



RED OAKS BASELINE PARK ANALYSIS

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Park Location

Red Oaks County Park is a 141-acre park located in southeastern Oakland County in the City of Madison Heights. The approximately 1.6-mile long park consists of 3 distinct areas that are separated by major roadways. The Dog Park and Waterpark comprise the northernmost area. East 13 Mile Road separates the Waterpark from the Golf Course, while John R Road separates the Golf Course from the Youth Soccer Complex. The Nature Center area is located on the south side of 13 Mile Road.



Park Address and Contact Information

- Dog Park: 3113 Dequindre
- Golf Course: 29600 John R; 248-541-5030
- Nature Center: 30300 Hales; 248-585-0100
- Soccer Complex: 29601 John R
- Waterpark: 1455 East 13-Mile; 248-858-0918

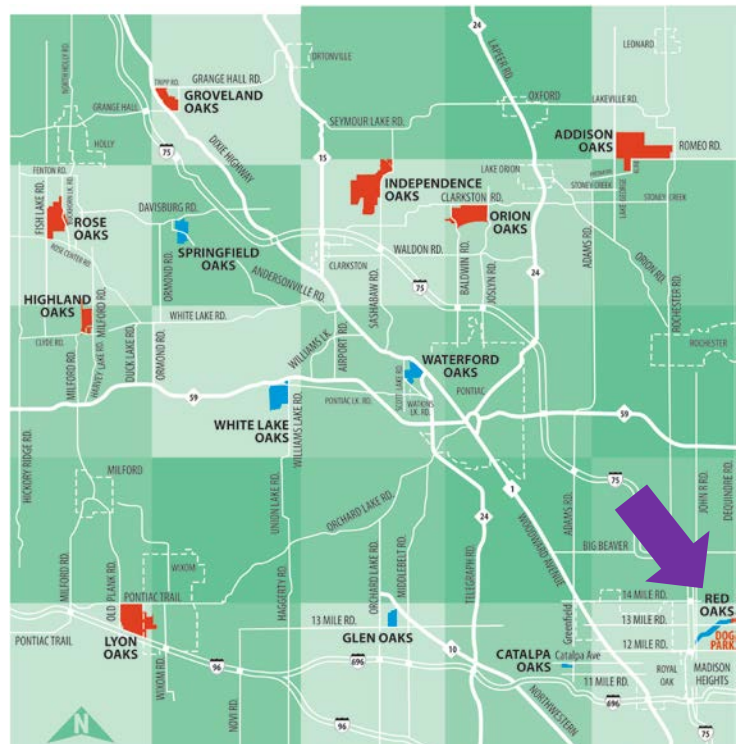
Township and Range

T1N R11E, Sections 1 (SE ¼), 11 (SE ¼), and 12 (N ½)

Community Context

The characteristics of Red Oaks are unique and reflect the character of the local communities. It is important to understand the park within the context of its communities – Michigan, Oakland County, and Madison Heights – for multiple reasons:

- To convey a 'sense of place' that is harmonious and complementary to the local environment
- To ensure that Oakland County Parks is not duplicating services provided by local recreational authorities or by the private, non-profit, or larger regional/state providers
- To collaborate with units of governments and organizations related to the Oakland County Parks mission to manage open space and natural areas and provide recreational facilities and programs



- on an inter-community, county and/or multi-county basis
- To develop facilities and programs that contribute to the implementation of local and county plans
- To ensure compliance with local and county regulations

Oakland County

Oakland County is located in southeast Michigan, approximately 20 miles northwest of Detroit, and covers **907** square miles (SEMCOG, 2015). The estimated population in 2015 was **1,242,304**. In 2010-2015, median household income was **\$66,426**. An estimated **10%** of the population lives in poverty¹ (U.S. Census Bureau, 2015).

According to Advantage Oakland, Oakland County employs nearly 690,000 workers with more than 260,000 commuting from outside the county. The top three employment sectors are Professional and Business Services (26%), Trade, Transportation and Utilities (18%), and Private Education and Health Services (16%). The county is home to nearly 1,000 firms from 39 foreign countries (EDCA).

Within the county, there are 30 cities, 21 townships, and 11 incorporated villages, in urban, suburban, and rural landscapes. The county is home to the headwaters of five major rivers, the Clinton, Flint, Huron, Rouge, and Shiawassee Rivers, all of which are important to the long-term health of the Great Lakes Ecosystem. Many diverse ecosystems are located in the county due to the area's complex topography and geological history and are an important element in the character of the county (OCPRC, 2013).

Oakland County Parks and Recreation

Oakland County Parks and Recreation (OCPR) provides parks and recreation services within the geographic boundaries of Oakland County, but are also open to visitors to the county. Since 1966, OCPR has expanded and diversified the park system from four parks to thirteen, now totaling over 6,700 acres. Key attractions include managed natural areas, nature centers, waterparks, golf courses, conference centers, campgrounds, fairgrounds and over 65 miles of park trails. OCPR also offers a variety of entertaining and educational recreation programs and services for various ages and abilities (OCPRC, 2013).

City of Madison Heights

The City of Madison Heights is located in southeastern Oakland County Michigan and covers **7** square miles (SEMCOG, 2015). The estimated population in 2015 was **30,198**. In 2010-2015, median household income was **\$41,206**. An estimated **19%** of the population lives in poverty² (U.S. Census Bureau, 2015).

The City of Madison Heights has 12 City parks, and has partnered with Red Oaks County Parks to share responsibilities at the Nature Center and Soccer Complex. Other facilities include 1 football field, 11 soccer fields, and 18 ballfields (9 City, 4 Little League, 5 School) prepared and maintained throughout the year and 12 playground areas routinely inspected and maintained.

The Madison Heights Parks and Recreation Plan was updated in 2015 to meet the standards for approval by the Michigan Department of Natural Resources (MDNR). Since 1972, the City has secured 6 grants from the MDNR including the development of Rosie's, Ambassador, and Civic Center Parks, the acquisition of Simonds Woods, construction of the Nature Center at Suarez Woods, and acquisition of additional acreage. (CMH, 2013)

Drive-Time Service Area – Day Use, Dog Park and Golf Course

This purpose of this section is to outline the geographic area that draws the majority of visitors to a specific park or facility (drive-time service area) and describe the demographic and socio-economic characteristics of the people who live there.

The drive-time analysis is conducted using park visitor home zip codes that are collected at point-of-sale. Please see the 2015 *Annual Dashboard and Data Book* for a detailed description of drive-time analysis methods (OCPRC, 2015). The median drive-time – indicating that half of all visitors drive for a specific length of time or less – is used to approximate the service area for each park and facility. The median drive time for visitors to the Red Oak was 9 minutes. This drive-time radius includes day use, dog park, and the golf course. The waterpark is calculated separately.

Figure A: Golf Course Drive-Time Map

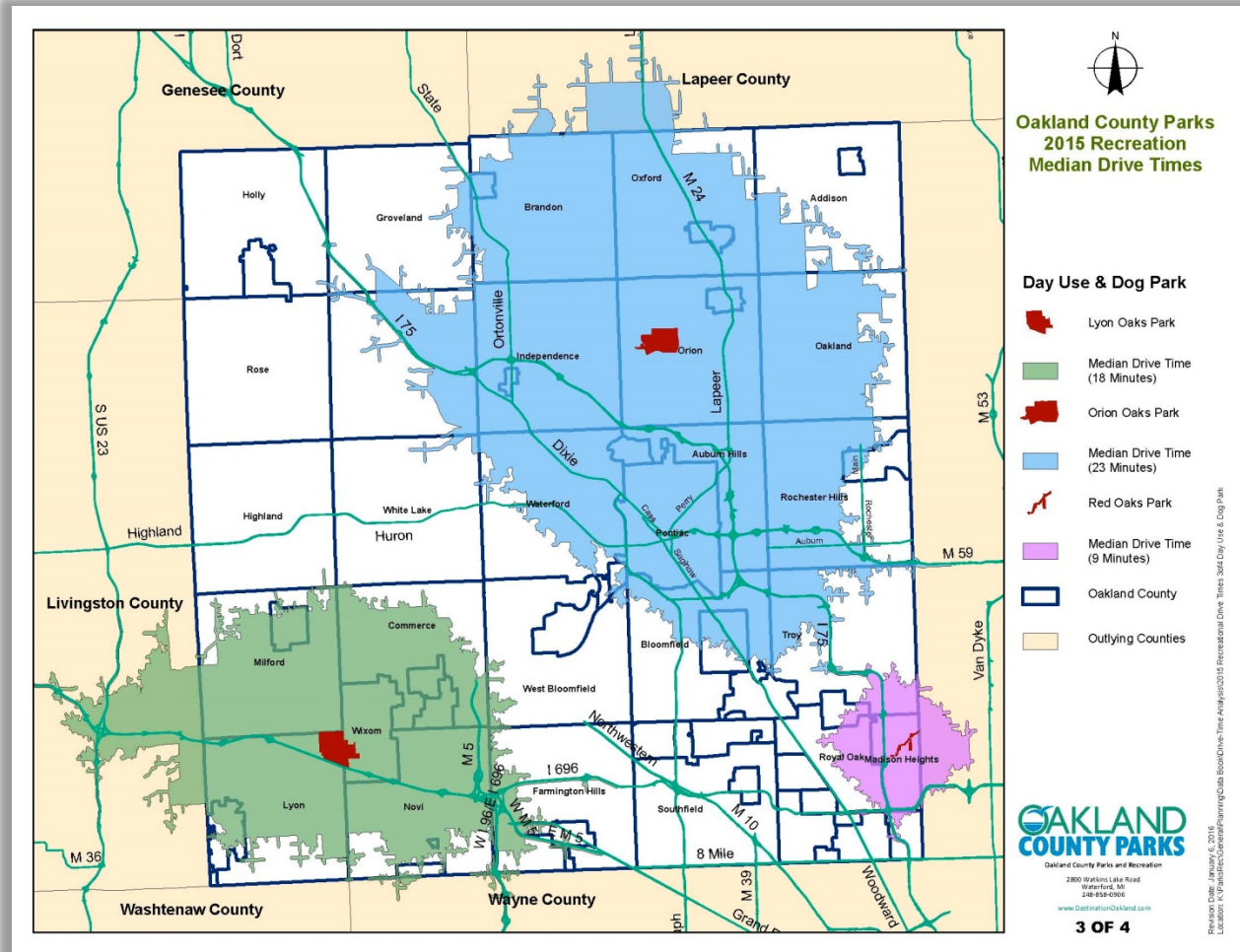
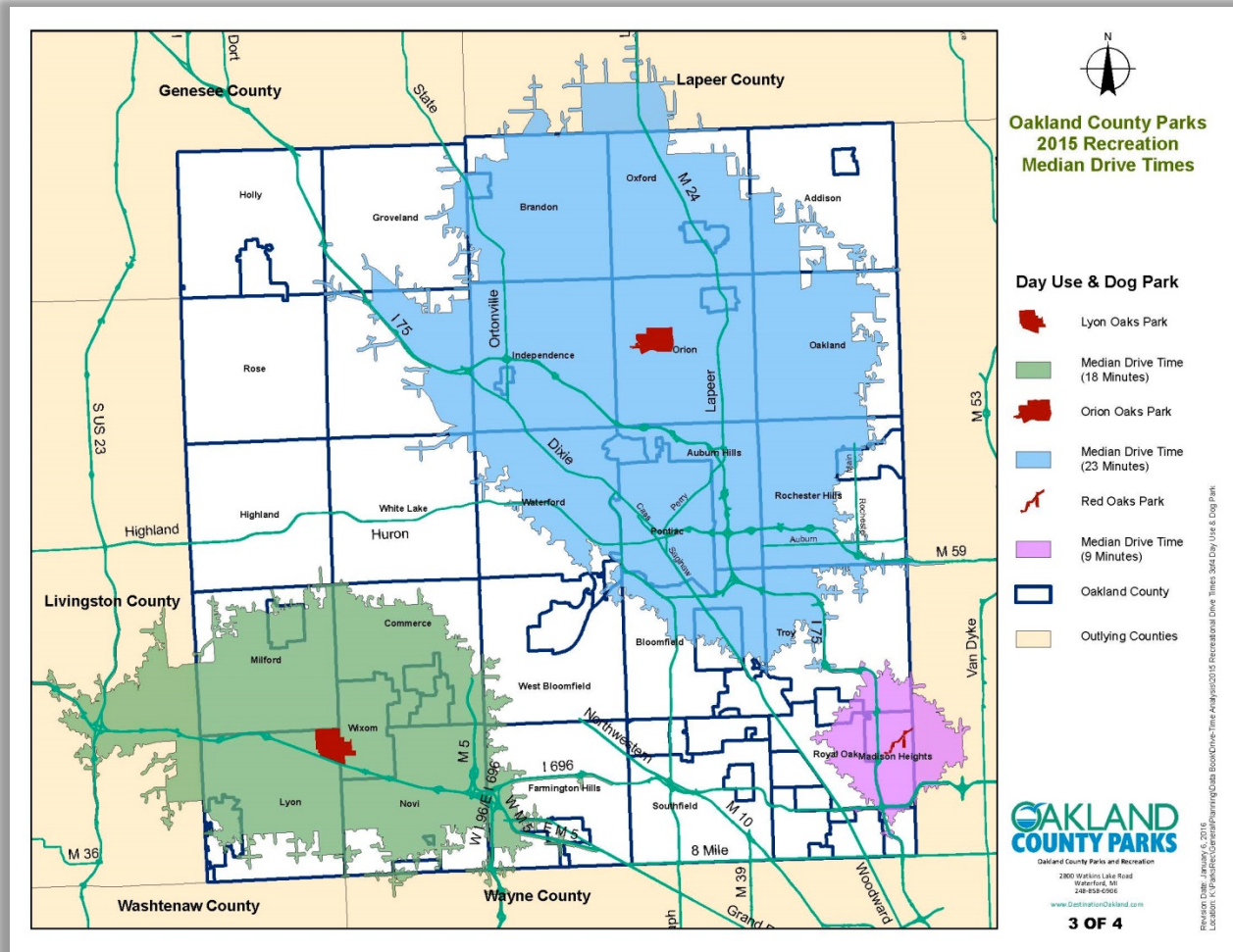


Figure B: Day Use and Dog Park Drive-Time Map



Population and Income Trends

Population and income profiles are generated for the drive-time service area using Esri³ ArcGIS Online. The estimated population in the drive-time service area in 2015 was 123,051 with a 0.41% annual increase in population forecast between 2015 and 2020. The population is becoming more diverse in race and ethnicity. The population profile and forecast reflects an aging population with the population 65 and older increasing by 12% from 2015 to 2020. Median age is 40.0 in 2015 and forecast to be 40.9 in 2020. The median household income in 2015 is estimated at \$51,476 and is forecast to increase at an annual rate of 2.77% between 2015 and 2020.

