

St. Paul Park Growth Area Study



Prepared for:
City of St. Paul Park

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I. INTRODUCTION

The purpose of this Growth Area Study (herein referred to as “Study”) is to compile (or reference) the pertinent information regarding the future growth and development of lands recently annexed to the city and lands that could potentially be annexed to the city in the future. The Study will serve as context reference for the city’s consideration of concurrent or future Comprehensive Plan amendments for areas within the city jurisdictional limits. The city has been involved in annexation proceedings that have thus far resulted in approximately 327 acres of land located adjacent to the city’s southern boundary being annexed from Grey Cloud Island Township to the city. The city has been involved in several planning processes regarding the potential development of lands south of its existing border. The city was the Responsible Governmental Unit (RGU) for an extensive Alternative Urban Areawide Review (AUAR) process that reviewed the potential impacts of development on the environment, and subsequently the city conducted a “Visioning Process” that resulted in formulating “Guiding Principles” for the annexation planning area to ensure that development occurs in accordance with city goals and objectives.

The Study Area includes 654 acres (**Figure 1**). The Study Area includes:

- 636 acres of the Nesvig property, also commonly referred to as “Rivers Edge”. As noted above, 327 acres of the Nesvig property located east of County Road 75 were recently annexed to the City of St. Paul Park (shown as “St. Paul Park” on **Figure 1**).
- 17 acres of land located between Nesvig’s property and the City of St. Paul Park. This area is generally located south of 14th Avenue between 2nd Street and 5th Street.
- 1-acre parcel of land located between County Road 75 and the Mississippi River.

The Study Area is unique, both in the challenges it poses and the possibilities it holds out for residents and for the city. Like the southwest area of the city, the Study Area has high bedrock that poses challenges for development of the area. The annexation is also similar to the southwest area in that it is also adjacent to the Mississippi River and, therefore, presents possibilities for enhancing the community’s connections to the resources of the river and the river corridor (e.g., restoration of degraded native plant communities, obtaining public open space and park land along the river, and establishing a trail system that provides connections to the river). Development of new housing will enable the city to stabilize its population above 5,000 to remain qualified for municipal state aid, to have a full range of housing for its residents and to broaden its property tax base.

II. GUIDANCE DOCUMENTS

Several existing documents provided important guidance for the preparation of this Growth Area Study. These following “guidance documents” will be referenced throughout this Study:

- St. Paul Park Comprehensive Plan 2000–2020 (It is noted that this plan contains the city’s adopted Mississippi River Critical Area Plan.)– adopted July 6, 1999
- Metropolitan Council 2030 Regional Development Framework – adopted January 14, 2004
- Rivers Edge Final AUAR and Mitigation Plan – adopted May 17, 2004
- St. Paul Park Annexation Planning Area–Rivers Edge “Visioning Document” - dated March 7, 2004
- Feasibility Report for River’s Edge Infrastructure Extensions – dated May 2005

St. Paul Park Comprehensive Plan

The City of St. Paul Park adopted its Comprehensive Plan on July 6, 1999. The Comprehensive Plan contains goals, policies, and plans that guide the growth and development of the community. Specifically, the Comprehensive Plan includes the following plans:

- The Plan for Land Use,
- The Plan for Residential Neighborhoods,
- The Plan for the Southwest Area of the Community,
- The Plan for Industry,
- The Plan for Commerce,
- The Plan for the River Corridor (Mississippi River Critical Area Plan),
- The Plan for Parks and Recreation,
- The Plan for Transportation, and
- The Plan for Public Facilities and Services

Elements of the Comprehensive Plan are referenced throughout this Study and will be expanded upon to plan for the development of the potential growth areas located south of the city and for lands recently annexed to the city from Grey Cloud Island Township. For reference, the adopted goals, policies, and action steps specific to growth contained in the Comprehensive Plan follow:

Future Growth Goals

The goals for growth in St. Paul Park are:

1. Utilizing the city’s strengths and assets.
2. Strengthening the city’s economic base.
3. Consistency with the Metropolitan Council’s Regional Blueprint and regional systems plans.

Policies and Action Steps

To provide for future growth, St. Paul Park will:

1. Establish land use designations to enable the city to meet its population and household forecasts.
2. Establish land use designations to enable the city to meet its employment forecasts.
3. Establish land use designations that will broaden the property tax base in the city.
4. Establish land use designations that will sustain a population that exceeds 5,000.
5. Approve ordinance provisions that are consistent with land use designations established in the adopted comprehensive plan.

Metropolitan Council 2030 Regional Development Framework

The Metropolitan Council adopted the 2030 Regional Development Framework on January 14, 2004. The Study Area is designated as “Developing” and the remainder of St. Paul Park located north of the Study Area is designated as “Developed” in the 2030 Regional Development Framework. The “Developing” designation is consistent with the previous Regional Blueprint adopted by the Metropolitan Council in 1996 that identified the Study Area as “Urban Reserve” with the “Illustrative 2020 MUSA” overlay, which indicates that the Metropolitan Council anticipated that urban services would be extended to serve the Study Area by the year 2020. The urbanization of the Study Area is compatible with regional policies including, but not limited to, achieving regional density goals, providing life-cycle housing opportunities, planning centers that are desirable places to live, shop and do business, planning interconnected bicycle and pedestrian paths, protecting locally significant natural resources, and capitalizing on regional infrastructure investments. A regional investment of approximately \$250 million has been allocated to upgrading the Wakota Bridge and T.H. 61, which serve the Study Area. In addition, the local and regional sanitary sewer system has capacity to serve the Study Area. Moreover, its proximity to the eastern metropolitan employment centers and location within the region qualifies it as an “infill” development site.

Rivers Edge Final Alternative Urban Areawide Review (AUAR) and Mitigation Plan

An extensive environmental review process was completed for land included in this Study. The AUAR process began in January 2003 and the Final AUAR and Mitigation Plan was adopted by the city on May 17, 2004. This AUAR identified the infrastructure (sanitary sewer, municipal water, storm water management, and transportation) needed to support the development of the AUAR area under three different development scenarios. It is also noted that the Rivers Edge Final AUAR and Mitigation Plan contains an extensive analysis of environmentally sensitive areas and measures to mitigate potential impacts to these environmentally sensitive areas and plans to restore environmentally sensitive areas. Any future development of the AUAR area must comply with the adopted Mitigation Plan, and the intensity of development must fall within the range of development scenarios that were included in the analysis.

St. Paul Park Annexation Planning Area – Rivers Edge (“Visioning Document”)

The city conducted a visioning process from July 2004 to April 2005 that resulted in establishing guiding principles for Rivers Edge to ensure that development occurs in accordance with city goals and objectives. The principles were established based on the goals of the city’s Comprehensive Plan; community input gathered at visioning workshops and public meetings; analysis prepared as part of the AUAR environmental review process; and sound planning principles. The guiding principles were reviewed by members of the City Council, Planning Commission, and Citizen’s Advisory Committee. This group of individuals discussed each principle, made modifications to the principles, and came to consensus on all of the ten guiding principle topic areas:

- I. Maintain St. Paul Park’s “Sense of Place” Retaining the Small Town Character
- II. Maintain and Restore a Healthy Ecological System
- III. Provide Appropriate Mix of Housing
- IV. Continue to Connect the City to the River
- V. Create Community Gathering Spaces
- VI. Contribute to City Vitality
- VII. Investment in Infrastructure
- VIII. Create and Expand a Multi-Modal Transportation System
- IX. Invest in Community Collaboration
- X. Benefits of a Master Planned Community

The St. Paul Park City Council affirmed these guiding principles at its April 18, 2005 meeting.

Feasibility Report for River's Edge Infrastructure Extensions

The purpose of the *Feasibility Report for River's Edge Infrastructure Extensions* (herein referred to as "*Feasibility Report*") was to present the City of St. Paul Park with a preliminary estimate of the municipal improvements needed to extend city infrastructure services to the Study Area and to upgrade and rehabilitate existing city infrastructure elements in the same proximity. The report discusses the proposed scope of street and utility improvements and extensions, preliminary cost estimates, preliminary assessment rates, and a preliminary project schedule. The Feasibility Report was accepted by the City Council on May 16, 2005 and is scheduled for public hearing on July 5, 2005.

III. HOUSING

The *Plan for Residential Neighborhoods*, a chapter of the *Comprehensive Plan*, included a discussion of existing housing and future housing needs. The following discussion of future housing needs provides an update based on information from the 2000 US Census, Metropolitan Council housing expectations, and recent housing trends.

Demographic Trends

The need for the life cycle housing proposed for the Study Area is supported by demographic and housing trends.

Population Trends

In 2003, the U.S. Department of Housing and Urban Development commissioned a paper¹ on demographic trends to show how such trends would shape housing demand and supply over the coming decade. This paper showed:

- Population will have roughly equal numbers of people in every age group, as shown in US Census data.
- Household size is shrinking.
- Life expectancy is increasing the population is mid-life and older, meaning new needs and preferences for housing choices.
- There will be an increase in the proportion of the population that owns, rather than rents, its housing.
- There is a desire for a house with its own private yard, no matter how small or maintenance free it might be.

Housing Trends

- The seven-county metropolitan area expects approximately 176,500 new households from 2000-2010, of which about 89,500 are non-senior households without children. Washington County expects approximately 20,000 new households from 2000-2010, of which about 10,000 are non-senior households without children².
- In this decade, Washington County is expected to see strong growth of two key buyer groups in the highest income category (above \$79,000 in 2000). First, the County is expected to add roughly 3,300 new higher-income households that are comprised of married couples and their children. ¹¹ Second, the County is expected to add more than 3,200 new higher-income households that have no children, but are under the age of 65. These groups will drive demand for middle- and upper-priced owned housing, in both single-family and multifamily (townhomes and condos) categories.
- Owner-occupied multifamily housing has rapidly increased in popularity in the Twin Cities over recent years. The steadily increasing demand for new townhomes, twinhomes and condominiums is being driven largely by three key markets: 1) seniors no longer interested in the

¹ Martha Farnsworth Riche, February 2003, "How Changes in the Nation's Age and Household Structure will Reshape Housing Demand in the 21st Century"

² Metropolitan Council Regional Development Framework, January 14, 2004 and "The Next Decade of Housing in Minnesota, Twin Cities Metropolitan Area Regional Housing Needs Report," BBC Research and Consulting, November 17, 2003.

¹¹ "The Next Decade of Housing in Minnesota, Twin Cities Metropolitan Area Regional Housing Needs Report," BBC Research and Consulting, November 17, 2003.

rigors of home maintenance, 2) empty-nesters/young retirees seeking lifestyle housing options, and 3) young households seeking an affordable means to attain homeownership.

- Demographic trends also suggest that interest in owned multifamily housing will not likely subside for a number of years, as the dominant baby boom generation is aging toward retirement.
- Trends point to a strong potential to develop medium-density owner multifamily housing in the Study Area, i.e. townhomes, at a variety of price points.
- The aging of the oldest baby boomers into their retirement years beginning in 2010 will begin to impact the senior housing market throughout the Metro Area near the end of this decade.
- Senior housing development within the Study Area should occur near the Mixed Use area, as seniors would likely frequent local shops on foot and appreciate a pedestrian-friendly commercial area in close proximity.

Metropolitan Council Forecasts

St. Paul Park is surrounded by Cottage Grove, Grey Cloud Island Township and the Mississippi River. While the city is constrained from expanding its boundaries to the north, east and west, there is a potential for the development of additional housing to the south in the Study Area, thereby increasing the numbers of households and the population of the community.

