existing housing stock. Independence will be able to accommodate the projected demand for 40 additional affordable new housing units during this planning period. Independence anticipates using the aforementioned tools to promote the development of affordable housing within the community. The City should consider working with existing owners to maintain and enhance the existing housing stock. The City may consider applying for grants and looking for other funding mechanisms and partners (Minnesota Housing) that could promote the maintenance and enhancement of existing structures.

7.0 COMMUNITY FACILITIES

The community facilities improvements planned for the City in the next decade are focused on maintenance and upgrading of existing facilities. Recent residential growth has caused an increase in service demands by local residents, which can only be met by expanded service capability.

7.1 TRANSPORTATION

The Transportation Element of the Comprehensive Plan is a vital ingredient in the mix of components directing land use in the City. The transportation system of the City should meet the needs of local citizens without creating unnecessary negative impacts on the community. Transportation planning involves predicting future development, traffic analysis, safety considerations, maintenance and repair needs and interagency cooperation. The Transportation Plan is shown on Figure 8. Hennepin County is projecting 2030 traffic for many roadways in the County and, when completed, those projections will be shown on the plan. All the land area in the City of Independence is in the Metropolitan Council's Transportation Analysis Zone 638.

The Transportation Element of the Plan joins local, county and regional transportation planning efforts. It is interactive with proposed land use changes. There is recognition that the region is not planning any new major arterials and that state and federal monies are less readily available than in the past. Therefore a primary component of the local plan is to remain respectful of in-place infrastructure and rely on the backbone system of County and State roads. To this end the transportation component minimizes any expansion of this local system and includes projected County plans.

Functional Roadway Classification System

The Metropolitan Council functional classification system consists of five classes of roadways:

Principal Arterial

The principal arterial system is the foremost element in the roadway network. Principal arterials are used to connect the sub-regions in the Urban Service Area with each other as well as connect the Metro Area to outstate centers. Principal arterials should not connect to collectors or local

streets. In all cases, they should be designed as fully controlled access facilities. Connections with other roadways within the Urban Service Area should be only at grade-separated interchanges and land access should not be provided between these points. Within the Rural Service Area, intersections may be controlled, with at grade intersections.

Minor Arterials

The minor arterial system complements and supports the principal and intermediate system, but is primarily oriented toward travel within and between adjacent subregions. Minor arterials are generally spaced from one half mile to two miles apart and typically are two to four lane streets with signals or stop signs at major intersections. Minor arterials are primarily oriented toward the provision of sub-metropolitan mobility and any land access should be oriented to public streets and major traffic generators. Single-family driveways onto minor arterials should be strongly discouraged. Minor arterials are generally not continuous across two or more sub regions. These roadways are classified into the following groups:

- Relievers: Minor arterials that provide direct relief for traffic on major metropolitan highways. These roads include the closest routes parallel to the principal arterials within the urban and transitional areas. These roadways are proposed to accommodate medium length trips (less than eight miles) as well as providing relief to congested principal arterials.

- Expanders: Routes that provide a way to make connections between developing areas outside the interstate ring or beltway. These routes are located circumferentially beyond those reasonably served by the beltway, usually medium to long suburb-to-suburb trips.

- Connectors: This subgroup of "A" minor arterials provide connections among the town centers in the transitional and rural areas within and near the seven counties.

- Augmenters: The fourth group of "A" minor arterials is those roads that augment principal arterials within the interstate ring or beltway. The principal arterial network in this area is in place but not in all cases sufficient relative to the density of development that network serves. In these situations, these key minor arterials serve many long-range trips. Improvements focus on providing additional capacity for through traffic.

Table 20
FUNCTIONAL CLASSIFICATION OF STREETS

Class	Function	Provide Access To	Access Spacing
Principal Arterial	Service to major centers of activity, provides continuity to rural arterial system	Principal arterial Minor arterial	1 mile = primary full movement intersection ½ mile = conditional secondary intersection
Minor Arterial	Service of an intra-community nature, urban concentrations to rural collector roads	Principal arterial Collector streets Land	½ mile = primary full movement intersection ¼ mile = conditional secondary intersection

Collector Street	Local collection and distribution between collector streets and arterial, land access in minor generations	Land Minor arterial Local streets	½ mile = primary full movement intersection ¼ = conditional secondary intersection
Local Streets	Service to abutting land	Land Higher system elements	300 – 600 feet dependent upon block length
Source: Metropolitan Council			

Collector Streets

The collector system is to be deployed nearly entirely within sub regions to provide mobility between communities and neighborhoods. The collector system provides as much for land access as it does for vehicle mobility. The collector system also provides a "collection and distribution" system for the trips coming from or going to the metropolitan highway system. That is, the collector system provides access to commercial, industrial, and high-density residential development, while the metropolitan highway system is more oriented toward line-haul or the "non stop" portion of trips. Collectors are spaced between principal and minor arterials usually from one-quarter mile to one mile apart. Collectors are usually two or four lane streets with four way stop signs and traffic signals at intersections with other collectors and minor arterials. Collectors should not normally provide access to principal arterials.