Table 1: Population Trends - 9-minute drive-time of Red Oaks

Summary	Census 2010	2015	2020
Population	121,987	123,051	125,616
Households	53,905	54,640	55,824
Families	30,396	30,318	30,677
Average Household Size	2.25	2.24	2.24
Owner Occupied Housing Units	36,706	36,504	37,339
Renter Occupied Housing Units	17,199	18,136	18,485
Median Age	38.7	40.0	40.9
Trends: 2015 - 2020 Annual Rate	Area	State	National
Population	0.41%	0.15%	0.75%
Households	0.43%	0.21%	0.77%
Families	0.24%	0.06%	0.69%
Owner HHs	0.45%	0.19%	0.70%
Median Household Income	2.77%	2.79%	2.66%

Figure C: Population by Age – 9-minute drive-time of Red Oaks

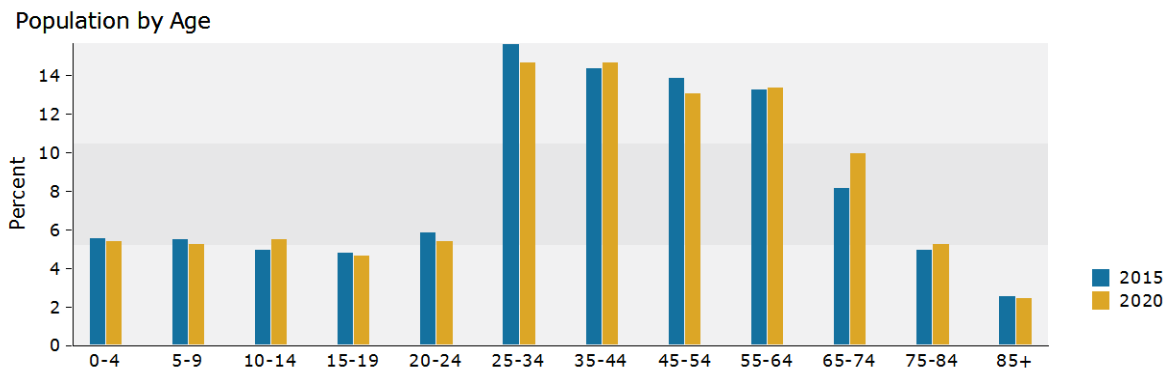


Table 2: Race and Ethnicity – 9-minute drive-time of Red Oaks

Race and Ethnicity	Census 2010		2015		2020	
	Number	Percent	Number	Percent	Number	Percent
White Alone	103,536	84.9%	101,020	82.1%	99,268	79.0%
Black Alone	7,880	6.5%	9,641	7.8%	11,927	9.5%
American Indian Alone	426	0.3%	436	0.4%	447	0.4%
Asian Alone	6,380	5.2%	7,602	6.2%	8,995	7.2%
Pacific Islander Alone	49	0.0%	59	0.0%	63	0.1%
Some Other Race Alone	667	0.5%	765	0.6%	860	0.7%
Two or More Races	3,048	2.5%	3,528	2.9%	4,056	3.2%
Hispanic Origin (Any Race)	2,836	2.3%	3,307	2.7%	3,896	3.1%

Market Potential Index – Recreation and Pet-Related Expenditures

ESRI's Market Potential Index (MPI) measures the relative likelihood of the adults or households in the specified trade area to exhibit certain consumer behavior or purchasing patterns compared to the U.S. An MPI of 100 represents the U.S. average.

Table 3: Market Potential – 9-minute drive-time of Red Oaks

Product / Consumer Behavior	Percent of Population	MPI
Bicycling (Road) in past 12 months	10.3%	105
Canoeing Kayaking in past 12 months	5.9%	110
Fishing (Fresh Water) in past 12 months	13.6%	110
Golf in past 12 months	10.5%	111
Hiking in past 12 months	10.8%	108
Horseback Riding in past 12 months	2.0%	84
Jogging/Running in past 12 months	12.6%	99
Walking for Exercise in past 12 months	30.6%	104
Overnight Camping Trip in past 12 months	13.8%	108
Households owning 1 dog	23.3%	97
Households owning 2 or more dogs	14.8%	92

Tapestry Segmentation

Tapestry Segmentation classifies neighborhoods into 67 unique segments based not only on demographics but also socioeconomic characteristics. It describes US neighborhoods in easy-to-visualize terms to help understand residents' lifestyle choices, what they buy, and how they spend their free time and help identify best customers, optimal sites, and underserved markets.ⁱ

The Esri Dominant Tapestry Map shows the tapestry segments within and surrounding the drive-time radius and provides a list of the Tapestry segments with hyperlinks to detailed descriptions. See *Planning Map Set*, pages 21-22 – Esri Dominant Tapestry Map.

The top five Tapestry segments within the drive-time radius are shown below. Each segment name is hyper-linked to the detailed Esri profile. After the name, we show the percentage of households that are included in each segment – within the drive-time radius and nationally. The Tapestry segment summary from the Esri profile is included with each entry.

[Rustbelt Traditions \(5D\)](#)

Describes 23.1% of households within the drive-time radius; 2.2% of households in the U.S.

The backbone of older industrial cities in states surrounding the Great Lakes, Rustbelt Traditions residents are a mix of married-couple families and singles living in older developments of single-family homes. While varied, the work force is primarily white collar, with a higher concentration of skilled workers in manufacturing, retail trade, and health care. Rustbelt Traditions represents a large market of stable, hard-working consumers with modest incomes but above average net worth (Index 111). Family oriented, they value time spent at home. Most have lived, worked, and played in the same area for years.

[Emerald City \(8B\)](#)

ⁱ <http://www.esri.com/data/tapestry>

Describes 13.7% of households within the drive-time radius; 1.4% of households in the U.S.

Emerald City's denizens live in lower-density neighborhoods of urban areas throughout the country. Young and mobile, they are more likely to rent. Well educated and well employed, half have a college degree and a professional occupation. Incomes close to the US median come primarily from wages and self-employment. This group is highly connected, using the Internet for entertainment and making environmentally friendly purchases. Long hours on the Internet are balanced with time at the gym. Many embrace the "foodie" culture and enjoy cooking adventurous meals using local and organic foods. Music and art are major sources of enjoyment. They travel frequently, both personally and for business.

[Traditional Living \(12B\)](#)

Describes 12.4% of households within the drive-time radius; 2.0% of households in the U.S.

Residents in this segment live primarily in low-density, settled neighborhoods in the Midwest. The households are a mix of married-couple families and singles. Many families encompass two generations who have lived and worked in the community; their children are likely to follow suit. The manufacturing, retail trade, and health care sectors are the primary sources of employment for these residents. This is a younger market—beginning householders who are juggling the responsibilities of living on their own or a new marriage, while retaining their youthful interests in style and fun.

[Midlife Constants \(5E\)](#)

Describes 6.0% of households within the drive-time radius; 2.5% of households in the U.S.

Midlife Constants residents are seniors, at or approaching retirement, with below average labor force participation and above average net worth. Although located in predominantly metropolitan areas, they live outside the central cities, in smaller communities. Their lifestyle is more country than urban. They are generous, but not spendthrifts.

[In Style \(5B\)](#)

Describes 5.5% of households within the drive-time radius; 2.3% of households in the U.S.

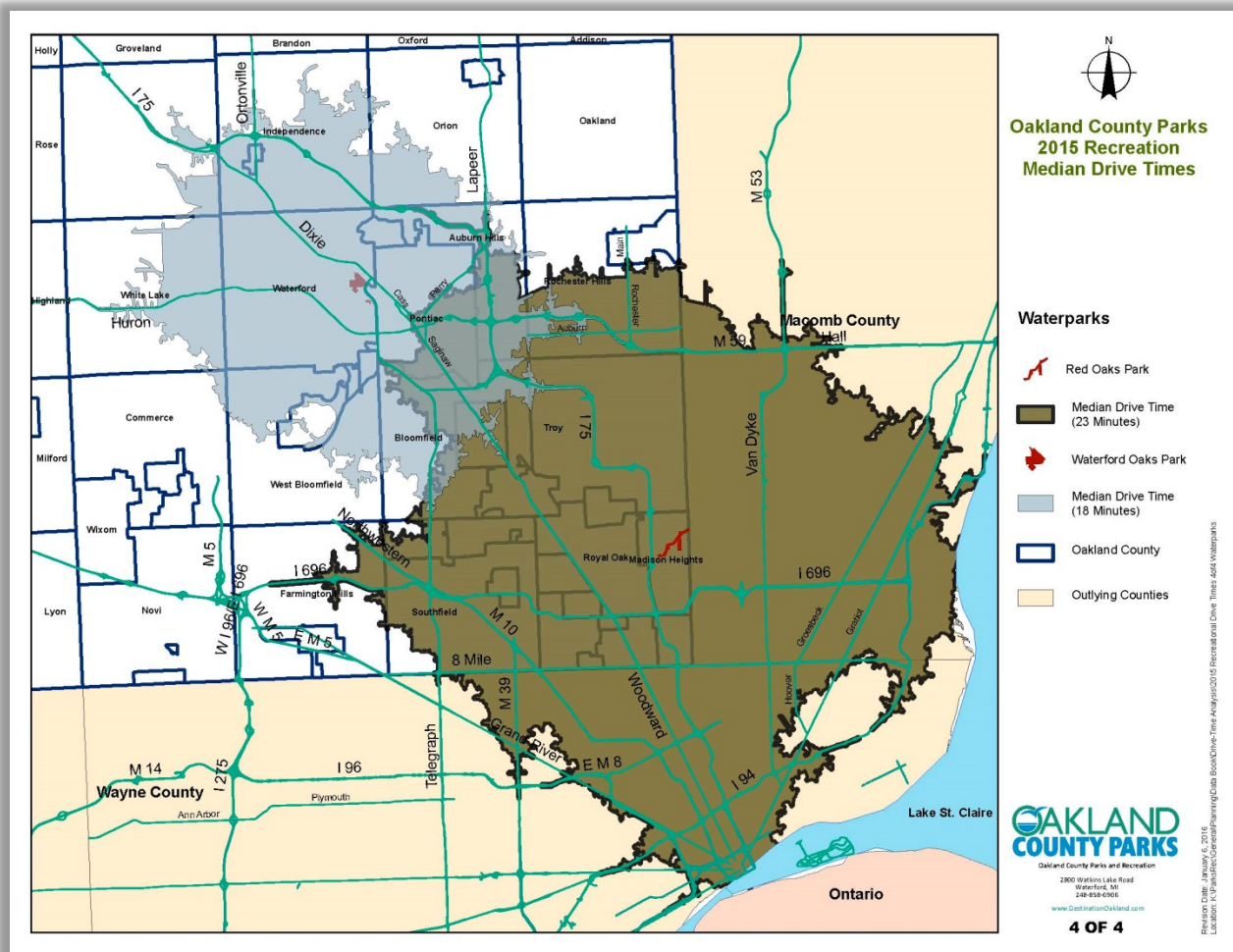
In Style denizens embrace an urbane lifestyle that includes support of the arts, travel, and extensive reading. They are connected and make full use of the advantages of mobile devices. Professional couples or single households without children, they have the time to focus on their homes and their interests. The population is slightly older and already planning for their retirement.

Drive-Time Service Area – Waterpark

This purpose of this section is to outline the geographic area that draws the majority of visitors to a specific park or facility (drive-time service area) and describe the demographic and socio-economic characteristics of the people who live there.

The drive-time analysis is conducted using park visitor home zip codes that are collected at point-of-sale. Please see the 2015 *Annual Dashboard and Data Book* for a detailed description of drive-time analysis methods (OCPRC, 2015). The median drive-time – indicating that half of all visitors drive for a specific length of time or less – is used to approximate the service area for each park and facility. The median drive time for visitors to the Red Oaks Waterpark was 23 minutes.

Figure D: Waterpark Drive-Time Map



Population and Income Trends

Population and income profiles are generated for the drive-time service area using Esri⁴ ArcGIS Online. The estimated population in the drive-time service area in 2015 was 1,525,903 with a 0.01% annual increase in population forecast between 2015 and 2020. The population is becoming more diverse in race and ethnicity. The population profile and forecast reflects an aging population with the population 65 and older increasing by 14% from 2015 to 2020. Median age is 40.0 in 2015 and forecast to be 40.9 in 2020. The median household income in 2015 is estimated at \$51,476 and is forecast to increase at an annual rate of 2.77% between 2015 and 2020.

Table 4: Population Trends - 23-minute drive-time of Red Oaks

Summary	Census 2010	2015	2020
Population	1,555,620	1,525,903	1,527,004
Households	623,200	617,481	620,267
Families	384,225	374,687	372,881
Average Household Size	2.46	2.43	2.42
Owner Occupied Housing Units	398,037	384,897	386,673
Renter Occupied Housing Units	225,163	232,583	233,594
Median Age	38.3	39.6	40.5
Trends: 2015 - 2020 Annual Rate	Area	State	National
Population	0.01%	0.15%	0.75%
Households	0.09%	0.21%	0.77%
Families	-0.10%	0.06%	0.69%
Owner HHs	0.09%	0.19%	0.70%
Median Household Income	3.43%	2.79%	2.66%

Figure E: Population by Age – 23-minute drive-time of Red Oaks

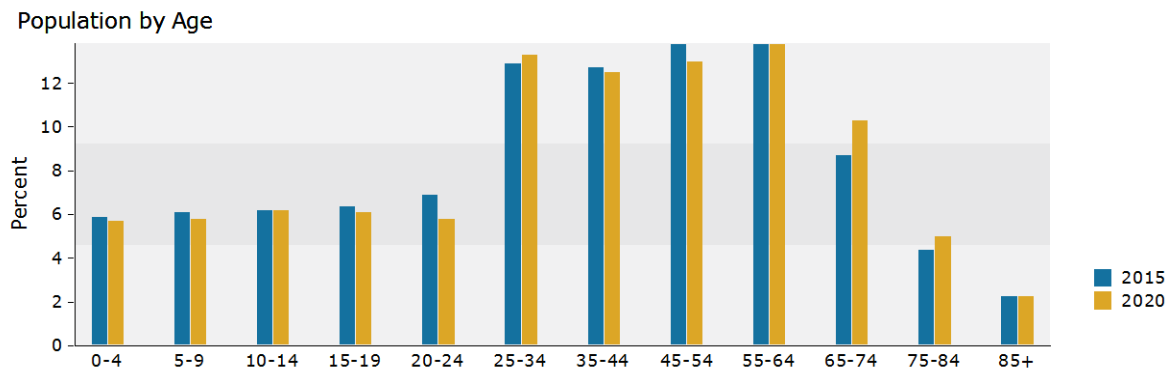


Table 5: Race and Ethnicity – 23-minute drive-time of Red Oaks

Race and Ethnicity	Census 2010		2015		2020	
	Number	Percent	Number	Percent	Number	Percent
White Alone	792,898	51.0%	762,701	50.0%	739,453	48.4%
Black Alone	642,762	41.3%	627,120	41.1%	633,177	41.5%
American Indian Alone	4,692	0.3%	4,721	0.3%	4,757	0.3%
Asian Alone	63,170	4.1%	73,972	4.8%	86,525	5.7%
Pacific Islander Alone	277	0.0%	295	0.0%	311	0.0%
Some Other Race Alone	15,694	1.0%	16,617	1.1%	17,744	1.2%
Two or More Races	36,127	2.3%	40,475	2.7%	45,037	2.9%
Hispanic Origin (Any Race)	46,413	3.0%	50,214	3.3%	55,344	3.6%

Market Potential Index – Recreation and Pet-Related Expenditures

ESRI's Market Potential Index (MPI) measures the relative likelihood of the adults or households in the specified trade area to exhibit certain consumer behavior or purchasing patterns compared to the U.S. An MPI of 100 represents the U.S. average.

