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Defining Equitable Access to Urban Parks and Recreation Amenities in Saint Paul's District 1 and Across Saint Paul Neighborhoods

Prepared in partnership with
District 1 (Saint Paul)

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Defining Equitable Access to Urban Parks and Recreation Amenities in Saint Paul’s District 1 and Across Saint Paul Neighborhoods

Author: Alyssa Schmeling

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Executive Summary

Research on equitable access to urban parks and recreation amenities identifies three measures of access: proximity of amenities to residences, acres per capita of park land, and quality of parks and recreation centers. Saint Paul's District 1 performs extremely well in park acres per capita. For the measure of proximity, District 1 does well in some parts of the district, but not in others; many of the areas lacking in proximity to amenities have higher percentages of non-white residents and low mobility. The quality measure was assessed based upon the number of amenities per park or recreation center. District 1 falls right in line with the quality of parks and recreation centers in the rest of Saint Paul. Implementing change in the equitable distribution of parks and recreation amenities in District 1 and across Saint Paul Neighborhoods is accessible through policy, infrastructure, and programming changes.

Introduction

Saint Paul's District 1 (Sunray-Battlecreek-Highwood Neighborhood) is in the Southeast corner of the city, bordered by the Mississippi River on the West and Southwest, by the city of Maplewood to the East, and by the Greater East Side and Dayton's Bluff neighborhoods to the North and West. The district is rich in green space with river bluffs, park reserves, regional parks, neighborhood parks, and the Mississippi National River and Recreation Area. District 1 has 53% non-white residents compared to the city's 33.3%; large parts of the district have less than 20% non-white residents while other areas have more than 80% non-white residents. District 1 also has relatively low population density with 17% of the city's acres and 7% of the city's population.

There is a growing amount of research being done on equity and access to parks and recreation amenities. This research suggests that an acres per capita approach to measuring equitable allocation of parks and recreation amenities is an incomplete picture of the way people access and use these amenities. In this report, we will summarize the literature on measures of accessibility to urban park amenities, analyze how District 1 and other Saint Paul neighborhoods with different demographic makeups perform in these measures, and offer recommendations for improvements and further research.

Literature Review: Measures of Accessibility to Urban Parks and Recreation Amenities

The growing amount of research being done on measures of accessibility to urban parks and recreation amenities has defined three primary measures of access: proximity, acreage, and quality (Rigolon, Alessandro). Here we will further define those measures and summarize the findings of the research on those measures.

Proximity

The first measure of access is proximity, or location of parks in relationship to residences. There are several ways researchers have measured proximity depending upon the scale, available transportation methods, and density of the area analyzed. In cities, researchers most often chose to make a quarter mile from home the standard limit for defining access (Boone et al; Miyake et al; Rigolon and Flohr). This assumes residents are walking to the parks and recreation centers. If measuring walkable access, safe places to walk must be factored into calculating these distances. Roads without sidewalks or crosswalks should not be considered route options when measuring walking distance.

Acreage

The second measure of access is acreage, or the size and number of parks. Larger parks allow the visitor to escape from the city and experience nature in a way that smaller parks do not allow (Potwarka, Kaczynski, and Flack). Additionally, small parks serving a large area can become overcrowded which limits visitation and deteriorates park amenities (Sister, Wolch, and Wilson). A small park is, of course, better than no park at all. On the other end of the spectrum, a large park or reserve is likely to see little to no visitation in a vast majority of the park depending upon where trails go and where amenities such as playgrounds are located. There are also inaccessible acres to consider such as islands, wetlands, or bluffs.

Quality

The third measure of access is the quality of the parks. Park amenities, perceived safety, and maintenance levels of the parks were consistently referenced as the primary factors in park quality (Carlson et al; Crawford et al; Vaughan et al) These factors are different depending upon cultural preferences and community needs (Byrne and Wolch). Beautiful and well-maintained parks may attract more users than parks lower maintenance levels and aesthetic draw (Giles-Corti et al).

Analysis: Accessibility of the Parks and Recreation Features in District 1 and Across Saint Paul Neighborhoods

Based upon the three measures of accessibility defined in the literature review, an analysis can be done of how Saint Paul's District 1 and the rest of the city perform in these measures. The measures of proximity and acreage can be analyzed through mapping analysis while the third measure, quality, requires a more thoughtful assessment of multiple factors which we will define later.

Proximity

The first measure, proximity, is used to address the spatial accessibility of parks and recreation features to residents' homes. The literature review determined that a quarter mile walking distance is the standard for proximity analysis. To do this analysis we can create a map including the parks and recreation centers; this results in Map 1 (all maps are in appendix) and then create service areas around the amenities that represent a quarter mile walking distance. To represent walking distance versus actual distance, I used two different methods. For the recreation centers, I could use walking routes data and represent actual walking distance on pedestrian accessible routes. Unfortunately, determining actual walking routes to non-point data such as parks is not possible in GIS, so I used an eighth mile buffer and then trimmed it to represent the realities that you cannot walk across water or large roads without bridges or crosswalks.

This process resulted in Map 2; you can see that the parks in District 1 are concentrated on the Southwest side of the district leaving the North and some Eastern parts of the district lacking in service area. We can compare the proximity map to a mobility map (Map 3) created by the Saint Paul Parks and Recreation Department for their Systems Plan and further identify the areas with the most need for proximity as their mobility is limited. Comparing these two maps, we can see that there are areas in District 1 lacking in proximity that also fall in the low mobility or the lowest mobility category.

If we perform the same analysis on Saint Paul as a whole, you can begin to identify other areas that are lacking in proximity to parks and recreation (Maps 4 and 5). The neighborhoods that do not perform well in proximity vary greatly in the percent of non-white residents. Areas that lack in both proximity to parks and recreation center and mobility should be prioritized for future parks and recreation locations or outreach programming.

Acreage

The measure of park acres per capita is the most straightforward of the measures. Using GIS, we can calculate the number of park acres per capita. The city has .017 park acres per capita. We can break that down by each of Saint Paul’s neighborhoods. This analysis results in Figure 1. Figure 2 depicts the percent non-white residents in each neighborhood.