The Metropolitan Council has prepared forecasts of population, households and employment to 2030. The forecasts were prepared to implement the Metropolitan Council's Regional Development Framework and its regional growth strategy. The overarching goal of the regional growth strategy is to plan for development and redevelopment so that resources, including land in the metropolitan area and regional services (especially sewers and transportation) are used efficiently and effectively. At the Joint Housing Workshop held on September 8, 2004, between St. Paul Park and Grey Cloud Island Township, Metropolitan Council staff indicated that because the Study Area was within Grey Cloud Island Township when the Regional Development Framework was adopted in January 2004, the forecasts for the Study Area are included in the forecasts for Grey Cloud Island Township. Therefore, both St. Paul Park and Grey Cloud Island Township are presented herein. Now, approximately 327 acres of the Study Area have been annexed to the City of St. Paul Park. Metropolitan Council staff indicated that their forecasts assumed 2,200 households for the Study Area.

The Metropolitan Council's forecasts for population and households in both St. Paul Park and Grey Cloud Island Township are described in **Table 1**.

Table 1
Metropolitan Council Population and Household Forecasts, 2000-2030

	Year	St. Paul Park	Grey Cloud Island Twp	Total
Population	2000	5,070	307	5,377
	2010	5,800	4,900	10,700
	2020	6,400	6,800	13,200
	2030	7,100	6,800	13,900
Households	2000	1,829	117	1,946
	2010	2,200	1,800	4,000
	2020	2,500	2,500	5,000
	2030	2,900	2,500	5,400

Source: Metropolitan Council 2030 Development Framework

The two key elements to new residential development in St. Paul Park are (1) whether existing vacant parcels in the southwest area are put on the market so that housing can be constructed on them, and (2) accommodating residential development on annexed lands. Since the Comprehensive Plan was prepared in the late 1990s, the city has made strides towards their goal of adding housing in the southwest area.

If new housing is constructed on annexed lands, then approximately 1,960 units could be developed in the Study Area (1,920 units within the Rivers Edge area and 40 units within the 17 acres located between the city and Rivers Edge). Development of housing will conform to the criteria established through the Rivers Edge Final AUAR and Mitigation Plan.

An element in the Metropolitan Council’s growth strategy is locating commercial and industrial enterprises in areas where infrastructure exists and where land can be used more efficiently. This is the rationale behind the Council’s employment forecasts, described in **Table 2**.

Table 2
Metropolitan Council Employment Forecasts, 2000-2030

Year	St. Paul Park	Grey Cloud Island Twp	Total
2000	1,172	50	1,222
2010	1,400	100	1,500
2020	1,600	240	1,840
2030	1,700	240	1,940

These employment forecasts accommodate set asides for light industrial uses, areas of mixed use, and pursuing strategies to encourage firms to expand or to locate in St. Paul Park.

Demographic Projections

The city’s forecasts for population, households, and employment in both St. Paul Park and the Study Area are described in **Table 3**. Population forecasts for the Study Area are based on adding 1,960 units and an average household size of 2.64 in 2010, 2.56 in 2020, and 2.45 in 2030, which are consistent with the Metropolitan Council’s assumptions of household size. The city’s forecasts are slightly lower than the Metropolitan Council’s.

**Table 3
St. Paul Park Population, Household, and Employment Forecasts**

	Year	St. Paul Park	Study Area	Total
Population	2000	5,070	55	5,125
	2010	5,800	2,721	8,521
	2020	6,400	5,153	11,553
	2030	7,100	5,153	12,253
Households	2000	1,829	20	1,849
	2010	2,200	1,030	3,230
	2020	2,500	1,980	4,480
	2030	2,900	1,980	4,880
Employment	2000	1,172	0	1,172
	2010	1,400	88	1,488
	2020	1,600	88	1,688
	2030	1,700	88	1,788

Regional Housing Needs

The Livable Communities program was enacted by the Minnesota Legislature in 1995, in part, to encourage communities in the metropolitan area to provide a range of housing opportunities, including affordable and life-cycle housing. The program also provides funding to participating communities to preserve and rehabilitate affordable housing.

St. Paul Park has chosen to participate in the Livable Communities program. The City Council in December 1995 adopted a resolution to that effect. Subsequently, the city prepared an Action Plan and submitted it to the Metropolitan Council.

The city’s housing goals under the Livable Communities Act are described in **Table 4**. **Table 4** includes a description of the housing situation that existed in the city in 1995, or the “city index,” and the benchmarks established by the Metropolitan Council for each community. The benchmarks represent the average of two indices — all Metropolitan Urban Service Area (MUSA) communities in eight planning sectors in the metropolitan area and all MUSA communities at similar stages of development, such as fully developed, developing or freestanding growth centers. St. Paul Park is part of the southeast St. Paul planning sector, which also included the communities of Newport, Woodbury, Cottage Grove, Afton, Hastings, and Denmark, Nininger and Grey Cloud Island Townships. The Study Area is classified as a “developing” community in the Metropolitan Council’s Regional Development Framework.

As the city index figures in **Table 4** demonstrate, the vast majority of housing in St. Paul Park, both owner-occupied and rental housing, is affordable. A comparison of the city index and the benchmark indicates, however, there is insufficient life-cycle housing, or housing for residents of all ages and rental housing for those who cannot or do not want to live in owner-occupied residences.

Table 4
City of St. Paul Park
Livable Communities Goals, 1995

Livable Communities Issue		City Index	Benchmark	Goal
Affordability	Owner-occupied	99%	69%-74%	Within/above benchmark
	Rental	73%	35%-48%	Within/above benchmark
Life Cycle	Housing Type *	19%	26%-35%	Within/above benchmark
	Owner/renter Mix	83%/17%	75-81%/19-25%	Within/above benchmark
Density	Single-family	2.4/acre	1.9-2.0/acre	Within/above benchmark
	Multiple-family	21/acre	8-10/acre	Within/above benchmark

Source: Metropolitan Council, St. Paul Park Comprehensive Plan 2000-2020

* -- Housing type refers to the percentage of non-single family attached dwellings; this includes duplexes, townhouses and apartments.

Metropolitan Council staff reviewed the housing implications for Rivers Edge in November 2003. A memo from Metropolitan Council staff indicated that in order for the city to meet its affordability and diversification goals (see **Table 4**) some significant portion of the land within the Study Area will need to be guided to provide the opportunity for affordable homeownership and new rental housing development.

In November 2003, the housing implications noted in the Metropolitan Council staff memo were based on the city adding 1,700 units into St. Paul Park by the year 2011. Given these growth assumptions, city housing goals (see **Table 4**), and the significant level of affordability that already exists in the city's housing stock, Metropolitan Council staff indicated that the expectation is for the city to add 540 more affordable ownership units and 320 rental units of which 110 are affordable rental units by 2011.

The memo also noted that the city may not, of course, be able to achieve such numbers because it is the private market that drives most housing production. However, the city is expected to, at a minimum, guide land in such a manner that the goals may be achieved. This means that if 1,700 units are to be added pre-2011, at least 90 acres need to be guided for medium density (at least 6 units per acre) and at least 27 acres guided for medium - high density (at least 12 units per acre), or 22 acres guided for high density (at least 15 units per acre). The land use section of this study is intended to meet or exceed the housing expectations of the Metropolitan Council.

Additionally, the memo noted that given such a large residential development, St. Paul Park could easily require of that acreage be set aside for the development of the 100+ affordable rental units so that in the future it could work with the Washington County HRA to develop these units for families, the elderly or both. Given the anticipated and proposed land uses described in the land use section of this study, several locations provide opportunities for working with Washington County HRA on establishing affordable rental units.

Age Groups and Housing

People of different age groups typically have different housing needs. A breakdown of census figures by age indicates potential housing needs in a community. **Table 5** provides a breakdown of the city's population in 2020 by age and describes the typical housing needs of specific age groups.

Table 5
City of St. Paul Park
Population and Housing Needs

Age Group	Number	Percent	Typical Housing
19 and younger	1,630	32.2	Generally students living with parents
20-24	259	5.1	Generally renters
25-34	705	13.9	Typical first-time home buyers
35-54	1,589	31.3	Move-up home buyers
55-64	400	7.9	Empty nesters
65-74	305	6.0	Young seniors
75 and older	182	3.6	Older seniors often needing services
Total	5,070	100.0	

Source: 2000 U. S. Census, Penelope Simison, AICP, analysis

St. Paul Park is a community that experiences few population shifts and little housing turnover; many families have lived in St. Paul Park their entire adult lives. At the time of the 2000 Census, the largest portion of the population consisted of adults with children at home. The population of those 75 and older more than doubled since 1990, representing a category of the population in need of housing options that also provide services. The median age of St. Paul Park residents has increased markedly since 1970, reflecting the aging of the population during a 30-year period.

The vast majority of existing housing — single-family detached dwellings — fit the needs of families with children living at home. This means there are few options for those at either end of the housing cycle. This includes young adults and families who cannot afford or do not need a single-family house. It also includes empty-nesters and seniors who are not able, or do not want, to have the financial and maintenance responsibilities of a single-family house.

Housing for Residents of All Ages

The predominate housing type in St. Paul Park is the single-family detached house. This has served the community and its residents well, particularly during the two or three post-war decades when most residents were families with school-age children. However, during the subsequent two decades, the median age rose, indicating adults were aging and the numbers of children and teenagers were decreasing.

These shifts in population raise several issues. Most of the housing stock, built for families with children at home, does not accommodate the needs that have emerged in recent years. There is virtually no housing available for empty nesters, senior citizens and the elderly who require assistance with daily living. Very little housing is available for young adults, whether unmarried or families with young children.

One impact of these population shifts is that long-time residents are not able to “age in place,” a housing term that means older residents are able to find housing appropriate to their needs without leaving the community where they spent their early and middle adult years.

In addition, older residents, living on less income than they had prior to retirement and living in older housing stock, often find it increasingly difficult to pay for maintenance and upkeep. Deteriorating housing stock affects the housing market of a community and, eventually, its property tax base. This is because state law requires that properties be assessed within 10 percent of their market value and, if the housing market is declining, a city’s property tax revenues will also decline.

At the other end of the spectrum, young adults who may have grown up in the community and wish to remain, or who are looking for a community, will not be able either to buy or rent housing that fits their budgets.

At the time of the 1990 Census, the city’s population was 4,965. Since then, the population has grown and now barely exceeds 5,000 (5,070 according to the 2000 US Census). A city must have a population of at least 5,000 to receive municipal state aid, which is used to repair and construct streets. Secondly, a healthy residential tax base in a city where housing is the predominate land use is essential if the city is to effectively and efficiently offer a range of public services.

The potential for new residential development to help sustain the city’s population over 5,000, to broaden the property tax base and to meet the needs for life-cycle and affordable housing is discussed in this document.

IV. EXISTING CONDITIONS

Past Land Use

The majority of the Study Area has been in agricultural production or pasture, including two stockyards, for over a century. Historical plat maps indicate that the two stockyards located to the west of Grey Cloud Island Drive were originally constructed between 1874 and 1887. These maps also indicate that the stockyards have undergone multiple changes in ownership during the past century. A 1927 aerial photograph shows the landscape of the Study Area before the construction of the dams in the 1930s. Before the construction of the dams, the configuration of the islands, backwater channels, and bay were significantly different than the existing landscape. In 1927 many of the backwater channels were “dry” and the extent of the islands was greater. The amount of upland has been significantly reduced due to the elevated water levels of the Mississippi River that are needed to support commercial navigation on the main channel (i.e., water level accretion).