Table 6: Market Potential – 23-minute drive-time of Red Oaks

Product / Consumer Behavior	Percent of Population	MPI
Bicycling (Road) in past 12 months	9.2%	93
Canoeing Kayaking in past 12 months	5.0%	93
Fishing (Fresh Water) in past 12 months	11.7%	95
Golf in past 12 months	8.4%	89
Hiking in past 12 months	8.2%	82
Horseback Riding in past 12 months	2.2%	91
Jogging/Running in past 12 months	10.2%	80
Walking for Exercise in past 12 months	26.2%	93
Overnight Camping Trip in past 12 months	10.5%	82
Households owning 1 dog	21.5%	90
Households owning 2 or more dogs	13.3%	83

Tapestry Segmentation

Tapestry Segmentation classifies neighborhoods into 67 unique segments based not only on demographics but also socioeconomic characteristics. It describes US neighborhoods in easy-to-visualize terms to help understand residents' lifestyle choices, what they buy, and how they spend their free time and help identify best customers, optimal sites, and underserved markets.ⁱⁱ

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The top five Tapestry segments within the drive-time radius are shown below. Each segment name is hyper-linked to the detailed Esri profile. After the name, we show the percentage of households that are included in each segment – within the drive-time radius and nationally. The Tapestry segment summary from the Esri profile is included with each entry.

[Modest Income Homes \(12D\)](#)

Describes 16.9% of households within the drive-time radius; 1.3% of households in the U.S.

Families in this urban segment may be nontraditional; however, their religious faith and family values guide their modest lifestyles. Many residents are primary caregivers to their elderly family members. Jobs are not always easy to come by, but wages and salary income are still the main sources of income for most households. Reliance on Social Security and public assistance income is necessary to support single-parent and multigenerational families. High poverty rates in this market make it difficult to make ends meet. Nonetheless, rents are relatively low (Index 73), public transportation is available, and Medicaid can assist families in need.

[Family Foundations \(12A\)](#)

ⁱⁱ <http://www.esri.com/data/tapestry>

Describes 10.2% of households within the drive-time radius; 1.1% of households in the U.S.

Family and faith are the cornerstones of life in these communities. Older children, still living at home, working toward financial independence, are common within these households. Neighborhoods are stable: little household growth has occurred for more than a decade. Many residents work in the health care industry or public administration across all levels of government. Style is important to these consumers, who spend on clothing for themselves and their children, as well as on smartphones.

[Rustbelt Traditions \(5D\)](#)

Describes 8.8% of households within the drive-time radius; 2.2% of households in the U.S.

The backbone of older industrial cities in states surrounding the Great Lakes, Rustbelt Traditions residents are a mix of married-couple families and singles living in older developments of single-family homes. While varied, the work force is primarily white collar, with a higher concentration of skilled workers in manufacturing, retail trade, and health care. Rustbelt Traditions represents a large market of stable, hard-working consumers with modest incomes but above average net worth (Index 111). Family oriented, they value time spent at home. Most have lived, worked, and played in the same area for years.

[Traditional Living \(12B\)](#)

Describes 7.6% of households within the drive-time radius; 2.0% of households in the U.S.

Residents in this segment live primarily in low-density, settled neighborhoods in the Midwest. The households are a mix of married-couple families and singles. Many families encompass two generations who have lived and worked in the community; their children are likely to follow suit. The manufacturing, retail trade, and health care sectors are the primary sources of employment for these residents. This is a younger market—beginning householders who are juggling the responsibilities of living on their own or a new marriage, while retaining their youthful interests in style and fun.

[Comfortable Empty Nesters \(5A\)](#)

Describes 5.0% of households within the drive-time radius; 2.5% of households in the U.S.

Residents in this large, growing segment are older, with more than half of all householders aged 55 or older; many still live in the suburbs where they grew up. Most are professionals working in government, health care, or manufacturing. These Baby Boomers are earning a comfortable living and benefitting from years of prudent investing and saving. Their net worth is well above average (Index 363). Many are enjoying the transition from child rearing to retirement. They value their health and financial well-being.

Site Analysis

Parcel Analysis

The 141-acre Red Oaks County Park comprises 19 parcels and parts of 7 parcels. All but two of the parcels are owned by the [George W. Kuhn Drainage District \(GWK\)](#)⁵. Two parcels are owned by OCPRC, with portions covered by a drainage right-of-way easement held by GWK. The Oakland County [Water Resources Commissioner \(WRC\)](#)⁶ is the agent for the GWK. The Nature Center property is leased from the City of Madison Heights.

Historically part of the Golf Course was leased from the [Southeastern Oakland County Resource Recovery Authority \(SOCRRA\)](#)⁷ (then known as the Southeastern Oakland County Incinerator Authority)ⁱⁱⁱ. This lease expired in 2001 (SOCRRA, 1976). In 2002, parts of parcels in the southern half of the Golf Course were acquired by GWK from SOCRRA (GWK, 2002) (SOCRRA, 2002b). This caused the following parcels to be split: 25-12-303-003; 25-12-302-001; 25-12-304-001; 25-12-154-008; 25-12-154-009. The western halves of the split parcels became GWK property and were incorporated into the Golf Course. The eastern portions of the parcels remained under SOCRRA ownership, covered by a permanent easement held by GWK (SOCRRA, 2002a) (SOCRRA, 2002c). In 2012, the park boundaries for Red Oaks County Park were revised to coincide with all current lease and license agreements. See Figure A for a map showing the parcels specifically within the southern half of the Golf Course and the revised boundary.

We recommend that WRC consider consolidating the many parcels and platted residential lots that comprise the Golf Course into fewer, larger parcels. Specific actions will be needed prior to consolidation, such as the abandonment of unused street rights-of-way.

Red Oaks staff uses a fenced area on SOCRRA property that is adjacent to the Golf Course for storage and staging of landscaping materials. Staff reports that no soil is disturbed with this use. See Figure A for location of this area.

All documents referenced in the Site Analysis are retained in OCPRC's permanent planning files.

Table 7: Parcel Table for Red Oaks

Parcel ID	Acres	Deed/ Lease/ Easement / Agreement	Liber and Page
25-01-426-012 From -006 Waterpark/Dogpark	12.37	1975- Deed; Henry-Graham Drain DD to OC	6527/602
		1990- DTE ROW tower line easement	6571/602 (corr)
25-01-426-021 From -018 WP/DP (ADD iv)	6.26	1985- Deed; Henry-Graham Drain DD to OC	8936/235 8957/518 (corrected)
25-12-203-011 Golf Course From 208-006, -008 (1.21 and 0.9 resp.)	0.39	1976- Deed; Check to OC	06725/702
		2000-DTE 30' tower line easement-partial release of R-O- W (see 128-034)	22193/648 and 22193/653
25-12-301-012 ^{iv} GC	2.27	1976-Deed; Yankee to OC	06677/805

ⁱⁱⁱ See Environmental History section

^{iv} 25-12-301-012: This parcel shows up in WRC records as owned by Parks and Recreation. It was purchased with County Parks' funds rather than drain district funds. Other parcels may share this characteristic.

Table 8: Easement Table for Red Oaks

Parcel ID	Acres	Deed/ Lease/ Easement / Agreement	Liber and Page
25-01-426-007 Waterpark/Dogpark	14.6	2010- DTE Easement overhead ROW	42112/791
25-01-426-012 From -006 WP/DP	12.37	1975- Henry-Graham Drain DD to OC Deed Owned by OC	6527/602 6571/602 (corr)
		1990- DTE ROW tower line easement	
25-01-426-021 From -018 WP/DP	6.26	1985- Henry-Graham Drain DD to OC Deed Owned by OC	8936/235 8957/518 (corrected)
		2000- ROW to GWK	21876/294
25-01-453-006 WP/DP	1.29		
25-11-427-008 ^v Youth Soccer (portion of parcel within boundary)	18.41	2002-DTE overhead easement (also -009)	25590/890
		2005- Consumers Energy Co. gas pipeline easement (also -009)	35053/118
		2006- Lowe's/ Ramco Madison Ctr. Ring Road easement (also -009)	38007/126
		2007-City of Madison Hts. sidewalk easement (also -009)	38763/887
25-11-427-009 YS	5.38	2002- DTE, 2005 Consumers Energy, 2006 Ring Road, 2007 sidewalk easements (see 427-008)	
25-12-128-034 GC	22.78	2000- DTE 30' tower line easement-partial release of R- O-W (also 203-011)	22193/648 and 22193/653
		2008- T-Mobile/DTE site contract	40251/829
		2008- T-Mobile/DTE antenna facilities easement (on existing ITC/DTE transmission tower)	39943/204
25-12-154-001 ^{vi} GC (portion of parcel within boundary- school-parking)	4.37		
25-12-154-002 ^{vii} GC (portion of parcel within boundary- school-parking)	7.44		
25-12-154-003 GC	3.43	2004- SOCI/GWK R-O-W (also -008, -009, 302-001, 303- 003, and 304-001)	34408/863
		2008- SOCIA/city of Madison Hts. Ingress/Egress easement (also -008, -009, 302-001, 303-003, and 304- 001)	40368/106
		2008- SOCIA/city of Madison Hts. water main easement (also -008, -009, 302-001, 303-003, and 304-001)	40368/117
		2008 SOCI/city of Madison Hts. sewer easement (also - 008, -009, 302-001, 303-003, and 304-001)	40368/125
25-12-154-006 GC	0.95		
25-12-154-008 ^{viii} GC	0.48	Also 2004 SOCI/GWK R-O-W (see 154-003)	

^v 25-11-427-008: Park boundary includes only the area east of the park fence.

^{vi} 25-12-154-001: Park boundary excludes the area north of the park fence. This area is utilized by a school and parking lot.

^{vii} 25-12-154-002: Ibid

Parcel ID	Acres	Deed/ Lease/ Easement / Agreement	Liber and Page
(portion of parcel within boundary)		Also 2008 SOCIA/MH easement (see 154-003)	
		Also 2008 SOCIA/MH water main easement (see 154-003)	
		Also 2008 SOCI/city of Madison Hts. sewer easement (see 154-003)	
25-12-154-009 ^{ix} GC (portion of parcel within boundary)	4.32		
		Also 2004 SOCI/GWK R-O-W (see 154-003)	
		Also 2008 SOCIA/MH easement (see 154-003)	
		Also 2008 SOCIA/MH water main easement (see 154-003)	
		Also 2008 SOCI/city of Madison Hts. sewer easement (see 154-003)	
25-12-203-007 GC	0.08		
25-12-203-011 GC From 208-006, -008 (1.21 and 0.9 resp.)	0.39	1976- Deed; Check to OC	06725/702
		Also 2000 DTE tower line easement and partial release R-O-W (see 128-034)	
25-12-203-021 GC Tuff Shed	3.73		
25-12-254-047 From -035, -044, -045 (MHNC)	1.93	2012- Lease from MH for Nature Center overflow parking	See parcel analysis file
25-12-254-048 From -037, -046 (MHNC)	35.88	2012- Lease from MH for Nature Center property	See parcel analysis file
25-12-301-003 GC	0.15		
25-12-301-008 GC	0.21	2003-GWK/Detroit Edison-underground easement (also 301-010)	29101/312
25-12-301-009 GC Tuff Shed	0.51		
25-12-301-010 GC	0.69	Also 2003 GWK/Detroit Edison easement (see 301-008)	
25-12-301-012 ^x GC	2.27	1976- Deed; Yankee to OC	
25-12-302-001 ^{xi} GC (portion of parcel within boundary)	4.77		
		Also 2004 SOCI/GWK R-O-W (see 154-003)	
		Also 2008 SOCIA/MH easement (see 154-003)	
		Also 2008 SOCIA/MH water main easement (see 154-003)	
		Also 2008 SOCI/city of Madison Hts. sewer easement (see 154-003)	
25-12-303-001 ^{xii} GC (portion of parcel within boundary.	0.43		

^{viii} 25-12-154-008: Park boundary excludes the area south of the park boundary fence. See documents related to land transactions by GWK and SOCRRA in 2002: (GWK, 2002) (SOCRRA, 2002a) (SOCRRA, 2002c) (SOCRRA, 2002b).

^{ix} 25-12-154-009: Ibid

^x 25-12-301-012: This parcel shows up in WRC records as owned by Parks and Recreation. It was purchased with County Parks' funds rather than drain district funds. Other parcels may share this characteristic.

^{xi} 25-12-302-001: Park boundary revision includes only the area west of the park fence. See documents related to land transactions by GWK and SOCRRA in 2002: (GWK, 2002) (SOCRRA, 2002a) (SOCRRA, 2002c) (SOCRRA, 2002b).

