

City of Lowell

Kent County, Michigan

City of Lowell RV Park Feasibility and Development Study



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EXECUTIVE SUMMARY

In collaboration with Urban Planning students at Michigan State University and clients Jim Hall, Parks and Recreation Chairman, City of Lowell, Dave Pasquale, City Manager, City of Lowell, and Carol Townsend, MSU Extension Educator, the City of Lowell RV Park Feasibility and Development Study was created. In order to examine different alternatives for this site, potential uses of the properties were discussed by the students and clients. These uses included an RV Park, inclusion of a trail way network, primitive campground, temporary campground, educational pavilion area, tree house cabins, a water treatment pond or any combination thereof. The overall goal of this study is to assess the viability of the Moose and Rogers properties and determine the best use possible for the property.

The report provides research and analysis based upon the following areas:

- Site Analysis
- Community Description of Lowell
- Regulatory Framework
- Analysis of Potential Uses
- Contemporary Examples
- Recommendations

A thorough analysis of the Moose and Rogers properties and the neighboring islands in the Flat River was completed to determine the characteristics of the site; including positive aspects as well as any aspects that might hinder development of the site. We began by determining the location of the properties within the floodplain, and then determined the height of the property relative to the base flood elevation.

Our analysis also included walkthroughs of the site to aid in portraying an accurate depiction of the physical characteristics of the properties. Furthermore, we obtained information on soil

conditions through the U.S. Soil Survey and the National Wetlands Inventory to determine the suitability of the site for construction.

The Community Description of the City of Lowell describes its background and history as well as provides a socioeconomic profile of Lowell. The demographics of Lowell are compared to surrounding townships, Kent County and the State of Michigan to help paint a statistical picture of Lowell as well as determine the future demands of an RV Park. The Community Description section also describes the Lowell Master Plan and its insight on developing an RV Park in the City; it highlights the current and future land uses, as well as land use constraints as pertains to the Moose and Rogers sites. Our analysis of this document suggests that the City is aware of the current restrictions and limitations on the property, but still wishes to pursue developing the property into an RV Park or other alternatives as guided by public input.

To help determine feasibility of the site as a Recreational Vehicle Park, the Regulatory Framework provides guidelines from Federal, State and Local legislation and ordinances. The challenges on this site are myriad; because the site falls within a floodplain and contains wetlands, there are various limitations and restrictions from Federal, State and Local laws. After extensive analysis of these limitations, it would be a much more challenging, expensive and lengthy process to develop an RV Park on the site. It was determined that further inspection by MDEQ officials and engineers would have to occur in order to decide whether or not development of an RV Park is indeed feasible.

The Analysis of Potential Uses section of the study is a guiding layout of the following potential uses:

- RV Park
- Primitive Camping
- Temporary Camping
- Hiking Trails
- Educational Pavilion Area
- Tree House Cabins
- Water Treatment Pond

A matrix was created in order to more effectively present the limitations and restrictions on these potential uses. In order to begin to make design and use decisions, this is an important step of the study of determining and comparing overall feasibility for all uses. The Matrix analyzes the construction and development requirements, such as sewer and water hookup that may be necessary for any of the potential uses. This section also contains economic and demographic information in terms of overall travel and tourism in Michigan.

The next section of the report contains Contemporary Examples of existing sites that are similar to the Moose and Rogers properties in Lowell. First, the report examines private and public campgrounds in Michigan that are close to Lowell and then campgrounds in Michigan that lie near a body of water. Another case study, the Tolt River in King County, Washington is a restoration project that will help restore the habitat of salmon fish, provide greater flood protection and improve the public river access. The last study described a recent case in Macon County, North Carolina where there was a proposed RV park in a floodplain that was essentially denied due to harsh citizen opposition.

After the analysis portion of the project was completed, recommendations for the site and a list of alternative uses were given. Three designs were developed for the site, each with a different set of limitations and a different level of feasibility. The three designs provided were: semi-modern camping, tree house cabins, and RV camping; all three designs include a trail network through the site as well as a welcome center situated at the northeast corner of the Moose property. In addition, possible sources of funding for the development of the project were identified.

INTRODUCTION

Lowell, Michigan

Located in Kent County, Michigan, the City of Lowell is approximately 20 miles from Grand Rapids and 50 miles from the west coast of Michigan. The City lies in the middle of two major rivers, and is host to a myriad of regional recreational activities. Lowell is home to the North Country Trail Association, an organization pushing for a multi-state network of trails spanning from New York State to North Dakota, and it is the center of commerce for several of the surrounding small towns and townships.

A study was conducted to examine the possibility of using two City-owned properties, Moose and Rogers, for recreational purposes. This study will examine the properties, regulations pertaining to their development as a potential recreation park, demographics of the City and surrounding areas, demographics of potential users, and economic variables affecting development to determine the best possible use for the properties and to provide guidance to the City on how to develop the properties.

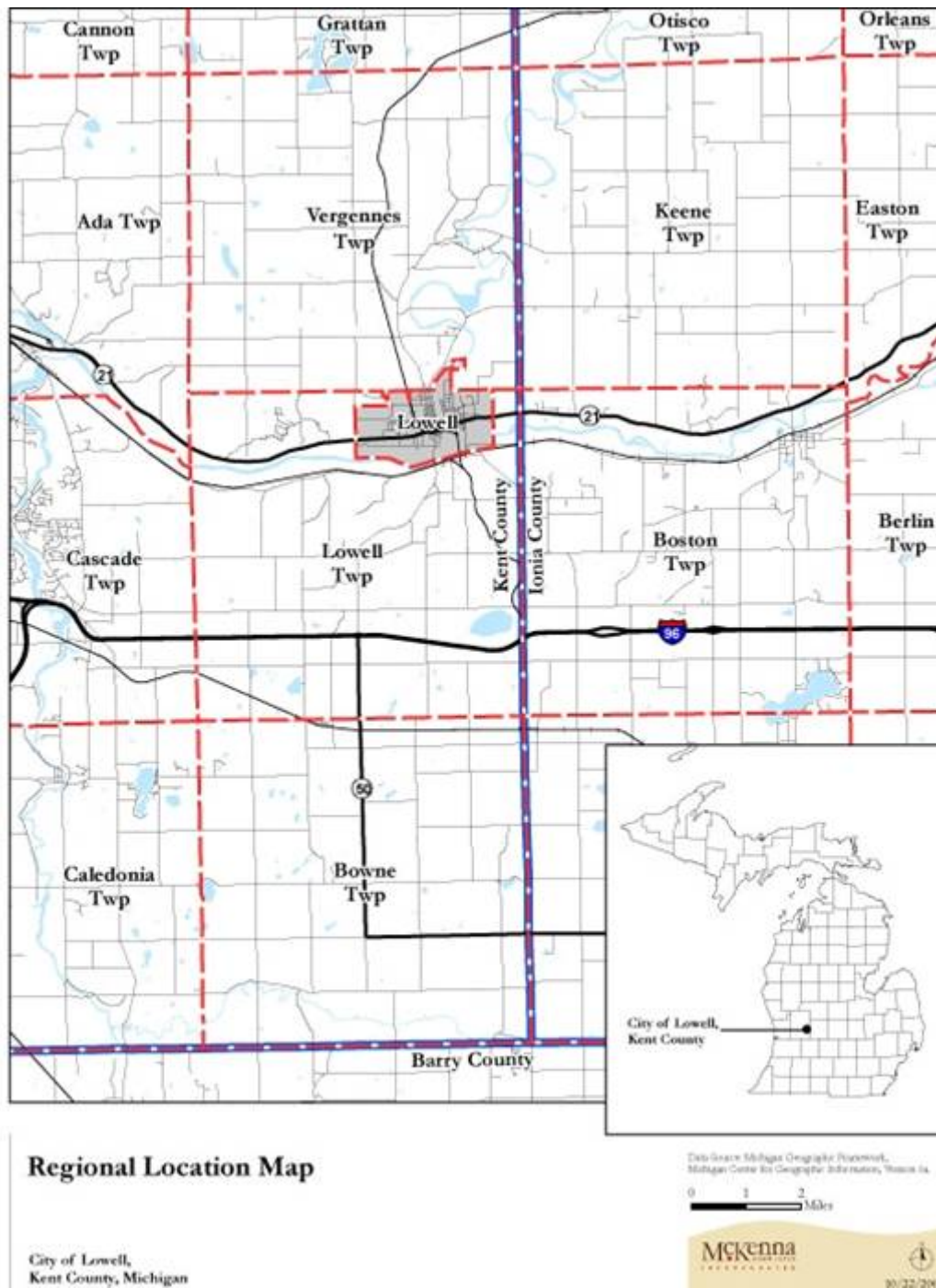


Figure 1: Lowell, surrounding communities, and the State of Michigan

This map shows the location of Lowell relative to surrounding communities and the State of Michigan at large.

SITE ANALYSIS - MOOSE AND ROGERS PROPERTIES

The properties addressed by this study are the Moose and Rogers properties, as well as several small islands, located at the confluence of the Flat River and the Grand River. The properties cover an area of 33 acres on the east side of the Flat River and are publicly owned. They are wooded, with a portion designated as wetlands on the south side of the properties.



A rail line bisects the properties and carries trains on an infrequent basis. Annual flooding in the winter of 6-10 feet for several months can limit usage of the site from fall until early spring. The rail line is the Mid-Michigan Railroad, owned by Rail America, and has a right of way that covers the triangle formed by the curve in the track through the properties and the disused portion of track extending north from the bottom of the curve. In addition, 128 feet on either side of the tracks are included in the rail right of way

Figure 2: Moose and Rogers Properties, Lowell, MI

The fact that the properties lie within the 100-Year floodplain, and have a portion of the acreage designated as wetlands, creates some interesting challenges for developing the properties into a City-owned recreational area.



Figure 3: FEMA Floodplain Map, Lowell, MI

The floodplain map provided by the Federal Emergency Management Administration above indicates that the Moose and Rogers Properties lie within a Zone A11 floodplain. FEMA gives the following definition for Zone A11:

Zone A11 are “Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones” (FEMA).

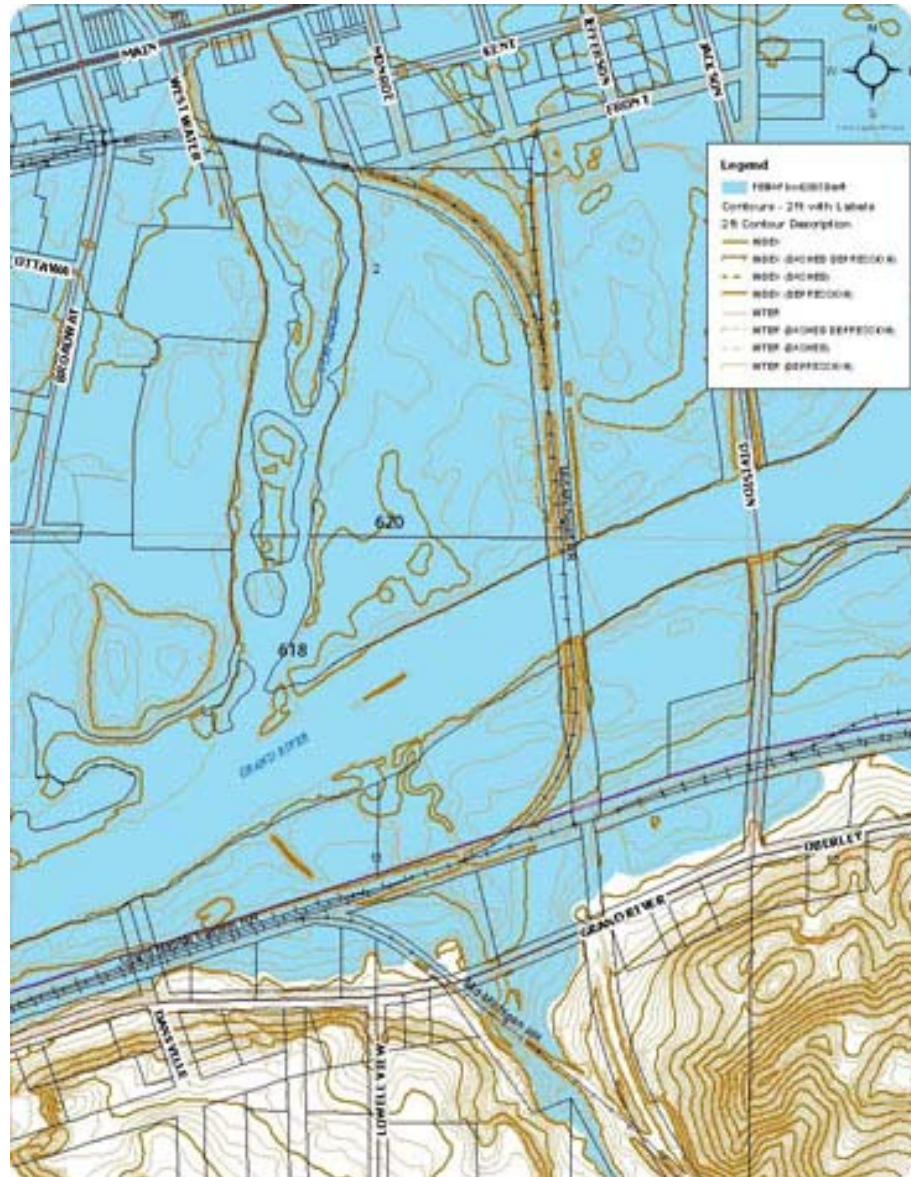


Figure 4: Kent County Drain Commissioner Topographic Map for the Moose and Rogers Properties, Lowell, MI

A floodplain is “any land area susceptible to being inundated by water from any source.” This is different from a floodway which is “the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height” (FEMA).



Figure 5: USGS Topographic Map for the Moose and Rogers Properties, Lowell, MI

The soil survey map on page 10 provides an understanding of the soils covering the Moose and Rogers properties, as well as the islands to the west of the properties on the Flat River. The different soil types are 7 – Cohoctah Loam, 10 – Landes Loam, 16 –Ceresco Loam, and 29B – Plainfield Sand.

