved while accommodating the projected growth and development. The City's goal for wetland management is for "no net loss" of wetland area. The City anticipates working with Scott WMO and the Minnesota Pollution Control Agency (MPCA) in developing future Total Maximum Daily Load (TMDL) Implementation Plans for Sand Creek. The City's ordinance and permitting process will ensure that development in the vicinity of the creek and bluffs will be completed in a responsible and safe manner. The groundwater resources in the City will be managed in conjunction with Minnesota Department of Health (MDH) through the Wellhead Protection Plan (WHPP).

D. Although there are numerous alternative methods of accommodating future development and growth, the City is advocating the continued design and construction of upstream regional and localized stormwater detention basins as the preferred BMPs for water quality and rate control associated with future development within the City's ultimate growth boundary.

E. Regional and localized detention basins are advocated for because of a number of benefits. They are the most easily adapted to unforeseen changes in development design and layout. They can accommodate changes in the rate and location of development. Regional ponding also reduces the number of individual ponds constructed. This will reduce the number of ponds that will require future operation and maintenance support by City staff. The construction of upland regional detention basins will compensate for increased flow volumes and rates (due to continued development) to the existing downstream system. This approach has the additional benefit of decreased long-term maintenance and capital costs associated with public infrastructure improvements.

F. The City has about 184 structures in the proposed floodplain of which approximately 105 are in residential zoned areas and 79 are in institutional, commercial, or industrial zoned limits. The City currently has 90 properties carrying flood insurance. Achievement of these goals could help the 90 properties referenced by reducing or eliminating flood insurance premiums. The goals could also help improve the property value and viability of all structures located in the floodplain by varying levels. In 2017 the City considered five goals as potential solutions to flood control issues in the city limits, and is anticipated to consider review of these concepts during the next 10 years:
   1. Improvement of existing and creation of new certified levees
   2. Creating a diversion for floodwaters to the large wetland area at the SW quadrant of Hwy 169 and 282.
   3. Investigate and potentially widen bridge and large box culverts within city limits along Sand Creek and its tributaries.
   4. Consider enrollment in the FEMA Community Rating System (CRS) program.
   5. Promote the installation of additional gages along Sand Creek by other agencies.

G. Due to the extreme volume of data contained in the Hydrologic modeling files (Storm and Sanitary Analysis), this information has not been included in this plan. Detailed information including proposed pond locations, surface areas, storage volumes, and estimated flow rates into and out of the proposed ponds for both the existing and developed conditions, etc. will be available upon request and modified as required to account for future development and to provide the required level of service.

H. An estimate of the costs associated with the design and construction of the proposed regional pond network has been included in this Plan. These estimated costs were used to

formulate a City Storm Area Charge (SAC). The SAC is a per-acre fee that is collected from developers based on market rate land values. A multiplier has been developed to account for proposed land use. Because of the extreme variability in land values and rapidly increasing mean value paid for land in Scott County, the SAC will be adjusted on an annual basis. This annual review is intended to account for changes in construction costs, materials costs, bonding costs, legal costs, etc. The proposed land use type is the primary component of the SAC fee because higher density land use types, with more impervious area, create more stormwater runoff. The three identified land use rate categories are: 1) Single Family Residential, 2) High Density Residential, and 3) Commercial/Industrial.

I. This Plan is a document-in-progress and will be amended as required. As development occurs, the hydrologic model will be reviewed and modified to account for the differences between the actual (developed) and the modeled hydrologic conditions. It is anticipated that, as development layouts are submitted for review, the proposed storm sewer and detention pond improvements can be temporarily entered into the hydrologic model and analyzed for possible adverse effects on the area hydrology. If accepted and constructed, these improvements can be permanently entered into the comprehensive hydraulic and hydrologic model as an existing condition.

J. The goal of this Plan is to provide and compile information relative to the current surface water planning needs, to protect the natural resources within the municipal boundary, and to some extent propose and predict sustainable methods of accommodating continued growth and development within the ultimate growth boundary. This Plan will also ensure that future development is in compliance with the associated Rules, for the management of urban stormwater and protection of natural resources within the City.

II. WATER RESOURCE MANAGEMENT RESPONSIBILITIES AND RELATED REGULATORY RESPONSIBILITIES

The City of Jordan (City) will be assuming regulatory authority for land use development while recognizing the role of other local, state, and federal entities. Several entities will have administrative responsibilities within the planning area. For a local water management effort to be successful, each entity's commitment and role must be clearly understood. The agencies currently having some level of administration responsibility include the City, Scott Watershed Management Organization (WMO), Scott County, Minnesota Department of Natural Resources (MNDNR), Minnesota Pollution Control Agency (MPCA), the U.S. Army Corps of Engineers (USACE), the Minnesota Board of Water and Soil Resources (BWSR), and Scott County Soil and Water Conservation District (Scott SWCD). It has been recognized that regulatory agencies can achieve common goals by joining together to combine already scarce financial and regulatory resources.

Intergovernmental cooperation is an excellent tool to address natural resource protection. This is due to the fact that natural resources do not recognize political boundaries and are often located across local, state, and/or federal regulatory boundaries. The City is ultimately responsible for planning, permitting, construction, maintenance, and other aspects related to the City's surface water and ground water infrastructure and will work in conjunction with all state and federal agencies to achieve its goal of sound and sustainable resource management. The City anticipates and looks forward to cooperating with intergovernmental agencies in the future if the need should arise.

The major task of administering this Plan will be in the permitting process. It is the intent of the City to assume the role of permitting for all land alteration, thereby enforcing the policies and standards of this Plan. The City's existing permit procedures include surface water management elements outlined in this Plan and the current Subdivision Ordinance (Chapter 153). Surface water management elements will be reviewed concurrently as all other land-use and zoning permits are reviewed. The reviewed surface water elements will meet the requirements of existing City Ordinance, design standards of this plan, and the associated Rules.

To ensure conformance to this Plan and the associated Rules, the City's preliminary and final platting, and site plan approval process will require additional detailed information. Erosion control, water quality, and other pertinent information such as stormwater rate and volume control calculation, regarding local plan standards are among the elements that will be addressed on preliminary and final plans and/or site plan approval. Conditional approvals by the Planning Commission and/or City Council must require the incorporation of conditional elements into the submitted plan to ensure compliance.

The revised plan will then be re-distributed to City staff to confirm the inclusion of the provisions under which the plans were approved. The Building Permit issuance process can be the checkpoint for staff to review final plans for compliance with this Plan and associated Rules while holding the condition of building permit issuance as the incentive. Engineering staff will have a sign-off procedure prior to permit issuance.

The City's administrative responsibilities include, but are not limited to the following:

- Comprehensive Plan update(s);
- Land use regulation;
- Ordinance review and amendment;
- Local plat review and amendments;
- Building permits;
- Wetland management as the LGU;
- Sediment and erosion control (Ordinance);
- Groundwater – wells;
- Participation and cooperation with the programs of the Scott WMO, Minnesota DNR, and Scott County;
- Hydrologic model update with comprehensive plan changes;
- Financing alternatives;
- Capital improvements; and
- Conveyance system and detention pond maintenance.

Scott WMO responsibilities and authorities may include but are not limited to the following:

- Monitoring;
- Establishing land use or ordinance requirements;
- Local plan review and approval;
- Administering a permit program;
- Projects of regional significance; and
- Verification of Plan implementation.

Metropolitan Council: Comprehensive Plan Amendment
Metropolitan Council has a regional review authority regarding surface water management including:

- Local Plan review; and
- Regional controls related to point and nonpoint source pollution.

This Plan and all subsequent amendments will become part of the City's Comprehensive Plan (adopted by reference), in accordance with Minnesota Statutes 103B.235, Subd. 3A and 473.859, Subd. 2 (Chapter 176, Laws of Minnesota 1995), as part of the adoption process for this Plan.

This Plan does not have to be resubmitted as a formal comprehensive plan amendment, subject to additional review, at a later date. The adopted City Plan and associated Rules will satisfy Metropolitan Council's requirements and will be thereby recognized as an amendment to the City's Comprehensive Plan.

Water Resource Related Agreements

The City's zoning ordinance requires developers to enter into a development agreement when new development occurs to ensure that storm water management planning is incorporated.

III. PHYSICAL ENVIRONMENT AND LAND USE

The total hydrologic study area includes over 21,000 acres of watershed. The area of the study lies both within and outside of the current city limits and generally terminated at the ultimate growth boundary. It has been assumed that growth around Jordan will continue to the south and along the approaches of U.S. Highway 169. The overall flow characteristics of the Jordan watersheds include a trend for stormwater runoff to flow toward Sand Creek and from there Sand Creek flows to the Minnesota River, northeast of the city. The stormwater runoff begins in the uppermost basins as sheet and shallow concentrated flow. This flow follows existing contours and steep ravines and develops into intermittent surface flows and creeks, directed to the relatively flat area adjacent to Sand Creek and the Minnesota River.

Project specific stormwater detention basin design procedure requires ponds to be sized to ensure there is no net increase in offsite flow rates for specific storm events. This procedure will minimize adverse effects to downstream properties. Unfortunately, when this procedure is applied to individual development sites without comprehensive review of regional drainage patterns the cumulative effect may be to inadvertently increase downstream flow conditions and possibly cause flooding at some locations. The use of large regional detention ponds has been proposed as a comprehensive stormwater management tool. This will better coordinate the possible development design changes and avoid, as much as possible, numerous smaller upstream localized ponds that would be provided on a project-by-project basis.

Based on our analysis, the existing regional pond and culvert system will function properly for storm events less than or equal to the 100-year, 24-hour storm. However, for future detention and water quality ponds the 100-year storm events will need to be managed to prevent damage to the downstream properties. This may be accomplished by proper siting of improvements, consideration and protection of natural resources, constructing emergency spillways, providing larger interconnecting conveyance systems, diversion piping, increased pond storage volume, and/or adoption of low-impact site design practices. All of these options can be implemented while protecting the existing natural features of the city. These improvements should be coordinated with potential, future flood control efforts to ensure hazard conditions are not created as a result of city improvements.

The primary objectives of this Section are:

- Map and evaluate the existing city storm drainage conveyance network,
- Identify problem areas where the existing system should be modified or upgraded,

- Define requirements to improve the existing storm sewer conveyance, water quality, and detention system,
- Define surface water requirements associated with continued upstream development,
- Coordinate the design requirements of the proposed stormwater conveyance system with the most recent flood control studies to minimize flooding of the Sand Creek corridor (when accepted by the Council), and
- Require BMPs to accommodate continued development within the city's ultimate growth boundary while minimizing effects on water quantity and water quality.

Land and Water Resource Inventory
The Scott County WMO Comprehensive Water Resource Management Plan – Section 1, Land and Water Resource Inventory, as amended, contains the most current and comprehensive inventory for the city. Please reference Section 1, page 4, of the Scott WMO Comprehensive Water Resource Management Plan for further information.

IV. GOALS AND POLICIES

The primary goal of the City's Plan and associated Rules is to provide the framework for the management of all forms of surface water as development occurs within and adjacent to the City in the area defined as the City's ultimate growth boundary. This Plan provides clear guidance on how the City will manage surface water both in terms of quantity and quality.

Much has changed since the City prepared its first SWMP. Since that time the City has seen a marked increase in residential and commercial development. Population growth, resource education, and increasing regulation of surface water at the State, County, and Federal levels necessitate that the City's surface water management goals evolve over time with increased awareness.

The goals and policies detailed in this Plan focus on future development as much as the existing infrastructure. The City only conducts plan reviews "as development occurs" as part of the preliminary plat submittal and approval process. This emphasis on future requirements ensures that future development augments the City's amenities rather than diminishes the complex environments that have been created by the City and its population.

Goal 1: Water Quantity
The purpose of this goal is to control flooding and minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of surface water runoff, in accordance with the Scott WMO CSWMP, as amended. Traditional surface management deals with just one component of the hydrologic cycle; surface runoff. Large amounts of energy are directed towards alleviating significant negative impacts of surface runoff and flooding for the cultural, water, and natural resources.

The primary management strategy is shifting from detention in both existing natural and constructed basins, to Low Impact Development (LID) techniques and Integrated Management Practices (IMPs) that emphasize reduction of runoff volume and on-site runoff control via infiltration or small volume storage to mimic predevelopment hydrology for more frequent rainfall events. This trend will help remedy the negative impact of stormwater runoff on water quality. With increased value placed on natural wetlands, the number and extent to which wetlands can be used for detention is already in decline. The approach to sound water management relates directly to water quality, wetland management, erosion control, and land development

strategies. By comprehensively managing the quantity and quality of surface water runoff, the other goals of this Plan are more efficiently achieved.

Subject: Surface Water Runoff (Rate and Volume) Management
Purpose: Control post-development stormwater runoff
Goal: Control flooding, protect human life, protect public and private property, minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of surface water runoff, and maintain or improve downstream conveyance system.

Water Quantity Policies

Policy 1.1: Utilize LID site design techniques where applicable, along with conventional regional detention ponds for large, infrequent rainfall events. These design techniques will be relied upon to help mimic pre-development hydrology and to control downstream flooding. Pre-developed peak flow rates for the 1-yr, 2-yr, 10-yr, and 100-yr, 24-hour, storm events cannot be exceeded by new development.
Policy 1.2: Increases in the volume of runoff should be minimized by utilizing LID practices to control the runoff volume as required by the NPDES Construction Stormwater Permit.

Policy 1.3: Where LID techniques and localized ponding are not feasible, the City will require regional detention areas to small, on-site ponds for large infrequent storm event runoff rate and volume control. The BMP selection requirement will be based on the existing hydrologic model completed for the City.

Policy 1.4*:* Emergency overflows or outlets for drainage systems are required and shall be provided to prevent flood damages and overtopping of constructed basins. The emergency outlets shall not be a minimum of 1-foot below the Low Floor Elevation (LFE) of adjacent structures, stormwater basin berms, or other provisions designed to minimize flooding.

Policy 1.5: The minimum building elevation shall be set/designed to prevent flood damage from the established 100-year, 24-hour, storm event in accordance with established City Ordinances and the standards of this Plan, and associated Rules.

Policy 1.6: The City rewards the use of alternative landscape techniques and materials to reduce rates and volumes of stormwater runoff.

Policy 1.7: The City shall require stormwater ponds, wetlands, floodplains, and ditches to be located in outlots as part of the land development approval process.

Goal 2: Water Quality
The purpose of this goal is to achieve water quality standards in lakes, creeks, and wetlands consistent with the intended use and classification, in accordance with the Scott WMO CWRMP. Water quality is often directly related to the level of nutrients in the water body. While nutrients comprise only one category of substances that can affect water quality, nutrients, principally phosphorous, must be controlled to achieve the water quality goals of this Plan. Phosphorous is generally the limiting factor to plant growth. An increase in phosphorous will cause the plant species dominating the lakeshore, open water, or marsh to shift in favor those plants that can best take advantage of the increased supply of the nutrient.

Controlling nutrients through housekeeping practices are a way for city residents to make a difference. According to the Minneapolis Chain of Lakes Clean Water Partnership, many people

do not realize that organic materials like leaves, grass clippings, fertilizers, pesticides, and pet waste can disrupt the fragile ecosystem of a lake or creek.

Leaves and grass clippings that make their way into lakes and creeks are doing more damage than fertilizers, pesticides, or motor oils, according to the Minneapolis Chain of Lakes Clean Water Partnership. Once in the lakes and creeks, these organic materials decay, and subsequently release nutrients. The excess nutrients increase algae growth, which inhibits the growth of other aquatic plants and animals. When algae die and decay, they exert a biological oxygen demand on the lake, depleting available oxygen for fish. Algae growth due to nutrient loading can damage or even kill a lake's ecosystem.

Fertilizer application may be necessary for a healthy lawn, but the nutrients in fertilizer can be harmful to lakes, creeks, and wetlands. Nutrients from fertilizers run off lawns and ultimately discharge to area lakes, creeks, and wetlands. Effective January 1, 2005, in Minnesota, fertilizers containing phosphorous cannot be used on lawns. Refer to the Minnesota Department of Agriculture (www.mda.state.mn.us/appd/ace/phoslaw.htm) website for additional information. Applying the proper fertilizer, in the right amount, ensures a healthier lawn and healthier lakes, creeks, and wetlands.

Subject: Water quality in lakes, rivers, creeks, and wetlands.
Purpose: To protect and enhance water quality.
Goal: Achieve water quality standards in lakes, rivers, creeks, and wetlands consistent with their intended use and established classification.

Water Quality Policies

Policy 2.1: Development that disturbs more than one acre, or creates more than one acre of impervious surface, shall demonstrate that phosphorus and Total Suspended Solids (TSS) reduction in discharge runoff meets NURP levels described in this Plan and accompanying Rules.

Policy 2.2: Public road and utility projects that disturb greater than one acre must include temporary BMPs to control water quality; if more than one acre of additional impervious surface is created, the project shall include permanent water quality BMPs to meet the requirements of the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit, this Plan, and accompanying Rules.

Policy 2.3: Proposed developments must identify all reasonable steps taken to avoid water quality impacts. They must also mitigate unavoidable impacts with appropriate BMPs to prevent water quality in receiving waters from falling below established standards including TMDLs, and to meet City erosion control Ordinance standards.

Policy 2.4: The City shall supplement its regulatory approach with an education-based approach to achieve appropriate yard care measures. This will reduce nutrient loading to City lakes, creeks, and wetlands, and will reduce the impacts of domestic animal waste.

Policy 2.5: The City shall promote the reduction or minimization of hard surfaced areas, where applicable.

Policy 2.6: The City will balance protection of natural wetlands and utilization of constructed wetlands to protect the water quality of other water resources (i.e., wetlands, lakes, creeks) based on Mn/RAM 3.4 wetland classification.

Policy 2.7: The City encourages and rewards the use of alternative landscape techniques and materials and LID IMPs to reduce and mitigate water quality impacts.

Policy 2.8: The City will manage public properties in accordance with the appropriate BMPs.

The City of Jordan Subdivision Ordinance addresses the current water quantity requirements. When this Plan is adopted the Ordinance will be revised as necessary to incorporate and reflect any new policies, goals, and accompanying Rules.

Goal 3: Erosion Control

The purpose of this goal is to minimize soil erosion through increased education and enforcement, in accordance with the Scott WMO CWRMP. Water quality problems are frequently linked to high phosphorus concentrations. Phosphorus is often transported to surface water through soil erosion but can also be transported to waters in a variety of other mechanisms. Nevertheless, erosion control is an important factor in the effort to improve surface water quality. Soil erosion and sediment deposition can also impact pond and drainage-way performance and create maintenance issues.

Ponds and drainage facilities may be impacted by erosion and sedimentation from a variety of sources including construction sites and winter street sanding. The coarse sediment accumulates in ditches and ponds where runoff velocities are low. When a sand delta appears at a storm sewer outfall that is a visible indication of the effectiveness of erosion and sediment control measures and road maintenance activities of the past winter. As the sediment builds up over time, it reduces the capacity of the drainage system and the pollutant removal capabilities of ponds by reducing storage volume below the outlet. This also reduces the infiltration rates for stormwater facilities. Extending the life of facilities involves source control and elimination of the material that causes the problem. Regulatory actions will control a major portion of the sediment. Street maintenance and an effective sweeping program will also have a positive impact.

Creek and riverbank erosion occurs as a result of increasing peak flow rates and sustained high flows. These issues can severely damage stream bank vegetation, cause bottom scour, and accelerate the erosion process. The Scott SWCD has survey Sand Creek and identified areas currently experiencing localized erosion. The City will continue to monitor these locations and control the rates of discharge from developments in its efforts to provide adequate control. The City will consider opportunities to implement bioengineering practices and approaches to help stabilize the creek bank and reduce bank erosion along the Minnesota River.

Subject: Erosion control.

Purpose: To control erosion and sedimentation.

Goal: Minimize soil erosion through increased education, enforcement and management of stormwater.

Erosion Control Policies

Policy 3.1: Erosion and Sedimentation Control Plans shall be reviewed and enforced by the City for all grading activities. These plans shall conform to the general criteria set forth by the City's

erosion and sediment control Ordinance and applicable NPDES /SDS Permit (MPCA Permit MN R100001) requirements.

Policy 3.2: The City will implement an erosion control Ordinance to control erosion and sediment to extend the effective life of water resource facilities and reduce pollutant loading to streams, lakes, and wetlands.

Policy 3.3: The City will develop proactive measures such as education, incentives, and recognition of erosion control efforts to prevent soil erosion and encourage responsible site development.

Policy 3.4: Construction site inspection by the City must be completed prior to commencing earthwork activities to ensure the proper BMPs are in place and operational.

Policy 3.5: Horizontal, vegetative buffer zones between twenty and fifty feet are required around existing wetlands based on the MnRAM rating. Stormwater ponds shall have a minimum 10-foot building setback from buffers. New development or redevelopment projects must provide the appropriate buffer zone around new and existing wetlands and are encouraged to provide 20-foot buffers around existing stormwater ponds. Buffers shall be maintained in native vegetation to provide habitat for wildlife.

Policy 3.6: The City will maximize the use of bioengineering approaches whenever possible for all slope stabilization and permanent erosion control projects, including considerations of reducing bank erosion along Sand Creek.

The City of Jordan Erosion Control Ordinance addresses the current erosion control requirements. When this Plan is adopted the Ordinance will be revised as necessary to incorporate and reflect any new policies, goals, and accompanying Rules.

Goal 4: Wetlands

The purpose of this goal is to maintain or increase the amount of wetland acreage and increase the wetland functions and values within the City, in accordance with the Scott WMO CWRMP. The City is the LGU for the Wetland Conservation Act (WCA). The City has not completed a Comprehensive Wetland Management Plan. The wetland inventory is based on the wetlands in the National Wetland Inventory (NWI) and Scott County's records, which may not include all of the wetlands and aquatic resources in the City. The City does not have the resources to survey all of the wetlands at this time. Field delineation, assessment of hydrology, identification of plant species, characterizations of soils, MnRAM assessment and restoration are generally completed and reviewed on an "as development occurs" basis. This approach places the financial burden for identification, delineation, and possible restoration on the land developer.

The policies below will be used to achieve the City's wetland goals. The strategies will apply to new development and redevelopment projects submitted to the City for review and approval. Any wetland habitat on property to be developed will be subject to the following management strategies, as well as the rules and requirements of the WCA and other City, State, and Federal regulations.

Proper implementation of stream, bluff, and wetland buffers in new developments is paramount. Without proper implementation of buffers stream and wetland water temperatures increase, sediment deposition increases, stream and bluff bank erosion and collapse are more severe, and

riparian habitats are destroyed.

Subject: Wetland Management
Purpose: To utilize, protect, preserve, and enhance existing natural wetlands.
Goal: Maintain or increase the amount of wetland acreage and increase the wetland functions and values within the City, in accordance with the WCA, USACE, and Scott WMO CWRMP.

Wetland Policies

Policy 4.1: The City shall administer wetland protection and mitigation as the LGU for the WCA in accordance with the Minnesota WCA, Scott WMO CWRMP.

Policy 4.2: The artificial water level fluctuation (bounce) in wetlands resulting from stormwater runoff will be managed in accordance with the WCA and Scott WMO Rules.

Policy 4.3: Where open water areas have been permitted to be excavated in wetlands for the purpose of creating habitat diversity, the excavation shall be done in conformance with City Ordinance, DNR regulations, the Minnesota WCA, USACE, and the Scott WMO CWRMP.

Policy 4.4: The City will require the establishment of vegetative buffer strip at the shoreline of wetlands between all adjacent property owners as prescribed in the Minnesota WCA and Scott WMO CWRMP Rules. Development or redevelopment of an area adjacent to a wetland will require the establishment of the appropriate buffer.

Policy 4.5: The City may utilize the available technical resources of outside agencies, such as the Minnesota DNR, USACE, Scott SWCD, the Board of Water and Soil Resources and/or the Scott WMO, for review of private developments and City-proposed projects that may affect wetland resources.

Policy 4.6: Developers must provide a field delineation in accordance with applicable rules and regulations to determine the jurisdictional boundaries of wetlands, including a report of the results of the field delineation, detailing the methodology and findings of the delineation. A printed and electronic copy (.dwg) of the approved delineation boundary will be required to be submitted to the City.

Policy 4.7: Prior to any site development activities, the City will verify through a wetland boundary delineation review, the location and extent of all wetlands present. The results of the wetland boundary delineation will be compared to the field delineation data provided by the developer.

Policy 4.8: Any review of a proposed wetland encroachment must first address the issue of avoidance and project alternatives. Prior to allowing any wetland encroachment, all reasonable attempts to avoid such alteration must be demonstrated. This avoidance must also consider the reasonableness of the no-build alternative.

Policy 4.9: Replacement for unavoidable wetland impacts will be provided (if possible, within the same subwatershed), in accordance with the requirements of the Scott WMO CWRMP, and Minnesota WCA.

Policy 4.10: The City will not allow excavation, or other non-filling related alterations to an existing wetland without the expressed written approval of the City Administrator or designee and in compliance with the Wetland Conservation Act (WCA). The WCA, administered by the Local Government Unit, jurisdiction begins above the OHW of the waterbody, while MN DNR jurisdiction lies below the OHW. Section 404 of the Clean Water Act, administered by the Army Corps of Engineers, has jurisdiction over all aquatic resources in the area. No filling within DNR public water wetlands will be allowed for development per the MN DNR. Other fill in public water wetlands, such as the large wetland south of 169 in Jordan, must be approved by the MN DNR.

Policy 4.11: The City shall require pretreatment of stormwater runoff discharged directly into wetlands, except possibly for wetlands with a low quality MnRam rating. Treatment will be required to meet or exceed N.U.R.P. efficiencies for removal of TSS and total phosphorous prior to discharge.

Policy 4.12: The City supports the use of banking wetland credits for the mitigation of wetland impacts. Those proposing banking projects are encouraged to locate mitigation banks in those subwatersheds within the City having lost significant wetland habitat and at sites approved by the City. Restoration of wetland habitat is preferred to wetland creation. Priorities for wetland banking include interspersion of wetland types, successful revegetation with diverse native species, areas greater than 10 acres in size, and locations within a watershed that provides needed functions.

Policy 4.13: The City will encourage developers to include wetland restoration as well as wetland protection strategies in proposed development and redevelopment projects. Public Value Credits (PVCs) may be provided for improvement of existing wetland habitat associated with development and/or wetland replacement projects, in accordance with established WCA rules.

The City of Jordan Subdivision Ordinance addresses the current wetland requirements. When this Plan is adopted the Ordinance will be revised as necessary to incorporate and reflect any new policies, goals, and accompanying Rules.

Goal 5: Public Participation, Information & Education

The purpose of this goal is to increase public participation and knowledge in management of the City's water resources, in accordance with the Scott WMO CWRMP. Public involvement is a strategy that recognizes people want to be involved in decisions that affect any facet of their life. It provides opportunities for the public to participate in the processes that lead to decision-making.

Website Availability - http://www.ci.jordan.govoffice.com/. The website is an alternative medium to provide municipal information to both city residents and those people who live outside Jordan. An electronic version of this Plan will ultimately be accessible on the website. Because the Plan has such a wide audience including engineers, planners, developers, citizens, scientists, and educators, electronic access to the text and mapping creates a better understanding of the goals, policies, and activities of this Plan.

The City will continue to distribute information on pertinent water and wetland management issues via the City of Jordan quarterly newsletter (Jordan City News). The newsletter will promote opportunities for residents to participate in water resources management activities. The City will make an ongoing effort on both a citywide and watershed level toward educating the public by distributing information to its residents on responsible practices they should employ to protect water resources within the community. The program will also educate residents on the benefits of using phosphorus-free fertilizer.

Subject: Enhancement of Public Participation, Information and Education
Purpose: Encourage active community involvement in water resources management.
Goal: Increase public participation and knowledge in management of the water resources of the community.

Public Involvement Policies

Policy 5.1: The City will use a public involvement process in resource management decision-making (i.e., the Parks Commission, and the Planning Commission).

Policy 5.2: The City will use a variety of media, including newsletters and the City's website, to inform the community about water resource issue programs including alternative landscapes, phosphorus free fertilizer, aquatic plant management, etc. The City will make an ongoing effort on both a local and municipal level to distribute information to residents on responsible practices to protect water resources in the city. Educational information will also be provided regarding the proper use of a wide range of lawn chemicals and proper disposal of hazardous household materials.

Policy 5.3: The City will work with all available resources to increase public participation in water resources management.

Policy 5.4: The City will establish model interpretive sites for public education.

The City of Jordan Ordinance does not currently address public education. When the City becomes a Municipal Separate Storm Sewer System (MS4) community, the City Ordinance will be revised to incorporate and reflect the new policies, goals, and accompanying Rules.

Goal 6: Groundwater Management

The City's groundwater resources are identified in the City of Jordan Wellhead Protection Plan. The City's aquifers have been assigned a "Not Vulnerable" rating. This rating indicates "there is not a hydraulic connection between surface waters and the aquifer serving the water supply system for the City."

The City of Jordan Wellhead Protection Plan currently outlines requirements for continued groundwater protection and well management. The report is obtainable upon request to the City.

Subject: Groundwater Management
Purpose: To protect groundwater quality and improve groundwater supplies through effective management.
Goal: Provide clean and safe drinking water for the City while managing increased development and population.

Groundwater Management Policies

Policy 6.1: Promote ongoing evaluation of land use impacts on groundwater quality and quantity.

Policy 6.2: Provide information to the public by revising and updating the City Wellhead Protection Plan as required by the Minnesota Department of Health.

Policy 6.3: Support identification and reduction of groundwater contamination from both point and non-point sources.

Policy 6.4: Promote water conservation efforts to reduce water use and conserve the City's groundwater resources.

The City of Jordan Municipal and Public Utilities Ordinance addresses the current municipal and private water supply requirements. When this Plan is adopted the Ordinance will be revised as necessary to incorporate and reflect any new policies, goals, and accompanying Rules.

V. ASSESSMENT OF PROBLEMS

The assessment of problems in the Plan includes reviewing possible adverse effects of surface water that have been identified by state and federal agencies, in research, literature, and other stormwater management materials. The assessments were divided into three potential sources of problems (Source Areas).

1. The first potential Source Area addresses public lands or areas that are managed by public agencies (i.e., public streets, parking lots, sewer lines, parks, public facilities, etc.). The identified potential problems in this source area include but are not limited to:

    a) Existing and potential flooding problems associated with Sand Creek and the Minnesota River at various locations within the city. The City has reviewed and included the Sand Creek erosion identification efforts that have been conducted by the Scott SWCD. Identification and documentation are the initial steps required to understand the dynamic nature of Sand Creek and the possible impact increased development may be having on it. These locations will be monitored and assessed annually by the City.

    b) The need to maintain high quality recreational use of the city's lakes and creeks, whether it is for waterfowl habitat, canoeing, fishing, etc. The MPCA first listed Sand Creek as a state impaired water in the 2002 Final TMDL List of Impaired Waters.

    c) The need for community education programs regarding sustainable water resource management.

    d) The need for an adequate road salt management program.

    e) The importance of maintaining the City's surface water management system and overall goals while encouraging private development.

2. The second potential Source Area addresses existing development on privately owned lands (i.e., private homes, small businesses, large commercial areas, industrial areas, private parking lots, and private streets, etc.). The identified potential problems in this source area include but are not limited to:

    a) Soil erosion from site disturbances (construction) on private lands.

    b) Private lawn and garden maintenance (phosphorous and nitrogen loading).

c) Landscaping of stream banks on private land.

d) Litter accumulation on private lands.

e) Stream buffer degradation on private lands.

f) Stream bank erosion and collapse on private lands.

g) Private vehicle and equipment storage sites.

h) Snow and ice removal methods from private parking lots and streets.

i) Impervious surface management (private streets and parking lots).

j) Illicit discharge to storm sewers.

3. The third potential source area focuses on new residential, commercial, and industrial development. Possible surface water problems in this section are directly associated with the construction process and how new developments may impact local natural resources and public infrastructure both during construction and after they are completed.

   A major source of concern for the City is the projected development rate and associated stormwater volume, rate, and pollutant loading increases. In addition, problems caused by development in environmentally sensitive areas are also a concern (i.e., bluffs, buffers, and wetlands). The identified potential problems in this Source Area include but are not limited to:

   a) Concern about excessive nutrient contamination of Sand Creek and public conveyance networks with sediment from construction sites and improper use of BMPs in new developments (e.g., detention basins, grass swales, etc.).

   b) Proper implementation of creek, bluff, and wetland buffers in new developments. Without proper implementation of buffers, creek and wetland water temperatures increase, sediment deposition increases, creek and bluff bank erosion and collapse are more severe, and riparian habitats are destroyed. See Appendix A for the applicable area maps. As part of the development permitting process the City will determine, based on accurate topographical maps, whether development will be permitted in any particular bluff, creek, or wetland area.

4. Impaired Waters

   Sand Creek, from Porter Creek to the Minnesota River, was initially added to the list of 303d impaired waters in 2002. It is currently listed for impairments due to aquatic macroinvertebrate bio assessments, fishes bioassessments, E. coli bacteria, turbidity, chloride and nutrient/eutrophication biological indicators. The City looks forward to working with the MPCA and Scott County in the TMDL study planning process.

   There is an unnamed creek that parallels the south side of TH 169, from its headwaters to Sand Creek, that is on the draft 2018 list of 303d impaired waters. It is listed for impairments due to aquatic macroinvertebrate bioassesments and fishes bioassessments.

VI. CORRECTIVE ACTIONS

Programmatic improvements and implementations will be required to manage the water resources within the city more effectively. For the area within the city's defined ultimate growth boundary where there has been increased development and larger stormwater runoff systems have been/are being planned, corrective actions may include but are not be limited to:

a) Development of a comprehensive operations and maintenance plan (O&M Plan), including a funding mechanism for ongoing costs (both capital and non-capital). A comprehensive O&M Plan will improve the likelihood of possible federal, state, and County funding for various City projects.

b) When the O&M Plan is complete modifications and revisions would be considered for inclusions provided they increase the speed or cost effectiveness of a planned stormwater system improvement.

c) Implement City programs to target developer and resident education efforts. The programs will outline what residents and developments can do to improve the efficiency of nitrogen and phosphorus reduction from existing and proposed surface water runoff.

d) Review of proposed development submittals to verify the requirements stated in the City Comprehensive Surface Water Management Plan Rules and existing City Ordinances have met prior to approval. This will ensure that the approved BMPs have been selected and the City is engaged in a pattern of sustainable growth.

Financial Considerations

As with all improvements, there is a cost associated prudent stormwater management. To that end, the plan includes a cursory estimate of the costs for:

a) Mainline storm sewer pipe construction to deliver the runoff to each regional pond
b) Projected pond construction
c) Turf restoration
d) Piped outfall construction
e) Ravine stabilization
f) Regional pond land acquisition costs
g) Estimated engineering services
h) 15% contingency

Table 4-19 summarizes the costs associated with each growth area of the proposed development areas. As with all estimates of this nature, they are based on current construction costs and should be adjusted annually to account for inflation, bonding costs, legal costs, interest costs, etc.

TABLE 4-19:
STORMWATER MANAGEMENT SYSTEM APPROXIMATE EXPECTED COST

District	Total	Area Served (acres)
A	$18,635,370	6,213
B	$19,511,553	2,428
C	$21,493,420	3,831
D	$18,455,883	2,824
E	$2,231,580	1,153
F	$2,705,589	1,649
Total	$83,033,395	18,098

It is the current policy of the City to charge new land development a Stormwater Area Charge (SAC) to finance storm drainage improvements on a per-acre basis, taking into account the proposed land use type. The amount of imperviousness on a parcel is directly related to the water quality, quantity, and conveyance impacts on the downstream stormwater conveyance system. Commercial, industrial, and high-density residential developments contribute significantly more stormwater runoff than single-family residential development. Given this, it is recommended that the City charge proportionally higher SAC fees for those areas that contribute more runoff.

For determining a land-use based charge, the runoff from a 10-year storm event occurring over watersheds illustrated in Map 4-12 was compared for three land-use categories, as shown in the following table. Based on this information a runoff multiplier was calculated by comparing the runoff amount for a particular land use to that from single family residential land use. The equivalent number of acres was calculated and the resulting SAC fee per acre of development was calculated for each land use.

TABLE 4-20
STORMWATER AREA CHARGE (SAC) COST SUMMARY

Land Use	Developable Acres	Curve Number	10-Year 24-Hour Runoff	Multiplier	Equivalent Acres	Area Charge
Single/Medium Family Residential	17,244	72	1.60”	1	17,244	$4,400
High Density Residential	105	85	2.64”	1.65	173	$7,260
Commercial/ Industrial	749	90	3.11”	1.94	1,453	$8,536
Total	18,098				10,522	
Total Stormwater Management System Cost = $83,033,395						
Cost Per Equivalent Acre = $4,400						

Adopting the land-use based SAC enables the construction of, and provides for, the effective management and financing of the recommended regional ponding storm sewer system within the projected city growth boundary area. Existing areas of development, large wetland areas, trunk highway rights-of-way and the areas shown on the watershed drainage district map that require further analysis have been excluded in the future when computing the SAC for new development.

Because of the extreme variance in land values and rapidly increasing value paid for land in Scott County, along with increasing construction costs, the SAC should be reviewed on an annual basis to account for land value increases and adjusted accordingly.

VII. IMPLEMENTATION

Implementation Priorities

The criteria, considerations, and constraints used to prioritize City surface water improvements and activities reflect the City's values, goals, and policies. Changes in any one of these factors can result in a change in project priority. The City's stormwater management program has evolved over time, and in view of recent challenges, the future will bring even more significant change. The breadth and extent of these changes, at present, are largely unknown.

Some factors that influence the City's stormwater management program do not lend themselves to a quantitative system of prioritization. For example, deciding the exact projects to include in each year's City improvement plan requires a high level of professional judgment based upon the best available knowledge and awareness of the local political climate toward cost-effective improvements. Many projects that are included in an annual improvement package most likely will have surface water components although the project focus is not surface water. Though difficult to quantify, these components and influences play an important part in deciding the inclusion of selected projects into the following improvement program.

The City of Jordan will continue to conduct private development project reviews on a "project-by-project" basis. Based on when specific property owners choose to develop the City will take that opportunity to implement the following priorities. The City will also implement the following components of possible CIP projects:

A. Surface Water Quantity Management

Prioritize City projects that provide storm water runoff quantity management. The purpose is to control post-development surface water runoff. The goal is to promote projects that control flooding and minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of runoff.

B. Surface Water Quality Management

Prioritize projects that provide water quality improvements in lakes, creeks, and wetlands within the City. The purpose is to protect and improve water quality in the City's lakes, creeks and wetlands. The goal is to achieve water quality standards in lakes, creeks, and wetlands consistent with their intended use and established classification.

B.1. Chloride Management

Estimates indicate that 80 percent of the environmental damage caused from de-icing chemicals is a result of inadequate storage of the material (MPCA 1989). Therefore, proper storage of salt is critical in reducing the amount of chloride that is transported to the environment. The following procedures can be used as a guideline for de-icing storage practices.

- Store de-icing material in waterproof sheds. If this is not possible, stockpiles shall be covered with polyethylene.
- Divert off-site runoff away from storage locations. Berms and shallow drainage swales may need to be constructed.

- Place stockpiles on impervious surfaces. Infiltration of runoff high in chloride content can pollute the ground water. Impervious surfaces also provide easier year-end cleanup of loading areas and will not become muddy during the spring.
- Contain runoff from stockpile locations. Runoff from stockpiles shall not be allowed to flow directly into streams or wetlands where environmental damage can occur.
- Road de-icing stockpiles shall not be located near municipal well areas or in other sensitive ground water areas.

Practices shall also be followed to reduce the amount of salt that is applied to roads. One method is to limit the amount of salt applied to low traffic areas and straight level areas. Streets shall be inspected for the need for de-icing prior to application. Equipment shall be maintained in good working order to evenly distribute salt on roadways and shall be properly calibrated to prevent excessive application. The City currently follows these practices.

C. Erosion Control Management

Prioritize projects that minimize the mobilization of sediment and enhance site erosion control requirements. The purpose is to control erosion and sedimentation on private developments and in public drainage systems. The goal is to minimize soil erosion through increased education and enforcement of existing BMP Ordinance.

D. Wetland Management

Prioritize projects that enhance the City's wetland management. The purpose is to utilize, protect, preserve, and enhance existing natural wetlands. The goal is to maintain or increase the amount of wetland acreage, and increase the wetland functions and values within the city, in accordance with the Scott WMO CWRMP.

E. Public Participation and Education

Prioritize projects that enhance the current level of public participation, information, and education on City projects. The purpose is to encourage active community involvement in all aspects of surface water resources management. The goal is to increase public assistance, participation, and knowledge in management of the water resources of the community.

F. Groundwater Management

Prioritize projects that provide sound, long-term groundwater and aquifer management. The purpose is to protect groundwater quality and improve groundwater supplies through effective management. The goal is to provide clean and safe drinking water for the city while managing increased development and population.

G. Implementation Program

The primary means the City will use to implement the standards of this Plan, the Scott WMO CWRMP is through the adoption and implementation of the City of Jordan Plan, associated Rules, and Ordinances. Private development projects within the city are reviewed on a "project-by-project" basis and it is during this review the City has the opportunity to implement the goals, policies, and priorities developed in the Plan.

The annual City improvement projects provide another opportunity for the City to implement the goals, policies, and priorities developed in this Plan. Most CIP projects generally have a surface water component. Development of a CIP will serve as a useful planning tool for City sponsored surface water projects.

There are also specific development-independent implementation goals that the City will continue to develop on a parallel administrative track to the general goals listed above. The City

will finance these goals either directly or by specific development related review and construction inspection budgets.

The following is an implementation process list of the recommended actions, timing, responsible party, and the cost or funding sources which are presented for the City Council's consideration based upon the data compiled in this report. Actions are listed in order of priority, from highest to lowest.

TABLE 4-21
IMPLEMENTATION PLAN

Action	Timing	Responsible Party	Funding Source
Maintain and implement Capital Improvement Program	Ongoing, updated on a 5 year period	City of Jordan	Storm water utility fund. Estimated costs per project specific budgets
Continue the storm water maintenance program to ensure the successful operation of the drainage system.	Ongoing	City of Jordan	Storm water utility fund. Costs to be identified per specific maintenance needs but estimated to be $25,000 annually.
Implement corrective actions for storm water problems identified on a complaint basis.	Ongoing, as problems are brought to the attention of Staff	City of Jordan	Storm water utility fund. Costs to be identified per specific needs but estimated to be $25,000 annually.
Enforcement of the erosion and sedimentation control ordinance for new developments.	Ongoing, as development projects are submitted to the City for approval	City of Jordan	Funding by developers, building permits and fines collected for non-compliance
Encourage low impact development and better site design components for new development projects.	Ongoing, as development projects are submitted to the City for approval	City of Jordan	Funding by developers with amounts dependent on the size and impact of the development.
Require modeling for storwmater management, maximum flow rates, and volumes during initial phases of development projects.	Ongoing, as developments are submitted to the City for approval	City of Jordan	Funding by developers with amounts dependent on the size and impact of the development.
Review procedures to be established to ensure all construction projects within the city are in compliance with erosion control ordinance.	Annual	City of Jordan	Funding by developer's fees and project budgets. Estimated amounts dependent on the size and impact of the project.
Update the City detailed hydrologic analysis during final design of all ponding areas.	Currently in place. Update as necessary.	City of Jordan	Funding by developers' fees and project specific engineering budgets. Estimated amounts

Action	Timing	Responsible Party	Funding Source
			dependent on the size and impact of the project.
Require building finished floor elevations be established to meet requirements per this Plan, Rules, and Ordinance adjacent to ponding areas and floodplains.	Ongoing, as development projects are submitted to the City for approval	City of Jordan	Funding by developers with amounts dependent on the size and impact of the development.
Require emergency overflow routes to be established and maintained to provide stabilized relief during extreme storm conditions, which exceed design conditions.	Ongoing, as development projects are submitted to the City for approval	Private developers & City of Jordan	Funding by developer's fees and project specific engineering budgets. Estimated costs are dependent on size of developments and associated stormwater flows.
Develop an education program for city residents, staff, and development community to be developed and implemented.	Complete with CRS participation within 2 years.	City of Jordan	Estimated cost of $2,000. City of Jordan with assistance from Scott WMO, DNR, U of M Extension Service, SWCD
Amendments to the SWMP be adopted and implemented and the SWMP be updated.	As warranted by future standards or regulations	City of Jordan	Storm water utility fund and annual engineering budget
Regulate construction and land uses along the bluffs, to prevent erosion and bluff destabilization	Ongoing, as developments are submitted to the City for approval	City of Jordan	Funding by developer's fees and project specific engineering budgets
Encourage landowners to retain areas of native vegetation, and to plant species native to the area, to protect and improve wildlife habitat and maintain the historic ecological role.	Ongoing, as developments are submitted to the City for approval	City of Jordan	Funding by developer's fees, storm water utility and project specific engineering budgets. Estimated cost dependent on size of development.
Continue citywide street sweeping in the spring and fall and consider a prioritization schedule in the event sweeping cannot be completed on schedule as intended.	Annual	City of Jordan	Estimated cost of $20,000 annually from the Storm Water Utility
Implement a flood control improvement project	Within 10 Years	City of Jordan,	$6,000,000 from partners, grants, Storm

Action	Timing	Responsible Party	Funding Source
		MnDNR, Scott WMO	Water utility fund, general tax levy, and/or special assessments
Develop an implementation strategy for Lower Minnesota River TMDL/WRAPS when study is complete	After EPA has approved study and TMDL has been developed	City of Jordan, MPCA, Scott WMO	MPCA, Scott WMO, BWSR, DNR, etc.