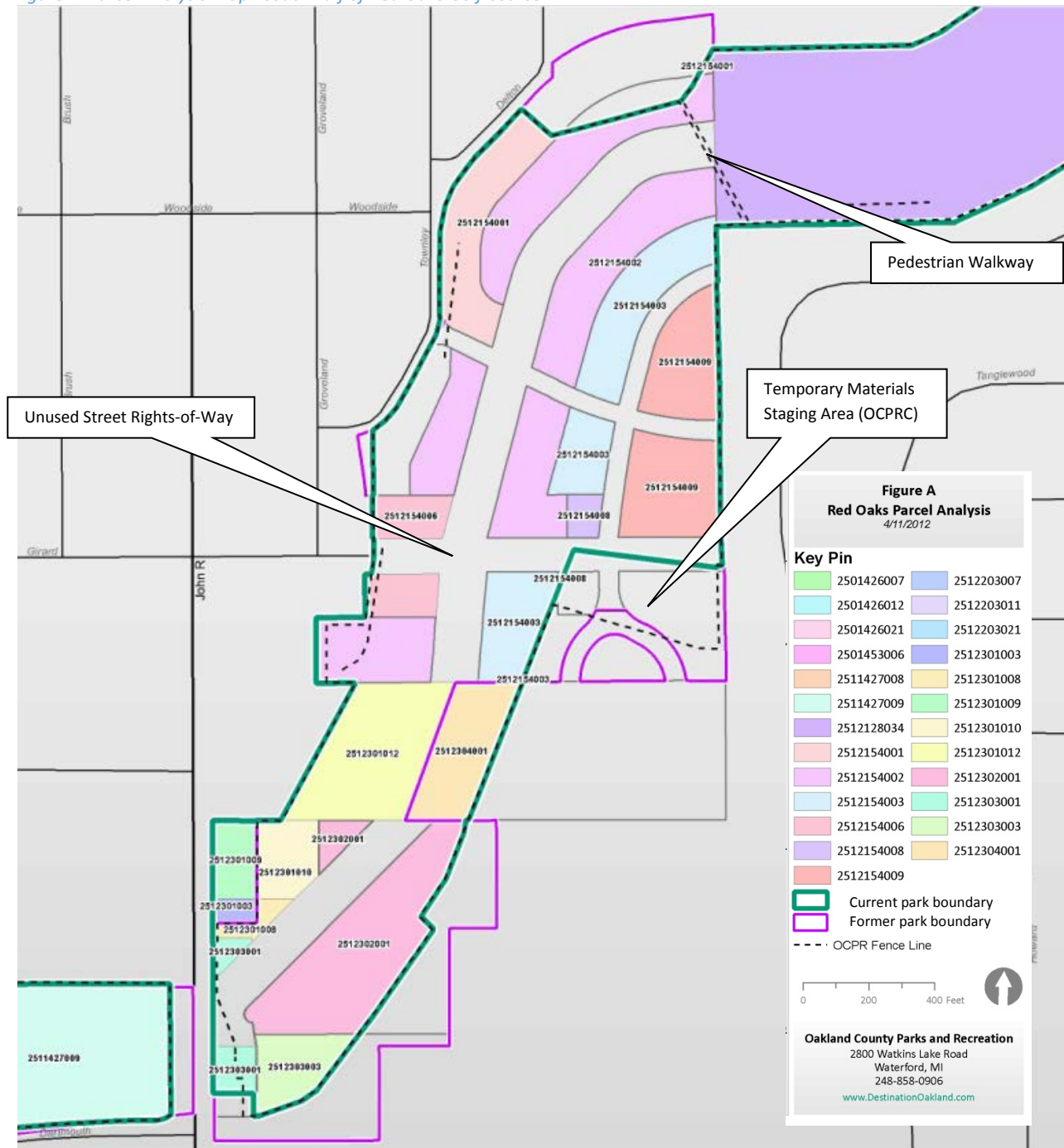
^{xii} 25-12-303-001: Ibid

Parcel ID	Acres	Deed/ Lease/ Easement / Agreement	Liber and Page
See 302-001)			
25-12-303-002 GC	0.14		
25-12-303-003 ^{xiii} GC (portion of parcel within boundary. See 302-001)	2.21		
		Also 2004 SOCI/GWK R-O-W (see 154-003)	
		Also 2008 SOCIA/MH easement (see 154-003)	
		Also 2008 SOCIA/MH water main easement (see 154-003)	
25-12-304-001 ^{xiv} GC (excluded yet portion of parcel within boundary)	6.13	Also 2008 SOCI/city of Madison Hts. sewer easement (see 154-003)	
		Also 2004 SOCI/GWK R-O-W (see 154-003)	
		Also 2008 SOCIA/MH easement (see 154-003)	
		Also 2008 SOCIA/MH water main easement (see 154-003)	
		Also 2008 SOCI/city of Madison Hts. sewer easement (see 154-003)	

^{xiii} 25-12-303-003: Ibid

^{xiv} 25-12-304-001: Park boundary includes only the portion of the parcel that is west of the park fence. See documents related to land transactions by GWK and SOCRRA in 2002: (GWK, 2002) (SOCRRA, 2002a) (SOCRRA, 2002c) (SOCRRA, 2002b).

Figure F: Parcel Analysis Map— south half of Red Oaks Golf Course:



NOTE: The park boundary has been revised to concur with the green boundary line in this map

Parcel consolidation has been discussed but not yet implemented

Physical Characteristics

Geology^{xv}

The park lies within a flat poorly-drained glacial lakeplain. The landscape of the park has been highly modified due to straightening and covering the Red Run.

Soils^{xvi}

Soil maps indicate six soils types on the property, ranging from poorly-drained to moderately well-drained soils. Soils are mostly sandy and loamy, with some silty clay loam. The majority of the park consists of altered soils, covered by fill material or structures and roadways.

- 14B-Oakville fine sand, 0 to 6 percent slopes. Nearly level to undulating, moderately well-drained soil. Slow runoff. High water table at depth of 3 to 6 feet from November to April.
- 32B- Blount Loam, 0 to 4 percent slopes. Nearly level to undulating somewhat poorly-drained soil on flat areas and low knolls. Slow runoff. High water table at depth of 1 to 2 feet from November to May.
- 33- Lenawee Silty Clay Loam. Nearly level, poorly-drained soil in drainages and depressions. Frequent ponding occurs. Water table at or above surface from February to May.
- 35A-Thetford loamy fine sand, 0 to 3 percent slopes. Nearly level, somewhat poorly-drained soil. Slow runoff. High water table at depth of 1 to 2 feet from November to May.
- 41B- Aquepts, Sandy and Loamy, Undulating. A somewhat poorly- and poorly-drained soil that has been altered. Area has been covered with fill material or soil has been excavated. Surface runoff is slow to ponded.
- 59- Urban Land. Nearly level to sloping covered by buildings, streets, parking lots, etc. that cover 85% or more of area.

Topography^{xvii}

The park is located above the underground George W. Kuhn Drainage District's (GWK) Red Run Drain. The park is nearly level to slightly undulating with berms on the golf course and along the waterpark and soccer complex boundaries. Elevation varies by 30' from 620' at the Waterpark to 650' at the Golf Course.

Hydrography^{xviii}

Stormwater from Red Oaks flow into the North and South Drains that are located along the periphery of the park. This drainage is not part of the combined sewer overflow serviced by the GWK, but flows northeast directly to the Red Run Inter-County Drain. The National Wetlands Inventory (NWI) has identified potential wetlands over the majority of the park-- over the GWK Drain-- and the middle of the Nature Center. Retention ponds are found in the Golf Course and Dog Park.

Presettlement Plan Communities^{xix}

European pre-settlement vegetation consisted mostly of Mixed Hardwood Swamp, with Beech-Sugar Maple Forest at the Dog Park and Wet Prairie at southeast corner of Nature Center (Comer & Albert, 1997).

^{xv} See *Planning Map Set*, page 4 – Surface Geology

^{xvi} See *Planning Map Set*, page 5 – Soils

^{xvii} See *Planning Map Set*, page 6 – Ten Foot Contours

^{xviii} See *Planning Map Set*, page 7 – Hydrography

^{xix} See *Planning Map Set*, page 8 – Presettlement Vegetation

Regional Context

Potential Natural Areas^{xx}

Michigan Natural Features Inventory (MNFI) has identified a Priority Three Natural Area over the woodland/wetland complex in the Nature Center. The only area of extensive natural space in the park is in the Nature Center, consisting of woodlands (Mesic Southern Forest), vernal ponds and shrub dominated historic fields.

Watershed^{xxi}

Red Oaks County Park is in the Clinton River Watershed and Red Run Drain subwatershed. The Red Run is part of the lower Clinton River in the southwest portion of the watershed. The park is built over the underground Red Run Drain. All of the former creek in Oakland County is enclosed underground and comprises the main drain of the George W. Kuhn Drainage District.

The Red Run subwatershed is highly developed into residential, commercial and industrial land. Only 3 square miles of agricultural and natural areas remain out of 140 square miles of the watershed (Tetra Tech, 2006). The hydrology and water quality of the subwatershed is impacted by habitat modification, channelization, pathogens, and elevated PCB levels (Tetra Tech, 2006).

The park's hydrology and landscape have been highly modified due to the straightening and covering of the Red Run. Parts of southeast Oakland County and southwest Macomb County drain to the Red Run Drain and the Clinton River. The Red Run Drain originates in the George W. Kuhn (GWK) Combined Sewer Overflow catchment west of I-75. It continues underground through the park, and opens up east of Dequindre Road at the Macomb County border. The GWK catchment covers a total of 38.51 square miles (Tetra Tech, 2006).

The GWK drains to the Detroit Water and Sewer District Waste Water Treatment Plant, located in the City of Detroit, which discharges to the Detroit River. Only excess flow during heavy rainfall is discharged to the Red Run Drain. The overflow is stored at the GWK facility and treated with chlorine before being released to the Red Run Drain (Tetra Tech, 2006). All discharges to the Red Run Drain are sampled and closely monitored to ensure compliance with MDEQ permitted standards (WRC, 2009).

East of Dequindre Road, the drain is named the Red Run Inter-County Drain and continues east in Macomb County to the convergence with the Clinton River and the Plum Brook and Crooked Brook drains near Hayes Road and Metropolitan Parkway in Sterling Heights. The Clinton River continues to flow east into Lake St. Clair in Harrison Township, north of St. Clair Metropark (formerly Metropolitan Beach).

Green Infrastructure^{xxii}

Red Oaks is included within the Oakland County Green Infrastructure Vision. The majority of the park is within the vision, except around existing buildings, structures and parking lots.

Adjacent parks and open spaces include the open Red Run Drain to the east, open spaces in the industrial/commercial property, and the city of Madison Heights' Ambassador Park, Silverleaf Park, Senior Citizen Center, Simonds Elementary, Hiller Elementary, and John Page Middle School.

^{xx} See *Planning Map Set*, page 9 – MNFI Potential Natural Area

^{xxi} See *Planning Map Set*, page 10 – Oakland County Subwatersheds

^{xxii} See *Planning Map Set*, page 11 – Green Infrastructure

Land Use^{xxiii}

Zoning

The majority of the park is zoned as Single Family Residential, R-1 and R-2. The waterpark and dog park are zoned R-1 and the golf course and youth soccer are zoned R-2 (Madison Heights, 2009). The leased nature center is zoned Natural Preservation (N-P). Zoning districts within the City of Madison Heights that are adjacent to Red Oaks include: Light Industrial (M-1), Planned Business (B-2), Single Family Residential (R-1), Natural Preservation (N-P), and Multiple-Family Residential (R-M) (Madison Heights, 2009).

Current Land Use

Current land use is Recreation/ Conservation. A portion of the excluded parcel within the southwest end of the golf course (PIN 25-12-304-001) is classified as Industrial.

The park is located within the GWK and parts of the park are located directly over drain structures associated with the GWK, limiting the ability of OCPRC to install permanent structures in those areas. One area is reserved exclusively for the use of the GWK; the Overflow Pollution Control Facility is located within the Dog Park and is separated by a fence. Lease agreements provide GWK with the right to use the property for operations of the GWK drain, sewer and pollution facilities and the right to close off portions of the park as needed for these operations.

Surrounding Land Use

The majority of the properties surrounding Red Oaks are single-family residential with multi-family residential to the north, industrial and commercial to the south and west, and scattered public institutions such as Madison Heights public schools.

Land use around the Youth Soccer Complex includes Industrial to the north (Dynamex Manufacturing and a professional office building), and commercial to the south (Madison Center). The GWK Confined Space Entry Training Facility and the GWK Retention Treatment Basin (RTB) are located west of the fence that forms the western boundary. Dartmouth Road is along the south boundary of the Youth Soccer Complex.

Land use around the Golf Course include single family residential to the east and west (Northeastern Highway Sub #1, Check Estates Sub, Killoran Heights Sub, and Ambassador Sub #1, 2 and 4), multi-family residential to the northwest (Park Place Apartments), commercial to the southwest (Callins Auto Repair, Dotton Collision, and Ashmore Truck and Trailer Rental), industrial to the southeast (SOCRRA Solid Waste Transfer Station, previously SOCRRA's incinerator, is at the southeast corner), and public to the north (Lamphere School District's Hiller Elementary and City of Madison Heights' Ambassador Park). Adjacent public streets include John R, Delton Street, Townley Street, and the end of E. Girard Ave. along the west boundary; East 13 Mile Road along the north boundary; and Hales Street and Winthrop Drive along the east boundary.

Land use around the Waterpark/Dog park includes industrial to the north (UPS Customer Center), multi-family residential to the south (The Heights Apartments), and commercial area to the west (Meijer's gas station and open space). East 13 Mile Road is along the south boundary and Dequindre Road is along the east boundary.

Past Land Use^{xxiv}

Historical aerial photographs provide a snapshot of past land uses and of the development of the park over the decades.

^{xxiii} See *Planning Map Set*, page 12 – 2015 Land Use

^{xxiv} See *Planning Map Set*, pages 13-20 for views of the park from 1940 through 2015

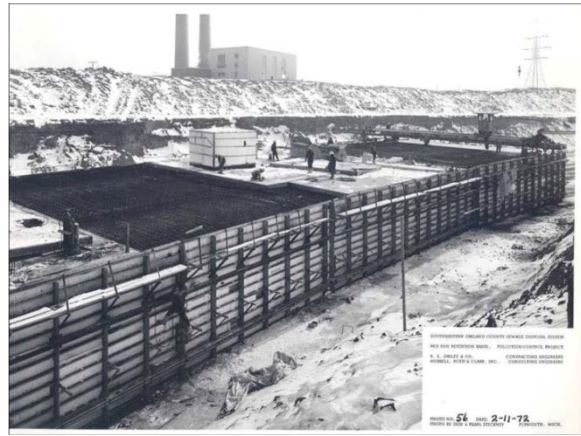
Park History

Early History

A summary of the early settlement history of the park property is under development.

Site History

Photos from left: Enclosing the Red Run in Royal Oak in the 1930's (Penney, 2004); Construction of Twelve Towns Drain in 1972 – SOCRRA incinerator is seen in the background (McCulloch, 2005)



1920s through 1940s: The City of Madison Heights was formerly part of Royal Oak Township, and consisted predominately of farmland with few modern improvements prior to 1920. Because of ties to the automotive industry in Detroit, many early residents moved to this “country” area in attempt to escape the congested conditions of the central city. The community grew steadily after the Depression years, in the 1940s (Birchler Arroyo Associates, 1990). The original water course of the Red Run was altered in 1922 to become the Red Run Drain (McCulloch, 2005). The land on which the current golf course is located was purchased by the United States Army Corps of Engineers (USACE) in the late 1940s. USACE widened the stream, which was then utilized as an open drain until the early 1970s (AKT Environmental, 2000).

1948: The privately-owned township dump on 13 Mile Road between John R and Dequindre, closed after many years of operation following complaints by residents. The dump moved to John R Road, north of 12 Mile Road (lower part of Red Oaks Golf Course and SOCRRA facility) and was later referred to as the Bishop-Bolday Dump (Madison Heights, 2005).

1949: Dredging and other alterations were made to the Red Run Drain. An inter-county agreement on the future improvement of the Red Run Drain was reached.

1952: SOCRRA (then the South Oakland County Garbage and Rubbish Authority) chose their site for a large rubbish incinerator which eliminated the open dumping conditions along the Red Run Drain. The community accepted this development in lieu of a proposed airport runway (Madison Heights, 2005).

1955: 7.25 square miles of Royal Oak Township were incorporated as the City of Madison Heights. Known as the “City of Progress”, it was then the second largest city in south Oakland County (Birchler Arroyo Associates, 1990).

The parcels now comprising Red Oaks County Park were deeded over to the Drainage Board of the Red Run Drain by the United States Army Corps of Engineers (USACE, 1955).