Figure 1

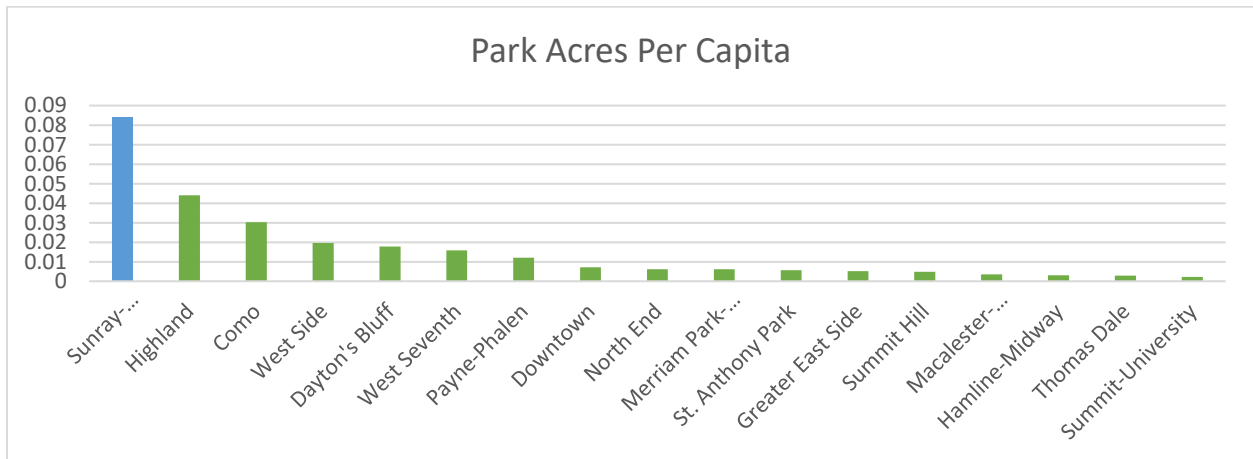
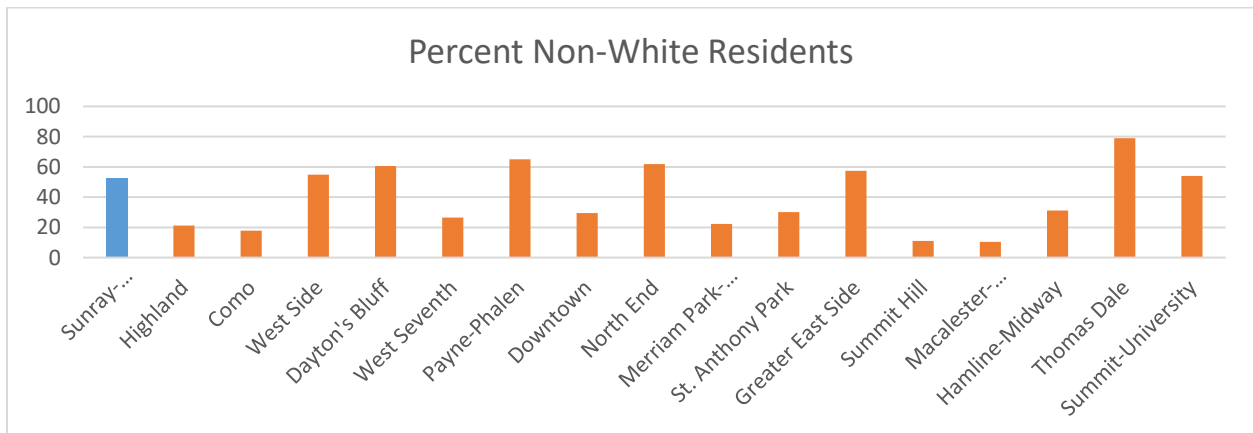


Figure 2



As you can see, District 1 has the highest park acres per capita in the city; it has almost double that of the second highest, the Highland neighborhood. Part of the reason District 1 is so much higher is because it has a relatively low population density. Both Highland and District 1 are located on the river and include parts of the Mississippi National River and Recreation Area; it is important to note that a significant amount of these acres are inaccessible due to large roads or open water in the way, or the acres are unusable because they are marshland. If we remove these areas from our acre count it decreases the stark differences in park acres per capita, but it does not change the rank of the neighborhoods in this measure. In future calculations of acres per capita, a more in depth assessment of usable parkland would more accurately represent the acres per capita measure.

Generally, throughout the city, there is no trend between the number of acres per capita and the percent non-white residents. We can see, however, that the Thomas-Dale and Summit-University neighborhoods with the lowest number of acres per capita are two of the neighborhoods with the highest percent non-white residents; in future siting of parks and recreation amenities, these neighborhoods should be an area of focus.

Quality

The literature review revealed that there are three factors most commonly named in assessing the quality of a park or recreation center: number of amenities, maintenance levels, and perceived safety. For this analysis, I have chosen to address the number of amenities as the measure of quality for parks; recreation centers will be scored on the number of amenities as well as hours open. The amenity counts are taken from the City of Saint Paul Parks and Recreation website and include sport fields and courts; playgrounds, benches, trails, and drinking fountains; fitness centers and gyms; meeting rooms and other recreation center amenities; golf courses; and splash pads and aquatic centers. I've created a basic scoring system to account for the number of hours the recreation centers are open as well as the number of amenities they offer in one number:

number of hours open each week × number of amenities = recreation center amenity score

Based upon this scoring system, we can see that there is a wide range of scores for the recreation centers in Saint Paul (Figure 3).