H. Capital Improvement Plan

The City of Jordan Capital Improvement Plan as of August 1, 2018 is included on the next two pages. The CIP illustrates the planned specific projects to be led by the City of Jordan along with their estimated timing and costs. The CIP is to be updated on an annual basis, typically in the late summer or early fall. The current CIP is available on the City of Jordan website.

City of Jordan 2020 - 2028 Capital Improvement Program

		Bonding					Non-Bonding				Grants / External				
		Total Bonding Amount	General Tax Levy / Streets Debt Levy Amount	Water Fund Debt Levy Amount	Sanitary Fund Debt Levy Amount	Storm Fund Debt Levy Amount	General Tax Levy / Streets	Water Fund	Sanitary Fund	Storm Fund	MSA Construction Funds	MSA Maintenance Funds	Special Assessments	Funding by Other Agencies	
Proposed 2020 Projects															
Number	**Project**	**Total Bonding Amount**													**Total Estimated Project Cost**
C.P. 2020 - 01	2020 Syndicate Street Resurfacing	$ 600,000	$ 600,000												$ 600,000
C.P. 2020 - 02	Jordan PD Parking Lot Resurfacing	$ 210,000	$ 210,000												$ 210,000
C.P. 2020 - 03	TH 21 Watermain Relocation (MnDOT Bridge Project)	$ -									$ 150,000				$ 150,000
C.P. 2020 - 04	SW Trunk Sewer Phase 2	$ 3,000,000			$ 3,000,000										$ 3,000,000
C.P. 2020 - 05	2022 Bluffs at Cedar Ridge Resurfacing	$ 450,000	$ 450,000												$ 450,000
C.P. 2020 - 06	Annual Pavement Crack Sealing	$ -										$ 29,000			$ 29,000
C.P. 2020 - 07	Wastewater Treatment Facility Plan	$ 50,000			$ 50,000										$ 50,000
C.P. 2020 - 08	190th Street Trail	$ 250,000	$ 250,000											$ 65,000	$ 315,000
	Total for Year	**$ 4,560,000**	**$ 1,510,000**	**$ -**	**$ 3,050,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 150,000**	**$ 29,000**	**$ -**	**$ 65,000**	**$ 4,804,000**
Proposed 2021 Projects															
Number	**Project**	**Total Bonding Amount**													**Total Estimated Project Cost**
C.P. 2021 - 01	2021 Creek Lane Improvements, Eldorado To 169, Including 282	$ 600,000	$ 500,000			$ 100,000					$ 1,100,000			$ 1,075,000	$ 2,775,000
C.P. 2021 - 02	2021 Lowertown Area Street Resurfacing	$ 1,703,000	$ 1,703,000												$ 1,703,000
C.P. 2021 - 03	2021 Meadow Wood Court Improvements	$ 450,000	$ 200,000	$ 100,000	$ 100,000	$ 50,000							$ 65,000		$ 515,000
C.P. 2021 - 04	2021 South Broadway / Kipp Improvements	$ 900,000	$ 350,000	$ 200,000	$ 175,000	$ 175,000							$ 100,000		$ 1,000,000
C.P. 2021 - 05	2021 Water Tower & Hope Booster Station Upgrades	$ 1,800,000		$ 1,800,000											$ 1,800,000
C.P. 2021 - 06	282 Trail to the Bluffs	$ -					$ 50,000							$ 100,000	$ 150,000
C.P. 2021 - 07	2020 Creek Lane Resurfacing	$ 223,000	$ 223,000												$ 223,000
C.P. 2021 - 08	2021 Whispering Meadows Reclamation & Watermain Replacement	$ 575,000	$ 300,000	$ 275,000									$ 50,000		$ 625,000
C.P. 2021 - 09	Annual Pavement Crack Sealing	$ -										$ 31,000			$ 31,000
C.P. 2021 - 10	Flood Control - Phase 1	$ 1,062,500	$ 265,625			$ 796,875								$ 1,062,500	$ 2,125,000
	Total for Year	**$ 7,313,500**	**$ 3,541,625**	**$ 2,375,000**	**$ 275,000**	**$ 1,121,875**	**$ 50,000**	**$ -**	**$ -**	**$ -**	**$ 1,100,000**	**$ 31,000**	**$ 215,000**	**$ 2,237,500**	**$ 10,947,000**
Proposed 2022 Projects															
Number	**Project**	**Total Bonding Amount**													**Total Estimated Project Cost**
C.P. 2022 - 02	2022 Lydia Rd Resurfacing	$ 375,000	$ 375,000												$ 375,000
C.P. 2022 - 03	2022 Maple Lane Resurfacing	$ 150,000	$ 150,000												$ 150,000
C.P. 2022 - 04	2022 Heritage Hills Resurfacing	$ 150,000	$ 150,000												$ 150,000
C.P. 2022 - 05	Sawmill Road / CR 66 / TH 21 Roundabout	$ -									$ 300,000			$ 900,000	$ 1,200,000
C.P. 2022 - 06	Annual Pavement Crack Sealing	$ -										$ 33,000			$ 33,000
C.P. 2022 - 07	Flood Control - Phase 2	$ 434,700	$ 108,675			$ 326,025							$ 200,000	$ 634,700	$ 1,269,400
	Total for Year	**$ 1,109,700**	**$ 10,076,925**	**$ 4,750,000**	**$ 3,650,000**	**$ 2,569,775**	**$ 100,000**	**$ -**	**$ -**	**$ -**	**$ 2,650,000**	**$ 153,000**	**$ 630,000**	**$ 6,139,700**	**$ 30,719,400**
Proposed 2023 Projects															
Number	**Project**	**Total Bonding Amount**													**Total Estimated Project Cost**
C.P. 2023 - 01	Annual Pavement Crack Sealing	$ -										$ 35,000			$ 35,000
C.P. 2023 - 02	2022 Bridle Creek South Resurfacing	$ 1,150,000	$ 1,150,000												$ 1,150,000
C.P. 2023 - 03	Flood Control - Phase 3	$ -											$ 500,000	$ 854,600	$ 1,354,600
C.P. 2023 - 04	Flood Control - Phase 4	$ -											$ 200,000	$ 1,211,000	$ 1,411,000
	Total for Year	**$ 1,150,000**	**$ 1,150,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 35,000**	**$ 700,000**	**$ 2,065,600**	**$ 3,950,600**
Proposed 2024 Projects															
Number	**Project**	**Total Bonding Amount**													**Total Estimated Project Cost**
C.P. 2024 - 02	190th Street Improvements - Convert to Urban Roadway Section	$ 2,100,000	$ 1,650,000			$ 450,000									$ 2,100,000
C.P. 2024 - 03	Annual Pavement Crack Sealing	$ -										$ 35,000			$ 35,000
C.P. 2024 - 04	Flood Control - Phases 5 & 6	$ -											$ 75,000	$ 4,501,000	$ 4,576,000
C.P. 2024 - 05	Hope Pond Trail Reconstruction	$ 142,000	$ 142,000												$ 142,000
	Total for Year	**$ 2,242,000**	**$ 1,792,000**	**$ -**	**$ -**	**$ 450,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 35,000**	**$ 75,000**	**$ 4,501,000**	**$ 6,853,000**
2020-2024 Total		**$ 16,375,200**	**$ 18,070,550**	**$ 7,125,000**	**$ 6,975,000**	**$ 4,141,650**	**$ 150,000**	**$ -**	**$ -**	**$ -**	**$ 3,900,000**	**$ 283,000**	**$ 1,620,000**	**$ 15,008,800**	**$ 57,274,000**

Other Future Projects (In 2019 Dollars)

Est. Year	Project	Total Bonding Amount	General Tax Levy	Water Fund	Sanitary Fund	Storm Fund	General Tax Levy	Water Fund	Sanitary Fund	Storm Fund	MSA Construction Funds	MSA Maintenance Funds	Special Assessments	Grants / External Funding	Total Estimated Project Cost
2024 - 2030	Alley Improvements - 10 Blocks	$ 600,000	$ 600,000									$ 200,000	$ 200,000		$ 1,000,000
2025	Grassmann Park - Phase 2	$ 800,000	$ 800,000												$ 800,000
2025	169 / 282 / 9 Interchange, CR 9 / Valley View Dr Intersection	$ 1,000,000	$ 1,000,000								$ 1,000,000			$ 28,000,000	$ 30,000,000
2026	Varner St Bridge & Riverside Lane	$ 350,000	$ 150,000	$ 50,000	$ 100,000	$ 50,000							$ 25,000	$ 600,000	$ 975,000
2027	Ervin Industrial Drive / Enterprise Drive Reclamation	$ 600,000	$ 600,000												$ 600,000
2027	Timber Ridge Court Reclamation	$ 175,000	$ 175,000												$ 175,000
2028	Mini Met Park Lot Reclamation	$ 250,000	$ 250,000												$ 250,000

VIII. AMENDMENTS TO THE PLAN

Amendment Process

For the Plan to remain a dynamic, effective document, a system must be identified and available to update information and implement new ideas, methods, standards, management practices, and any other changes, which may affect the intent and/or results of the Plan. This Plan shall remain in effect from its adoption by the Councilor until an amended Plan is adopted, not to exceed 10 years from the date of initial adoption. Any person or persons either residing or having business within the City can request amendment proposals at any time. The City itself may amend this Plan at any time if changes are required or if issues or opportunities arise that are not currently addressed. All amendments shall be in accordance with Minnesota Rules 8410.0160 Subp. 4 and Minnesota Statutes 103b.235 Subd. 5.

Request for Amendment

The amendment process begins when a written request for a plan amendment is submitted to the City administrator. The request must outline the need for the specified amendment as well as additional materials that the City will need to consider before making its decision.

City Staff Review

A decision is made as to the validity of the request. Two options exist;

- Accept the amendment as a minor issue, with minor issues collectively added to the Plan during the annual review process; and
- Accept the amendment as a major issue, and refer the matter to the City Council for consideration. In acting on an amendment request, staff shall recommend to the City Council whether or not a public hearing is warranted.

Council Consideration

The amendment and the need for a public hearing shall be considered at a regular or special City Council meeting. Staff recommendations should also be considered before decisions on appropriate action(s) are made.

Public Hearing and Council Approval

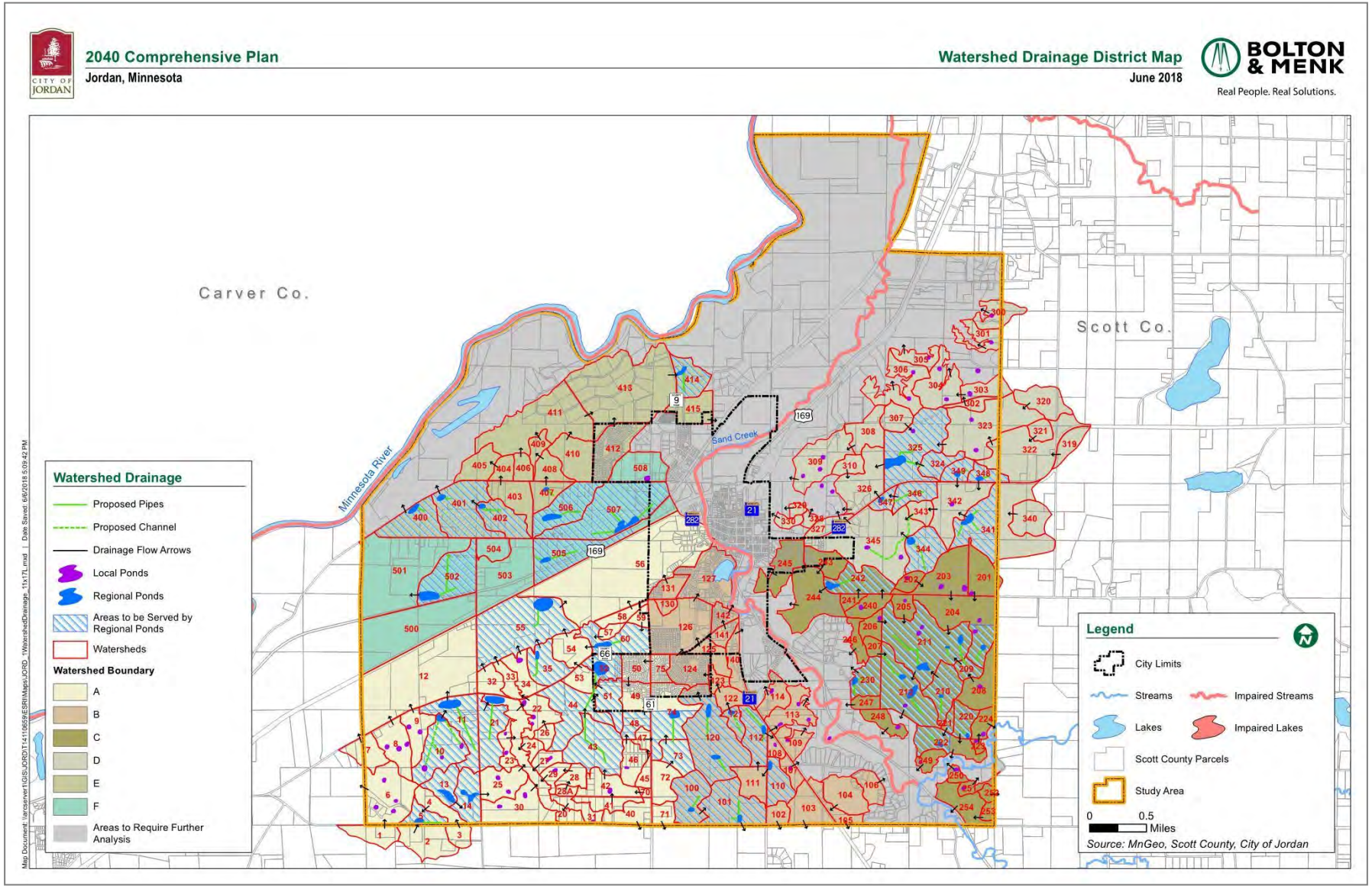
This step allows for public input based on public interest. The City Council shall determine when the public hearing should occur in the process. Based on the Public hearing, the City Council will approve or reject the amendment.

IX. EXISTING DRAINAGE PATTERNS

The total hydrologic study area includes over 21,000 acres of watershed. The area of the study lies both within and outside of the current city limits and generally terminated at the ultimate growth boundary. Map 4-13 identifies the drainage districts in the city. It has been assumed that growth around Jordan will continue to the south and along the northeast and southwest approaches of U.S. Highway 169. The overall flow characteristics of the Jordan watersheds include a trend for stormwater runoff to flow toward Sand Creek and from there Sand Creek flows to the Minnesota River, northeast of the city. The stormwater runoff begins in the upper-most basins as sheet and shallow concentrated flow. This flow follows existing contours and steep ravines and develops into intermittent surface flows and creeks, directed to the relatively flat area adjacent to Sand Creek and the Minnesota River.

Project specific stormwater detention basin design procedure requires ponds to be sized to ensure there is no net increase in off-site flow rates for specific storm events. This procedure will minimize adverse effects to downstream properties. Unfortunately, when this procedure is applied to individual development sites without comprehensive review of regional drainage patterns the cumulative effect may be to inadvertently increase downstream flow conditions and possibly cause flooding at some locations. The use of large regional detention ponds has been proposed as a comprehensive stormwater management tool. This will better coordinate the possible development design changes and avoid, as much as possible, numerous smaller upstream localized ponds that would be provided on a project-by-project basis.

MAP 4-13: WATERSHED DRAINAGE DISTRICT MAP



Based on our analysis, the existing regional pond and culvert system will function properly for storm events less than or equal to the 100-year, 24-hour storm. However, for future detention and water quality ponds the 100-year storm events will need to be managed to prevent damage to the downstream properties. This may be accomplished by proper siting of improvements, consideration and protection of natural resources, constructing emergency spillways, providing larger interconnecting conveyance systems, diversion piping, increased pond storage volume, and/or adoption of low-impact site design practices. All of these options can be implemented while protecting the existing natural features of the city.

The primary objectives of this Section are to:

- Map and evaluate the existing city storm drainage conveyance network.
- Identify problem areas where the existing system should be modified or upgraded.
- Define requirements to improve the existing storm sewer conveyance, water quality, and detention system.
- Define surface water requirements associated with continued upstream development.
- Coordinate the design requirements of the proposed stormwater conveyance system with potential, future flood control efforts to minimize flooding of the Sand Creek corridor (when accepted by the Council).
- Require BMPs to accommodate continued development within the city's ultimate growth boundary while minimizing effects on water quantity and water quality.

2. Watershed Delineation

The scope of this section of the Plan is the development of a design document intended to size and locate future storm sewers, regional and localized detention basins, and other drainage facilities within the city as dictated by development in the ultimate growth boundary area of the city. Preparation of the Plan follows traditional storm sewer modeling and design procedures. The following summarizes the major activities associated with Plan development:

a) Existing city utility maps were reviewed to determine overall drainage patterns (major and sub-watersheds), catch basin locations, culverts, and other applicable drainage features.

b) Scott County 2-foot contour maps covering the area within the ultimate growth boundary were used to delineate major and sub-watersheds.

c) Field inspections of selected areas of concern, identified on the topographic map, were made to verify the accuracy of the model. When development in these areas occurs, a more detailed topographic survey will be required from the developers to verify the existing drainage conditions and existing and proposed structures.

d) Each drainage area flowing to a low point, natural agricultural depressions, or existing storage areas upstream from roadway culverts; was identified and mapped. Over 250 individual subwatershed collection areas were identified.

e) All major watershed and subwatershed boundaries were exported into a GIS mapping program (ArcGIS) and drainage areas computed.

f) Existing public storm sewer data was compiled and included.

g) Approximately 250 interior subwatersheds were delineated within the six major watersheds.

h) Subwatershed maps were developed for each major drainage area within the city's ultimate growth boundary. These maps were used to review existing drainage patterns and develop reasonable alternatives for future storm sewer improvements. Many factors were considered in this planning/design process including, but not limited to:

1. Verification and inclusion of the most recent storm sewer improvements into the model.

2. Incorporation of detention BMPs for flood protection and cost-effective pipe sizing wherever public open space for future development accommodated such facilities.

3. Rerouting of sections of major watersheds to provide cost effective storm sewer improvements and to reduce existing flooding issues.

4. Rerouting of subwatershed areas into detention basins to assist in stormwater quality management.

i) Surface runoff and storm sewer conveyance design is dependent upon the permeability of existing surfaces. Representative runoff coefficients ("C factors") for the rational method (CIA) of stormwater conveyance modeling and Curve Numbers for the SCS method were computed for each major watershed to reasonably reflect the degree of existing residential, commercial, agriculture, and industrial development. Undeveloped areas were modeled using runoff coefficients and curve numbers representative of the existing land use and soil type.

j) Based on subwatershed routing analysis as well as existing and proposed public ROW a proposed future storm sewer conveyance system was developed.

k) For each proposed detention basin site, Soil Conservation Service (SCS), Technical Release (TR), TR-20 and TR-55 methods were used to design basins to meet rate control and water quality requirements. Storm and Sanitary Analysis (SSA) and HydroCAD were used as a hydrologic modeling tool for detention basin sizing. Preliminary basin sizing was based on the Guidelines recommended by the Minnesota Pollution Control Agency "*Protecting Water Quality in Urban Areas"* and also in accordance with the recommendations of the Minnesota Board of Water Resources (BWSR) for wet detention basins and water quality enhancement. Finally, the *Minnesota Urban Small Sites BMP Manual* as prepared by the Metropolitan Council was consulted for recommendations relative to meeting additional NPDES stormwater management requirements.

l) Storm sewer conveyance pipe sizing upstream and downstream of detention basins was integrated into the model. Such integration is intended to reduce the possibility of oversizing conveyance pipe and reduce the likelihood of surface and street flooding from large storm events.

m) As each downstream subwatershed design was completed, the proposed storm sewer pipe sizes, drainage swales, and regional ponds were added to the topographic map. Preliminary locations for localized treatment basins have been shown on the maps in areas that will likely require ponding when development occurs.

n) Printed reports (SSA and HydroCAD) for each drainage area and corresponding detention basin design have not been prepared. Copies of the report summaries are available by contacting the City Planning Department.

o) The stormwater management system costs, which are needed to assist the City in calculating the Stormwater Area Charge (SAC), have been included in the Economic Considerations, of this report. SACs have been calculated for three different land use types, based upon the amount of runoff generated from each area. The more impervious area in a given land use, the more runoff that is generated. This justifies charging a higher SAC fee for the land use that produces greater amount of runoff. The three area charge categories are: 1) single family residential, 2) high density residential, 3) commercial/industrial.

3. Hydrologic Methodology

The existing conditions hydrologic analysis utilized in this Plan has been performed using the SSA modeling software. The model is based on the EPA Stormwater Management Model (SWMM). The EPA SWMM model is a dynamic rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas. The runoff component of SWMM operates on a collection of subcatchment areas that receive precipitation and generate runoff and pollutant loads. The routing portion of SWMM transports this runoff through a system of pipes, channels, storage/treatment devices, pumps, and regulators. SWMM tracks the quantity and quality of runoff generated within each subcatchment, and flow rate, flow depth, and quality of water in each pipe and channel during a simulation period comprised of multiple time steps. This methodology is widely accepted among water resource engineers across the United States.

The SWMM engine accounts for various hydrologic processes that produce runoff from urban areas. These include:

- time-varying rainfall
- evaporation of standing surface water
- snow accumulation and melting
- rainfall interception from depression storage
- infiltration of rainfall into unsaturated soil layers
- percolation of infiltrated water into groundwater layers
- interflow between groundwater and the drainage system, and
- non-linear reservoir routing of overland flow.

Information such as existing and proposed pond storage volumes, runoff slopes, drainage areas and ditch locations were compiled directly from the topographic maps. Topographic slope information in conjunction with the "equivalent width" factor was used to calculate the time of concentration for each sub-watershed, a critical parameter in the hydrological analysis. Soil cover was compiled from review of orthographic photos obtained from Scott County.

The SCS defines the time of concentration as the total travel time of a particle of water from the hydraulically most distant point in the watershed to the outlet itself. The time of concentration was tabulated for each sub-basin by utilizing the Kirpich Method. The Kirpich Method is the recommended method when using the EPA SWMM hydrologic engine.

Stormwater detention and water quality ponds were modeled using an elevation, storage, and discharge relationship. A storage volume was determined for incremental elevations in each pond. The outlet devices for each proposed pond were sized based on downstream conveyance capacity and located either by review of topographic maps and/or field verification. In the proposed condition the detention basins were modeled to mitigate the effects of continued development and increased runoff by increasing the storage capacity.

For purposes of this report, the effects of a 2.8-in, 4.2-in, and a 6.1-I storm event were modeled. These events have probabilities of occurring once every 2-year, 10-years, and 100-years, respectively. Conceptually, the 2-year storm event has a 50 percent chance of occurring in any given year. Similarly, the 10-year storm event has a 10 percent chance and the 100-year storm event has a 1 percent chance of occurring in any given year.

4. Future Considerations

As noted in the Watershed Delineation section, numerous factors were considered in developing the proposed future storm sewer plan for the City. Because of the intricacies of the planned improvements, this summary report will not discuss every detail. However, we wish to highlight several key design features and recommendations.

a) Proposed regional and localized detention/water quality ponds are shown on the proposed conditions map. Ponds have been located in strategic low areas on or near the watershed or subwatershed perimeter and upstream to accommodate future development (generally residential). These locations are intended to provide water quality enhancement and serve as protection for existing developments from upstream agricultural runoff.

Key design criteria have been noted on the map and are documented in greater detail in the calculations. Upstream basins have been sized to accommodate ultimate watershed development and have been preliminarily sited to suit existing closed depressions. The actual shape and location of the constructed ponds may differ from what is shown provided that controlling design conditions are maintained (storage volume, maximum elevation, MPCA and BWSR requirements). In the event the development characteristics of any of the subwatersheds change significantly, pond design and storm sewer conveyance design will need to be modified accordingly.

Siting of detention basins was based on existing open space and individual subwatershed hydraulic requirements. Cursory consideration has been given to land use, development potential, property boundaries, etc. Many of the recommended detention sites are already prone to intermittent flooding and would require substantial grading for development.

b) Unfortunately, in the older, more densely developed areas of the community, such as the originally platted areas and the historic downtown business and residential districts, the possibility of acquiring space for regional or localized detention basin construction is improbable. Throughout most of this area, new detention basin construction would require site clearing and re-platting of developed properties.

   Consequently, in these developed areas, water quality and detention requirements will be complicated and may require construction of storm sewer interceptors. The hydrologic analyses of these areas may be reviewed on a case-by-case basis, as required.

   To meet the future Scott County or possible NPDES requirements, it may be necessary to construct and/or install some form of in-line treatment that does not require a large amount of open space. *Stormwater Management, Inc., Bay Saver and Stormceptor* are a few of the many in-line treatment systems being presently incorporated into existing developed areas across the Metro area.

c) The floodplain areas adjacent to the Minnesota River and the corridor along Sand Creek, which consists of steep slopes and benches, have not been included in the watershed model. These regions are typically protected from future development by zoning,

floodplain, and/or bluff ordinances. If areas within these regions are developed in the future, hydrologic analyses may be completed on a case-by-case basis, as required.

5. Pond Design Goals and Criteria

For the most part, the upper area surrounding Jordan consists of sandy-clayey nonporous soils. Although some areas have high sand content with high infiltration, a large percentage of the soils found within the study area were classified as being SCS, type B and/or type C, which are known to have moderate to low infiltration capabilities.

Whenever possible, regional detention/water quality ponds will meet NURP standards and City requirements. Wet settling basins are accepted and proven BMP technique widely accepted for stormwater quality treatment prior to discharge. All regional and localized detention/water quality pond design parameters will need to be carefully considered to ensure that there is no impact to existing downstream properties. It is imperative not to increase the groundwater gradient and the potential for basement seepage associated with regional or localized detention/water quality ponds.

Every attempt has been made to strategically locate regional and localized detention/water quality ponds in existing closed depressions within a given watershed or subwatershed. Steps have been taken to avoid wetlands and DNR waters in every case. The intent is to minimize the excavation required and optimize the volume and size of storm sewer conveyance piping associated with pond construction.

In some areas, smaller upgradient ponds have been proposed to minimize additional erosion of existing ravines due to the increased runoff associated with urban development. The smaller upstream ponds are proposed to manage stormwater volumes equal to the runoff from a 2-year, 24-hour rainfall event (2.8-in). The smaller ponds will treat the runoff through sedimentation and minimize peak discharge flow rates into existing ravine(s) enroute to larger, downstream regional ponds.

Similarly, the regional basins may be designed to reduce the quantity of large diameter trunk storm sewer pipe that would be required for stormwater conveyance. The proposed detention/water quality ponds may be designed as non-uniform meandering waterways, creating a more natural appearance while maintaining the design intent and providing cost savings by reducing the length of large diameter pipe.

When reviewing development plans the SCS runoff curve number (CN) for the existing agricultural areas and the minimum CN's for developed conditions should be limited to the values in the following table:

Maximum existing----------CN = 70
Minimum residential development----------CN = 72
Minimum high density residential development ------CN = 85
Minimum commercial development----------CN = 90
Minimum industrial development----------CN = 90

These values are general in nature and typically apply to the urban development of existing farmland. We anticipate instances in which the existing land use is either pasture, wetland, or ungrazed meadows, etc., which will require appropriate curve number adjustment in accordance with standard SCS TR-20 and TR-55 methodology.

6. Existing Watersheds and Required Improvements

The following is a brief description of the various major watershed areas studied. At present, the descriptions are limited to the ultimate growth boundary of the City of Jordan.

A. Drainage District A

Drainage District A is located in the southwest portion of the regional growth boundary area. District A is approximately 7,000 acres in size. District A generally slopes down from the south to the north with runoff collecting in one of two centrally located ravines and discharging into a large DNR protected wetland (DNR#220w) located in the southwest quadrant of the U.S. Highway 169 (US 169) and State Highway 282 (TH282) intersection. This wetland discharges into Sand Creek north US 169. The soils in this area are typically sandy-clayey. This district is currently farmed with sparse residential development.

The regional and localized pond network is proposed as an economical and effective method of managing the increased runoff rates and volumes projected from continued urban development in District A. This proposed stormwater detention/water quality pond network includes fourteen regional ponds, with each basin located along an existing drainage route. Each proposed pond would be designed MPCA standards and City regulations prior to discharging stormwater to the north of CR 66. The existing culverts crossing CR 66 will be utilized as outlet conveyance. In the upland areas, where runoff is presently discharge directly into ravines, the use localized stormwater detention/water quality ponds is proposed to minimize erosion.

The benefits of the required District A regional and localized stormwater detention/water quality pond system are:

- The reduction of the developed property runoff rates and volumes to pre-developed levels.
- Treatment of stormwater quality to MPCA standards and City regulations prior to discharge.
- Improved flood control management in the vicinity of CR 66 and US 169.
- Utilization of existing infrastructure and flow paths when practical.

B. Drainage District B

Drainage District B is located in the south central section of the regional growth boundary area. District B is approximately 2,850 acres in size. The general slope of District B is from the south to the north toward the Jordan Mill Pond and/or east toward Sand Creek. District B has been further subdivided into two major subdistricts with CR 21 as the internal boundary. The area east of CR 21 and Delmar Avenue drains into Sand Creek, to the east. The area west of CR 21 and Delmar Avenue drains to the north into the Jordan Mill Pond (DNR #113p) and across a concrete weir into Sand Creek.

The soils within District B are typically sandy-clayey. The dominant existing land use is row crop production with areas of development to the north and south of CR 66.

The regional and localized pond network, is proposed as an economical and effective method of managing the increased runoff rates and volumes projected from continued urban development in District B. This network includes nine regional and nineteen localized stormwater detention/water quality ponds. Each proposed pond will be designed to

MPCA standards and City regulations prior to discharging stormwater. For the portion of District B that drains easterly toward Sand Creek, localized ponds are proposed along the east side of TH 21. These localized ponds would be located upstream of the existing ravines to minimize possible erosion due to increased flow rates and volumes. The reminder of District B will be served by localized ponds as growth dictates.

The benefits of the required District B regional and localized stormwater detention/water quality pond systems are:

- The dampening of the developed property runoff rates to match pre-developed flow rates.
- Treatment of stormwater to MPCA standards and City regulations prior to discharge.
- The post-development runoff velocities can be controlled upstream of the existing ravines to minimize additional erosion and better manage the runoff rate and volume prior to it entering the regional pond system.
- Improved flood control management adjacent to CR 66.
- Proposed pond locations utilize existing closed depressions and outlet conveyances.
- Improved flood control management adjacent to Hillside Drive and the existing development in the vicinity of Stuart Drive.

C. Drainage District C

Drainage District C is located in the southeastern regional growth boundary area. District C is approximately 4,250 acres in size. The soils are found to be sandy-clayey. The general slope of District C is from the east down to the west. The district land use is primarily agricultural with a few scattered wetlands and some isolated areas of development.

The regional and localized pond network is proposed as an economical and effective method of managing the increased stormwater runoff rates and volumes projected from continued urban development in District C. This network includes thirteen regional and forty-six localized stormwater detention/water quality ponds. Each proposed pond will be designed to MPCA standards and applicable City regulations prior to discharging stormwater.

The benefits of the required District C regional and localized storm water detention/water quality pond system are:

- The dampening of the developed property runoff rates to match pre-developed flow rates.
- Treatment of stormwater to MPCA standards and City regulations prior to discharge.
- The post-development runoff velocities can be controlled upstream of the existing ravines to minimize additional erosion and better manage the runoff rate and volume prior to it entering the regional pond system.
- The regional ponds manage both on-site stormwater and agricultural stormwater drainage from off-site sources with a single pond, eliminating the need for multiple localized ponds.

D. Drainage District D

Drainage District D is located in the northeastern regional growth boundary area. District D is approximately 3,260 acres in size. District D is comprised of relatively flat highlands sloping from the east down to the west toward steep bluffs abutting the western and northern district boundary. The soils are found to be a sandy-clayey mix. The land use is primarily agricultural. Wetland are scattered throughout the district and there is limited residential development.

The regional and localized pond network is proposed as an economical and effective method of managing the increased stormwater runoff rates and volumes projected from continued urban development in District C. This network includes thirteen regional and forty-six localized stormwater detention/water quality ponds. Each proposed pond will be designed to MPCA standards and applicable City regulations prior to discharging stormwater.

The benefits of the required District C regional and localized storm water detention/water quality pond system are:

- The dampening of the developed property runoff rates to match pre-developed flow rates.
- Treatment of stormwater to MPCA standards and City regulations prior to discharge.
- The post-development runoff velocities can be controlled upstream of the existing ravines to minimize additional erosion and better manage the runoff rate and volume prior to it entering the regional pond system.
- Improved flood control management adjacent to TH 282 and in the vicinity of Morlock Drive.

E. Drainage District E

Drainage District E is located on the northwest side of the city and is bordered by the Minnesota River on the north. District E is approximately 1,330 acres in size. The general slope of the land is from the south down to the north, toward the Minnesota River. The soils are characterized as sandy-loam. These soils are a moderately porous soil. The land use is primarily agricultural. Wetlands are scattered throughout the district. There is an area of large rural residential parcels and a number of high-density residential developments.

The regional pond network is proposed as an economical and effective method of managing the increased stormwater runoff rates and volumes projected from continued urban development in District E. This network includes five regional stormwater detention/water quality ponds. Each proposed pond will be designed to MPCA standards and City regulations prior to discharging stormwater. A number of smaller localized stormwater detention/water quality ponds will be required as urban development continues. The regional pond system will accommodate the anticipated development from approximately 680 acres. Localized development ponds will accommodate the remaining area as required by the patterns of future urban development.

The benefits of the required District E regional and localized storm water detention/water quality pond system are:

- The dampening of the developed property runoff rates to match pre-developed flow rates.
- Treatment of stormwater to MPCA standards and City regulations prior to discharge.

- Improved stormwater quality prior to discharge into the Minnesota River.
- Improved flood control management adjacent to the Minnesota River and in areas of the Minnesota River floodplain.

F. Drainage District F

Drainage District F is located in the area immediately north and west of the intersection of US 169 and TH 282. District F is approximately 2,050 acres in size. US 169 is the southern boundary of this area. The general slope of the land is from the northwest down to the southeast toward the US 169 intersection with TH 282. Stormwater runoff is presently discharged to the northeast of TH 282 into Sand Creek. The soils are characterized as sandy-loam which are found to be porous in nature.

The regional pond network is proposed as an economical and effective method of managing the increased stormwater runoff rates and volumes projected from continued urban development in District F. This network includes seven regional and ten localized stormwater detention/water quality ponds. Each proposed pond will be designed to MPCA standards and City regulations prior to discharging stormwater. The regional pond system will accommodate the anticipated development from approximately 510 acres. Localized development ponds will accommodate the remaining area as required by the patterns of future urban development.

The benefits of the required District F regional and localized storm water detention/water quality pond system are:

- The dampening of the developed property runoff rates to match pre-developed flow rates.
- Treatment of stormwater to MPCA standards and City regulations prior to discharge.
- Improved stormwater quality prior to discharge into the Sand Creek.

7. Conclusions

The city's existing storm sewer treatment and conveyance system cannot accommodate continued development in the regional growth boundary area without upgrades to existing infrastructure. If development in this area continues as predicted and the existing treatment and conveyance system is utilized, it will require major improvements to serve the existing and future community without exacerbating intermittent flooding issues.

The regional and localized stormwater detention/water quality pond model presented in this Plan is one approach to accommodate the predicted urban development in the regional growth boundary area of the city based on precipitation estimates from Technical Paper 40. The City will use the most recent rainfall estimates, such as NOAA Atlas 14 at the time this plan is drafted, to ensure proper sizing of ponding and associated stormwater infrastructure. Further enhancement of this model is necessary on a project by project basis to accommodate new rainfall estimates and where a private development will be constructing a regional pond as a condition of their permit. These updates will ensure that adjustments, due to new construction and urban development, can be coordinated with the model and regional flow rates and volumes can continually be reviewed, verified, and updated. The components of the proposed SAC should also be updated annually. These reviews will ensure that developers are paying their fair share for the improvements.

This model is predominantly based on information obtained from available Scott County GIS mapping data, the city aerial and contour maps, field verification of accurate watershed boundaries, and discussions with City staff relative to the historical flooding areas. Based on all available information the modeled system closely matches qualitative descriptions given by individual observation. We believe this Comprehensive Surface Water Management Plan has significant benefit as a planning, engineering, and design tool. However, this Plan and the regional and localized stormwater and water quality pond network model is not necessarily the only method of accomplishing the goal of comprehensive surface water management. The quality and accuracy of this model may be further validated with more detailed survey data at the time of proposed development in the regional growth area of the city.

PARKS AND TRAILS

INTRODUCTION AND PURPOSE

Nestled in the Minnesota River Valley, Jordan is recognized for its natural resources including its bluffs and Sand Creek, historic resources including its Downtown Historic District, and active recreational parks including the Mini Met ballpark and Lagoon Park.

The 2040 Jordan Comprehensive Plan envisions Jordan as the "hub" for a regional park and trail system, with trails and/or a greenway system linking not only Jordan's current and future parks but also Scott County parks and trails, Carver County's trails, and the Minnesota Valley State Recreation Area. The Comprehensive Plan also envisions the city capitalizing on its natural resources and building on its active recreational opportunities as a tourist destination.

The City of Jordan, at the time of this Comprehensive Plan update, has fourteen (14) city-owned parks. These land uses account for approximately 125 acres or six percent (6%) of the city's total acreage. In addition, there are a number of school district-owned facilities as well as privately-owned recreational facilities which add to the quality of life in the area. The city's residents and businesses identify parks, trails, and recreational facilities as an important part of the quality of life in Jordan. Recreation is viewed as an integral part of life, providing a necessary and satisfying change from the things we usually do and the places where we spend most of our time.

A community survey, comments from City staff, and input from the Park and Recreation Advisory Commission underscore the importance of creating and sustaining parks, trails, and recreational facilities. These comments are included within this chapter.

The purpose of this Chapter is to provide a proactive means to plan for parks, trails and preservation of natural resources. It is intended to:

- Serve as a guide for the development of new parks as annexation occurs, as well as improvements to existing parks;
- Assist City staff, Park and Recreation Advisory Commission, and City Council in budgeting capital expenditures;
- Establish policies and recommendations for parks, trails, and natural resource stewardship;
- Assist City staff and developers when platting property to be developed;
- Provide a plan to connect residents and employees to natural resources, places of employment, schools, parks, natural resources, historic resources, and regional trail system; and
- Establish policies to preserve, protect, maintain, and enhance natural resources that contribute to the community's rural atmosphere.

This chapter includes:

1. Park classifications;
2. Inventory of existing city and school park and recreation facilities;
3. Other area recreational opportunities;
4. Existing and future parkland needs;
5. Recreational standards and future facility needs;
6. Trails and pedestrian ways;

7. Community input;
8. Administration, maintenance, and operations;
9. Financial resources; and
10. Goals and policies

PARK CLASSIFICATIONS

The City of Jordan features a number of existing park and recreation facilities. Recreation facilities within the city can be described according to their type, population served, and location.

The following terms and descriptions shall be used to classify existing and future recreation facilities:

Neighborhood Parks provide open space for passive recreation for all ages within a neighborhood, particularly for the elderly and families with young children. An ideal neighborhood park site is scenic or wooded and located a maximum of one-quarter mile, which is normal walking distance, from primary users. Suggested minimum size for this type of park is one acre. Site development should include sidewalks, benches, landscaping, and play features for preschoolers. Trails should connect neighborhood parks with other parks and neighborhoods.

Neighborhood Playgrounds are usually provided in conjunction with education and institutional facilities and primarily serve the recreation needs of children ages 5 to 12. Individual neighborhood playground size is dependent on the types of activities it supports and the facilities it provides. Play features, ballfields, basketball and tennis courts, and open play fields are common components. The service area is highly variable, but it usually has a radius of one-quarter mile.

Community Parks typically serve several neighborhoods and are under municipal administration. Although size may vary, community parks are usually more spacious than neighborhood parks or playgrounds. In addition to the kinds of facilities provided at neighborhood parks, these parks may provide swimming pools, picnic areas, more elaborate play fields, restroom facilities and tennis courts. Community parks serve people of all ages and have an effective service area radius of one-half mile.

Citywide Parks may serve some or all types of a community's recreation needs. They can provide a wide range of activities for all age groups or may be very specific. In addition to some of the facilities provided by other types of parks, citywide parks may contain an area for nature study, hiking and riding trails, pond fishing, spectator sports and numerous other activities. However, in many small communities, a citywide park is sometimes designated as such not because of its size and/or variety of recreation facilities, but because it is the only park available to the community.

Specialized Recreation Areas may include but are not limited to; golf courses, historic sites, conservancy areas, linear trails, and floodplains. Most specialized recreation areas have limited active recreation value, are not developed as multipurpose recreation areas, or are not always available for use by the public. Specialized areas are an important adjunct to a community and its park and open space program.

Regional Parks are an area of natural or ornamental quality for nature-oriented outdoor recreation such as picnicking, boating, fishing, swimming, camping, and trail use. Regional parks serve people of all ages and serve a regional population.

EXISTING PARK AND RECREATION INVENTORY

I. LOCAL PARKS

There are fifteen (15) municipal parks and special recreation areas along with several additional school and private recreation areas in the City of Jordan. Following is a listing of the park and recreational facilities existing in the City of Jordan. Map 5-1 illustrates the location of these facilities, and Table 5-1 identifies the features in each one.

A. Brentwood Park (North of 9th Street and west of Hooper Ct.) –1.21 acres.
Located in the northwest side of Jordan, Brentwood Park is a neighborhood park which offers area residents open space, playground equipment and a basketball court. The park can be accessed from either Jennifer Lane or 9th Street. No off-street parking is provided.

B. Bridle Creek Park (Bridle Creek Drive) – 3.88 acres.
Located on the south side of Jordan, this neighborhood park includes playground equipment, a basketball court, benches, a gazebo, picnic tables, a grill, and an ice rink. The park is accessible via sidewalk, with no off-street parking available. The park includes a large open grassy area for recreational use as well as an adjacent stormwater pond.