1960s and 1970s: The city grew steadily through the 1960s and hit a peak residential count in the 1970 US Census, at 38,599 residents. It was during the 1960s and 1970s when the city's industrial development began to emerge and establish itself as a major land use (Birchler Arroyo Associates, 1990).

1972: The Twelve Towns Drain was constructed to deal with increasing pollution as development and urbanization grew. At the time, it was a state-of-the-art underground treatment basin that collected combined stormwater and wastewater from 12 communities. Stormwater and wastewater was partially treated, stored and sent to the Detroit Water and Sewerage Department. The drain was 25' high, 64' wide and more than two miles long (McCulloch, 2005).

1974 – 1975: Creation of Red Oaks County Park was enabled by Oakland County Board of Commissioner's Resolution #7016 (OCBOC, 1975) requesting OCPRC to establish a county park on the then Southeastern Oakland County Sewage Disposal System property located between Campbell and Dequindre roads in the Cities of Royal Oak and Madison Heights. The construction and operation of Red Oaks County Golf Course was made subject to conditions established by the resolution of the Red Run Drainage Board (RRDB, 1974), that approved the request by OCPRC to use approximately 121 acres for park purposes.

1976: Certain parcels were leased by OCPRC from the SOCRRA (then Southeastern Oakland County Incinerator Authority) for recreational use (SOCRRA, 1976).

1978: The Red Oaks Golf Course, with maintenance building at the north end of the park, opened (AKT Environmental, 2000). The nine-hole golf course on the east side of John R Road was designed by the architectural firm of Bills/Childs Associates of Pontiac. The architects designed the course in two sections connected by a sloped underpass so that the existing pedestrian walkway would not interfere with play. Holes were laid side-by-side due to the narrowness of the property. The Red Oaks Driving Range was located on the west side of John R Road, with a parking lot along John R Road, and entrance building, and a lighted tee line and driving range. All facilities were under the management of OCPRC.

Photos from left: Construction of the Golf Dome (photo by Larry Gee); Pro Shop Construction (McCulloch, 2005)



1981: Red Oaks golf offerings on the west side of John R became a public/private partnership, with the construction of the Red Oaks Golf Dome. The facility, managed by the Oakland Dome Associates, was 240 feet long and 60 feet high, with lights, restrooms, concession area and lessons taught by golf pros (Royal Oak Tribune, 1981). The Golf Dome was located on the west side of John R Road at the current site of the Red Oaks Youth Soccer Complex.

1985: Wavepool and waterslides were constructed on the north side of East 13 Mile Road (part of current Waterpark facility) (OCPRC, 2012).

1988: SOCRRA waste incinerator plant on land adjoining Red Oaks Golf Course, at 29470 John R Road, closed.

1990: Continued expansion of the Red Oaks private business partnership resulted in the Red Oaks Golf Dome and Sports Village (located on what is now the Youth Soccer Complex). This was enabled by a license agreement with the Southeastern Oakland County Sewage Disposal System (SOCSDS, 1990) (OCPRC, 1989). The expanded facility included a putt-putt course on the north side of the Golf Dome; with the old driving range building utilized as the putt-putt entrance. More of the site was used for recreation, with the addition of a go-cart course and a new driving range and building. Soil testing was ordered for the area around the incinerator after residents protested pollution, ash, and hazardous conditions (Madison Heights, 2005).

1996: Madison Heights opened the George Suarez Nature Center and Friendship Woods. The Nature Center is a 2,400 square foot log cabin with attached storage for vehicles and program materials (added in 2001).

2000: By the 1990s, improvements to the Twelve Towns Drain were needed because urbanization had continued to expand in the region and the facility was no longer in compliance with stringent environmental regulations. Ground was broken for improvements to the GWK in 2000, which included 15 projects at a cost of nearly \$155 million. Projects included construction of an expanded GWK Retention Treatment Basin, which increased total capacity of the GWK by 30 million gallons to 124 million gallons. Storm drains ranging in size from 5 to 10 ½ feet in diameter were installed along either side of the existing GWK drain to intercept and remove storm waterflow to the basin, further enhancing the capacity of the combined sewer (North and South Drains). Improvements were also made to the pollution pre-treatment facilities. Construction continued through 2005 (McCulloch, 2005) (WRC, 2009).

2001: OCPRC lease with SOCRRA expired (SOCRRA, 1976). Red Oaks Golf Course was closed due to GWK drain reconstruction (Quinn, 2004).

2002: Instead of renewing SOCRRA lease, GWK acquired the Golf Course portions of parcels previously leased from SOCCRA (GWK, 2002) (SOCRRA, 2002a) (SOCRRA, 2002b). Waterpark features were added: Splashtown children's feature and Lazy River water feature.

2004: OCPRC entered into a lease agreement with WRC (then Oakland County Drain Commissioner) to re-develop the 9-hole golf course over the enclosed Red Run Drain, east of John R Road and south of East 13 Mile Road (GWK, 2004b) The Golf Course officially reopened on May 5, 2004. The Golf Course was designed by Jerry Mathews of Natural Course Designs in Lansing and featured the addition of a pro shop, bunkers, berms, three sets of tees at each hole, and 5,000- to 7,000-square foot greens (Quinn, 2004). OCPRC also entered into a lease agreement with WRC for the Waterpark located north of East 13 Mile Road (GWK, 2004a).

2007: SOCRRA solid waste transfer station closed. Currently the facility collects leaves from surrounding communities for a month in the fall, where they are then transferred to a recycling facility.

The City of Madison Heights entered into a license, use and maintenance agreement with the GWK Drainage District and OCPRC regarding the 10-acre Red Oaks Soccer Complex (GWK, 2007a). As consideration for the City's agreement to maintain the complex for the next 25 years, the city received \$850,000 with limited restrictions of its use. Monies were to be placed into a City Parks Maintenance and Improvement Fund to support maintenance and improvements for both the Red Oaks Soccer Complex and other city parks. Public Act 404 of 2008 allows the city to use a long-term investment strategy for idle funds (Madison Heights, 2011).

The Waterpark lease was amended to allow development of a Dog Park northeast of the Waterpark and adjacent to Dequindre Road (GWK, 2007d).

The Golf Course lease was amended to add a small residential lot acquired by GWK to the Golf Course (GWK, 2007c). Two lots formerly included in the Golf Course boundaries were deeded to Madison Heights (GWK, 2007e) to become part of Madison Heights' Friendship Woods property.

2009: GWK reconstructed the electrical and watering systems that serve the GWK Drain, causing the Golf Course to close for the 2009 season.

2010: Golf Course re-opened and the new Red Oaks Dog Park opened. Madison Heights eliminated Nature Center staff due to budget cuts and began operation on a reduced schedule staffed by volunteers who worked four-hour shifts.

2011: New guest entrance and ticket booths were constructed at Red Oaks Waterpark (OCPRC, 2012). Two commercial parcels on John R Road were purchased by GWK and added to the Red Oaks Golf Course (GWK, 2011).

Environmental History

Environmental History Prior to 2000

The *Landfill Sites and Facilities Map* for Oakland County (OCPEDS, 2006) indicates the following sites on or adjoining Red Oaks Golf Course:

- Three disposal sites that were never licensed to receive waste ("[Pre-Act 87" Waste Disposal Sites](#)"⁸)
- One incinerator site (the closed SOCRRA incinerator) that no longer licensed under the Solid Waste Management Act (1978 PA 641).
- One solid waste transfer station currently licensed under PA 641.

The Michigan Department of Environmental Quality provides searchable databases to identify [Part 201 Sites of Environmental Contamination](#)⁹ and [Part 213 Leaking Underground Storage Tanks \(LUSTs\)](#)¹⁰. MDEQ databases indicate that there are three sites of environmental contamination on or near Red Oaks County Park:

- Southeastern Oakland County Incinerator Authority (S. John R & 12 Mile) has been identified as a Part 201 Site of Environmental Contamination at 29470 John R. Road at 12 Mile, Madison Heights. Source: Refuse Systems. Pollutants: Benzene, Ethylbenzene, Lead, Toluene, TCE, Xylenes. Score: 30/48 on March 2, 2004. Status: [Interim Response](#)¹¹ in Progress. Site ID: 63000176. The US Environmental Protection Agency (EPA) has listed this site as non-qualifying for federal cleanup actions and is considered "archived" from the list of active EPA Superfund sites (does not qualify for the Federal National Priority List based on existing information). The EPA completed discovery of this site on December 11, 1980. The State government completed the preliminary assessment on December 1, 1987. The EPA archived the site on December 12, 1996.
- Red Oaks Golf Course is listed as a Part 213 Site of Environmental Contamination at 29600 John R. Road. The property is listed as an "[Open" Leaking Underground Storage Tank \(LUST\) site](#)"¹² (Leak ID C-1471-92; Facility ID 00007770). A release of gasoline and diesel fuel was discovered on August 27, 1992. Two 550-gallon USTs were removed from the ground. The tanks had been installed in 1978 and contained gasoline and diesel. A new 2,800 gallon UST was installed on October 2, 1992 with tank release detection, piping release detection, and double walled, fiberglass reinforced plastic piping material. The tank is constructed of composite (Steel w/Fiberglass) and is double-walled. This tank is currently in use.

- SOCRRA's Incinerator Plant, at 29740 John R Road, is listed as a "[Closed](#)" LUST site¹³ (Leak ID C-0207-97; Facility ID 00006691). A release of an unknown substance was discovered on April 3, 1997. Two tanks removed from the ground: an 8,000 gallon diesel UST and 2,000 gallon gasoline UST. These tanks were originally installed in 1967. This release status of this site is listed as "Closed" as of April 9, 1998 based on a Tier I Evaluation, with no land use restrictions.

Environmental Investigation 2000-2003

According to information provided by Mr. Gary Nigro of WRC, the most recent environmental investigation reports were completed from 2000-2003 (AKT Environmental, 2000) (AKT Environmental, 2003). The reports were completed for WRC, as part of due care responsibilities pertaining to GWK drain improvements.

The 2000 Phase I Environmental Site Assessment (ESA) was completed for the northern half of the Golf Course (AKT Environmental, 2000). That report identified four recognized environmental conditions (RECs) and two potential environmental concerns (PECs) associated with the subject property.

The 2003 Baseline Environmental Assessment (BEA) was completed for the southern portion of the Golf Course, closest to the former SOCRRA incinerator facility (AKT Environmental, 2003). The purpose of the BEA was to (1) provide an independent, professional evaluation and opinion regarding existing environmental conditions associated with the subject property, and (2) maintain a liability exemption for cleanup of existing contamination.

Recognized Environmental Conditions (2000 ESA):

1. The subject property is listed on the MDEQ open leaking underground storage tank (LUST) site database. While a Closure Report was completed for removal of two leaking USTs near the golf course maintenance building in 1992, but soil samples were not collected according to protocol to meet current MDEQ LUST Closure Requirements. (Also, the MDEQ does not have on file a copy of the 1992 Closure Report.) A subsurface investigation, involving soil sampling and analysis, would be necessary to fully evaluate whether this area has been impacted by the USTs and associated fueling activities.
2. The nearby SOCRRA facility was identified as a Solid Waste Facility/Landfill site database. Evidence of landfilling activities at the site was noted on review of historical aerial photographs. However, based on the analytical results of a subsurface investigation along the GWK reconstruction project, the soil and groundwater contamination identified at the adjoining western portion of the Red Oaks Golf Course and SOCRRA properties does not appear to be migrating toward the subject property.
3. The 1957 aerial photograph depicts large areas of land disturbances, which may represent landfilling activities to the immediate north and south of the subject property. These areas do not appear to extend significantly onto the subject property in the reviewed photograph. However, a subsurface investigation along the northern and southern property boundaries would be necessary to fully evaluate whether fill material and/or contaminants have migrated onto the subject property.
4. The potential existence of contaminants at the subject property associated with historic discharge of untreated stormwater/ sewer water from nearby industrial and commercial developments prior to when extensive modifications were constructed to the drain in the early 1970s. This should be considered during future modifications of the drain.

Potential Environmental Conditions (2000 ESA):

1. Suspect asbestos containing building materials (ACBM) include vinyl floor tile in the Golf Course maintenance building office area. It should be noted that 40 CFR Part 61 requires that certain ACBMs be removed prior to the demolition or renovation of a building. Also, 29 CFR 1910.1001(j) requires owners of

buildings constructed before 1981 to inform building occupants that perform housekeeping activities in areas which contain asbestos of the presence and location of these materials.

2. Potential fluorescent light ballasts installed in the light fixtures throughout the Golf Course maintenance building may contain polychlorinated biphenyls (PCB). Prior to any future renovation or demolition activities, these ballasts should be evaluated and, if PCB containing, handled in accordance with applicable environmental regulations.

Remediation and Due Care (2003 BEA)

Environmental remediation is regulated by Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). Part 201 requires that operators of a site, even if not liable for the contamination, have ["due care" obligations](#)¹⁴ (MDEQ, 2011b). Due care includes ensuring that existing contamination is not exacerbated and unacceptable human exposure is prevented. The 2003 report was classified as a Category "N" BEA, meaning a property "where there will be no future significant hazardous substance use". The site has known contamination as a licensed landfill or solid waste management facility. The intended future use is indicated as "to maintain and repair the George W. Kuhn Drain and to lease the property for recreational purposes including but not limited to a golf course."

Three soil borings conducted in the area adjacent to the SOCRRA closed incinerator site yielded soil analytical results that were above the Michigan Department of Environmental Quality (MDEQ) Generic Residential Criteria (MDEQ, 2011a) for a number of elements or chemical compounds (AKT Environmental, 2003). These findings qualify that site as a "Facility" as defined in Part 201 of the NREPA.

Public concerns were voiced regarding soil contamination during the construction of the North and South Drains. WRC held public meetings in conjunction with MDEQ to inform the public about monitoring and dust suppression programs that were in place during construction (Premarc, 2012). The area documented by the 2003 Baseline Environmental Assessment with soil contamination is currently either covered by berms or separated from the Golf Course by berms.

OCPRC Due Care Responsibility

It is also important to note that many other types of environmental investigations, dating back to 1990, were referenced in the more recent environmental reports and in WRC files; many of them indicate the presence of landfill materials and contaminants in soil/groundwater on other portions of the golf course property and adjoining SOCRRA facility. It should also be noted that the several subsurface investigations conducted encountered layers of clay in soil boring profiles, which minimizes the risk for migration of contamination via groundwater flow.

OCPRC should exercise due care before commencing a project that involves any moving of soil on the Golf Course. The property owner, WRC, should be consulted and a determination made whether further environmental analyses are needed in order to protect recreational users, park staff, and adjoining neighbors.

Additionally, if re-purposing of the Golf Course is considered at some future point, alternative uses appropriate for a site of environmental contamination should be considered. Because of the history of old dump sites along the Red Run Drain, and the industrial history of surrounding areas, this precaution should be maintained throughout the Red Oaks County Park and not just in the areas where known contamination has been documented.