A historical aerial photograph from 1936 shows two farmsteads and the majority of the Study Area in agricultural production or pasture, including the stockyards. This photograph also shows a tree canopy forming a relatively thin band along the Mississippi River bluffs and it appears that the bay in the Study Area is not inundated (flooded). A historical photograph from 1956 also shows the majority of the Study Area in agricultural production or pasture, and it appears that the tree canopy east of the bluff was thinned since the 1936 photograph. The bay was inundated in the 1956 photograph.

Existing Land Use

Existing land use is described in **Table 6** and shown on **Figure 2**. The Study Area consists of terraced landforms along the eastern side of the Mississippi River in the northern portion of Grey Cloud Island Township. Much of the Study Area is relatively flat to rolling, with the majority of this area consisting of active agricultural fields, old pastures, and old fields. Two farmsteads and several outbuildings exist in the central portion of the Study Area. The western portion of the Study Area consists of forests, bluffs, floodplain forests, and the Mississippi River. The river bluffs rise between 20 to 50 feet above the river and are characterized by a combination of exposed limestone cliffs and mesic oak savanna. A bay of the river is located near the center of the Study Area’s western land edge. The Burlington Northern railroad runs through the eastern portion of the Study Area. County Road 75 transects the Study Area and Grey Cloud Trail forms the southern boundary on the eastern half of the Study area. A dirt road extends from County Road 75 through the central and southwestern portions of the Study area. An elevated storm sewer outfall pipe connects the former stockyards (east of CR 75) to a floodplain wetland adjacent to the river. During stockyard operations, the pipe was used to drain stockyard wastes and excess water. A junkyard is located along the bluff between County Road 75 and the bay (**Figure 3**).

A variety of land uses surround the Study Area in the jurisdictions of St. Paul Park, Cottage Grove, and Grey Cloud Island Township (see **Figure 2**, Existing Land Use). The majority of the surrounding land uses are single family residential, agricultural, the Mississippi River and undeveloped land near the river corridor. Three major industrial uses are in the vicinity of the Study Area and include: junkyards, an Ashland Oil tank farm (Cottage Grove), and mineral extraction (Grey Cloud Island Township). Mineral extraction is expected to continue south of the Study Area for several decades. According to Grey Cloud Island Township’s Comprehensive Plan, existing and proposed mining areas comprise 420 acres and these areas are located in close proximity to the Mississippi River and Grey Cloud Channel, a backwater channel of the river. The auto salvage yard is adjacent to the Study Area (see **Figure 3**). Washington County Department of Public Health and Environment officials state that the imminent threat associated with that facility is that of a mosquito breeding ground. Several pipelines are located just southeast of the Study Area (see **Figure 3**).

Table 6
Study Area - Existing Land Use

Land Use Category	Acres
Agriculture	334
Undeveloped	181
Open Water	113
Farmstead	10
Railroad	3
Single Family Detached	12
Industrial	1
Totals	654

Source: Metropolitan Council

Environmentally Sensitive Areas

The city's *Plan for the River Corridor* (e.g., Mississippi River Critical Area Plan) is a chapter within the adopted Comprehensive Plan. The *Plan for the River Corridor* identifies environmentally sensitive areas and contains goals, policies and action steps intended to guide growth while protecting sensitive areas along the Mississippi River. Within the Study Area, lands and waters west of CR 75 are within the designated Mississippi River Critical Area Corridor. It is noted that development within the designated Mississippi River Critical Area Corridor is subject to the *Plan for the River Corridor*.

It is also noted that the Rivers Edge Final AUAR and Mitigation Plan contain an extensive analysis of environmentally sensitive areas and measures to mitigate potential impacts to these environmentally sensitive areas and plans to restore environmentally sensitive areas. Development of the Study Area is subject to the AUAR Mitigation Plan.

In September and October 2002 and March and April 2003, Applied Ecological Services, Inc (AES) conducted a Natural Resource Inventory of the Rivers Edge AUAR area, which comprises the majority of the Study Area. The purpose of this investigation was to identify land use and cover features focusing on plant community structure and ecological health. In general, the land cover map is similar to existing Minnesota Land Cover and Classification System (MLCCS) mapping; however, the land cover mapping completed by AES is the best representation of existing natural resources within the Study Area because it is based on ground reconnaissance. **Figure 4** shows the cover types within the Study Area. Lands not surveyed by AES as part of the Rivers Edge AUAR analysis have the MLCCS mapping displayed on **Figure 4**. The complete Natural Resource Inventory and Assessment is located in the Rivers Edge Final AUAR document.

Within the Rivers Edge AUAR area, a ranking of condition was applied to native plant communities (e.g., dry prairie, mesic oak savanna) and not to non-native communities (e.g., old field). Native plant communities (except floodplain forest which was not visited) were assigned a condition rank using the MN Natural Heritage Program's Element Occurrence Ranking Guidelines (**Table 7**). These guidelines require that each plant community be evaluated using the appropriate ranking considerations in the guidelines.

Table 7.
General Explanation of Native Plant Community Condition Ranking.

Condition	Rank	Description
Excellent	A	The plant community is intact and has existed on the site for decades. It has diversity typical of the type, no invasion by non-native species, and no significant adverse disturbances.
Good	B	The plant community was altered by adverse human intervention. It has native diversity that is slightly lower than typical for an excellent example of the type, little non-native species invasion, and slight evidence of past adverse disturbances.
Fair	C	The plant community has been significantly altered by adverse human intervention. Native diversity is noticeably lower and non-native species may be common and even abundant. There is much evidence of past adverse disturbances, including long-term fire suppression if the plant community is fire-maintained (i.e., it requires fire to maintain typical diversity and vegetation structure).
Poor	D	The plant community is dramatically altered by adverse human intervention. Native diversity is very low and one or more vegetation layers have few if any native species, or may be dominated by non-native species. There are abundant signs of recent adverse disturbances, including long-term fire suppression of fire-dependent plant communities.
Restored	R	The plant community is a restored example of a native plant community on a site that was formerly of human origin (e.g., cropland, lawn).

The native plant communities within Rivers Edge are in poor condition except for nine locations of native plant communities that are considered to be in fair condition (See **Figure 4**). Two locations were in deciduous forest, two in deciduous woodland, one in the dry prairie community, and four of the mesic oak savanna areas. These nine locations have high restoration potential. The Rivers Edge AUAR Mitigation Plan requires that a Natural Resource Restoration and Management Plan be prepared. Restoration in these locations would involve brush removal, prescribed burning, trash removal, slope stabilization, and selective planting of native wildflowers, grasses, sedges, shrubs, and trees.

Environmentally sensitive areas are located in the Study Area within the Mississippi River Critical Area Corridor and east of the railroad tracks (**Figure 5**). Conservation of these sensitive areas not only allows them to be enjoyed for generations to come, but also contributes to the quality of life for St. Paul Park residents today. Environmentally sensitive areas include the following:

- Wetlands / Springs / Seeps
- Steep Slopes/ Bluffs /Highly Erodible Soils /Ravines
- Floodplain
- Stands of Vegetation – Fair Condition
- Bedrock (see Figure 3)

Existing information was compiled to determine the constraints and opportunities created by these natural features in the Study Area. The following discussion of environmentally sensitive areas can be used to inform the planning process.

Wetlands

Wetlands provide many benefits, and the benefits vary according to the type of wetland, the season of the year, the location of the wetland within a watershed, and the land uses that affect the hydrological and ecological integrity of the wetland. Common wetland functions are water quality protection; floodwater detention; aesthetics, recreation, and education; wildlife and fisheries habitat; and shoreland stabilization. Wetlands in the riparian areas of the Mississippi River are quite extensive, whereas the uplands within the Study Area do not contain wetland. Wetlands included on the National Wetlands Inventory (NWI) are shown on **Figure 5**. Although NWI mapping suggests two

wetlands located in the uplands east of CR 75, indications of wetland conditions were not observed during the reconnaissance of the area by AES.

During stockyard operations, an elevated pipe was used to drain stockyard wastes and excess water to the wet meadow located near the Mississippi River (see **Figure 5**). Because the pipe was elevated, significant erosion has occurred along the bluff slope and wetland edge. The eroded area will be reconstructed as part of the restoration project. This wet meadow, commonly referred to as “manure lagoon”, will be restored as required by the Rivers Edge Final AUAR and Mitigation Plan.

Steep Slopes / Bluffs /Highly Erodible Soils/Ravines

Steep slopes, bluffs, and ravines are shown on **Figure 5**. The river bluffs rise between 20 to 50 feet above the river and are characterized by a combination of exposed limestone cliffs and mesic oak savanna. According to the USDA/NRCS Highly Erodible Soil Map Unit List for Washington and Ramsey Counties, Minnesota (October 1993), Dorerton-rock outcrop complex, 25-65 percent slopes is the only highly erodible soil identified within the Study Area and these areas are located in bluff areas. Severely eroded ravines are located along the bluff. Steep Slopes, bluffs, ravines, and the associated highly erodible soils pose severe development constraints.

Floodplain

The delineated 100-year floodplain for the Mississippi River is shown on **Figure 5**. Lands within the 100-year floodplain areas pose severe constraints to development. The city has a Floodplain District Overlay ordinance. The ordinance contains land use restrictions that apply to the Floodway and Flood Fringe Districts. The permitted uses in the Floodway District are limited to uses that have a low flood damage potential and uses that do not obstruct the flood flows or increase the flood elevations, and that do not involve structures, fill, obstructions, excavations, or storage of materials or equipment. Conditional uses are subject to standards such as, but not limited to, not increasing the stage of the 100-year or regional flood, not increasing flood damages in reaches affected, and protecting fill and dredge materials from erosion. The permitted uses in the Flood Fringe District are the same as the underlying Zoning District. The ordinances contain standards that must be met for all permitted uses including, but not limited to, structures being elevated at or above the Regulatory Flood Protection Elevation or flood proofing small accessory structures.

Stands of Vegetation

As previously noted, AES completed a natural resources inventory and assessment for land in the Study Area (see **Figure 4**). The existing conditions of the natural areas were ranked and significant stands of vegetation that are in “fair” condition are shown on **Figure 5**. The Rivers Edge AUAR Mitigation Plan contains several mitigation measures that address the protection and restoration of natural communities, including stands of vegetation. These mitigation measures apply to any development within the Study Area.

Bedrock

Bedrock is solid rock underneath the soil; therefore, a shallow depth to bedrock from the surface can pose severe development constraints for dwellings with basements and the installation of underground utilities. The minimum depth to bedrock is two (2) feet and the average depth to bedrock is eight (8) feet in the Study Area. Preparing bedrock areas for development is expensive, and typically the remedy is to mine the bedrock before development occurs. However, some bedrock deposits can be cost prohibitive to mine. Mining is not allowed within the Study Area per the development assumptions of the Rivers Edge AUAR. Given advancements in engineering and construction technology, overcoming soil-based development constraints is typically a matter of increased planning, construction, and maintenance costs.

V. LAND USE

The research, analyses, findings, and visioning included in the city's existing Comprehensive Plan, the Rivers Edge Final AUAR and Mitigation Plan, and the St. Paul Park Annexation Planning Area (Visioning Document) were used to create the Future Land Use map for the Study Area. The proposed land use designations for the Study Area are based on:

- The city's land use definitions and designations;
- accomplishing the city's adopted land use goals;
- implementing the "Visioning Document";
- addressing existing conditions, including environmentally sensitive areas; and
- the development levels assumed in the AUAR.