The site consists of 80.3% soils that are poorly drained and have a maximum depth of 24 inches to the water table. The site also consists of 55.3% soil with a depth of 0 to 12 inches to the water table and that is subject to frequent flooding. An additional 27% of the area of interest is subject to occasional flooding.

Soil Map—Kent County, Michigan
(Moose and Rogers Properties)

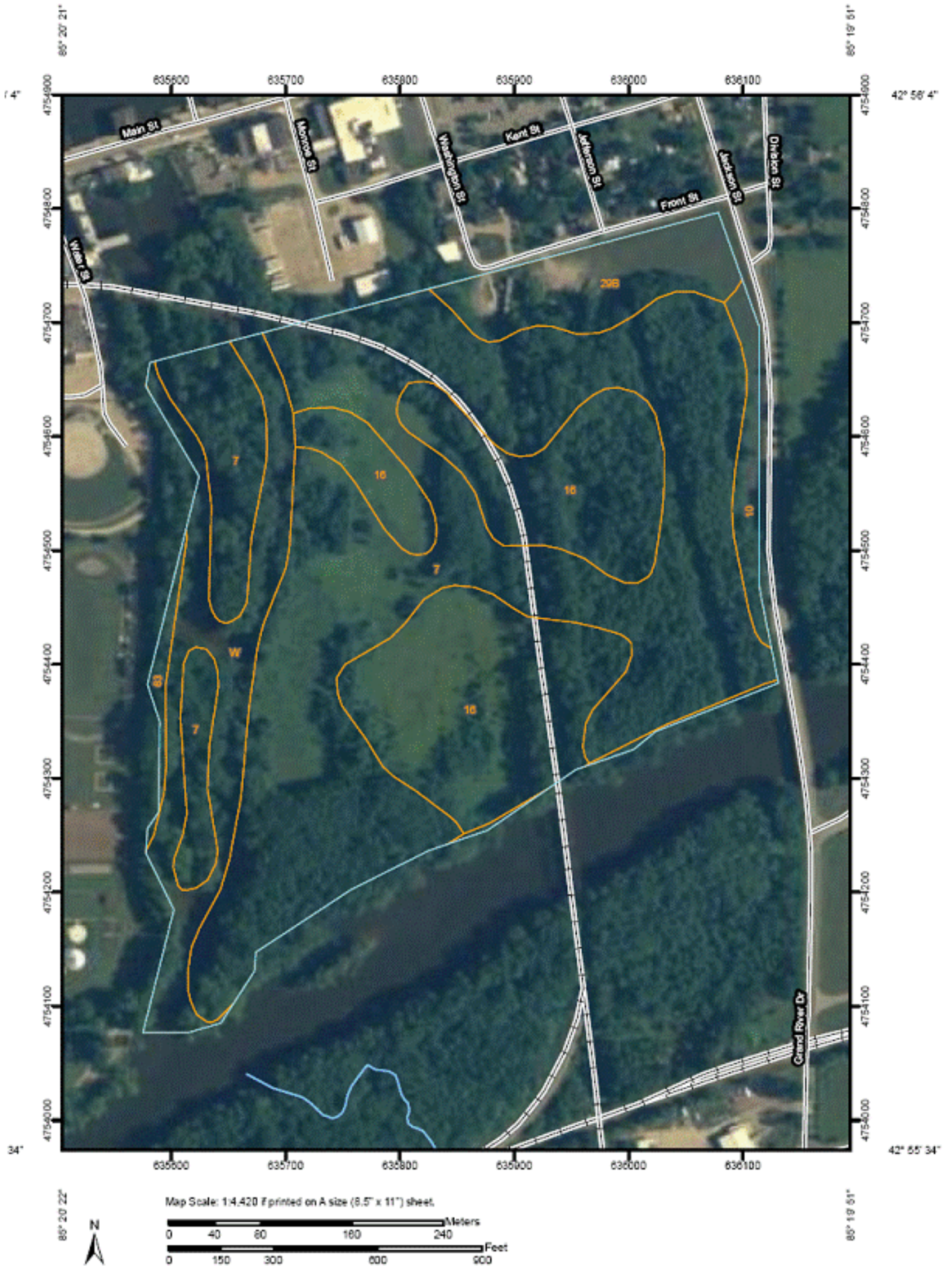


Figure 6: Soil Survey Map, Moose and Rogers Properties, Lowell, MI

The different soil types have their own set of characteristics, outlined below:

- 7 - Cohoctah Loam
 - 55.3 percent of the area of interest
 - Located in floodplains
 - 0 to 2 percent slope
 - Poorly drained
 - 0 to 12 inches to the water table
 - Frequent flooding
- 10 - Landes Loam
 - 2 percent of the area of interest
 - Located in floodplains
 - 0 to 3 percent slope
 - Well drained
 - About 48 to 72 inches to the water table
 - Occasional flooding
- 16 - Ceresco Loam
 - 25 percent of the area of interest
 - Located in floodplains
 - 0 to 3 percent slope
 - Somewhat poorly drained
 - About 12 to 24 inches to the water table
 - Occasional flooding
- 29B - Plainfield Sand
 - 6.2 percent of the area of interest
 - 0 to 6 percent slope
 - Excessively drained
 - More than 80 inches to the water table
 - No flooding



Figure 7: Wetlands, Islands and Moose and Rogers Properties, Lowell, MI

Figure 7 shows the properties and the extent of wetlands (purple) on the site. The wetland data is from the National Wetland Survey, available at the State of Michigan Center for Geographic Information's website (<http://www.michigan.gov/cgi>).

Figure 8 shows Phase 3 of the trail way plan for the City of Lowell, as it pertains to the Moose and Rogers Properties. Plans for developing a network of trails on the property are discussed in depth later under the Lowell Area Recreation Authority section of this report on page 30.

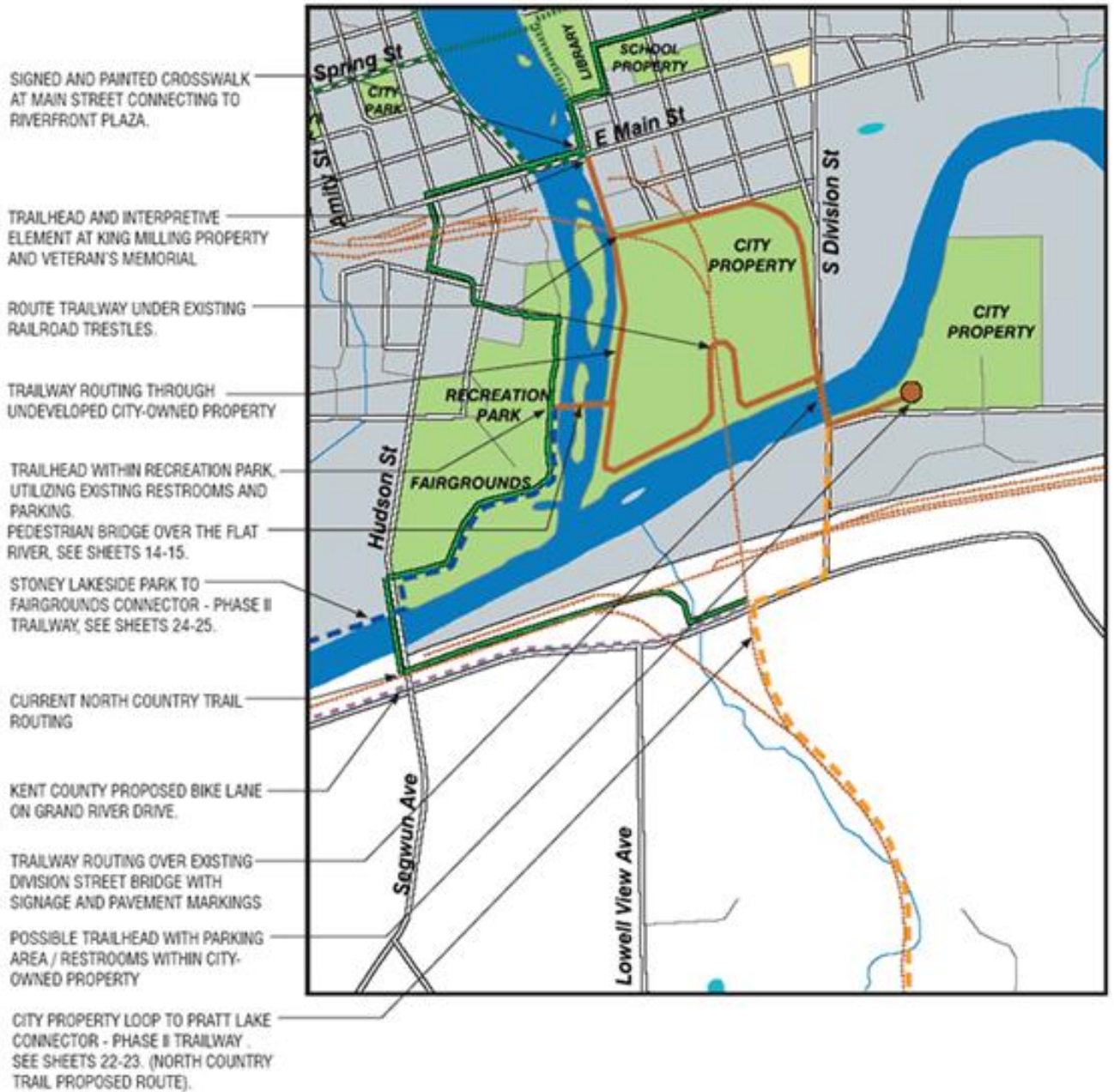


Figure 8: Lowell Area Recreation Authority Trail - Phase 3, Lowell, MI



Figure 9 is an aerial view of the Moose property. The property is located to the east of the Mid-Michigan Railroad. It is more densely vegetated than the Rogers property.

Figure 9: Moose Property, Lowell, MI

Figure 10 shows the Rogers property. It is located at the confluence of the Flat and Grand Rivers. The property is mostly open field but it does have some low density stands of trees around the perimeter.



Figure 10: Rogers Property, Lowell, MI



The Moose and Rogers properties and the adjacent islands on the Flat River lie in close proximity to downtown Lowell as displayed in Figure 11. Across the Flat River is a fairground and recreation field used during the Kent County Youth Fair. To the northwest is the King Milling Company.

Figure 11: Properties in relation to the City



A walkthrough of the site provided perspective on the level of flooding the site is subject to. Figure 12 Moose property, looking east from the Mid-Michigan Rail Road.

Figure 12: Moose Property flooding, 2009

The Rogers Property, in Figure 13, was much less flooded at the time of our walkthrough. The drier area coincides with the area on the wetland map that does not contain wetlands (Figure 7).



Figure 13: Rogers Property flooding, 2009

Sources: FEMA, National Resources Conservation Service, Rail America, MDEQ, Figure 9, Figure 10, Figure 11 from www.maps.live.com

COMMUNITY DESCRIPTION

The City of Lowell

The City of Lowell lies at the confluence of the Grand and Flat Rivers. Founded initially as Dansville with an unknown population by the French fur trader Daniel Marsac in 1829, Lowell developed in much the same way as its adjacent neighboring villages, Saranac to the east, and Ada to the west. Lowell was named after its namesake in Massachusetts in hopes it would achieve some of the success found in its larger counterpart. Lowell underwent the same brief population boom that many cities and villages along the Grand River were witness to; for a few decades in the mid-19th century it saw a steady increase in population. Once this city had surpassed its town status (less than 1500 residents) in the late 1800s, the population had stabilized and fluctuated above 3,500, allowing Lowell to retain its urban title. Since then, Lowell has achieved relative sustainability through the surrounding agriculture and businesses within the city limits that cater to this demand. Other ventures in manufacturing and various service industries have been very important, but without the silos dominating the skyline, Lowell would lose this essential socio-economic characteristic.

The City is served by M-21, which runs from the heart of Grand Rapids all the way to Flint; M-21 is known as Main Street within Lowell's city limits. The automobile is heavily relied upon in the region, especially for residents who live several miles from the City center. It is reflected in the numerous new and used car dealerships that dot the main thoroughfare (6 establishments that cater to the automotive buyer, not counting a few car dealerships outside of the City limits, were listed in the 2002 Economic Census). Public transportation is officially available for students, to and from school, and can also be called upon if someone needs a ride by one of the few unincorporated taxis that roam the city.

What was once used as an entertainment venue on the Flat River is now a landmark; the showboat known as the Robert E. Lee is one of Lowell's oldest tourist attractions, having been an icon for the City since it was built as a Depression Era project in the 1930s. Other draws to this rural town include the seasonal festivals, the annual Kent County Fair, and the weekly farmers' market that was recently introduced.

Sources: City of Lowell, Lowell Area Chamber of Commerce, and Lowell Area Historical Museum, U.S. Census Bureau

City of Lowell Demographics

The City of Lowell had a population of 4013 in 2000, up 0.8% from 3983 in 1990. The median age for residents in the city is 34, 29.3% under the age of 18, and 13.8% over the age of 65 (see Lowell and Vergennes Township have a young population. This is especially true in Vergennes Township where many new subdivisions have appeared in the last fifteen years. The City of Lowell, as well as the State of Michigan reflect an age cohort that use RV parks more than the younger demographic groups, which will be explained later in the report. (Table 1)

Table 1).

In 2000, 14.1% of the residents living in the City of Lowell age 25 and older had an educational attainment less than high school, 41.9% had graduated from high school, 28.6% had some college or received an associate degree, and 15.5% had received a bachelor's degree or higher (see Table 3).

The median annual household income for the population of Lowell was \$42,326 in 1999. Housing in Lowell consisted of 1564 units in 2000, up 3.6% from 1510 in 1990. Of these 1564 housing units, 65.7% of households were owner-occupied; 63.7% were single family detached units, 1.6% were single family attached units, 5.0% were multiple family units, 20.0% were two family units, and 9.7% were mobile home units (see Table 8).