OCPRC should also exercise due care if activities are conducted on sites outside the current Red Oaks park boundary or if additional parcels are acquired and added to the park. Red Oaks staff currently utilizes a fenced area

for storing landscaping material adjacent to the Golf Course that is part of the SOCRRA property for composting (see Figure A). Staff should be advised on what precautions may be necessary when using this area.

Past Master Plans

The Red Oaks Park Vision and Facility Concepts was approved by the Oakland County Parks and Recreation Commission on March 6, 2013 (OCPRC, 2013).

Roadways and Parking

- Improve convenience and safety of vehicle access to Golf Course off of John R Road. Evaluate two potential alternative solutions:
 - Revisit existing plans for creating a new entrance to the Golf Course off of the existing SOCRRA/Madison Heights Senior Center driveway. This plan would provide safer vehicle access because Golf Course visitors would use the traffic signal at John R Road and Dartmouth Street to enter and exit the Golf Course
 - Evaluate opportunities for relocating the Golf Course vehicle access. This opportunity may improve safety of access to Golf Course by locating the entrance and exit farther north on John R Road, away from the John R Road/Dartmouth Street intersection
- Consider opportunities for land acquisition or leasing to help address inadequacy of parking at the Waterpark when attendance is near capacity
- Develop partnerships with neighbor businesses and churches to expand parking for events
- Off-season use of parking lots to host special events, such as basketball tournaments, barbecues, or other special events would expand the season when the park is in use and would potentially create new revenue sources for the park

Park Trails and Non-Motorized Access

- Evaluate the feasibility of the proposed grant-funded connector trail project on the east side of the park.
- Coordinate with Madison Heights as they complete pathway sections on the west side of the Golf Course or on adjacent land west of the Golf Course
- Coordinate with Macomb County Planning and Economic Development and the City of Warren to evaluate potential connectivity with Macomb County's Trail Plan
- Evaluate the need for improvements to the Suarez Friendship Woods trail system
- Continue to collaborate with local communities to participate in walking and running events that incorporate Red Oaks' facilities.
- Explore innovative ways to use Red Oaks facilities for walking, running and cross-country skiing
- Developing greater connectivity with local and regional pathway networks will increase the accessibility of Red Oaks and will have a positive impact on the attractiveness and value the City of Madison Heights offers to residents and businesses

Natural Resource Management

- Continue management of rain garden swales at Golf Course parking lot
- Track progress of no-mow areas in the Golf Course and set goals for maintenance and improvement of vegetative quality, including the introduction of native species
- Develop no-mow areas in the Waterpark that discourage visitors from wandering into areas that are less visible to staff and also have the effect of filtering and slowing stormwater runoff from berms and surrounding commercial/industrial areas
- Improve the quality and diversity of vegetation surrounding storm drain next to Dog Park parking lot.

- Develop a species list and tree planting plan for Dog Park that locates trees appropriate to location of GWK drain structures
- Implement 5-year outfall testing for SWPPI permit compliance
- Explore MTESP certification for Dog Park with MTESP administrators and staff when applying for Golf Course and Waterpark re-certification
- Conduct (or contract for) a detailed Natural Resources Assessment of Suarez Friendship Woods, including mapping of natural communities and mapping of populations of invasive species, and develop a Natural Resources Management Plan
- Use no-mow areas and parking lot swales as demonstration areas, including information about cost savings. Provide educational materials and signage about the “Seven Simple Steps” to water quality
- Provide education highlighting the effectiveness of the George W. Kuhn facility in improving water quality in the Clinton River watershed
- Communicate with the Clinton River Area of Concern (AOC) Public Action Committee to align OCPRC water quality goals for Red Oaks with the AOC’s criteria to delist beneficial use impairments
- Use Red Oaks Golf Course as a case study to contrast cost savings from now-mow management vs. conversion of greenspace to revenue-generating recreation areas

Youth Soccer Complex

- Continue to provide maintenance services that are reimbursed by the City of Madison Heights via the funding mechanism per license agreement
- Design special events for the Youth Soccer Complex in collaboration with recreational and agency partners
- Promote use of the playscape to visitors of other Red Oaks facilities
- Promote use of other Red Oaks facilities to soccer families

Golf Course

- Map GWK drain structures in relationship to Golf Course layout – in order to locate facility improvements where they will be in compliance with lease agreement and are less likely to be subject to disturbance from future drain improvements
- Engage a qualified consultant to develop a design for the recently added property on John R, along with adjacent areas, that facilitates an increase in training and practice activities (i.e. driving range, putting and chipping greens). Additional ideas for use of this area include a putt-putt course and re-located Golf Course vehicle entrance/exit
- Consider changes to the Clubhouse that isolate the Pro Shop activities and enable increased use of the Clubhouse for events, such as wedding showers, game nights, and club meetings
- Consider changes to the Clubhouse that enable limited food service and greater ability to cater events.
- Develop a formal agreement with SOCRRA regarding use of the “Landscape Materials Storage and Staging Area” located outside of park boundary
- Develop a list of potential future uses if this land is no longer in use as a golf course. Consider such options as large greenspace, open parkland with trails and picnic areas, disc golf. Any future use needs to be appropriate to a site with a history of environmental contamination
- Continue and expand successful accessible recreation and beginner golfer programs
- Consider revenue generating opportunities by developing Red Oaks as a leading recreational resource for beginning golfers and adaptive recreation users
- Explore ways to increase revenue generation from use of the Clubhouse for a greater variety of events

Waterpark

- Map GWK drain structures in relationship to Waterpark layout – in order to locate facility improvements where they will be in compliance with lease agreement and are less likely to be subject to disturbance from future drain improvements
- Evaluate aging infrastructure and potential need for replacement of wave-making system
- Consider facility changes that discourage visitors from wandering into areas that are less visible to staff, such as the creation of no-mow areas (which also have the effect of filtering and slowing stormwater runoff) and/or adjustment of fence locations
- Add family restrooms
- Update security camera system
- Explore potential for land acquisition or lease in order to consider adding parking capacity and new recreational features
- Explore new and innovative techniques for staff management of crowds on high-attendance days, both in the ticket queue and within the Waterpark
- Consider instituting bag checks to ensure that no glass containers, opened beverage containers, or alcohol are brought into the Waterpark
- Consider designing programs that are targeted at specific audiences and encourage use of the Waterpark at lower capacity times
- Off-season use of parking lot to host special events, such as 3-on-3 basketball tournaments or blow-cart events would expand the Waterpark season and would potentially create new revenue sources
- Work with food service vendor to improve attractiveness and variety of food service offered at the Waterpark, increasing revenue from food service
- Consider offering food service from mobile vending carts both in the ticket queue and in the Waterpark
- Consider developing the ability to sell convenience items, such as towels, sunscreen, and disposable diapers

Dog Park

- Map GWK drain structures in relationship to dog park layout – in order to locate facility improvements where they will be in compliance with lease agreement and are less likely to be subject to disturbance from future drain improvements
- Add irrigation to maintain turf in Dog Park and Waterpark overflow parking area
- Replace portable toilet with a permanent restroom facility for Dog Park visitors; discuss with Oakland County Water Resources Commissioner the potential for creating restroom facilities in association with GWK facility without disrupting GWK operations
- Replace aging agility equipment with permanently-installed agility structures – creating a dog playground (appropriately located in relation to GWK drain structures)
- Provide shade for Dog Park visitors and their dogs by planting trees and installing permanent shade structures (appropriately located in relation to GWK drain structures)
- Work with Natural Resources Management staff to improve the diversity and quality of vegetation in retention area surrounding storm drain next to parking lot and showcase as a demonstration area
- Explore innovative solutions for disposing of dog waste in an environmentally-friendly manner
- Schedule the introduction of new Dog Park programs to coincide with completion of facility improvements
- Consider business practices at Red Oaks Dog Park within the context of an OCPRC Dog Park Strategy (to be developed). Strategy should consider: marketing of dog runs for private rentals; development of Dog Park membership program; individual theme development to distinguish OCPRC dog parks from one another;

cross-marketing of OCPRC dog parks; and expanded development of partnerships with pet supply stores and animal rescue organizations

- Consider development of a Dog Park “Friends” group to help with self-policing and build pride in the facility

Red Oaks Nature Center

- Prioritize management of the Red Oaks Nature Center at Suarez Friendship Woods in three phases:
 - Phase 1: Evaluate and improve access, parking and maintenance needs
 - Phase 2: Evaluate and improve building exterior and grounds, including trails, natural areas, and external structures
 - Phase 3: Evaluate and improve the interior of the building envelope
- Evaluate and improve the exhibit collection
- Develop and implement a program and services plan for the Nature Center as part of an organization-wide Nature Education Programs and Services Plan (OCPRC, 2013, p. 31)
- Cultivate existing volunteers and recruit new volunteers to assist with programming and Nature Center management through OCPRC’s Volunteer Program and guided by the Recreation Plan’s action plan for volunteer services (OCPRC, 2013, p. 30)
- Identify Red Oaks Nature Center as a gateway for the purpose of increasing the regional draw to other OCPRC parks and facilities for residents of Wayne, Macomb, and southeastern Oakland County; incorporate this concept into marketing plans

Grant History

The Michigan Natural Features Trust Fund (MNRTF) grant (#TF10-098) for \$308,000 from the Michigan Department of Natural Resources (MDNR) funded construction of the Connector Trail.

Madison Heights has received funding on three occasions from the Michigan Department of Natural Resources (MDNR) for the nature center property:

- TF492 Simonds Woods Nature Center: \$460,000 grant from Michigan Natural Resources Trust Fund (MNRTF) to fund the acquisition of the Simonds Woods parcel in Madison Heights (MDNR, 1983).
- BF93-090 Suarez Woods Nature Center: \$98,000 grant from “Protecting Michigan’s Future” Recreation Bond to fund construction of the Madison Heights Nature Center (MDNR, 1994).
- TF97-032 Suarez Woods Park Expansion: \$78,000 grant from MNRTF to fund the acquisition of a 1.51-acre parcel on Hales Avenue, increasing the Friendship Woods area to 38.38 acres (MDNR, 1999).




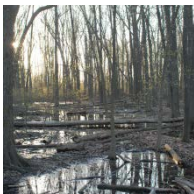
Natural Resources

The Michigan Natural Resources Inventory has described and abstracted 76 distinct natural community types within the State of Michigan (Kost, 2010). According to MNFI, 40 natural communities occur within Oakland County at varying degrees.

The natural areas at the park consist of woodlands, wetlands and naturalized or no-mow areas. To date, 5 natural community types have been identified at Red Oaks—mostly on the leased nature center property. The nature center woodland comprises important seasonal habitat, for migratory birds, such as warblers. Vernal pools and other semi-permanent wetlands are found within the nature center woodlands. These seasonal wetlands are important habitat to rare plants and have the potential to serve as habitat for reptiles and amphibians.



Table 9: Natural Features at Red Oaks

Natural Features	Description
 <p>George W. Kuhn Drain and Red Run Drain 1 – Drain</p>	<p>The Red Run has been modified to form the George W. Kuhn Drainage District retention treatment basin, which lies under Red Oaks. East of Red Oaks on the east side of Dequindre Road, it becomes the Red Run Drain, an open drain that empties to the Clinton River in Sterling Heights. Photo of the open drain adjacent to east boundary of park.</p>
 <p>Retention ponds 2 – Pond</p>	<p>Retention and irrigation pond at west end of golf course and small retention pond at east end of dog park.</p>
 <p>Emergent marsh 3 – Wetland Complex</p>	<p>Along shores of ponds and in wet depressions. Species include cat-tails, <i>Phragmites</i>, bulrush, sedge and grass.</p>
 <p>Southern hardwood swamp 3 – Wetland Complex</p>	<p>Lower areas of woodland at the nature center property, especially the southern half. Species include silver and red maple, sycamore, basswood, pin oak, elm, and ash. Most of the ash trees have died due to the Emerald Ash Borer.</p>






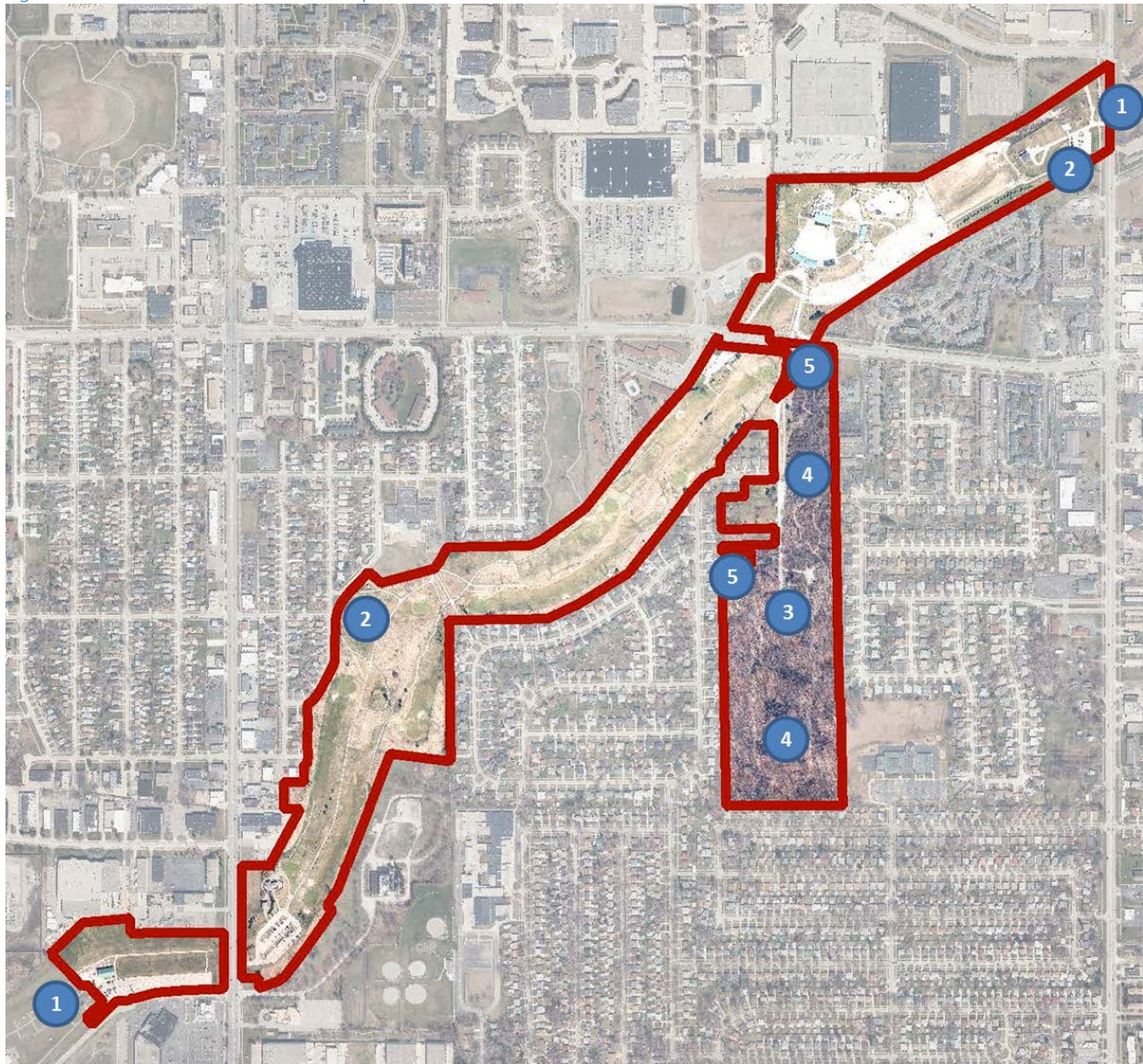
Natural Features	Description
 <p>Mesic southern forest 4 – Woodland Complex</p>	<p>Majority of the nature center property. Species include sugar maple, American beech, red and white oak, eastern cottonwood, American elm, white ash, spicebush and sassafras.</p>
 <p>Shrubby old field Within A4-Woodland Complex</p>	<p>South end of nature center property. Historically an old field/agricultural area that has grown up in trees and shrubs. Species include hawthorn, dogwood, poplar, black cherry, ninebark, and grape. Non-native species comprise the dominant understory cover-type, including common buckthorn and honeysuckle.</p>
 <p>No mow/naturalized area</p>	<p>Scattered areas around the golf course and dog park. Species include native and non-native species including goldenrod, aster, Queen-Anne's-lace, thistle, honeysuckle, multi-flora rose, and cool season grasses.</p>
 <p>Bioswale/Rain garden</p>	<p>Planted in 2011 in golf course parking lot and dog park. Native perennial plugs and seed include blue flag iris, prairie dropseed, swamp milkweed, marsh blazing star and golden Alexanders. The swale associated with the dog park has largely been overtaken by invasive vetch and thistle.</p>
 <p>Vernal Pool 5 – Vernal Pool</p>	<p>Scattered temporary pools within nature center woodlands. Typically wet or ponded from November through May. Species include red and silver maple, American elm, sycamore and ferns.</p>