A private park also exists within the Bridle Creek Subdivision. This park includes a small outdoor pool, play area and picnic table. Residents must be part of an association to utilize the facilities.

C. Fireman's Park (Sunset Drive and Creek Lane) – Two parcels totaling 4.33 acres.
This specialized recreation area includes an American Flag, two benches, and a number of memorial markers to recognize past firefighters. A sidewalk provides access to the park. No off-street parking is provided.

D. Jackie Holzer Park (West of Syndicate Street and south of Valley View Drive). – 20.79 acres. This community park is located on the north side of Highway 169 and is adjacent to Sand Creek. The park features three youth fields, bleachers, restrooms, two shelters, picnic tables, and a playground. A large grassy open area and trees provide a natural setting in the remainder of the park. Sewer and water are available for future improvements (i.e. bathrooms) to the shelter located near the little league field. Off-street parking is available.

E. Lagoon Park (Adjacent to Mill Pond, east of Juergens Circle) –11.7 acres.

This citywide park is centrally located in the City of Jordan. It features a wide variety of recreational amenities including four horseshoe pits, three shelters with numerous picnic tables, grills, a gazebo, playground equipment, two sand volleyball courts, Mill Pond which offers a swimming beach, fishing dock, and ice skating. The park offers views of Sand Creek, trails, benches, plumbed restrooms, off-street paved parking lots, water fountains, and open green space. An enclosed picnic shelter, with kitchen facilities and restrooms was completed with assistance from the Lions Club and City of Jordan in 2016. A boat rental and concession stand were implemented near the Mill Pond Swimming Beach in 2017.




F. Log Cabin- (Varner Street South and First Street East) – The Commercial Club owns this historic log cabin, which was one of the first homes in Jordan. This specialized recreation area is located in Downtown Jordan on a 3,366 square foot parcel.

G. Mini Met Ballpark (West of Broadway/Highway 21 and east of Rice Street-) – Baseball has been an important sport in the City of Jordan, with over 100 years of history on this site. Mini-Met Ballpark is considered one of the best amateur baseball fields in the state. The baseball field is used as the home field for the Jordan Millers, Ahlers, the Jordan High School baseball team, and the Jordan Brewers. This facility has been the host site for amateur baseball tournaments.

Mini Met Ballpark, a community park, contains a lit baseball stadium built in the 1930s, a skate park, an outdoor hockey rink, a warming house, a concession stand, plumbed restroom facilities, paved parking lot, and City storage buildings.

The City established a rain garden in this area. A trail links the Mini Met Ballpark and Lagoon Park, which are next to one another but separated by the railroad track.

H. Ruppert's Park (East of 21, north of the Highway 21 bridge). This specialized recreation area is the most recent addition to Jordan's park system and features three shooting ranges for archery, a sledding hill, and off-street parking.

I. Pekarna Park (South side of Water Street, west of Broadway). – 0.77 acres.
This park, located along Sand Creek in the city's central business district, is a specialized recreation area. It includes a gazebo, picnic table, benches, landscaping, and streetlight. This downtown park

serves as an entryway to the Mini Met Ballpark to the south. A sidewalk serves as access to the park with on-street parking.

J. Riesgraf Lions Park (East of Creek Lane and southeast of Highway 169). 2.45 acres.
This specialized recreation area is visible from Highway 169 and serves as a location for the community's park and ride. The park includes paved off-street parking, a picnic shelter, picnic tables, three grills, and three horseshoe pits.

K. Sand Creek Dog Park (East of Highway 21 and south of Sand Creek). 2.0 acres.
This specialized recreation area was acquired by the City in 2006 and opened in 2017. The park offers 1.5 acres of fenced in area for dogs to play, which can be accessed through two entrance gates. The park also features two picnic tables, recycling and trash receptacles, and two doggie bag dispensers/receptacles. There are five on-street parking spaces on the north side of Sawmill Road. A trail under Highway 21 links Sand Creek Dog Park to Hillside Drive which leads to Lagoon Park. This is one of the potential future regional trail routes being studied by Scott County.

L. Sawmill Park This neighborhood park has served the Sawmill Woods subdivision on the southeast side of the community since 2017. The park features a gazebo, picnic table and sport court. No off-street parking is available.

M. Stonebridge Park (South of Stone Creek Drive). 0.25 acres.
This neighborhood park was platted in 2007. The Park Board has identified future improvements including playground equipment and benches for a natural overlook area over the wetland area in the park.

N. Timberline Park (Lodge Drive and Foxboro Way). 2.7 acres.
This neighborhood park, which serves the Timberline subdivision on the northwest side of the community, includes playground equipment, a basketball court, ice rink, benches, picnic tables and a trail. Access is provided via a trail system, with no off-street parking provided.

O. Veterans Park.
This specialized recreation area pays tribute to the Veterans who have served our nation. Benches and a monument were erected in the park in 2014.

P. School Facilities – In addition to the City-owned parks, there is also a number of school facilities and playgrounds that are utilized for recreational activities. The City and the School District have a joint powers agreement and Joint Powers Board that assures dual use of facilities whenever feasible. Although these are not "municipal parks", the amenities are available to serve the public at times in which school or extracurricular activities are not underway. The facilities, especially the athletic fields, serve a much larger population than the corporate limits. Following is a brief description of school recreational facilities:

a. Jordan Elementary School (Sunset Drive) – The Elementary School's recreation area includes two separate neighborhood playground areas, targeted for two separate age groups of elementary age children. The recreation area

also includes one full and one half basketball courts, two grass softball fields, six four-square areas, sidewalks, and off-street parking. Restroom facilities are located inside the school.

b. Jordan Middle School (Sunset Drive) – The Middle School's recreation area includes off-street parking, bicycle racks, eight tennis courts, a soccer field, one sand volleyball court (which is in need of improvement), two full basketball courts, two softball diamonds, and a large grassy open area which could accommodate additional soccer fields or other fields. There is a portable restroom as well as indoor restrooms at the school.

   A Community Education and Recreation Center (CERC) was added to the existing Middle School building in 2014/2015. The 45,000 square foot facility includes three gym areas with multipurpose areas, a fitness center, an elevated walking track, locker rooms, and a community room with a kitchenette.

   Memberships are available which allow access to the Fitness Center, discounts on fitness classes, access to select CE activities and multipurpose room rentals, access to the walking/running track and gym which offers three full court basketball courts, volleyball, baseball/softball, tennis, pickle ball, preschool playtime, and locker rooms. A community room, which may accommodate up to 120 people, is located on the second floor of the CERC.

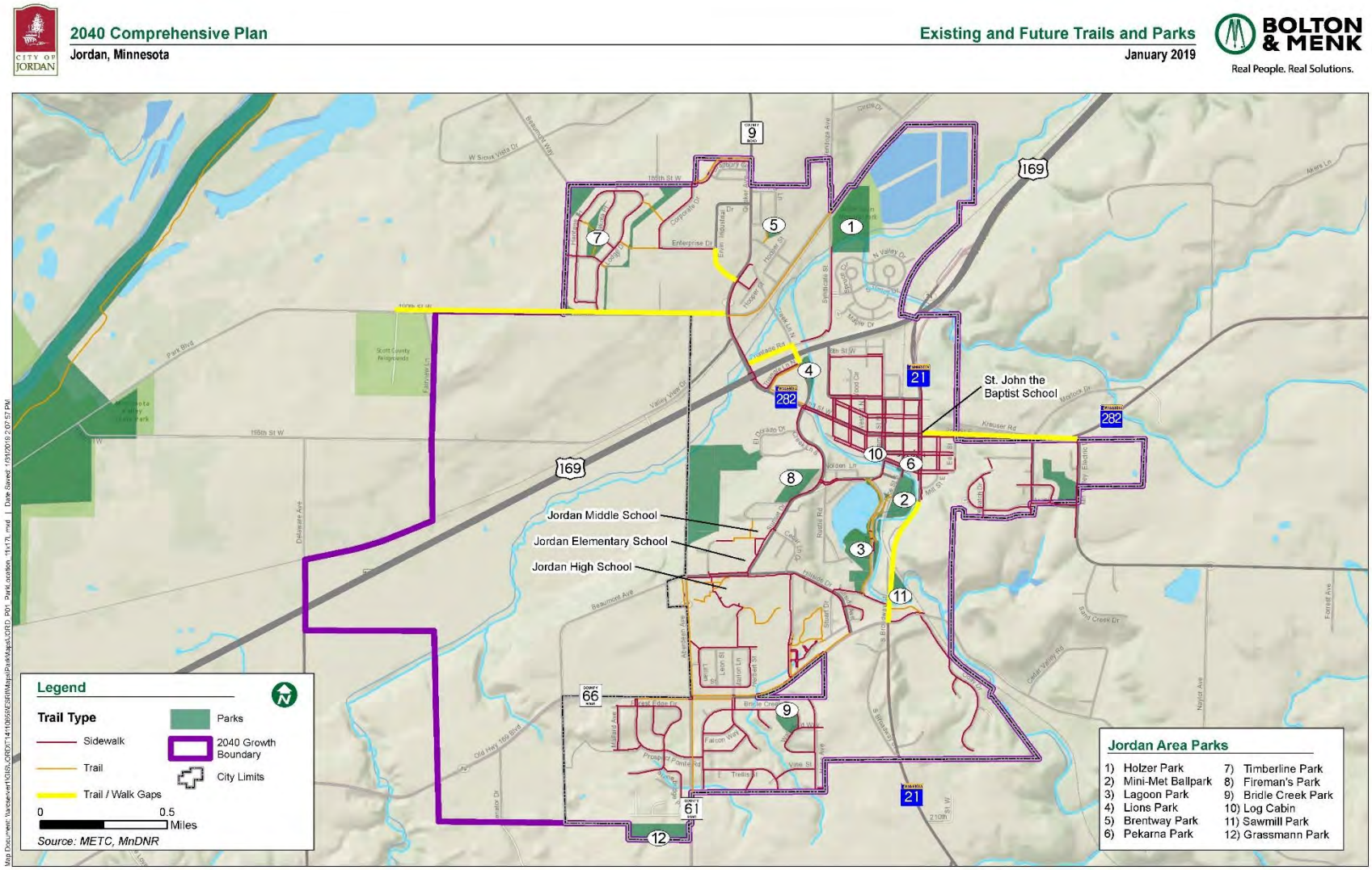
c. Jordan High School (Hillside Drive) – The High School's recreation area includes the official and practice football fields, a track, a concession stand behind the stadium seating, plumbed restrooms, three softball and one baseball field, and a batting cage. Off-street paved parking areas and sidewalks provide access to the recreational fields.

d. St. John the Baptist Catholic School (Broadway St. and 2nd Street East) – This neighborhood playground area includes two separate half-court basketball court areas within its parking lot, benches, and playground equipment geared toward children aged 5 to 12 years. There is off-street parking and a sidewalk to access the play area. Restrooms are located within the school.

e. Minnesota River Valley Education Center/Alternative Education Center – This neighborhood playground area includes one full basketball court and a picnic table. A paved parking lot services the recreational area and school. Restrooms are located within the educational facility.

O. Bridle Creek 7-10th Addition – Private Park. (Prospect Point and Huntington Way) – A private neighborhood park was developed in 2006 as a part of the Bridle Creek 7th through 10th addition subdivisions. This private park, which is intended to serve those subdivisions, includes a small outdoor swimming pool, gazebo, small basketball court, benches, and playground equipment. While this is owned and maintained by a homeowners' association and is not a part of the municipal park system, it provides recreational opportunities for residents in the southwest corner of the existing city limits.

MAP 5-1: EXISTING AND FUTURE PARKS, TRAILS, AND SIDEWALKS

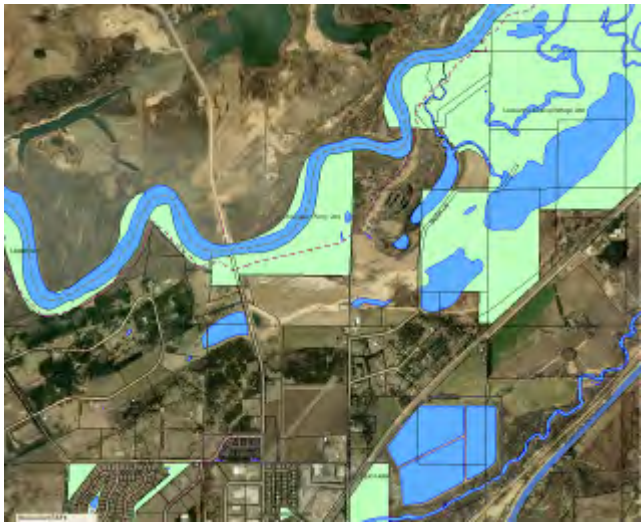


II. STATE AND REGIONAL PARKS

There are a number of regional parks and private recreational areas near and adjacent to the City of Jordan. A summary follows:

Federal Facilities - Within Scott County, there is only one federal recreational facility; a Waterfowl Production Area (WPA). This is located in Credit River Township, along the east side of Scott County. The site is 113 acres and is for public hunting.

State Facilities – The Minnesota Valley State Recreation Area is located near Jordan and extends north to Shakopee and south to Belle Plaine. The 4,805 acres in Scott County is located along the Minnesota River. Portions of the Lawrence and Belle Plaine units are also located in Carver County. This includes 35 miles of equestrian trail along the Minnesota River, with paved segments between Chaska and Shakopee and natural surface trails extending south to Belle Plaine. The state park features oak forests, savannah, and sand dunes. Campgrounds are located along the Minnesota River, just south of the City of Jordan.



Camping is available at the Quarry Campground, Equestrian Campground, and Pioneer Group Camp.

Headquarters (Lawrence) is located between Jordan and Belle Plaine, along Township Road 57. This features an original building from the 1850s Town of Lawrence, 25 rustic family campsites, eight walk-in campsites, and one walk-in/canoe campsite. In addition, there are 47 miles of trails for horseback riding, hiking, and/or mountain biking. A group picnic area is also available.

The DNR also offers 18 Wildlife Management Areas, totaling 1,677 acres in Scott County. These areas are primarily used for hunting.

Regional Parks. Scott County Regional Parks include Murphy-Hanrehan Park Reserve, Cleary Lake Regional Park, Spring Lake Regional Park, and Cedar Lake Farm Regional Park. While none of these parks are adjacent to the City of Jordan, the proposed regional trail system leading to these parks connects to Jordan. In addition, Historic Murphy's Landing, now known as The Landing, is a special use facility. Doyle-Kennefick Regional Park, and Blakeley Bluffs Park Reserve are planned facilities in the county, and are not yet open to the public.

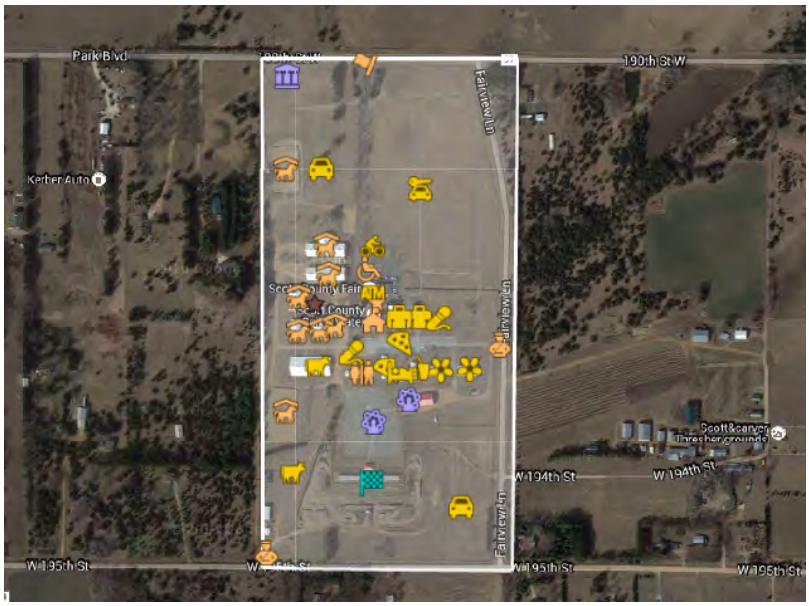
The two closest regional parks are Spring Lake Regional Park and Cedar Lake Farm Regional Park, both which are located approximately eight (8) miles from Jordan. Spring Lake Regional Park is located to the east of Jordan, on the north shore of Spring Lake and near the southwest shore of Prior Lake. The park offers areas for biking, hiking, a 10-acre off-leash dog park, and 374 acres of natural resources.

Cedar Lake Farm Regional Park is approximately 8.5 miles south of Jordan, located along Cedar Lake in Helena Township (north of New Prague). The park offers a swimming beach, kayak and canoe rental, fishing pier, picnic areas, trails, and a group campsite.

III. OTHER RECREATIONAL FACILITIES

The Jordan area also offers a variety of other recreational opportunities and tourist attractions. Following is a partial summary of area offerings:

Scott County Fairgrounds, 7151 190th Street West, Jordan
Located north of Highway 169 and west of CR 9, Scott County's Fairgrounds are located just northwest of Jordan, between 190th Street West and 195th Street West. The fair, which originated in 1915, is held yearly at the end of July. This event draws crowds of 20,000 to 30,000 to Jordan for the annual event. Other events such as motor cross races are held at the Fairgrounds.



Ridges at Sand Creek Golf Course, 21775 Ridges Drive, Jordan
This 18-hole golf course, located just south of Jordan along Highway 21, opened in 2000. The golf course features scenic views of Sand Creek along the 18-hole course and a 40-station driving range.

Minneapolis Southwest KOA Campground, 3315 West 166th Street, Jordan
Located approximately three (3) miles north of Jordan, the Minneapolis Southwest KOA Campground offers campsites, cabins, mini-golf, swimming pool, bicycle rental, and playground equipment for its patrons.




River Valley Ranch, 16480 Jonathan Carver Parkway, Carver
Located approximately 3 ½ miles north of Jordan, River Valley Ranch offers guided horseback trail riding opportunities. This private facility is located along the Minnesota River offering picturesque views. At the time of this Comprehensive Plan update, the Ranch housed 55 horses.

Cedar Ridge Arabian Riding Club, 20335 Sawmill Road, Jordan
Located on the southeast side of Jordan, just outside of city limits, the Cedar Ridge Arabian Riding Club offers horseback riding lessons, camps, and clinics. The Cedar Ridge Arabian Farm was established over 40 years ago by the Ames Family. The farm breeds Arabian and Half-Arabian horses.

Action Packed Paintball Games, 8200 Old Highway 169 Boulevard, Jordan
Located approximately eight (8) miles south of Jordan, Action Packed Paintball Games offers eight outdoor playing fields for the outdoor enthusiast along with a full-service pro shop, picnic and grilling area, and restrooms.

Sand Creek Adventures, 3101 West 220th Street, Jordan
Located three (3) miles from Jordan, Sand Creek Adventures offers a zipline adventure which extends over 1,700 feet across Sand Creek's bluffs, 100 feet over the water. A low rope connection and high rope challenge rope course are available as well. The facility is available for individuals, parties, groups, and team building activities.

Balloon Ascensions Unlimited, 18129 East Sioux Vista Drive, Jordan
Located within Jordan, Balloon Ascensions Unlimited offers hot air balloon rides and flight lessons to individuals or groups. Floating above the countryside, participants receive a bird's eye view of the local area.

The Minnesota Renaissance Festival is located approximately six (6) miles north of Jordan at 12364 Chestnut Boulevard, Shakopee. The festival is an annual event which runs from the end of August to the beginning of October each year. According to the July 1, 2016 Star Tribune, "Minnesota's fair, one of the country's largest, drew 315,000 attendees last year seeking the thrill of jousting, artisans and themed weekends." The Renaissance Festival location may change in the year 2020. Locations between Jordan and Belle Plaine are being considered. The location will impact traffic as well as tourism to the area.

Minnesota Horse and Hunt Club, 2920 East 220th Street, Prior Lake. This shotgun sports facility is located approximately 11 miles west of Jordan.

The Historic Sponsel's Minnesota Harvest Apple Orchard is located at 8251 Old Highway 169 at Apple Lover's Lane, Jordan. The orchard offers opportunities to pick apples, a petting zoo, bonfires, and an historic barn.

The Wagner Bros. Orchard and Bakery is located at 17365 Johnson Memorial Drive, Jordan. The facility includes an apple orchard and pumpkin patch.

Minnesota's Largest Candy Store, also referred to as the Big Yellow Barn, is located at 20430 Johnson Memorial Drive, just 3 ½ miles south of Jordan. The store, which is open from June to November each year, offers over 3,000 varieties of candy, pumpkins, and miscellaneous gifts.

The Minnesota River Scenic Byway was designated in 1996. The east section of this route features a scenic route along the Minnesota River, beginning at the junction of State Highway 25 and Sibley County Road 6, just north of the Minnesota River north of Belle Plaine. The route continues south through the cities of Henderson, Le Sueur, and Mankato, and then extends northwest through the cities of New Ulm, Morton, and Redwood Falls. *The City of Jordan, during this planning process identified a desire to work to extend the Minnesota Scenic Byway corridor north to Jordan.*

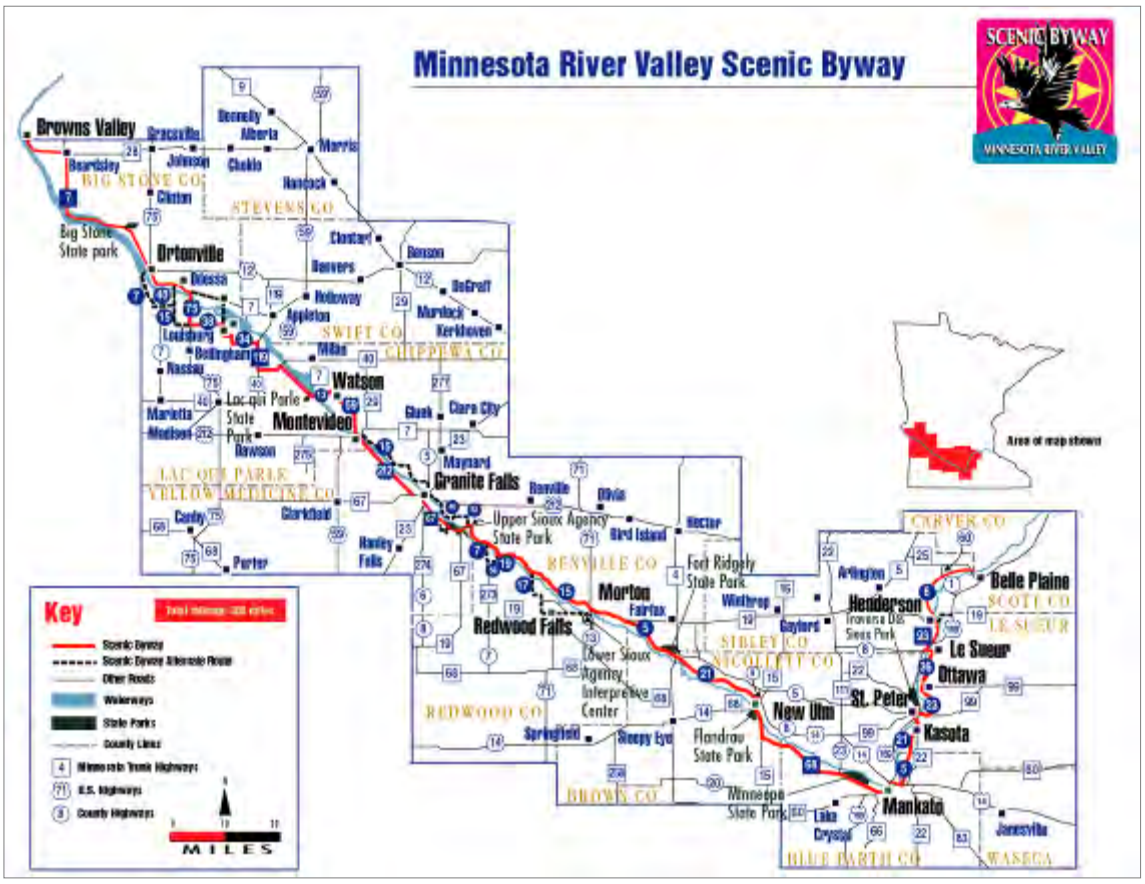


TABLE 5-1: JORDAN PARK INVENTORY

Jordan Parks & Rec. Areas	Park Classification	Trail Areas	Baseball/Softball	Bird Watching	Horseshoe Pits	Tennis Courts	Soccer Fields	Basketball Courts	Football Field(s)	Volleyball Courts	Playground	Swimming	Pleasure Skating Rink	Hockey Rink	Sledding Hill	Historic Landmark	Skateboarding	Fishing Pier	Restroom facilities	Canoe Access	Archery Range	Picnic Area	Picnic Shelter	On-Leash Dogs	Parking (off-Street)
Brentwood Park	NP	SW						X			X														
Bridle Creek Park	NP	SW						X			X		X									X	X		
Fireman's Park	SRA	SW														X									
Jackie Holzer Park	CP	No	3	X															X			X	X		X
Lagoon Park	CWP	X		X	X-4		X			X-2	X	X	X			X		X	X-2	X		X	X	X	X
Lions Park																							X		
Log Cabin	SRA															X									
Mini Met Ballpark	CP	X	X-BB										X	X			X		X			X-C*	X-C*	X	X
Pekama Park	SRA	SW																				X			
Riesgraf Lions Park	SRA			X	X-3														PR			X			X
Ruppert's Park	SRA			X											X						X				
Sand Creek Dog Park	SRA																				X				
Sawmill Park								X																	
Timberline Park	NP	X						X			X		X									X			

Jordan Parks & Rec. Areas	Park Classification	Trail Areas	Baseball/ Softball	Bird Watching	Horseshoe Pits	Tennis Courts	Soccer Fields	Basketball Courts	Football Field(s)	Volleyball Courts	Playground	Swimming	Pleasure Skating Rink	Hockey Rink	Sledding Hill	Historic Landmark	Skateboarding	Fishing Pier	Restroom facilities	Canoe Access	Archery Range	Picnic Area	Picnic Shelter	On-Leash Dogs	Parking (off-Street)
Veteran's Park	SRA	X														X								X	
Jordan Elementary School	NPL	X & SW	2-Y				2	Yes1 &½	*		X-2								X-IND						X
Middle School/ CERC	NPL/ CWP	SW	1-Y +2 batting cages			X-8 +3 ?	X-1	X-#2 +3		X—2 +1	X								X-IND						X
Jordan High School	NPL/ CWP	Yes	3SB 2BB +2 batting cages				2	3	X-2	2									X-IND			X-C*			X
MNRVEC	NPL	SW	1 batting cage					X-1											X-IND			X			X

CP= Community Park
CWP= City Wide Park
RP= Regional Park
NP= Neighborhood Park
NPL=Neighborhood Playgrounds
SRA = Specialized Recreation Area
SB= Softball Field
LL = Little League Field
BB= Baseball Field
PT=Picnic Tables only
IND=Indoor Restroom
PR=Portable Restroom
SW=Sidewalk
*Open Green Space – can be used for the activity

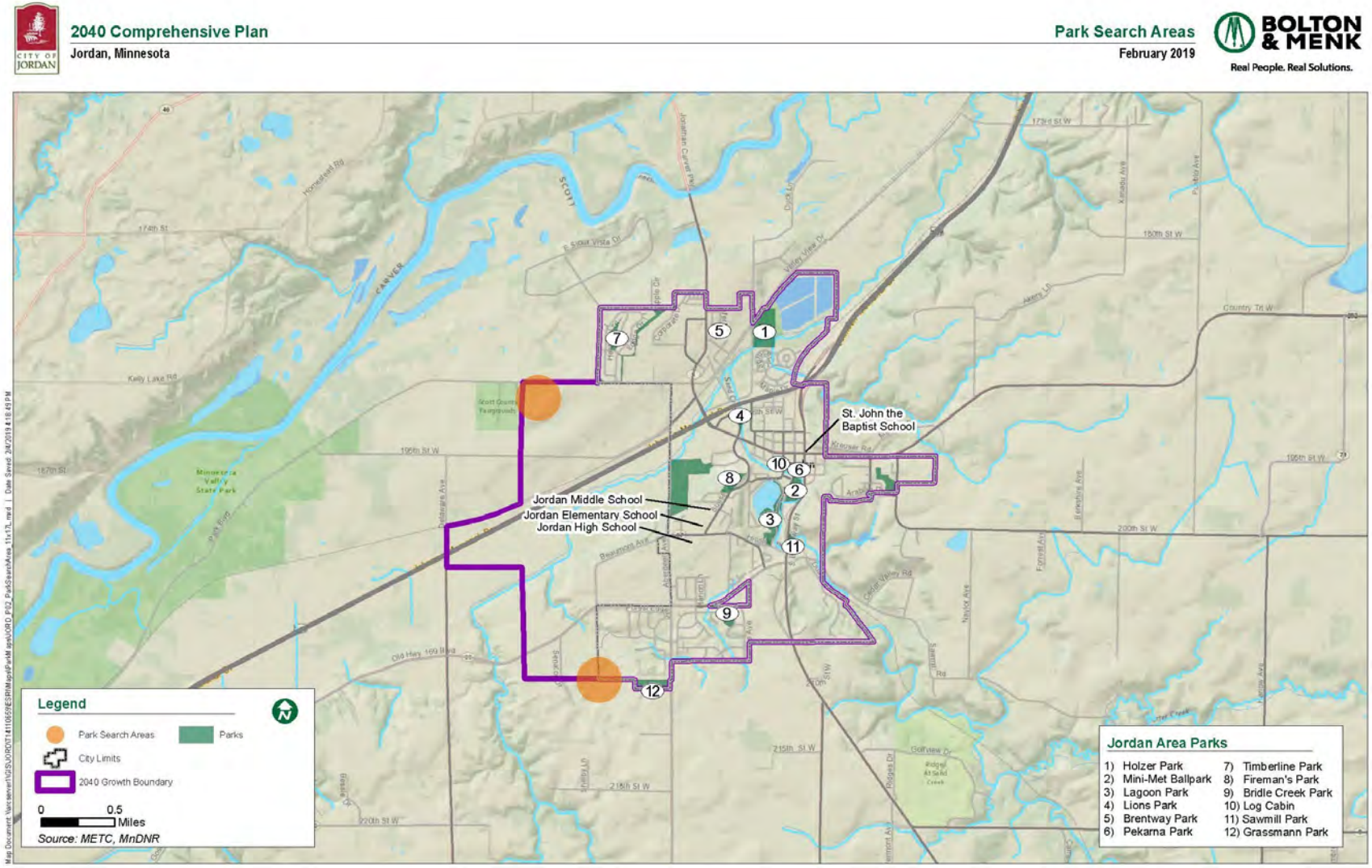
PARK EVALUATION AND RECOMMENDATIONS

The City's combination of recreation activities, parks, golf course, and open space provide residents and visitors with a variety of recreational opportunities. Additional park and recreation facilities and athletic fields are planned at this time, including a large community park on the southwest side of the community which would serve the Bridle Creek and Arborview Subdivisions. A conservation easement is platted within Sawmill Woods Subdivision.

I. SEARCH AREAS

Map 5-2 indicates park search areas, where future parks potentially could be located as the city grows outwards. As noted in the park classifications, depending on the type of park the service area will vary. This map illustrates a need for parks in the growth areas to the southwest and southeast sections of the city, near 190th Street West and Fairview Lane, as well as Delaware Avenue and Old Highway 169. Exact park locations and sizes will be determined at the time of construction, based on city ordinance standards for open space and parkland dedication.

MAP 5-2: PARK SEARCH AREAS



II. ACCESSIBILITY

The Americans with Disabilities Act (ADA) was signed into law on July 26, 1990. The law requires local and state governments, places of public accommodation, and commercial facilities to be readily accessible to persons with disabilities. ADA statutes affect the City of Jordan and other local and state park and recreation facilities in the following ways:

- Newly constructed buildings (after January 26, 1993) must be constructed to be readily accessible.
- Renovations or alterations to existing facilities occurring after January 26, 1992, must be readily accessible.
- Barriers to accessibility in existing buildings and facilities must be removed when it is "readily accessible." This includes the location and accessibility to restrooms, drinking fountains, and telephones.

Other requirements include but are not limited to:

- One accessible route from site access point, such as a parking lot, to the primary accessible entrance must be provided. A ramp with a slope of no greater than 1:6 for a length of no greater than two feet may be used as a part of the route. Otherwise a slope of maximum 1:12 is allowed.
- One accessible public entrance must be provided.
- If restrooms are provided, then one accessible unisex toilet facility must be provided along an accessible route.
- Only the publicly used spaces on the level of the accessible entrance must be made accessible.
- Any display and written information should be located where it can be seen by a seated individual and should provide information accessible to the blind.

Parks which are developed with items such as parking lots, swimming pools, tennis courts, and basketball courts should have routes which are accessible. Nature parks or areas with limited development should have the minimum of accessible routes to the site. The National Park Service provides design guidelines for accessible outdoor recreation.

As the City redevelops city parks it will be important to include ADA standards in the design. Installation of curb cuts and pathways within the park, designation of handicap parking in the parking lots, remodeling of restroom facilities to provide a handicap accessible stall in each of the men's and women's facilities, and pathways to shelters and recreational amenities have been recommended as methods to achieve accessibility goals.

III. RECREATIONAL FACILITY STANDARDS

As parkland is acquired either through dedications or purchase, it is important to plan space according to the desired recreational contents. In existing parks, it is important for the Planning Commission and City Council to be aware of space requirements and orientation recommendations to determine if it is feasible to include the item(s) within the park. Table 5-2 contains facility standards for a number of recreational activities.

TABLE 5-2: RECREATIONAL FACILITY STANDARDS

Unit	Land Required	Recommended Size & Dimensions	Recommended Orientation	No. Units Per Population (National standards)	Service Area	Existing Facilities	Surplus/ Deficit / Standard (Local Standards)
Baseball Diamond	3 to 3.85 acres	1. Official: Baselines-90' Pitching dist-60.5' Foul lines-min 320' Center field-375'+ 2. Little League: Baselines-60' Pitching Dist.-46' Foul lines-200' Center field-200'-250'	Locate home plate so the pitcher is not throwing across the sun, and batter is not facing sun. Line from home plate through pitcher's mound to run east-northeast.	1/6,000	Approximately ¼ to ½ mile radius Part of neighborhood complex. Lighted fields part of a community complex	Two – Mini Met Ballpark and High School	Ok to population of 12,000, then a need for additional one to two
Softball/ Youth Diamond	1.5 to 2 acres	Baselines 60' Pitching dist-45' men, women- 40', Fast pitch field radius from plate – 225' Slow pitch 275' men, 250' women	Locate home plate so the pitcher is not throwing across the sun & the batter is not facing sun. Line from home plate through pitcher's mound to run E/NE	1/ 1,500	Approximately ¼ to ½ mile radius	Ten –at Holzer Park (3), Jordan Elem. (2) *Jordan MS (2)* and Jordan HS (3)	Ok to a population of 15,000
Tennis Court	7,200 sq. ft. / court. 2 acres/ complex	36' x 78' with 12' clearance on both ends	Long axis north-south	1/2000	¼ to ½ mile radius. Best in batteries of 2 to 4. Located in neighborhood/ community parks or near a school	Eight – At the Middle School	Ok to a population of 16,000

Unit	Land Required	Recommended Size & Dimensions	Recommended Orientation	No. Units Per Population (National standards)	Service Area	Existing Facilities	Surplus/ Deficit / Standard (Local Standards)
Basketball	0.25 to 0.59 acre Youth: 2400 to 3036 sq. ft High School: 5040 to 7280 sq. ft	Youth: 46' to 50' x 84' High School 50' x 84'	Long axis north-south	1/2000	¼ to ½ mile radius Outdoor courts in neighborhood/ Community parks. Indoor as part of schools	6 full and two ½ court at Jordan Elem., Jordan Middle School/ CERC, St. John the Baptist Catholic & MRVEC 1 in Brentwood Park, 1 Timberline	Ok to a population of 14,000 if school facilities are not in use. Possible need in another city owned park
Volleyball	4,000 sq. ft	30' x 60' with a minimum clearance of 6' on all sides	Long axis north-south (outdoor)	1/2000	½ to 1 mile	Three – Lagoon Park (2) & Middle School (1)	Ok to a population of 6,000, then a need for additional
Football Field	1.5 acres	160' x 300' with a minimum of 10' clearance on all sides.	Long axis northwest or southeast	1/3000	Approx. 2 mile radius	Two – at Jordan High School	Ok to population of 6,000. Open grassy areas may serve neighborhood needs.
Soccer Field	1.7 to 2.1 acres	195 to 225' x 330' to 360' with 10' clearance on all sides	Long axis northwest or southeast	1/3000	Approx. 1 to 2 mile radius	One at Jordan Middle School	Deficit. City & Comm. Ed. identified as a need.
Ice Arena	2 acres	Rink 85' x 200' (min. 85' 185') Addt. 5000. 22,000 sq. ft to include support area	Long axis is north-south (outdoors)	1/20,000	15 to 30 minute travel	None, however ice rink at Lagoon Park	Ok to population of 20,000

Unit	Land Required	Recommended Size & Dimensions	Recommended Orientation	No. Units Per Population (National standards)	Service Area	Existing Facilities	Surplus/ Deficit / Standard (Local Standards)
Warming House	Variable	Variable	Variable	1/rink area	1 hocking rink/skating indoor 2 outdoor rinks & house outdoor	One at Lagoon Park	Ok to population of 20,000
Picnic Area	Variable	Variable	Variable	1/5000	2 mile radius	Seven at various parks	Ok to population of 35,000
Play Equipment	0.5 acre	Variable	Variable	1 acre/ park	2 to 3 mile radius	Seven at parks & playground areas including Elementary School	Need to add to future neighborhood & citywide parks.
Sliding Hill	2-4 acres	Variable	Variable	1/7,500	1 mile radius	None	Possible need at population of 7,500?
Archery Range	0.65 acre	300' length x min. 10' between targets. Roped, clear area on side of range min. 30'. Clear space behind targets min. 90' x 45' with bunker	Archer facing north + or – 45 degrees	1/7,500	30 minute travel time. Part of a regional complex	None	Possible need at population of 7,500?
Community Center	15-25 acres	Varies	Varies	1/20,000	--	CERC at Middle School provides many of these rec. items	

Unit	Land Required	Recommended Size & Dimensions	Recommended Orientation	No. Units Per Population (National standards)	Service Area	Existing Facilities	Surplus/ Deficit / Standard (Local Standards)
Horseshoe courts	0.1 acre			1/2000	--	Seven, Lagoon Park (4) & Lions Park (3)	Ok to population of 14,000
Swimming Pool	1 to 2 acres	Teaching- min. 25 yards x 45' even depth of 3-4 ft. Competitive- min. 25 m x 16m. Min. of 25 sq. ft water surface per swimmer. Ratio of 2 to 1 deck to water	No recommended pool orientation but care must be taken in locating life stations in relation to afternoon sun	1/10,000	150 person capacity 15 minute travel	None	Need at population of 10,000? Local need expressed at this time along with local opposition.
Off-Street Parking	300 S.F Per Car	Typically 9' x 20 with a 20' driving lane	Variable	NP: 8-12 cars CWR: 25-100 cars SR: 25-100 cars	NA	Nine of the fourteen recreational areas provide off-street parking.	Needed at future citywide and community parks.
Toilet Facilities	Varies	Per building code	Variable	1 double unit per park	1/park	Three city parks provide restroom facilities.	City identified as a need. Portable as a minimum
Disc Golf	varies					A -9 hole course to be added by the school fields in 2017	

* Derived from the National Recreation and Park Association and the American Academy for Park and Recreation Administration Standards with local standards applied.

IV. RECREATIONAL FACILITY RECOMMENDATIONS

In addition to seeking to meet the recommended standards listed above, the City Planning Commission and Park and Recreation Commission also identified the following needs within existing parks:

Bridle Creek Park

- Parking lot on the west side of the park
- Turf improvements
- Permanent restroom facility
- Additional trees to provide screening and replace ash trees

Holzer Park

This park was developed in the late 1970s. As it is approaching 40 years of use, the Commission has recommended this park be revamped to revitalize the recreation areas. Improvements recommended include:

- Lighting of ballfields
- Drinking fountain
- Aglime erosion at all fields (into grass)

Lagoon Park

- Hockey rink boards

Lions Park

- Trees, to buffer Highway 169
- Possible trail connection and trail head, if this location is selected for an over/underpass

Log Cabin

- Potential kiosk for community events

Timberline

- Restrooms
- Playground equipment
- Parking
- Identify methods to keep pea rock/gravel off ADA path to the play equipment

The Jordan School District, in 2016, purchased 40 acres of land west of TH 21, on the south side of Jordan. This has been identified as the future site for another elementary school, as well as multipurpose fields for youth soccer and football, etc.

The Community Education Strategic Plan identifies an area on the west side of the existing CERC facility, where a swimming pool could be added.

TRAILS AND PEDESTRIAN WAYS

The City of Jordan currently has *20.65* miles of concrete sidewalks and *3.95* miles of bituminous trails.

The City's existing trail system includes three main segments: (1) trails constructed as a part of a "Safe Routes to School" grant, (2) trails around Hope Avenue Pond and along Hope Pond/Hope Avenue, and (3) trails that extend through Lagoon Park south and east under Highway 21 to Sawmill Park on the east side of the community. Existing sidewalks and trails are illustrated on Map 5-1.

I. TRAIL CLASSIFICATIONS

Trails within communities and connecting to larger regional pathways are often classified by their purpose, type of improvement, and location. Table 5-3 includes a description of six types of pathways and identification of the pathways within Jordan which are included in each category.