Table 21
Functional Classification System and Characteristics

Functional Classification System

Name	Function	Principal Orientation*	Status
T.H. 12	Principal Arterial	E-W	2-lane paved
CR6	Minor Arterial	E-W	2-lane paved
CR11	Minor Arterial	E-W	2-lane paved
CR19	Minor Arterial	N-S	2-lane paved
CR90 n. of TH12	Minor Arterial	N-S	2-lane paved
CR92	Minor Arterial	N-S	2-lane paved
CR83/110N	Minor Arterial	N-S	2-lane paved
CR90 s. of TH12	Major Collector	N-S	2-lane paved

Functional Classification System Characteristics

	Principal Arterial	Intermediate Arterial	Minor Arterial	Collector	Local
Land Access/ Driveways	None	Limited	Limited	Direct Land Access	Direct

Right-of-Way	300'	100'-300'	66'-150'	66'-100'	50'-80'
Speed Limit	45-55	40-50	35-45	30-40	Max. 30
Large Trucks	No Restriction			Restricted as Necessary	Permitted as Necessary
Parking	None	None		Restricted as Necessary	Unrestricted
Maximum Grade (%)	4	4	4	6	8

Principal Arterials

The central transportation route to, from and through Independence is T.H. 12. Geometric improvements have been made to an at-grade intersection with County Road 6 about 3 miles east of Independence to make that intersection safer for the traveling public. No other improvements to T.H. 12 are programmed in the Mn/DOT's Transportation System Plan. Lack of improvement in carrying capacity on T.H. 12 will continue to place additional strain on CR 11 and CR 6 to move traffic west to east through the City.

Minor Arterials

The east-west arterials include CR 11 from Medina to the western City limits and CR 6 from Town Line Road to the western City limits. North/South arterials include CR 19 from the southern City limits to Baker Park Road, CR 92 from CR 11 to the southern City limits, CR 90 from CR 6 to CR 11 and CR 83/110 from Maple Plain to the southern City limits. No plans exist for alterations of existing minor arterial roads in the City.

Collectors

The only street identified as a collector street is County Road 90 south of T.H.12. No plans exist for alterations of CR 90.

Local Streets

The local street system is deployed continuously through all developed areas to provide for local circulation and direct land access. The local street system is deployed within the grid of streets created by the collector and minor arterial system and comprises the largest percentage of total street mileage.

Total mileage by classification is:

Principal Arterial	6.5 miles
Minor Arterial	25.5 miles
Collector	.9 miles
Local hard-surfaced	22.7 miles

Access Guidelines

Access guidelines along roadway corridors provide a means for balancing safety concerns and the need of property owners to access the circulation system. Standardized guidelines as those adopted by Hennepin County reflect Minnesota DOT best practices and can aid in the reduction of complaints and traffic incidents. As noted in the Hennepin County Transportation Plan for each functional classification category, these recommended guidelines should be used in the planning process for all new and existing roadway improvements.

Railroads

Two railroads pass east west through the City. The Canadian Pacific passes through the northeast corner of the City and the Burlington Northern route runs through the center of Independence parallel to T.H. 12.

Airports

Maple Airport is an FAA-licensed grass runway airport located on County Road 83 approximately 1/4 mile south of the Maple Plain City Limits. The nearest minor airport is in Buffalo, 15 miles away. The following data indicates other proximate airports to the City:

MSP International	30 miles
Buffalo	15 miles
Crystal	21 miles
Flying Cloud	21 miles

Lake Independence and Lake Sarah are permitted use areas for seaplane operations under Man/DOT Rule 14 MCAR 1.3018.

The City has no existing structures of 200 feet or more in height. Any applicant who proposes to construct a facility taller than 200 feet is required to notify the City and the Commissioner of the Minnesota Department of Transportation at least 30 days in advance as required by Man/DOT Rule 14 MCAR 1.3015, Subdivision C and the Federal Aviation Administration using FAA Form 7460-1.

Heliports

No helicopter landing facilities currently exist or are planned in Independence. If a heliport facility is proposed in the City, the City will utilize the Metropolitan Councils model heliport ordinance to assist in responding to heliport proposal and to provide a basis for appropriate land use controls.

Public Transportation

The City of Independence is outside of the Metropolitan Transit Taxing district and therefore, no regular route transit service exists or is planned in the City. Independence is currently in Market Area IV. Transportation service options for Market Area IV include dial-a-ride, volunteer driver

programs and ride sharing. Dial-a-ride service is provided by the Delano River Rider and Westonka Rides. The City will support regional park and ride facilities as they develop.