Land Use Definitions *(quoted from St. Paul Park Comprehensive Plan, page 38)*

St. Paul Park has the following land uses, based on definitions from the Metropolitan Council:

- Single-family residential. Single-family detached housing, including manufactured housing.
- Multi-family residential. Attached housing, including duplexes, quad homes, townhomes, condominiums and apartment buildings.
- Commercial. Retail sales and services, including professional services, private institutional uses, as well as recreational services that are predominately privately owned and operated for profit. A marina would be a recreational service.
- Heavy Industrial. Manufacturing of all kinds, including assembly of products produced elsewhere; facilities involved in the movement of goods, construction, communications, utilities and wholesale sales.
- Light Industrial. Manufacturing, assembly, warehousing, construction and wholesale sales. Light industry is distinguished from heavy industry by its potential for impact on commercial and residential land uses.
- Public, semipublic. Buildings and adjacent lands of schools (both public and private), hospitals, churches, cemeteries and all facilities of local, state and federal governments.
- Parks and recreation. Parks and recreational facilities owned and operated by local, regional, state and federal governments; open space.
- Restricted Development. Land where development is prohibited through ordinances or other legal means, for environmental protection or other public purpose. This particularly applies to the floodplain and wetlands along the Mississippi River and slopes within the Critical Area that exceed 12 percent.
- Roadways. Rights-of-way for existing highways, streets and alleys.
- Railroads. Rights-of-way for existing railways.
- Water. Public waterways, including the Mississippi River.

Future Land Use Designations *(quoted from St. Paul Park Comprehensive Plan, page 41)*

Twelve land use designations will address the land use issues in St. Paul Park; specifically, sustaining the community while encouraging and shaping growth to meet the community's long term needs. St. Paul Park will have the following future land uses:

- Single-family residential. This district will include single-family detached housing.
- Multiple-family residential. This district will include attached housing; more than one zoning classification will be included in multiple-family residential.
- Manufactured residential. This district will include mobile home parks.

- **Commercial.** This district will include retail sales and services intended to serve:
 1. The immediate neighborhood
 2. The community
 3. The region beyond the community.
- **Mixed-use.** This district will be used for areas where more than one land use is permitted. This is intended to provide flexibility for development consistent with design, architectural and performance standards that reflect the city’s small town character and its location within the river corridor.
- **Heavy Industrial.** This district will include existing basic industries.
- **Light Industrial.** This district will include manufacturing, assembly, warehousing, construction and wholesale sales.
- **Public, semipublic.** This district will include schools and adjacent lands and all facilities of local, state and federal governments. It will also include cemeteries.
- **Parks and recreation.** This district will include city parks and recreational facilities.
- **River Development.** This overlay district will include areas designated as the Mississippi River Critical Area/Mississippi National River and Recreation Area. It will provide standards for the protection and preservation of the Mississippi River corridor.
- **Floodplain.** This overlay district will include areas designated as floodway and flood fringe on Federal Emergency Management Agency (FEMA) maps. **Figure 6** depicts the floodplain.

Land Use Goals (*quoted from St. Paul Park Comprehensive Plan, page 44*)

The land use goals in St. Paul Park are:

1. Residential uses that reflect the city’s housing plan for life-cycle and affordable housing and that broaden the city’s property tax base.
2. Industrial uses to sustain the city’s economic base.
3. Commercial uses that benefit from the city’s proximity to the Mississippi River and Highway 61.
4. Mixed uses, to facilitate diverse development consistent with the requirements and guidelines for the Critical Area and the city’s objectives for new housing and development.
5. Public and institutional uses.
6. Park and recreation uses.
7. Protection of the Critical Area.
8. Protection of the floodway and flood fringe.
9. Growth consistent with the Metropolitan Council’s regional growth strategy.

St. Paul Park Annexation Planning Area – Rivers Edge (“Visioning Document”)

The Visioning Document includes ten guiding principles for the Rivers Edge Master Plan to ensure that development occurs in accordance with city goals and objectives. The principles were established based on the goals of the city’s Comprehensive Plan; community input gathered at visioning workshops and public meetings; analysis prepared as part of the AUAR environmental review process; and sound planning principles. These guiding principles are applicable to this Growth Area Study (for reference see the Guidance Documents section of this Study for the list of ten guiding principle topic areas).

Existing Conditions

The analysis of existing conditions and the city’s definition of *Restricted Development* guide the delineation of lands where established development restrictions apply. These restrictions are derived from the Rivers Edge Final AUAR Mitigation Plan, the city’s Comprehensive Plan, and city Ordinances. It is noted that the Floodplain Overlay District applies to the delineated floodplain and the River Development Overlay District applies to lands and waters within the designated Mississippi River Critical Area Corridor.

Rivers Edge Final AUAR - Development Levels

The maximum development levels established for the AUAR analysis and the AUAR Mitigation Plan must be followed for future projects to be exempt from further environmental review. The anticipated future land use for the Study Area complies with the levels of development assumed in the AUAR.

Anticipated Future Land Use

For those portions of the Study Area now within the city, future land uses can be considered to be proposed land uses. For those portions not within the city, future land uses can be considered to be anticipated land uses. The land uses anticipated for the Study Area are intended to accommodate a variety of housing types and styles, provide community gathering places, provide neighborhood-scale commercial uses, and provide parks and open space along the Mississippi River corridor (**Table 8**). Generally, the city’s adopted Future Land Use Plan was expanded to include the Study Area (**Figures 6a and 6b**). This is illustrated by extending the planned pattern of Single Family and Multi-Family Residential areas south into the Study Area. Single Family Residential areas in the Study Area are anticipated to be located adjacent to planned or existing Single Family Residential areas within the city. Likewise, Multi-Family areas are anticipated to be located adjacent to planned or existing Multi-Family areas within the city. Given the Concept Plan contained in the Vision Document, the development assumptions of the AUAR, and the city’s definition of Mixed Use, the “Village Center” is anticipated to be designated as “Mixed Use” and “Multi-Family Residential.”

**Table 8.
Growth Study Area - Future Land Use**

Land Use Category	Rivers Edge		Other Properties		Totals		Density
	Acres	Units	Acres	Units	Acres	Units	
Single Family Residential	248	691	17	40	266	731	2-5 un/ac
Multi-Family Residential	141	691	0	0	141	691	6-16 un/ac
Multi-Family Residential	23	310	0	0	23	310	16-20 un/ac
Mixed Use ¹	12	228	1	0	13	228	16-20 un/ac
Restricted Development	75	NA	0	NA	75	NA	NA
Railroad	9	NA	0	NA	9	NA	NA
Open Water	127	NA	0	NA	127	NA	NA
Totals	635	1,920	18	40	654	1,960	3-5 un/ac

¹ Includes 40,000 square feet of commercial uses

Single Family Residential. These areas are generally located next to existing single family residential areas in the City of St. Paul Park as well as next to existing single family residential areas in Grey Cloud Island Township. The average density of development in Single Family Residential areas may range from two (2) – five (5) units per acre. Parks and open space will be accommodated in areas

guided Single Family Residential (see Figure 7 and the Parks and Open Space section of this study for further information.)

Multi-Family Residential. These areas are located adjacent to planned Multi-Family residential areas in the southwest area of the city. Multi-Family areas are also located along land uses such as, collector roadways, the railroad corridor, and Mixed Use areas. Multi-Family Residential areas can provide a transition from these areas to single family areas. This land use category will accommodate a range of multi-family housing types and parks and open space areas (see Figure 7). The average density of development in Multi-Family Residential areas may range from six (6) – 20 units per acre. As noted in Table 7, 23 acres are anticipated to be guided for Multi-Family Residential at an average density of 16 – 20 units per acre. These 23 acres represent the residential component of an area that is commonly referred to as the “Village Center” in previous planning documents.

Mixed Use. The purpose of the proposed Mixed Use area is to enhance St. Paul Park’s sense of place and create another strong community linkage to the Mississippi River. The Mixed Use area is located along CR 75 and is setback from the top of the river bluffs. The Mixed Use area will provide connections to the river via scenic overlooks and pedestrian trails. The Mixed Use area could accommodate a mix of residential and commercial uses. The average density of development in Mixed Use areas will range from 16 – 20 units per acre. The commercial component could include up to 40,000 square feet services for the community such as: medical clinic, offices (i.e., insurance, travel, etc.), community retail (i.e., drug store, deli, bakery, etc.) community services (i.e., bank, day care, etc.) and restaurants. These commercial uses could be mixed both vertically and horizontally with residential uses. A community center and parks and open space could also be located within Mixed Use areas. The community center could include park and recreation facilities, and community gathering space.

Restricted Development. As stated in the city’s definition, Restricted Development is, “Land where development is prohibited through ordinances or other legal means, for environmental protection or other public purpose. This particularly applies to the floodplain and wetlands along the Mississippi River and slopes within the Critical Area that exceed 12 percent.” Restricted Development areas, shown on Figures 6a and 6b, apply to areas along the Mississippi River corridor where development is restricted by the Rivers Edge AUAR Mitigation Plan. These areas are anticipated to include park and open space areas that could accommodate trails, scenic overlooks, and other public recreational structures. The bluffline setback established by the Rivers Edge AUAR Mitigation Plan is also illustrated on the Future Land Use map. It is noted that the Floodplain Overlay District applies to the delineated floodplain and the River Development Overlay District applies to lands and waters within the designated Mississippi River Critical Area Corridor.

VI. PARKS AND OPEN SPACE

Summary of City’s Existing Parks and Open Space Plan

Parks and Recreation Goals (from *St. Paul Park Comprehensive Plan*, page 100)

Park and recreation goals in St. Paul Park are:

1. Safe and well-maintained parks and recreation facilities for residents.
2. Connections between city parks and the Mississippi River, and between city parks and trails operated by other government jurisdictions.
3. City parks in the Critical Area that are compatible with the objectives of Executive Order 79-19 and the MNRRA plan.

Standards for Parks and Recreation Facilities (from *Comprehensive Plan*, page 93)

The National Recreation and Park Association (NRPA) recommends standards for various types of parks and recreation facilities, expressed as numbers of acres for every 1,000 residents. The standards are intended to be used as guides so communities can develop their own standards for assessing park facilities and determining what park facilities are needed. Under NRPA standards, there are three types of local parks, outlined in **Table 9**.

Table 9
Park and Recreation Guidelines for Local Parks

Type of Local Park	Typical Facilities	Desirable Size	Area Served and Desirable Site Characteristics
Minipark	Specialized facilities serving a small population or specific group, such as children or senior citizens.	1 acre or less	Neighborhoods within 1/4 mile of the park
Neighborhood park/playground	Intense recreational activities, such as field games, court games; crafts; skating; wading pool and playground equipment; picnicking.	15 + acres	Neighborhoods within 1/4 and 1/2 mile from the park; geographically centered, with safe walking and bike access
Community park	Diverse recreational activities, including intense activities found in neighborhood parks, as well as athletic complexes and large swimming pools; outdoor recreation.	25 + acres	Several neighborhoods in 1-2 mile radius

Source: National Recreation and Park Association

The Comprehensive Plan notes that two additional park classifications are applicable to St. Paul Park, including “park reserve” and “special use.” A park reserve has areas for nature-oriented outdoor recreation and conservation, with less than 20 percent of the acreage used for recreation; in many communities, a park reserve is a regional facility encompassing more than 1,000 acres and serving several communities. Riverside Park is classified as “park reserve”. Special use parks are for specialized or single-purpose recreational activities. Lion’s Levee Park is classified as “special use”.

The National Recreation and Park Association has also established guidelines for parkland acreage for every 1,000 residents. For local parks (in contrast to regional parks), the standard is 6.25-10.5 acres for every 1,000 residents.

Existing Parks and Recreation Facilities - Parks in St. Paul Park

St. Paul Park is rich in park resources. There are eight parks scattered throughout the city, mostly in its residential neighborhoods. Total park acreage is approximately 35.5 acres, or 7 acres of active parkland per 1,000 residents, which is within the guidelines established by the National Recreation and Park Association for a community of St. Paul Park’s size.