TABLE 5-3: TRAIL CLASSIFICATIONS

Classification	General Description	Description of Each Type	Existing Facilities
Park Trail	Multipurpose trails located within greenways, parks and natural resource areas. Focus on recreational value and harmony with the natural environment.	Type I: Separate/single purpose hard-surfaced trails for pedestrians or bicyclists/inline skaters. Type II: Multipurpose hard-surfaced trails for pedestrians and bicyclists/inline skaters. Type III: Nature trails for pedestrians. May be hard or soft surfaced.	Lagoon Park, Mini Met Ballpark, Timberline Park
Connector Trails	Multipurpose trails that emphasize safe travel for pedestrians to and from parks and around the community. Focus is as much on transportation as it is on recreation.	Type I: Separate/single-purpose hard-surfaced trails for pedestrians or bicyclists/inline skaters located in independent R.O.W (e.g. old railroad R.O.W).	CR 66

Classification	General Description	Description of Each Type	Existing Facilities
		Type II: Separate/single-purpose hard-surfaced trails for pedestrian or bicyclists/inline skaters. Typically located within road R.O.W.	
On-Street Bikeways	Paved segments of roadways that serve as a means to safely separate bicyclists from vehicular traffic.	Bike Route: Designated portions of the roadway for the preferential or exclusive use of bicyclists. Bike Lane: Shared portions of the roadway that provide separation between motor vehicles and bicyclists, such as paved shoulders.	Segment of On-Street Bikeway in Downtown (does not connect)
All-Terrain Bike Trail	Off-road trail for all-terrain (mountain) bikes	Single-purpose loop trails usually located in larger parks and natural resource areas.	DNR Trails along the MN River in the Minnesota Valley State Recreation Area
Cross Country Ski Trail	Trails developed for traditional and skate-style cross-country skiing.	Loop trails usually located in larger parks and natural resource areas.	DNR Trails along the MN River in the Minnesota Valley State Recreation Area
Equestrian Trail	Trails developed for horseback riding.	Loop trails usually located in larger parks and natural resource areas. Sometimes developed as multipurpose with hiking and all-terrain biking. These trails are developed so conflict can be controlled.	DNR Trails along the MN River in the Minnesota Valley State Recreation Area

II. FUTURE TRAILS AND SIDEWALKS

Trails and sidewalks provide many benefits to a community including:

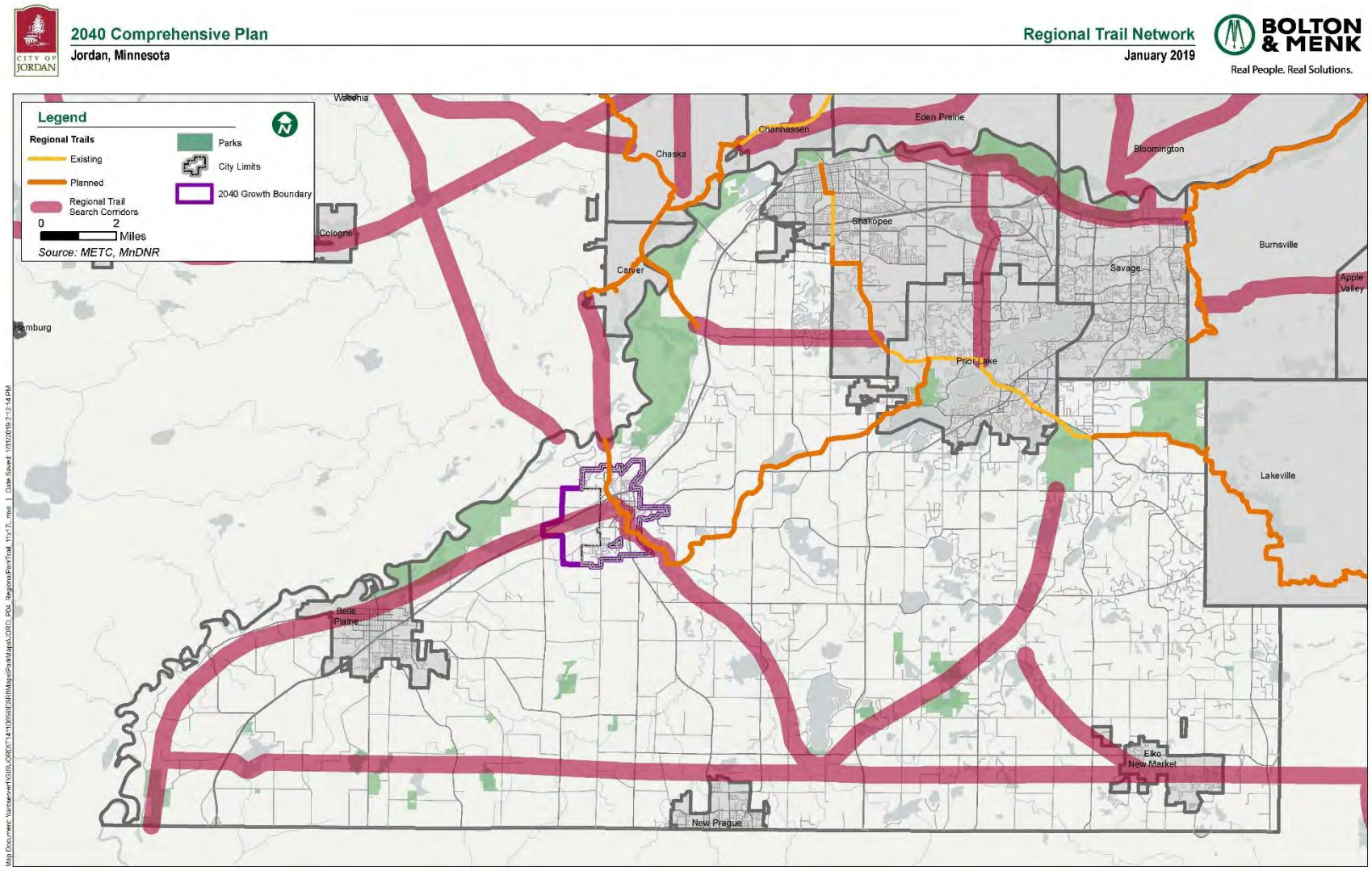
- Increased safety for non-motorized traffic
- Health and wellness
- Access to natural resources
- Economic development with links to the historic downtown
- Non-motorized commuting options

Sidewalks and trails, both existing and planned, are shown on Map 5-1. Regional trail corridors are shown on Map 5-3.

Proposed trails add *48.8* miles to the existing system in and around Jordan. This includes regional trail segments that are in the growth area and may not be developed for 20+ years, and trails that may be developed as a part of a regional system versus as a city project. Future connections of municipal parks and trails along collector streets are also recommended.

The City should consider trails that create a circle or loop around the outer growth area of the city, link city parks, and take advantage of scenic areas such as Sand Creek and bluff areas. The Trail Plan allows for the future connection to the regional park in Blakely Township and Cedar Lake Farm Regional Park to the south. The City should coordinate future trails to connect with Scott County trails and greenways.

MAP 5-3: REGIONAL TRAIL NETWORK



The City may wish to investigate the feasibility and desirability of a "Complete Streets Policy" which addresses a system that is designed and operated to be safe and accessible for pedestrians, bicycles, transit, vehicles, etc. A local Complete Streets Policy would declare official support for a balanced approach to road construction.

Some of the concepts of "Complete Streets" include but are not limited to:

- Constructing narrower automobile lanes to help calm traffic and reduce construction and maintenance expense;
- Requiring the connectivity of sidewalks and trails as a part of subdivision requirements;
- Addressing pedestrian crossings and solutions such as bump-outs and medians;
- Expanding support for bicycling including bike racks in the downtown area; and
- Improving access for people with disabilities.

Future Regional Parks and Trails.

The Metropolitan Council has identified existing and planned regional parks and trails which impact the City of Jordan. These are shown on Map 5-4. The Blakely Bluffs Park Reserve is a planned 2,440-acre park reserve along the Minnesota River, which would protect a scenic natural area and provide opportunities for biking, hiking, canoeing, and other activities.

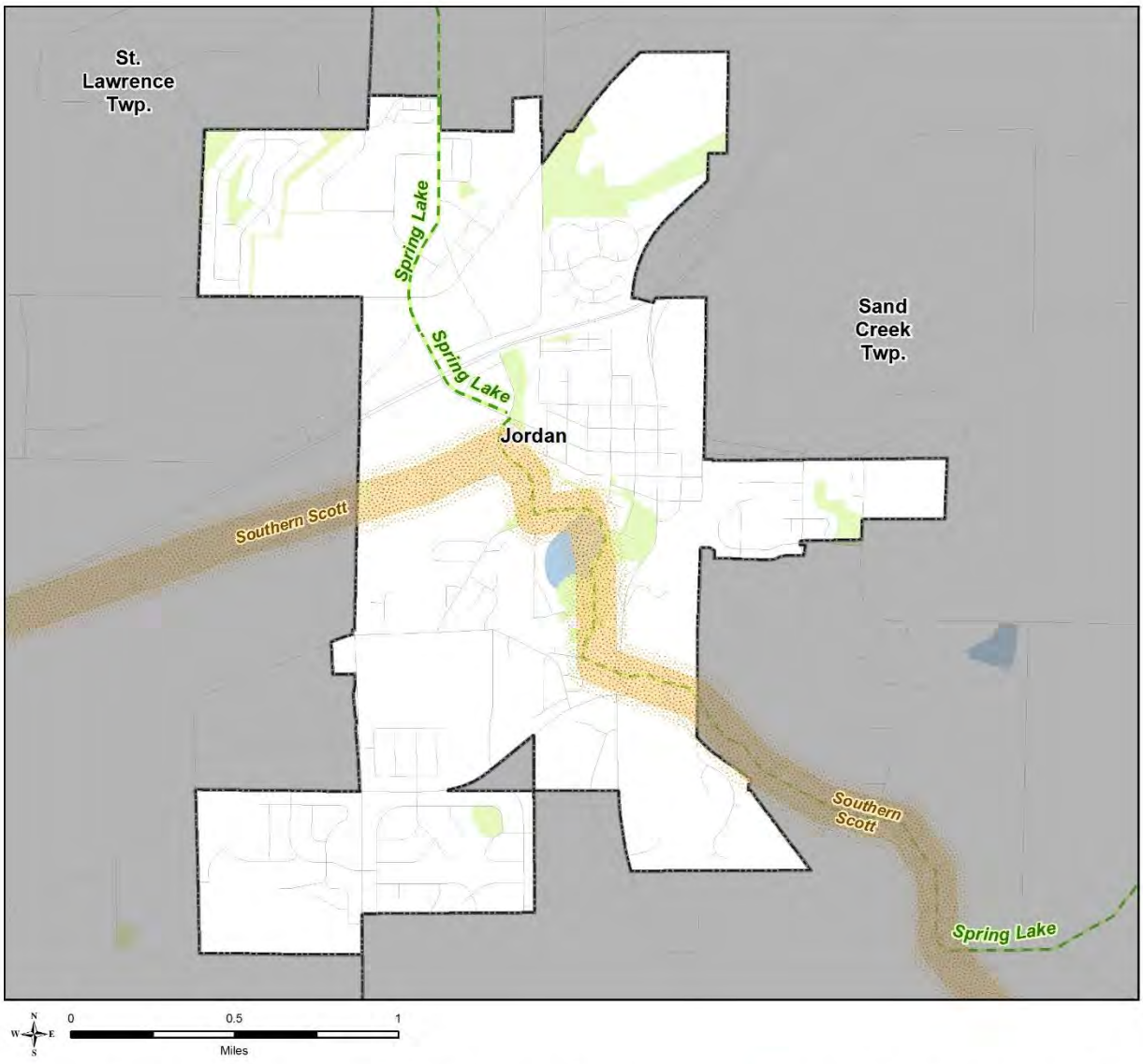
A trail is proposed to extend from the Blakely Bluffs Park Reserve north along the Minnesota River to Jordan, and then continue southeast to another regional park adjacent to Cedar Lake Farm Regional Park, in Helena Township north of New Prague. This park currently includes 235 acres with lakeshore and stands of maple-basswood forest, a swimming beach, canoe and kayak rental, picnic areas, limited camping, and a fishing pier.

In addition, Scott County and Metropolitan Council have identified an approximately ten-mile regional trail corridor that would run from Spring Lake Regional Park in Prior Lake southwest towards Jordan and across the Minnesota River to the future Minnesota River Bluffs and Ravines Regional Park search area in Carver County (Map 5-4). This trail corridor will primarily travel through a rural setting before entering Jordan. At this time, it is proposed the trail would enter/exit Jordan at the northwest side near Holzer Park, along Valley View Drive/195th Street West and cross TH 169 at either Creekview Lane or 2nd Street West, consistent with the City's optional trail routes, providing access to the Triangle Lane commercial areas as well as Lions Park.

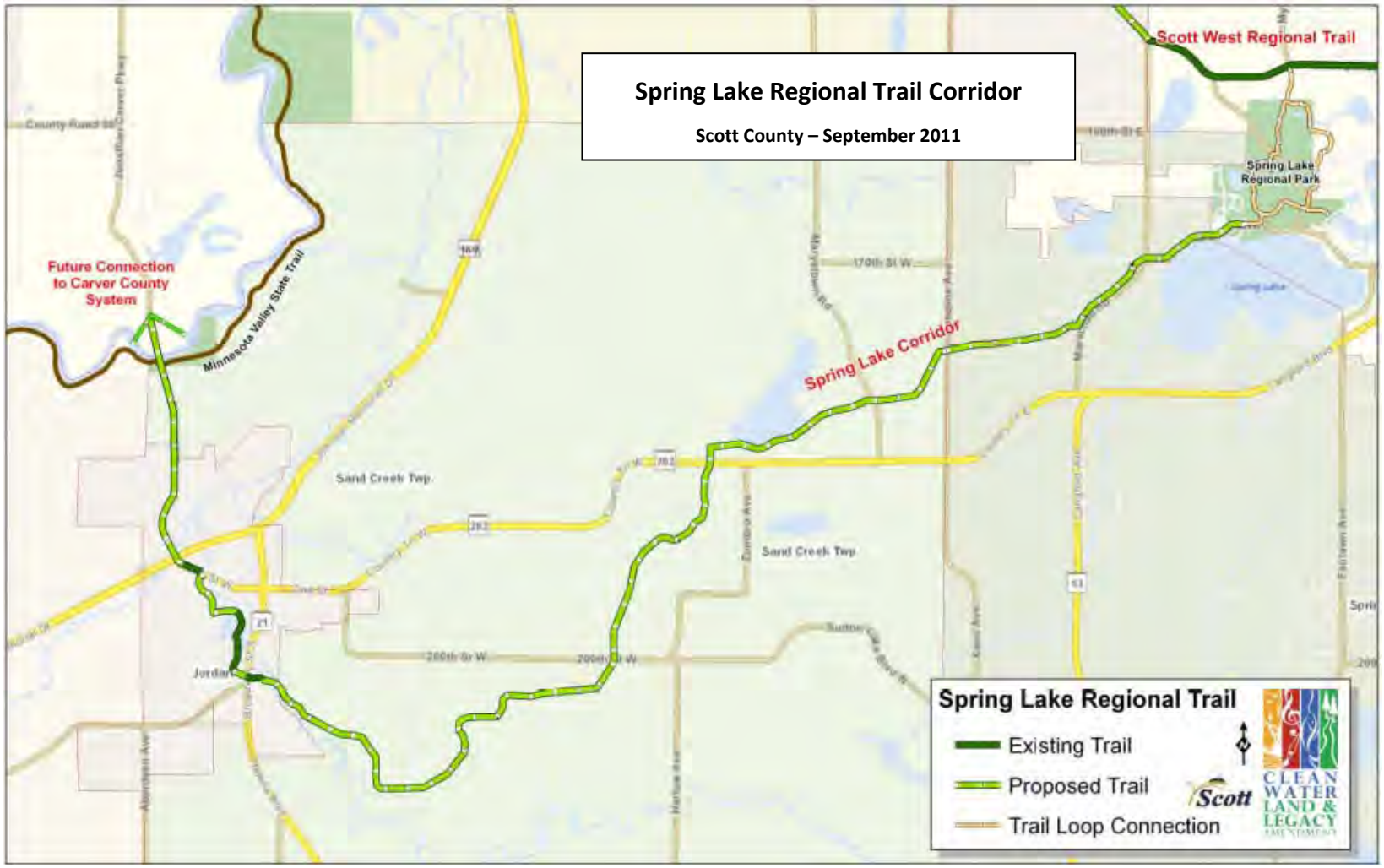
The Spring Lake Regional Trail is proposed to extend south along Creek Lane South, Sunset Drive (past Fireman's Park) and to Park Drive which leads to Lagoon Park and the Mini-Met Ballpark. This park may serve as a trailhead within the community. The trail is proposed to continue south to the existing trail along CR 66, utilizing the existing underpass under Highway 169 and connecting to the trail and sidewalk system in the Sawmill Woods subdivision (Map 5-5). The Spring Lake Regional Trail Master Plan from Scott County has more detailed maps of the planned trail alignment (https://www.scottcountymn.gov/DocumentCenter/View/1356/Spring-Lake-Regional-Trail-PDF).

It is recommended that the City and Scott County continue to work closely on the future alignment of this regional trail and local trail development as they relate to the crossing of TH 169, trail head locations in Jordan, and grant opportunities.

MAP 5-4: REGIONAL PARK AND TRAIL SYSTEM IN JORDAN

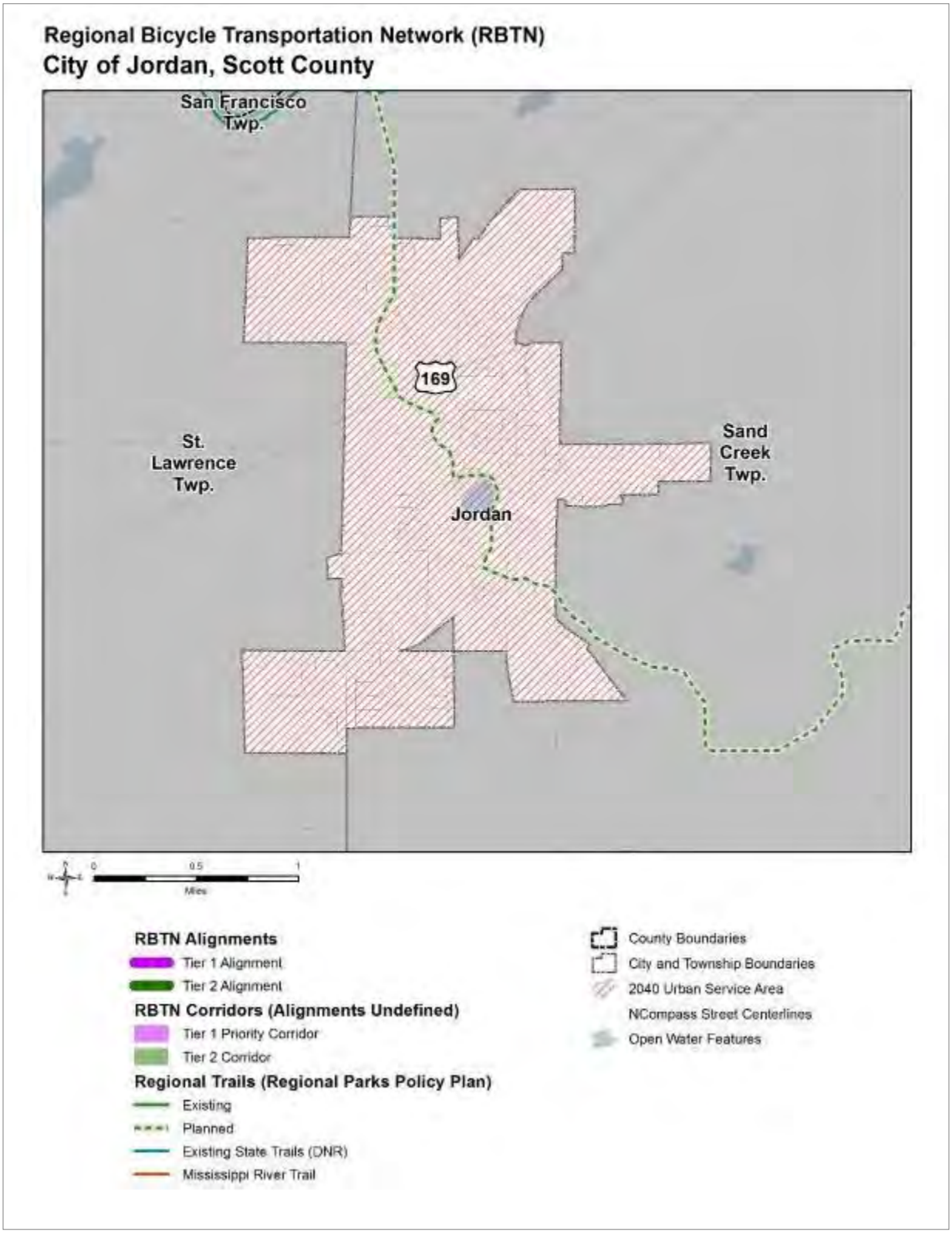


MAP 5-5: SPRING LAKE TRAIL ALIGNMENT



Map 5-6 illustrates the planned Regional Bicycle Transportation Network which has been identified by the Metropolitan Council.

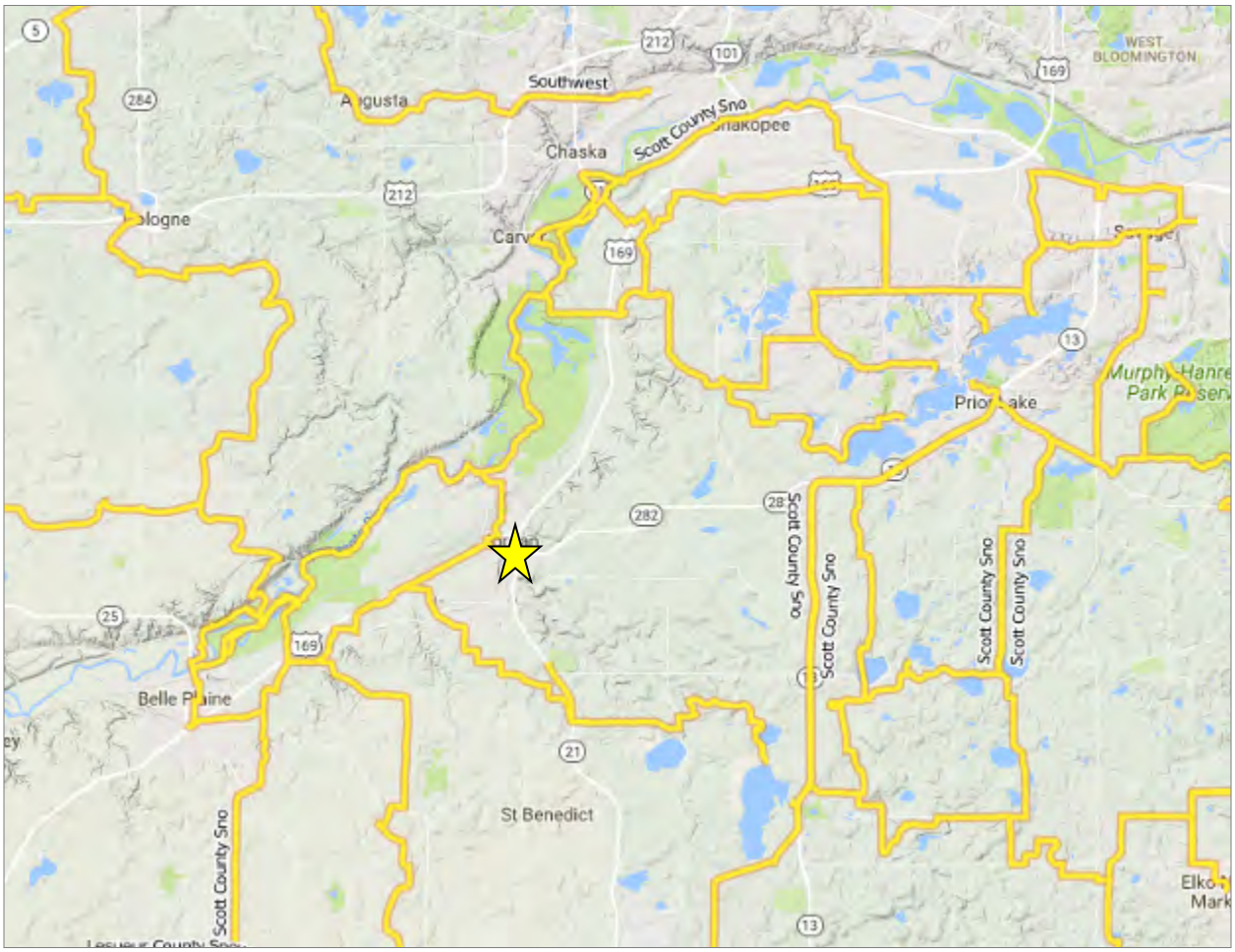
MAP 5-6: REGIONAL BICYCLE TRANSPORTATION NETWORK



T.H 169 Trail Crossing. In November 2010, Bolton & Menk completed an Alternatives Analysis Report for the crossing of Highway 169. The report states: "TH 169 through Jordan carries approximately 23,000 vehicles per day. An at-grade trail crossing of a trunk highway with this level of traffic presents significant safety concerns to both vehicular and pedestrian users, and significantly reduces the regional connectivity of the trail crossing. Pedestrians currently cross TH 169 in multiple locations in addition to the crosswalk at TH 282, jumping barriers and using makeshift trails along Sand Creek that are impassable much of the year. Developing a feasible pedestrian crossing of TH 169 will significantly increase pedestrian mobility and connectivity by linking the north and south portions of the city, and will increase safety to the traveling public and pedestrians in the region."[1] The report offers five options for crossing TH 169, including overpasses and underpasses at the following locations: (1) TH 282, (2) Triangle Lane/Frontage Road, (3) Creek Lane, (4) Syndicate Street, and (5) Varner Street. Cost estimates range from $703,000 to $1,402,000. Coordination with the DNR, FEMA, MnDOT and Scott County is needed to proceed.

Snowmobile trails are also offered in the Jordan area. Map 5-7 illustrates the locations of snowmobile trails in the Jordan area, per SnowmobileTrail.com.

MAP 5-7: SNOWMOBILE TRAILS

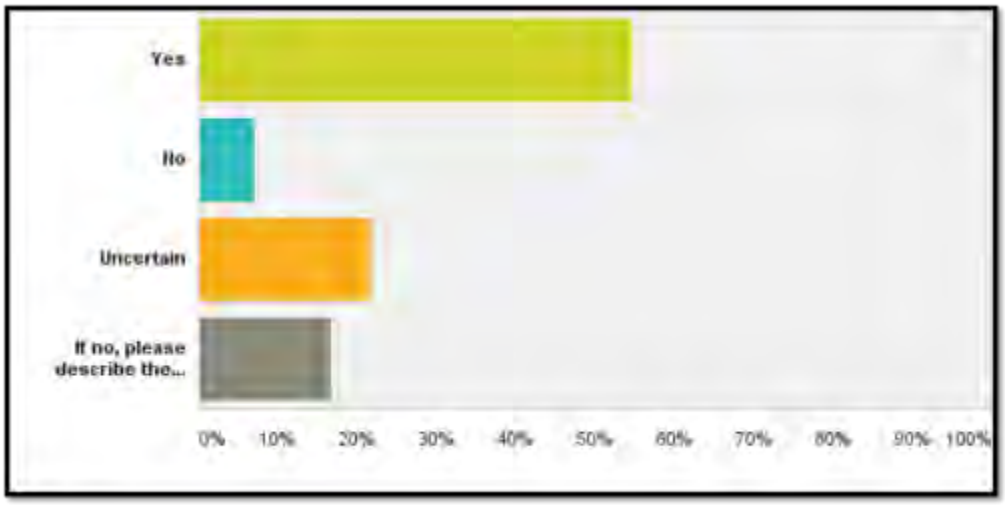


[1] Alternatives Analysis Report, T.H. 169, Bolton & Menk, November 2010.

COMMUNITY INPUT IN PARKS AND RECREATION

In conjunction with the updating of this plan, a survey was made available online and in paper format. A total of 292 surveys were returned for a 13.5% response rate, given the estimated 2,153 housing units in the city. Based on community input, most residents feel all areas of the city are adequately served by parks, as illustrated below.

Are all areas in the City adequately served by parks?



Answer Choices	Responses	
Yes	54.61%	148
No	7.01%	19
Uncertain	21.77%	59
If no, please describe the location in which a park is needed.	16.61%	45
Total		271

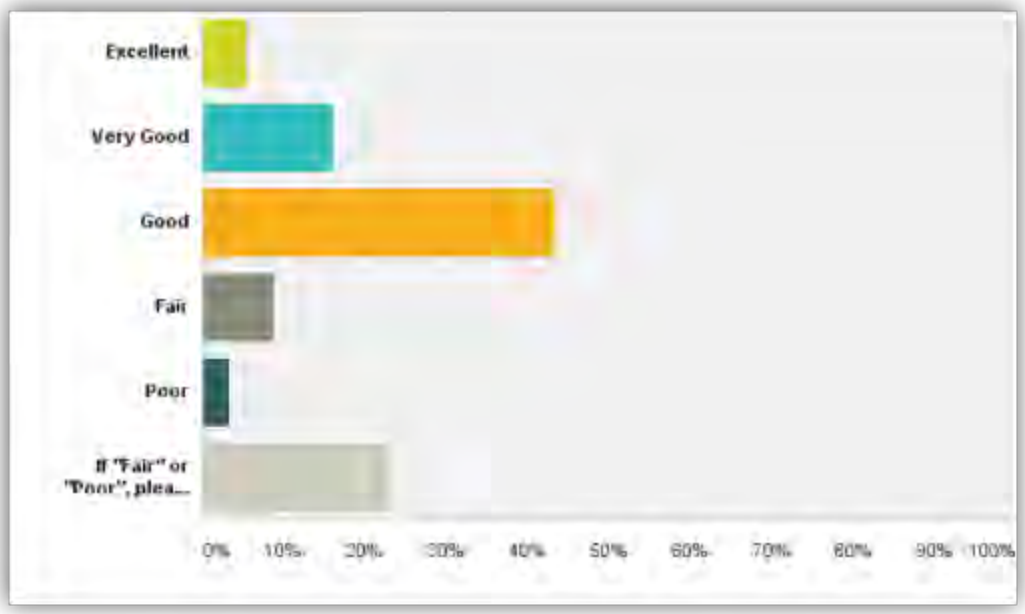
Residents were asked what outdoor park facilities would add to the quality of life in Jordan: The top 5 responses were:

1. Pool-waterpark
2. Trails
3. Splash pad
4. Dog park
5. Enclosed shelter with restroom

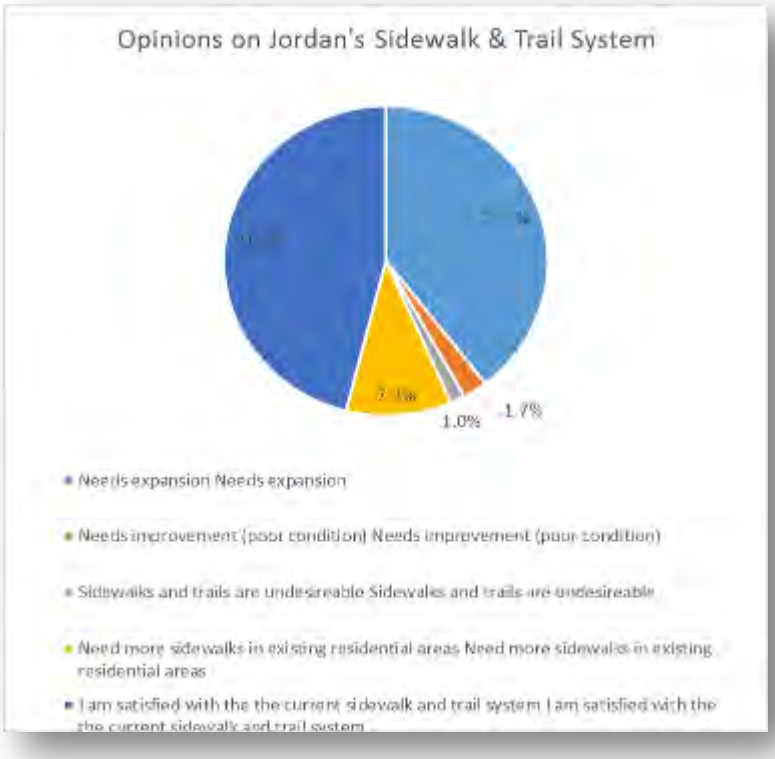
Answer Choices	Responses	
Ball fields (additional)	8.12%	22
Archery range	23.25%	63
Soccer fields	12.55%	34
Tennis courts (additional)	7.38%	20
Volleyball courts (additional)	5.90%	16
Basketball courts (additional)	9.23%	25
Improvements to the hockey rink (boards)	8.86%	24
Playground equipment (additional)	19.56%	53
Open Air Picnic Shelter	11.44%	31
Enclosed Picnic Shelter	18.45%	50
Trails (additional)	46.49%	126
Dog park	37.64%	102
Additional Skate Park	4.43%	12
Splash/spray pad	44.65%	121
Pool/waterpark	67.16%	182
Mountain Bike Trails	20.66%	56
BMX Track/Jumps	3.69%	10
Outdoor Fitness Equipment	10.70%	29
Disc Golf Course	19.56%	53
Enclosed Shelter with Restrooms	30.63%	83
Other (please specify)	11.81%	32
Total Respondents: 271		

Rating the number/variety of community education recreational programs (i.e. soccer, swimming lessons, etc.). Nearly 2/3 of residents ranked community education programs as Good to Excellent. Approximately 12% rated them as Fair to Poor. Comments included a need for a pool and swimming lessons, the addition of lacrosse and gymnastics, more for seniors, etc.

Answer Choices	Responses	
Excellent	5.34%	14
Very Good	16.03%	42
Good	43.51%	114
Fair	8.78%	23
Poor	3.44%	9
If "Fair" or "Poor", please describe your concern in detail.	22.90%	60
Total		262



Sidewalks and Trails. As a part of the comprehensive planning process survey, residents were asked about sidewalks and trails. Just under 1/3 noted they are satisfied with the current sidewalk and trail system. Approximately ¼ noted the system needs to be expanded with 7.3% suggesting they need more in residential areas and less than 3% noting they need improvement (poor condition) or are undesirable.



ADMINISTRATION, MAINTENANCE, AND OPERATIONS

The proper care and management of park and trail facilities will encourage park/pathway use, improve the quality of life in Jordan, and enhance the visual quality of neighborhoods and the City as a whole. The City's Public Works Department coordinates the maintenance and operations of parks and trails, while the Park and Recreation Commission prepares recommendations on plans for existing and future parks and trails.

A. Public Works. Maintenance of the park system is currently coordinated through the City's Public Works Department with additional three full-time summer workers. The department also assists with park duties and street functions. Park maintenance tasks may occur on a daily, weekly, monthly, seasonal, and/or weather-related basis. These jobs include but are not limited to litter and garbage cleanup, mowing and trimming, preventive equipment maintenance and repair, facility repair and maintenance, painting, snow removal, trail maintenance, and special event preparation, among other items.

B. Park and Recreation Commission. The City has appointed a seven-member Park and Recreation Commission, which meets bimonthly to plan for the development and improvement of Jordan's park and trail system. The Park and Recreation Commission is a recommending body to the City Council that provides ongoing public input on the system. Specific duties are outlined in the City Code.

C. Community Education. Jordan's Community Education programs are coordinated through the school district and CERC. Community Education organizes the "Run of the

Mill," which draws approximately 200 runners. Community Education is focusing on building stronger partnerships with area sports associations. The organization's 2016 report notes that they "oversee all aspects of the CE and Recreation department including youth development, youth enrichment, adult and youth recreation, early learning services, kids company, drivers' education, and all of the programs and special events that fall under these categories.

Community Education works in partnership with other organizations including: Jordan Coalition, Police Department, Heimatfest Committee, Jordan Food Shelf, preschools and local daycares (Early Childhood P.L.C.), St. John's School, and the City of Jordan. In addition, Community Education has worked with Three Rivers Park District to offer programming in the city, including geocaching, survival courses, and archery. Sports activities have also been offered through Sky Hawks. In 2015, a kayak class was offered through Community Education. This program was successful. The addition of classes for canoeing, kayaking, and paddleboards may be considered in the future.

Recreation and sports involvement. Community Education reported that in 2015 they served over 1,890 kids with, "over 40 summer ball teams in 2015, 25 fall football and volleyball teams, 30 basketball teams, 6 soccer teams and growing interest in soccer, tennis, running/track and lacrosse" (2016 Community Education Report).

Funding. According to Jordan Community Education, "Each year the legislation sets the formula allowance and the levy amount for community education financing."

The current formula is $5.42 x school district population
Population in 2000: 9,421
Population in 2010: 8,983

Schools can access these dollars if they have a licensed Community Education Director. Community Ed. funds may not be transferred to general school district funds. By law, they must be kept separate.

Jordan operates both community education and recreation programs under a joint powers agreement. Under this agreement the City contributes $25,500 towards the recreation programming and administration. Between the school district and the City, fields and facilities are provided."[2]

[2] Jordan Community Education, 2016 Report

FINANCIAL RESOURCES

Several resources are available to assist the City of Jordan in providing adequate parks, trails, and facilities for residents. Following is a list of typical sources:

1. Park dedication/fee in lieu of parkland dedication requirements for land acquisition, as identified in the City's subdivision ordinance
2. User fees (rental of shelters, etc.)
3. Volunteer hours and labor
4. Donations by private individuals, civic organizations, organized groups, etc.
5. Grants available through the Minnesota Department of Natural Resources
6. Property taxes

The City budgets for operational expenses through its annual budget process. The City currently utilizes user fees, donations from organizations and individuals, grant programs, park dedication land and fees, and the general tax levy to cover expenses relating to parks. The City does not have a specific capital improvement plan for long-range capital improvements to the park system. Maintenance of parks is included in the general fund budget, while park dedication fees are tracked in a park dedication fund. The City should consider developing a capital improvement plan for future park development/updates and trail extensions.

A copy of the City's current Capital Improvement Plan for city parks and trails is attached as Appendix F.

GOALS AND POLICIES

General Parks, Trails, and Recreation Goal: Develop and maintain a parks and recreation system that uses resources efficiently to provide a range of opportunities for recreation and active living.

Policies:

1. Adopt an active living by design philosophy and culture. This may be accomplished through the built environment, such as by the construction of additional trails, as well as programs which encourage physical activity and healthy eating. Examples include promotion of local farmers markets, community gardens, and riding bicycles versus driving in cars.

2. Provide recreational opportunities and resources for all demographics. This may be accomplished by improving handicap accessibility within parks and leading to trails and inclusion of recreational amenities within parks to serve all age groups. Recreational programs and activities for youth, families, young adults, and seniors are also suggested.

3. Build partnerships with local, regional and state agencies. It is recommended the City continue to coordinate future park and trail and natural resource projects with local, regional, state and federal organizations and agencies.

4. GreenStep City. Jordan is a Step Three GreenStep City. It is recommended the City continue to complete steps toward environmental sustainability goals.

Park and Open Space Goal: Develop and maintain a park and open space system that provides a range of recreational options to residents, and is coordinated with future development.

Policies:

1. Continue to expand programming within parks, including but not limited to educational and recreational programs. Work with Community Education, Three Rivers Park District, and other entities to expand offerings within the city.

2. Review the lifecycle of parks as they relate to the changing demographics and types of active and recreational uses available (e.g. lacrosse).

3. Budget for and schedule improvements within existing parks in the City's annual operating budget and City's capital improvement plan.

4. Future parks should be designed at the appropriate size to accommodate a variety of uses, including active parks designed for social interaction and activity as well as areas to reconnect with nature.

5. Future parks should generally be acquired at the time of platting of the property or adjacent property; however, if opportunities arise to acquire land identified as future community parks, they should be considered.

6. Community parks should be at least 15 acres in size, should offer diverse resources to allow both active and passive recreational activities, and should be designed to be accessible via a collector road as well as a trail or greenway corridor.

7. Passive parks should be planned to protect areas of high environmental value and scenic areas.

8. Master planning of community parks should be considered prior to development. The master plan would address the actual land to be acquired, the types and locations of facilities within each park, the cost associated with the development, and the operations of the park.

9. Periodically assess the condition of municipal parks to determine and prioritize needed maintenance and improvements. Assessment should cover (as applicable): turf condition, irrigation systems, plantings and trees, drainage systems, accessibility, parking, parking availability, basketball or tennis courts, and playground equipment. Assessment should be completed by members of the Jordan Park and Recreation Advisory Commission.

Trail/Sidewalk/Greenway Goal: Develop and maintain a system of bicycle and pedestrian trails and sidewalks that connects community destinations, provides linkages to regional facilities, and provides access to recreation throughout the community.

Policies:

1. Construct a safe crossing over/under Highway 169. Revisit the 2010 TH 169 Trail Crossing Study and coordinate a project with Scott County's Trail Plan, MnDOT, the DNR and FEMA. Pursue grant programs to assist in the funding.

2. Provide Connectivity in Jordan's sidewalk and trail system. Continue to budget for and construct segments of trails and sidewalks to complete systems and provide connectivity with essential links to schools, historic sites, parks, and commercial areas. Evaluate which areas should be served with sidewalk versus trail by analyzing intended users and the type of system the segment will connect to (e.g. concrete or bituminous).

3. Pursue the development of the trail system with Jordan serving as the regional trail hub. Continue to coordinate regional trail development with Scott County, Carver County, and Three Rivers Park District.

4. Investigate a complete streets policy. Work with the Planning Commission and City Council to develop a complete streets policy for the City.

5. Conduct a bicycle audit to identify gaps in the existing system and potential safety improvements.

Annual Financial Planning Goals: Budget appropriately for park and recreational improvements, leveraging outside funding sources where feasible.

Policies:

1. Update the Capital Improvement Plan to include *future* trail facilities, pathways, sidewalks, and bike lanes as recommended in the Comprehensive Plan.

2. Update the Capital Improvement Plan to include proposed capital improvements within *existing* parks.

3. Pursue grant programs to assist with funding including but not limited to grants offered through MnDOT and the DNR.

4. Land acquisition planning. Identify areas which will be acquired through future parkland dedication and areas which may need to be acquired with City funds. Begin budgeting for future land acquisition.

5. Operations and maintenance. Prepare a management plan for City trail facilities, pathways, sidewalks, and bikeways. Operations and maintenance costs should be included in the annual budget.

HOUSING

PURPOSE

Housing needs are not static but change over time as people move through different stages of their lives, and as the demographics of the community change. Housing needs tend to evolve from: (1) affordable basic units for young people just beginning to enter the workforce and individuals or families with lower incomes to (2) affordable single family units for first time home buyers and young families to (3) move up housing for people with growing families and/or incomes to (4) empty-nester dwellings for persons whose children have grown and left home to (5) low maintenance housing options for aging persons as their ability to maintain their property decreases; and, finally, to (6) assisted living environments to provide health and medical care to the elderly.

To address the lifecycle needs of residents, it is critical a community provide a wide range of housing:

- Types (i.e. apartment/townhome/condominium rental, townhome/condo/single-family owner occupied, senior active living to assisted living);
- Sizes (i.e. one, two, and three bedroom rentals; starter homes; move-up homes); and
- Values: (i.e. efficiency – luxury rental units; starter homes – executive homes).

The development of life-cycle housing works to sustain the community by preventing an over-abundance of a single age or income group. As one generation of residents moves through its life cycle it can move into the housing provided by the previous generation, just as the next generation will move into the housing being vacated.

The purpose of this chapter is to:

1. Address existing housing needs;
2. Identify projected housing needs; and
3. Develop an implementation plan to address both current and future needs.

Data for this chapter has been obtained through:

- An analysis of the city's demographics;
- An evaluation of historical building trends gathered from building permit information on file at the City offices;
- A review of land use options for housing growth;
- The Comprehensive Housing Needs Update completed in 2016 by Maxfield Research for the Scott County Community Development Agency (CDA);
- Community input through comprehensive plan surveys and community meetings; and
- The Metropolitan Council's 2040 Housing Policy Plan and affordable housing needs identified for Jordan.

EXISTING HOUSING ASSESSMENT

In order to effectively gauge existing housing needs, it is important to complete an assessment of the current housing stock in the community, as it relates to the current demographic make-up of the city's residents. Table 6-1 contains a summary of Existing Housing Conditions. Information was obtained from the 2011-2015 American Community Survey and the Met Council Affordable Housing Production Survey, 2016.

TABLE 6-1
EXISTING HOUSING CONDITIONS

Housing Category	Number of Units
Total Housing Units	2,187
Occupied Housing Units	2,122
Number of Housing Units Affordable To:	
Households with incomes at or below 30% of the AMI	294
Households with incomes between 31 and 50% AMI	602
Households with incomes between 51% and 80% of the AMI	747
Number of Owner-Occupied Units	1,449
Number of Rental Units	738
Number of Single-Family Homes (1-unit attached and detached)	1,643
Number of Multi-Family Homes (2 unit to 20 or more units)	245
Number of Mobile Homes	299
Total Number of Publicly Subsidized Housing Units	120
Senior Subsidized Units (Schule Haus)	52
Subsidized Units for People with Disabilities	0
All Other Publicly Subsidized Units (Jordan Valley Townhomes, Britland Apartments)	68
Number of existing households experiencing housing burden costs with Incomes:	
At or Below 30% AMI	244
Between 31% and 50% AMI	81
Between 51% and 80% AMI	146

Sources: Metropolitan Council Existing Housing Assessment for the City of Jordan, 2016

Table 6.2 illustrates the percentage of monthly income spent on housing. Thirty-one percent of households in Jordan are spending more than 30% of their monthly income on housing costs.