No light rail transit is planned for the City.

Figure 8: Transportation Plan and Projections

7.2 NATURAL ENVIRONMENT

Protection and preservation of Independence's ecological and environmental systems is vital to the City's long-term well being. The City has large areas of land and water, which are especially sensitive to land alteration or changes in land use functions. Flood plains, wetlands, steep slopes and marginal soils should be protected so as to retain their primary ecological functions while permitting appropriate recreational use and development.

Lands within the City should be used and developed to preserve their open, scenic and natural characteristics as well as their primary ecological functions. Numerous considerations must be taken into account when any type of development is being proposed.

Soils and Topography

Soil condition is a prime determinant of the suitability of land for development. Limitations due to soil stability, permeability, and so on, should serve to regulate various development proposals. Soils analysis should be conducted at proposed development sites to determine land capability and capacity. Any development within environmentally sensitive areas should provide an analysis of the effect of the development and construction activities.

Flood plains

Lands classified as being within the floodplain are those soils subject to periodic inundation by floodwaters. The process of residential development typically includes draining wet soils, filling and grading of lowlands, and a substantial increase in the total impervious cover of an area (roofs, streets, driveways, etc.). These activities all contribute to an increase in flood potential, both seasonal and flash floods. The normal function of floodplain soils is to store excess water, runoff and channel drainage. Protection of this function requires the prohibition of any development restricting the flow of floodwater or significantly retarding the floodplain soils capability to absorb and store runoff.

Floodplain lands are best suited for open space, parks and wildlife refuge areas. There is marginal potential for agricultural cultivation and pasture use, depending on soil condition. These activities do not constrain the primary function of the floodplain soils and do serve to preserve the scenic qualities and ecological needs of the land.

Appropriate restrictions of on-site disposal systems are necessary as are limitations on any new construction on floodplain soils. Urban mitigation measures include enforcement of Best Management Practices (BMPs), NURP ponds and vegetative buffer zones.

Wetland Management

Wetlands include marshes, bogs, lakes and rivers; many times those areas are adjacent or coterminous with floodplain/flood fringe areas. As such, they retain many of the same characteristics and restrictions as floodplain areas - prohibiting obstruction of floodwaters or

decreasing overall water storage capability. These lands are also more susceptible to pollution. Wetland areas are extremely poor for development; shrink/swell soil characteristics produce poor foundation stability, periodic water inundation is a continual hazard, and pollution from on-site disposal presents potential pollution problems.

Wetland quality and character are determinants of the amount of environmental disruption the drainage area has sustained. The greater the disturbance from fertilizer loads, exposed soils on steep hillsides, faulty septic systems, pesticides, roads, etc., the lower the quality of the wetland.

Protection of wetlands requires regulations on grading and filling, on-site disposal, and generally any intensive type of development. The best use for the land surrounding wetlands is open space and wildlife habitat. Once again, marginal agricultural use/pasture land is possible depending on site-specific soil characteristics.

Vegetation

Land alteration requiring extensive removal of vegetation should be carefully regulated. Activities like clear-cutting of major stands of trees or massive cut-and-fill operations have substantial negative impact on surrounding vegetation, drainage patterns and runoff potential. Vegetation on unstable soils should be protected. The existing vegetation within the City serves a variety of functions. Protection of these assets and rectification of previously removed vegetation is important to the City in terms of community health, safety and aesthetics.

Resources Protection

Minnesota Geological Survey Information Circular 46 does not indicate the presence of viable aggregate resource deposits in the City of Independence. The City is not aware of any viable aggregate resources or ongoing mining operations within the City.

Solar

Ensuring that all properties have equal access to sunlight is a priority for energy conservation. The protection of property and aesthetic values is a secondary purpose. Solar access protection is provided for by the uniform implementation of lot and structure standards adopted as part of the Independence Municipal Code. Requirements such as maximum building height and minimum setbacks are implemented for the purpose of creating separation between structures and allowing equal sunlight access so that a property is not in the shadow of an adjacent structure.

7.3 ADMINISTRATION AND PUBLIC SAFETY

City Buildings and Administration

Local public buildings include the City Hall/Community Center/Police Facility and City Maintenance buildings on County Road 90. The Police Facility was added to the City Hall/Community Center in 2000 and this building is anticipated to meet the administrative needs into the foreseeable future.

Public Safety

Fire protection is contracted from Maple Plain, Delano and Loretto. Public safety (police services) is provided by West Hennepin Public Safety Department. West Hennepin Public Safety Department was established in 1979 and the new police facility was occupied in 2001. The community should be served within five to ten minutes for police and fire protection services.