City Ordinance for Park Development and Improvement

The city’s subdivision ordinance includes provisions (Sections 62-131 through 62-138) that require the dedication of land, or moneys in lieu of dedication, “as a prerequisite to approval of a plat, subdivision or development of any land” for use as parkland or the development of existing parks.

Parks and Recreation Issues

There is sufficient park acreage for a community of St. Paul Park’s existing size, based on guidelines established by the National Recreation Association. There are, however, four issues regarding existing parks and recreation facilities:

- Maintenance of existing city park facilities.
- Facilities for the aging population.
- Connections between city parks and the Mississippi River, to broaden recreational opportunities for residents and visitors.
- Proximity to parks and trails owned by other government agencies.

The Study Area could provide facilities for the aging population, provide connections to existing Riverside Park and provide new connections between the city and the Mississippi River; however, the additional provision of active park land will require additional maintenance in the future.

Proposed Parks and Open Space

St. Paul Park has many park resources, including its proximity to the Mississippi River. Existing park usage and recreational activities will be enhanced and expanded by creating additional parks, trails and open space areas, and by connecting the city parks to each other with trails for pedestrians and bicyclists, and to the river.

The potential increase in population described in Table 10 has been reviewed to determine the additional level of park service that will be necessary. The city currently provides approximately 7 acres of active parkland per 1,000 residents. This falls within the National Recreation and Park Association standard is 6.25-10.5 acres for every 1,000 residents. At a minimum, an equivalent level of service will be maintained as new development, and therefore population, occurs in the Study Area, as shown in **Table 10**. The amount of parkland will need to meet the requirements of the city’s subdivision ordinance.

**Table 10
Parks
Level of Service**

Area	Population¹	Park Acreage	Acres/1,000 people
St. Paul Park	5,070	35.5	7.0
Study Area	5,153	36	7.0

¹ Source of St. Paul Park population is the 2000 census. Source of the Study Area population is Table 3 in this Study.

New parkland is proposed in the Study Area. The city's existing definitions of parks and the areas served by the type of park (see **Table 9**) have been applied to the Study Area. **Figure 7** shows the conceptual locations of neighborhood parks, community parks, open space, and pedestrian/bike connections. The proposed parks are described as follows:

Linear Park

A Linear Park will utilize preserved and created open spaces, storm water infiltration areas, and greenway corridors to create a significant new park amenity in close proximity to all new residents. The pedestrian/bike system for the Study Area will be integrated into the Linear Park, bringing all new residents into close proximity with the system (see **Figure 7**). A portion of the system can serve as the planned Washington County greenway corridor.

Location: Meandering throughout the Study Area – location to be determined.

Size: To be determined, conceptual locations of pedestrian/bicycle connections and open space areas are shown on **Figure 7**

Possible Proposed Recreational Amenities: multi-use trails, picnic areas, and community gathering spaces

The pedestrian/bicycle system will accomplish the following key connections:

- Connection to existing Riverside Park
- Connections to the open space along the river, including overlooks
- Connections through the Study Area to future extensions of the Washington County and South Washington Watershed District greenway system plans
- Connection to planned mixed-use areas
- Connection to possible special recreational use areas

The extent of open space areas will be determined by the following factors:

- Floodplain and setback requirements
- Riparian wetland preservation
- Steep slopes associated with the riparian ecosystem
- Critical habitat areas, and unique geological or hydrological elements
- Coordination with the Mississippi River Critical Area and Mississippi National River and Recreation Area (MNRRA) programs in accomplishing shared goals and visions

Neighborhood and Community Parks

Several parks will be placed throughout the Study Area and will be connected to the Linear Park as described above.

Location: To be determined, conceptual locations are shown on **Figure 7**

Size: To be determined, approximately .5 to 5 acres for Neighborhood Parks and 5+ acres for Community Parks

Possible Proposed Recreational Amenities: tot-lots, picnic areas, shelter buildings, organized sports fields, multi-use trails

Minipark

Miniparks will be located throughout the Study Area. These specialized facilities will serve a small population or specific group, such as children or senior citizens.

Location: To be determined

Size: 1 acre or less

Possible Proposed Recreational Amenities: tot-lots, benches, and gazebos

Regional Park and Open Space

Washington County has prepared a Linear Park System Plan that proposes a county-wide system of trails and greenways to provide connections to federal, state and county recreational facilities and to city trails. The proposed Washington Parkway is the north-south spine of the system that follows the alignment of county state aid highway (CSAH) 19 through Woodbury and Cottage Grove in south Washington County. This parkway is planned to be improved with bike shoulders and/or off-road paths.

Two proposed greenways are located in the vicinity of the Study Area. The greenways are proposed to consist of paved shoulders for bicycles and a separate paved path for bicycling and skating. One proposed greenway would connect Afton State Park to the Mississippi River along CSAH 22. Another proposed greenway would connect the proposed Grey Cloud Island Regional Park with the proposed pedestrian trail across the Wakota Bridge (I-494). This greenway is proposed to be aligned with CR 75 through the Study Area. The conceptual parks and open space system provides for this north-south greenway through the Study Area and proposes that its location be reconsidered. Rather than have the greenway follow CR 75, the greenway could follow the proposed open space along the river corridor.

In addition to the greenway identified by Washington County, a regional trail corridor is proposed along CR 75 through the Study Area (see **Figure 7**). This trail would also connect the proposed Grey Cloud Island Regional Park to the Wakota Bridge. The regional trail corridor can be accommodated through the Study Area along the proposed alignment; however, its location could be reconsidered in future plans in order to better connect the regional trail to the Mississippi River. The proposed pedestrian/bicycle connections can provide connections to the proposed regional trail (see **Figure 7**).

South Washington Watershed District (SWWD) has developed a greenway plan for the watershed. The plan does not include the Study Area; however, provisions were made to identify possible connections to the Study Area, which was located within the East Mississippi Watershed District at the time the greenway plan was created. One connection terminates at the eastern edge of the Study Area. Through the AUAR process, SWWD suggested that the city consider providing an east/west greenway connection through the Study Area that could give access to a larger network of future greenways identified by SWWD. Proposed open space corridors along CR 75 and Grey Cloud Trail and east of the railroad tracks can provide connections to the proposed SWWD greenways.

VII. TRANSPORTATION

The purpose of this traffic analysis is to assess the traffic implications of development that could be accommodated in the Study Area. The site comprises approximately 654 acres. All Figures regarding the Traffic Analysis are included in Appendix A. The development location is shown in **Figure 8**.

This report will study impacts associated with the scenario described in **Table 11**.

Table 11
Land Use Development Scenario

Residential
• Single Family – 731 Units ¹
• Multi Family – 691 Units
Mixed Use
• Mixed-Use Residential – 538 Units
• Mixed-Use Commercial – 40,000 S.F.

¹ Includes 691 units within Rivers Edge and 40 units within other properties.

The traffic study first addresses existing conditions in the Study Area. It also looks at impacts caused by development in the Study Area, in the nearby surrounding vicinity, in the external (but nearby areas) and finally, at the regional level. **Figure 9** shows the surrounding street system network that will serve and interact with traffic volumes generated from the Study Area.

Existing Conditions

Traffic Volumes

The Study Area is presently undeveloped with CR 75 road bisecting the property. The volume on this road is 2,000 vehicles per day. A set of road tube counts was conducted in March 2003 to establish current daily traffic volumes on a number of important roadways around the Study Area. **Figure 10** shows the traffic count locations and volumes.

A large percentage of traffic generated from the Study Area will access the site via Broadway Avenue and Third Street. To assess current operations at key locations along those roadways, peak period turn movement counts were conducted at the intersections of Broadway Avenue/3rd Street and Broadway Avenue/Summit Avenue in February 2003. **Figure 11** summarizes the turn movement counts.

Each of these intersections is presently controlled by all-way stop signs. An intersection level of service (LOS) analysis was computed for each intersection for both the A.M. and P.M. peak periods using the methodologies spelled out in the Highway Capacity Manual. **Table 12** summarizes the results of the capacity analyses.

As shown in **Table 12**, with current traffic volumes each of these critical intersections is able to function effectively in the peak hours under the current all-way stop sign control.

**Table 12
Existing Intersection Capacity Analyses**

Broadway / 3rd Street		A.M. Peak Hour		P.M. Peak Hour	
		Delay in Seconds	LOS	Delay in Seconds	LOS
Approach Geometry					
West Leg	One left-thru, one right	8.3	A	9.4	A
North Leg	One left, one thru-right	8.5	A	10.2	B
East Leg	One left-thru, one right	10.9	B	10.7	B
South Leg	One left, one thru-right	11.1	B	9.6	A
Overall Intersection		10.6	B	10.1	B

Broadway / Summit		A.M. Peak Hour		P.M. Peak Hour	
		Delay in Seconds	LOS	Delay in Seconds	LOS
Approach Geometry					
West Leg	One left-thru, one right	11.5	B	26.9	D
North Leg	One left-thru, one right	12.4	B	16.2	C
East Leg	One left-thru, one right	10.5	B	9.7	A
South Leg	One left-thru, one right	12.8	B	11.3	B
Overall Intersection		11.8	B	18.6	C

Note: Delay and LOS were determined using HCM 2000 methodologies in Synchro

Changes to Roadway Network

In the immediate vicinity of the Study Area, there are no significant roadway changes or upgrades proposed, other than changes that will result on and off-site as a direct result of development of the Study Area. However, outside of the immediate vicinity of the Study Area, there is a project of regional significance that is presently under construction. When complete, this Mn/DOT project will upgrade T.H. 61 to freeway status, rebuild the I-494 Wakota Bridge over the Mississippi, expand I-494 and construct or upgrade interchanges along T.H. 61. At the north end of St. Paul Park this project includes complete reconstruction and expansion of the St. Paul Park interchange. The proposed configuration of the upgraded interchange is shown on **Figure 12**. The St. Paul Park interchange is currently under construction and expected to be completed in 2007. As part of the interchange upgrade there will also be a realignment of local roadways to allow Marathon Ashland refinery traffic to be separated from local traffic along Broadway, thereby enhancing the capacity and safety of Broadway Avenue. The same realignment will also serve to guide some of the “touchdown” of the on/off ramp traffic to 3rd Street, away from Summit Avenue.

Analysis of Future Conditions at Full Development

The future conditions with full development of the Study Area's 1,960 housing units and 40,000 ft² of commercial uses in place were analyzed using a traditional multi-step traffic forecast and analysis process. The major steps in this process include:

- developing trip generation
- deriving the direction of approach
- assigning site generated traffic to the surrounding roadway network
- analyzing development-related traffic impacts
- establishing mitigation strategies

Trip Generation

The trip generation rates utilized in this study are those documented in the reference book Trip Generation, 7th edition, 2003, published by the Institute of Transportation Engineers ITE. The proposed development of the Study Area will feature a wide variety of detached and attached housing types to meet the needs of a range of market demand housing. In addition to the residential component, the Village Center will contain a community based commercial component with its own trip generation rates derived from the ITE reference manual.

For this study, the housing units are broadly grouped into the three general categories: single (or detached) housing, multiple housing and various senior-oriented products. The detached category is expected to accommodate a range of housing types from "typical," suburban-style single-family units to detached townhouse-style units within a homeowner's association structure. This latter type of unit exists in other Twin Cities developments and has been shown to appeal to singles and "empty-nesters." These units, with their smaller (and/or less active) families generate trips at a lesser rate than the standard ITE rate for a single-family house. Therefore, a composite or blended rate of single-family and townhouse was applied to match the ownership characteristics of this type of detached housing.