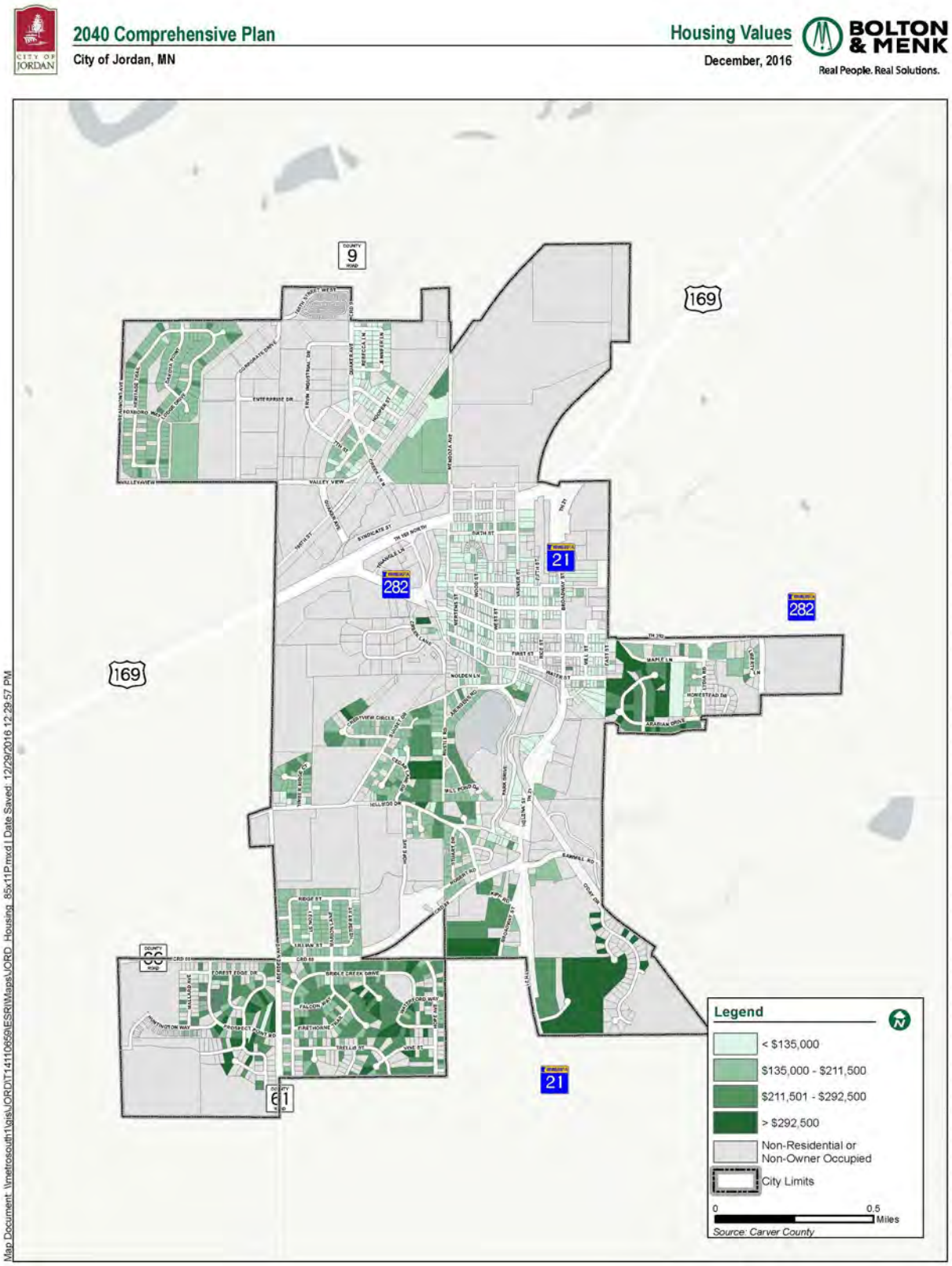
TABLE 6-2
HOUSING COSTS AS A PERCENT OF HOUSEHOLD INCOME

Percent of Monthly Income on Housing Costs	Housing Units with a Mortgage	Housing Units without a mortgage	Total Owner-Occupied Units	Gross Rent as a % of Household Income	Total Housing Units	% of All Housing Units
Less than 20%	444	353	797	113	910	42%
20.0 to 24.9%	171	29	200	142	342	16%
25.0 to 29.9%	111	32	143	92	235	11%
30.0% to 34.9%	54	0	54	119	173	8%
35.0% or more	219	116	335	164	499	23%
Total Units	999	530	1,529	630	2,159	100%

Source: 2011-2015 American Community Survey, 5 year estimates (most recent available at time of writing of comprehensive plan)

Owner-Occupied Affordable Housing. According to the Metropolitan Council, the affordable home price for a family of four with an income of 80% of the Regional Area Median Income (AMI) is $211,500. Figure 6-1 illustrates the assessed value of owner-occupied housing units. The values are divided into three categories: less than $135,000, between $135,000 and $211,500, and greater than $211,500.

MAP 6-1
VALUE OF OWNER OCCUPIED UNITS



According to Scott County data, approximately 72% of owner occupied housing is valued at or below $211,500. Table 6-3 illustrates the value of owner-occupied housing units in Jordan, according to the 2011-2015 American Community Survey.

TABLE 6-3
VALUE OF OWNER-OCCUPIED HOMES

Value	Estimated Number	Percentage
Owner Occupied Units	1,529	
Less than $50,000	105	6.9%
$50,000 to $99,999	114	7.5%
$100,000 to $149,999	214	14.0%
$150,000 to $199,999	313	20.5%
$200,000 to $299,999	498	32.6%
$300,000 to $499,999	269	17.6%
$500,000 to $999,999	16	1.0%
$1,000,000 or more	0	0.0%
Median Value	$203,100	

Source: 2011-2015 American Community Survey

I. EXISTING HOUSING NEEDS

Several variables impact the need for housing in a community, including the type, age and condition of the housing stock, and household demographics. An examination of these factors will inform the needs and priorities for housing in the community.

Type of Housing Unit. Nearly 70% of Jordan's housing units are single-family detached units. The second largest category of housing in the community is mobile or manufactured homes, comprising 12.2% of the housing units. The City's housing stock is a diverse mix of units from single-family to buildings with more than 20 units. Continuing to plan for a diversity of housing types will assist in addressing future housing needs for all ages and incomes.

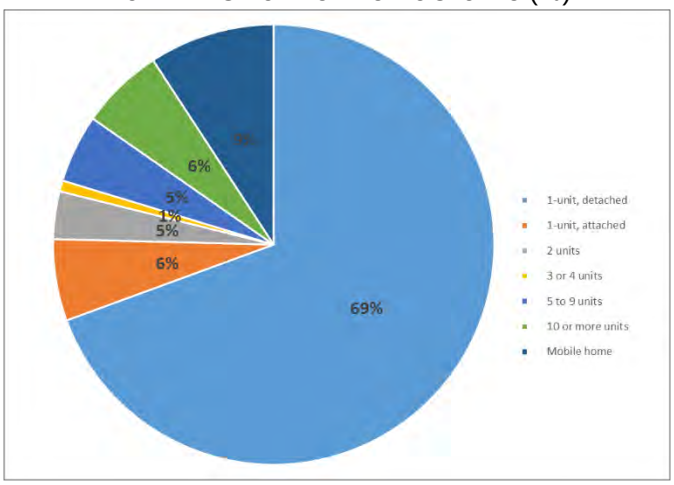
TABLE 6-4
TYPES OF HOUSING JORDAN, 2014

Units in Structure	Total	% All Housing Units
1, detached	1,504	69.9%
1, attached	98	4.6%
2 units	79	3.7%
3 or 4 units	14	0.7%
5 to 9 units	105	4.9%
10 to 19 units	0	0.0%
20 or more units	91	4.2%
Mobile home	262	12.2%
Total	2,153	100%

SOURCE: 2014 America Community Survey (ASC), Census Bureau Population Estimates.

Owner Occupied Housing. Nearly 71% of the housing units in Jordan are owner-occupied. The vast majority of owner-occupied units are single family attached and single family detached dwellings.

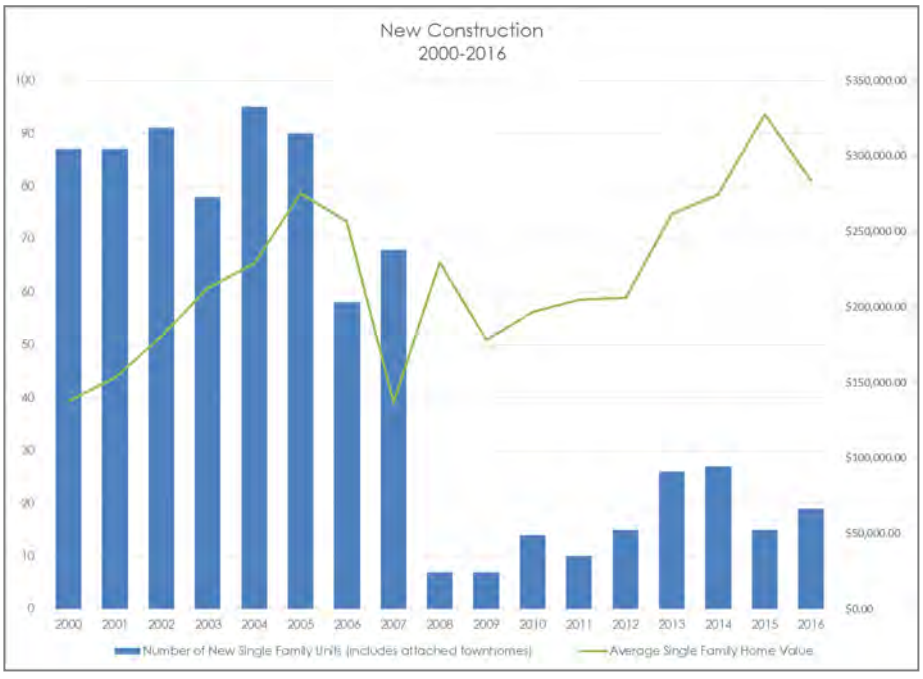
FIGURE 6-2
NUMBER OF UNITS IN STRUCTURES (%)



Source: 2011-2015 American Community Survey

New residential construction in Jordan consists primarily of single family homes. Like most communities, new housing starts in Jordan peaked in the early 2000s, and decreased dramatically in 2008. Beginning in 2010, new housing starts and new construction values have begun to increase. Figure 6-3 depicts the number of new single family home and townhomes, and the new construction values.

FIGURE 6-3
NEW CONSTRUCTION, 2006-2016

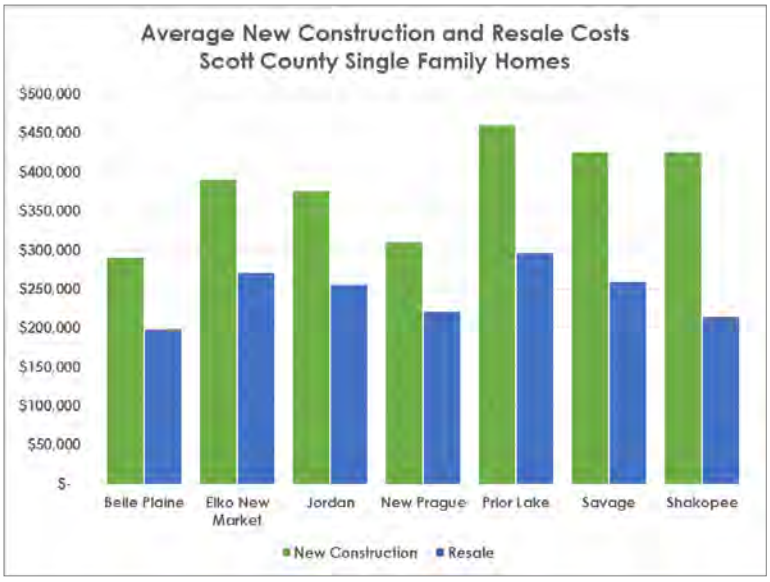


Source: City of Jordan Building Permit Records

New construction in Jordan the past four years has been comparable to similar size cities in Scott County. Jordan has comprised 4.8% of the new construction in the county since 2012. Shakopee, Prior Lake, and Savage have experienced the greatest amount of new construction.

Figure 6-4 indicates the average cost of new construction and resales for single family homes in the cities in Scott County. In both cases, costs in Jordan are slightly higher than Belle Plaine and New Prague, but lower than Elko New Market, Prior Lake, Savage, and Shakopee.

FIGURE 6-4



Source: Scott County Comprehensive Housing Study, Maxfield Research, 2016.

Rental Housing. Scott County's Community Development Agency engaged the services of Maxfield Research to complete a Comprehensive Housing Needs Update for all of Scott County, including the cities and townships within the County, in 2016. A full copy of this report is attached as Appendix C to the Comprehensive Plan. This study, along with the American Community Survey data and City records, is the basis for the rental housing analysis.

The 2011-2015 American Community Survey indicates 70.8% of Jordan's occupied housing is owner-occupied and 29.2% is renter-occupied, making Jordan the city with the highest percentage of renter-occupied housing concentration in Scott County. This is due, in part, to the number of senior housing rental units in the City, including Brentwood Court, Oak Terrace, and Schule Haus. These three properties contain 165 (26%) of the estimated 630 rental units.

TABLE 6-5
RENTAL HOUSING UNITS IN JORDAN

Size/Type of Structure	Number of Units	Number of Vacancies	Year Built
Single family homes	51	Unknown	Varies
Schule Haus- Senior Housing	52	4	1980
Brandel Apartments	22	0	1973 & 1978
Greenleaf Townhomes	12		2000
Apartments above downtown commercial	70	Unknown	Varies
Brewery (415 Broadway S)	5	4	
Britland Apartments, Chad Circle & Chad Pointe	29	0	1981 & 2009
Jordan Valley Townhomes	46	0	2008
Brentwood Court	50	0	2013
Oak Terrace	63	3	2010 & 2013
Manufactured homes	30	Unknown	Varies
Total	430	11	

Source: City of Jordan Rental Registration and Scott County Comprehensive Housing Study, 2016.
Note: ACS data are based on a sample and an additional 39 rental units are located at various locations per the Census, 2011-2015 American Community Survey, 5 year estimates

Approximately 12% of rental units in Jordan are single family homes. These units are excluded from the rental housing survey because of the challenges in identifying specific units, and the transitional nature of these units. The single family units are included in the analysis of rents as a percentage of income.

According to the Comprehensive Housing Needs Update, Jordan's per square foot rents for apartments is $0.82 per square foot. This compares to Belle Plaine at $0.75, New Prague at $0.93, Prior Lake at $1.00, Shakopee at $1.06, and Savage at $1.22. Rents vary depending on the age of the building and location.

Rental properties in Jordan have typically been older and smaller in size, which tends to keep rents more affordable than those in larger communities. However, vacancy rates in Jordan are also very low. According to the Scott County Comprehensive Housing Study, the vacancy rate for market rate, general occupancy rental projects is 2 percent. Vacancy rates are affected by the increasing job market in both the Twin City Metro Area and Scott County. Also impacting the vacancy rates is the general shift of Millennials and other groups to rental rather than home ownership. Stricter mortgage loan qualifications, along with higher down payment requirements and higher student loan debt have made it more difficult for younger households to move into ownership. The low vacancy rate has resulted in a correlating increase in rents.

Senior Housing. There are currently 263 senior housing units in the City of Jordan. These include a mix of active-living, congregate, assisted living, and memory care units. Jordan provides 12.8% of the senior housing units in Scott County.

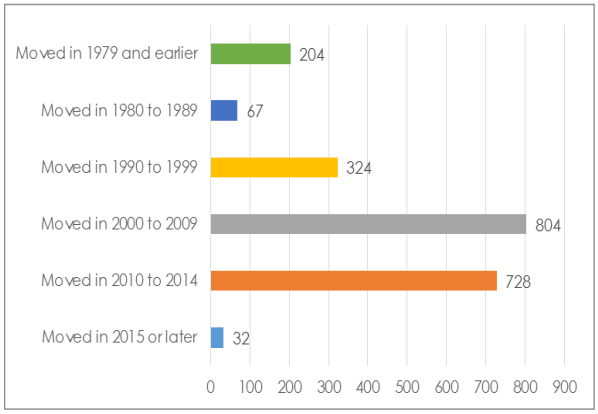
TABLE 6-6
SENIOR HOUSING IN SCOTT COUNTY
JUNE 2016

	Deep Subsidy Rental	Shallow Subsidy Rental	Active Adult Rental	Active Adult Owner	Congregate	Assisted Living	Memory Care	Total
Belle Plaine	59	0	0	8	45	22	14	148
Elko New Market	0	0	49	0	0	0	0	49
Jordan	52	0	50	0	42	94	25	263
New Prague	91	0	55	0	34	34	0	214
Prior Lake	39	168	54	80	139	82	44	606
Savage	0	0	149	0	40	24	24	237
Shakopee[1]	128	0	165	79	0	103	59	534
Total	369	168	522	167	300	359	166	2051

[1]Includes senior housing under construction
Source: Maxfield Research and Consulting, LLC

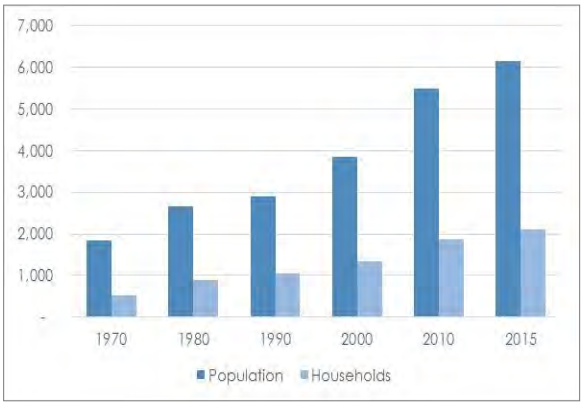
Longevity in the Community. Another measure of housing needs is the longevity of householders in the community. Figure 6-5 illustrates the number of households by year the occupants moved in. According to the 2011-2015 ACS, over 72% of residents moved into their household in the past 16 years. This is a direct result of the growth Jordan experienced same timeframe, illustrated in Figure 6-6.

FIGURE 6-5
HOUSING UNITS BY YEAR MOVED IN



Source: 2011-2015 American Community Survey

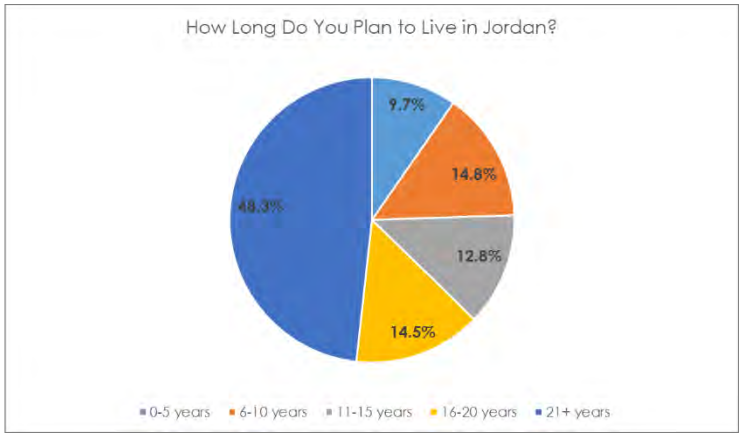
FIGURE 6-6
POPULATION AND HOUSING GROWTH



Source: Metropolitan Council

The City of Jordan was also interested in learning how long their residents plan to live in the community. As a part of the Comprehensive Plan Survey, the City asked residents that question. Of the 295 responding households, nearly half indicated they plan to reside in the community for 21+ years. The following pie chart illustrates resident responses.

FIGURE 6-7
SURVEY RESULTS



Source: City of Jordan Comprehensive Plan Survey

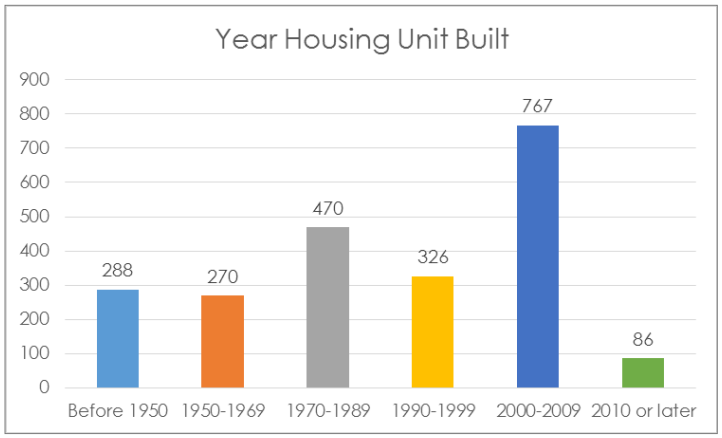
Housing Condition. The need for maintenance of housing stock is often tied to the age of the housing units. More than 50% of Jordan's Housing units were constructed after 1990. Following is a summary of the age of the housing stock in Jordan.

TABLE 6-7
AGE OF HOUSING UNITS

Year Built	Number of Units	% of Units
Before 1950	288	13%
1950-1969	270	12%
1970-1989	470	21%
1990-1999	326	15%
2000-2009	767	35%
2010 or later	86	4%
Total Units	2,207	100%

Source: 2011-2015 American Community Survey

FIGURE 6-8
AGE OF HOUSING STOCK

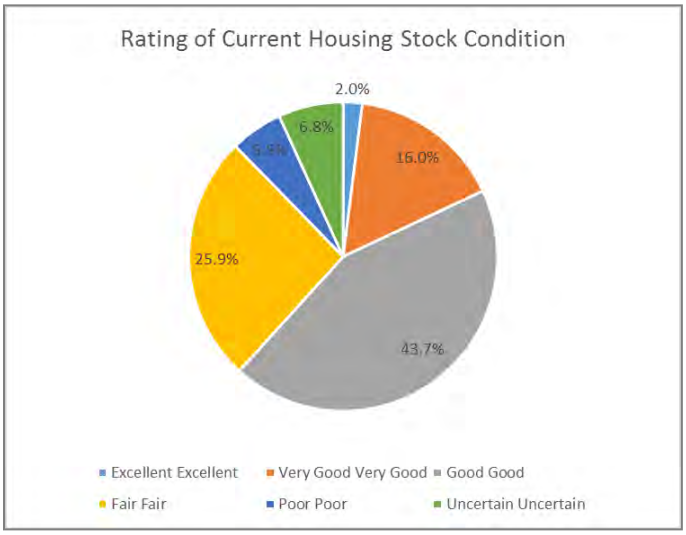


Source: 2011-2015 American Community Survey

As part of the Comprehensive Plan Survey, residents were asked to rate the condition of the existing housing stock. Of the 295 responding, 18% rated it as "Very Good" or "Excellent," and 43.7% rated it as "Good." Over 25% of respondents rated housing condition as "Fair" and 5.5% rated it as "Poor." As the

housing stock ages, programs which encourage maintenance will be important to maintain a quality housing stock.

FIGURE 6-9



Source: City of Jordan Comprehensive Plan Survey

Household Composition. The primary housing type in Jordan is single family (detached and attached). It follows, then, that more than 76% of the total households are households with families. This is very similar to the households in Scott County. Table 6-8 provides more detail on household composition.

TABLE 6-8
HOUSEHOLD COMPOSITION

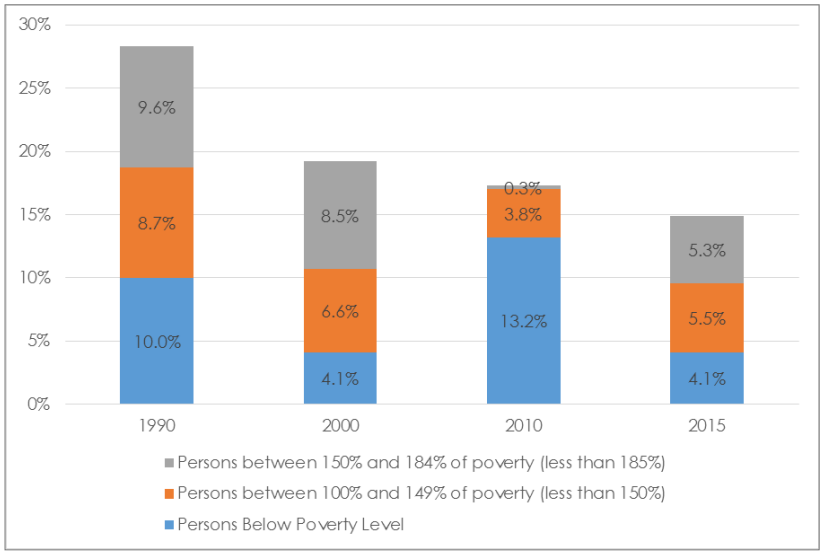
Housing Category	Jordan (#)	Jordan (%)	Scott County (#)	Scott County (%)
Total Households	1,871	100%	45,108	100%
Family Households	1,428	100%	34,421	100%
Family Households with Related Children under 18	901	60.1% (Total HH) 48.2% (Family HH)	19,792	57.5% (Total HH) 43.9% (Family HH)
Nonfamily Households	443	23.7%	10,687	23.7%
Householder Living Alone	345	18.4%	9,754	21.6%
Average Household Size	2.92		2.85	
Average Family Size	3.35		3.26	

Source: 2010 Census

Household Income. Household income has a direct impact on housing choices. The 2011-2015 American Community Survey 5-Year Estimates report a Median *Family* Income of $81,820 per year and a Median *Household* income of $68,252 for Jordan. The 2010 Census reported a median *family* income in Jordan of $70,933 and median *household* income of $61,689, suggesting a strong increase in incomes. The 2015 incomes compare to the median *household* income of $87,794 in Scott County, and a median *household* income of $61,492 in the State of Minnesota.

The 2011-2015 American Community Survey 5-Year Estimates report 4.1% of the population in Jordan were below the poverty level. This compares to 5.7% poverty level in Scott County and 11.3% in Minnesota. Poverty levels in Jordan returned to 2000 levels after a sharp rise between 2006 and 2010.

FIGURE 6-10
PERCENT OF POPULATION BELOW THE FEDERAL POVERTY LEVEL



Source: Metropolitan Council

The household income in the Jordan Submarket (Jordan and Sand Creek Township) is projected to increase by $12,249 between 2015 and 2020. Following is a table from the Comprehensive Housing Needs Update illustrating the changes in income for households of various age categories. It should be noted the number of households with incomes below $50,000 per year are projected to decrease, while the number of households with incomes over $50,000 increases by 2020. The largest gain is projected in the households earning $100,000 or more per year.

FIGURE 6-11
HOUSEHOLD INCOME BY AGE

TABLE A-7
HOUSEHOLD INCOME BY AGE OF HOUSEHOLDER
JORDAN SUBMARKET
2015 & 2020

		Age of Householder						
	Total	<25	25-34	35-44	45-54	55-64	65 -74	75+
2015								
Less than $15,000	129	4	11	16	14	25	33	26
$15,000 to $24,999	114	2	20	9	25	25	12	21
$25,000 to $34,999	227	15	36	47	38	39	29	24
$35,000 to $49,999	307	24	49	54	50	56	42	32
$50,000 to $74,999	477	12	80	91	97	93	87	17
$75,000 to $99,999	488	16	86	99	132	78	44	33
$100,000 or more	1,087	11	133	356	330	189	61	8
Total	2,829	84	416	671	685	504	308	161
Median Income	$81,607	$47,095	$77,210	$102,902	$96,910	$78,686	$58,021	$38,353
2020								
Less than $15,000	122	4	9	10	11	20	37	30
$15,000 to $24,999	86	2	15	6	16	17	11	20
$25,000 to $34,999	186	13	29	35	25	31	29	24
$35,000 to $49,999	293	24	45	45	40	55	48	36
$50,000 to $74,999	479	13	80	82	80	94	107	24
$75,000 to $99,999	574	22	103	107	139	95	61	47
$100,000 or more	1,519	16	200	484	415	276	113	16
Total	3,260	95	480	767	726	589	406	196
Median Income	$93,856	$55,599	$88,057	$111,887	$109,177	$93,901	$65,756	$43,852
Change 2015 - 2020								
Less than $15,000	-6	0	-2	-6	-3	-4	4	5
$15,000 to $24,999	-27	0	-6	-3	-9	-8	-1	-1
$25,000 to $34,999	-41	-2	-7	-12	-13	-7	0	-0
$35,000 to $49,999	-14	-0	-4	-9	-10	-1	6	4
$50,000 to $74,999	2	2	-1	-9	-17	1	20	6
$75,000 to $99,999	86	6	17	8	7	17	17	14
$100,000 or more	432	5	67	127	85	87	52	8
Total	431	12	64	96	41	85	98	35
Median Income	$12,249	$8,504	$10,847	$8,985	$12,267	$15,215	$7,735	$5,499

Sources: ESRI; US Census Bureau; Maxfield Research & Consulting, LLC

Existing Housing Needs Summary: Based on the above data, we have identified the following housing needs as priorities:

1. Maintenance of older housing stock, both owner-occupied and rental
2. Maintain rents at an affordable level
3. Continue development of Senior Housing

II. PROJECTED HOUSING NEED

Table 6-9 illustrates the "Affordable Housing Need Allocation" identified by the Metropolitan Council, for the City of Jordan.

TABLE 6-9
AFFORDABLE HOUSING NEED ALLOCATION FOR JORDAN

Household Earnings	Number of New Housing Units Needed
At or below 30% AMI	107
31 to 51% AMI	63
51 to 80% AMI	124
Total Units	294

Source: Metropolitan Council

This indicates Jordan's share of the region's need for low and moderate income housing is 294 new units, affordable to households earning 80% of the area median income (AMI) or below. Of these new units, the need is for 107 affordable to households earning at or below 30% of AMI, 63 of households earning 31%-50% of AMI and 124 to households earning 51% to 80% AMI.

HUD's Section 8 Income Guidelines are the basis for most affordable housing programs. Section 8 guidelines define low and moderate incomes on a sliding scale, depending on the number of persons in the family. For example, a four-person household is considered 'moderate income' if their family income is 80 percent of the area's median family income.

TABLE 6-10
SECTION 8 INCOME GUIDELINES, SCOTT COUNTY 2016

People Per Household	30% Median Income	50% Median Income	80% Median Income
1 Person	$18,050	$30,050	$46,000
2 Person	$20,600	$34,350	$52,600
3 Person	$23,200	$38,650	$59,150
4 Person	$25,750	$42,900	$65,700
5 Person	$28,140	$46,350	$71,000
6 Person	$32,580	$49,800	$76,250

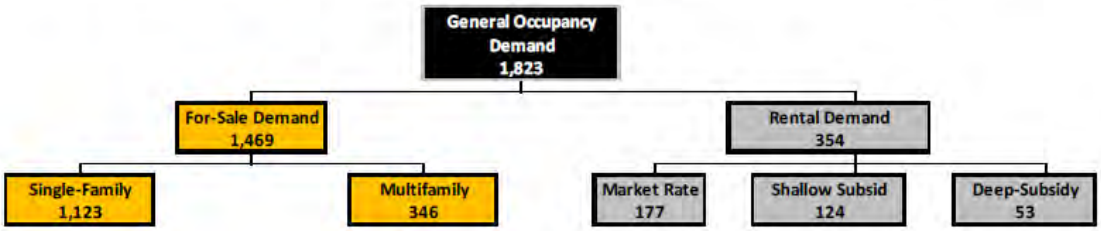
Source: Housing and Urban Development 2016 Guidelines

Scott County's Comprehensive Housing Needs Update identified the following housing needs for the City of Jordan.

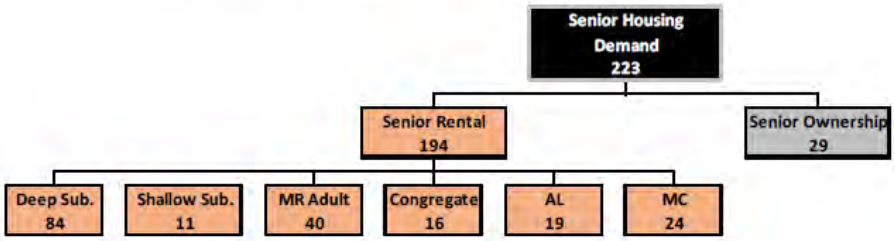
The Housing Demand between 2017 and 2040 for Jordan is projected to be 1,823 units or 7% of Scott County's housing demand. The following graphic depicts the housing demand breakdown, according to the Scott County Comprehensive Housing Study. While a summary of the housing study is included in this chapter as background information, the Metropolitan Council's forecast of affordable housing need is used to calculate the land needed for affordable housing.

FIGURE 6-12

Jordan Projected General Occupancy Housing Demand, 2017 to 2040

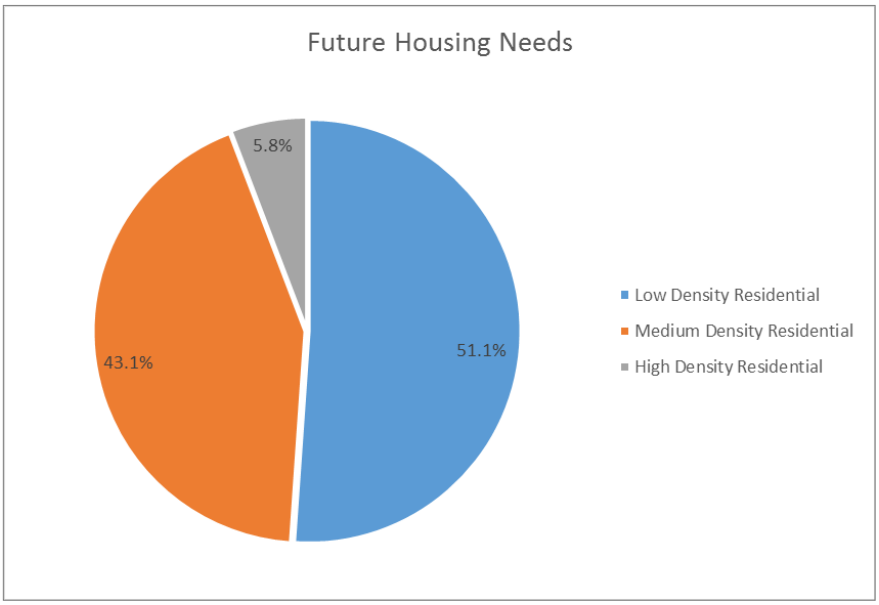


Jordan Projected Senior Housing Demand, 2040



As a part of a community survey, residents were asked, "When planning for future residential development, should the City place more emphasis on low density residential for single family housing (i.e. 3 units per acre or less), a mix of low density and medium density housing (townhomes, twin homes with four to five units per acre), or higher density housing (apartments with six plus units per acre)." The following chart portrays the responses of 295 surveys, which recognizes a need to plan for a mix of housing choices and densities.

FIGURE 6-13



Source: City of Jordan Comprehensive Plan Survey

To determine if the city can accommodate the identified number of affordable housing units, it is necessary to identify which future land use designations count towards the Affordable Housing Allocation need. According to the Metropolitan Council, any residential future land use designation that has a minimum density of 8 units per acre or more will count towards affordable housing allocation calculations. Table 6-11 features the future land use designations and the minimum units per acre.

TABLE 6-11
FUTURE LAND USE DESIGNATIONS/DENSITY

Land Use	Minimum Density (units/acre)	Average Density (units/acre)	Qualify for Affordable Housing?
Low Density	3	5.5	No
Medium Density	8	11	Yes
High Density	10	21.5	Yes
Neighborhood Commercial	10	21.5	Yes
Central Business District	10	21.5	Yes
Manufactured Housing	7	7.5	No

Neighborhood Commercial and Central Business District (C-1 and C-2 zoning districts) are both mixed use districts. Residential uses are permitted in both of these districts. In fact, this plan includes a deliberate expansion of the Neighborhood Commercial area in order to encourage and support redevelopment of the CBD and Neighborhood Commercial areas.

With the available vacant land in the Medium Density Residential and High Density Residential designations, and the potential for redevelopment in Neighborhood Commercial and Central Business District, the City of Jordan has enough land to meet its allocation for affordable housing. Table 6-12 demonstrates how the city can accommodate its 2021-2030 affordable housing allocation, consistent with the staging plan in the Land Use Chapter.

TABLE 6-12
STAGING OF AFFORDABLE UNITS IN 2021-2030

Residential Land Uses	Staged Acres	Percent Residential	Minimum Density (units/acre)	Affordable Units*
Medium Density	34.0	100%	8	272
High Density	1.3	100%	10	13
Neighborhood Commercial	1.7	70%	10	12
Central Business District	0.5	70%	10	3
Totals	37.5			300

*Consistent with the staging plan in the Land Use Chapter, capacity for staging purposes is based on average densities rather than minimum densities.

Residential Lot Inventory. In order to provide opportunities for residential growth, a three-year lot inventory is generally recommended. Following is the vacant lot inventory as of March 2018. Approximately 79 lots are available. Available sites include a mix of low to high density residential lots.

TABLE 6-13
JORDAN AVAILABLE RESIDENTIAL LOTS

Zoning	2015 Vacant Parcels
R-1 Single Family	49
PUD R-1 Single Family Residential	18
R-2 Single Family and Two Family Residential	-
R-3 Townhouse & Multiple Family Residential	-
PUD R-3 Townhouse & Multiple Family	12
R-4 Multiple Family Residential	-
Total	79

Projected Housing Needs Summary: Based on the above data, we have identified the following projected housing needs as priorities:

1. Look for additional areas for High Density Residential development in order to meet Jordan's share of the Region's affordable housing goals.
2. Encourage and support new development and redevelopment in the Mixed Use areas to provide a variety of housing options.
3. Maintain a suitable lot inventory to provide opportunities for new housing of all types.

GOALS AND POLICIES

The City of Jordan supports the Metropolitan Council's Housing Policy Plan. The City has identified the following goals and policies:

Housing Goal #1: Maintain, manage, and preserve its existing housing stock.

Policies:

- The City of Jordan implemented a Rental Housing Registration Program in 2016. It is recommended the City revisit the need and desire to implement a rental inspection program.
- Consider housing programs such as the Small Cities Development Grant to assist with residential rehabilitation in targeted areas of the community where the housing stock is older and in need of rehabilitation.
- Be aware of and promote programs offered through the Scott County CDA, Twin Cities Habitat for Humanity, Minnesota Housing and Finance Agency, and USDA Rural Development for residential rehabilitation.

Housing Goal #2: Expand housing options for people in all life stages and of all economic means through a balanced approach of expanding housing choices for low- and moderate-income households in higher-income areas and enhancing the livability of low-income neighborhoods.

Policies:

- Recognizing the aging population, continue to guide and zone land suitable for additional senior housing, close to goods and services.
- Maintain zoning and subdivision regulations allowing for the construction of a variety of housing types and price ranges.
- Continue to utilize City ordinances for planned unit developments that provide a mixture of housing types.
- Promote the development of multifamily housing units in areas that are physically suited to serve higher densities.
- Market and encourage development on existing vacant lots.
- Consider development of local fair housing policy, particularly if there is the possibility of pursuing Livable Communities Act funding for a housing development in the city.

Housing Goal #3: Promote environmentally sustainable and healthy buildings, construction techniques, and development patterns.

Policies:

- The City of Jordan became a "GreenStep City" in 2015. Continue to work to implement the various steps, including potential amendments to the zoning and subdivision ordinances to promote sustainability.

- Require the integration of open spaces within residential developments in order to maintain a living environment that is consistent with the City's vision and guiding principles.

- Continue to explore sustainable energy options such as solar power.

Housing Goal #4: Reduce barriers to the development of mixed-income housing to create vibrant, diverse communities that offer choices to a range of households.

Policies:

- The City has identified parcels in and near the downtown which could support mixed income housing, while providing access to goods and services for the residents and a market for the commercial businesses. Consider Planned Unit Development overlays to support a mix of housing units.

Housing Goal #5: Provide access to public programs and financial programs to assist in providing a well-preserved housing stock, variety of housing options, including but not limited to affordable housing.

Policies:

- Affordable housing programs are coordinated through the Scott County Community Development Agency. Continue to collaborate with the County on various programs, including but not limited to:
    - Housing Rehabilitation Loan Program – This is a countywide program available to families/individuals at 80% of the median area income.
    - First Time Homebuyer Program – This is a countywide program available to first time homebuyers at or below 80% of median family income, within all communities in Scott County.
    - Conduit Bond Financing – Scott County Community Development Agency generally offers conduit bond financing for housing projects within cities in Scott County, although individual cities may also authorize conduit bonds.
    - Housing Vouchers – Scott County Community Development Agency, offers the Housing Voucher Program in Jordan. The federally funded program allows the HRA to pay for up to 70% of a tenant's rent to the landlord, with the balance (up to 30% of the rent) being paid by the tenants.
    - County owned housing in the community – Scott County Community Development Agency has 14 public housing units in Jordan, including a 46-unit Jordan Valley Townhomes project.
    - Rural Development 515 Project – The Scott County Community Development Agency utilized this federal program for the 22-unit Britland Apartment project in Jordan.
- Be aware of and promote programs offered through the Twin Cities Habitat for Humanity, Minnesota Housing and Finance Agency, and USDA Rural Development and Small Cities Development Grant program.

Housing Goal #6: Provide linkages between housing, recreation, and employment.

Policies:

- One of the goals of the Comprehensive Plan is to improve linkages between housing, recreation, and employment. This may be accomplished through subdivision design with collector streets and trail and sidewalk connections.

- According to the 2010-2014 ACS, there were 3,223 workers over 16 in the labor force. Of these, 23 people reported they walked to work, 7.4% (224 people) worked from home, and 1.4% (41) commuted by "other means."
- As the City grows additional industrial and commercial employment opportunities will be available for residents. Providing pedestrian routes for those walking or bicycling, especially along collector streets and arterials will assist in providing important links between residential neighborhoods and places of employment and retail/service.

IMPLEMENTATION PLAN

To meet the above goals, the City has identified the following tools:

TABLE 6-14
EXISTING HOUSING NEEDS IMPLEMENTATION TOOLS

Identified Need	Available Tools	Circumstances and Sequence of Use
Maintain, manage and preserve existing housing stock	Rental Housing Registration Program	As of 1/1/2016, all rental properties must be registered with the City of Jordan. This enables the City to track safety issues and to ensure rental housing is safe and sanitary.
	Small Cities Development Grant	On a case-by-case basis, the City will evaluate whether this program is appropriate to assist with residential rehabilitation in targeted areas of the community where the housing stock is older and in need of rehabilitation.
	Scott County Community Development Agency (CDA)	We will coordinate with the Scott County Community Development Agency to best align their resources with this stated need. CDA programs include, but are not limited to, affordable mortgage products, first-time homebuyer counseling/education, and post-purchasing homeowner counseling and education.
	Local Funding Sources	We will explore and promote programs offered through the Twin Cities Habitat for Humanity, Minnesota Housing and Finance Agency, and USDA Rural Development for residential rehabilitation.
Provide access to public programs and financial programs	Scott County CDA	We will coordinate with the Scott County Community Development Agency to best align their resources with this stated need.
	Referrals	We will review and update our reference procedures and training to applicable staff by 2025 to ensure we have the ability to refer residents to any applicable housing programs outside the scope of our services.
Senior Housing	TIF	It is unlikely the City will support TIF for this use.
	Scott County CDA	We will coordinate with the Scott County Community Development Agency to best align their resources with this stated need.
	Referrals	We will review and update our reference procedures and training to applicable staff by 2025 to ensure we have the ability to refer residents to any applicable housing programs outside the scope of our services.
Expand housing options	City Ordinance	We will review our Zoning and Subdivision Ordinances by 2021 to ensure regulations allow the construction of a variety of housing types.