Demographics of Surrounding Areas

The City of Lowell serves as a ‘downtown’ for several surrounding communities, thus an analysis of those adjacent communities is also provided. Lowell provides a variety of businesses and amenities that are lacking in surrounding municipalities. The Village of Alto to the south is comprised of residences, a post office, general store, school, bar, and some light industry. The hamlet-sized Grattan to the north has a dirt track, bar, few residential homes, and a general store. Farther to the south is the historic Village of Fallasburg. Once home to a mill, school, and other businesses, it is now exclusively residential, with the exception of its namesake park. To the northwest of Lowell lies Parnell, a stop on the road, as well as a final resting place for those who wish to be buried in St. Patrick’s cemetery. Parnell also has a school and a church of the same name for a location that is listed on only the most detailed maps.

The following tables include data for the City of Lowell, Lowell Township, and Vergennes Township, as well as information for all of Kent County and the State of Michigan.

Lowell and Vergennes Township have a young population. This is especially true in Vergennes Township where many new subdivisions have appeared in the last fifteen years. The City of Lowell, as well as the State of Michigan reflect an age cohort that use RV parks more than the younger demographic groups, which will be explained later in the report. (Table 1)

Table 1: Median Age, Percentage of Population Under 18 and Over 65

City of Lowell and Surrounding Communities, 2000

	Median Age	Population Under 18	Population Over 65
City of Lowell	34	29.30%	13.80%
Lowell Township	35	30.20%	8.20%
Vergennes Township	34	33.50%	6.90%
Kent County	33	28.30%	10.40%
State of Michigan	36	26.10%	12.30%

One of the most striking statistics amongst these tables lies in the growth that happened in Vergennes Township between 1990 and 2000. To expect that the number of households has increased by 44.9% since 2000 is optimistic and does not reflect the current trend. More realistic growth rates can be seen in the surrounding municipalities. (Table 2)

Table 2: Number of Households

City of Lowell and Surrounding Communities, 1990 and 2000

	1990	2000	% Change
1990-2000			
City of Lowell	1456	1492	2.5
Lowell Township	1502	1726	14.9
Vergennes Township	788	1142	44.9
Kent County	181740	212890	17.1
State of Michigan	3419331	37855661	10.7

The City of Lowell exceeds all other jurisdictions listed in table 3 for high school graduate percentage, yet lags behind these municipalities when it comes to college experience. This is reflected in the continued presence of manufacturing and other non-professional jobs, which may not require this type of attainment. Vergennes Township has the highest percentage of those with a Bachelor’s degree or more, and has a low percentage of the population without a high school diploma, similar to many bedroom communities in the U.S. (Table 3)

Table 3: Educational Attainment of Persons 25 Years and Older

City of Lowell and Surrounding Communities, 2000

	% w/ Less Than High School Graduate	High School Graduate %	Some College or Associate Degree %	Bachelor's Degree or Higher %
City of Lowell	14.1	41.9	28.6	15.5
Lowell Township	13.2	33.4	31.9	21.5
Vergennes Township	5.9	36.4	30.4	27.4
Kent County	15.4	28.3	30.6	25.8
State of Michigan	16.5	31.3	30.3	21.8

Lowell Township faced the biggest drop in household size from 1990 to 2000. All other jurisdictions had a shrinking household size in that period except for Vergennes Township. This township has continued to an anomaly, and because of the tremendous growth in multiple-bedroom homes in the 1990s, Vergennes has been able to sustain a household size of 3.16 persons. (Table 4)

Table 4: Household Size

City of Lowell and Surrounding Communities, 1990 and 2000

1990-2000	1990	2000	% Change
City of Lowell	2.73	2.69	-1.5
Lowell Township	3.16	3.02	-4.4
Vergennes Township	3.16	3.16	0.0
Kent County	2.75	2.7	-1.8
State of Michigan	2.71	2.62	-3.3

Most residents of the City live above the poverty line, while earnings are less than its host county and state. Median household income skyrockets into the predominately residential townships of Lowell and Vergennes. Higher home values in these townships contribute to the necessary rise in incomes that accompany this statistic. (Table 5)

Table 5: Annual Household Income

City of Lowell and Surrounding Communities, 1999

	Median Household Income
City of Lowell	\$42,326
Lowell Township	\$58,639
Vergennes Township	\$61,500
Kent County	\$45,980
State of Michigan	\$44,667

Vergennes Township leads the way when it comes to management, sales and office, and farming, fishing, and forestry occupations in 2000. This reflects the township's rural and professional character. The City of Lowell has 20.1% of its workforce in service industries, an increase of more than 25% over the other jurisdictions. (Table 6)

Table 6: Occupation

City of Lowell and Surrounding Communities, 2000

	Management	Service	Sales and Office	Farming, Fishing and Forestry	Construction and Extraction	Production and Trans.
City of Lowell	23.0%	20.1%	24.4%	0.0%	8.8%	23.7%
Lowell Township	28.4%	14.8%	25.3%	0.0%	6.7%	24.8%
Vergennes Township	34.7%	8.8%	28.5%	7.7%	8.7%	18.7%
Kent County	31.1%	13.3%	26.8%	0.4%	7.7%	20.7%
State of Michigan	31.5%	14.8%	25.6%	0.5%	9.2%	18.5%

Nearly two-thirds of Lowell's housing is owner occupied. Less than 30% are renters. Vacant properties amount to 4.6% of the homes in the City. (Table 7)

Table 7: Housing Occupancy

City of Lowell, 2000

2000	Units	% Total
Owner Occupied	1,028	65.7%
Renter Occupied	464	29.7%
Vacant	72	4.6%
Total Dwelling Units	1,564	100.0%

With single family detached homes comprising 96.1% of Vergennes Township’s housing market, it could be said that this municipality is quite homogenous in its housing stock. Lowell Township and the City of are much more diverse in their options. Lowell Township has a substantial population in a southwestern mobile home park, while the City allows for a variety of types of housing that caters to a more diverse demographic. (Table 8)

Table 8: Comparison of Housing Types as a Percentage of Total Housing Units

City of Lowell and Surrounding Communities, 2000

	Single Family Detached	Single Family Attached	Multiple Family	Two-Family	Mobile Home	Other
City of Lowell	63.7%	1.6%	5.0%	20.0%	9.7%	0.0%
Lowell Township	82.6%	0.0%	0.3%	0.9%	16.1%	0.0%
Vergennes Township	96.1%	1.3%	1.1%	0.0%	1.5%	0.0%
Kent County	63.5%	4.6%	6.1%	20.9%	4.9%	0.0%
State of Michigan	70.6%	3.9%	3.5%	15.3%	6.5%	0.2%

The growth in housing units follows similar trends as the increase in number of households. Vergennes Township again shows the largest percentage change over the 1990s. The City of Lowell is almost completely urbanized, with little room to expand, and a much smaller percentage of growth at 3.6% (Table 9)

Table 9: Growth in Housing Units

City of Lowell and Surrounding Communities, 1990-2000

	1990	2000	% Change
City of Lowell	1,510	1,564	3.6%
Lowell Township	1,543	1,764	14.3%
Vergennes Township	826	1,209	46.4%
Kent County	192,698	224,000	16.2%
State of Michigan	3,847,926	4,234,279	10.0%

While census data can be said to accurately reflect the growth that has recently occurred in the City of Lowell, because of the housing crisis, any projections made using data from 1990 and 2000 are optimistic and produce misleading trends. The recent rupture of the housing bubble has stagnated growth in housing units and households, and assuming this expansion has occurred for the State, County, and Township of Lowell at the high rates of 10%, 16%, and 14%, respectively, is unrealistic.

Sources: U.S. Census Bureau

City of Lowell Master Plan

In an attempt to gain background information on the City of Lowell, we examined the City of Lowell Master Plan to glean information regarding the City, its demographics, natural features, and community input. The Master Plan also proved a valuable resource for gathering information on recreational strategies and opportunities, some of which is presented below.

The 2007 Master Plan highlights the demographics of Lowell and analyzes them based on meeting future needs of the City. Demographic trends indicate the City is already built out and will not see much increase in population or housing due to constraints on vacant land. It was also noted that the distribution of ages in Lowell are similar to that of surrounding jurisdictions as well as the State of Michigan (pg. 8). Ultimately, population and age information reflects on the current and future demand of services in recreation throughout the City, providing that the demand for parks and recreation remains a stable commodity in the City.

Existing Land uses were also assessed in the Master Plan (pg. 16); while single family homes dominate a large percentage of the City (35% of land area), vacant land is quite prevalent as well (26.2% of land area). However, as mentioned before, many of the vacant parcels are limited in terms of development due to land use constraints (such as being part of the floodplain and/or wetlands) and most of these parcels are located along the Grand River (including the Moose and Rogers properties). "Given the

constrained nature of the remaining vacant land ... new projects will be the redevelopment of existing uses” (pg. 16); suggesting that the land use constraints on the Moose and Rogers properties would probably lead to a form of recreational development because it is usually a less intensive use. The third largest land use category in Lowell is Parks and Recreation which takes up 8.4% of the total land area; this percentage displays that Parks and Recreation are important attributes to the City and current Parks will be considered in the design of Moose and Rogers Properties in order to make trail connections.

Natural Features were analyzed briefly in the Master Plan; wetlands and floodplains were both identified as being prevalent in the City of Lowell (pg. 17). Wetlands dominate parcels along the Grand River and a large portion of the west side in the City. The 100-year and 500-year floodplains are identified in the FEMA map provided in the Master Plan (Figure 3, pg. 7).

The Master Plan also explains that the City of Lowell is eligible for monies from the Michigan Natural Resources Trust Fund as long as the Recreation Plan has been updated in the last five years (the newest version is from 2008). The grants that could be awarded are delineated for park improvements. Trail ways are another important aspect of Lowell as the Lowell Area Recreational Authority (LARA) has plans to develop a multi-use trail to link various public facilities together (more details on LARA in the following section) (pg 25).

The Community Input Survey conducted in October 2006 by the City provides statistical feedback from residents on the quality of life in Lowell. The results of the survey indicate that most of the respondents prefer to preserve a small town quality in their city, while fewer, but still a large percentage found it to be important to have trees, rivers and other natural features (pg. 26).

The Community Input Survey also contained questions about Lowell’s downtown. The majority of residents feel that the downtown is enjoyable to shop at, it is clean, customer service is helpful and there are adequate parking spaces. The community

was split on whether or not the City of Lowell provides an adequate amount of goods and services (pg. 29). Recreational opportunities were also examined in the Community Input Survey. Most participants would like to see hiking, walking and nature trails, with sidewalks and bike paths to a slightly lesser degree. It is evident that the respondents in Lowell value the opportunity to utilize pedestrian and bicycle walkways throughout Downtown and throughout the parks. The results of the survey also indicate that about 75% of the respondents agree that City parks are within a convenient distance. It was also noted that 36% of respondents agree that an RV Park is a good addition to the City, while 17% disagree and 47% chose not to respond to the statement (pg. 29). It is ultimately critical to involve residents in the planning process of the Moose and Rogers Properties to ensure that the majority of the City agrees on a final design.

The Goals and Policies of the Master Plan reveal that the City wishes to pursue a new identity in Downtown Lowell; part of this identity involves initiating festivals, markets and improving the riverfront (pg. 32). The community's image is also a goal of the Master Plan and in order to help improve this image, access to the Rivers (which includes building pathways) is an important aspect (pg. 33). This would prove to be relevant to the Moose and Rogers properties which have some of the best access points to the Grand and Flat Rivers. Again, under the Land Use section of the Goals and Policies, it is part of the community's vision to provide better access points to the Flat and Grand Rivers with walkways that connect various facility hubs throughout Lowell. In relation to guiding regional development in Lowell, the Plan outlines a policy that would encourage Lowell to collaborate with the Grand Valley Metropolitan Council. Collaborating with a regional agency would ensure a greater chance of promoting a regional quality community and therefore begin to draw more visitors to the City of Lowell, possibly enhancing the use of recreational facilities in the City.

Under the Implementation section of the Master Plan (pg. 54), it is recommended that the City of Lowell adopt several Zoning

Ordinance Amendments, but fails to mention adopting a wetland ordinance, which the City does not currently have. A wetland ordinance would serve as a strategic tool to guide and control development in delineated wetland areas throughout the City; this tool would also be critical as the Moose and Rogers site contains wetlands which must be analyzed and located specifically in order to develop on the land.

It would be advisable that the City of Lowell establishes a wetland ordinance for the entire city and surrounding areas. This would help determine where environmental sensitive areas are located and create a tool for monitoring them in the future. Establishing a wetland map will also determine which areas of the city are most appropriate to develop and help guide growth that is most beneficial to the city's residents.

A future wetland ordinance would allow the city to have official legislation in place, in order to protect the natural environment not only within the city of Lowell, but in surrounding communities and wetland areas nearby. Establishing a wetland ordinance would be most costly in its initial phases, however maintaining it would be of minimal cost. The most expensive aspect of the ordinance would be the cost associated with the physical surveying of the land. Once the wetland map is established, updating would only need to be done on a need basis.

Sources: City of Lowell Master Plan

City of Lowell Recreation Plan

The City of Lowell had previously conducted a study on recreational activities which were outlined in the City of Lowell Recreation Plan. This document provides an understanding of what recreational amenities the community would like to see in the City, and as such was a valuable tool in assessing the types of developments to pursue for the Moose and Rogers properties, as well as the adjacent islands on the Flat River.

The City of Lowell Recreation Plan outlines the goals and objectives of the City regarding recreation development, maintenance, and programming. The City budget for parks for 2008-2009 was \$157,497, 6.1% of the total city budget of which is dedicated to the 8 city-owned parks (4).

The recreation programming within the City of Lowell is provided primarily by the YMCA however, the YMCA does not receive funding from the City (26). The townships of Lowell and Vergennes do not provide any recreation programming; therefore, it is likely their residents seek programming from the City of Lowell (15). The residents east of the Flat River do not enjoy the same close proximity to recreational opportunities as do those west of the river, so development of this large property east of the river would benefit residents on the east side of the Flat River (29-30).