Figure 3

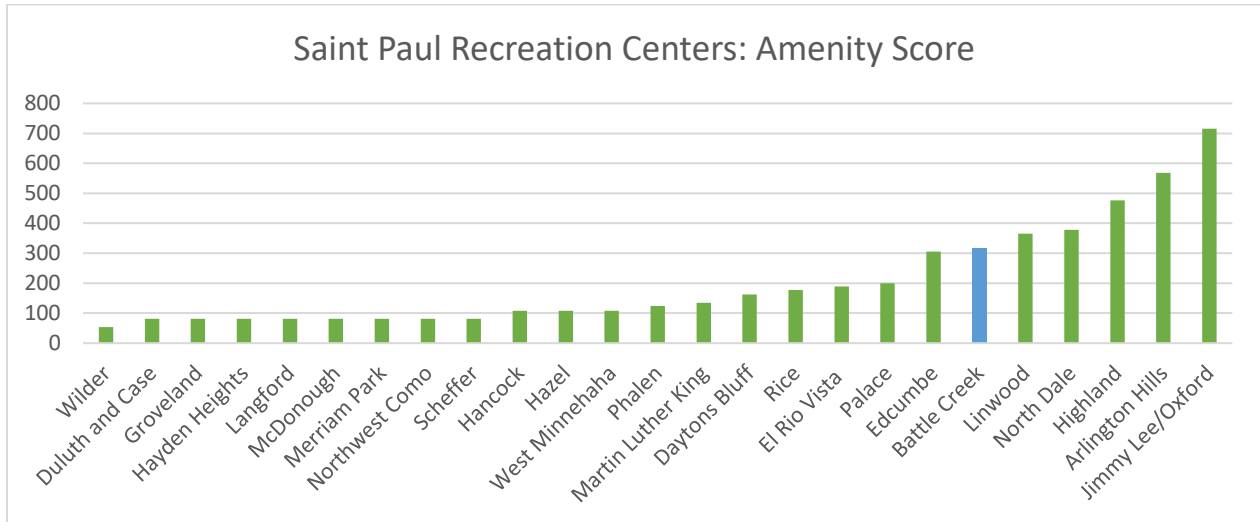
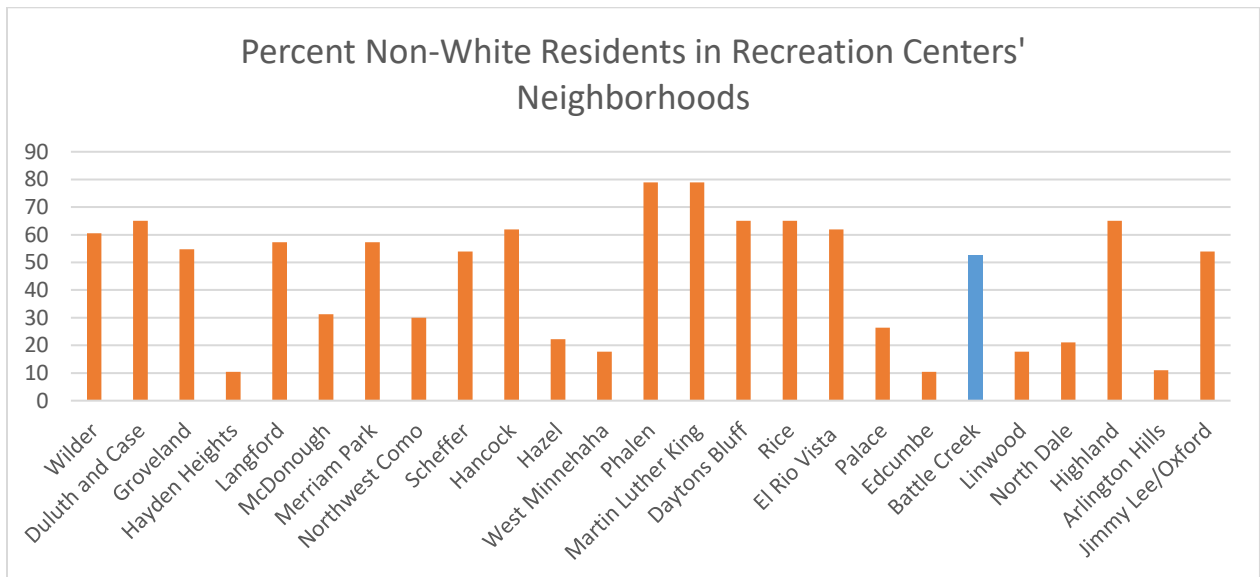


Figure 4



We can see that District 1 has one of the higher recreation center amenity scores. If we look across Saint Paul neighborhoods we do not see any trends in the recreation centers' quality scores and the percent non-white residents in the neighborhood (Figure 4).

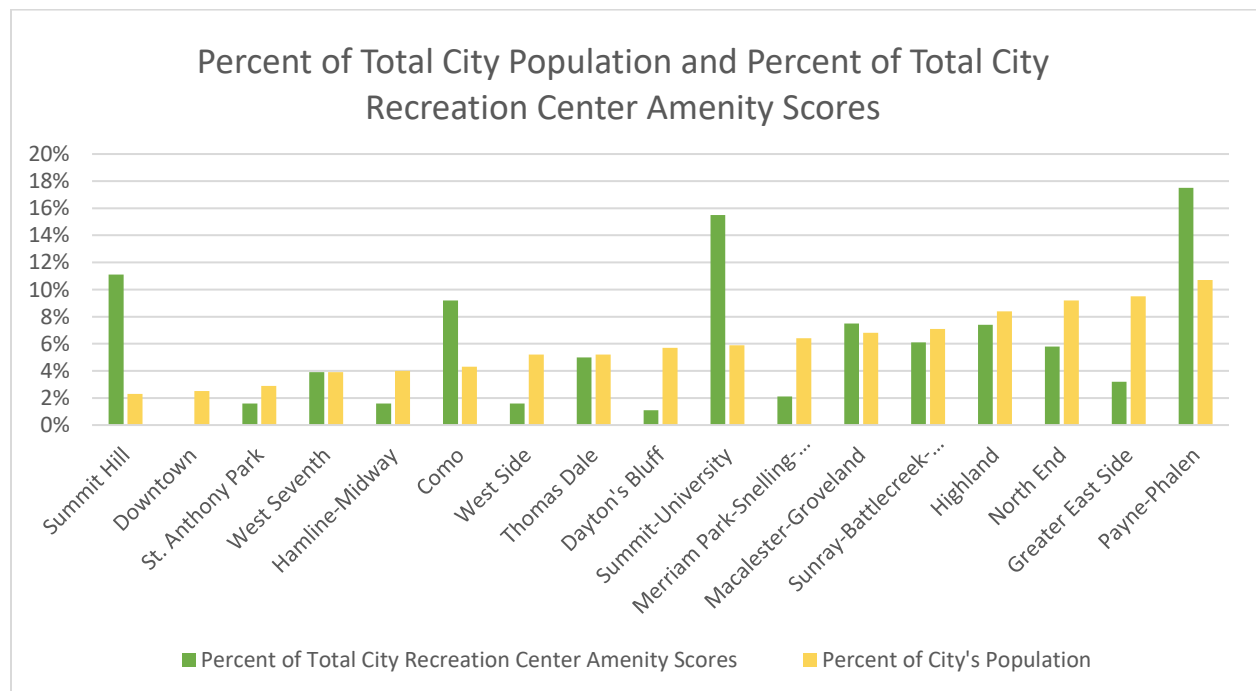
The measure of quality for parks was calculated by tallying the number of amenities for each location to find the average number of amenities per location. This category was not broken down farther into neighborhoods because some parks fall across neighborhood lines and could not be assigned to a specific neighborhood. Conveniently, this was not an issue for any of the parks in District 1, so we will compare District 1 to the rest of Saint Paul. With that information, we can see that District 1 performs slightly above average in park quality (Table 1).