Schools, Churches and Treatment Centers

There are no school buildings in operation within the City. Independence is served by four school districts: Delano District #879, Orono District #278, Mound District #277, and Rockford District #883.

The Delano District comprises the largest section of Independence with approximately one-half of the City area falling under the auspices of District #879. The area generally covers the western portion and most of the northern sections of the City. Orono has the next largest area and includes most of the area in the eastern portion of the City. The Mound and Rockford Districts include small segments along the southern and northern boundaries, respectively.

Provisions of educational facilities in the non-urban and rural reserve areas should be handled utilizing the traditional rural bus system since population densities would not warrant the establishment of neighborhood schools. In addition, it should be recognized that development of intense uses such as schools is inconsistent with the development philosophy of non-urban and rural reserve planning district.

Seven churches are located in the City. They are: Lyndale Lutheran, Light of Christ Lutheran, Village Evangelical Free, First Presbyterian, Faith Community Church, Delano Assembly of God and Delano United Methodist Church.

Vinland National Center, a health sports center for people with disabilities and modeled on a Norwegian rehabilitation center is located on 178 acres on the north side of Lake Independence. In addition to fitness training and therapeutic exercises, Vinland has evolved to provide vocational, chemical health, and independent living skills development services to people with disabilities. Vinland's mission is to work to prevent disabilities and assist individuals who face multiple, complex problems associated with disabilities to live productive and fulfilling lives.

7.4 WASTEWATER MANAGEMENT PLAN

The need for a municipal wastewater collection system is often based on health and safety, and environmental concerns. The concentration of homes around Lake Sarah and Lake Independence caused a health and safety problem due to failing septic systems and the close proximity of private wells. The City recognized this problem in the late 1970's and entered into a contract with Medina and the Metropolitan Wastewater Commission in 1984 to serve 97 residents around Lake Sarah. Later, in response to concerns over surface water quality and failing systems, the City Council initiated a project to serve additional properties adjacent to the existing collection system. The City received approval from Medina and the Metropolitan Wastewater Commission to allow the additional connections.

While this resolved the immediate problem of failing systems, it became apparent that other septic systems were failing or not working effectively. This caused the City to request expansion of the 1984 system for 135 additional hook-ups. The wastewater collection system in place today was constructed in 1996. This system provides a total of 232 sewer connections to local residents. Currently the City is using 188 of the 232 available connections. Figure 9 shows the current sewer service area.

As shown on Figure 9 the existing collection system serves an area around Lake Sarah and an area along the south side of Lake Independence. Both these collection systems flow through the City of Medina to Met Council Lift Station No. 63. Currently the City of Independence, the City of Greenfield and the City of Medina have an agreement to share their sewer infrastructure.

The northern sewered area around Lake Sarah has 149 homes connected and 32 services available for connection. The sewer from this area is collected at Townline Road and County Road 11 and then flows into the City of Medina at the intersection of County Road 11 and County Road 19.

Plans for future connections to this area along Independence Road and Lindgren Lane are currently being evaluated due to health, safety, and environmental concerns. The number of new connections being evaluated is 50. The existing infrastructure has sufficient capacity for the potential connections. In order to achieve an overall density of 3 units per acre, this area has been combined with the proposed Urban Residential area. Combined, the total density proposed to be connected to municipal sewer is 3 units per acre (see appendix for density calculations). Figure 10 shows this proposed sewer connection area.

The southern sewered area around Lake Independence is smaller and includes 23 homes currently with 12 services available for connection. This area flows into the City of Medina at Perkinsville Road and County Road 19. Planned improvements in this area are shown in Figure 7 as Urban Residential and could include 500 new connections. Figure 11 shows this proposed future sewer connection area. The planned Urban Residential area is intended to be serviced through the City of Maple Plain. In a review of the downstream capacity, it was estimated that there is sufficient capacity to accommodate all or some of the additional connections generated by the Urban

Residential area. Independence has spoken with the City of Maple Plain regarding the Urban Residential area and has reached a conceptual agreement on the proposed land use and density. The City of Maple Plain has indicated their willingness to consider a future connection to their municipal system in the future. The following table shows the population, households, and employment forecasts for the areas with municipal connections.