The City of Lowell is dominated by the Flat and Grand Rivers. It is stated that the Grand River floodplain has widespread and frequent flooding that hampers some recreational uses, such as campgrounds. The Moose and Rogers Properties are found at the convergence of the Flat and Grand Rivers and sits within the Grand River floodplain (13).

The two properties are publicly owned and are approximately 33 acres in size. Some area residents believe these sites have potential for development including connecting to Recreation Park across the Flat River and to the Lowell Area Trail way. The vision for the Properties includes creating a Recreational Vehicle Park. The RV Park would have amenities such as, “electric[al], water, sanitary waste connections, paved paths for accessibility, and a playground.” These sites are currently not designated as parks which may be due to some of the challenges that they present, such as extensive flooding, poison ivy, and access limitations to the site, as well as a rail right-of-way bisecting the properties (23).

Some of the recreation deficiencies seen throughout the City include: no access to the Flat River for low or no-wake craft

launch sites, no access to the Flat River Islands, and no connection for the Trail way from Recreation Park to the Rogers and Moose properties. The recreational needs also include safe areas for walking, biking, and linkages between recreational facilities (30).

The goals and objectives of the recreation plan comprise of developing a recreation system that is responsive to the present and future needs of the residents of Lowell (31-32).

Another priority in the Recreation Plan is coordinating facilities and programs with other agencies and groups that provide recreational programming throughout Lowell. They wish to upgrade and enhance existing facilities and continue to seek new opportunities for existing City park properties. Finally, the city aims to provide encouragement and guidance for the development of an RV park and to seek potential uses for the properties through public input. This is most usually accomplished through means of public input such as public information workshops. Various cities and municipalities have had great success with public information workshops as well as through public participation in the planning stages of development.

These public information workshops not only inform the public of what the city is working towards, but they can also help rally the community behind a project. Having the public participate will also help to determine the need and priority of the potential projects. Having the public's approval and input on a particular project may help get the project moving and ensure that it is truly what is wanted (31-32).

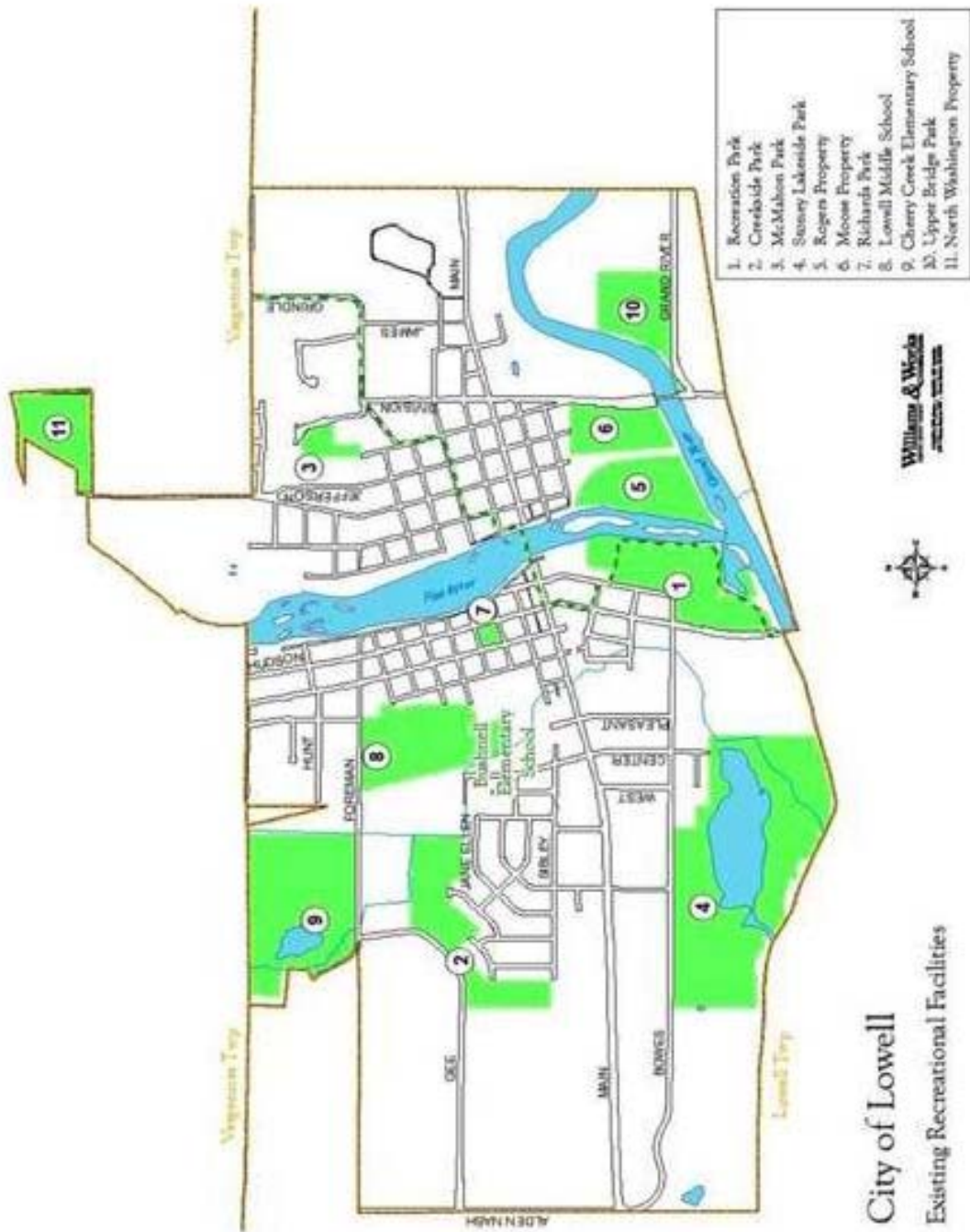


Figure 14: Existing Recreation Facilities, Lowell, MI

Sources: City of Lowell Recreation Plan

Lowell Area Recreation Authority

According to the Lowell Recreation Plan, the Lowell Area Recreation Authority (LARA) volunteer group was formed in 2004 to research ways to better the recreation opportunities for residents in the Lowell Area (21). The LARA, through a grant provided by the Lowell Area Community Fund of the Grand Rapids Foundation, proceeded by hiring the Lansing-based firm of Landscape Architects & Planners, Inc. (LAP) to help guide the LARA in the development of an area-wide trail way master plan. LAP developed a three-phased plan for the development of the trail way. Moose and Rogers properties are included in the third phase of the plan.

A board was established that consists of one elected official from the Lowell Township Board, Vergennes Township Board and the Lowell City Council as well as a citizen appointed from each municipality and one at-large member that is chosen by the LARA Board. This multilateral cooperative effort is intended to give the majority of the concerned entities in Lowell a voice in the development of the trail way.

Currently their only project is the Lowell Area Trail ways plan. Neither the Recreation Plan nor the LARA website state any activities or projects besides this.

Sources: LARA Website, City of Lowell Recreation Plan

REGULATORY FRAMEWORK

In order to establish possible uses for the site, it is very important to develop a solid understanding of the regulatory framework that any developer must operate in while seeking permission to construct at a site located in a floodplain with wetlands.

Regulations existing at all levels of government are in place to protect human health and safety, as well as the natural environment. Floodplain regulations place restrictions on what can be done within the 100-year floodplain, and wetland regulations place restrictions on the level and type of development that can be done on wetland properties.

This section of the report provides the City of Lowell with information on the pertinent regulations found at the federal, state, and local levels of government that affect all or a portion of the properties. More information on the specific regulations can be found in the appendix of this document.

Federal Floodplain Regulations

The regulations do not prohibit the construction of structures adequately designed to handle flood conditions, but they do require that, in situations where the base flood elevation has been determined, the lowest level of structures must be at or above the base flood elevation unless the community has been granted an exception by the Federal Insurance Administrator.

Recreational vehicles placed in a floodplain must meet the standards for manufactured homes if they are to be at the site for greater than 180 days or are not ready for highway use; otherwise, they are permissible within a floodplain, according to section 60.3 (c)(14).

Sources: Code of Federal Regulations, FEMA

State Floodplain Regulations

The Natural Resources and Environmental Protection Act (Act 451 of 1994) is designed to protect and provide guidelines for the natural resources, including waterways in Michigan. The Act also elaborates that “a person shall not alter a floodplain except as authorized by a floodplain permit issued by the department...” (Section 3104, part 4 of Act 451, 1994). The permit would analyze and assess the alteration’s impact on the floodplain. The regulations set forth by the State of Michigan also describe that a floodplain cannot be occupied or graded unless used for agricultural purposes or utilize the land in a way that would alter the floodplain.

Additionally, if the community is a member of the National Flood Insurance Program or NFIP “then the developer shall apply for and obtain a letter of map revision, based on fill, from [FEMA] prior to the issuance of a local building permit or the construction of the building if one or both of the following apply”:

- “The floodplain will be altered through the placement of fill”;
- “The watercourse is relocated or enclosed.”

Sources: Michigan Legislature, MDEQ

State Wetland Regulations

The Natural Resources and Environmental Protection Act (Act 451 of 1994) addresses wetland regulations in the State of Michigan. A wetland is defined as being “land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh and which is any of the following:

- Contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream.”

Wetlands shall be regulated by the state to ensure protection of the possible benefits that wetlands offer. These benefits of wetlands include, but are not limited to, flood and erosion control, wildlife habitat preservation, "...protection of subsurface water resources and provision of valuable watersheds and recharging ground water supplies", and pollution mitigation.

With the definition and benefits of wetlands in mind, it is ultimately necessary that the State of Michigan provide guidelines to protect and preserve wetlands. Section 324.30304 names the prohibited activities in wetlands which include the following:

- “(a) Deposit or permit the placing of fill material in a wetland.
- (b) Dredge, remove, or permit the removal of soil or minerals from a wetland.
- (c) Construct, operate, or maintain any use or development in a wetland.
- (d) Drain surface water from a wetland.”

However, it is possible to obtain a permit under Section 324.30306 of Act 451 (1994) (see appendix).

Section 324.30305 identifies activities that are permissible within a wetland. Part of this section remains relevant to possible activities that would occur on the site of Moose and Rogers Park which include, but are not limited, to the following:

- “(a) Fishing, trapping, or hunting;
- (b) Swimming or boating;
- (c) Hiking.”

There are specifications on the permit process which detail that if a local unit of government does not have a wetland ordinance, MDEQ will send the permit application, which will then be reviewed by the local unit of government and returned to MDEQ for further review. The City of Lowell currently does not have a Wetland Regulation Ordinance; this would prove to be slightly

hindering in the process of attempting to get a permit from MDEQ for the Moose and Rogers Properties which contain wetlands.

Sources: Michigan Legislature, MDEQ

Lowell Zoning Ordinances

Appendix A, Chapter 14: F-1 Floodplain District

This district (shown in Figure 15 as F1) is designated to protect undeveloped areas that lie within the floodplain and so as to prevent development from impeding or changing direction of the flow of the Grand River. Regulations within this section provide for “reasonable use of such properties” and will aid in protecting public health and preventing economic loss.

Section 14.02: Delineation of the flood hazard overlay zone:

The flood hazard overlay zone determines that “the flood hazard area zone shall overlay existing zoning districts” as described in the City of Lowell Zoning Map. In addition, a “regulatory floodway shall be designated” within the flood hazard area zone. The Zoning Ordinance indicates that any development occurring in the flood hazard area zone shall be in compliance with the requirements of Chapter 14.

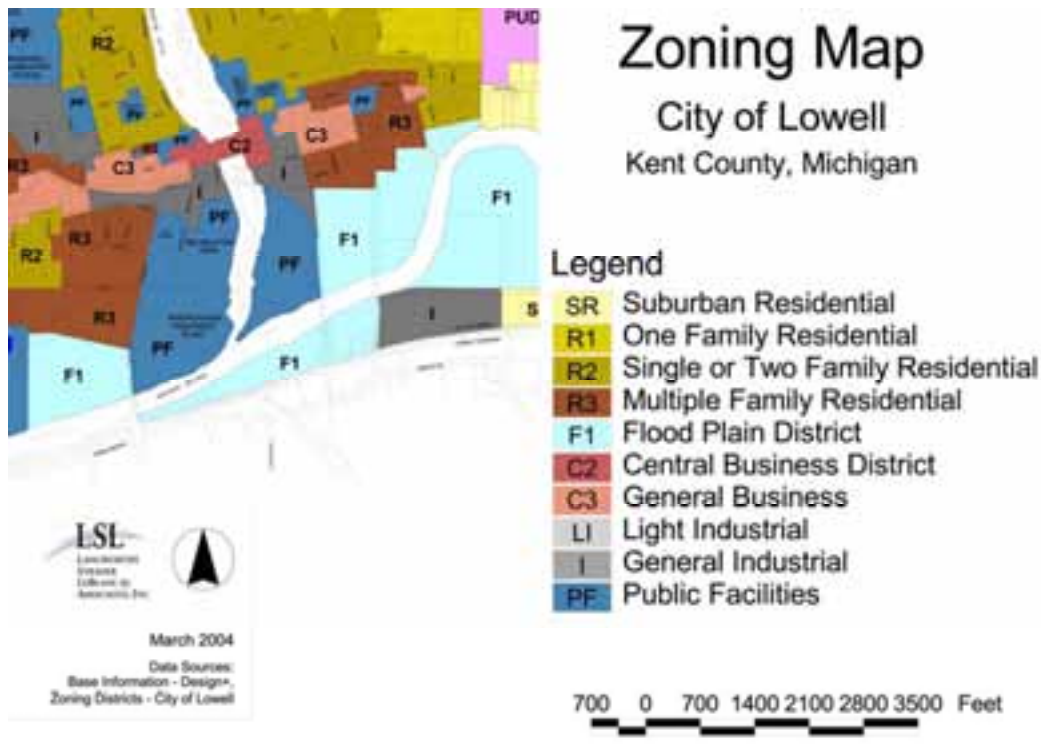


Figure 15: City of Lowell Zoning Map, Moose and Rogers Properties, Lowell, MI

The Lowell Zoning Ordinance permits the following uses within the flood hazard overlay zone:

“Open space uses such as farms, truck gardens, nurseries, parks, playgrounds, golf courses, nature preserves, bridle trails, natural trails, and recreation” with the condition that “no alteration is made to the existing level of the floodplain or erected structure which may interfere with the flow of the river or floodplain capacity”.