Table 1

	Average Number of Amenities Per Park
District 1	5.1
All Other Neighborhoods	4.7

The amenity score measures the quality of the parks and recreation centers, but to better understand this, we must consider the distribution of amenities and population across District 1 and the rest of the city. For recreation centers, we can compare the percent of the total amenities scores and the percent of the population, resulting in Figure 5.

Figure 5



We can use Figure 5 to see that District 1 has a slightly smaller percent of the recreation amenity score (6.1%) than it has percent of the population (7.1%). This begins to help us identify neighborhoods that need additional recreation center amenities based upon the ratio of population size and amenities scores. The neighborhoods performing extremely well and poorly in amenities score compared to population size vary greatly in percent non-white residents.

We can calculate the percent of park amenities and compare that to the percent of the city’s population for District 1 and see that it falls slightly behind but is very close to the rest of the city’s average (Table 2).

Table 2

	Percent of Park Amenities	Percent of Total Population
District 1	6.7%	7.1%
All other Neighborhoods	93.3%	92.9%

The limitation to this method of measuring quality by tallying amenities is that it does not consider the preference for different amenities or the significance of that amenity. For example, a drinking fountain is considered an amenity just the same as a splash pad or golf course are considered amenities. In future analysis, a weighed amenity score would more accurately depict the quality of parks and recreation center across the city.

Summary of Analysis

The three measures of proximity, acreage, and quality work together to identify areas that need additional parks and recreation resources. None of these measures can stand alone to assess accessibility of urban parks and recreation amenities.

District 1 performs average or above in the measures of acreage and quality. The measure of proximity helps us identify areas within the District that lack both proximity to parks and recreation features and mobility; these areas should be prioritized when allocating any future parks and recreation resources.

Saint Paul has a wide range of performance in each measure. We do not see concerning trends or inequities in any of the measures, but with the three measures together, we can begin to identify specific areas that would benefit from future parks and recreation resources.

Recommendations

With a better understanding of equitable access to urban park amenities, we can recommend the following policy, infrastructure, and programming priorities to better serve District 1 and all of Saint Paul:

Policy

- When siting a new park, recreation center or amenity, consider proximity, acreage, and quality as a 3-part measure for determining the best location; prioritize neighborhoods with higher percent non-white residents, higher population densities, and low mobility.

Infrastructure

- Additional crosswalks over Lower Afton Road in District 1; this would connect a large group of low-mobility, high percent non-white residents to Battle Creek Recreation and Park (one of the best recreation centers in the city).
- Acquisition of additional parks in the neighborhoods lacking in the measure of proximity and acreage, especially areas with low mobility.

Programming

- Mobile recreation units should focus on the areas lacking in one or more of the measures of access.

Opportunities for Further Research

- Establish a better system to measure quality taking significance and cultural preferences into consideration
- Cultural preferences for amenities and programming
- Accessibility of features via transit
- How much use different parks and recreation features are seeing
- Affordability of programming

Appendix

Aggregate Data

Park acres per capita and non-white residents by Saint Paul Neighborhood

Neighborhood	Percent Non-White Residents	Acres of Park Land	Total Population	Park Acres Per Capita
St. Anthony Park	30	47	8360	0.0056
Como	17.7	371.17	12267	0.0303
North End	61.91	163.48	26477	0.0062
Payne-Phalen	65.03	368.75	30700	0.012
Greater East Side	57.304	138.72	27176	0.0051
Hamline-Midway	31.21	34.04	11496	0.003
Thomas Dale	78.92	43.13	15042	0.0029
Merriam Park-Snelling-Lexington- Hamline	22.2	113.64	18426	0.0062
Summit-University	53.9	39.41	17002	0.0023
Downtown	29.44	50.92	7056	0.0072
Dayton's Bluff	60.56	293.3	16464	0.0178
Sunray-Battlecreek-Highwood	52.768	1722.83	20453	0.0842
Macalester-Groveland	10.37	70.37	19525	0.0036
Summit Hill	11	32.32	6574	0.0049
Highland	21.1	1061.19	24078	0.0441
West Seventh	26.43	175.03	11096	0.0158
West Side	54.76	292.39	14948	0.0196

Amenity count for all Saint Paul parks

Park	Number of Park Amenities Listed
Alden Square Park	3
Aldine Park	11
Alice Park	0
Ames Lake Park	1
Arlington Arkwright Park	11
Arlington Hills Community Center Park	8
Baker Park	9
Battle Creek Park	18
Bay Triangle	0
Belvidere Park	2
Bluff Park	0
Bluff Preservaion Area	0
Bohland Triangle	0
Boyd Park	7

Bruce Vento Nature Sanctuary	3
Burns Avenue Park	6
Cambridge Triangle	0
Capitol View Park	0
Carty Park	7
Cathedral Hill Park	0
Cato Park	0
Cayuga Park	6
Central Village Park	8
Cherokee Regional Park	9
Chestnut Plaza	2
CHS Field	2
City House	4
Clayland Park	1
Cleveland Circle	0
Cochran Park	3
College Park	4
Commonwealth Park	0
Como Avenue Horseshoe Court	2
Como Regional Park	25
Concord Park	0
Conway Park	11
Crocus Hill Terrace	0
Crocus Triangle	0
Cromwell Square	0
Crosby Farm Regional Park	7
Culture Park	2
Dawson Park	0
Dayton's Bluff Recreation Center Park	8
Depot Tot Lot	3
Desnoyer Park	9
Dickerman Park	0
Douglas Park	4
Dousman Park	3
Duluth and Case Recreation Center Park	10
Dunning Sports Complex	12
Eagle Street Plaza	0
Eastside Heritage Park	6
Eastview Park	10
Ecolab Plaza	1
Edgumbe Recreation Center Park	12
El Rio Vista Recreation Center Park	5
Feronia Square	0
Forest Street Triangle	0