All of the attached housing outside of the Mixed Use area was assigned the rate associated with general suburban townhouses. This may have the effect of being conservatively high, as there are expected to be attached housing products within the Study Area that specifically appeal to empty-nesters and others of lower trip-generating characteristics. Within the Mixed Use area, separate trip generation rates were applied to the distinct uses, such as urban townhouses and various senior living facilities being planned for the Mixed Use area.

For the commercial component of the Mixed Use area, a general retail rate was applied to reflect the community-based retail or service uses likely to be found in the Mixed Use area. **Table 13** summarizes the daily, A.M. peak hour and P.M. peak hour trip rates utilized for this study.

**Table 13
Trip Generation Rates**

Land Use	I.T.E. Code	Rate Per	Daily Rate	A.M. Peak Hour			P.M. Peak Hour		
				Rate	% In	% Out	Rate	% In	% Out
Single-Family Detached Housing	210	DU	9.57	0.75	25	75	1.01	63	37
"Lifestyle" Detached Housing	(1)	DU	7.72	0.60	21	79	0.78	65	35
Residential Condominium/ Townhouse	230	DU	5.86	0.44	17	83	0.52	67	33
Senior Housing - Attached	252	DU	3.48	0.08	45	55	0.11	61	39
Continuing Care Retirement Community (CCRC)	255	DU	2.81	0.18	64	36	0.29	48	52
Shopping Center	820	KSF	42.94	1.03	61	39	3.75	48	52

(1) "Lifestyle" housing consists of single-family detached units with an association structure; the rate is derived from standard townhouse/condo and single-family detached housing rates.

Table 14 summarizes the overall trip generation for the Study Area. The trips shown in the table represent “gross trip generation.” Because the commercial uses coexist with a 538-unit residential component, it was assumed that 5% of the commercial-based traffic was derived from the immediately adjacent Mixed Use area’s residential component. No other traffic reductions, pass-by or diverted trip assumptions were utilized to reduce assigned volumes to the roadway network.

**Table 14
Trip Generation Summary**

Land Use	Daily Trips (Trip Ends)	A.M. Peak Hour (Approx. 7:30 - 8:30 A.M.)			P.M. Peak Hour (Approx. 4:30 - 5:30 P.M.)		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing	4,832	96	284	380	322	189	511
Residential Condominium/Townhouse	4,893	63	305	368	290	144	434
"Lifestyle" Detached Housing	1,705	30	106	136	117	59	176
Senior Housing -- Attached	981	11	12	23	19	12	31
Continuing Care Retirement Community (CCRC)	315	13	7	20	16	17	33
Shopping Center	1,718	26	16	42	72	78	150
Total Trips	14,444	239	730	969	836	499	1,335

Trip Distribution

Trip distribution for the residential components of the development in the Study Area was established from the destination patterns for the St. Paul Park/Grey Cloud Island area contained in the Metropolitan Council’s regional traffic forecasting model. (Source: Metropolitan Council

Transportation Section Regional TRANPLAN model run, March 2003). The residential trip distribution is shown on **Figure 13**. The distribution pattern for the commercial component of the Mixed Use area was based on preliminary market study data for this type of commercial facility provided by DSU Research. As a neighborhood based commercial area, the uses are expected to have a trade area radius size of less than three miles, and less than ten minutes drive time. This range indicates that the uses in the Mixed Use area will be primarily geared towards residents of the Study Area and the rest of St. Paul Park and Grey Cloud Island Township. It is expected that approximately 60% of the Mixed Use area's commercial traffic will be from within that area, with the remainder coming from the other nearby areas such as Cottage Grove.

The proposed development of the Study Area with its high concentration of residential units should generate additional demand on the transit system for "home to work" trips. Current Metropolitan Council information shows that about 40% of the work trips from St. Paul Park to downtown Minneapolis and about 20% of the work trips to downtown St. Paul use transit. The additional residents of the development in the Study Area using express transit to the downtowns will place additional demand on the current Cottage Grove Park and Ride lot and express service. The availability of this transit service will serve to keep the automobile trip generation from the site lower and result in fewer vehicles assigned to the external roadway system.

Trip Assignment and Traffic Analysis

In the trip assignment portion of the analysis, the new trips generated from full development of the Study Area were assigned to the roadway network using the routing patterns expected to be employed by the future residents of the development. The organization and tabulation of the trip assignment was facilitated by use of the TRAFFIX computer-based traffic assignment program. This program employs a structure of trip generation zones and roadway links and nodes to carry out the traffic assignment process across the study area network.

Early on in the study process, the issue of limited access into the development in the Study Area was identified. With the in-place barrier formed by the railroad tracks to the east, opportunities to disperse traffic from the Study Area are limited. It is certain that 3rd Street will serve as the major entry route into the Study Area. Third Street, which is identified as a collector street in the city's Comprehensive Plan, presently operates as a two-lane street with numerous driveways onto it. From Broadway southerly to Pullman Avenue, 3rd Street has a 43-44 foot width. From Pullman south to the current south city limits, the street width varies between 27 and 30 feet.

In addition to Third Street to the north, it is also expected that prior to full build out of the entire Study Area, an extension of 95th Street westerly through Cottage Grove to the Study Area will provide a second major access route to the development. This new link will provide more direct access for the portion of traffic from the southern portions of the Study Area that desires to travel south and east, for example to access shopping opportunities within Cottage Grove along T.H. 61.

Capacity Issues on Surrounding Area Roadways

As site generated traffic increases on Third Street, one of the issues to address is the capacity of that roadway. For most urban roadways the practical capacity is determined by intersection (typically signalized) performance. The maximum ability of an intersection to accommodate demand volumes will most often cap the ultimate throughput of the roadway. In general terms (outside of undue intersection capacity restrictions) a two lane roadway has a practical capacity of about 9000 to 10,000 vehicles per day. At that level the roadway functions as a major collector. (The Washington

County Transportation Plan, in its table of Daily Roadway Capacities, cites 9,000 as the limit for a two lane road at level of service C.)

As demand volumes exceed the capacity of a two-lane roadway, a next step up is represented by a three lane roadway, with a continuous two-way left-turn lane. This type of roadway functions well along a road with numerous cross streets or intermediate driveways. Various traffic engineering sources site the capacity of a three lane roadway with the two-way left-turn lane at about 16,000 to 18,000 vehicles per day. (The Washington County Transportation Plan cites 16,000 as the limit for a three lane road at level of service C.)

Traffic Assignment Results at Full Development

Streets

For the Study Area land use scenario, a complete traffic assignment was developed for daily volumes as well as the A.M. and P.M. peak hour periods with all 1,960 housing units and 40,000 ft² of commercial uses in place. This assignment represents Year 2016 conditions, one year after expected completion of full build-out and occupancy of the final phase of development. **Figure 14** shows the amount of traffic generated by the Study Area added to key roadway links on a daily basis at full development. The forecasts represented in **Figure 14** were computed assuming the 95th Street extension and bridge over the railroad tracks are in place by the completion of the last phase of development of the Study Area. **Figure 15** shows the total roadway volumes, including existing average daily traffic volumes, background growth and new trips generated by development within the Study Area.

The projected ultimate volumes along Third Street south of Pullman exceed the capacity of a two-lane roadway. North of Pullman the projected volumes along Third Street range up to 8,850, virtually at the limit of level of service C operations for a two-lane roadway. Implementation of a three-lane roadway along the length of Third Avenue will ensure effective operations for the length of the corridor. The expansion of Third Street to three lanes is included in the May 2005 Feasibility Study for infrastructure needed to support the Study Area.

Intersections

To assess the ability of the intersections within St. Paul Park to accommodate traffic for development of the Study Area, peak hour traffic assignments and level of service analyses were conducted for the two critical intersections of Broadway/Third Street and Broadway/Summit Avenue. **Figure 16** shows projected peak hour total volumes (current counts plus background growth plus traffic generated by the Study Area) at both intersections.

The results of a stop sign level of service analysis indicate that with full development in the Study Area, the intersection of Broadway/Third Street would rate an overall level of service (LOS) "C" in both the A.M. and P.M. peak hours, with no individual movements rated below LOS "D."

The intersection of Broadway/Summit Avenue under stop sign control would rate an overall LOS "D" in both the A.M. and P.M. peak hours, with individual movements rated at LOS "E."

Both of these intersections are projected to be near the threshold at which signalization may be required. Signalization of either intersection would only be recommended if in the future appropriate signal warrants are clearly met. The city, through their MSA street system traffic counting program, should bi-annually study the volumes at these intersections and assess if signal warrants are met.

With the general level of traffic volumes projected, if signalization is introduced, together with possible lane/approach restriping, both intersections would function at a level of service “C” or better in the peak hours.

Table 15 summarizes the level of service analyses for both intersections.

**Table 15
Full Development Intersection Capacity Analyses**

Broadway / 3rd Street		A.M. Peak Hour		P.M. Peak Hour		Approach Geometry -- Signal Control		A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec.)	LOS	Delay (sec.)	LOS			Delay (sec.)	LOS	Delay (sec.)	LOS
	Approach Geometry -- Stop Sign Control										
West Leg	One left, one thru-right	9.5	A	12.2	B	One left, one thru, one right	18.1	B	17.1	B	
North Leg	One left, one thru-right	9.6	A	14.9	B	One left, one thru-right	5.9	A	11.1	B	
East Leg	One left, one thru-right	13.7	B	31.2	D	One left, one thru, one right	10.3	B	15.9	B	
South Leg	One left, one thru-right	31.6	D	22.0	C	One left, one thru-right	10.7	B	7.5	A	
Overall Intersection		21.1	C	22.8	C		10.3	B	12.5	B	

Broadway / Summit		A.M. Peak Hour		P.M. Peak Hour		Approach Geometry -- Signal Control		A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec.)	LOS	Delay (sec.)	LOS			Delay (sec.)	LOS	Delay (sec.)	LOS
	Approach Geometry -- Stop Sign Control										
West Leg	One left, one thru-right	30.9	D	24.9	C	One left, one thru-right	23.2	C	16.5	B	
North Leg	One left-thru, one right	19.1	C	47.0	E	One left-thru, one right	5.5	A	13.1	B	
East Leg	One left, one thru-right	29.4	D	14.3	B	One left, one thru-right	6.6	A	5.2	A	
South Leg	One left-thru, one right	40.0	E	16.3	C	One left-thru, one right	12.3	B	9.0	A	
Overall Intersection		29.1	D	33.9	D		11.6	B	12.8	B	

Note: Delay and LOS were determined using HCM 2000 methodologies in Synchro

St. Paul Park Interchange

As part of the major T.H. 61 upgrade, the St. Paul Park interchange is also undergoing a major upgrade and capacity enhancement. The planning for the interchange was undertaken with no particular attention to the specific amount of growth represented by development of the Study Area. To assess the ability of the new interchange to handle the increased traffic generated by the Study Area, Year 2020 peak hour traffic analyses were conducted for the two signalized intersections at the ramp terminals. (Year 2020 was selected because the base Mn/DOT forecasts for the interchange were developed for that year.)

Figure 17 shows the peak hour year 2020 interchange ramp forecasts based on the Mn/DOT forecasts for the interchange construction project and **Figure 18** shows the 2020 forecasts plus traffic generated by development of the Study Area. **Table 16** shows the results of the capacity analyses for base conditions (Mn/DOT forecasts without development of the Study Area) and for the case with traffic generated by the Study Area added in, as well.

As shown in **Table 16**, the ramp terminals, with the large increase in capacity achieved through the Wakota expansion project, are both expected to operate at level of service “C” or better in the future with Study Area traffic added to the Mn/DOT forecast volumes.