The Lowell Zoning Ordinance also outlines Special Land Uses that may occur within the Floodplain District that would be reviewed by the Lowell Planning Commission (see appendix).

Sources: City of Lowell Code of Ordinances, City of Lowell Zoning Map, City of Lowell Planning Commission

State Campground Regulations

In addition to the floodplain and wetland regulations, the Michigan Department of Environmental Quality also regulates the construction and maintenance of all campgrounds within the state. Outlined in the appendix is a thorough explanation of many of the campground regulations. Below are some of the most important regulations that might cause issues with the construction of a campground on the Moose and Rogers properties.

As a result of the statewide campground regulations, a campsite is required to be at a minimum of 1,200 square feet and have at least 15 feet of road frontage, where applicable. Campsites that do contain water distribution apparatuses are required to be one foot above the base flood elevation. Restroom facilities and sewer connections are also required to be one foot above the base flood elevation.

Statewide campground regulations also require that there be a minimum number of privies or restrooms available, proportional to the number of campground users. Campgrounds are also required to have 1.5 parking spots to every campsite. For more details on specific requirements on statewide campground regulations, please see page L in the appendix.

Sources: MDEQ

ANALYSIS OF POTENTIAL USES

In order to outline a course of action for the City of Lowell in regards to the Moose and Rogers properties, we have developed a matrix of requirements for the possible uses. It was then determined whether the conditions of the site and the regulations that protect the site would allow for the various aspects of each potential use.

In addition, we evaluated each potential use for its viability given the economic and demographic conditions of the City and surrounding areas, and the demographics of individuals who would most frequently use each given use, as well as the current market conditions for each use.

Regulatory Basis

The matrix contains various options and potential issues for uses on the Rogers and Moose properties. Because the properties have some potential limitations on what types of development can occur on them, it is important to break down the options and explore reasonable alternatives. The matrix provides a logical means to understand the requirements necessary for each of the uses on the sites. The matrix will give readers a general idea of what is possible on the sites and what some of the limitations might be.

There is an “X” in the “Yes”, “No” or “Conditional” box for each of the issues being discussed. The “Yes” and “No” are very unambiguous; they indicate that there is no or very little doubt that the issue can be resolved. An “X” in the Conditional box requires further explanation or may not be possible under current regulations. The “Why” portion of the Matrix explains why there is an issue, usually in the form of a law or subsequent legislation. The “Limitation” portion of the matrix explains the law and why it is relevant. With these explanations, the matrix should give the community a reasonable assessment of what some of the issues would be at a glance.

Table 10: Matrix of Regulations and Requirements

	Yes	No	Conditional	Why?	Limitations
Modern Campground/RV Issues					
Water					
Water under pressure	X				
Flush toilets			X	R 325.1552.3	Top of sewer must be above Base Flood Elevation (BFE)
1 gpm (gallons per minute) pumping, housed above ground			X	City Water connections is in close proximity to site boundary	
Water distribution buried 2 ft or 3.5 for winter use	X				
Water to each RV site			X	R 325.1552.3	Water outlet must be above BFE
Water					
If site water, then sewage also R325.1559.8			X	R 325.1552.3	Top of sewer needs to be above BFE
150 gpd (gallons per day) for RV sites	X				Based on use of city water connection
Sanitary pipes buried 2 ft or 3.5 ft for winter use	X				
Must have slope for 2 ft/s			X		Location of building and elevation
Must be 10 ft horizontally from waterlines, 2 ft. vertical space for crossing lines	X				
Soil absorption system R325.1562	X				City utility connection is likely, eliminating need for absorption system
Electrical hookups - 1 per vehicle			X		All electrical outlets must be above BFE
Roadway					
20 ft. wide			X	Clean Water Act - Section 404	Roads constructed in forested wetlands must be temporary or for silviculture. Other uses would require special permits.
Gravel			X	CWA	Roads constructed on wetlands require special permits
Asphalt			X	CWA	Roads constructed on wetlands require special permits
Dirt			X	CWA	Roads constructed on wetlands require special permits

	Yes	No	Conditional	Why?	Limitations
Modern Campground/RV Issues					
Identification for every site	X				
Manager available at campground	X				
Site					
15 ft. Road frontage, 1200 sq. ft.	X				
4 ft. of walking space	X				
Well-drained			X	Wetland soils are present as well as varying elevations.	
1.5 parking spaces per site	X				
Showering facilities			X	Based upon location of service building	
Trash pickup once a week	X				
Insect control	X				
Water					
Potable water outlets			X	Outlets must be above BFE	
Sewage					
Privy per 25 sites, one for each sex			X	Based upon locations of privies	
Privy 50 ft. from site boundary			X	Based upon locations of privies	
30 gpd (gallons per day) flow			X	Connection to City is possible	
Welcome Center/ Pavilion					
Water	X			Outlets must be above BFE	
Building			X	Must Meet State and Local building codes	
Location			X	Location of building must be approved by the Building Department, Floodplain issues	
Temporary Camping					
Length of Camping			X	Temporary campgrounds can only operate for up to 4 weeks without having to be relicensed	
Privies	X			Must contain proportional number of privies to sites	Must be above BFE
Water	X			Must contain at least one outlet per 50 sites	Must be above BFE
Camping Cabins					
Portable	X			Cabins have to be built on skids	
Temporary	X			Can only be used seasonally	

	Yes	No	Conditional	Why?	Limitations
Modern Campground/RV Issues					
Water	X			Water connection does not have to be present	Must be above BFE
Privies			X	Must be privies available on site	Must be above BFE

From the matrix, it is clear that most construction on the site is restricted by regulations related to the floodplain, base flood elevation, and wetlands. The items marked conditional are possible, but might require variances on regulations or use methods such as extremely tall risers for sewer and water connections that might not be feasible from a usability and aesthetic standpoint. Portable camping cabins appear to have the least amount of restrictions on development, while a modern or primitive campground has a significant amount of restrictions that would need to be overcome in order to develop the site accordingly.

Sources: MDEQ, Michigan Legislature, FEMA, Code of Federal Regulations, City of Lowell-Code of Ordinances, DNR, International Code Council

Socio-Economic Basis

Travel and tourism in the state of Michigan provides for a significant economic impact; \$7.121 billion in total direct effects through expenditure was accrued to Michigan organizations in 2000 as a result of the tourism industry. Of that, \$74 million was generated by camping fees and \$560 million by admissions and fees (Table 11).

In 2000, camping parties spent, on average, \$79.75 per night. The total annual expenditure by camping parties totaled \$369 million, or 4% of all tourism spending (Table 12).

Table 11: Direct and Secondary Effects of Michigan Tourist Spending, 2000

Direct and Secondary Effects of Michigan Tourist Spending, 2000

Sector/Spending category	Sales \$Millions	Jobs Thousands	Personal Income \$Millions	Value Added \$Millions
Direct Effects				
Motel, hotel cabin or B&B	1,458	34	588	942
Camping fees	74	2	30	48
Restaurants & bars	1,798	51	670	962
Admissions & fees	560	19	228	374
Gambling	-	-	-	-
Other vehicle expenses	117	1	40	67
Local transportation	230	5	114	144
Retail Trade	1,501	36	781	1,272
Wholesale Trade	311	2	120	213
Local Production of Goods	1,072	4	172	316
Total Direct Effects	7,121	155	2,742	4,336
Multiplier	1.57	1.31	1.55	1.58
Secondary Effects	4,045	48	1,499	2,501
Total Effects	\$ 11,166	203	\$ 4,241	\$ 6,836

Source: <http://web4.canr.msu.edu/mgm2/econ/index.htm>

Table 12: Spending and Visits by Segment in Michigan

Spending and Visits by Segment in Michigan

	Segment					Total
	Day	Motel	Camp	Seasonal Homes	Stays with Friends & Relatives	
Average spending (\$ per party night)	\$ 72.63	\$ 189.45	\$ 79.75	\$ 71.37	\$ 70.91	\$ 95.93
Party nights (000's)	16,000	18,224	4,624	15,501	35,000	89,349
Total spending (\$millions)	\$ 1,162	\$ 3,453	\$ 369	\$ 1,106	\$ 2,482	\$ 8,572
Pct of party nights	18%	20%	5%	17%	39%	100%
Pct of spending	14%	40%	4%	13%	29%	100%

Source: <http://web4.canr.msu.edu/mgm2/econ/index.htm>

RV Parks: Nationwide, recreational vehicle sales have seen mostly steady climbs throughout the last 30 years. Between 1980 and 2005, RV ownership climbed 58%, and increased 15% between 2001 and 2005; 1 in 12 households in the United States currently owns a recreational vehicle (Broom). Demand for RVs has recently taken a severe downturn however, with declines in shipments as

high as 30.1% over the time period from November 2007 to November 2008. Projections into 2009 indicate decreased shipments as well, with shipments for 2009 expected to total 186,800, down from the 2007 total of 353,400, about 53% (RV Shipments, Business Indicators). In 2005, the state of Michigan ranked 4th nationwide for shipments of RVs, with over 200,000 RVs state-wide (Michigan Association of Recreation Vehicles & Campgrounds).

Primitive Campground, Temporary Campground, and Cabin Camping: The National Park Service has published information on various types of camping in the National Park System. Between 2006 and 2007, the number of people who went tent camping in National Parks increased 4%, Backcountry campers increased 3%, concessional camping increased 9%, and concessional lodging increased 5%; the only use listed by the National Park Service that decreased was Recreational Vehicle use, which dropped by 1% (National Park Service).

In 2000, Kent County ranked 3rd in the state of Michigan for tourism spending within the county in total with \$452.7 million, but 28th in state-wide spending for camping out of 83 counties with \$5.2 million (Stynes).

Socio-Economic Profiles of Michigan Cities in Close Proximity to Private and Public Campgrounds

In order to help effectively determine if the City of Lowell is a feasible place for an RV Park, it is critical to conduct comparisons to cities in Michigan that have campgrounds within their boundaries. Demographic information will aid in determining relationships between the cities; criteria for choosing cities in Michigan indicated that the campgrounds should be between 1 and 16 miles of the nearest city's downtown. This is an important factor as the potential site of the RV Park is located less than a ½ mile of Lowell's Main Street.

Socio-economic Profiles were compiled for Alpena, Grand Haven, Ionia, Manistee, Newaygo and Whitehall; all six cities are in close

proximity to either private or public campgrounds or recreational areas. It is important to make these connections to compare these cities to Lowell and identify key aspects of the demographics that are pertinent to the feasibility study.

- Grand Haven:
 - P.J. Hoffmaster State Park is 8.3 miles northwest of downtown.
 - Grand Haven State Park is 1.6 miles southwest of the downtown.
- Newaygo:
 - Newaygo State Park is 15.7 miles northeast of downtown.
- Ionia:
 - Ionia State Recreational Area is 6.7 miles southwest of the downtown.
- Whitehall:
 - Duck Lake State Park is located 4.6 miles southwest of the downtown
 - Duke Creek (a private campground) is located 5.7 miles south of the downtown.
- Alpena
 - Camper's Cove is located 7.0 miles northwest of the downtown.
- Manistee
 - Insta-Launch Campground & Marina LLC is located 2.2 miles north of the downtown.

General Characteristics Profile

The General Characteristics Profile compares total population of each jurisdiction and the distribution of each population in terms of gender, age, household characteristics and education.

Below are comparisons of General Characteristics for each community:

Table 13: Total Population and Distribution of Sexes, 2000

City	Total Population	Male Population (Percent)	Female Population (Percent)
Lowell	4,013	1,890 (47.1%)	2,123 (52.9%)
Alpena	31,314	15,223 (48.6%)	16,091 (51.4%)
Grand Haven	11,168	5,275 (47.2 %)	5,893 (52.8%)
Ionia	10,569	7,201 (68.1%)	3,368 (31.9%)
Manistee	6,586	3,062 (46.5%)	3,524 (53.5%)
Newaygo	1,670	787 (47.1 %)	883 (52.9%)
Whitehall	2,884	1,326 (46.0%)	1,558 (54.0%)

After comparing and analyzing the total population and gender distribution of each jurisdiction, it seems that the City of Manistee, the City of Newaygo and the City of Whitehall are the most similar to the City of Lowell. The City of Manistee's population in 2000 was 6,586, Newaygo was 1,670 and Whitehall was 2,884 while the City of Lowell had 4,013 people. In terms of gender distribution, Manistee and Newaygo were the most similar to Lowell. It is important to keep this factor in mind as the rest of the comparisons are made between jurisdictions.

Table 14: Age Distribution, 2000

City	Median age (years)	Under 5 years (percent)	18 years and over (percent)	65 years and over (percent)
Lowell	34.0	7.4%	70.7%	13.8%
Alpena	40.4	5.5%	76.3%	17.1%
Grand Haven	40.0	5.3%	79.9%	19.6%
Ionia	26.5	4.9%	81.5%	7.2%
Manistee	40.4	6.0%	76.0%	19.4%
Newaygo	30.1	9.8%	66.9%	11.5%
Whitehall	40.0	5.7%	75.3%	19.6%

Age distribution is an important element to analyze because it helps determine what populations will be demanding specific services in upcoming years. In particular, the RV industry, according to national statistic data, is most likely to attract people between the ages of 35 and 54, with a median age of 49. Based on the 2000 Census, Alpena, Grand Haven, Manistee and Whitehall all have almost identical median age figures of 40 years. Lowell has a slightly lower median age of 34 years, but is very similar in percentages of 18 years and older to Alpena, Grand Haven, Manistee and Whitehall.