Fountain Park	0
Frogtown Park and Farm	1
Front Park	7
Frost Lake Park	8
Gordon Square	0
Griggs Park	12
Groveland Recreation Center Park	12
Hamline Hague Park	3
Hamline Park	9
Hamm Memorial Plaza	0
Hamm Park	1
Hampden Park	2
Hancock Recreation Center Park	8
Harriet Island Regional Park	13
Hayden Heights Recreation Center Park	13
Hazel Recreation Center Park	12
Hendon Triangles	2
Henry Park	0
Hidden Falls Regional Park	9
High Bridge Dog Park	2
High Bridge Park North	3
Highland Park	19
Highland Park Community Center Park	13
Highwood Hills	7
Highwood Preserve	0
Hillcrest Knoll	2
Holly Park	3
Homecroft Park	11
Horton Park	3
Howell Park	0
Indian Mounds Regional Park	11
Iris Park	2
Irvine Park	1
Jimmy Lee/Oxford Community Center Park	13
Kellog Mall	4
Kenwood Park	0
Kidd Park	1
Landmark Plaza	7
Lane Place	0
Langford Recreation Center Park	14
Leroy Triangle	0
Lewis Park	5
Lilydale Regional Park	4
Linwood Recreation Center Park	12

Lockwood Park	2
Lower Landing Park	6
Lowertown Dog Park	1
Lyton Park	2
Margaret Park	5
Maria Avenue Triangle	0
Martin Luther King Recreation Center Park	5
Marydale Park	8
Maryland Avenue Open Space	0
Mattocks Park	8
May Park	2
McDonough Preserve Park	0
McDonough Recreation Center Park	7
McMurray Athletic Fields	8
McQuillan Park	5
Mears Park	3
Meeker Island Lock and Dam Park	2
Merriam Recreation Center Park	14
Mississippi Gorge Regional Park	5
Nathan Hale Park	3
Newell Park	11
North Dale Recreation Center Park	12
Northwest Como Recreation Center Park	10
Oakland Terrace Park	0
Oakley Square	0
Orchard Park	9
Palace Recreation Center Park	13
Parque Castillo	6
Pedro Park	2
Pelhan Triangle	0
Phalen Regional Park	26
Pigs Eye	1
Point of View Park	0
Prospect Park	4
Prospect Terrace Park	1
Prosperity Heights Park	3
Prosperity Park	12
Raspberry Island Regional Park	5
Raymond Square	1
Rice and Arlington Sports Complex	7
Rice Park	3
Rice Recreation Center Park	11
Ryan Park	3
Sackett Park	3

Scheffer Recreation Center Park	8
Shadow Falls Park	1
Skidmore Park	1
South St. Anthony Park	9
St. Clair Park	8
Stinson Park	2
Stonebridge Oval	0
Summit Overlook Park	3
Summit Park	1
Swede Hollow Park	4
Sydney Triangle	0
Sylvan Park	8
Tatum Park	0
Taylor Park	4
Terrace Park	0
Tilden Park	5
Trout Brook Nature Sanctuary	4
Upper Landing Park	6
Valley Park	3
Van Slyke Triangle	0
Victoria Park	0
Wacouta Commons	3
Walsh Park	0
Webster Park	8
Weida Park	8
West Minnehaha Recreation Center Park	11
Western Sculpture Park	5
Wheelock Parkway Triangles	0
Wilder Recreation Center Park	6
Willow Reserve	0
Xinia Triangle	0

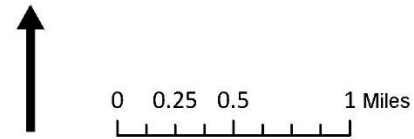
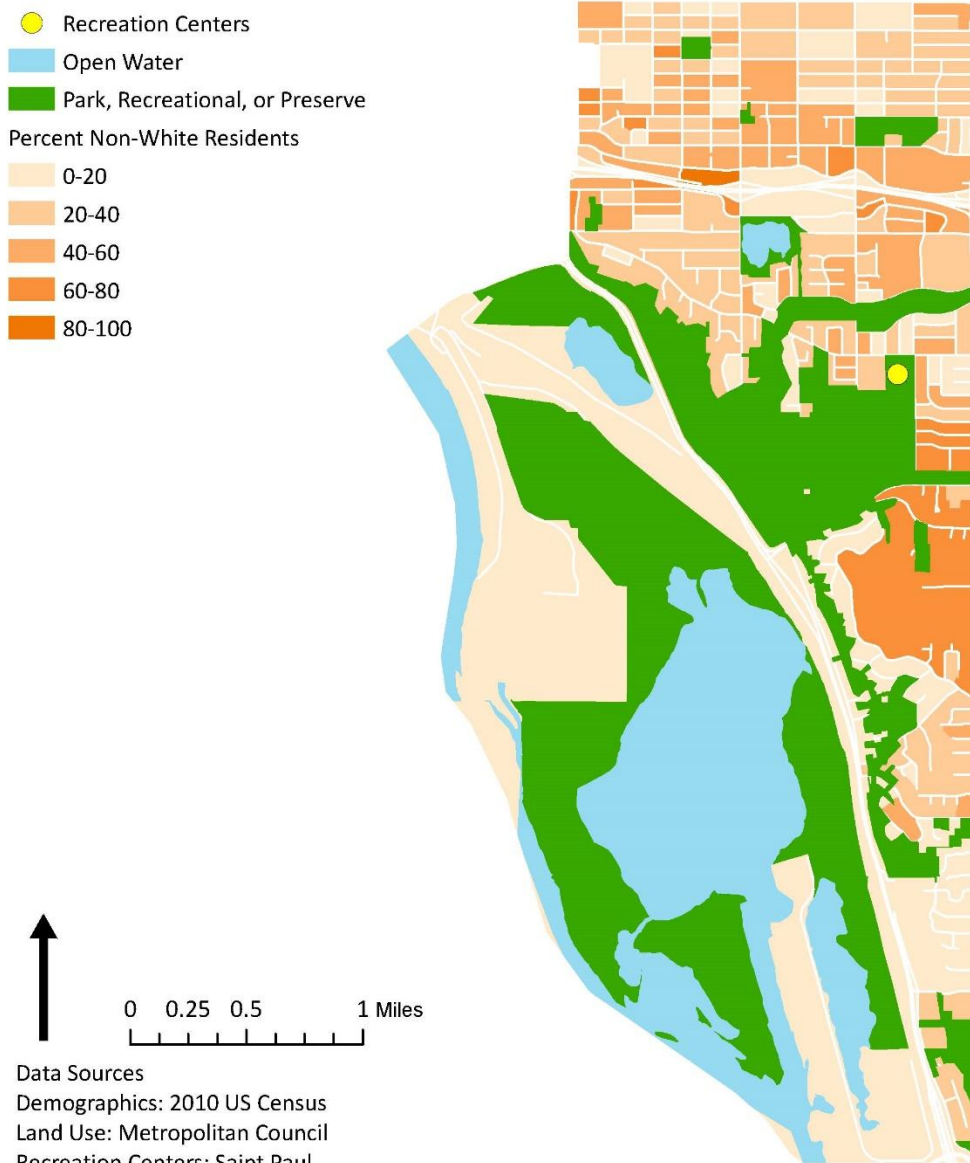
Amenity count, open hours, and amenity score for Saint Paul Recreation Centers