Table 22
Population, Household and Employment Forecasts

	2010	2015	2020	2025	2030
Sewered Population	489	809	1121	1358	1799
Sewered Households	188	289	374	513	782
Sewered Employment	0	0	0	0	0

Figure 9 Sanitary Sewer Map

Figure 10 Lake Sarah Sanitary Sewer

Figure 11: Lake Independence Sewer

The area identified on Figure 7 as Urban Commercial is also planned for municipal sewer. This area will likely be served by a small onsite sewage treatment system, the City of Greenfield or the City of Delano. The City has prepared a scoping study to further determine the utility needs of the Urban Commercial area. Various options exist for servicing this Urban Commercial area with water/wastewater services. The City has previously explored the possibility of an interconnection to the City of Delano and found it to be a physically viable alternative. Independence has explored two additional alternatives to servicing this area through a recently prepared Scoping Study, Commercial Area Utilities. The Scoping Study Commercial Area Utilities, September 2009, is attached to this plan in the appendix. This study explored the possibility of an interconnection with the City of Greenfield and servicing this area with an on-site or local system. Any on-site/local system would be owned and maintained by the City of Independence. (Note: The connection to the City of Greenfield - Option B should not be considered due to the potential impact on Lake Rebecca Park Preserve)

The outcome of the study is that the 60 acre Urban Commercial area can be serviced by utilities. A multitude of options exists for servicing this area. Determining which option will be used to service this area involves a complex decision making process dependent on numerous factors. It is anticipated that the determination of which options are used to service this area with utilities will be made at the time the property is developed. At that time the City will work with the developer, all necessary agencies and jurisdictions to determine the most appropriate, cost effective and sustainable way to service this area with water/wastewater services. It is understood that regardless of which option the City proceeds with, an update to the City's Tier II Plan will be necessary to identify specifically which means would be utilized to service this area.

For a detailed evaluation of the projected service demands and alternative ways to accommodate those demands, please refer to the Scoping Study Commercial Area Utilities, September 2009 included as an appendix to this plan.

Wastewater Land Use and Population

The sizing of wastewater collection facilities is dependent on the hydraulic capacity required for each part of the system. Municipal wastewater is generally a mixture of domestic sewage, commercial and industrial wastes, ground water infiltration and surface water inflow. With proper design and construction, ground water infiltration is reduced to a minor percentage of the total flow and surface water inflow is eliminated, leading to hydraulic discharges that depend predominantly on land use.

Since properly designed and constructed sanitary sewer pipes have long life expectancies, it is reasonable to assume that the full development population will be reached before pipe facility replacement becomes necessary. The existing and proposed sewer collection systems are shown on Figure 10 and Figure 11. The facilities shown will support full development of the study area.

The proposed land uses receiving municipal sewer are shown on Figure 7 as "Urban Residential" or "Rural Residential". The sewer connections in the Rural Residential area are already available

(not all connected at this time) and were previously granted through past intercommunity flow agreements with Medina and Greenfield. The proposed Urban Residential area will require a new agreement, most likely with the City of Maple Plain (See Appendix for Letter from the City of Maple Plain). The flows for both the new Urban Residential connections and existing Rural Residential connections are shown in the following table.

Table 23
Summary of Connections and Flow Rates

	2010	2015	2020	2025	2030
Rural Residential Connections	188	238	253	268	282
Urban Residential Connections	0	41	86	209	500
Average Annual Daily Wastewater Flow (MGD)	0.031	0.076	0.092	0.130	0.214
Peak Hourly Flow (MG)	0.009	0.015	0.019	0.027	0.043
Allowable Peak Hourly Flow (MGD)	0.08	0.08	0.12	0.12	0.2

Wastewater Design Criteria

Wastewater flows were calculated by determining the number of residential equivalent connections (RECs) within the wastewater study area and associated densities. Each REC was assumed to contribute 274 gallons of wastewater per day. The table above shows each land use and the potential number of RECs at full build out. The table above also shows the total flow for the proposed RECs.

Inflow and Infiltration (I&I)

Inflow and infiltration is clear water that enters the sanitary sewer system. I&I can enter the sanitary sewer through a number of sources: pipes, manholes, sump pumps, and foundation drains.

The design and construction of new sewers and the connection of new and existing buildings to the sewer system in the City of Independence will meet the industry standards for tightness and minimize the entry of Infiltration and Inflow into the collection system.

The City of Independence standards will meet the state of Minnesota requirements. All new sewers will be designed and installed so leakage into the sewer is less than 100 gallons per day per inch-diameter per mile of sewer. To ensure compliance with this standard the City of Independence will require onsite construction observation during construction and verification testing prior to acceptance of the public improvements. Certification by a professional engineer that new facilities are installed in accordance with all specifications will also be required. Records of these certifications will be maintained by the City of Independence.

To ensure that all municipal utilities are properly constructed and will meet all state, federal, and local requirements, the City of Independence is in the process of preparing an Engineering Manual that addresses the material and workmanship that will be required for all municipal improvements. The Engineering Manual will require all wastewater facilities be designed to conform to the "10 State Standards" and be constructed in accordance with City Engineers Association of Minnesota Standard Specification except as modified by specific City of Independence requirements.

The connection of building laterals to the trunk sewer system will be permitted by the building department. A licensed plumber shall certify that the connection was made in accordance with the building code.