Table 15: Average Household and Family Size, 2000

City	Total Number of Households	Family Households	Family Households with Children under 18	Non-Family Households	Average Household Size	Average Family Size
Lowell	1,492	1,008	578	484	2.59	3.17
Alpena	12,818	8,694	3,767	4,124	2.4	2.8
Grand Haven	4,979	2,895	1,183	2,084	2.17	2.18
Ionia	2,421	1,536	901	885	2.53	3.16
Manistee	2,912	1,729	802	1,183	2.24	2.88
Newaygo	620	450	258	170	2.69	3.16
Whitehall	1,165	740	367	425	2.35	2.97

Household data and family size is another essential feature when determining the make-up of a community; another aspect of the RV Ownership national statistics shows that most families consider RV's one of the best ways to travel with their children. Lowell is mostly made up of family households, with approximately half of those households having children under the age of 18. However, when analyzing the other city numbers, the pattern is more or less opposite of Lowell. Although they show a large percentage of family households, there is still a predominance of non-family households in the communities; this is particularly true in Alpena, Grand Haven and Manistee. This would probably be because there are younger populations present in these cities.

Table 16: Level of Education, 2000

City	Population 25 years and over	High school graduate or higher	Bachelor’s degree or higher
Lowell	2,425	2,083 (85.9%)	376
Alpena	21,399	17,782 (83.1%)	2,817
Grand Haven	7,919	6,694 (84.5%)	2,129
Ionia	5,763	4,589 (79.6%)	529
Manistee	4,539	3,835 (84.5%)	791
Newaygo	969	769 (79.4%)	99
Whitehall	1,878	1,617 (86.1%)	277

Education is a significant aspect of long-range community health. According to the 2000 census, about 86% of the total population of Lowell has attained a high school diploma or higher. Alpena, Grand Haven, Manistee and Whitehall have similar percentages in their communities.

Comparative Business Analysis

Table 18 explains the Industry data across the jurisdictions where the number of establishments for businesses that are relevant to RV users and campers were tallied. The industry data was collected for the purpose of comparing the cities and recognizing the likelihood of the City of Lowell supporting an RV Park. Food & Beverage Stores, Gasoline Stations, Miscellaneous Store Retailers, Arts, Entertainment & Recreation, Food Services & Drinking Places, Sports Goods, Hobby, Book & Music Stores, Amusement, Gambling & Recreation Industries were all analyzed and noted for being relevant to RV users and campers.

The City of Lowell, compared to the other cities has a lower amount of Food & Beverage Stores, Gasoline Stations, and Arts, Entertainment & Recreation amenities available. However, the City of Lowell does seem to have an adequate number of Food Services & Drinking Places (restaurants, bars, etc.). It is

recommended that the City reevaluate their downtown through a business amenities study and propose marketing strategies to revive the downtown area.

U.S. Economic Census, 2002							
Geographic Area	Food & Beverage Stores	Gasoline Stations	Miscellaneous Store Retailers	Arts, Entertainment & Recreation	Food Services & Drinking Places	Sports Goods, Hobby, Book & Music Stores	Amusement, Gambling & Recreation Industries
Alpena City	9	10	14	5	32	0	0
Grand Haven City	8	6	18	8	58	15	6
Ionia City	5	7	3	4	15	1	0
City Of Lowell	3	3	3	3	16	1	0
Manistee City	3	4	11	7	17	3	0
City of Whitehall	1	5	5	4	14	0	4

CONTEMPORARY EXAMPLES

To better understand the possibility of developing the Moose and Rogers properties as an RV park, similar developments within the region, as well as nationally, were examined. We found many RV parks within the local region (listed in the appendix) as well as multiple parks near waterways in the state of Michigan. In addition, we identified two case studies, King County, Washington and County of Macon, North Carolina that represent similar development challenges.

Below are examples of some of the parks identified in this study. The case studies and examples have been broken up into four sections based on private vs. public and state vs. national cases. These four sections are arranged in the following order:

- 1. Closest private campgrounds to Lowell*
- 2. Closest public campgrounds to Lowell*
- 3. Campgrounds near water in the state of Michigan*
- 4. Nationwide case studies*



Private Campgrounds Located Close to Lowell

Double 'R' Ranch

One of the closer campgrounds to the Lowell Area is the Double 'R' Ranch located in Belding, Michigan. Lying just northeast of Lowell, the Double 'R' has activities that include horseback riding, hay rides, swimming, canoeing, tubing, and its own 18 hole golf course. Rates for a campsite are \$31 a night from May to September. There are additional rates of \$3 per campsite for an RV sewer connection or an air conditioning connection. Other accommodations besides tent and RV camping include bunkhouse accommodations that are rustic in feel and provide a great experience for those who are not looking to sleep under the stars. 'A' frame chalets are also available overlooking the flat river. These chalets are popular for those looking for a longer stay. The Double 'R' is essentially a sprawling resort. Complete with pools and a whole golf course surrounded by houses that are for rent and sale. A basketball court, baseball diamond, playground, and a camp store all dot the landscape as things to do for campers and visitors (as shown in Figure 16).

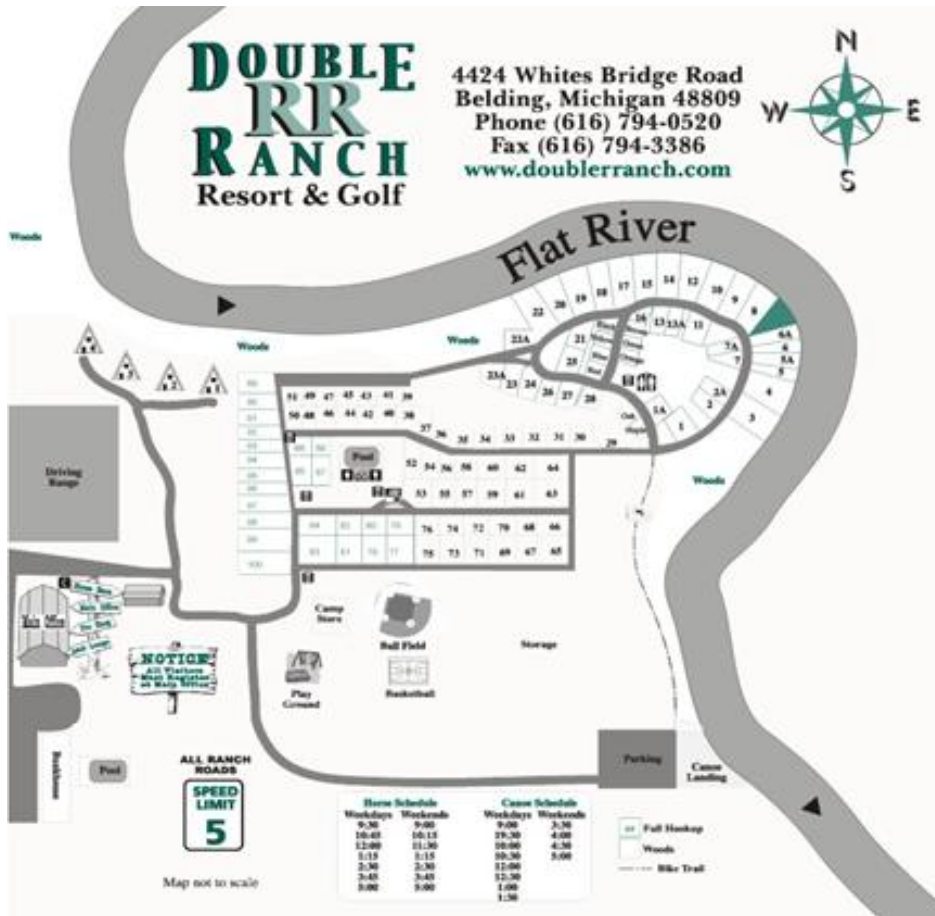


Figure 16: Double RR Ranch - Campsite Map

Scalley Lake Campground

This private campground is located in Belding, Michigan. Scalley Lake Campground is also on a quiet private lake that provides fishing, canoeing, horse shoe pits, and volleyball. The Campground has only 43 sites and can accommodate recreational vehicles up to 23 feet in length. Scalley Lake Campground has cabins and cottages that can accommodate up to 6 and can be rented on a nightly or weekly basis. The camping season is only open May 1 to September 30. Buildings on the campground property include a camp store that provides basic food and camping supplies in addition to a small campground office, a single bathroom facility, and of course the cottages. All of the roads and paths through the campground are dirt or gravel and all

of the RV parking is on grass. Scalley Lake Campground is very small and simple. Located quite far from any major attractions and amenities, Scalley Lake is virtually in the middle of several agricultural fields.

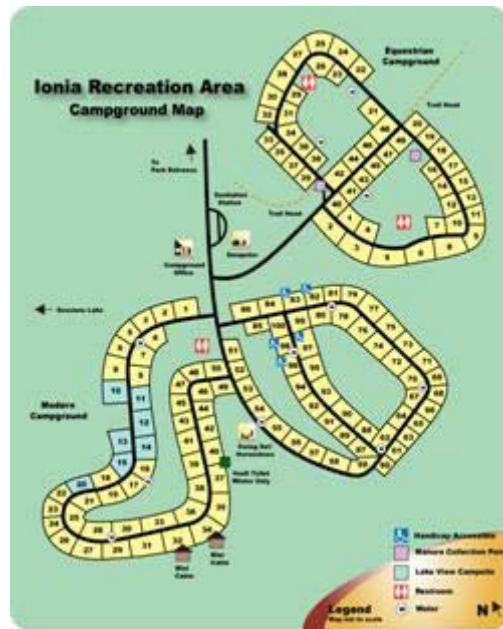


Figure 17: Scalley Lake Aerial View

Public Campgrounds Located Close to Lowell

There are few public campgrounds in close proximity to the Lowell area. Most of the public campgrounds are along Lake Michigan to the west and include campgrounds close to popular tourist towns such as Holland and Grand Haven, which are both booming summer towns filled with visitors from the Chicago and Detroit areas.

Ionia Recreation Area



At 4500 acres, the Ionia Recreation Area is one of the closest public campgrounds to Lowell. Complete with a winding river and a lake, the Ionia Recreation Area has become a regional destination for people from both Grand Rapids and Lansing. Activities include canoeing, fishing, horseback riding, mountain biking, swimming, cross country skiing, and snowmobiling.

Figure 18: Ionia Recreation Area

There are nine miles of designated mountain biking trails wandering through hills, along rivers, and along the lake. Additionally, during the winter time the entire park is open to cross country skiing that includes over 12 miles of backcountry skiing. Prices peak at \$19 a night for modern toilets and electric hookup. Campsites at the Ionia Recreation Area include both concrete pull through sites for RV's, and grass or dirt sites that are available for both RV's or tents. There are several buildings and working infrastructure throughout the campground and the rest of the park. Some of these things include bath and shower facilities, boat launch, picnic shelters, campground offices, and

beach house. Equestrian events are a large draw to the park also and therefore there are equestrian facilities and staging areas.

Yankee Springs



Figure 19: Yankee Springs

Yankee Springs is located to the south, in Kalamazoo County, where it covers a sprawling 5200 acres. Activities at this recreation area are very similar to the Ionia Recreation Area in that they have the usual canoeing, hiking, boating, cross country skiing, mountain biking, fishing, and swimming. A

popular attraction to the area is a glacial formation called Devil's Soup Bowl, which is highly attractive to hiker's who can take a short hike up to the lookout. Prices for camping range from \$12 a night for rustic camping to \$24 a night for full service electrical hook-ups and modern bathrooms and showers. 120 campsites make up the Yankee Springs rustic campground, and 200 sites make up the Yankee Springs modern campground. The image above is of the modern campground that has two bathroom/shower facilities and full hookups for RV's. The modern campground has concrete roads and dirt pads for the RV's.

Campgrounds near Water in Michigan

Camper's Cove: Alpena, MI

Camper's Cove campground is located in the northeastern portion of Michigan's Lower Peninsula near Lake Huron. This campground is a great example of a campground located directly on a river. An advantage that this campground has is that even though it is on the banks of a river, it is not located in a floodway or floodplain. The map below shows the layout of the campground in relation to the water. Almost every campsite is touching water as several fingers stick out into the river. Zone A on the floodplain map below does not impose on the campground site area. Zone A is defined as the 100 year floodplain. As a result, this has created a great location for recreational vehicle users to come and relax and enjoy a long week or a short weekend on the water.

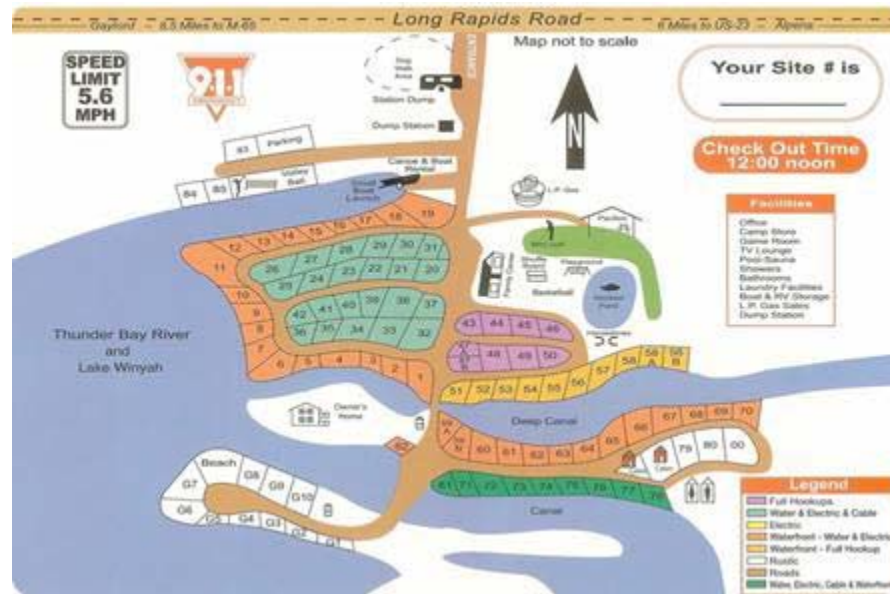


Figure 20: Camper's Cove Campground Map

As a private campground, Camper's Cove focuses on its amenities. Amenities and activities include an indoor heated pool, stocked fishing pond, mini golf, TV lounge, game room, sauna, canoeing trips, and shuffle board. Rates for the campground start at \$22 a night for rustic camping and moves up to \$34 a night for a full hook up pull through site on the water. Camper's Cove also has

cabins available such as the one in the image below. These cabins are quite small, perfect for a small family or just a couple people. All of the roads through the campground are paved concrete and all of the sites are grass covered with cement pads for parking RV's. Several nearby attractions exist for guests because Alpena is so close. These attractions include golf courses, museum, restaurants, beaches, scuba diving, historical sites, lighthouses, and among others.