Figure G: Red Oaks Natural Features Map



Park Infrastructure and Assets

Entrances, Roadways and Parking

Red Oaks County Park has five entrance points that lead from surface streets in Madison Heights (Dog Park on Dequindre Road, Golf Course on John R Road, Nature Center on Hales Road, Waterpark on 13 Mile Road, and Youth Soccer Complex on Dartmouth Road) into the park. The park has five paved parking lots that are used by the public (Dog Park, Golf Course, Nature Center, Waterpark, and Youth Soccer Complex), two unpaved overflow parking areas (Nature Center and Waterpark), and one maintenance parking lot (Golf Course).

Photos clockwise from upper left: Sign on Dequindre Road indicated facilities to the east on East 13 Mile Road; Dartmouth Road entrance to Youth Soccer Complex; Golf Course parking Lot; Golf Course maintenance parking lot; Waterpark parking lot and gate to overflow parking area; Dog Park entrance and contact station



Maintenance, Utilities and Security

The maintenance yard is located at the north end of the Golf Course with a maintenance entrance off 13 Mile Road. Assets include:

- Maintenance Building (Asset ID 1301) – constructed 1992

There is a high-voltage energy transmission line right-of-way over the Red Run Drain. The International Transmission Company (ITC) utility corridor runs mostly along the south and east boundary of the park. It continues along the Red Run Drain in Macomb County.

Electric utilities are located along John R, East 13 Mile and Dequindre roads. Electric transformers are located near the concession building at the Youth Soccer Complex, near the clubhouse and Hole #3 at the Golf Course, and near the maintenance area at the Waterpark. Outdoor lighting is located at the concession building at the Youth Soccer Complex. At the Golf Course, there is outdoor lighting around the Shop; parking lot; along the paths connecting the parking lot and Pro Shop; between Holes #3 and #7; and on east side of the Golf Course maintenance building. Lighting in the Waterpark provides light for security purposes but insufficient light for nighttime programming. Dog Park lighting provides light for evening open hours at the Dog Park, as well as for security purposes.



Fences and Security

Regular patrolling is provided by the Madison Heights Police Department, who responds to 911 calls and provide police services to all facilities. Additional services are provided to the Waterpark by the Oakland County Sheriff's Office – Parks Unit. Two deputies are on site whenever the Waterpark is open and 3-4 deputies when the Waterpark is at capacity. Two golf carts are available to patrol the Waterpark (stored in the Maintenance Building) – one for deputy and one for staff. Visibility of the outer side of the berm surrounding the Waterpark is a concern.

Security and safety at Red Oaks is enhanced by the installation of appropriate lighting and managed vegetation that promotes good visibility of park structures and parking lots.

There are a limited number (16) of security cameras at the Waterpark. The equipment is all low resolution and does not include nighttime cameras. The majority of the Waterpark is not covered by the cameras. Staff indicates that upgraded security cameras and more strategic placement of cameras are needed.

Gates and perimeter fencing surround the property. Nets are located in four locations on the Golf Course perimeter to protect neighborhood residents from golf balls.

George W. Kuhn Drainage District Facilities

The GWK Retention Treatment Basin (RTB) is located west of the Youth Soccer Complex. The GWK double box drain measures 65 feet wide and 25 feet high and runs underneath all the facilities of Red Oaks County Park. The GWK Overflow Pollution Control building is located within the Dog Park and separated from the Dog Park by a fence. The North and South Drains are located on the perimeter of all facilities of the park.

Park staff met with WRC staff on March 28, 2012 to review the locations of GWK facilities and drain structures in relation to the park and to review the restrictions on construction and other activities. OCPRC is required to keep the area directly above the double box drain and 10 feet on either side free of permanent structures (total width of 85 feet). Parking of vehicles, construction of permanent structure, and planting of trees should be avoided directly above the main GWK double-box drain and the North and South Drains. Manholes throughout the park mark the centerline of the drain. From time to time, repairs to the waterlines and electrical systems serviced from

these manholes may cause a disruption in recreational activities. Any leakage from the waterlines may cause heaving of the ground over the waterline, which will disrupt turf and other surfaces.

As part of the master planning process, GIS or CAD layers showing location of all drain structures have been requested from WRC, in order to map the drain structures in relation to park infrastructure. Mapping of a 10-foot buffer on either side of the double box drain is also recommended. Maintenance staff and staff implementing capital improvements and major maintenance should be familiar with the terms detailed in all license and lease agreements that affect Red Oaks facilities (U.S. Census Bureau, 2015) (GWK, 2004a) (GWK, 2004b) (GWK, 2007d) and maintain an open dialogue with WRC staff who manage the GWK facility¹⁵. Copies of relevant agreements will be provided to staff at Red Oaks.

Photos from left: Screen room at GWK retention basin; inside GWKRB; GWK outlet under Dequindre Road



Screen room at the GWK Retention Treatment Basin (RTB): debris is collected and removed from stormwater and sewage that enters the system during a storm event. From left: Matt Pardy (Red Oaks Waterpark), John Stange (GWK Supervisor), and Tom Garvey (Red Oaks Crew Chief)



Inside the GWK RTB: the underground basin can hold up to 124 million gallons of storage. It is thoroughly cleaned with fire hoses after a storm event.



Outlet of the George W. Kuhn Drain under Dequindre Road into the Red Run Inter-County Drain: All flow into the Red Run Drain is disinfected before it is released.

Park Trails and Regional Connectivity

The Red Oaks Connector Trail was completed in 2015 and connects the Dog Park with 13-Mile Road. The Red Oaks Nature Center has approximately 1.3 miles of asphalt trails.

Non-Motorized Access

The park can be accessed by sidewalks along John R Road and East 13-Mile Road. Sidewalks along Dequindre Road terminate approximately 0.08 mile from dog park entrance.

The Walk Score¹⁶ for each address of the four areas of the park was calculated, with results ranging from 58 to 74. The average Walk Score for Madison Heights addresses is 66. 50-69 on the Walk Score 100-point scale is considered "Somewhat Walkable", which means that some amenities are within walking distance. The Youth Soccer Complex scored highest at 74, which is interpreted as "Very Walkable" where most errands can be accomplished on foot (Walk Score).

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- Golf Course (29600 John R Road): 66 – Somewhat Walkable
- Waterpark (800 East 13-Mile Road): 58 – Somewhat Walkable
- Dog Park (31353 Dequindre Road): 58 – Somewhat Walkable
- Youth Soccer Complex (29601 John R Road): 74 – Very Walkable

Convenience to Public Transit

Public transit service to Red Oaks is provided by the Suburban Mobility Authority for Regional Transportation (SMART). Public transit is available along John R Road (SMART Bus Route 495-John R), Dequindre Road (SMART Bus Route 494-Dequindre), and East 12 Mile Road (SMART Bus Route 740-12 Mile Crosstown). There is no bus service along East 13 Mile Road to directly access the Waterpark; the 495-John R bus stop is 0.6 miles west of Waterpark entrance and the 494-Dequindre bus stop is 0.4 miles east of Waterpark entrance. The 740-12 Mile Crosstown is approximately 0.3 miles south of the Golf Course/Youth Soccer Complex entrances (SMART).

Clockwise from left: Connector Trail completed in 2015; Nature Center trail



Youth Soccer Complex

The Youth Soccer Complex is owned by the George W. Kuhn Drainage District, which is managed by the Oakland County Water Resources Commissioner (WRC). A license, use and maintenance agreement dated May 2007 gives the City of Madison Heights responsibility for the operation of the Youth Soccer Complex. The agreement also gives OCPRC certain maintenance responsibilities and the right to identify the Youth Soccer Complex as a facility of Red Oaks County Park. In addition to soccer fields, the playscape is a popular feature that includes a four-way coaster climber, rock climber, 3 tilted sky runners, a large soccer ball for climbing, and fitness equipment for adults and children. The building at the facility has restrooms and concessions and a meeting space that is used by county and local agencies for trainings and meetings. The Madison Heights Youth Soccer Association manages the concession and is responsible for reservation of soccer fields. Building assets include:

- Concession/Restrooms (Asset ID 1305) – not an OC Parks asset; building is managed by OC Water Resources Commissioners office and City of Madison Heights

Golf Course

The 107- acre nine-hole Red Oaks Golf Course was built in 1978, with a driving range located on the east side of John R. Additional golf facilities were developed on the east side of John R through private partnerships. Starting in 2000, major drain construction caused the facilities on the east side to close and the Golf Course to be redesigned. The Golf Course re-opened in 2004 with a new Clubhouse / Pro Shop, bunkers, berms and three sets of tees at each hole. The course was designed by Jerry Mathews. Most recently, in 2009, the course was redesigned using the extra soil from the GWK construction project to create berms and tee boxes. Holes were restored to original layouts. Building assets include:

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- Restrooms – 4th Tee (Asset ID 1298) – constructed 2004
- Cart Barn (Asset ID 1299) – constructed 1994, updated 1997
- Clubhouse (Asset ID 1300) – constructed 2003
- Pump House (Asset ID 1302) – constructed 1990

Waterpark

Red Oaks Waterpark opened in 1987 with a wavepool and waterslides. It was expanded in 2002, adding Splashtown for smaller children and the Lazy River. A new guest entrance was added in 2011. The Waterpark area is approximately 27 acres. Other amenities include grills, shade umbrellas, and lounge chairs.

Building assets include:

- Mechanical Building (Asset ID 1635) – constructed 1987
- Pump House (Asset ID 1641) – constructed 2002
- Group Entrance Ticket Booth (Asset ID 1642) – constructed 1987
- Pavilion (Asset ID 1644) – constructed 1987
- Concession (Asset ID 1646) – constructed 1987

Dog Park

The 5.2-acre dog park offers off-leash recreation for dogs. It has a friendly atmosphere, where both people and dogs socialize. There are four fenced enclosures, including one for small dogs. Amenities include picnic tables, benches, waste bags, pet drinking water, and outdoor lighting. A health walk has been created around perimeter of the dog enclosures; signage identifies the mileage of each walk. The George W. Kuhn Retention Treatment Maintenance Building is located in the center of the dog park area. It is fenced and partially screened. Building assets include:

- Water Resources Commission Building (Asset ID 1648)
- Water Resources Commission Building (Asset ID 1649)
- Pavilion (Asset ID 1650) – constructed 2011
- Contact Station (Asset ID 1651) – portable building

Nature Center

Oakland County Parks and Recreation began operation and management of the Red Oaks Nature Center on Oct. 1, 2012. The 25-year Lease Agreement (approved by the Parks Commission on July 11, 2012) with the city of Madison Heights includes the former Madison Heights Nature Center and the entire 37.81-acre property known as the George W. Suarez Friendship Woods. The park is named after the long-time Madison Heights mayor and county commissioner. The Suarez Friendship Woods property features approximately 1.3 miles of paved asphalt trail. The natural areas are designated by the Michigan Natural Features Inventory as a Priority 3 Potential Natural Area.

Park Maps

A standard set of planning maps are provided in a separate document - the *Planning Map Set*. This section provides other park maps, such as trails, campsites, and golf course features, which are specific to this park.