Maintenance Program

The City of Independence has developed an Inflow and Infiltration (I & I) program. The City has corrected many of the problems identified by the program such as: raising lift station covers, inspecting homes for sump pump and foundation drain connections to sanitary sewers, and televising sanitary sewer lines for leaks. The City has an ongoing sewer cleaning and inspection program as part of the routine maintenance of the collection system. I&I sources are evaluated regularly and, when identified, are corrected in a timely manner.

Peak Wastewater System Design

The wastewater system must be capable of handling not only the average flows, but also anticipated flows. These peak flows are obtained by multiplying average flows by a variable factor. This factor, called the Peak Flow Factor, generally decreases with increasing average flows. The Peak Flow Factor used in preparing this report was taken from the "10 State Standards" manual. These values are considered conservative and are widely used for planning purposes.

Metropolitan Facilities

The Metropolitan Council currently provides wastewater collection and treatment services to 2.5 million people in 103 communities, which represents about 90 percent of the 7-county metropolitan area's population. The Council owns and operates the Metropolitan Disposal System (MDS). The MDS includes 8 wastewater treatment plants: Metropolitan, Empire, Rosemount, Blue Lake, Seneca, Eagle Point, Hastings, and St. Croix Valley. It also includes approximately 600 miles of regional interceptors that connect flow from 5,000 miles of sewers owned by local communities. The system treats up to 300 million gallons per day of wastewater from homes, industries, and commercial businesses. The system is operated through the Metropolitan Council's Environmental Services Division (MCES).

The wastewater from the City of Independence is treated at the Blue Lake Plant. The Blue Lake plant is located in Shakopee. The plant treats wastewater from 27 different communities and

accommodates approximately 275,000 people. The plant treats an average of 42 million gallons of wastewater daily, and discharges to the Minnesota River.

Individual Sewage Treatment Systems

The majority of the City of Independence is not served by a public sewer system. The estimated number of existing ISTS systems is 1,151. It is anticipated that Individual Sewage Treatment Systems (ISTS) will remain the principal waste disposal method within the City of Independence. ISTS treat and disperse sewage for individual lots not served by publicly owned facilities. At full build out, it is estimated that there will be 1,511 Individual Sewage Treatment Systems in the City of Independence.

The City currently has provisions in its City Code regulating the use of on-site sewage treatment. While it is the homeowner's responsibility to keep their ISTS operational, the Metropolitan Council expects all communities to have an ISTS management program which ensures that ISTS are properly installed, maintained, and managed. The City implemented a maintenance tracking and notification database to effectively manage its ISTS. The database identifies the year the system was built, the date each was inspected, the condition of the system, the volume and date of pumping, and whether the system was compliant with MPCA Rule 7080.

Community Sewage Treatment Systems

Currently there are four Community Sewage Treatment Systems (CSTS) in the City of Independence as shown on Figure 12. CSTS are basically large scale ISTS. They are systems that provide treatment for two or more dwellings on separate lots. CSTS provide open space and allow for more sensible use of land which would minimize future costs for the extension of municipal services.

The City maintains the four CSTS within the City and charges the residents and businesses a user fee. Three of the four CSTS in the City are in the environmental protection area on the land use plan and could be removed if municipal sewer is expanded to serve the environmental protection area. The City provides the inspection, monitoring, operating and maintenance services for the CSTS to ensure their compliance with Minnesota Pollution Control Agency's Rule 7080. The City has established an ordinance that controls how the homeowners are allowed to use the system.

Figure 12: Community Sewage Treatment System

7.5 WATER MANAGEMENT PLAN

The City of Independence has developed a Local Water Management Plan (LWMP) to protect their water resources, which include numerous wetlands, several large lakes and recreational lands. The LWMP provides the framework to be followed to preserve these resources as the city develops. The following paragraphs provide a summary of the LWMP. The LWMP is incorporated by reference.

The LWMP was prepared to fulfill the legal requirements of the Metropolitan Surface Water Planning Rules (Chapter 8410). The plan also meets the policies and requirements of the Pioneer-Sarah Creek Watershed Management Commission and the Minnehaha Creek Watershed District and other local, state, and federal agencies.

The general approach to water resource planning focuses on wetland protection, water quality, and flood control; each are described below.

Wetland Protection

Stormwater runoff carries soil particles, nutrients, and contaminants which can change the ecological balance of the receiving water body. Changes in the volume or rate of stormwater entering or discharging from the water body can also change the ecological balance. Change in the ecological balance of a wetland often results in changes in the water quality, changes in animal and fish habitat, replacement of native vegetation with invasive and tolerant plant species, and/or other impacts to the wetland's functions and values.