Figure 21: Camper's Cove Flood Map

Insta Launch Campground and Marina: Manistee, MI

The Insta Launch is a private campground located at the mouth of the Big Manistee River and Lake Manistee. Complete with a full service marina, campsites with electrical and water hookups, and rental cabins, the Insta Launch has become attractive to not only Recreational Vehicle Users, but boaters. Rates are \$31 a night for a full hook up RV campsite down to \$21 a night for rustic camping. Various buildings exist across the property from bathroom and shower facilities to offices and pavilions. All of the roads are paved along with the RV sites being complete with concrete pads.



Figure 22: Insta Launch Campground Map

This campground most closely resembles the floodplain situation that the proposed Lowell RV Park will face. About 25% of the campground is in a floodplain (refer to map on the next page). Located in area AE, this campground is in an area where the base flood elevations have been determined for the 100-year floodplain.

While the property is built partially on a floodplain, a phone interview with the property owner revealed that the campground was constructed before laws regulating the construction on or near floodplains were in place. In addition, the owner revealed that the property has not flooded in the 50 years he has operated a campground at the site.

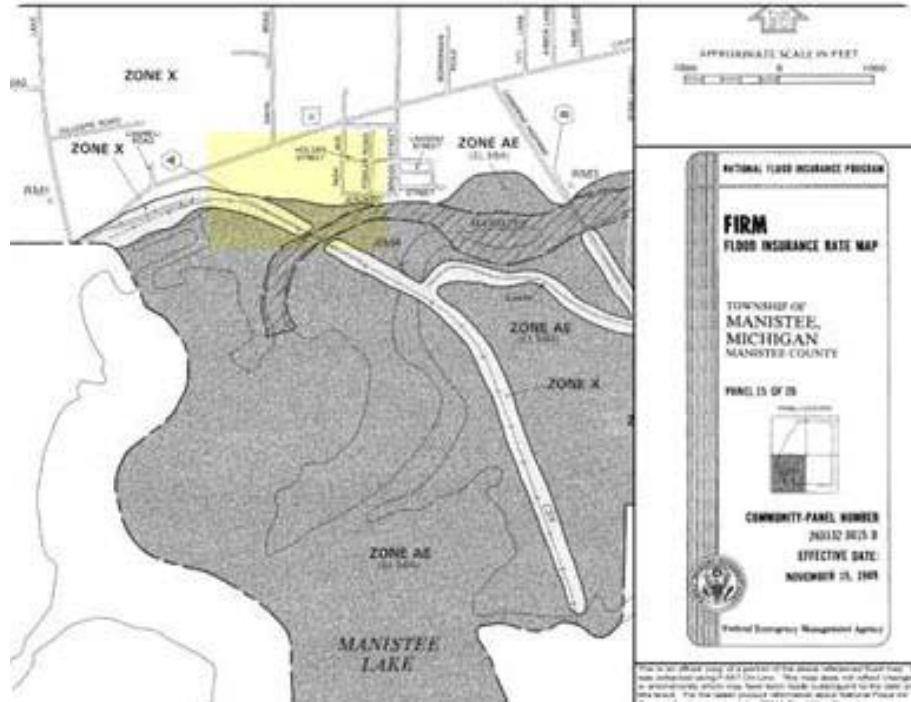


Figure 23: Insta Launch Flood Map

Trail way Campground: Montague, MI



The Trail way RV Park and campground is a great example of how the Moose and Rogers properties may look and function. Similarly, the Trail way Campground is located in the heart of downtown Montague where guests staying at the campground can enjoy amenities like shopping, restaurants, bowling alley, movie theatre, miniature golf, and various other attractions all within biking

Figure 24: Trail way Campground

or walking distance. Located along one of Montague’s main roads, Business 31, Trail way is easy to find and accessible by travelers.

The campground itself is up to date with all of the modern amenities. There is city water, sewer, and electric at all sites except tent sites that have water and electric only. Free cable TV and internet at all sites except the tent sites in addition to modern restrooms and shower facilities. Rates vary from \$25 a day for tents to \$30 a day for large RV’s. The roads through the park are gravel and the RV parking on the site is gravel. Easily, this campground is the closest representation of what the Lowell RV Park and campground may look like or strive to be. Most importantly, the campground is bisected by the Buttermilk Creek, which empties into White Lake. The Buttermilk Creek is not very large and therefore does not carry a lot of water. As a result, the campground is not located within the floodplain of the lake or the creek. The campground is near Zone B to the east and therefore is in an area between the 100 year and 500 year floodplain. To explain, it is very possible that water levels could reach a point to which part of the campground would flood because it is in such

close proximity to the floodplain on the lake side of the property and only a block away on the creek side of the property.

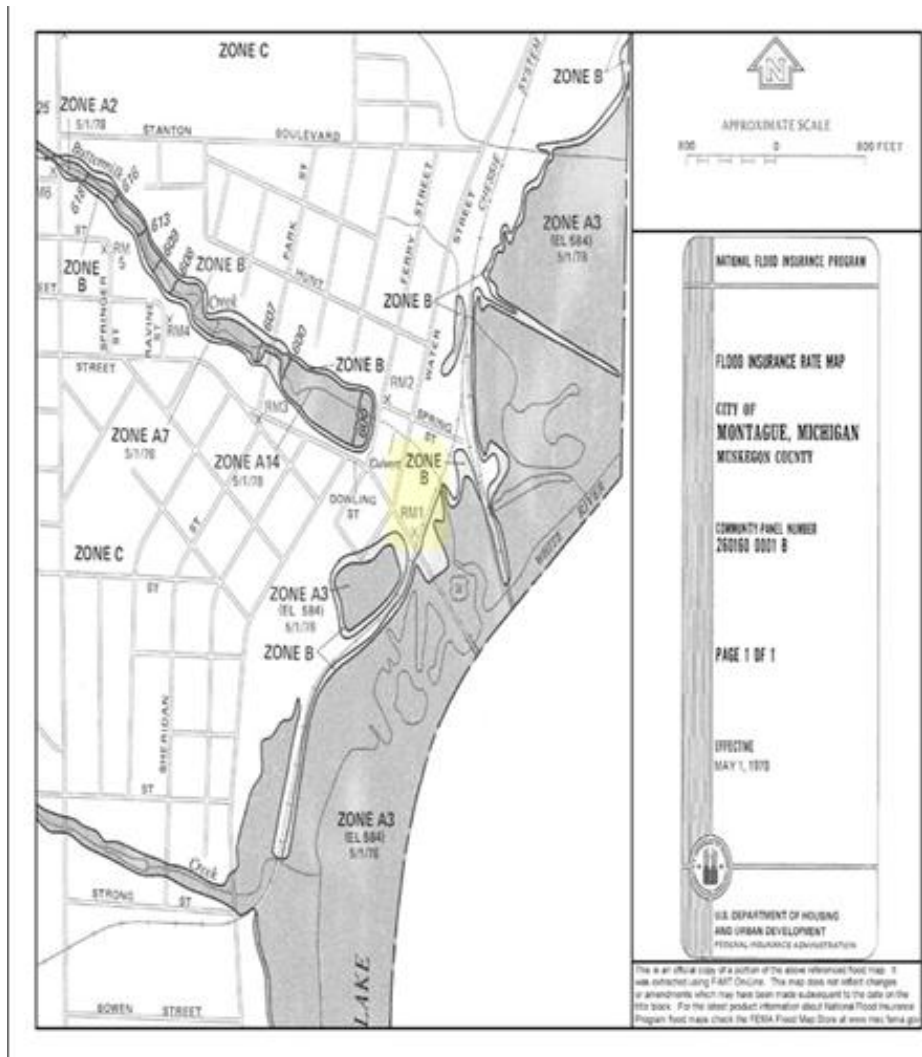


Figure 25: Trail way Campground Flood Map

Nationwide examples

King County, Washington – Tolt River

The Tolt River in Washington shows how a community or region has controlled the river and utilized it in a positive manner. The river used to flood regularly and was often a hazard to nearby residents. The methods they used to control the river and how it rises and falls from year to year in addition to the recreational opportunities that exist in the river, were effective and impacted the river positively. No case study or situation will replicate the Flat and Grand River situation in Lowell, but there are areas across the nation, such as the Tolt River, that have devised a way to control the flow of a river while preserving the natural habitat and species that naturally exist in and around the river.

This site is located at the confluence of the Tolt and Snoqualmie Rivers in the state of Washington. It is a restoration project that will offer improved spawning and rearing habitat for the Chinook salmon population and other fish, flood protection for the nearby community of Carnation, improved public river access, and enhanced amenities for the nearby Tolt-MacDonald Park.



The project will cost \$6.4 million, with joint funds coming from the City of Seattle and King County. It will provide a new setback lever for flood protection in addition to new public trails that will offer increased access to the area for the public. The new level will give more space for the river to meander on its historic

floodplain, allowing it to return to its natural condition. In addition, the project will restore natural habitat-forming processes in the Tolt River by opening up the historic floodplain, so side channels can form. The project will provide for the installation of large wood features to help create better fish and wildlife habitat, and to help stabilize the river during higher flows.

Campgrounds near the river will be protected by woodpiles driven into the floodplain soils, to create a structure that will protect the campground from erosion. A supply of wood piling will be kept on site for future use, and replanting of native vegetation will be done once all construction on the site is completed.

County of Macon, North Carolina - 2008

The Macon County case study shows how citizen participation can be important when looking to make a future decision that could potential effect many residents of the community. Before any final decisions on development of the Lowell properties is made, it may be important to collect the feed back of what the community thinks the right decision would be. Citizen participation could help build a stronger and better community while also offering help to the City of Lowell when making a decision on what the best development of the properties would be for future generations to come.

The County of Macon was experiencing an increase in real estate development. They had 18 permits available for building within a floodplain and had not considered options for regulation, had no approved emergency evacuation plan, and had no way of controlling density to protect drinking water supplies. In addition, the area experiences regular severe weather and natural disasters.



A proposed RV Park in the county presented a new challenge: during an emergency evacuation, the recreational vehicles must be disconnected from their accessory utilities and taken down in time to be safely evacuated from a

floodplain. At the time, the Watershed Protection Ordinance required that most structures be located more than 30 feet from the top of the banks of streams and rivers in order to filter out impurities before reaching the water source. Also, the Flood Damage Prevention Ordinance required most structures to be located fifty feet from the banks of streams and rivers in the floodplain in order to keep those structures out of high velocity water; however, the ordinance did not require the same setback for recreational vehicle parks on parcels greater than 5 acres.

When the Board of Commissioners had a public hearing to present the positive and negative aspects of issuing an ordinance for an RV Park, they were met with criticism. During the hearing, it became clear that many of the residents were not in favor of the development of the RV Park. Many of the citizens expressed concern that the RV Park had the potential to alter water quality in the river, affecting the main source of water for the area. An eleven month moratorium was placed on construction so more information could be collected before any ordinance was passed.

Alternative Uses and Examples

In addition to utilizing the Moose and Rogers properties for campgrounds and trail ways, we evaluated the possibility of using a consolidated drain or constructed wetland project at the sites. These types of projects serve a multitude of purposes from cleaning run off water to educating the public on natural processes to providing a relaxing location for enjoying wildlife in a controlled setting. Two examples of this type of project are provided below.

Consolidated Drain Project: Portage, Michigan

In Portage, Michigan, officials are taking steps to utilize open space in a manner that is beneficial to the whole community. In this unique project, storm water is diverted through water treatment ponds, increasing water quality and quality of life for City residents. Portage has developed the consolidated drain project with a series of trails through the site, similar to what Lowell might consider doing. The possibility exists for construction of this type of water treatment system if it is found not feasible to develop the Moose and Rogers properties as a campground.

The City of Portage Consolidated Drain conveys storm water runoff from 463 acres of urban land to Portage Creek near the City's prime outdoor recreation area. The Michigan Department of Environmental Quality has classified Portage Creek as a high quality cold-water stream capable of sustaining trout. The plan seeks to balance drain maintenance, environmental improvements, recreational and wildlife enhancements, tax base increases through land reclamation, and support for critical economic elements within the city. This project benefits not only the residents of the City of Portage but also the entire Kalamazoo River Watershed downstream of Portage Creek. Improved storm water treatment minimizes pollutant loading to Portage Creek and provides additional protection of groundwater resources. Regional storm water detention lessens the chance of localized flooding, improves natural habitat, and eliminates the aesthetic and safety concerns of the numerous smaller basins in the

watershed. The interpretive trail way, integrated into the treatment system complex, provides a valuable link between shopping and entertainment destinations in the area and leads to increased awareness and stewardship of the entire watershed. Reclaimed land at former retention basins can be redeveloped, increasing the tax base of the city.



The Consolidated drain project places the City of Portage on the forefront of groundwater, surface water and storm water preservation issues. The system design will demonstrate the long-term sustainability of natural biological treatment of non-point source pollution associated with urban storm water as best maintained through centrally located and properly sized facilities. As best management practices for storm water become a significant environmental issue with Phase II Storm Water Regulations, securing community support will be an integral aspect of achieving water quality improvements. Seeking approaches that go beyond the minimum effort required by regulation provides far-reaching community and environmental benefits; a necessary combination for a community to successfully address potentially cost- burdensome requirements.

This new storm water treatment facility is integrally linked to a recreational trail way system that doubles the length of existing trail ways in the city, provides treatment for runoff from 463 acres within the highly commercialized urban core and targets 80% pollution removal rates. As designed the new facility substantially

enhances and improves flood protection. This regional facility allowed for reclamation of several private, poorly maintained and failing on-site detention basins that were eliminated. These replaced basins were ineffective at pollutant removal and flow moderation.