TABLE 6-15
PROJECTED HOUSING NEEDS IMPLEMENTATION TOOLS

Identified Need	Available Tools	Circumstances and Sequence of Use
Allocation of Affordable Housing Need below 30% AMI (107 units)	Guiding land at densities supporting affordable housing	See Future Land Use Plan
	Scott County CDA	We will coordinate with the Scott County Community Development Agency to best align their resources with this stated need.
	Tax Increment Financing	It is unlikely the City will use TIF for housing development.
	Tax Abatement	It is unlikely the City will use this tool for this type of housing development.
	Local Funding Sources	We would consider supporting/sponsoring an application to Livable Communities Account program for multi- family rental proposals with units suitable for large families, and in areas guided for high density residential.
	Local Funding Resources: HOME	We would consider, on a case by case basis, the possibility of an application for HOME funds to address this housing type.
	Super RFP	We would consider supporting/sponsoring an application to Super RFP programs for housing affordable at less than 30% AMI in the highest density locations of our future land use map.
	Housing Bonds	We would consider issuing Housing Bonds to support this housing type in our highest density locations of our future land use map.
	Site Assembly	We would consider supporting/sponsoring an environmental clean-up grant application for housing affordable below 30% AMI. The City will consider acquiring and assembling sites through EDA powers as opportunities arise.
Allocation of Affordable Housing Need between 31% and 50% AMI (63 units)	Guiding land at densities supporting affordable housing	See Future Land Use Plan
	Scott County CDA	We will coordinate with the Scott County Community Development Agency to best align their resources with this stated need.
	Tax Increment Financing	It is unlikely the City will use TIF for housing development.
	Tax Abatement	It is unlikely the City will support Tax Abatement for this use.
	Local Funding Sources	We would consider supporting/sponsoring an application to Livable Communities Account program for multi- family rental proposals with units suitable for large families, and in areas

Identified Need	Available Tools	Circumstances and Sequence of Use
		guided for high density residential.
	Local Funding Resources: HOME	We would consider, on a case by case basis, the possibility of an application for HOME funds to address this housing type.
	Super RFP	We would consider supporting/sponsoring an application to Super RFP programs for this use in the highest density locations of our future land use map.
	Housing Bonds	We would consider issuing Housing Bonds to support this housing type in our highest density locations of our future land use map.
	Site Assembly	We would consider supporting/sponsoring an environmental clean-up grant application for this use. The City will consider acquiring and assembling sites through EDA powers as opportunities arise.
	Community Land Trust	If Scott County CDA implements a community land trust program, the City will consider a partnership supporting homeownership for households between 31 and 50% AMI.
Allocation of Affordable Housing Need between 51% and 80% AMI (124 units)	Guiding land at densities supporting affordable housing	See Future Land Use Plan
	Scott County CDA	We will coordinate with the Scott County Community Development Agency to best align their resources with this stated need.
	Tax Increment Financing	It is unlikely the City will use TIF for housing development.
	Tax Abatement	It is unlikely the City will support Tax Abatement for this use.
	Local Funding Sources	We would consider supporting/sponsoring an application to Livable Communities Account program for multi- family rental proposals with units suitable for large families, and in areas guided for high density residential.
	Local Funding Resources: HOME	We would consider, on a case by case basis, the possibility of an application for HOME funds to address this housing type.
	Super RFP	We would consider supporting/sponsoring an application to Super RFP programs for this use in the highest density locations of our future land use map.
	Housing Bonds	We would consider issuing Housing Bonds to support this housing type in our highest density locations of our future land use map.
	Site Assembly	We would consider supporting/sponsoring an environmental clean-up grant application for this use. The City will consider acquiring and assembling sites through EDA powers as opportunities arise.
	Community Land Trust	If Scott County CDA implements a community

Identified Need	Available Tools	Circumstances and Sequence of Use
		land trust program, the City will consider a partnership supporting homeownership for households between 51 and 80% AMI.
Lot Inventory	Guiding land for a variety of residential development	See Future Land Use Plan
	City Ordinance	We will review our Zoning and Subdivision Ordinances by 2021 to ensure regulations allow the construction of a variety of housing types.
	Development Processes	We will review development processes by 2022 to ensure development applications are processed in a fair and timely matter.
Maintain, manage and preserve existing housing stock	4d tax incentive program	It is unlikely the City will support tax incentive programs for this use.
	Housing Improvement Areas	It is unlikely the City will designation Housing Improvement areas for this use.
	Support for existing Manufactured Home Communities	The City will support the existing manufactured home community within city limits as needed. Support may include infrastructure, referral to homeownership programs, and tenant rights education.

RESILIENCE

OVERVIEW

Resilience is a resistance to shock and a quick bounce back from long term disruption. In the context of planning, this often refers to response to environmental events that have the potential to have a severe impact on a community. Examples include extreme weather, droughts, flooding, elevated temperatures, and other similar events. An increase in these events has the potential to overwhelm the city's existing systems for managing impacts, and to risk damage to the community.

A resilient community is one that is able to survive, adapt, and grow regardless of what kinds of chronic stresses and acute shocks it experiences. In order to analyze potential future shocks to the city, it is important to consider current and predicted natural trends. With an understanding of how the city may be affected by those natural shocks, it is possible to reduce the risks in the event that they materialize. It is also important that the City understand existing conditions and approach in order to determine where additional attention could be paid to ensure resilience to future disruptions. This chapter is informed by the the Minnesota Department of Natural Resources, the Metropolitan Council, and the City of Jordan. It provides an overview of opportunities to improve the City's resilience to natural shocks in the coming decades. For more information on water, stormwater, and sewer related improvements, see the Utilities chapter.

Why Plan for Resilience?

Planning for resilience is important to the long term health and vitality of the community. Potential benefits to Jordan include:

- More efficient and effective response to major disruptive events and emergencies
- Reduction of risk for property damage, environmental damage, and even loss of life as a result of a major event
- Lower costs in the long term for property maintenance and energy consumption due to investment in efficient technologies and materials
- Reduced burden on waste disposal systems (solid waste and wastewater) though more efficient systems and waste reduction
- Supporting the image of the community as a green and sustainable place is attractive to many residents

COMMUNITY BASELINE

This section describes the City's existing approach to planning for resilience, including current context, initiatives completed to date and resources available.

I. CONTEXT

The City of Jordan is an attractive, green community, with many natural amenities. However, the city is not immune to natural shocks. For instance, due to the city's location and topography, a large portion of the central portion of the city is located in a floodplain. This means it is vulnerable to flooding – something that it has experienced from time to time throughout the history of the city. Scott County records show measurable flood events (riverine and flash flooding) in Jordan and nearby areas in 1960, 1969, 1993, 1997, 1998, 2001, 2006, 2008, and 2014 – resulting in millions of dollars in property damage. While various flood control improvements have been made since the 1960s, such as the Sand Creek Levee, elevated levels of precipitation still can pose a threat to the community if they exceed the capacity these measures were designed to manage.

Jordan has recent experience with heavier-than-usual rain events and their impacts. In June, 2014, the city experienced record levels of rainfall when 12 inches of rain fell over the a two day period. This caused a landslide on the bluff behind Jordan's historic brewery building. In total, the restabilization of the bluff cost $2 million, and almost cost the city an important business. The flood also caused damage in other areas of town, including residential neighborhoods.

Source: Shakopee Valley News (2014)

II. NATURAL CONSTRAINTS TO GROWTH

Jordan lies within the Minnesota River Valley Basin and is home to many beautiful natural elements. While these elements benefit the community, they also represent some barriers for both development and implementation.

The community features steep slopes that create difficulty in development. The steepest areas run in a north-south line parallel to Sand Creek's eastern bank. These slopes also provide protection to the city from floodwaters. There are a several other ranges of slopes and the city looks to protect these. The city has established ordinances that restrict development in these areas to protect them from irrevocable damage that would change the nature of the community.

The southeastern side of Jordan at the intersection of Highway 169 and Highway 282 is home to a large marsh that creates a barrier for development and is important for maintaining water quality and other natural functions.

Map 2-12 in the Land Use chapter shows areas of the city that are not developable due to topography or other natural features.

III. PROGRESS TO DATE

The City of Jordan currently has in place systems which preserve and enhance the surrounding environment. These include programs like required tree replacement, shoreland overlay zoning, a sustainabile purchasing policy, public land open space dedications, and stormwater management systems.

Additionally, the City has engaged in the voluntary Minnesota GreenStep Cities program created by Minnesota's Clean Energy Resource Teams (CERTs) and the Minnesota Pollution Control Agency (MPCA). The program is designed to increase and achieve sustainability and quality-of-life goals. GreenStep Cities contains a series of steps, progressing from one to five, that indicate respective levels of community sustainability and resilience.

As of June 2017, The City of Jordan had achieved Step Three status in the GreenStep Cities program by completing a total of 36 actions. The actions fulfill requirements in any of five different categories: Buildings and Lighting, Land Use, Transportation, Environmental Management, and Economic and Community Development. Each category must have at least one best practice completed – many of which are a combination of policy and physical implementation – to advance to steps two and three. A list of completed actions can be found on page 7-15.

IV. STAFF AND FINANCIAL RESOURCES

The following groups play a key role in moving forward with an approach to a resilient community in Jordan. This includes everything from providing oversight to implementing improvements.

- Jordan's **City Council** provides leadership for the city as a whole on all areas related to resilient communities. This includes both enforcement of existing regulations and standards, and support for new initatives and approaches.

- Jordan's **Planning Department** works on both the policy and implementation of a resiliency strategy for Jordan, particularly in relation to the city's growth and

development. Its responsibilities include reviewing permits to assess impervious surface, administering to development in the floodplain, and work with the Public Works department to develop green space across the City of Jordan. It also has been engaged on special projects, such as tracking GreenStep Cities progress, and working with solar energy initiatives. The **Planning Commission** provides leadership in these areas as well, making decisions and determinations related to the development of the community.

- Jordan's **Public Works Department** manages initiatives that relate to the City's public infrastructure, systems, and places. This includes parks management, wastewater treatment, facilitating water metering, and maintenance of public facilities.

- **Community partners** play important roles with regards to specific topics and areas. These include, but are not limited to:
    - **Scott Watershed Management Organization** provides a range of services and resources to support water quality improvement, monitoring, and management.
    - **Neighboring townships** – including St. Lawrence and Sand Creek – provide oversight and governance for areas outside the Jordan city limits.
    - **Business associations** – including the Jordan Commercial Club – provide opportunities to partner on projects and initiatives that involve and/or benefit the city's business districts.
    - **Residents of Jordan** – since a number of initiatives require some participation of residents for implementation, involvement and support from the public is important.
    - **Minnesota GreenStep Cities** – as part of its role, this organization provides free technical assistance and access to information on a range of topics related to resilience and sustainability.
    - **Minnesota Department of Natural Resources (MnDNR)** – The MnDNR is a partner of the City of Jordan for support in administration of the City's floodplain ordinance, implementation of the Community Rating System (CRS), and implementation of flood control improvements.
    - **Scott Soil and Water Conservation District (SWCD)** – With offices located near Jordan, the SWCD is charged with helping Scott County citizens protect and preserve land and water resources.
    - **Utility companies** – companies that serve Jordan, including Minnesota Valley Electric, Xcel Energy, and Centerpoint Energy, are charged with finding ways to support improved energy conservation, efficiency, and diversification of energy sources in their service areas.

EXISTING CONDITIONS

This section outlines information about several topics related to resilience in Jordan. It should be noted that this does not duplicate topics that are covered in more detail in other chapters. These include:

- Utilities – water, sewer, and wastewater infrastructure
- Parks – protected open space area

- Land Use – existing natural resource areas and planned development patterns
- Transportation – walking and bicycling infrastructure

I. ENERGY USE AND CONSERVATION

Energy Use

Businesses and residents in Jordan are served by Minnesota Valley Electric Coop (MVEC) and Xcel Energy for electricity and CenterPoint Energy for natural gas.

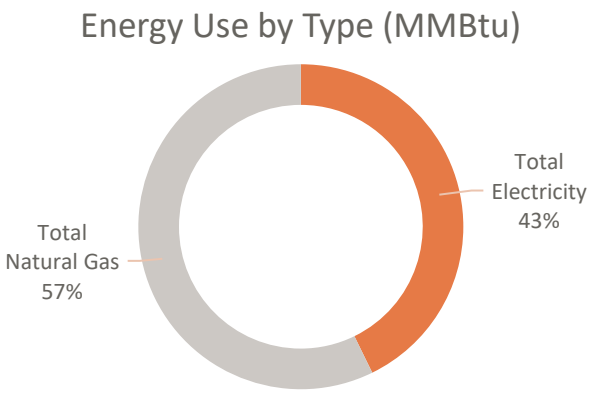


Figure 7-1 Data Source: Xcel Energy Community Energy Reports, and the U.S. Department of Energy

Figure 1 demonstrates that consumers use more natural gas than electricity, with 57% of the energy consumed in buildings coming from natural gas. Natural gas is primarily used for space and water heating, cooking, and various industrial processes. Electricity is used for appliances, water and space heating, space cooling, lighting, commercial and industrial processes, as well as other electronic devices. Residential consumers and commercial consumers each account for 50% of energy use in Jordan.

Greenhouse gases (GHG) are emitted from burning conventional fuels like coal and natural gas, which are both inputs in the production of electricity. GHGs are also emitted from burning natural gas, propane, or fuel oil for space and water heating, as well as cooking and other uses. Figure 2 indicates that a greater share of GHG emissions from all buildings (commercial and residential) in Jordan come from consumption of electricity (60%) as compared to natural gas (40%), despite natural gas being a greater share of the community's energy consumption.

Transportation energy is almost exclusively attributable to car and truck travel within the city boundaries. It is estimated by the vehicle miles traveled (VMT) regardless of through traffic or with an origin or destination in the city. Regional Indicators Initiative data shows that approximately 25,963,075 vehicle miles were traveled within Jordan in 2014. The greenhouse gas emissions associated with this travel is approximately 214,426 tonnes of CO2e, or about 39% of the city's total GHG emissions.

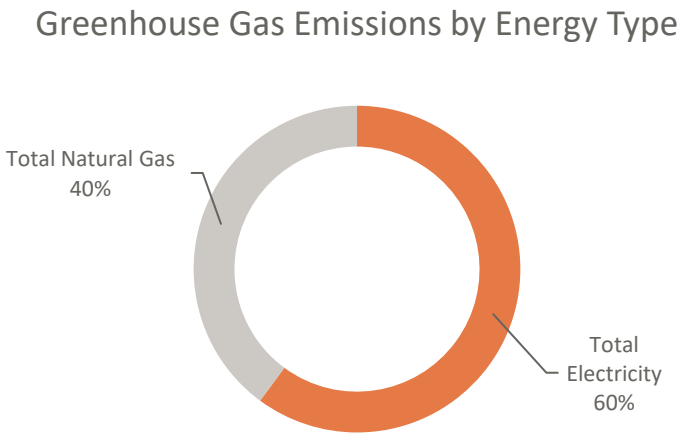


Figure 7-2 Data Source: Xcel Energy Community Energy Reports, and the U.S. Department of Energy natural gas consumption model estimates

The energy use data gathered for building energy consumption and transportation illustrate a clear picture of the major sources of GHG emissions in the community, as seen in **Figure 7-3** . The largest share of emissions come from residential and commercial (buildings) energy consumption, making up 69% of total emissions. Broken down by sector, residential energy use accounts for 34% of emissions, while the commercial sector accounts for 35% of all emissions. Transportation makes up 31% of total emissions.

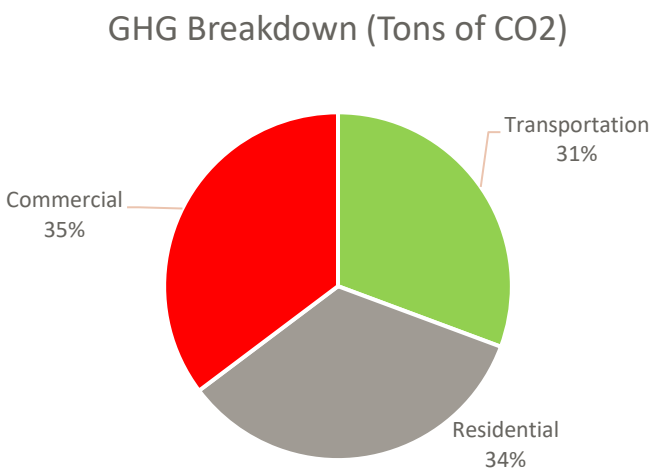


Figure 7-3 Data Source: 2013 Regional Indicators Initiative Report

Conservation

GHGs emitted from building energy use in Jordan are evenly split between residential and commercial sectors. Since the commercial sector has fewer buildings than the residential sector (shown in **Figure 7-4**), but nearly as much energy consumption, focusing on commercial and industrial building energy use is a potentially high-impact strategy for reducing the city's total GHG emissions. A single successful efficiency investment in the commercial sector could reap the efficiency benefits similar to dozens of residential successes.

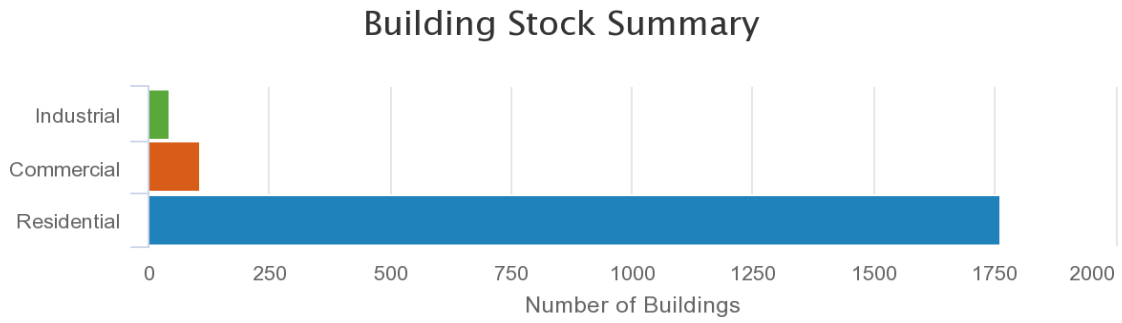


Figure 7-4 Data Source: https://apps1.eere.energy.gov/sled/#/

Residential efficiency opportunities tend to be more standardized than commercial opportunities. Examples of efficiency opportunities are in building envelopes, heating and

cooling equipment, lighting, appliances, and plug loads. These solutions can reduce typical residential household energy use by 20-25%.

Xcel Energy offers incentives to both residential and business customers to help increase energy efficiency action. Participation rates in 2016 are shown in **Table 7-1**. Since not all customers in Jordan utilize Xcel Energy, the table does not provide a complete picture of the city.

TABLE 7-1
PARTICIPANTS IN XCEL ENERGY'S REBATE PROGRAM

Sector	Rebates Given	Electricity Savings (kWh)
Business	11	656,499
Residential	22	9,907

Using carbon free (wind and solar) or carbon-neutral (biomass) energy sources and investing in energy efficiency can significantly reduce the amount of greenhouse gases that are attributable to building energy use. Jordan's electric energy supply will increasingly become cleaner as utilities add more clean energy each year. Developing local clean energy capacity for homes and businesses, or through mechanisms such as community shared solar systems, is an alternative to a supply-side effort.

Transportation efficiency is another significant resource, as travel comprises 31% of the city's GHG emissions. GHG emissions can be reduced with three distinct strategies:

1) fuel switching to a low-carbon or carbon-free fuel;
2) improved efficiency (miles per gallon) or right-sizing vehicles to the vehicle use;
3) mode shifting, or increased use of non-motorized or transit options.

Electric vehicle markets are poised for rapid expansion over the next decade, and the city has opportunities to accelerate market transformation and reduce GHG emissions associated with transportation fuels and vehicle use. For example, including EVs in city fleets, investing in public charging stations, and promoting EV benefits can help drive consumers to choose electric vehicles. Improved efficiency in vehicles will also occur via increased use of hybrid models. Further, land use changes that improve connectivity for bike and pedestrian traffic within the city and to regional trails can help to reduce the local VMT while improving the physical health of residents and visitors.

II. SOLAR ENERGY

The University of Minnesota developed a high-resolution solar resource map that allows cities statewide to calculate how much electricity they could potentially receive from locally installed solar energy systems. These data (see **Map 7-1)** were used to calculate the city's solar resource or "solar reserves". Solar reserves are the amount solar energy that is reasonably economically available for development, similar to how oil or gas reserves are measured. The solar map shows good sites for solar installations and helps identify where there may be land use conflicts with solar development.

Table 7-2 shows the amount of solar energy reasonably available for development in Jordan. The gross potential includes the total available resource, regardless of location; rooftop capacity and generation include only the resource available on the rooftops of commercial buildings located in the city.

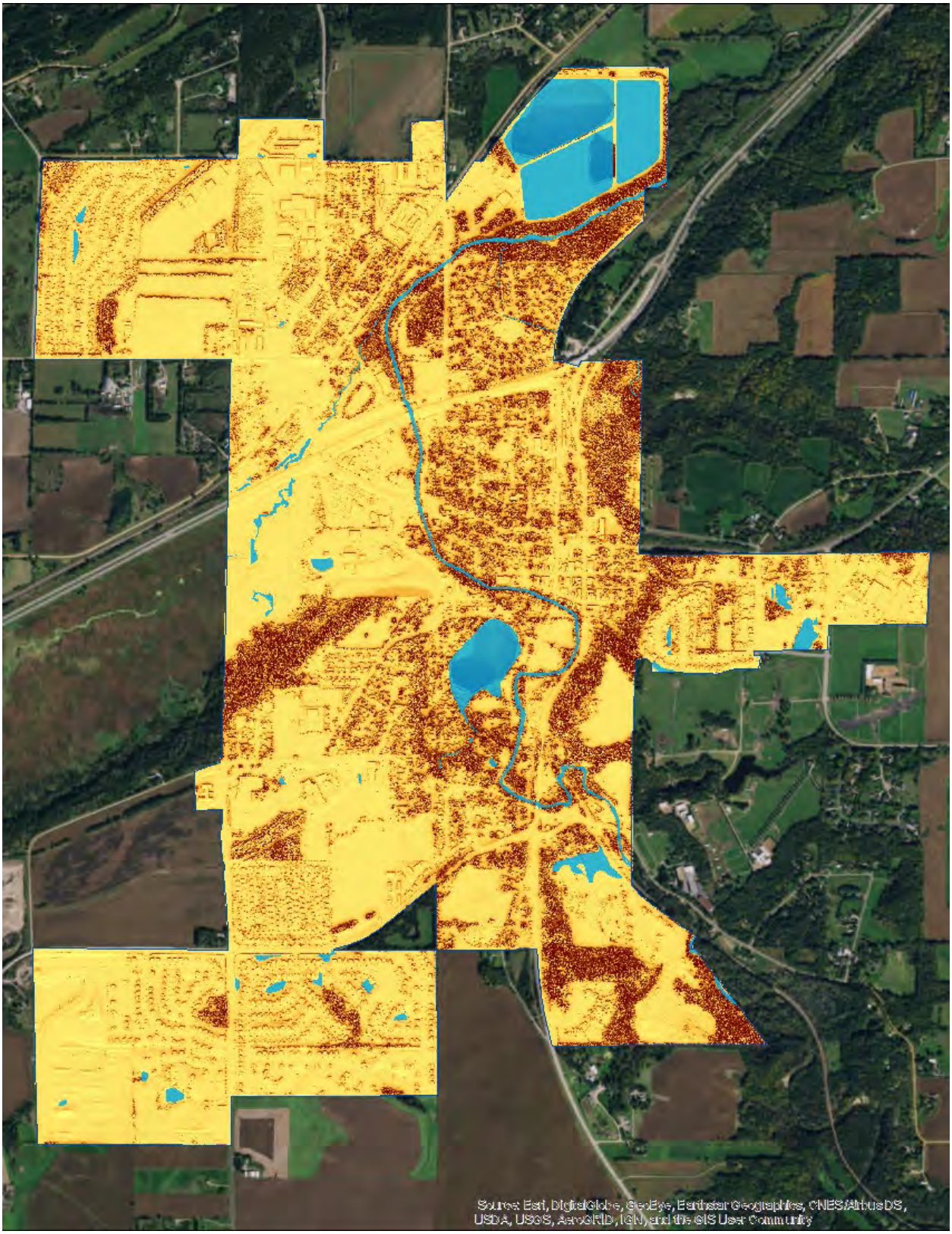
TABLE 7-2
JORDAN ROOFTOP SOLAR RESOURCE

Gross Generation Potential	Rooftop Generation Potential	Rooftop Capacity	Top 10 Rooftop Potential
481,640 MWh/year	30,243 MWh/year	23 MW	5,758 MWh/year

Source: Metropolitan Council

Another source of information on solar resource potential is Google's Project Sunroof application https://www.google.com/get/sunroof. This application provides both areawide estimates of solar potential and site-specific recommendations for solar energy options. According to Project Sunroof, there are approximately 1,500 rooftops with solar potential located in the City of Jordan. The application's estimate of rooftop generation potential is comparable to the University of Minnesota's estimates, though it also provides more site-specific details and information on environmental impacts.

MAP 7-1: SOLAR RESOURCE MAP



The total capacity of the economic rooftop solar resource in Jordan is 23 MW, equal to approximately 81% of all the electricity consumed in the city. This means that if the city wanted to maximize its entire commercial rooftop solar resource, it could set a solar generation goal of up to 81% on-site solar generation (note: this is an upper limit, and does not consider individual site limitations due to roof structure, ownership, or local regulations that might limit solar installations). If buildings undergo high levels of energy efficiency investment, the solar resource could meet a higher percentage of electric needs. The efficiency and solar resources are, in this analysis, calculated independently of each other.

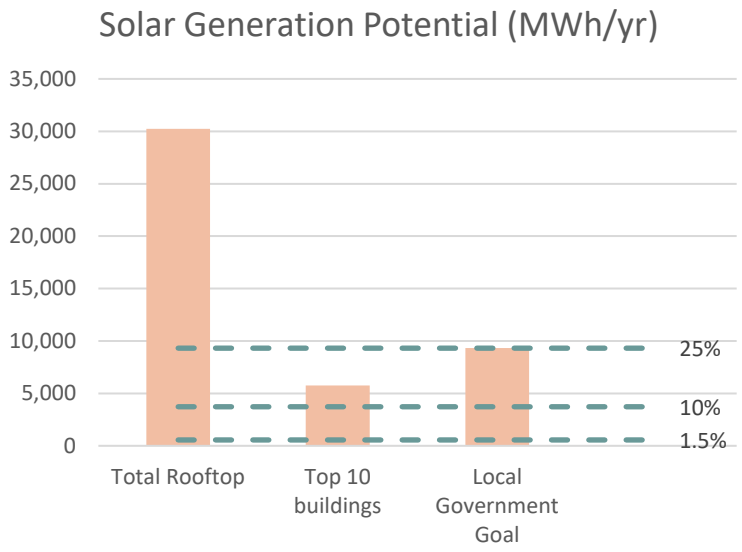


Figure 6 Example of Solar Potential and Community Goal

Solar installations are not limited to rooftop applications; this analysis does not include ground-mount systems. The City will want to develop criteria for where they would and would not allow solar installations. For instance, commercial parking lots or public right of ways may make good solar resources, while areas planned for future development or park space may not. These criteria can be used to recalculate potential solar generation and redefine future solar goals for local development.

In 2017, the City of Jordan entered an agreement to offset 120% of its electricity usage through a community solar garden subscription, saving about $3,000,000 over the 25-year contract.

The City of Jordan will ensure protection of the ability to install solar where appropriate by ensuring access is available according to the Zoning Ordinance. The City supports the development and utilization of other forms of renewable energy as well. Wind and Ground Source Heat Pumps are also allowed in zoning code §154.390.

The City of Jordan is currently pursuing Bronze designation through the SolSmart program. SolSmart is a national designation program that recognizes local jurisdictions that help to develop established markets for solar energy.

SolSmart's criteria for Bronze designation include:

1. Public statement of solar goals via a Commitment Letter and tracking of key metrics such as number of systems and installed capacity. These goals should include the communities intended areas of focus for the SolSmart Designation, and a commitment of staff resources.

2. Solar permit checklist posted online detailing the steps of the permitting process for solar.

3. Review of zoning requirements and identification of restrictions intentionally or unintentionally prohibiting solar photovoltaic (PV) development. Compile findings in a memo, and commit to reducing barriers to PV during next zoning review. Examples include height restrictions, setback requirements, allowing solar "by-right" in residential and commercial zones without requiring a conditional use permit.

4. The community achieves at least 20 points in the Permitting, and at least 20 points in the Planning, Zoning, and Development Regulations categories.

5. The community achieves 20 points across the remaining categories.

III. RECYCLING AND WASTE REDUCTION

Excess waste is not consistent with a resilient vision for the community. Landfills (the primary method of waste disposal) consume land, and can cause environmental contamination. Items in landfills are also lost to the system in terms of potential economic value – such as metals and glass.

According to Minn. Stat. § 115A.55, "It is a goal of the state and counties to reduce the generation of municipal solid waste." Since the 1980's, state legislation has set county-level recycling goals, in terms of a percentage of total solid waste generation. Under the current law, the seven metropolitan counties (including Scott County) have a 50% by weight goal. This will increase to 75% by 2030.

Source: Minnesota Pollution Control Agency

In a report entitled *Report on 2015 SCORE Programs: A summary of recycling and waste management in Minnesota* (2017), Minnesota Pollution Control Agency (MPCA) indicated that around 68% of waste in Minnesota counties currently is diverted from landfills. Statewide studies have shown there is potential to do more – an estimated 70% of what is currently disposed of could be recycled.

The biggest source of diversion from landfills has been recycling. In Minnesota, this includes recycling of paper, glass, metal, plastic, and (more recently) organics. The City of Jordan is already committed to encouraging expanded recycling efforts. Curbside recycling is available citywide on the same day as garbage collection. Organics recycling is available on a subscription basis – similar to yard waste pickup. The cost of organics recycling is currently being subsidized by Scott County to support the expansion of this practice. This has been a trend countywide: organics recycling is the fastest growing category in terms of type of recyclable material collected.

Much of the opportunity for improvement will center around ensuring that recycling is simple and convenient, and that the public is educated about the benefits of waste reduction.

IV. TREE CANOPY

Jordan has a significant tree canopy, both in developed and undeveloped areas. According to Earth Define, a geospatial information company, 28.3% of Jordan is covered by a trees. The tree canopy in a community serves a number of important functions, including:

- Air quality – produce oxygen, capture CO_2, and collect airborne particulate matter
- Energy conservation – serve as natural air conditioners and wind breaks
- Water quality – support filtration and retention of water, and minimize stormwater runoff
- Aesthetics – add natural beauty and character to a community
- Wildlife habitat – provide homes for various birds, insects, and other animals
- Property values – studies have shown that the presence of trees has a positive impact on property values and occupancy rates

The Scott County Soil and Water Conservation district has had a program for decades that encourages Scott County landowners to plant trees on their property.

The City of Jordan's Subdivision Ordinance states that "subdivision shall be planned in such a manner that the optimum number of significant trees shall be preserved" (§ 153.11) – and includes the requirement that a tree preservation plan be submitted when appropriate. The ordinance also specifies criteria for replacement trees.

The City could consider pursuing Tree City USA status. Tree City USA is a voluntary program administered by the National Arbor Day Foundation since the 1970's, to encourage cities to manage and expand tree coverage in their community. To quality, the City would need to meet four established standards: designating a tree board or department, establishing a tree care ordinance, maintaining a community forestry program with a budget of at least $2/capita annually, and having an Arbor Day observance and proclamation.

TREE CITY USA®

V. HAZARD MANAGEMENT AND MITIGATION

With the likelihood of major incidents impacting the community at some time, it is important to have a plan in place for hazard management and mitigation. This should include not just

incident management, but a sense of how the community can recover over time. The initial assessment work should include an assessment of the most vulnerable populations and locations in the city, so that there can be a prioritization of how assistance is provided.

Scott County maintains a multi-jurisdictional hazard mitigation plan that covers the county. The City of Jordan is a participating jurisdiction in this plan and its implemention, which includes developing specific mitigation actions for the city.

GOALS AND POLICIES

I. VISION

The City of Jordan is located in the Minnesota River Valley Basin and surrounded by beautiful bluff lines. By preserving the natural beauty around Jordan, the city will not only provide an area for recreation, but bolster the economy by creating a destination for potential citizens and corporations to visit and take root in.

Increasing the resiliency of the city will allow a more stable quality of life for residents into the future. In a future where increasing amounts of rain fall with increasing frequency, and prolonged droughts and heatwaves become more prevalent, it is important to consider how the City will respond and adapt.

II. GOALS AND POLICIES

Resilience Goal #1: Sustainability in all Policies. The City will attempt to coordinate resilience efforts through the all departments throughout the city. Along with this, the City will reach out to utility providers and other partners to try to coordinate systems that will lead to a more efficient and sustainable city. There is an opportunity for all of Jordan's employees to adhere to principles of sustainability which will allow the city to lighten its footprint and save expenses to taxpayers.

Policies:

- Public Works
  - Continue to enforce standard around wastewater and stormwater management, and water quality
  - Change snow plowing practices to reduce salt use
  - Use a dewatering bag to treat wastewater
- Planning
  - Enforce green space and tree preservation and planting requirements to lessen the urban heat island effect
  - Regulate development on bluffs and near water resources
  - Track progress towards goals related to resilience, and participate as appropriate in programs such as Regional Indicators Initiative
- Finance/Administrative
  - Adhere to sustainable purchasing policies
  - Educate residents on water usage and help them save resouces
  - Educate public on importance of recycling and waste reduction

Resilience Goal #2: Energy. The City of Jordan will ensure protection of solar access – and access to other renewables – where appropriate by ensuring the Zoning Ordinance is efficient and represents the best available practices. The City will also encourage energy conservation and efficiency.

Policies:

- Solar Energy
    - Continue to ensure and protect access to direct sunlight for the use of solar energy systems through code §154.394 of the Zoning Ordinance.
    - Faciltate the development of community solar gardens in appropriate locations to diversify the energy supply
    - Pursue the Bronze designation of the City of Jordan through the SolSmart program
- Other Renewables
    - Encourage the development and usage of other renewable sources of energy where appropriate.
- Energy Conservation
    - Support educational efforts to encourage more energy efficient practices in building construction and maintenance

Resilience Goal #3: GreenStep Cities. The City has already achieved Step 3 in the GreenStep Cities program by completing a number of best practices. Those best practices help to reduce the impact that Jordan has on the environment, and also save the city noticeable amounts of money.

Policies:

- Move forward with the GreenStep program, by launching a self evaluation in order to achieve Step 4 and establish a baseline. This will include evaluation of existing best practices, and measurement of current levels of resource usage.

Resilience Goal #4: Resilience Leaders. The City will establish a staff and City Council resilience lead to ensure continued growth and development of the resilience and efficiency of the city. These resilience leaders will be primarily responsible for researching, developing, and implementing the ordinances that will achieve the goals listed above.

Policies:

- Send planners/city councilors/public works employees to conferences to educate them on latest best practices, environmental trends, and science.
- Modify Planning Commission's mission to also include environmental preservation and consideration
- Start an environmental commission or board to provide oversight and guidance for city actions

IMPLEMENTATION

I. OVERALL COORDINATION

The City will establish a staff and City Council resilience lead to ensure continued growth and development of the resilience and efficiency of the city. These resilience leaders will be

primarily responsible for researching, developing, and implementing the ordinances that will achieve the goals listed above.

The City will attempt to coordinate resilience efforts through all departments. Along with this, the City will reach out to utility providers to try to coordinate systems that will lead to a more energy efficient city. The City will also reach out to nearby communities to attempt to create multi-jurisdictional and private organization partnerships. These entities include neighboring townships, Scott County, schools, the Jordan Commercial Club, and the Jordan Economic Development Authority.

The City will engage the public through various forms of media to connect the cities goals to the aims of residents. In doing this, the City will establish a clear path for which to develop sustainable and efficient programs that will fit both the view of the city and the view of citizens.

II. PUBLIC AND POLITICAL ENGAGEMENT

The City will engage the public through the city newsletter, social media, City Council, the Planning Commission, and Jordan's website. This will allow the City to connect its goals with the desires of residents. In doing this, the City will establish a clear path to sustainable programs that fit the view of the city and that of residents.

The Jordan Planning Commission is responsible for many land use conversations and is also the entity that hears feedback on Jordan's progress in Minnesota GreenStep Cities. Responsible planning and land use can prevent costly and dangerous situations in the future, and create economic and social opportunities now.

Jordan's City Council also plays a role in public engagement. Their support of policies that have co-benefits of financial savings and environmental sustainability have broad implications for the city's footprint. Additonally, large projects – specifically those involving infrastructure – that last for multiple decades should include considerations of resilience to future impacts from the climate.

III. EVALUATION

Step 4 of the GreenStep Cities program includes a self-evaluation of sustainability metrics. The City must evaluate six core areas, which include:

- City Buildings and Lighting
- Transportation Modes and Miles
- Open Space, Parks, Trees
- Stormwater
- Wastewater
- Renewable Energy

This framework can be used to further evaluate the City's effectiveness at meeting its goals. Self evaluation will have to be paired with outreach to residents. Community engagement will be key to understanding if residents feel confident that the City is responsive or capable of responding to sudden challenges. **Table 7-3** shows best practices completed to date.

TABLE 7-3
BEST PRACTICES COMPLETED BY JORDAN

Section	Best Practice	Action	Stars
Buildings and Lighting	1. Efficient Existing Public Buildings	**Action 1**: Enter building information into the **Minnesota B3 Benchmarking database** and routinely enter monthly energy, water use data for all city-owned buildings.	2
		Action 2: Make no/low cost **indoor lighting and operational changes** in city-owned/school buildings to reduce energy costs.	3
	3. New Green Buildings	**Action 5**: Adopt environmentally preferable covenant guidelines for new **common interest communities** addressing issues such as stormwater, greywater, native vegetation, growing food, clothes lines and renewable energy.	1
Land Use	6. Comprehensive Plans	**Action 1**: Adopt a **comprehensive plan** or (for Category B & C cities) adopt a land use plan that was adopted by the county or a regional entity.	1
		Action 2: Demonstrate that **regulatory ordinances comply** with the comprehensive plan including but not limited to having the zoning ordinance explicitly reference the comprehensive plan as the foundational document for decision making.	1
		Action 3: Include requirements in comprehensive and/or other plans for **intergovernmental coordination** addressing land use and watershed / wellhead impacts, infrastructure, economic development and city/regional services.	1
		Action 4: Include **ecologic provisions** in the comprehensive plan that explicitly aim to minimize open space fragmentation and/or establish a growth area with expansion criteria.	1
	7. Resilient City Growth	**Action 2**: **Encourage higher density housing** through at least two of the following strategies: a. Incorporate a flexible lot size/frontage requirement for infill development. b. Use density and floor area ratio (FAR) bonuses in selected residential zoning districts. c. Tie a regulatory standard to comprehensive plan language defining compact city expansion zones that limit low-density development. d. Allowing accessory dwelling units or co-housing or tiny houses / apartments by right in selected zoning districts.	1

Section	Best Practice	Action	Stars
		Action 3: **Encourage a higher intensity of commercial land uses** through at least one of the following strategies: a. Include in the city zoning ordinance and zoning map a commercial district with reduced lot sizes and zero-lot-line setbacks, or a FAR minimum of 1. b. Set targets for the minimum number of employees/acre in different commercial zones.	1
	8. Mixed Uses	**Action 1**: Organize or participate in a **community planning**/design process for the city/a mixed use district.	1
		Action 2: Locate or lease a **school, city building or other government facility** that has at least two of these attributes: a. Adjacent to an existing employment or residential center. b. Designed to facilitate and encourage access by walking and biking. c. Accessible by regular transit service.	1
		Action 5: Have a **downtown zoning district** that allows residential and compatible commercial development.	1
	9. Efficient Highway and Auto Oriented Development	**Action 1**: Establish **design goals** for at least one highway/auto-oriented corridor/cluster.	1
		Action 2: Participate in **regional economic development planning** with representatives from surrounding townships, cities, the county and business interests to: a. Estimate commercial/industrial needs among all jurisdictions. b. Jointly implement recommendations to stage highway/auto-oriented commercial development in order to avoid overbuilding and expensive low-density development.	2
	10. Natural Resource Conservation Design	**Action 2**: For cities outside or on the fringe of metropolitan areas, conduct a **build-out analysis, fiscal impact study, or adopt an urban growth boundary** and a consistent capital improvement plan that provides long-term protection of natural resources and natural systems, and agricultural practices outside the boundary.	1
		Action 3: For cities within metropolitan areas, incorporate **woodland best management practices** addressing protection of wooded areas into zoning or development review.	1

Section	Best Practice	Action	Stars
Transportation	12. Mobility Options	**Action 1**: **Promote walking, biking and transit** use by one or more of the following means: a. Produce/distribute route maps, signage or a web site. b. Document increased bike facilities, such as racks, bike stations or showers. c. Add bus infrastructure, such as signage, benches, shelters, park and ride lots, and real-time arrival data-streaming. d. Increase the number of employers promoting multiple commuting options, including offering qualified transportation fringe benefits instead of only a tax-free parking fringe benefit. e. Be recognized as a Walk Friendly or Bicycle Friendly Community.	1
		Action 2: Launch an **Active Living Campaign** such as a Safe Routes to School program.	1
Environmental Management	15. Sustainable Purchasing	**Action 1**: Adopt a **sustainable purchasing policy** or administrative guidelines/practices directing that the city purchase at least: a. **EnergyStar** certified equipment and appliances and b. **Paper** containing at least 30% post-consumer recycled content	1
		Action 2: Purchase energy used by city government with a **higher renewable percentage** than required by Minnesota law.	3
	16. Urban Forests	**Action 4**: **Maximize tree planting** along your main downtown street or throughout the city.	2
	18. Parks and Trails	**Action 1**: Make improvements within your city's system of parks, offroad trails and open spaces.	2
		Action 2: Plan and budget for a network of parks, green spaces, water features and trails for areas where **new development** is planned.	3
		Action 3: Achieve minimum levels of city green space and maximize the **percent within a ten-minute walk** of community members.	1
	19. Surface Water Quality	**Action 4**: Adopt a s**horeland ordinance** for all river and lake shoreland areas.	1
	22. Solid Waste Reduction	**Action 5**: Arrange for a residential or business/institutional source separated **organics collection/management** program.	2
	23. Local Air Quality	**Action 2**: Regulate **outdoor residential wood burning**, using ordinance language, performance standards and bans as appropriate, for at least one of the following: a. Recreational burning. b. Outdoor residential wood boilers.	1

Section	Best Practice	Action	Stars
Economic and Community Development	24. Benchmarks & Community Engagement	**Action 1**: Use a committee to **lead, coordinate and report** to community members on implementation of GreenStep best practices.	2
		Action 3: Measure and report progress on **sustainability indicators**.	2
	25. Green Business Development	**Action 3**: Actively promote **sustainable tourism** in your city, and green tourism resources to tourism and hospitality businesses in/around the city.	1
		Action 7: Conduct or participate in a **buy local campaign** for community members and local businesses.	3
	26. Renewable Energy	**Action 1**: Adopt **solar energy standards or a wind energy ordinance** that allows or encourages appropriate renewable energy installations.	1
		Action 6: Enable a new or demonstrate prior city collaboration for installed private sector renewable energy / energy efficient **generation capacity** with at least one of the following attributes: a. Fueled by flowing water, sun, wind, or biogas. b. Fueled in part or whole by manure or woody biomass, optimized for minimal air and other environmental impacts and for energy efficiency and water conservation. c. Distributing heating/cooling services in a district energy system. d. Producing combined heat and power; using a microgrid.	3
	27. Local Food	**Action 4**: Measurably increase **institutional buying, and sales** through groceries and restaurants. a. Purchasing of local/organic/humane/equitable foods by schools, hospitals, nursing homes and event centers.b. Sales of local/organic/humane/equitable food in markets, retail food co-ops, rural grocery stores, urban convenience stores, hotels and restaurants.	1
	29. Climate Adaptation and Community Resilience	**Action 1**: Prepare to **maintain public health and safety** during extreme weather and climate-change-related events, while also taking a **preventive approach to reduce risk** for community members	2
		Action 6: Reduce the **urban heat impacts** of public buildings, sites, and infrastructure and provide resiliency co-benefits.	2
Totals:	19 Best Management Practices	36 Actions	

ECONOMIC COMPETITIVENESS

OVERVIEW

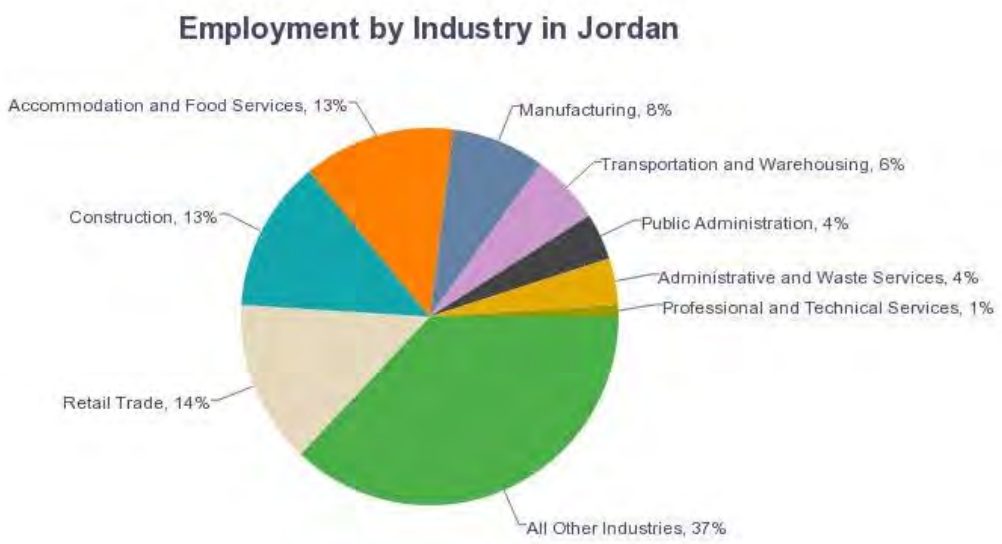
The City of Jordan is situated along U.S. Highway 169 between the Twin Cities and Mankato. The city is served not only by the interstate but also MN Highway 21, MN Highway 282 and County Roads 9, 10, 61, and 66. Located in Scott County, Jordan's economy has changed over the past twenty years and is anticipated to change significantly over the next twenty years. U.S. Highway 169 and the Highway 169 Shakopee bypass assisted in making the public more mobile; allowing Jordan to become a home to those working in other communities. This however, also made it easier for residents and nearby patrons to travel to larger shopping centers rather than shop locally. The composition of Jordan's business district changed as a result. Today, the central business district still features retail and service businesses, real estate services, insurance services, hair care, health care, home improvement, restaurants/coffee shops, churches, and government services. As recently experienced in neighboring Scott County cities of Shakopee, Savage, and Prior Lake, retail and service businesses follow residential development; therefore, as the population continues to increase, additional commercial growth along U.S. Highway 169 as well as within the downtown is anticipated.