The State of Minnesota has published a guidance document which develops a methodology for determining the susceptibility of wetlands to degradation by stormwater input. This methodology relates wetland type to a level of susceptibility. Wetlands such as bogs and fens can be easily degraded by changes in the stormwater inflows and are designated as highly susceptible. On the other hand, floodplain forests can tolerate relatively significant changes in the chemical and physical characteristics of stormwater inflow without degradation and are therefore slightly susceptible. Commonly observed shallow marshes and wet meadows dominated by cattail and reed canary grass (respectively) have a moderate susceptibility to stormwater fluctuations.

Wetland management standards were developed to determine how and when stormwater should be routed through a wetland to minimize potential impacts. These standards were largely based on the state guidance document. These standards determine tolerable hydrologic change in terms of bounce (difference between the peak flood elevation and the wetland elevation), inundation period (time that flood waters temporarily stored in the wetland exceed the wetland elevation), and runout control (elevation of the outlet).

These standards provide guidance for the management of stormwater to minimize wetland impacts. It is assumed that wetland impacts will be minimized and existing wetland functions and values will be maintained if the proposed management system and criteria meet the management standards established in the LWMP.

Water Quality Protection

The City contains hundreds of water bodies ranging in size from lakes to small stormwater detention basins. Nonpoint pollution associated with stormwater runoff creates adverse impacts; the degree of impact depends on the water body's natural ability to remove, absorb, or process the pollutants through chemical, physical, or biological processes. Poor water quality usually indicates a situation where the resource receives more nutrients, or other pollutants, than can be processed naturally. Planning for water quality protection is necessary to preserve the beneficial uses of existing water bodies, as well as to evaluate wetland impacts as described above.

Flood Control

The flood and rate control portion of the planning consisted of estimating the 100-year flood elevation and discharge rate for each watershed. Independence has vast amounts of stormwater storage available in its wetlands and lakes. This storage was used in the development of the ultimate conditions hydrologic model for the city. The ultimate pipes were designed to take advantage of the large storage areas while maintaining the overall discharge rate leaving the city borders.

Stormwater Pollution Prevention Program

As required by the Clean Water Act, the City has prepared a Stormwater Pollution Prevention Program (SWPPP). The SWPPP is a requirement of the NPDES General Permit No. MNR040000, which authorizes Municipal Separate Storm Sewer System (MS4) operators to discharge stormwater. The goal of the SWPPP, when implemented, is to reduce the discharge of pollutants into receiving waters to the Maximum Extent Practicable. The SWPPP must be implemented or established in ordinance, plan or policy by June 30, 2010.

There are six minimum control measures outlined below that are required to be included in the SWPPP under the requirements of the permit. Within each of the six minimum control measures, there are a number of Best Management Practices (BMP's) that are required for each minimum control measure. The six minimum control measures are as follows:

A. Public Education and Outreach

Public education and outreach is a major component of the SWPPP. Through education and outreach programs the operator of a MS4 can reduce the impacts on the receiving waters.

B. Public Participation/Involvement

Public participation is encouraged to receive input from the public on the SWPPP. Public input may be used as a gauge to determine the effectiveness of the SWPPP and associated BMP's. Based on public input, the City of Independence may modify components of the SWPPP if deemed beneficial.

C. Illicit Discharge Detection and Elimination

A major component of illicit discharge detection and elimination is the storm sewer map. The storm sewer map will assist the City of Independence in detecting non-storm sewer discharges (illegal dumping). The City of Independence is required to prohibit non-stormwater discharges to the extent allowable under law, through ordinance or other regulatory mechanism.

D. Construction Site Stormwater Runoff Control

The City of Independence will develop an ordinance or other regulatory mechanism to reduce pollutants in stormwater runoff from construction activities. All construction activities which disturb greater than one acre of land, and construction activities which disturb less than one acre but are part of a larger common plan of development or sale will be controlled.

E. Post-Construction Stormwater Management in New Development and Redevelopment

The City of Independence will implement and enforce an ordinance or other regulatory mechanism to address post construction stormwater management in new development and redevelopment.

F. Pollution Prevention/Good Housekeeping

The City of Independence will operate and maintain the storm sewer system in a manner so as to reduce the discharge of pollutants to the maximum extent practicable. Key components for good housekeeping will be: inspecting 20% of the MS4 outfalls, inspecting all exposed stockpiles and material handling and storage areas, and inspecting structural pollution control devices on an annual basis. Records of the inspections shall be retained, including the date of the completion of repairs and major additional protection measures.

Management Goals and Policies

As part of the planning process, goals and policies were developed for the management of resources within Independence. Goals propose the desired end and policies provide the means to achieve the goals. Goals and policies are provided for wetlands, water quality, water quantity, wetlands, erosion control, groundwater, public ditch systems, recreation, fish and wildlife, enhancement of public participation, information and education, floodplains, abstraction/filtration, ecological integrity, shorelines and streambanks, navigation, best management practices, public health, and regulation. The goals and policies of this plan are presented in Section 4 of the LWMP. Section 5 of the LWMP includes the Plan Implementation, which provides more specific details on how the goals and policies will be achieved.