Table 16
T.H. 61 Upgrade, St. Paul Park Interchange

Southbound Ramps		A.M. Peak Hour		P.M. Peak Hour	
Scenario	Delay in Seconds	LOS	Delay in Seconds	LOS	
2020 Projected Volumes (by Mn/DOT)	9.0	A	20.1	C	
2020 Projected Volumes plus Rivers Edge	14.1	B	24.0	C	

Northbound Ramps		A.M. Peak Hour		P.M. Peak Hour	
Scenario	Delay in Seconds	LOS	Delay in Seconds	LOS	
2020 Projected Volumes (by Mn/DOT)	6.2	A	3.3	A	
2020 Projected Volumes plus Rivers Edge	13.9	B	5.1	A	

Conclusions

1. The scenario analyzed in this study generates a daily traffic volume of 15,000 with full development of 1,960 housing units and 40,000 square feet of commercial space. This level of trip generation will not be reached until Study Area development is complete, approximately 10 – 12 years after initial development begins.
2. Traffic from the Study Area scenario can be accommodated by the roadway system with the following mitigations applied:
 - Increase in the capacity of Third Street through implementation of a three-lane roadway. This upgrade is included in the May 2005 Feasibility Study and is part of the infrastructure planned to support the Study Area.
 - Implementation of the 95th Street extension bridge over the railroad tracks prior to full build-out of the Study Area.
 - Monitoring of the intersections of Broadway/Third Street and Broadway/Summit Avenue and installation of traffic signals if appropriate signal warrants are met.
3. This study primarily focused on the impacts of traffic generated by the Study Area to the surrounding roadway system. In order to achieve effective traffic operations within the site, future detailed site planning will need to make use of access management practices to promote safe, effective traffic flow within the Study Area.

VIII. SANITARY SEWER

The city's existing public sanitary sewer system includes pipes ranging from 8-to 15-inch in diameter and due to bedrock much of the city's sewer system is at shallow depths. The existing sanitary sewer system drains to the northwest portion of the city where it connects to the Metropolitan Council's Interceptor Sewer #7102-2. The 30-inch interceptor sewer flows west under the Mississippi River to Inver Grove Heights then north to the Metropolitan WWTP. The interceptor's design flow at the city's connection point is 1.80 million gallons per day (mgd).

In 1997, St. Paul Park generated and directed to the public sanitary sewer system an average of 0.482 mgd of wastewater. Since the population at that time was 5,024, the wastewater generated per person was approximately 96 gallons per capita day (gpcd). According to the city's population and wastewater forecasts, the city will generate approximately 0.543 mgd of wastewater in the year 2020. This figure does not include the development proposed in the Study Area.

Sanitary wastewater production was estimated using the methods outlined in the Service Availability Charge (SAC) Procedures Manual (Metropolitan Council Environmental Services, January 2003). SAC is assessed based upon the maximum potential daily wastewater flow, which in turn is based on the usage of individual properties. Single family units, townhomes, duplexes, and most apartments equal one SAC per dwelling unit. One SAC unit is defined as 274 gallons of daily wastewater flow volume. Commercial properties are assessed SAC units based on maximum potential daily wastewater flow. SAC units vary depending on the type of facility. Generally, retail services such as restaurants, deli shops, and video and drug stores are assigned one (1) SAC per 3,000 square feet. Residential SAC units are calculated using one (1) SAC unit per dwelling.

Table 17
Wastewater Production Predicted in Study Area

Proposed Use	SAC Rate	Units	SAC Units	Wastewater (millions/gallons/day)
Residential Units	1:1 dwelling	1,960	1,960	0.5370
Commercial/Retail	1:3,000 s.f.	40,000 s.f.	13	0.0035
Total			1,973	0.5405

Wastewater generated within the Study Area will be collected in proposed gravity sewer lines and drained to central locations within the Study Area. Lift stations and force mains are required within the Study Area since there are no existing gravity sewer lines within the city's system with sufficient depth to serve the Study Area. In the early phases of development in the Study Area, the city's existing sewer system may be able to accommodate pumped discharges from a portion of the development assuming there are some upgrades to existing sewer lines. However, a new, larger gravity line will ultimately be required to convey flows from the Study Area towards the Metropolitan Council's connection point. The *Feasibility Report* shows potential locations and alignments for city sewer upgrades required to serve the Study Area.

The wastewater flows described in **Table 18** are within the design capacity of Interceptor #7102-2, which was designed to handle wastewater flows of 1.8 million gallons each day.

Table 18
Total Wastewater Production Predicted

“Service Area”	Wastewater (gallons/day)
City of St. Paul Park 2020 Comprehensive Plan	0.542
Study Area	0.540
Total	1.082

On-Site Sewage Systems: There are 76 on-site sewage systems in the city. Most, but not all, of the septic tanks are in the southwest area of the city, where the bedrock is so high that the installation of sewers for single-family housing has not been feasible because of the high cost. Also, approximately 20 on-site sewage systems are located within the Study Area. The provision of municipal sanitary sewer to the Study Area provides the opportunity to service homes relying on on-site sewage systems with municipal sanitary sewer.

IX. WATER SUPPLY & DISTRIBUTION

The City of St. Paul Park currently operates four wells within the Prairie Du Chien-Jordan aquifer. Well 1 is active but is used as a standby/emergency well. The four wells have a combined capacity of approximately 3.0 million gallons of water per day (mgd). Additionally, the city has three water storage facilities that provide 1.35 million gallons of water storage for domestic and fire-fighting purposes. The City of St. Paul Park does not have a water treatment plant; the municipal water supply is treated with fluoride.

The existing public water main system is comprised of an interconnected network of 6-to 12-inch diameter water mains. The likely connection points to the existing city water system are north and east of the Study Area. The *Feasibility Report* shows where the water main connections would be extended to the Study Area. The two northern water main connections include an 12-inch water main connection point at Third Street, and a 8-inch water main connection point at Sixth Street. The eastern portion of the Study Area would connect with an 8-inch water main at Summit Avenue.

The quantity of water used is expected to be proportional to the amount of sanitary wastewater produced. **Table 19** provides information on the estimated average daily water demand for each the Study Area. Water demand estimates were based on the assumption that consumption is approximately 110 percent of wastewater generation (see **Table 18**).

Table 19
Estimated Average Daily Water Demand

"Service Area"	Estimated Water Demand	
	(million/gallons/day)	(million/gallons/year)
City of St. Paul Park 2020 Comprehensive Plan	0.597	218
Study Area	0.594	217
Total	1.191	435

The number of wells and pumping rates for a public water system is usually based on the maximum daily water demand. The maximum daily water demand is typically four times the average daily water usage. The maximum daily water demand for the Study Area is 2.38 mgd.

Additional water storage may be necessary within the Study Area to overcome pressure losses in the water main system due to the Study Area's distance from existing water storage tanks. Some of the city's existing water mains will need to be enlarged and additional looping within the city's water main system will need to be constructed to increase water pressures and flows between the city and the Study Area (see *Feasibility Report*).

The upgrades and extensions to the existing water supply system would be constructed and installed in accordance with the MDH standards, and with the goals and policies set forth in the City of St. Paul Park's Water Supply and Distribution Plan (July, 1997), and the Comprehensive Plan (2000-2020). The MDH requires the city to follow the wellhead protection planning process (Minnesota Rules, Chapter 4720.5100 - 4720.5590), which sets standards for wellhead protection planning. The city completed a wellhead study.

Development within the Study Area will connect to the City of St. Paul Park municipal water supply system. Preliminary calculations indicate the city's water supply system can be expanded to accommodate the demand. Water demand for the Study Area is estimated at 217 million gallons per year. If the city increases the capacity of the municipal water supply system, a new municipal well would not be needed within the Study Area. If the city does not increase the capacity, new wells would be needed to serve the Study Area. When demands merit an increase in the city's water supply, the city will study the feasibility of constructing new wells in the eastern portion of the Study Area to service the needs of proposed development.

Water Conservation: Conservation is defined as reducing water use without changing the level of service. Conservation efforts can have two results—reducing the amount of water used and reducing the costs both for the water user and for the city to operate and maintain the water system.

To be most effective, conservation efforts focus on seasonal demands and on year-round usage. St. Paul Park has five water conservation programs:

1. **Metering.** All water users are metered and all meters are read quarterly. Metering enables the city to monitor water usage, to detect leaks and to charge users accurately.
2. **Water audits and leak detection.** An audit can account for all water in the distribution system, specifically the amount entering the system and the amount supplied to water users. The remainder, the “unaccounted-for water,” includes authorized uses (city buildings, for example) and illegal connections. The city's unaccounted-for water is nine percent of the total in the distribution system, which is less than typically found in water production systems. Leaks are repaired when they are detected.
3. **Water rates.** The city's water and sewer use rate schedule covers the costs of operating and maintaining the system. The base rate for all categories of users, except for senior citizens, is calculated on the first 10,000 gallons used, with increments for every additional 1,000 gallons used. Senior citizens pay a reduced rate.
4. **Regulation.** Federal regulations require that only low-flow showerheads and 1.6-gallon flush toilets be used in new residential construction. In addition, the city has adopted the Minnesota State Building Code and the Uniform Building Code, which require that only plumbing fixtures which reduce water usage be used in new construction and remodeling projects.
5. **Education and information programs.** Information is disseminated in the local newspaper, the Washington County Bulletin, and the city's newsletter, which is distributed to all residents twice each year.

X. SURFACE WATER MANAGEMENT

The storm water management system will be designed to improve storm water quality, provide rate and volume control, increase infiltration, and increase the total flood storage volume. In addition, the incorporation of low impact development techniques will minimize potential impacts from development of the Study Area. The storm water management system will meet or exceed National Urban Runoff Program (NURP) guidelines. The goal is to design the storm water management system so that post-development surface water runoff rates and volumes are equal to or lower than the existing surface runoff rates and volumes for storm events of 2-year frequency or less, and post-development water quality is equal to or better than the pre-development water quality. This will be achieved by:

- Emphasizing infiltration as a management strategy, and setting a goal of infiltration between 70 to 80 percent of the runoff from all rainfall
- Reducing impervious surface areas where possible

The Study Area falls within a 1,000-acre subwatershed that drains to the Mississippi River, and is located in the South Washington Watershed District (SWWD). Storm water generated from the Study Area will be routed through a series of storm water management areas to provide water quality treatment, infiltration, and storage. Design and placement of these areas will consider the source of the runoff as well as the type of soils, depth to bedrock, bedrock fractures, and groundwater recharge potential. A small portion of the Study Area's drainage will continue to be routed south of the Study Area, into the vegetated swales through the township, and into the river as it currently drains today.

The storm water management system within the Study Area will pretreat storm water from impervious surfaces, infiltrate much of the volume from frequent storm events through a series of infiltration/detention basins, and discharge to the river at rates less than the existing conditions. It is anticipated that runoff from the more frequent storm events will be managed on-site with no discharge to the Mississippi River. However, larger events will likely result in some discharge to the river. In an effort to minimize the potential impacts to the bay caused by storm water runoff generated from the Study Area, the storm water management system has been designed to restrict discharge into the bay.

Additional storm water management techniques can be considered when specific development proposals are submitted for review in the future. The extent of the techniques used would depend on soil suitability and compatibility with future development proposals. The following is a list of additional storm water management techniques for the city to consider:

- Placement of the green spaces near bedrock fracture locations in order to facilitate the prompt infiltration of clean water from the landscapes and to promote groundwater recharge.
- Create infiltration opportunities in public right-of-ways (ROW), and establish depressed drainage systems in public and private open spaces. Route driveway, sidewalk and gutter downspout waters into landscape features in yards to decentralize runoff. This would be accomplished without compromising safe and effective drainage and dewatering needs around foundations and road subgrades.
- Intercept road runoff into parkway and road ROW swales or landscape features to encourage water cleansing and some storage capacity for rare events.
- Placement of swales in depressional areas along buffers, parking lot islands, road ROW, and other suitable locations that support treatment and infiltration.