Recreation Center	Number of Amenities Listed	Hours Open/Week	Amenity Score
Daytons Bluff	6	27	54
Duluth and Case	3	27	81
El Rio Vista	7	27	81
Groveland	3	27	81
Hayden Heights	3	27	81
Hancock	4	27	81
Hazel	4	27	81
Langford	3	27	81

Martin Luther King	5	27	81
McDonough	3	27	108
Merriam Park	3	27	108
Northwest Como	3	27	108
Scheffer	3	27	124
West Minnehaha	4	27	135
Wilder	2	27	162
Phalen	4	31	177.5
Rice	5	35.5	189
Palace	5	40	200
Edcumbe	5	61	305
Battle Creek	5	63	315
North Dale	6	63	365
Highland	7	68	378
Arlington Hills	8	71	476
Linwood	5	73	568
Jimmy Lee/Oxford	8	89.5	716

Maps

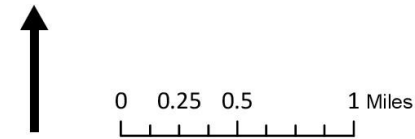
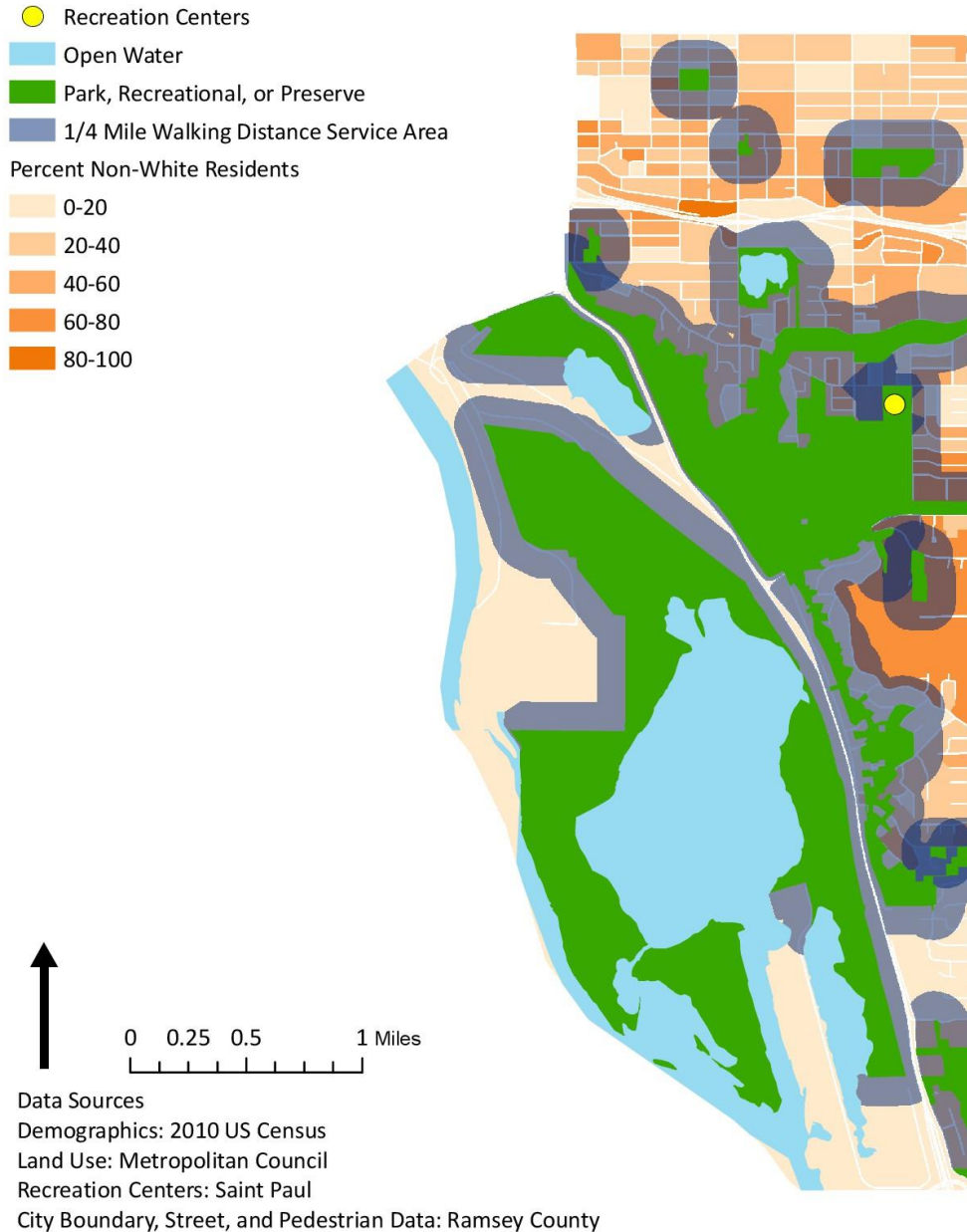
Saint Paul District 1: Parks and Recreation Centers, Percent Non-White Residents



Data Sources
Demographics: 2010 US Census
Land Use: Metropolitan Council
Recreation Centers: Saint Paul
City Boundary, Street, and Pedestrian Data: Ramsey County