The principal components of this section include:

A. Key Industries/Centers of Employment
B. Redevelopment
C. Education and Workforce
D. Business Development
E. Economic Information, Monitoring, and Strategic Initiatives

KEY INDUSTRIES/CENTERS OF EMPLOYMENT

Labor Force:
The following chart illustrates employment by industry in Jordan, as of 2016. The largest sector is Retail Trade (14%), followed by Construction (13%) and Accommodation and Food Services (13%). Generally speaking, the economy is diversified, without reliance on any one industry group.



Source: Metropolitan Council, 2016

Major Employers Within the City

The major employers in the City of Jordan are identified in Table 8-1. Together, these represent around 1,200 employees – nearly three quarters of the overall jobs in the city.

TABLE 8-1
MAJOR EMPLOYERS - JORDAN, 2016

Employer	Product/Service	# of Employees
Jordan Public School District 717	Elementary and Secondary Schools	240
Minnesota River Valley Special Ed. Coop.	Specialty Education	150
S.M. Hentges and Sons	Excavation and Concrete Contractor	150
Minger Construction	Contractors	80
City of Jordan	City Government	77
Oak Terrace	Senior Housing Facilities	75
Engel Diversified Industries	Metal Stampings	70
Jordan Transformer LLC	Feeder Voltage Boosters	67
Wolf Motor Co.	Automobile Dealers	54
Rademacher's Foods	Grocery Stores	50
McDonald's	Restaurants	40
Benjamin Bus	Transportation Services	40
Elite Waste	Refuse Removal and Processing	33
Dynotech	Wholesale Distribution of Transmissions	26
Clancy's Bar and Pizza Restaurant	Restaurants	25
Siwek Lumber and Milling	Lumber Supplies	25

Source: A Commercial/Industrial Demand Analysis for Scott County, Minnesota (2016)

Employment Forecast:
The Metropolitan Council has forecasted an increase of 1,213 jobs between 2010 and 2040, or a 76% increase. In 2010, Jordan provided just under 4% of all of the jobs within Scott County. It is projected that Jordan will slowly increase the percent of jobs it provides within the county, growing to 4.09% in 2040, as depicted below. It is worth noting that the Metropolitan Council estimate for Jordan's employment in 2016 was already at 1,923 jobs – so these forecasts may at some point need to be revised.

TABLE 8-2
EMPLOYMENT PROJECTIONS
SCOTT COUNTY AND CITY OF JORDAN

Forecast Year	Scott Co. Employment	Jordan Employment	Jordan % of Co. Employment
2010	41,534	1,587	3.82%
2020	54,900	2,200	4.01%
2030	61,990	2,500	4.03%
2040	68,440	2,800	4.09%

Source: Metropolitan Council Forecasts

REDEVELOPMENT

Redevelopment sites identified by the Planning Commission and business community include the following, as shown on Map 2-3 in the Land Use chapter:

1. Industrial north of Downtown - 424 Broadway Street North and other adjacent industrial properties; guided for Highway Commercial
2. MAH Enterprises site – 300 Broadway Street North; guided for Neighborhood Commercial
3. Parcels on the southwest corner and southeast corner of the intersection of Highway 282 and Highway 21: guided for Central Business District
4. The four residential properties south of Mini-Met Stadium, along Highway 21: guided for Highway Commercial
5. Commercial/industrial building - 108-112 1st Street West; guided for Neighborhood Commercial
6. Vacant commercial building – 209 Broadway Street South; guided for Central Business District
7. Mixed use building – 216 Broadway Street South: guided for Central Business District
8. Single family home, currently vacant or seeking lease – 419 Broadway Street South: Guided for Central Business District.
9. An existing home located at near the intersection of Ervin Industrial and CR 9, currently surrounded by industrial development.

Minnesota Statutes § 473.859 Subd. 1 states that local comprehensive plans "shall contain objectives, policies, standards, and programs to guide... redevelopment and preservation for all lands and waters within the jurisdiction of the local governmental unit."

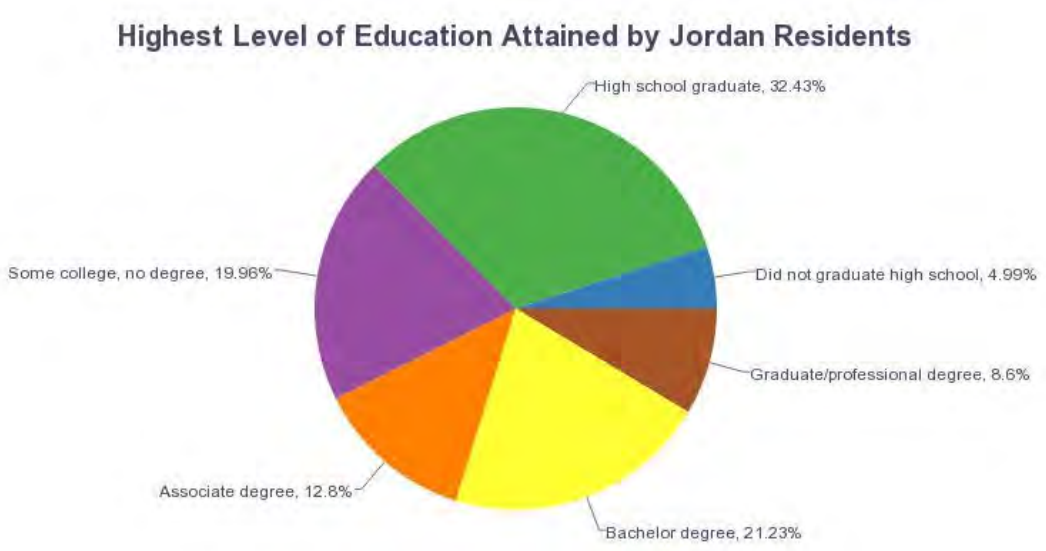
The EDA is asked to develop objectives, policies, standards to programs to guide redevelopment within the city.

Programs provided by the City's EDA include:

- Matching Grant for Façade Improvements in the Downtown
- Matching Grant for Interior infrastructure improvements in the Downtown
- Redevelopment Tax Increment Financing

EDUCATION AND WORKFORCE

According to the 2016 American Community Survey (ACS), there were 3,688 people in Jordan 25 years of age and older. Of these, 95.0% have a high school graduate degree or higher and 29.8% have a bachelor's degree or higher.



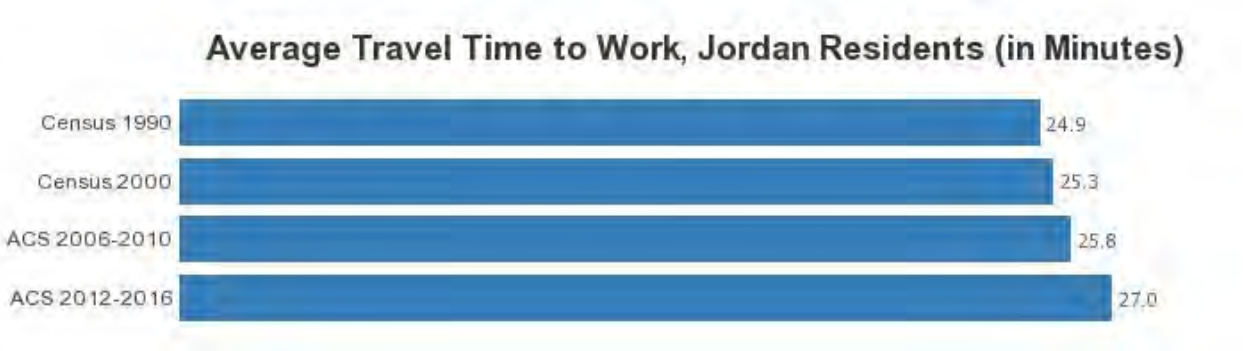
Source: Metropolitan Council, 2016

Within Scott County, 94.9% have a high school graduate degree or higher and 38.8% have a bachelor's degree or higher. Within Minnesota 92.6% have a high school degree or higher and 34.2% have bachelor's degree or higher. Within the US, 87.0% have a high school degree or higher and 30.3% have a bachelor's degree or higher. According to the US Census, eight states have a higher percentage of their adult population possessing a bachelor's degree than Minnesota.

Employment Characteristics

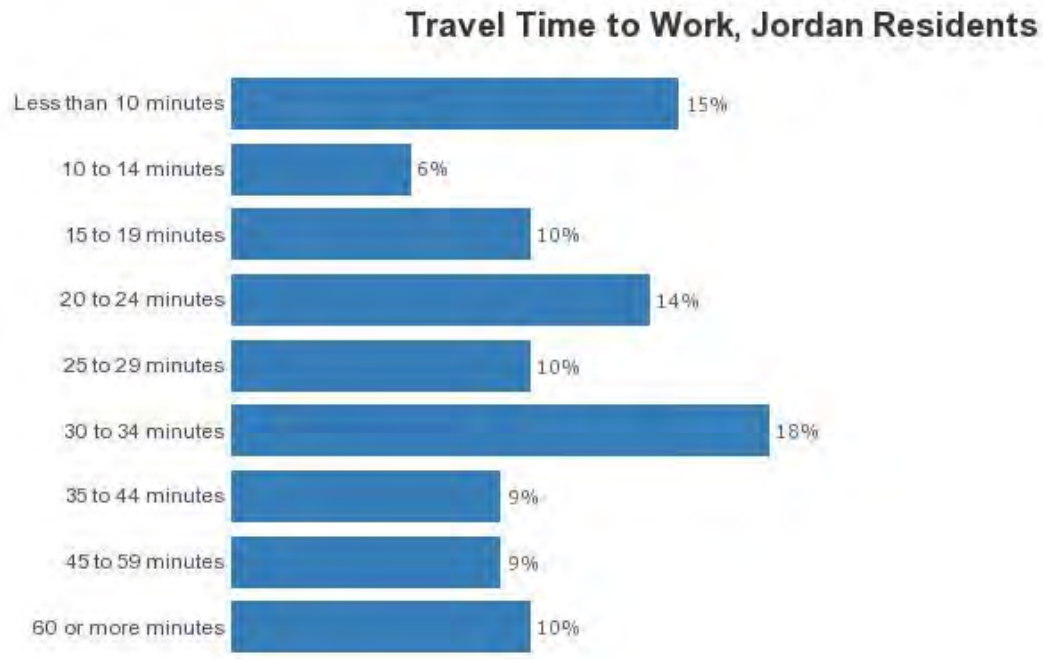
Employment statistics from the 2016 American Community Survey (ACS) indicate there were 3,273 people age 16 and over employed in Jordan. The total civilian labor force was 3,358, with an unemployment rate of 2.5%.

The mean time traveled to work by commuters was 27.0 minutes, up from 25.3 minutes in 2000.



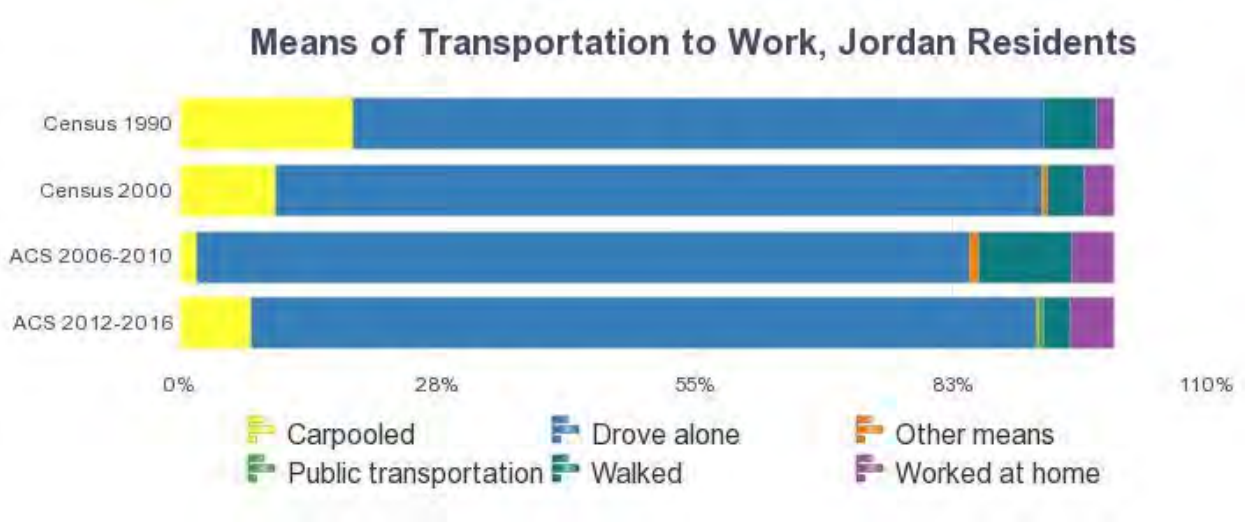
Source: Metropolitan Council, 2016

The following charts illustrates that while 15% of commuters spend less than 10 minutes commuting, 19% spend 45 minutes or more traveling to work.



Source: Metropolitan Council, 2016

As illustrated in the following chart, the percent of employees working from home is increasing; however, the percent of people carpooling has decreased from 1990 and 2000.



Source: Metropolitan Council, 2016

TABLE 8-3
MEANS OF TRANSPORTATION TO WORK- JORDAN, 2016

Transportation Mode	Percent
Car, truck, or van	91.6%
Drove alone	83.9%
Carpooled	7.7%
Public transportation (excluding taxicab)	0.6%
Walked	2.7%
Other means	0.3%
Worked at home	4.8%

Source: Metropolitan Council, 2016

According to the American Community Survey (ACS) 2016, only 56.4% of Jordan workers, 16 years and older work within Scott County. Around 43.5% work elsewhere in Minnesota, and a few work outside of Minnesota.

The Minnesota State Demographic Center reports, "At 4.6%, Minnesota's unemployment rate in April 2014 (seasonally adjusted) was 1.6 percentage points lower than the rate nationwide. In 4th quarter 2013, there were 2.1 unemployed job seekers for each job vacancy statewide. During the recent "Great Recession," this ratio peaked at 8.2 in 4th quarter 2009. This figure is now much more in line with the 2.0 ratio that Minnesota averaged between 2004 and 2007. In 2012, 19% of American Indian workers and 18% of Black workers in Minnesota were unemployed, 2 to 3 times the unemployment rates for White and Asian workers. Additionally, 11% of Hispanics were unemployed."

BUSINESS DEVELOPMENT

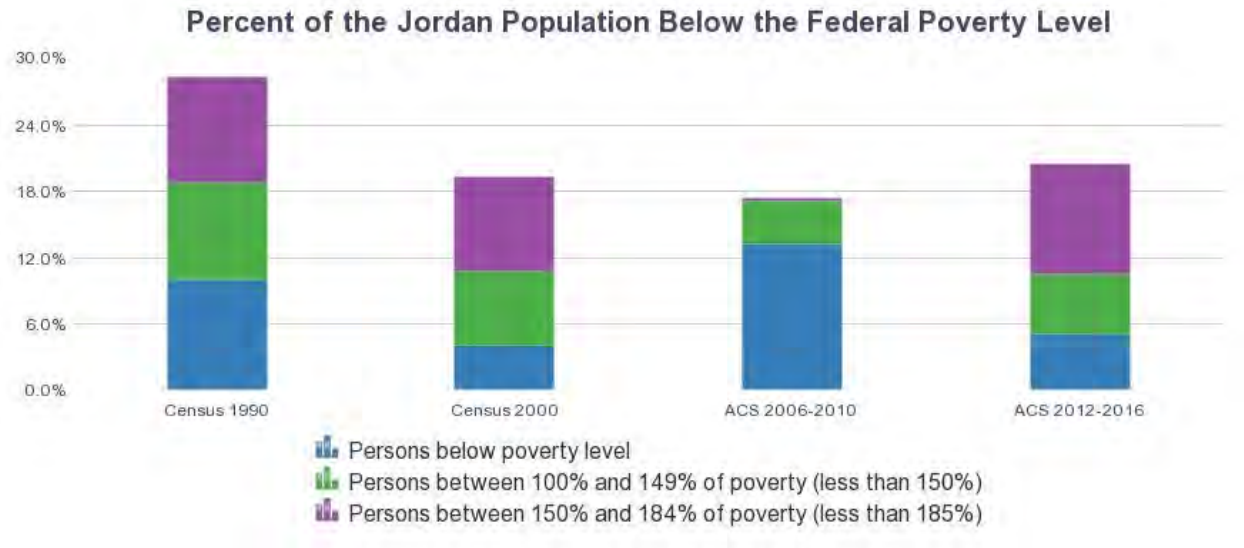
The Jordan EDA will proactively encourage and promote economic development by attracting new business, cultivate existing business, improve the business environment, and strategically utilize resources to create jobs through commercial and industrial opportunities within the community. The EDA will work with Carver County, MN DEED, and other partners as appropriate to leverage applicable programs and initiatives to benefit business development in Jordan.

ECONOMIC INFORMATION AND MONITORING

Economic trends can be important indicators as to the economic health of the community. Following is a summary of several economic indicators including income/wages, labor force and commercial and industrial construction.

Income:
The 2010-2014 American Community Survey 5-Year Estimates report a Median *Family* Income of $82,261 and a Median *Household* income for Jordan of $68,091. The 2010 Census reported a median *family* income in Jordan of $70,933 and median household income of $61,689, suggesting a strong increase in incomes. The 2014 incomes compare to the median *household* income of $86,510 in Scott County, and median household income of $60,828 in Minnesota.

The 2012-2016 American Community Survey 5-Year Estimates report 5.1% of the population in Jordan was below the poverty level. This compares to 5.7% poverty level in Scott County and 10.8% in Minnesota. Poverty levels in Jordan returned to around 2000 levels after a sharp rise between 2006 and 2010.



Source: Metropolitan Council, 2016

The Minnesota State Demographer reports that Minnesota's median household income in 2012 was $58,900, compared to $51,400 for the U.S. as a whole. The typical Minnesota household,

however, has not made any gains in income in recent years, and has income about $2,000 below 2008 levels, in real (inflation-adjusted) terms.

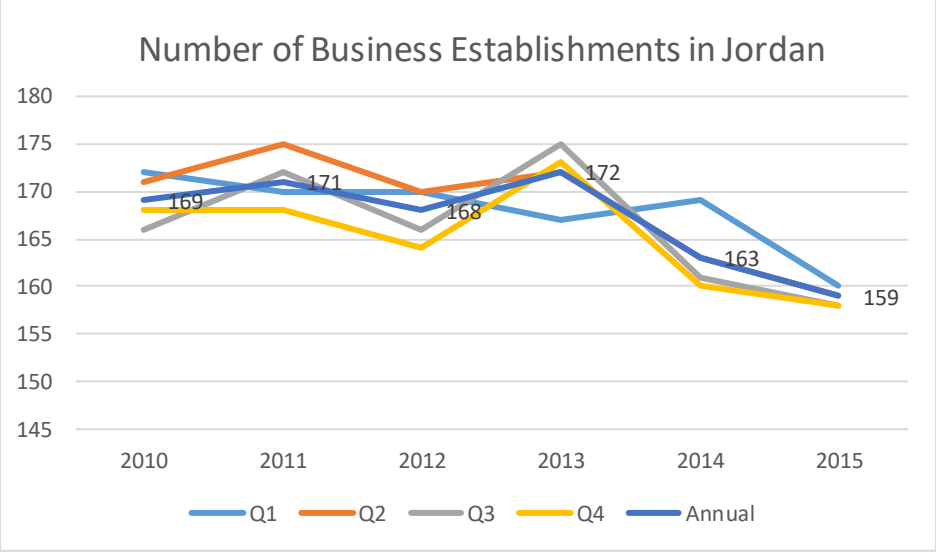
Employment Establishments, Employment and Wages:
The Minnesota Department of Employment and Economic Development provides statistics on trends in the number of business establishments, number of jobs and wages paid by the establishments. Monitoring these trends may assist a city is establishing goals for economic development.

Table 8-4 summarizes data from the 2015 Economic Census, completed by the U.S. Census Bureau, for several employment sectors. The 2015 Economic Census data is the latest full year of statistics available at this time. It should be noted that while the number of business establishments has declined, the number of employees and wages paid in the community have increased.

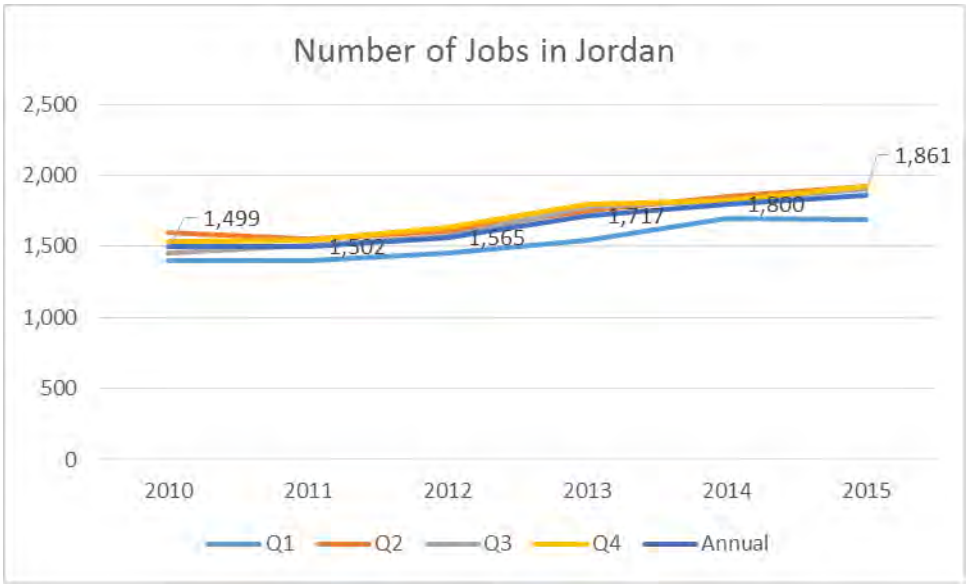
TABLE 8-4
JORDAN COMPARATIVE ECONOMIC DATA – 2010 TO 2015

Year	Number of Establishments	Average Number of Employees	Total Wages
2010	169	1,499	$57,822,517
2011	171	1,502	$58,711,824
2012	168	1,565	$62,300,628
2013	172	1,717	$68,265,102
2014	163	1,800	$73,104,404
2015	159	1,861	$77,489,434

Source: MN Department of Employment and Economic Development, 2010-2015 Economic Census (U.S. Census Bureau)



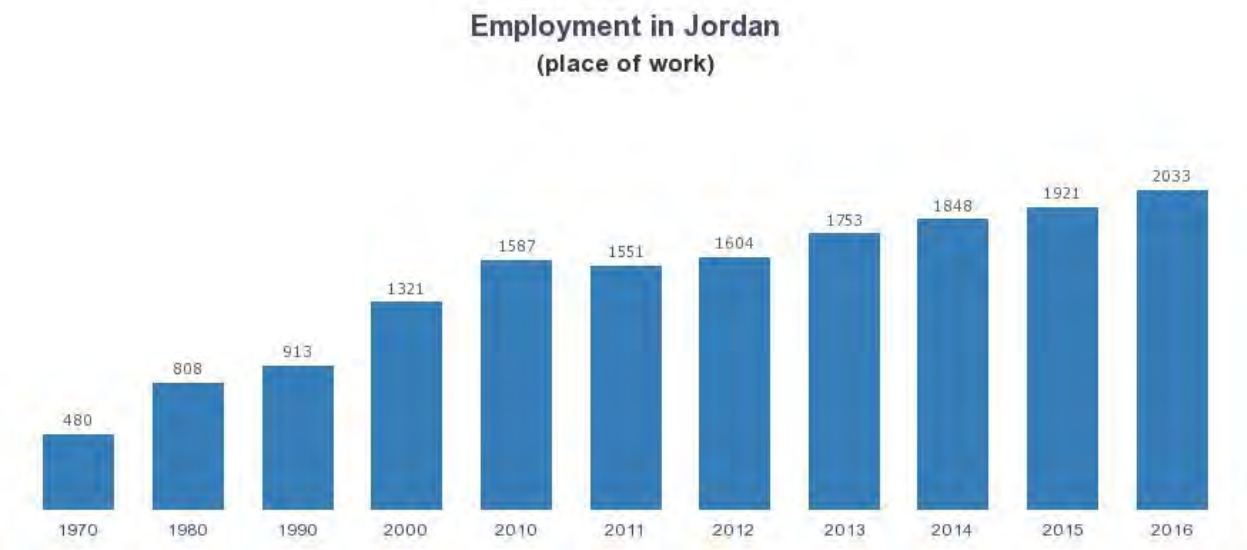
Source: MN Department of Employment and Economic Development, 2010-2015 Economic Census (U.S. Census Bureau)



Source: MN Department of Employment and Economic Development, 2010-2015 Economic Census (U.S. Census Bureau)

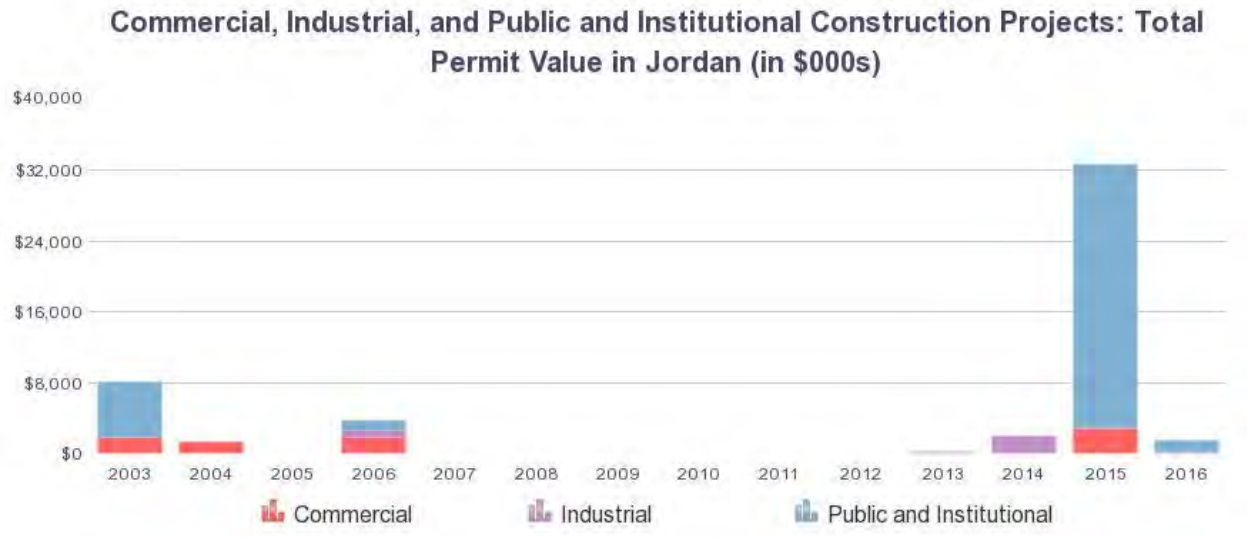
Source: MN Department of Employment and Economic Development, 2010-2015 Economic Census (U.S. Census Bureau)

A more historical review of job creation in the city illustrates a strong increase in employment since 1970.



Source: Metropolitan Council, 2016

New construction is another indicator of economic strength. During the mid-2000's or recession period, there was no new commercial construction. As illustrated below, new industrial construction has increased since 2014, including the platting and construction of the Minger Construction headquarters.



Source: Metropolitan Council, 2016

Source: Metropolitan Council, 2016

According to a *Commercial/Industrial Land Supply Analysis for Scott County; MN,* completed by Maxfield Research in 2016-2017, Jordan will have the lowest commercial/industrial land use demands between 2016 and 2040 within Scott County as identified in Table 8-5. The City of Jordan believes this is a conservative forecast and therefore is planning to preserve additional land for new development in long term future land use plans.

TABLE 8-5
PROJECTED COMMERCIAL/INDUSTRIAL ACRE DEMAND 2015-2040

Submarket	2015-2020 Acres	2020-2030 Acres	2030-2040 Acres
Belle Plaine	21.2	37.3	38.8
Elko New Market	20.4	37.8	38.6
Jordan	12.5	23.7	24.8
New Prague	17.1	28.5	29.5
Prior Lake	30.1	55.3	54.2
Savage	25.3	32.7	32.8
Shakopee	89.8	154.3	159.2

Source: *Commercial/Industrial Land Supply Analysis for Scott County,* Maxfield Research 2016-2017

Overall, the study estimates that commercial and industrial development could consume approximately 964 acres of land in Scott County between 2015 and 2040.

The study notes that the Twin Cities industrial market is in the expansion phase of the real estate cycle. Demand for industrial space has been robust and vacancy is at or below equilibrium, generally considered as being between 10-12% vacant.

Related to industrial development, the study estimates that Jordan will have a demand for around 461,000 additional square feet of industrial space. Based on past patterns, the study estimates that

the largest source of growth associated with industrial space will be in bulk warehouses, which will be over half of all projected demand. About a third of the demand will be for office warehouse space, followed by office showroom space. Economic development and business recruitment efforts certainly could impact the demand for industrial space and project types.

Relating to retail development, the study estimates that Jordan will have a demand for around 143,000 additional square feet of retail space by 2040. Retail demand comes from multiple sources, including households, employees, visitors, and people traveling through the area. The study states that the most likely retail uses to be drawn to retail submarkets would be neighborhood and convenience-oriented ones where there is currently significant leakage. In the case of Jordan, this includes health and personal care stores, as well as restaurants.

Related to office development, the study estimates that Jordan will have a demand for around 100,000 additional square feet of office space by 2040. It is anticipated that most of this will be due to growth in office-based businesses that serve households, such as medical, financial, and real estate offices.

STRATEGIC INITIATIVES

The City of Jordan has a number of agencies to support economic development efforts. Below is a summary of these groups.

The City of Jordan Economic Development Authority (JEDA), established in the mid to late 1990s coordinates economic development projects at a local level for the community. The seven-member commission meets monthly. JEDA is eager to assist businesses with tax increment and tax abatement financing, site selection, and other key components of business growth.

The strategic plan for economic development and goals identified by the EDA include:

- Downtown façade improvements
- Building Code Improvement Program
- Increase use of tax increment financing and tax abatement
- Continue with the Jobs for Fees program to encourage new businesses and enable existing businesses to grow
- TH 169/TH 282 interchange project support
- Shoppers' survey
- Support of tax increment financing or tax abatement for eligible and desirable projects
- Marketing and promotion of economic development efforts
- Marketing of Timberline Industrial Park

JEDA projects in recent years have provided tax abatement, tax increment financing and numerous matching grants for façade improvements in the downtown district. In addition, in 2015 the City completed a downtown redevelopment plan. The project included street and utility reconstruction, new sidewalks with enhancements, trash receptacles, trees, banners, wayfinder signage, and planters. The project was awarded funds by the Scott County CDA. In addition, the city received the American Public Works Association Project of the Year Award. The City Council feels the project was chosen due to the amount of public input, vast changes in the streetscaping, and some of the railroad underground boring difficulties it overcame during the project.

Jordan Commercial Club. The Jordan Commercial Club was established in 1912. The Club's website reports that it "is Jordan's oldest and longest running civic organization." The club meets

monthly. The goal of the Club is to pull together the business and farm interests of the community and be a combined counsel to make suggestions and flesh out ideas.

The Scott County Community Development Agency First Stop Shop, based in Shakopee MN. The Scott County CDA was established by Special Law, Minnesota Laws 1974, Chapter 473, primarily to undertake housing responsibilities within Scott County. The HRA has developed and owns a number of housing projects in Scott County, as well as administers a number of federal programs relating to housing. In 2001, the Scott County Board of Commissioners voted to expand the powers of the Scott County Community Development Agency to also exercise the powers of an economic development authority, with the exception of the authority to levy EDA taxes. The Scott County CDA's First Stop Shop provides communities with assistance, as needed, responding to business prospects as well as grants for economic development initiatives.

ECONOMIC DEVELOPMENT STRATEGIC PLAN

Goals:

1. Proactively retain and attract businesses
2. Revitalize downtown and promote long-term success of downtown businesses
3. Enhance employment base
4. Create a vision for highway commercial areas along the north and south sides of Highway 169
5. Cultivate strong relationships with local businesses and other stakeholders

Short-Term Actions

- Continue working with Scott County on the Hwy 168/TH 282/CR 9 interchange
- Continue Business of the Week marketing campaign
- Conduct outreach to help determine how the City can strengthen and support the business community
- Establish and promote the vision of JEDA
- Update Implementation Section of Downtown Master Plan
- The City of Jordan will market industrial sites as they become available.

Long-Term Actions

- Research strategies, programs, and organizations to help strengthen existing businesses and attract new businesses, including those used by other towns with thriving main streets
- Perform a market analysis to determine the types of business uses that are needed and fit in the community
- Market the businesses of the community
- Market commercial and industrial properties as they become available, focusing on sites and properties outside the city limits (for annexation)
- Promote business development and growth

ECONOMIC DEVELOPMENT LAND USE PLAN

Neighborhood Commercial District

It is essential that a community understands the importance of all commercial and industrial areas and the overall impact each has on the community as a whole. The City's zoning ordinance classifies commercial areas as C-1 or Neighborhood Commercial, C-2 or Central Business District and C-3 or Highway Business. While the stated purpose of the C-1 or Neighborhood Commercial District in the Zoning Ordinance is "to allow commercial uses complementary to and in close proximity to residential uses; the primary emphasis is on local retail facilities such as grocery and convenience stores."

As part of the comprehensive plan update, the C-1 District in Downtown is being expanded to surrounding properties. The purpose of this expansion is to strengthen business vitality and activity in this core area. The EDA will work with the City regarding how business development will occur in this area moving forward.

Central Business District (Downtown)

The City completed a Downtown Master Vision in 2013 which identified a number of long and short-term goals. Following are goals which are remaining to be completed:

- Preserving and restoring historic structures, accommodating market-supported uses, and enhancing overall downtown aesthetics
- Addition of public parking in one or more lots around downtown is a long-term strategy which is largely dependent on the timing of redevelopment and arability of individual properties
- Public parking wayfinding signs: City Hall, Mini-Met, across the Rice Street Bridge
- Increasing downtown events: concert series, river related events, outdoor movies with locally catered box dinners.
- Provide additional residential options (could be part of increasing the mixed use in downtown)
- Expand public space, including plazas
- Pedestrian experience improvement
- Online guidebook
- Buy local
- Co-working/kitchen incubator downtown
- Downtown redevelopment guidelines

Highway Commercial

The purpose of the C-3 or Highway Commercial District is, "to recognize development opportunity and the need for commercial establishments fronting on or with direct access to major highways, a frontage road, or a street intersecting a highway. Permitted uses are to take advantage of the highway access in a manner which other business districts are not afforded. Also acceptable are quasi-industrial and wholesale enterprises that do not need an industrial setting but which have considerable customer contact." These areas should reflect a harmonious extension of the image and character of the downtown through the enforcement of design standards.

Jordan's Highway Commercial areas currently include a variety of retail and service businesses including but not limited to gas station/convenience stores, restaurants, banks, grocery store, hardware store, automobile sales, etc. A few blocks of residential homes exist between U.S. Highway 169 and the Downtown or Central Business District. A continuous sidewalk, for pedestrian

traffic, is not provided to connect the two areas. Lighting to connect the highway commercial districts with the Central Business District is provided on large overhead poles, rather than the decorative lighting found in the Central Business District.

Industrial Development

The City of Jordan is fortunate to have a growing industrial base. The City has two industrial zoning districts, the I-I Light Industrial District and I-2 General Industrial District.

The City currently has two areas with industrial development. Industrial land uses are located primarily in the northwest portion of the city along U.S. Highway 169 and County Road 9 in Jordan Business Park. A second industrial park exists on the east side of the community, south of Highway 282. New industrial construction has occurred primarily in the industrial park along Highway 169 over the past several years. Approximately 95.5 acres of industrial land are available for new development.

Industrial locations were originally established due to access to the county road and highways. Additional industrial land is suggested to the south of the current industrial park, which is located along U.S. 169 and County Road 9.

PUBLIC FACILITIES & SERVICES

INTRODUCTION

The City of Jordan currently operates with a Council/Administrator form of government. Departments that report to the City Administrator include: public works, finance, community development (economic development and planning) police and fire. In addition, the City contracts professional services for legal, engineering, building inspection and planning consulting services. As of 2017, the City employed 96 total employees, including summer part time crews, fire, police, and all the commissioners.

The City also draws on the expertise of various boards and commissions including the City Council, Planning Commission, Board of Adjustments and Appeals, Park Commission, and Cable Commission. A description of the composition and duties of these commissions is included within this chapter along with the following:

Contents of this chapter include:

- An overview of existing municipal facilities
- An overview of other community facilities
- A description of municipal boards and commissions
- A summary of projected municipal staffing and facility needs; and
- Objectives and policies for Community Facilities and Public Services

EXISTING COMMUNITY FACILITIES

Locations of existing municipal and community facilities are identified on Map 9-1. A brief description of these facilities follows:

A. Government Center

City Hall: 210 East First Street.
City Hall administrative offices are located in a one-story building, owned by the City. The facility was constructed in 1957 by Minnesota Valley Electric Cooperative. City Hall, which was previously located at 116 East Second Street, relocated to this building in 1978, with remodeling completed in 1992/1993. The facility is approximately 7,400 square feet, with City Hall or Administration occupying nearly three fourths of the space or 5,466 square feet. The Police Department which had historically occupied 1,388 square feet, moved to a new facility in 2017, providing City Hall with additional space. Meeting rooms are located on the lower level or basement of the building, along with an employee kitchen/breakroom. An elevator provides access to the lower-level rooms. There may be some improvements to City Hall in the near future.

Staff members housed in the City Hall portion of the building include a City Administrator, Finance Director, Deputy Registrars, City Planner, Planner/Economic Development,

Accounting Utility Billing Clerk, Administrative Assistant, and Cashier Receptionist. The City also provides office space for the Department of Motor Vehicles (DMV). The City currently contracts building inspection, legal, and engineering services with private firms.

B. Police Department: 210 East First Street (2016)/705 Syndicate (2017)

The Chief of Police provides the overall supervision and management of the Police Department. The department provides 24-hour coverage to the city. Additional information on future Police Department facility and staffing needs is included in Section V of this Chapter.

The Police Department at the time of the comprehensive plan update had six vehicles. The department replaces police squad cars as part of the City's capital improvement plan. Police officer training includes mandated First Responder courses as well as other optional training sessions. Police officers are relicensed every three years.

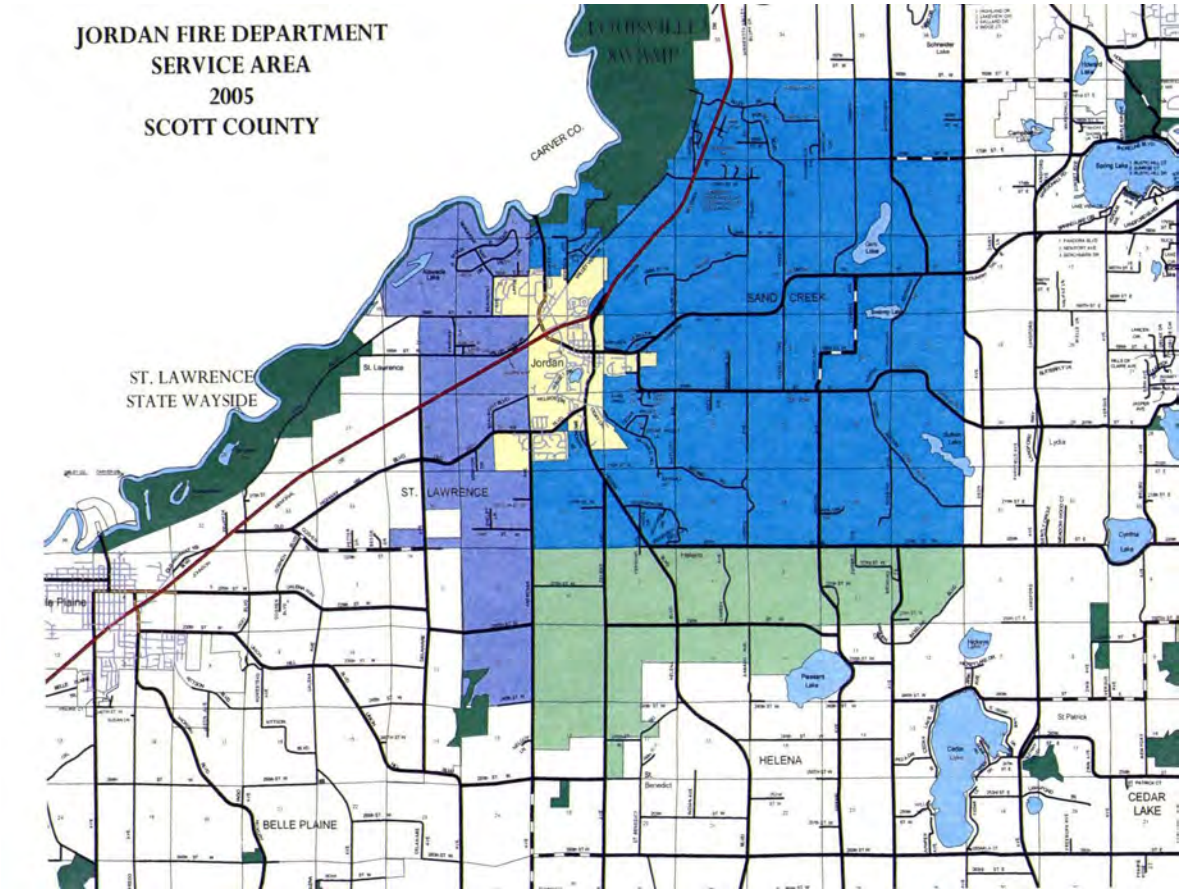
Prior to 2017, the Jordan Police Department was in the Government Center at 210 East First Street. The 10 full time and 1 part-time employees were located within 1,388 square feet of this facility. The Police Department relocated to a facility at 705 Syndicate in 2017. Following the completion of an addition to the existing building, the facility now has 9,747 square feet. This includes office space, drive-in-evidence space, and 3,433 square feet of garage space. There are three outbuildings on the 2.13 acre site. This new facility is anticipated to meet the needs of the Police Department through 2040.