Figure H: Waterpark map

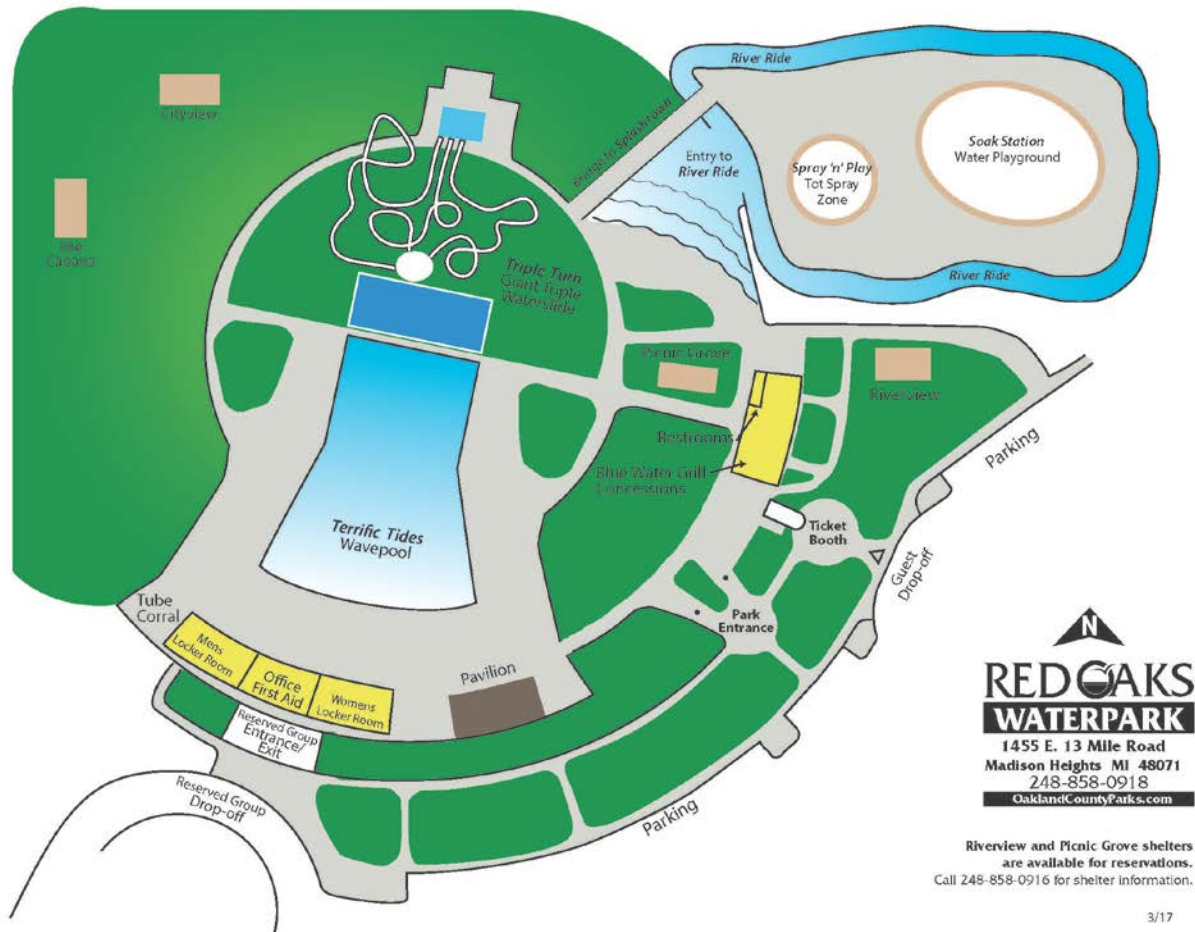


Figure I: Red Oaks Nature Center Trail Map

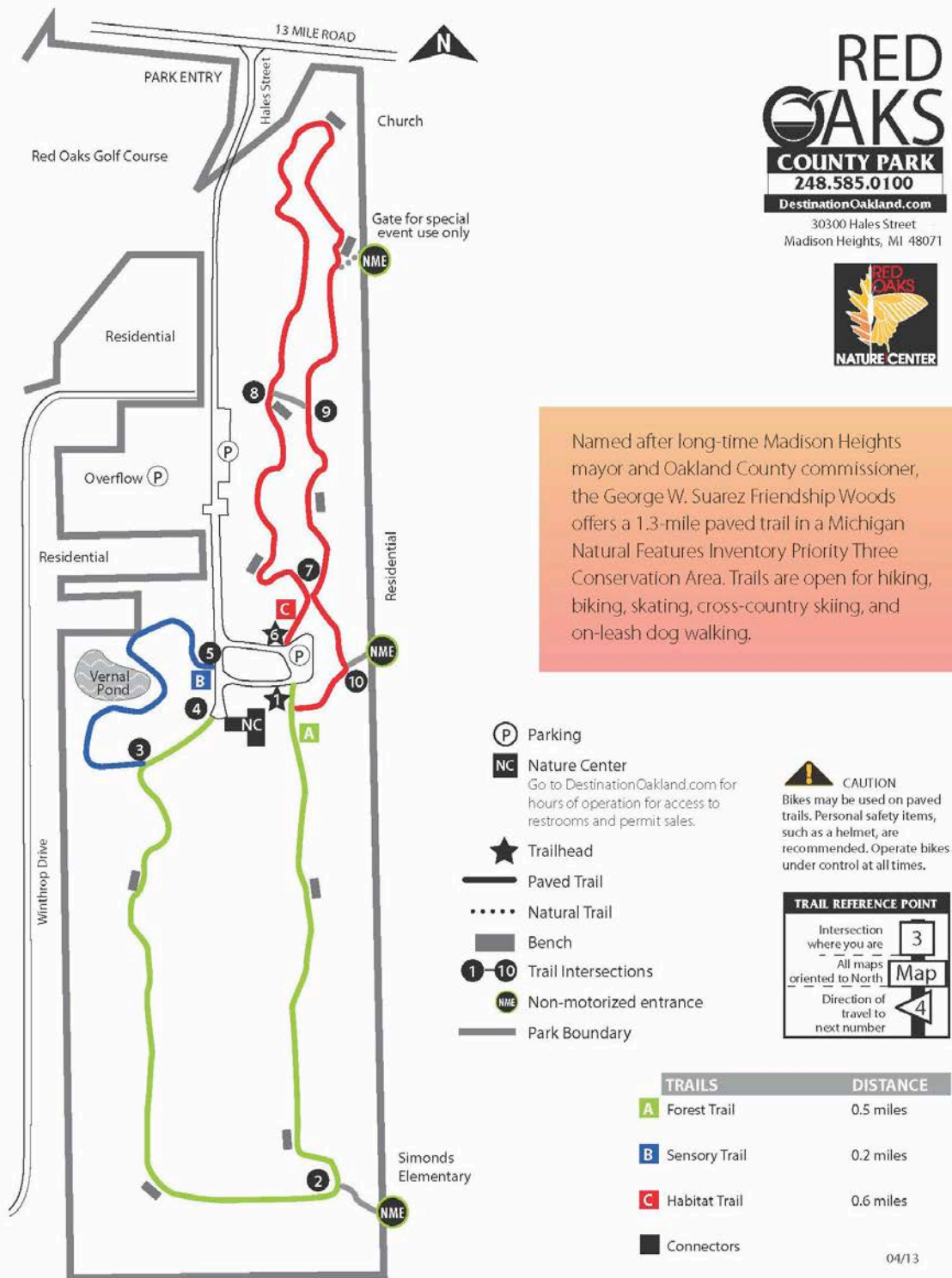
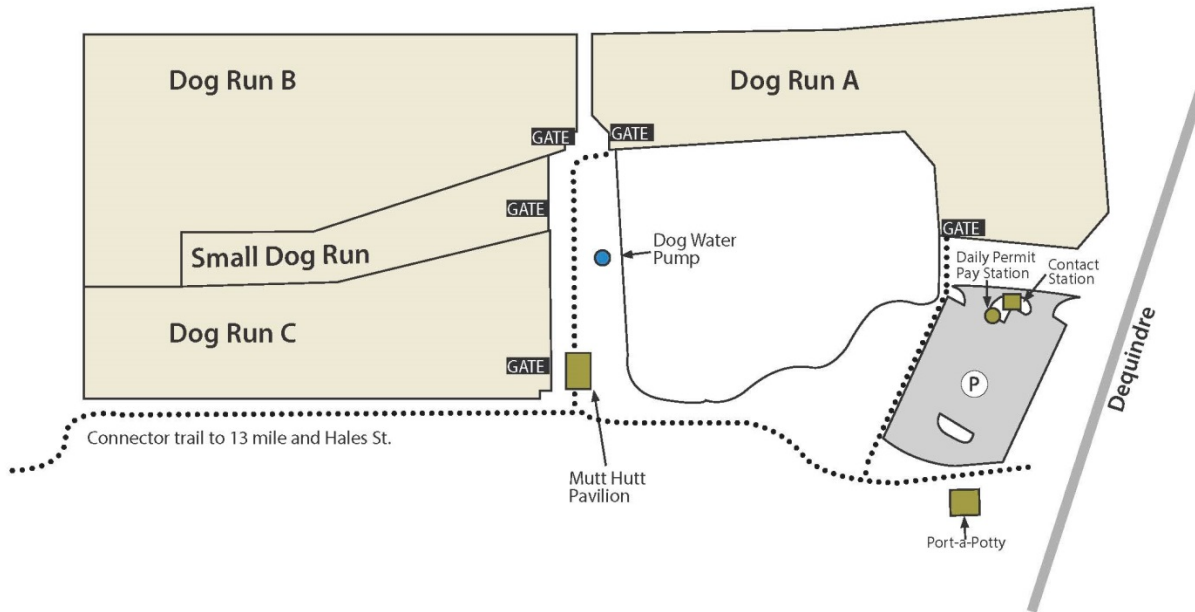


Figure J: Dog Park Map

RED OAKS DOG PARK FACILITY MAP



OaklandCountyParks.com

31353 Dequindre
Madison Heights, MI 48071
1-888-OCPARKS

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Notes

¹ How the Census Bureau Measures Poverty: "Following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps)." (U.S. Census Bureau, 2015)

² How the Census Bureau Measures Poverty: "Following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and

composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps)." (U.S. Census Bureau, 2015)

³ Esri builds ArcGIS, which "connects people with maps, data, and apps through geographic information systems (GIS). It is a location platform that's accessible to anyone, anywhere, anytime". <http://www.esri.com/about-esri#what-we-do>

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⁵ George W. Kuhn Drainage District (GWK): The George W. Kuhn Drainage District (formerly the Twelve Towns Drainage District) serves all or part of 14 communities, encompassing a drainage area of 24,500 acres upstream of the Red Run Drain, a tributary of the Clinton River. During dry weather, all flow is routed to the Detroit Wastewater Treatment Plant, but during heavy rainfall, high volumes of combined sewage (typically more than 93 percent storm water) exceed the outlet capacity to Detroit, causing excess flow to be diverted to the George W. Kuhn Retention Treatment Basin (GWK RTB) where it is stored, screened and disinfected prior to discharge to the Red Run Drain. The original facility was built in 1972, but unfortunately, by the early 1990s, the facility could no longer meet more stringent environmental regulations. Planning for an expansion began in the late 1990s, and construction was completed in 2006. Outfitted with the latest in engineering and controls technology, the GWK RTB will protect and improve the quality of the Clinton River for decades to come. (WRC, 2009). See www.oakgov.com/water

⁶ Oakland County Water Resources Commissioner (WRC): The Oakland County Water Resources Commissioner's office has the responsibility of planning, developing and maintaining designated surface water drainage systems in Oakland County under Michigan State law, known as Drain Code, 1956 PA 40 (and has other statutory duties as Agent for the county). The office consists of three customer focused areas: 1) Customer Service, 2) Infrastructure Service, 3) Inspection/Permitting/ Planning Service. See www.oakgov.com/water

⁷ Southeastern Michigan Resource Recovery Authority (SOCRRA): SOCRRA is a municipal corporation founded in the early 1950s. SOCRRA consists of twelve member municipalities with a total population of approximately 283,000 and covers an area of 75 square miles. Member cities are Berkley, Beverly Hills, Birmingham, Clawson, Ferndale, Hazel Park, Huntington Woods, Lathrup Village, Oak Park, Pleasant Ridge, Royal Oak and Troy. SOCRRA operates a Transfer Station in Troy (on Coolidge north of 14 Mile), a compost site in Rochester Hills, a Material Recovery Facility (MRF) on Coolidge north of 14 Mile and has ongoing recycling education outreach programs. See www.socrra.org.

⁸ Pre-Act 87 Waste Disposal Sites are unlicensed disposal sites created prior to the Garbage and Refuse Disposal Act (1965 PA 87). PA 87 was repealed in 1978 and replaced with the current law, Solid Waste Management Act (1978 PA 641).

⁹ A Part 201 Site of Environmental Contamination is defined as a site where there has been a release of a hazardous substance(s) in excess of the Michigan Part 201 residential cleanup criteria, and/or where corrective actions have not been completed under Part 201 to meet the applicable cleanup criteria for unrestricted residential use.

¹⁰ A Part 213 Site of Environmental Contamination is defined as: At the time of a release from an underground storage tank, the owner/operator is responsible for the corrective actions mandated by Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as

amended (NREPA). Owners/operators are required to hire Qualified Underground Storage Tank Consultants (QCs) to perform corrective actions in accordance with Part 213, and to submit specific reports required by the statute. The Remediation and Redevelopment Division of the Department of Environmental Quality is charged with selectively auditing all aspects of the corrective actions undertaken.

¹¹ Interim response activity means the cleanup or removal of a released hazardous substance or the taking of other actions, prior to the implementation of a remedial action, as may be necessary to prevent, minimize, or mitigate injury to the public health, safety, or welfare, or to the environment. Interim response activity also includes, but is not limited to, measures to limit access, replacement of water supplies, and temporary relocation of people as determined to be necessary by the department. In addition, interim response activity means the taking of other actions as may be necessary to prevent, minimize, or mitigate a threatened release. See [http://www.legislature.mi.gov/\(S\(jryszb45opvu0545ngar0j45\)\)/mileg.aspx?page=getobject&objectname=mcl-324-20101&query=on&highlight=interim%20AND%20response](http://www.legislature.mi.gov/(S(jryszb45opvu0545ngar0j45))/mileg.aspx?page=getobject&objectname=mcl-324-20101&query=on&highlight=interim%20AND%20response).

¹² An Open LUST site means a location where a release has occurred from an underground storage tank system, and where corrective actions have not been completed to meet the appropriate land use criteria. An open LUST site may have more than one confirmed release. See http://www.deq.state.mi.us/sid-web/LUST_Search.aspx.

¹³ A Closed LUST site means a location where a release has occurred from an underground storage tank system, and where corrective actions have been completed to meet the appropriate land use criteria. The MDEQ may or may not have reviewed and concurred with the conclusion that the corrective actions described in a closure report meets criteria. See http://www.deq.state.mi.us/sid-web/LUST_Search.aspx.

¹⁴ Due Care: Section 20107a of the NREPA specifically requires owners and operators of facilities to take due care measures to ensure that existing contamination on a property does not cause unacceptable risks and is not exacerbated. What measures are needed is determined by evaluating both the site use and the existing contamination. Due care requirements are not related to the owner or operator's liability for the contaminants; they apply to non-labile parties and liable parties alike. The due care requirements were designed so contaminated properties could be safely used and redeveloped.

With certain exceptions, an owner or operator of a facility shall do all of the following with respect to contamination existing at the facility:

- Prevent exacerbation of the existing contamination.
- Prevent unacceptable human exposure and mitigate fire and explosion hazards to allow for the intended use of the facility in a manner that protects the public health and safety.
- Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party.
- Provide notification to the DEQ and others,
- Provide reasonable cooperation, assistance, and access to the persons that are authorized to conduct response activities at the property.
- Comply with any land use or resource use restrictions established or relied on in connection with the response activities.
- Not impede the effectiveness or integrity of any land use or resource use restriction. Measures may include response actions such as providing alternate water to prevent people from drinking contaminated groundwater or maintaining a barrier over contaminated soil to prevent contact with contaminated soil.

(MDEQ, 2011b)

¹⁵ GWK contact information: As of April 2012, OCPRC's contact for the GWK is John Stange, Supervisor, George W. Kuhn Retention Treatment Basin, 1400 Ajax Drive, Madison Heights. Phone: (248) 544-4694.

¹⁶ Street Smart Walk Score calculates a score by mapping out the walking distance to amenities in 9 different amenity categories. In amenity categories where depth of choice is important, multiple amenities are counted in a given category. Categories are also weighted according to their importance. The distance to a location, counts, and weights determine a base score of an address, which is then normalized to a score from 0 to 100. After this, an

address may receive a penalty for having poor pedestrian friendliness metrics, such as having long blocks or low intersection density. See Walk Score Methodology at www.walkscore.com. (Walk Score)