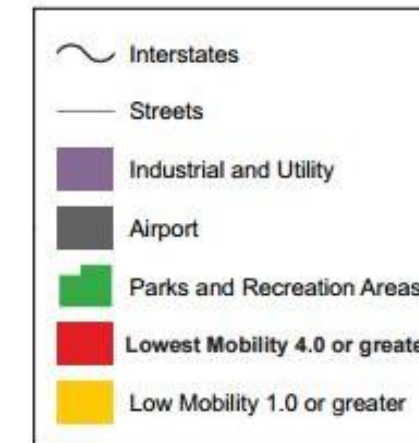
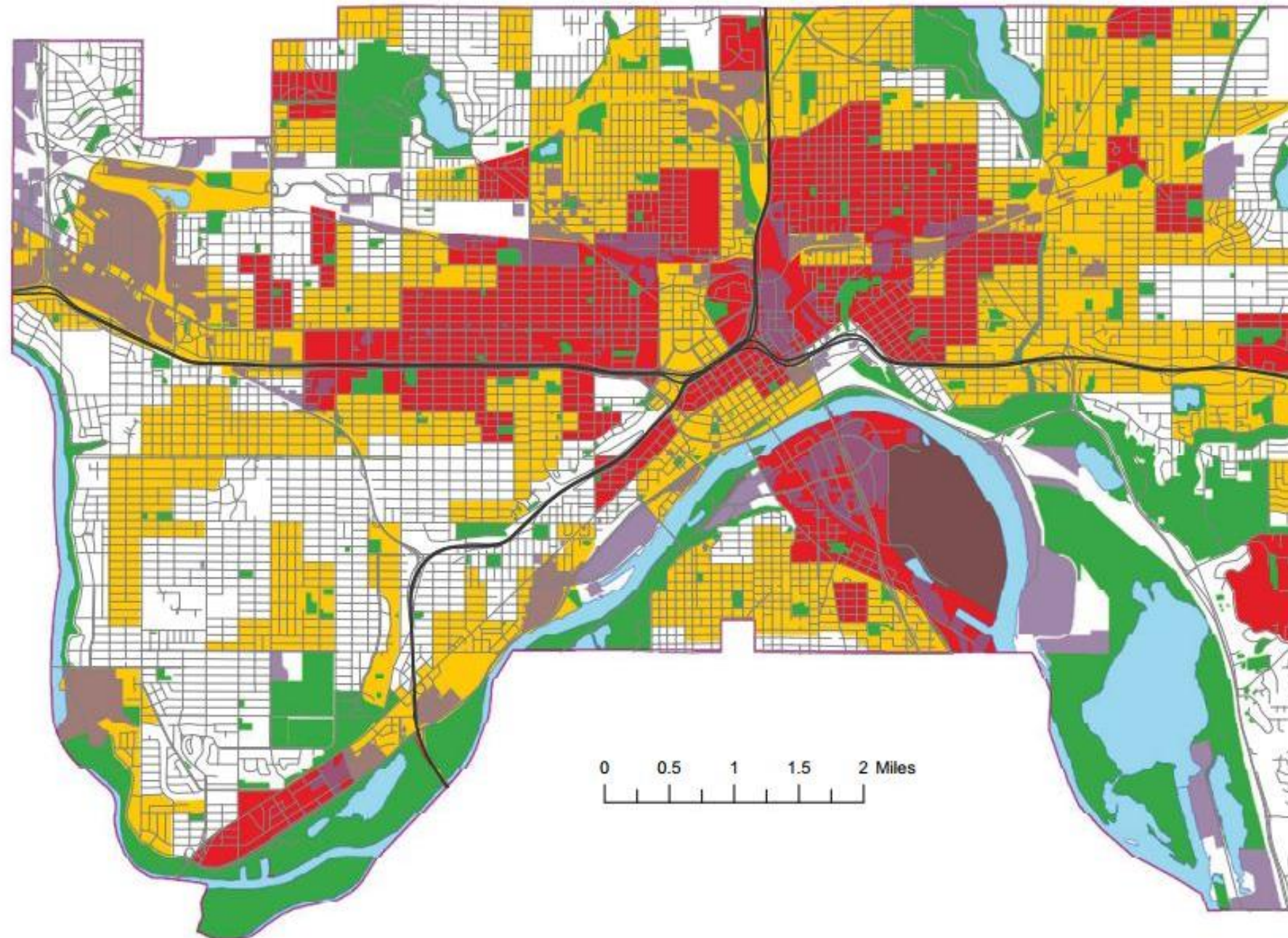
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2016

Saint Paul District 1: Parks and Recreation Centers, Service Areas, Percent Non-White Residents