C. Fire Hall: 501 Varner Street North.

The fire hall facility, constructed in 1972, currently houses the fire department equipment (including 12 vehicles) and apparatus and includes meeting rooms, office space and kitchen facilities. The facility has been maintained and is in good condition. A further description of expansion plans follows in Section V of this chapter.

The Jordan Fire Department (RCFD) serves the entire City of Jordan, its residents and commercial/industrial facilities as well as rural areas in Scott County including portions of Sand Creek, St. Lawrence, Belle Plaine and Helena Townships, for a total service area of approximately 70 square miles. A map of the Fire Department service area follows.

MAP 9-1: JORDAN FIRE DEPARTMENT SERVICE AREA



Jordan Fire Fighters receive EMT and first responder training. Drills are conducted once or twice a month, depending on new hires and the time of year. Approximately 1700 hours of training are completed by the department per year. The Fire Chief has noted staffing of the Fire Department has not been an issue.

Future needs: The department has identified a need for a new fire truck, which is currently in the City's 2018 capital improvement plan.

D. Public Works/Streets/Park Maintenance: 903 Syndicate Street.

The Jordan Public Works Building was constructed in 2000. The building is used for the public works office/administration and storage of street maintenance vehicles and equipment. The Public Works Department has indicated the building is sufficient for current and future needs.

The Public Works Department also has a salt brine storage building located at 501 Varner Street North, the Police Department site.

The Jordan Public Works Department includes seven full time employees with an additional four part-time employees during the winter and summer months. The department is managed by the Public Works Director. The Public Works Department oversees the city's water, sanitary sewer, storm sewer, streets and park and trail systems.

Future needs: As the City grows and additional streets are added, additional employees will be needed to assist with street maintenance. The city's capital improvement plan addresses the future staffing needs.

E. Waste Water Treatment Plant: 903 Syndicate Street.

The City of Jordan sewage treatment facility and ponds were constructed in the 1970s, rebuilt in the 1980s and upgraded in 1993. A new wastewater treatment plant was constructed in 2002. The Jordan wastewater sewer system features a mechanical plant with a capacity of 2,298,000 gallons per day and has the capacity to serve a population of approximately 12,000. The plant averages 500,000 gallons per day in treatment at this time.

Additional information on the wastewater treatment plant and sanitary sewer system may be found in Section 4 of this Comprehensive Plan.

F. Water Treatment Facility: 107 West Fourth Street.

The water treatment plant was constructed in 1991, with an upgrade in 2003. The plant removes volatile organic chemical compounds in an air stripping tower and iron and manganese are removed by feeding potassium permanganate to the aerated water.

The City has three elevated water storage facilities. The elevated storage facilities are located at 386 Sunset Drive, 521 Broadway Street South, and within Timberline Business Park. The water towers were constructed in 1970, 1990 and 2005 respectively, and have a storage volume of 300,000 gallons, 500,000 gallons, and 500,000 gallons respectively. Repairs were made to the 1970 tower in 1995.

Jordan presently obtains its raw water supply from four wells. Under normal operating circumstances, all four wells discharge directly to the water treatment plant. The wells are located in the following locations:
Well # 3 - located at 501 North Varner
Well # 5 - located at 407 West 4th Street
Well # 6 - located at 611 North West Street
Well # 7 - located at 407 West 4th Street

Additional information on the municipal water system may be found in Section 4 of this Comprehensive Plan.

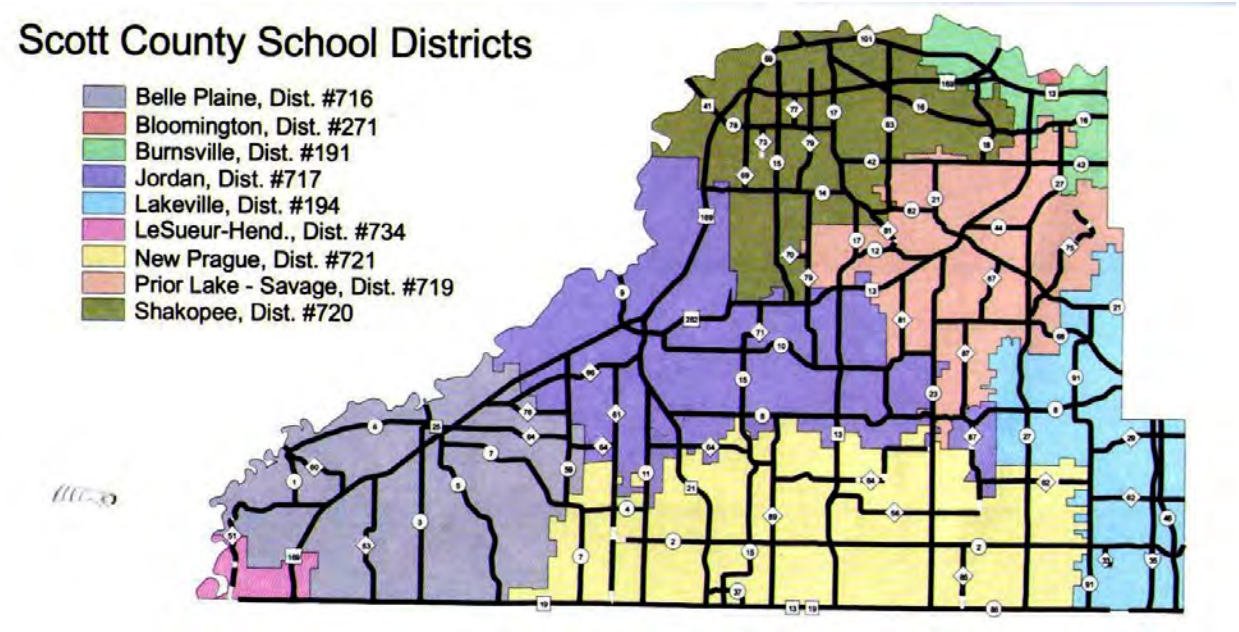
OTHER COMMUNITY FACILITIES

Education: School District #717 serves the community of Jordan as well as residents in adjacent townships in Scott County. The mission of Jordan Public Schools is to create and deliver quality educational services for all learners. There is one elementary school, one middle school, one high school, an alternative school, and a private school in the City of Jordan. A description of each follows:

All educational facilities are currently located within the City of Jordan corporate limits. School District #717 has a long range facility plan in place at this time. The district has indicated they have the ability to serve approximately 500 additional students or a 25% increase, which they estimate will address growth for the next ten years. In 2016, the school district purchased a 40 acre parcel of land west of Highway 13, on the south side of the community, for a future elementary school and recreational fields.

As the City limits expand north of Highway 282 and east of CR 15 alignment, a portion of the future "City of Jordan" will be within the Shakopee School District #720. The City of Jordan will need to plan jointly with both school districts as growth continues.

MAP 9-2: SCOTT COUNTY SCHOOL DISTRICTS



1. Jordan High School: 600 Sunset Drive.
   Jordan High School was newly constructed in 2003 with a design capacity for 600 students. An area adjacent to the high school would allow for additional classrooms to expand capacity to 800 students. Enrollment at the high school, which serves students in grades nine through twelve, was 572 during the 2016-2017 school year.

2. Jordan Middle School: 500 Sunset Drive.
   Jordan Middle School was constructed in 1964. This 60,000 square foot facility was expanded to 120,000 sq. ft. in 1969, with additional remodeling in 1992. The Middle School serves students in grades five through eight. The school has a design capacity of 750 to 800 students. The enrollment for the 2016-2017 school year was 559 students.

   A Community Education and Recreation Center (CERC) was added to the existing Middle School building in 2014/2015. The 45,000 square foot facility includes three gym areas with multipurpose areas, a fitness center, an elevated walking track, locker rooms, and a community room with a kitchenette.

3. Jordan Elementary School: 815 Sunset Drive.
   Jordan Elementary School was originally constructed in 1984. In 2002, a $4,000,000 addition was completed. The school serves students from kindergarten through grade four. Jordan school enrollment has been increasing steadily over the past 10 years and is anticipated to increase as the population grows. The Elementary School has a design capacity of approximately 700 students. Enrollment was 675 in for the 2016-2017 school year. The Rainbow Preschool program offered through the school district had a 2014-2015 enrollment of 53 students.

   As previously noted, the school district purchased land on the south side of the community for a future additional elementary school. The 40 acre site could also accommodate recreational fields.

4. SouthWest Metro Intermediate District 288 River Valley Educational Center (RVEC): 100 Hope Avenue.
   Intermediate school districts are specialty school districts that provide defined student services to a group of regular "member" school districts. These members include Belle Plaine, Jordan, New Prague, Prior Lake-Savage, Shakopee, Central, and Eastern Carver County. RVEC provides autism programs, developmental cognitive/behavioral programs, and emotional/behavioral programs at the facility located adjacent to the high school. Examples of these services include RISE (Reaching Independence through

Structured Environments), PRIDE (Preparing and Reaching Individual Dreams Everyday), an ASD Middle School that serves grades 5-8, and two emotional/behavioral programs that assist both grades K-5 and grades 6-9. A 2,340 square foot addition was constructed to the building in 2015, resulting in a 31,610 square foot facility, on the 3.16 acre site. Enrollment for the 2015-2016 school year was approximately 71 students.

5. St. John the Baptist School: 215 Broadway Street North.
   St. John the Baptist School, a private educational facility which previously operated from another location, constructed a new facility in 2004. Enrollment at the school for the 2016-2017 school year was 87 for kindergarten through grade 6. The Wee Angels preschool program at St. John the Baptist School served 22 students. The facility was designed for future growth on the second floor as student enrollment increases.

Other educational programs offered in Jordan include programs offered through the Jordan Community Education, which is housed within the Jordan Middle School.

B. Jordan Library: 275 Creek Lane South
   The Jordan Library is part of the Scott County Library System, which serves the county with eight branch libraries located in Belle Plaine, Jordan, New Market, New Prague, Prior Lake, Savage, Shakopee, and a law library. The library system constructed a new facility in 2015, relocating from the downtown to the west side of the community.

   The Jordan library is open during various hours averaging 32 hours per week or a total 1,664 hours during the 2016 calendar year.

   According to the Scott County Library System, there were 28,915 visitors to the Jordan Library in 2016. The total circulation at the library was 49,079 in 2015. Of these items, 38,817 were by Jordan residents and 10,262 were by others using the Jordan Library. Circulation of items by Jordan residents in 2015 in all Scott County libraries was 49,772. The Jordan Library carries a variety of resource items including books, audio materials, video materials, magazine subscriptions and DVDs. Computers are available to the public for use with internet access at two public computers. The Jordan Library shares staff with the Belle Plaine Library. Together, they employ a branch manager, librarian, library associate, and library aide. The total County budget in 2016 to operate the Jordan branch of the library was $2,980,308. The total City operational expenditure for the library in 2016 was $30,869.

   Future needs: The library, at its current location, is anticipated to meet the growing needs of the City to the year 2040.

C. Post Office: 214 East Second Street.
   The Jordan Post Office is located in a 6,000 square foot multi-tenant commercial building in Jordan's downtown. The building, which was constructed in the early 1970s, was originally a grocery store. The grocery store expanded into a new facility in the 1980s. The Postal Service serves the City of Jordan and adjacent townships. The Jordan Post Office is not on a list of post offices to be expanded in the future. As of 2016, the Jordan Post Office employs 14 full and part-time individuals. Post office boxes are available on site for those within the community and delivery service is also provided.

D. Scott County Fairgrounds: 7151 West 190th Street (outside current city limits).
   Jordan has been home to the Scott County Fair since 1915, with the fair in "Fairground Park" until 1973. In 1972, the Fair Board purchased an 80 acre site within St. Lawrence

Township and the Fairgrounds were relocated to their current site. The Scott County Fairgrounds are the home of the annual county fair in July of each year. During other times of the year seasonal storage of boats, RVs, and campers as well as rental of fairground buildings and horse arenas occur. There are currently no plans to expand the site.

E. Jordan Senior Citizen Center: 100 4th Street West.
Located in the Schule Haus, a Senior Center is available to senior citizens.

F. Scott County Juvenile Alternative Facility: 17681 Valley View Drive, Jordan MN
This facility offers non-secure placement for juveniles including detention, shelter placement, and 30 day evaluations/assessment. These services may consist of full day schooling, independent living and cognitive behavioral skill programming, gender-specific programming, and transitional services. Non-secure detention is available for male and female juveniles between the ages of 11 and 17.

G. SCALE Regional Public Safety Training Center: 17706 Valley View Drive, Jordan MN
The Regional Public Safety Training Center opened for in use in 2008, with several renovations and expansions since. This 19 acre site and facility is the home of the former jail annex. The facility includes training facilities for firefighters, police officers and public works employees. The center includes firing ranges, a live burn tower, Class A burn building, facilities for extraction training, flammable liquid training, smoke training, canine training, kennel facilities, assembly rooms, and computer labs. The facility serves Scott and Carver Counties and the Minnesota River Valley Region, as well as greater Minnesota.

H. Scott County Soil and Water Conservation District: 7151 190 Street West.
This Scott County Office is located in Jordan. According to the District, "The Scott Soil and Water Conservation District is a political subdivision of the State of Minnesota established to carry out a program for the conservation, use and development of soil, water and related resources."

MUNICIPAL BOARDS, COMMISSIONS, AND COMMITTEES

The City of Jordan has a number of boards and commissions that shape the policies and decisions of City government. The City encourages citizens to volunteer to serve on these entities and provide their input. A brief description of each entity and its duties follows:

1. City Council. The Jordan City Council consists of a mayor, who serves a four-year term, and six council members who also serve four-year terms. The City Council meets regularly twice per month. The City Administrator is the chief administrative officer of the City and is responsible to the City Council for the administration of all affairs of the City.

2. Planning Commission. The Planning Commission consists of seven members, two of which are City Council members. The Commissioners serve three-year terms and act as an advisory body to the City Council in matters of directing the future physical development of the city. The Commission, upon request of the Council, makes studies, investigations, and recommendations to the Council regarding matters affecting zoning, platting, and public improvements.

3. Board of Adjustments and Appeals. Per Section 31.22 of the City Code, the City Council serves as the City's Board of Adjustment and Appeals, with the Planning Commission serving as the recommending body to the Board. The duties of the

Board include action on questions that arise in the administration of the Zoning Ordinance, granting of variances and review of zoning appeals.

4. Economic Development Authority (EDA). The City of Jordan Economic Development Authority (JEDA) was established in the 1990s. The Commission coordinates economic development projects at a local level for the community. The EDA also has the powers of a Housing Redevelopment Authority. The seven-member commission meets on a monthly basis.

5. Park and Recreation Commission. The City has appointed a seven-member Park Commission, with staggered two-year terms with one additional Council member serving as ex-officio. The Park Commission meets bimonthly to plan for the development and redevelopment of Jordan's park and trail system. The Park and Recreation Commission is a recommending body to the City Council that provides ongoing public input on the system. Specific duties of the Park Board are outlined in Chapter 31.23 of the City Code.

6. Cable Commission. The Jordan Cable Commission is a six-member Commission with staggered three-year terms. Composition of the Commission includes one Council member and five residents at large, appointed by the City Council. The duty of the Cable Commission is to inform the City Council on cable issues.

PROJECTED GROWTH AND FACILITY NEEDS

The population is forecasted to increase from 6,076 people in 2015 to 12,200 people by the year 2040, a 123% increase. The projected growth will reasonably require the expansion of existing administrative and protection services. Such services will not only result in a demand for increased public employees, but also increased facility space and increased capital equipment costs. The expansion of administrative facilities and capital equipment purchases should be considered in future capital improvement/equipment plan.

City Facility Needs: The City of Jordan retained the services of Paulsen Architects to complete a Long-Range Master Facility Plan in January 2003. The plan studied the current and future staffing and facility needs based on population projections. Surveying and analyzing staffing and facilities in 35 other comparable Minnesota cities and interviewing administrative department heads were used as a means of completing the study.

In April of 2006, the City engaged the services of Paulsen Architects Inc. to review space needs for a new City Hall, Library and Police Department. The Jordan Public Facility Task Force focused on sites in the downtown to create a destination, optimizing space needs to serve the community to the year 2035 and considered phasing options and interim solutions.

Six sites were evaluated by Paulsen Architects and the Public Facilities Task Force, with a recommendation to the City Council to locate City Hall, the Library, and future public facilities together. The City Council is currently reviewing potential sites. A complete "Site Studies Report-City of Jordan Public Facilities Task Force", dated April 19, 2007, includes cost estimates and conceptual site layouts. In summary, the report recommends:

- A City Hall facility of 13,675 square feet to serve the community to 2020.

- Police Department facility needs recommended within the report include 14,828 square feet to serve the community to the year 2020 and an additional 2,731 square feet to accommodate growth to the year 2035.

- A new 7,500 square foot library as a part of the Phase I public facilities project.

Since the completion of the study and 2008 Comprehensive Plan Update:

- The City acquired a 9,747 square foot facility for the Police Department, which was renovated and occupied in 2017. This has provided the current city hall offices with an additional 1,388 square feet.
- The City acquired a building which is used for City Council chambers and the Historical Society.
- In 2008, a new library facility was constructed.

At present, there are no major public facility needs identified by the City, other than that described in this plan.

PUBLIC FACILITIES AND SERVICES GOALS AND POLICIES

In order to meet the projected growth and accomplish identified objectives, a number of policies have been outlined below.

Goals:

1. Provide for adequate facilities and staff to operate and maintain the essential services for current and future residents and businesses in the community.

2. Continue to serve the citizens of Jordan in an efficient, friendly, and cost-effective manner.

3. Continue to update and maintain facilities and operations.

4. Continue to evaluate technology and the need to incorporate technology in carrying out the functions of the city (e.g. public access television and web page development).

5. Provide citizens the opportunity to participate in local government as well as inform citizens of municipal activities.

Policies:

1. Work in cooperation with other public agencies, such as the Jordan School District and in the future, Shakopee School District, to coordinate rather than duplicate public space such as auditoriums, meeting rooms, etc., when feasible.

2. Plan and budget for additional land for future public facilities including municipal buildings and utility sites (wells, water towers, etc.).

3. Plan and budget for additional municipal employees to efficiently serve the citizens of Jordan, as the community grows.

4. Upon receiving concept plans for new subdivisions, review impacts on public administration and public protection services such as police and fire service to ensure

said services which are reasonably necessitated by the proposed subdivisions and must be provided at public expense, can be reasonably provided within two (2) fiscal years of approval of the proposed subdivision. If said services cannot be reasonably provided, the subdivision may be deemed premature.

5. Continue to plan for public facility maintenance and expansions within its Capital Improvement Plan.

6. Continue working with Scott County, Sand Creek Township and St. Lawrence Township, MNDOT, the DNR, etc. to ensure coordinated growth of land uses, transportation systems, and regional recreational areas and trails.

7. Evaluate technology needs and continue to update its website and cable television programming as a means of informing and updating community members.

IMPLEMENTATION

INTRODUCTION

The Comprehensive Plan outlines the City's vision for the future. It sets the stage for growth and development. The implementation plan is necessary to carry out that vision. The Comprehensive Plan will have little lasting impact unless there is continuing action to implement and update the Plan.

While the Comprehensive Plan is a policy-based document, implementation tools are more specific. These tools can generally be grouped into reactive and proactive categories. Reactive tools are often regulatory and include zoning and subdivision ordinances, as well as other city codes used to guide development. Proactive tools are often funding programs, such as the city's capital improvement program, to identify public improvement projects or economic development programs to provide incentives for private development.

This chapter identifies the methods that the City of Jordan will use to implement the Comprehensive Plan and its associated goals and objectives. As required by M.S. 473.859, Subd. 4, the Implementation Chapter of Jordan's Comprehensive Plan includes a summary of the following:

- The City's Official Controls including its Zoning Ordinance and Subdivision Ordinance;
- The City's Capital Improvement Plan; and
- A Housing Implementation Program.

This chapter also includes information relating to orderly annexation agreements and procedures for future comprehensive plan amendments.

OFFICIAL CONTROLS

The City of Jordan has adopted a zoning code and a subdivision code to guide land use and development in the city. Zoning and subdivision codes establish land use regulations to promote the health, safety, and general welfare of the public. These codes play a key role in implementing the Comprehensive Plan.

I. ZONING CODE

The City of Jordan Zoning Code was adopted by the City Council in May 2013, with various updates and revisions in the years since. The Zoning Code establishes specific regulations governing land use, floodplain, and shoreland areas. They regulate uses, location, size, and height

of buildings, the arrangement of buildings on a lot, and density or floor area of a given development.

An official zoning map is adopted by reference in the Zoning Code. The City of Jordan is divided into eleven zoning districts, detailed in Table 10-1, and shown on Map 10-1. There are permitted uses, conditional uses and accessory uses in each district. Overlay districts include Planned Unit Developments, Shoreland, and Flood Plain. These districts apply additional regulations over the underlying standard zoning district. Table 10-1 provides a high level summary of each standard and overlay district.

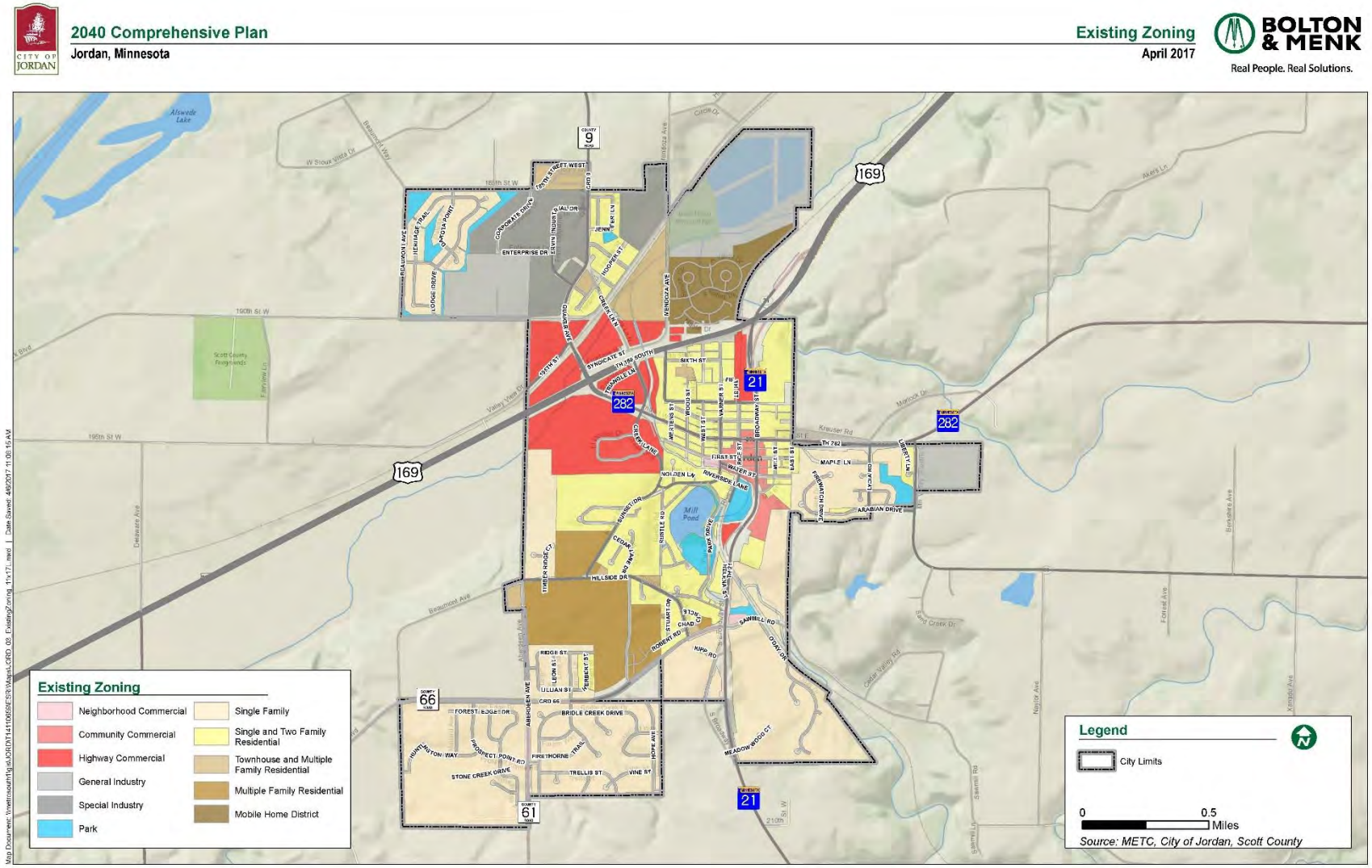
TABLE 10-1
ZONING DISTRICT GUIDELINES

District	General Description	Primary Uses	Density/Intensity
Residential Districts			
R-1 (Single Family Residential)	This district is intended to allow and preserve low density neighborhoods	Single family detached homes Planned Unit Developments	4 – 8 units/acre
R-2 (Medium Density Residential)	This district is intended to preserve older neighborhoods near downtown Jordan.	Single family detached homes Planned Unit Developments Two-family dwellings	7 – 8 units/acre
R-3 (Townhouse and Mutiple Family Residential)	This district is established for townhouse and medium density development	Single family detached homes Planned Unit Developments Two-family dwellings Townhouses Multi-family dwellings	8 -14 units/acre
R-4 (Multiple Family Residential)	This district is established to allow and preserve relatively high density residential areas in the city.	Single family detached homes Planned Unit Developments Two-family dwellings Townhouses Multi-family dwellings Senior housing Rooming houses	10 – 22 units/acre
R-5 (Manufactured Home)	This district is established to allow manufactured home parks	Manufactured homes	7 – 8 units/acre
Commercial Districts			
C-1 (Neighborhood Business)	This district is established to allow commercial uses complementary to and in close proximity to residential uses, and that do not generate large volumes of vehicular traffic.	Retail facilities Personal services Professional services Cafes, bakeries, delis	0.7 FAR
C-2 (Central Business District)	The purpose of this district is to encourage continuation of a viable downtown, to preserve and build on the historic character of the downtown, and to provide a blend of retail and service businesses for the convenience of local residents.	General retail sales and service Professional services Drinking & eating establishments Health & medical facilities Public & private institutional uses Some residential	NA
C-3 (Highway Commercial)	The purpose of the district is to provide for a broad range of commercial activities primarily oriented to highway uses and designed to serve local and regional customers.	General retail and service Professional services Motels & hotels Recreational & educational facilities Housing as part of a PUD	0.7 FAR

District	General Description	Primary Uses	Density/Intensity
Industrial Districts			
I-1 (Light Industrial)	This district is established to preserve areas in close proximity to major thoroughfares for a broad range of light industrial uses.	Auto repair Manufacturing & assembly Warehousing Offices & professional services	0.5 FAR
I-2 (General Industrial)	This district is established to preserve areas in the city for manufacturing, processing, assembly, fabrication, storage and warehousing, distribution, and construction related services.	Auto repair Manufacturing & assembly Warehousing Offices & professional services Contractor's yards	0.5 FAR
Overlay Districts			
Conservancy District	Areas included in the Conservancy District are unsuitable for residential, business, industrial and most institutional development due to flooding, high water table, wetland conditions, restrictive soil conditions, steep slopes and/or natural or wildlife habitat. The Conservancy District may be applied only when over 30% of the total parcel is comprised of wetlands and/or steep slopes.		
Planned Unit Development	PUDs are intended to encourage the efficient use of land and resources, to promote greater efficiency in public utility services and encourage innovation in the planning and building of all types of development. Performance standards of the underlying district apply, with the ability of the City Council to provide deviations from setbacks provided public benefit and maximum densities are met.		
Flood Plain Districts	The flood hazard areas of the city are subject to periodic inundation which results in potential loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. Performance standards of the underlying district apply, with elevation restrictions.		
Shoreland District	The purpose of the Shoreland Overlay District is to protect and enhance the quality of surface waters by promoting the wise utilization of public waters, watercourses and related land resources. The standards contained in the Shoreland Overlay District are in addition to the requirements of the underlying zoning district.		

In addition to the above zoning districts, general provisions and performance standards, the City's Zoning Ordinance addresses land and water preservation and protection and Storm Water Management which are in place to implement natural resource goals and policies identified by the City.

MAP 10-1: EXISTING ZONING



A. Implementation and Recommendations

The Zoning Ordinance is subject to periodic review to ensure consistency with the Comprehensive Plan and overall goals/objectives as defined by the City. The City Council may amend the Ordinance provided the Council adheres to constitutional, statutory, and other lawful procedures. The City shall not approve zoning ordinance amendments which conflict with the current Comprehensive Plan.

In order to ensure the Zoning Ordinance is consistent with the goals and objectives of this Comprehensive Plan the Planning Commission and Council will within nine (9) months after approving the Comprehensive Plan amend the zoning ordinance to ensure it is consistent with the comprehensive plan. This will include, but not be limited to:

1. Making any necessary changes to the zoning map and zoning standards to match modifications to the future land use guidance.
2. Update the description, uses, and any other relevant elements of the C-1 Neighborhood Business District to reflect the expanded C-1 area around the downtown core, and to promote compatibility with adjacent areas.

II. SUBDIVISION ORDINANCE

The City of Jordan Subdivision Ordinance was passed in 2005, with various amendments in the years since then. This Ordinance regulates the division or platting of land within the City's corporate limits.

As with the Zoning Ordinance, state statute requires that the City ensure that there is consistency between the Subdivision Ordinance and this plan.

The Subdivision Ordinance includes provisions that:

1. Dictate procedures for filing, submittal and review (including the required contents of and conditions for) preliminary and final plats.
2. Establish and ensure design standards including: blocks, lots, streets, and other standards which promote the public health, safety, and general welfare.
3. Define parks and open space requirements.
4. Require improvements according to City standards for general improvements, streets, sanitary sewer, water distribution, and public utilities.
5. Address premature subdivisions and the basis for denial.
6. Allow for variances from this Ordinance provided unique circumstances exist.
7. Provide for enforcement of and penalties for violation.

A. Implementation and Recommendations

The Subdivision Ordinance is subject to periodic review to ensure consistency with the City's Comprehensive Plan and overall goals/objectives as defined by the City. The City Council may amend the Ordinance provided the Council adheres to constitutional, statutory and other lawful procedures. The City shall not approve Subdivision Ordinance amendments which conflict with the current Comprehensive Plan.

In order to ensure the Subdivision Ordinance is consistent with the goals and objectives of this Comprehensive Plan the Planning Commission and Council will within nine (9) months after approving the Comprehensive Plan amend the subdivision ordinance to address the following:

1. The Planning Commission and City Council should periodically review park dedication standards to assure they are adequately addressing the needs of the park system through developer dedication. The City should require the Park Board review proposed parkland dedication and/or fee in lieu of parkland dedication and make a recommendation to the City Council relating to the adequacy of said dedication and its consistency with existing plans and ensure fees are appropriate to support capital improvement proposed in the capital improvement plan.
2. The Planning Commission should review options for the development and long term maintenance of conservation easement, including meetings with the Minnesota Public Land Trust, to protect areas identified as potential conservation areas (steep slopes, heavily wooded, etc.).

CAPITAL IMPROVEMENT PLAN

The City of Jordan has instituted a Capital Improvement Program (CIP) to identify projects, prioritize expenditures by year to be completed, identify the estimated cost and sources of funding for the next 5 years. The CIP is reviewed as a part of the annual budget process. The "Integrated Financial Planning Model," developed by Springsted Incorporated, allows the city to review the impact proposed capital projects will have on tax rates, utility bills and trunk/hook-up fees.

The overall objective of the Capital Improvement Plan (CIP) is to provide for the efficient use of fiscal resources in funding future capital expenses. The CIP is a flexible, evolving tool the city uses as a guide for the future. The annual CIP update allows for capital necessity and prioritization changes. Along with anticipated expenditures, the CIP includes proposed sources of funding such as special assessments, enterprise funds (water, sanitary sewer, storm sewer), state aid, annual levy, etc. Expenditures for water, sewer, transportation (street/sidewalk/trail), equipment purchases and public facilities are included. The phasing in of projects which require the same sources of funds assists in retaining a level annual tax levy.

A summary of the Capital Improvement Plan as adopted by the City Council is attached to this chapter in Appendix F, as required by the Metropolitan Council.

HOUSING PLAN

The Metropolitan Council requires the inclusion of a housing plan as a part of the City's Comprehensive Plan Implementation Strategies. Housing Objectives, Policies, and a Housing Plan are included in Chapter 6 of this Comprehensive Plan. The Plan outlines strategies to achieve the following:

1. Maintain and offer a balanced supply of life cycle housing.

2. Maintain and offer a variety of housing types, such as owner-occupied vs. rental, attached versus detached, single-family and multiple-family.
3. Enforce ordinances to ensure well-maintained housing.
4. Provide linkages between housing, recreation and employment.

GROWTH AREAS AND ANNEXATION

The City of Jordan, through its comprehensive planning process, has identified land use needs to accommodate additional residential, commercial and industrial development both within the existing corporate limits as well as in approved annexation areas. The urban growth boundary (included on Map 2-4 in Chapter 2) is anticipated to meet the needs of the city to the year 2040. The urban growth boundary will coincide with municipal utility service areas and projected capital infrastructure.

The City currently has a Joint Resolution/Orderly Annexation Agreement with St. Lawrence Township for a portion of land to the southwest of the Jordan city limits. This area is included within the 2040 growth boundary. A copy of the agreement is included in Appendix G. The City of Jordan has confirmed its availability to service the area with infrastructure, contingent on development.

At this time, the City does not have a Joint Annexation Agreement Sand Creek Township. Although there have been some discussions on this topic, no agreement is currently under development.

The City of Jordan understands that until the orderly annexation agreement is in place, any annexation outside of an area covered by an orderly annexation agreement will require a comprehensive plan amendment.

Recommendations:

1. Continue to work with St. Lawrence Township on the implementation of their Orderly Annexation Agreement.
2. Work with Sand Creek Township on the development of an Orderly Annexation Agreement.

IMPLEMENTATION STEPS AND TIMELINE

For the comprehensive plan's goals and policies to be effective, they need to be implemented through the use of public programs, fiscal devices, official controls, and other means. Table 10-2 outlines the goals from each element of the plan, along with the primary tools and strategies for implementation, estimated timelines, and key implementing agencies. This is a summary of actions, and is not intended to include all potential steps to be completed by the city. For the purposes of this table, short term is defined as five years or less, medium term as five to ten years,

and long term as more than ten years. Where appropriate, this table summarizes more extensive descriptions of implementation actions, as covered in the individual chapters.

TABLE 10-2
IMPLEMENTATION GOALS, TOOLS, AND TIMELINE

Plan Goal Topic Area	Primary Tools (Policy, Fiscal, and Program)	Implementation Steps and Timeline	Key Implementing Agencies
Land Use			
Residential neighborhoods	Zoning ordinance Subdivision ordinance Code enforcement	Short term: Zoning changes to be consistent with comprehensive plan within 9 months Ongoing: Enforcement of city standards and review of infill projects in existing areas, review of new development and subdivision requests in new areas	Planning Commission, City Council, Planning Staff
Commercial areas	Zoning ordinance Subdivision ordinance Code enforcement	Short term: Zoning changes to be consistent with comprehensive plan within 9 months Ongoing: Enforcement of city standards and review of infill projects in existing areas, review of new development and subdivision requests in new areas	Planning Commission, City Council, Planning Staff, Jordan EDA
Public land use and parks and recreation	Zoning ordinance Subdivision ordinance Capital improvement plan Park dedication/ fee in lieu	Short term: Zoning changes to be consistent with comprehensive plan within 9 months Ongoing: Investment existing and new public facilities and parks	Planning Commission, City Council, Planning Staff, Park Board, Jordan School District, other city departments
Natural resource protection	Zoning ordinance State and federal environmental regulations Local shoreland ordinance	Ongoing: City conformance with environmental standards	Planning staff, Public Works staff, Scott County WMO, Minnesota DNR
Special resource protection	State and federal historic preservation guidelines State guidelines for aggregate resources and prime farmlands	Ongoing: City conformance with state and federal standards and guidelines for resource protection and use	Planning Commission, Planning staff, Minnesota SHPO, Scott County, City Council

Plan Goal Topic Area	Primary Tools (Policy, Fiscal, and Program)	Implementation Steps and Timeline	Key Implementing Agencies
Transportation			
Transportation system planning and management	Subdivision ordinance Capital improvement plan Access management guidelines	Ongoing: Investment in planning for City transportation network maintenance and expansion, participation in county and state plans and projects	Public Works, Scott County, MnDOT, City Council
Transit system planning and management	Transit studies	Ongoing: Participate in County and regional transit studies to assess feasibility of service extension	Public Works Scott County, regional transit providers
Roadway system improvements	Subdivision ordinance Capital improvement plan Access management guidelines Plans and studies State, regional, and federal roadway funding	*See Transportation Chapter for details on specific roadway projects listed below.* Short term: • TH 169/TH 282 improvements • Hillside Drive/Sunset Drive and CR 66/TH 21/Sawmill Road intersection improvements • Creek Lane/TH 282 improvements • Varner Street Bridge improvements • TH 169 frontage and backage roads Medium to long term: • TH 21 and TH 282 studies • CSAH 10 extension to TH 21 at Sawmill Road • Road upgrades in 2040 growth area Ongoing: Investment in City roadway network maintenance and expansion, review of subdivision requests, participation in county, regional, and state plans and projects	Public Works, Scott County, MnDOT, City Council
Bicycle and pedestrian improvements	Subdivision ordinance Capital improvement plan State and federal bike/ped funding	Ongoing: Investment in City bicycle/pedestrian facility maintenance and expansion, review of subdivision requests, Coordination in county, regional, and state plans and projects	Public Works, Scott County, MnDOT, City Council

Plan Goal Topic Area	Primary Tools (Policy, Fiscal, and Program)	Implementation Steps and Timeline	Key Implementing Agencies
Water Resources			
Maintain sanitary sewer utility to meet current and future needs of community	Capital improvement plan State and federal regulations State and regional grant funding	*See implementation section for sanitary sewer in Water Resources chapter and appendices*	Public Works, Scott County
Maintain water utility to meet current and future needs of community	Capital improvement plan Zoning and subdivision ordinances State and federal regulations State and regional grant funding	*See implementation section for water supply in Water Resources chapter and appendices*	Public Works, Scott County, MN DNR
Protect, improve, and preserve wetlands, surface, storm, flood, and groundwater resources within the City	Capital improvement plan Zoning and subdivision ordinances State and federal regulations State and regional grant funding	*See implementation section for water supply in Water Resources chapter and appendices*	Public Works, Scott County, Scott Watershed Management Organization
Parks and Trails			
Parks and open space system	Capital improvement plan State, regional, and federal parks funding Subdivision ordinance Park dedication and fee in lieu	Short term: Ongoing: Investment in City parks and open space network maintenance and expansion, including recreational elements Coordination in county, regional, and state plans and projects	Park Board, Public Works, Scott County, Carver County, Three Rivers Park District
Trails, sidewalk, and greenway facilities	Capital improvement plan State, regional, and federal bike/ pedestrian funding Subdivision ordinance	Short term: Consider grade separated crossing at TH 169 Investigate a complete streets policy for the city Complete a bicycle audit to identify gaps in the existing system and potential improvements Ongoing: Investment in City parks and open space network maintenance and expansion, including recreational elements Coordination in county, regional, and state plans and projects,	Park Board, Public Works, Scott County, Three Rivers Park District

Plan Goal Topic Area	Primary Tools (Policy, Fiscal, and Program)	Implementation Steps and Timeline	Key Implementing Agencies
		particularly as part of regional trail network	
Housing			
Maintain and expand housing options, including affordable units	*See full list and descriptions in implementation section of Housing Chapter*	Ongoing: Pursue strategies to maintain existing housing stock, expand housing options, increase housing affordability, and link housing to jobs and recreation	Planning Commission, City Council, Planning staff, Scott County CDA
Resilience			
Promote city resilience	City budget Grant funding from public and private sources Coordination with utilities GreenStep Cities program	Ongoing: Coordinate resilience activities across all departments and with partners in community Engage the public and partners to educated about resilience and receive feedback on progress to date Use GreenStep City framework to evaluate city's progress toward meeting its goals	Planning staff, other departments, City Council, utility providers, Scott County, Jordan schools
Economic Competitiveness			
Economic development	Zoning and subdivision ordinances Economic incentives Partnerships with other agencies County and state funding	<u>Short term</u>: • Continue working with Scott County on the Hwy 168/TH 282/CR 9 interchange • Continue Business of the Week marketing campaign • Conduct outreach to help determine how the City can strengthen and support the business community • Establish and promote the vision of JEDA • Update Implementation Section of Downtown Master Plan • The City of Jordan will market industrial sites as they become available. <u>Medium to long term:</u> • Research strategies, programs, and organizations to help strengthen existing businesses and attract new businesses, including those used by other towns with thriving main streets	Jordan EDA, Economic development staff, City Council, Scott County, MN DEED

Plan Goal Topic Area	Primary Tools (Policy, Fiscal, and Program)	Implementation Steps and Timeline	Key Implementing Agencies
		• Perform a market analysis to determine the types of business uses that are needed and fit in the community • Market the businesses of the community • Market commercial and industrial properties as they become available, focusing on sites and properties outside the city limits (for annexation) • Promote business development and growth Ongoing: Continued support for development and investment in commercial and industrial districts	
Public Facilities and Services			
Public facilities and services provision	Capital improvement plan Partnerships with school district, county, and state	Ongoing: Work to ensure provision of adequate public facilities and services through either direct provision, or in partnership with other organizations.	City departments, City Council, Public Works, Jordan School District, Scott County, townships

COMPREHENSIVE PLAN REVIEW AND REVISION

The Comprehensive Plan is intended to guide the growth of the community. As events and circumstances within the community change, the Comprehensive Plan shall be reviewed and updated, as appropriate. Amendments to the Comprehensive Plan shall not occur without public notice, a public hearing conducted by the Planning Commission, City Council final review and approval and approval by the Twin Cities Metropolitan Council. Amendments to the Comprehensive Plan should be considered if there have been changes within the community or issues arise which were not anticipated by the plan.

Recommendations:

1. The Planning Commission and City Council should review and update the Comprehensive Plan at five to ten year intervals to ensure it is a current reflection of the city's growth patterns, community goals and land use needs.

2. Comprehensive Plan amendments will be required with each annexation and rezoning of land outside of the city's current corporate limits and orderly annexation agreement areas.

3. The Comprehensive Plan may be amended upon petition from the public, initiation by the Planning Commission or direction from the City Council. No amendment shall be adopted until a public hearing has been conducted by the Planning Commission with recommendation to the City Council. A 2/3 affirmative vote of the City Council is required to amend the plan.

4. It is recommended that on an annual basis the City Planner report to the Planning Commission and City Council regarding development issues which have occurred as they relate to the Comprehensive Plan, proposed projects which have an impact on the accuracy on the plan projections, and status on a list of implementation goals identified within the plan.