XI. COMMUNITY FACILITIES

City Buildings and Services

City services are administered from two buildings, City Hall and the Public Works building. City Hall, on Portland Avenue at Hastings Avenue, is the city's newest building. Opened in December 1996, it houses the city's administrative offices, as well as the police and fire departments. Meetings of the City Council and city commissions are held in the City Council Chambers, which is equipped with cable television facilities. There is a community room in City Hall, named for long-time resident Marlyn DeForth, which is used for meetings and organized activities. The Mayor and City Council members are elected and serve part-time. Commissioners are appointed by the City Council. The four commissions are Planning, Public Works, Public Safety, and Parks and Recreation. The city has a full-time administrator and a staff of three full-time administrative employees.

The City Administrator has identified the following needs for City Hall as a result of growth:

- Administrative Assistant to City Administrator and 200 sq. ft. for their office
- Two full-time office staff and two additional workstations for these staff with all pertinent equipment
- An upgraded phone system to accommodate new needs in all departments
- 400 sq. ft. for records and file storage
- Potentially, new networking capabilities with the computer software

Police

Personnel: The city in recent years has maintained a force of eight police officers, including a chief, a sergeant and six patrol officers. In addition, there are seven volunteer reserve police officers who work with the police officers on a regular basis. To quantify the need for additional officers and associated police jobs needed due to the projected growth in St. Paul Park, data from the Bureau of Justice Statistics' (BJS) *Justice Expenditure and Employment Extracts Series: 2000* was reviewed. The BJS extracts data from the Census Bureau's Annual Government Finance Survey and Annual Survey of Public Employment. This series includes national and State-by-State estimates of government expenditures and employment for the following justice categories: police protection, all judicial (including prosecution, courts, and public defense), and corrections.

According to the data, as of 2000, 1.97 local (1.31 municipal and 0.66 county) police jobs existed for every 1,000 persons in the State of Minnesota. In terms of actual sworn police officers, however, the ratio was 1.48 local (1.05 municipal and 0.45 county) officers to every 1,000 persons. The city's existing ratio of police personnel to population is consistent with the BJS data. Based on these rates and assuming a potential of an additional 5,098 residents in the city by 2030 (see **Table 3**), an additional seven (7) city police jobs would be required, six (6) of which would be sworn officers. The additional officers may include Captain, Sergeant, Investigator and Patrol Officers.

The other two police jobs would be a Community Service Officer and a Secretary. With the increase in population, the Community Service Officer can provide code enforcement and animal control duties. Other duties may include crime prevention, photo processing, evidence room, city auction and other assignments. Currently, the Police Chief and Sergeant perform secretarial duties including filing, completing required reports, data practice releases, administrative reports/memos, and records retention program. The Secretary position would complete these tasks and other assigned duties, including department receptionist during office hours.

Buildings: The police department currently runs operations from City Hall. The police station may need additional space for offices, expanded patrol room, storage space, and garage space. This may require an addition to the current City Hall. A stand-alone police station or a combined police/fire station in the Study Area could also provide the needed space.

Vehicles: The city may need a total of 5 or 6 patrol vehicles. With additional workload, four officers may be working simultaneously and require fully equipped patrol vehicles. At times, police reserve officers require the use of a vehicle and vehicles are out of service for repair or service. The city may require one or two unmarked vehicles for investigators to use. The Community Service Officer/Animal Control position may require one vehicle to provide this service.

Fire

Personnel: There are 28 volunteer firefighters in the city's fire department. None are full-time employees. There is an authorization of 35 firefighters. Firefighters also provide ambulance services, when needed; the city does not provide paramedic services. As the city expands its housing stock and commercial areas, they may need to concurrently increase the number of volunteer firefighters. Firefighter/citizen ratios vary considerably throughout the United States, but are largely determined by the use of full-time and/or volunteer firefighters. Basically, communities utilizing volunteer brigades require higher ratios, as they generally rotate who is actually on-call for firefighting at any given time. Full-time firefighter/citizen ratios are generally lower, as they are, by profession, able to increase efficiency and devote more time to firefighting and other associated services.

Unlike the data available through the BJS for police/citizen ratios, data for similar ratios pertaining to firefighters is not readily available. Through a series of interviews with communities of varying size, but focusing on those employing volunteer brigades, a ratio of 3.5 volunteer firefighters per 1,000 citizens was identified. The city's existing firefighter personnel ratio is higher, at 5.76 firefighters per 1,000 people. The higher ratio may be attributed to an initial critical mass of volunteer firefighters that are required for a small community. With an increase in population, the Fire Department anticipates the need for 30 additional firefighters, which is a ratio of 5.08 firefighters per 1,000 people.

Buildings: The location of the existing fire hall, in relation to the proposed development in the Southwest Area of the city and the Study Area, may necessitate a second fire station within this portion of the city. The response times from the existing fire hall may not be adequate to serve the citizens and business of the entire area. In addition, the existing facility would need to expand to house additional trucks, office space, and training space for additional personnel. A combined police station/fire hall may be located within the Study Area, as public services will be allowed within the Mixed Use portion of the area to provide an opportunity for the city to adequately provide services to its citizens.

Equipment: The fire department anticipates that the following equipment may be needed to serve the housing types and commercial uses in the Study Area:

- One aerial platform ladder truck
- One engine
- Mobile air unit/Command unit for SCBA refill
- One additional Rescue Truck

Public Works

The Public Works Department is located at 649 Fifth Street. It includes the city garage and maintenance shops.

Personnel: The average number of maintenance workers for first and second ring metropolitan cities with a population of 6,000 to 11,000 people is 11.5 persons. The city currently has six full time employees, including a supervisor, assistant supervisor, and four maintenance workers. They are responsible for snow removal, maintenance and repair of the water system and sanitary sewer system, park maintenance, general maintenance of police and fire vehicles, building maintenance, as well as minor repairs of the city's streets. Additional staff may include three to four maintenance workers and a mechanic.

Currently, the city employs one to two high school or college students for part-time parks maintenance. An increase in parks may require three to four part-time summer workers.

The Public Works Department currently relies on City Hall staff for the majority of secretarial duties for memos, utility billing, engineering reports, assessments, letter correspondence and state reports. Serving the increase in population and the associated workload would require additional staff.

Buildings: The department has two building locations – the main public works building and a parks building for park activities. With the increase in service needs that would come with serving an increase in population – streets, parks, and utility operations – building expansion may be needed for employees, equipment, offices, yard storage for sand/salt and gravel, and utility storage.

Vehicles/Equipment: With additional streets to plow, sand and sweep in the Study Area, the following additional equipment would be needed:

- 2-3 plow trucks – at least one tandem and one single axel dump truck with related equipment
- One sweeper
- One large tractor with related equipment may be needed to maintain roadside mowing
- A salt storage building.

With additional park land development, the workload for park mowing and park maintenance will increase. One to two wing mowers and park vehicles would be anticipated.

Water/Sanitary Sewer/Storm Sewer:

- One Standby Portable Generator
- One Utility Truck with Lift Crane
- One Sewer Jetter/Vactor Truck

The additional demand for water, sanitary sewer, and storm sewer services may require new wells and sewage lift station(s). Storm water maintenance requires a standby generator for power failures. A utility truck with a crane may be needed for lift station repairs. A sewer jetter/vactor truck may be needed for sanitary and storm sewer maintenance.

Utility Billing/Meter Reading/Computer Services:

- Computer updates (office)
- Computerized meters (installation program)
- One van with a computer for automatic meter reading.

The increased number of utility users may require an updated automated program for reading and billing. A system for setting up meter installations would also be required.

Public Schools

St. Paul Park is part of Independent School District #833, which also includes the communities of Woodbury, Cottage Grove, Newport and Grey Cloud Island. Two of the district's schools are located in St. Paul Park, including Pullman Elementary School, on Pullman Avenue at Marshall Avenue, and Oltman Junior High School, on Third Street at Eleventh Avenue. Pullman Elementary School has a capacity of 560 students, while Oltman Junior High School has a capacity of 835 students. St. Paul Park enrollment at the district's schools during the 1997-98 school year included 1,542 school-age children living in St. Paul Park, including 1,104 elementary, 251 junior high and 187 high school students.

When looking ahead, the District assumes that for every housing unit added, 0.5 pupils will be added to the district, a ratio that takes into account different types of residential development (multifamily versus single-family; owner versus rental; etc.), as they generate differing levels of school enrollment. Assuming this rate, an additional 1,960 housing units in the Study Area will generate 980 new pupils for the district to accommodate.

Based on their current facility situation in the St. Paul Park/western Cottage Grove area, the two elementary schools in the area (Pullman and Pine Hill) are under capacity and both can be expanded by four (4) – six (6) classrooms to accommodate additional pupils. Both of these facilities feed into Oltman Junior High School located in St. Paul Park, which currently accommodates 750 students, with room for an additional 150 students. Currently, the Park High School also has capacity.

XII. IMPLEMENTATION

The following tasks will facilitate the implementation of the Study:

- Capital Improvement Program
 - *Feasibility Report* (May 2005)
 - *Fiscal Impact Analysis* (draft dated November 2003)
- Comprehensive Plan Amendment(s)
- Zoning Ordinance Amendment(s)
- Subdivision Ordinance Amendment(s)

Capital Improvement Program

The *Feasibility Report* details the anticipated off-site expenditures related to the development of the Study Area. Developer(s) will be responsible for all infrastructure costs associated with development and the city will be responsible for improvements that give the city and abutting property owners a substantial savings in completing upgrades to the city's existing infrastructure in conjunction with upgrades need to serve development within the Study Area. The city will update its Capital Improvement Program in conjunction with future Comprehensive Plan amendments for the Study Area.

Ehler's and Associates prepared a draft *Fiscal Impact Analysis* related to development of land within the Study Area (see the draft *Fiscal Impact Analysis* for additional information). Ehler's and Associates is in the process of finalizing the *Fiscal Impact Analysis*. The conclusions contained in the draft *Fiscal Impact Analysis* included:

- That amount of revenue generated by the anticipated development through property tax payments and utility payments would not only pay for the increase in services but would generate additional revenue for the city.
- That the capital costs of new infrastructure for the proposed development (e.g., streets, sewer, water, etc.) will be paid by the developer. The cost to maintain and operate new infrastructure has been included with the projected operating costs. Therefore, these costs and revenue impacts are neutral.

Comprehensive Plan Amendment(s)

As lands are annexed to the City of St. Paul Park, Comprehensive Plan Amendments will need to be prepared to guide the growth and development of the Study Area. These Comprehensive Plan Amendments should be based upon the city's adopted Comprehensive Plan, the Rivers Edge Final AUAR and Mitigation Plan, the St. Paul Park Annexation Planning Area "Visioning Document", Metropolitan Council Regional Plans and Policies, and this Growth Area Study, as applicable.

Zoning Ordinance Amendment(s)

Since Comprehensive Plan Amendments will be required prior to development of the Study Area, subsequent revisions to the Zoning Ordinance are also required. State law requires that zoning ordinances must be consistent with the adopted Comprehensive Plan. Also, the city may consider reviewing and updating elements of its Planned Unit Development (PUD) District provisions. The updates to the PUD District may necessitate updating the Subdivision Ordinance

Subdivision Ordinance Amendment(s)

The city may consider reviewing and updating its Subdivision Ordinance to ensure that it is up to date and consistent with any potential Zoning Ordinance Amendments.