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Map 3

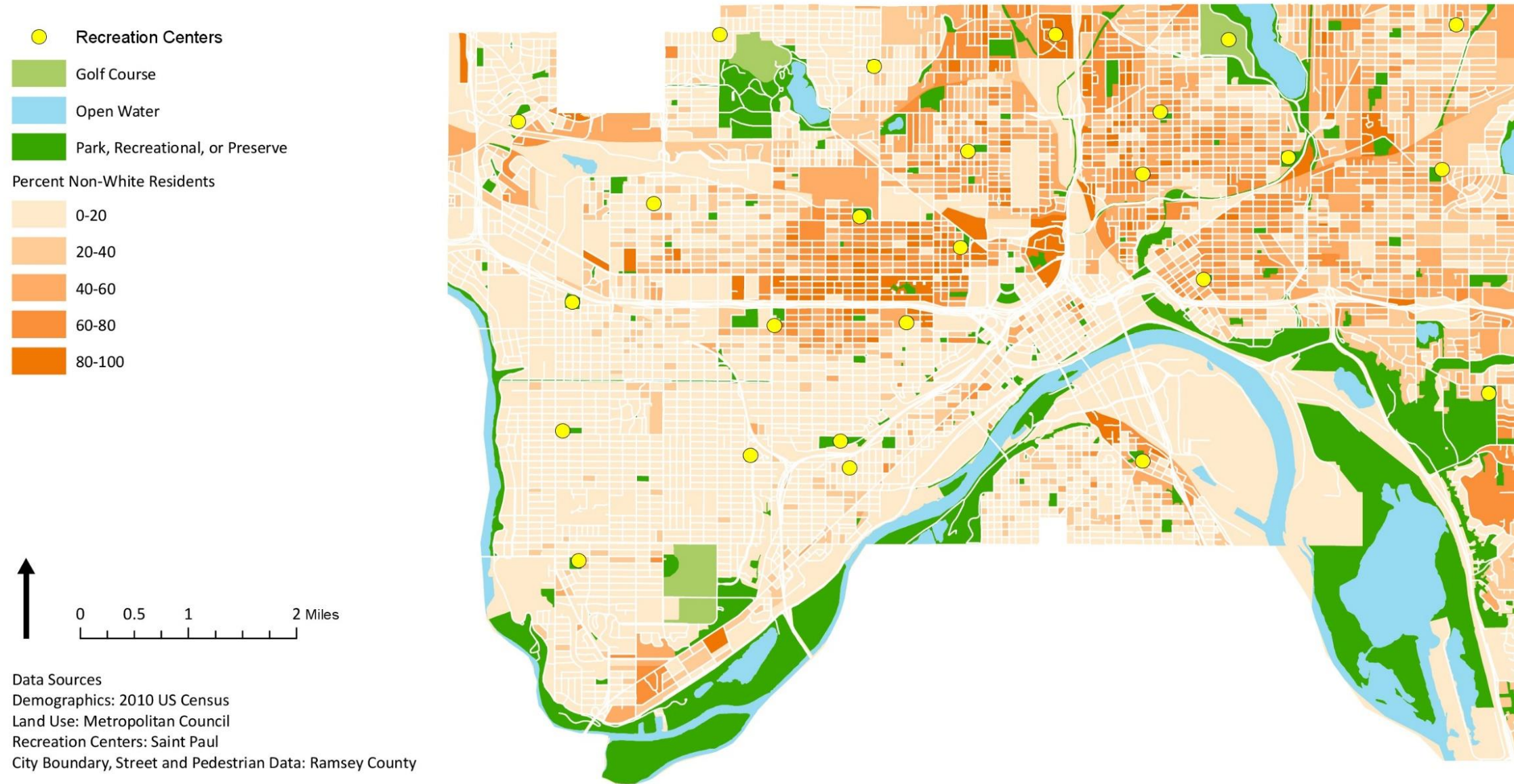


This map focuses on individuals with limited mobility: children aged 5-14, the elderly, those in poverty, and those in households without cars. Low mobility is calculated in two ways - based on the percentage of the total population in a block group and based on the density of these population groups. An indicator of one (shown in orange) means that the percentage or density of people with low mobility is somewhat above average. An indicator of four (shown in red) means that there is a high number of people in these groups.

Note: The parks in this map are from the Metropolitan Council's land use layer, the City of Saint Paul Parks layer, and a digitized layer of school fields and play areas.

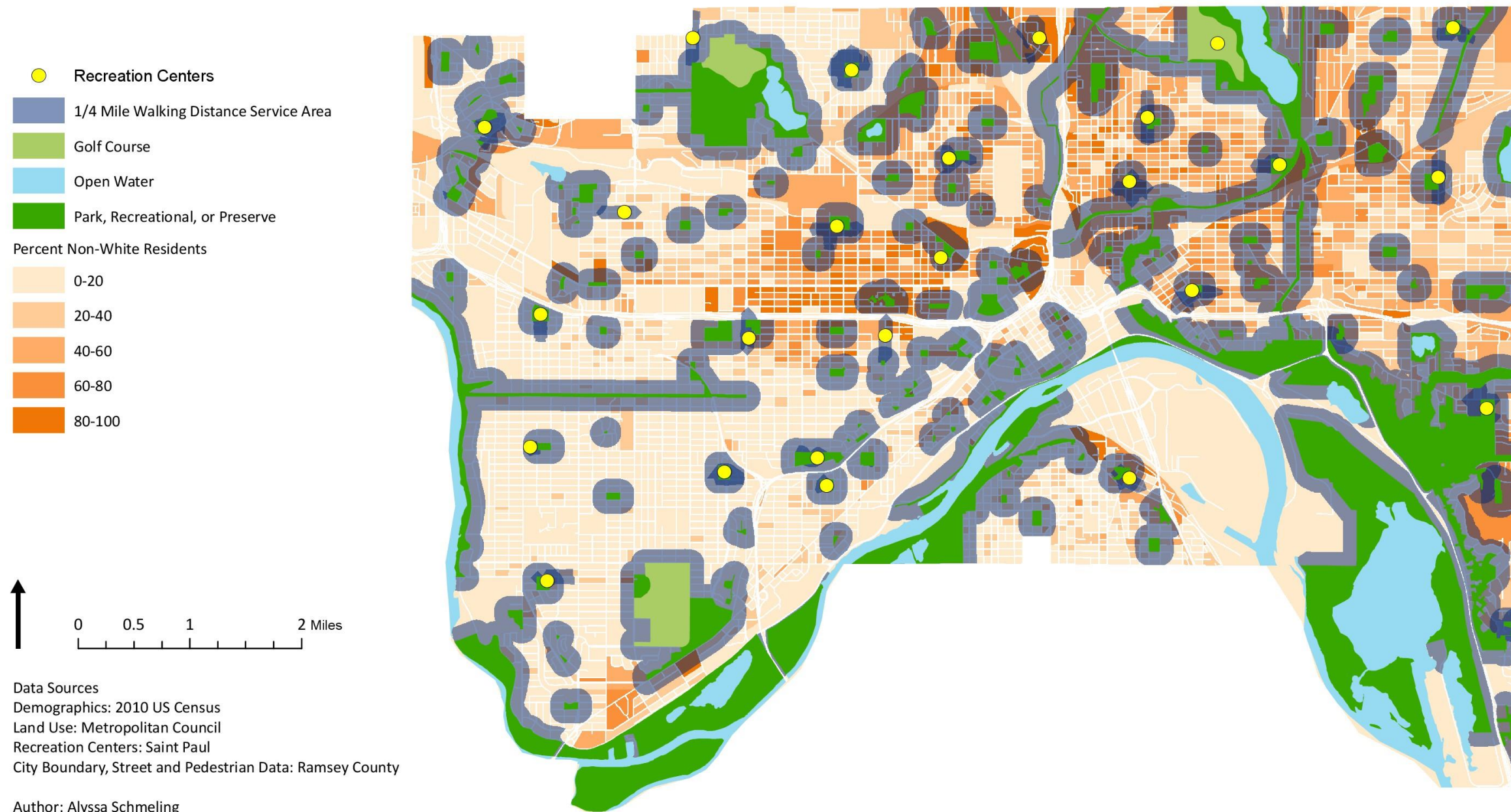
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2710 University Avenue Suite 300
Saint Paul, MN 55114
Sources: Metropolitan Council, US Census
Date: 20 June 2005

Saint Paul: Parks and Recreation Centers, Percent Non-White Residents



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Saint Paul: Parks and Recreation Centers, Service Areas, Percent Non-White Residents



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