7.6 WATER SUPPLY PLAN

The City of Independence does not have a public water supply or distribution system. All residential and non-residential properties are served by private individual wells. Each homeowner is responsible for the care and maintenance of the individual well, storage and distribution within their own property. The Minnesota Department of Health is the permitting authority for wells and the City will continue to cooperate with the Department of Health in ensuring a healthy water supply through inspections and, if necessary, treatment.

7.7 HISTORIC PRESERVATION

In an effort to identify, preserve and protect local historic places and sites, the City needs to pass a historic preservation ordinance. In addition, it could create a local heritage preservation commission. Once these are complete, the City qualifies with the State and Federal programs as Certified Local Government. As part of the Certified Local Government program, the City could receive matching funds for planning work concerning historic preservation. In the meantime City officials should work to preserve buildings or sites that have historic significance.

The planning component of the heritage preservation activity would result in creation of a local historic context, the basis for local survey efforts. Coordination with the State Archaeologist and Minnesota Historical Society would help place local sites on the State or Federal register of historical places.

7.8 PARKS, TRAILS AND OPEN SPACE

Regional Parks

The Three Rivers Park Reserve District has three park facilities that have a direct impact on the City. These parks have acted as a stimulus for growth in the eastern and northwestern sections of the City due to the natural features and recreation amenities. Figure 13 shows the Regional Park System including Lake Rebecca Regional Park Reserve, Lake Sarah Regional Park and Baker Regional Park Reserve.

Lake Rebecca Park Reserve is located in the northwest corner of Independence, extending into Greenfield. Total park acreage; including land, water, and wetlands, amount to 2577 acres. The park opened in 1971 and provides a combination of active and passive recreational opportunities. Lake Rebecca, surrounded by the park reserve, is designated as a fishing, swimming and non-power boat recreation area. Existing facilities in the park include a swimming beach, picnic area, group camp and trails.

Lake Sarah Regional Park is located on the west side of Lake Sarah in Independence and Greenfield. The 174-acre park is currently undeveloped, with plans to utilize the lakefront for boating, fishing and picnicking. Proposed development includes trail linkage to Lake Rebecca Park Reserve.

The park contains a 20-acre parcel that is west of South Lake Sarah Drive, not contiguous to the park proper. The Three Rivers Regional Park District Master Plan identifies this parcel as surplus property and calls for the parcel to be sold.

Baker Park Reserve is adjacent to portions of the eastern border of Independence and is easily accessible by boat to Independence residents. The park consists of approximately 3,313 acres and provides a great deal of active recreation opportunities. Existing facilities include: swimming beach, picnic areas, day camping, overnight camping, hiking and horseback riding trails, a golf course and boating.

Robina State Wildlife Management Area

Land recently given to the State of Minnesota between Highway 12 and Robina Lake by the Robina Lake Foundation has been designated as a wildlife management area (WMA). This 198-acre area is managed for the State by the Minnesota Department of Natural Resources. The location of this area is indicated on Figure 13.

Figure 13: Regional Parks System

Trails

The Luce Line Trail, a regional multi-use trail, travels through the southern portion of the City approximately parallel to County Road 6. The trail begins in Plymouth and is developed 30 miles west to Winsted. The Luce Line Trail is a State Trail that is owned and operated by the Minnesota Department of Natural Resources. The Luce Line Trail is shown on Figure 13.

The Three Rivers Regional Park District Master Plan identifies a 3.0-mile trail connecting Baker Regional Park Reserve and Lake Sarah Regional Park. The general alignment for the proposed trail that would connect the Regional Park Reserve to the Regional Park is also shown on Figure 13.

Local Parks

Local parkland consists of Lyndale Park, a 1/3-acre park with play equipment located in the southwestern portion of the City, a 5-acre park also with play equipment on South Lake Sarah Drive and a recently acquired 50-acre community park. Independence residents also use three park areas in Maple Plain.

The Comprehensive Park and Trail System Plan adopted by the City in 1992 indicated that land for a centrally located community park should be acquired. Pioneer Creek Community Park a 50-acre park located on the west side of County Road 90 just north of the City Hall was acquired by the City to serve that need. A master plan for park was prepared in 2007 and grading is expected to commence in 2010 or as money becomes available.

Comprehensive Park and Trail System

The Community Participation section above describes an extensive park, trail and open space planning process that the City of Independence went through from 2001 to 2006. After considerable effort and deliberation the Committee was unable to reach agreement relative to a Park, Trail and Open Space Plan to recommend for adoption by the City Council. Consequently the Comprehensive Park and Trail System plan adopted in 1992, a copy of which is contained in the appendix, continues to serve as the City's park plan.