The consolidated drain had emptied directly into Portage Creek, a designated coldwater trout stream, seriously impacting the fishery and accompanying habitat. More than a mile of accessible scenic trail ways, bridges and overlooks, integrated into the site plan, now connect major retail and recreational facilities. Trail ways also provide limited access to the 25 acres comprising the storm water treatment area. Wildlife habitat, a restored, more-meandering stream corridor to maintain more favorable cold water characteristics, the recreational access, and several environmental education stations provide unusual public amenities within the core of an urbanized area; estimated project costs could reach \$4.7 million.

Tollgate Drain: Lansing, MI

The Tollgate Drainage District Sewer Separation Project is a great alternative use for the Moose and Rogers property if the Campground and RV Park are not feasible. The properties sit on an area that flood naturally for several months out of the year in addition to



being on wetland soils. There would need to be very little done when it comes to water diversion or movement of water into the area. Using both properties or even just a portion of one, as a natural drain water purification site in addition to a nature or outdoor education attraction will do great things for the City of Lowell. It would serve as a learning environment for local schools in addition to possibly being a regional attraction. It will be the

only naturally purifying drainage basin and wetland in the United States outside of Lansing's Tollgate drain.

The Tollgate Drainage District Sewer Separation Project is located in Lansing, Michigan. The project encompasses a watershed of 234 acres, 554 residential homes, over ten commercial properties, 500 plus apartment units, and four governmental agencies. This project separated a combined sewer system and created wetland detention basins. The wetlands also serve as a wildlife refuge, community learning center and a focal point to bring the community together through public outreach.



Tollgate has been a leading example as a solution to a growing non-point pollution issue associated with much of Lansing and pollution of the Grand River. Tollgate has several steps to provide a natural purification process. First,

the storm water runs off the street and sidewalks into a catch basin and then travels through a three foot sump. A three foot sump is used rather than a two foot sump because it allows the larger pieces of sediment in the water to separate from the water. As the water travels to the wetland, it loses much of its sediment before it reaches the grit chamber where most of the remaining sediment is filtered out. The water is then pumped to the surface where it enters the wetland through a limestone waterfall. Much of the water is acidic as it enters the wetland and the limestone reduces the acidity. As a result, the water is now naturally ready to sustain wildlife. The waterfalls also oxygenate the water and assists in breaking down harmful complex organic chemicals. After the water flows down the limestone waterfalls, it enters the Dead Wood Forest pond. This pond is covered in trees that will eventually die out and create habitat for animals that will live there such as woodpeckers, owls, and various insects. Microorganisms will then continue to grow and break down these

trees and create a great food source for other wildlife. The water then continues to travel to a bell shaped holding pond where the water loses some of its energy and allows even more sediment to settle before it travels down yet another limestone waterfall and into a peat filter. The peat filter is a layered combination of limestone, sand, and peat that help reduce the chemical, nutrient, and sediment load in the water. The chemicals and nutrients then bond to the peat, making the water even cleaner. After the peat filter the water enters a spreading ditch and, when the water is high, sheet flows across a northern floodplain forest which aids in the filtration and evapotranspiration process. For the final stage, the water flows into a large pond that consists of three smaller ponds and several islands that serve as nesting grounds for various species of wildlife; the varying depth of the ponds promotes circulation and therefore purifies the water even more.

DESIGN ALTERNATIVES

For the Moose and Rogers properties, several design alternatives have been conceived, each with their own restrictions and feasibility. A welcome center and trail system serve as the two most basic design possibilities, followed by semi-modern camping, tree house camping, and an RV park and campground. The last three designs all incorporate in them the trail way system and the welcome center. The various design alternatives are described in more detail below.

Welcome Center

Description of Welcome Center

The Welcome Center will be the central gathering place for all campers. This is where campers will initially be checking in and checking out. The welcome center will serve as a multiple-function building. The building will be designed in such a way as to maximize every square foot.



Figure 26: Welcome Center Sketchup Design

Amenities

- **Gathering Pavilion:** Campers and trail users will be able to take advantage of the large gathering pavilion connected to the main welcome center. The pavilion will serve a variety of functions including an educational center, community gathering place, dining facility, and possibly an information center.
- **Contemporary Kitchen Facilities:** Campers looking to have a more modern camping experience will be able to utilize the contemporary kitchen facilities as well as the indoor showering facilities. And for the campers that can not seem to let the modern world go, internet access will be available in the computer center.
- **Fire Pit:** There will be a large centrally located fire pit with benches and other seating to allow for a community like atmosphere.
- **Other Recreational Activities:** Also located near by will be various other amenities including a volleyball court, horse shoe pit, gas grills and campfire wood.
- **Showering/Restroom Facilities:** The Welcome Center will house a showering facility and bathrooms for both sexes. This will allow for the centralization water and sewer resources to an area of the site that is higher in elevation than the rest.

Trail ways

The agricultural land that was once property of Moose and Rogers has remained fallow for the past several decades. Its development potential is very limited due to a floodway which covers more than 90% of the properties, a floodplain which spans the entire property, and wetlands that encompass and surround more than half of the properties. This leaves a few rudimentary potential uses for this site, one of which includes developing a simple trail network. As shown in Figure 27, these trails hug the Flat and Grand Rivers, as well as the northern and eastern borders of properties.



Figure 27: Proposed Trailway, Moose and Rogers Properties, Lowell, MI

The trails also cross at a central location within the site, creating a point of emphasis for travelers, no matter what their mode. Entrances/exits are at the welcome center, including being positioned in connection with the expansive North Country Trail, located on the western banks of the Flat River. The proposed trails will also network with the recently approved Lowell Ionia Rail Trail that enters from the southeast. This design runs in accordance with the Lowell Area Recreation Authority's (LARA) phase 3 of the 2009 Recreation Plan, developed by Williams & Works.

Acquisition of Land for Trail Development

Since the City of Lowell owns the Moose and Rogers properties, acquisition of these narrow easements should be met without roadblocks. In the Action Plan for the 2009 Recreation Plan, it states that “grants, private contributions/donations, fundraisers and foundations” will be used as funding sources in 2013 for Phase 3 of the Recreation Plan. This will amount to \$7,500 for a comprehensive assessment and initial design for the site. Submitting the grant applications for the network will cost an additional \$2,500. Implementation of public, private, and public/private fundraising efforts is scheduled next and is slotted for another \$2,500. Towards the end of the year \$2,000 will be spent on informing the public. In 2014, design bids will be sought with one chosen for completion. Finishing this phase will cost \$6,000, \$1,000 of which will be used in finalizing arrangements for operation and maintenance (Lowell Area Recreation Authority).

Development and Maintenance of Trails

Development and continued maintenance of the network can simply follow a few guidelines. Since the trails will connect to the North Country Trail, using its established framework and duties for operation will be considered. Of the responsibilities, the North Country Trail is operated under a small number of simple, general guidelines. What defines this pathway from other established trails and is most notable is how this greenway is marked. It is called “blue blazing” and requires the charters and organizations on the route to paint on trunks of trees a blue strip (no more than a foot in length), so hikers can identify the NCT from other adjoining trails. These markers must be visible from one indicator to the next, and this is where the bulk of the maintenance is required for pathway upkeep. Most charters will usually send members out in late spring after the foliage has a chance to develop and will have them trim any obstructing leaves and move any debris that has accumulated over the winter (North Country Trail). Other than some more requirements to keep the North Country Trail as natural and conducive to its surrounding

landscape as possible, there are structural regulations that are in place to make one think this trail is more of an architectural modification to the existing natural surroundings than a simple trodden pathway.

Accessibility of Trails

While the North Country Trail is an excellent example of trail connectivity and regionalism, it is poorly defined in many areas. Most of Rogers' property lies in a field, and to help signify where the trail runs, logs could be placed along the route so visitors and travelers had a definite path to walk on. This could also be done fairly easily throughout the rest of the site. Rope bridges that span the Flat River would connect the North Country Trail with the proposed site. The islands in the Flat River can also be accessed through rope bridges, creating a challenging opportunity for visitors to view a spectacular riverfront.

Benefits of Trail Development

Advantageous aspects of developing trail networks are their versatility. Whether these trails stand alone or are accompanied by RVs, they have the ability to be rerouted quite easily if the land is available. Another benefit to using trails is the fact that they can be placed on nearly every landscape, which is a definite plus when prime land has been regulated to the point where only limited development can occur.

RV Park and Campground

Description of RV Park/Campground Recommendation

The ideal vision for development of the Moose and Rogers properties would include a full RV campground complete with all of the RV amenities. These amenities would include everything from public restroom and shower facilities, to electric and water hookups at each campsite for the RVs. Recreational activities will be abundant and easily accessible. These activities may include everything from hiking trails and canoeing, to fishing and informational classes or nature tours that are arranged at the welcome center. In order to reduce costs and to ease the transition into the new development, we have recommended three phases of development for the RV Park that are listed below. All in all, the RV Park and campground is perhaps the most ambitious recommendation for the property due to all of the restrictions and obstacles that will have to be dealt with and addressed.



Figure 28: Proposed RV Park Design, Moose and Rogers Properties, Lowell, MI

Amenities

Required or desired amenities vary for an RV park. RV parks and campgrounds have been known to have everything from elaborate swimming pools and restaurants to a simple electric hookup and no common restroom or shower facilities. It is important to consider the potential users when determining the possible amenities of the park. It is essential to determine

whether these users are going to be older RV users who generally stay for a long period of time, or simply transient campers looking for just an overnight stay. After evaluating the demographics and potential RV users of the Lowell area, we have determined that it would be safe to aim the RV park amenities and design with more long term, older residents in mind who are looking for a little more than just a place to park their RV for a night. The following description of amenities would be recommended for an RV park located on the Moose and Rogers properties based on the regulations and feasibility of each amenity.

- **Shower/Restroom Facilities:** Showers and restrooms allow not only campers, but those who are staying in RVs to have a place to clean up in the morning and to not rely solely on their RV for a water source and bathroom facilities. The property does not allow for sewer hook up at each individual site due the floodplain regulations. Therefore, a septic dump station may have to be supplied near the welcome center. *(please refer to the welcome center portion of this document for details regarding shower/restroom facilities)*
- **Dump Station/Sewer:** A sewer connection will not be plausible at each campsite. Therefore, a dump station/"honey wagon" will be located near the entrance of the campground near the welcome center. A dump station is a place where Recreational Vehicle's can go to empty the septic tank in the RV and fill up their water tank. The only sewer will be at the bathroom facility, welcome center, and dump station. Any other sewer connection would be far too expensive and not feasible due to the floodplain regulations. . For convenience a "honey wagon" will be available to travelers who wish to spend more than a couple of days at a site. This is a type of trailer that is brought to each RV, and acts as a mobile cesspool emptier, alleviating the need for the placement of sewer lines. Sewage could then be disposed of by one of the septic companies in the area.

- **Electric Hook-up:** An electric outlet for RVs and tent campers allow guests to enjoy a variety of amenities that require an electric hookup. RV users will be able to not run their RV off of a generator and will therefore promote their length of stay and possible influx of money into the community. Additionally, campers will be able to use an electric hook up to provide light, cooking appliances, or simply charge various camping gadgets such as flashlights.
- **Gravel Paths/Roads:** Gravel roads through the campground provide lower construction costs and lower maintenance costs. Additionally, gravel roads promote lower speeds, generally, so people are less likely to speed through the campground. Large RV's that can weigh thousands of pounds are going to be traveling on these roads every day, a gravel road has a high amount of forgiveness on external forces and therefore would be perfect for an RV campground.
- **Picnic Tables:** One picnic table will be available at each campsite. These picnic tables are almost necessity in today's camping lifestyle whether you're staying in an RV or a tent. Picnic tables provide a place to enjoy meals, play cards, have a friendly conversation, or simply just store your belongings so they are off the ground. Outdoor picnic tables start at about \$200.
- **Fire Pit:** Everyone goes camping to enjoy a good campfire and therefore every campsite at the RV Park will have a campfire pit. Each site will have a fire ring that is 3/16" thick steel. Each ring will have a flip up cooking grate that will make for a great place to cook breakfast, lunch, or dinner. Each fire ring retails for about \$130.
- **Water Source/Spigot:** Every camper and RV user needs a water source for cooking and cleaning. Strategically located around the campground will be several water spigots. These spigots will be for the use of those who are staying in the campground to use at their own discretion for cleaning, cooking, or drinking.

- **Hiking Trails:** There will be numerous hiking trails going through both the Rogers and Moose properties. These trails will be in close proximity to the campground and other trails so that miles of hiking trails will be available for a day time activity. These trails are going to be multi-use and available for both bikers and foot traffic.
- **Canoe Livery:** A canoe livery will be available so that campground residents can rent canoes and go fishing, or just simply paddle the grand or flat river. Rates generally vary for a canoe rental from about \$10 an hour to \$30 to \$50 for the whole day. As an additional option, a dock and small rental hut can be added for relatively cheap. The dock would be temporary and removable during the winter time to prevent damage to the dock.

Phases for Development of an RV Park

Phase 1: *Develop a network of trails and roads through the property.*

It is important to establish an access point to the property and a system of roads for cars or RV's in addition to a system of hiking and biking trails for recreational purposes. By establishing these basic structural amenities, it will give users a reason to go to the property and enjoy it with easy access by either foot or car.

Phase 2: *Develop separate, individual campsites for RV's and tents.*

Once there is a network of roads and trails, it is necessary to move on and start developing individual campsites for both RV's and tents with very minimal amenities. It is not completely necessary to provide full electric or water hook up at each site, but to at least have a privy as a temporary bathroom facility until further infrastructure is developed such as electric and water.

Phase 3: *Develop full amenities for an RV park and campground*

During this phase in development, it would be feasible and necessary to develop full amenities for campers and RV users. This would include the bathroom and shower facilities, Common water source, picnic tables, fire pit, full electric hook up, septic dump station, and even recreational canoeing and other attractions. *(Refer to welcome center/pavilion portion of this document for further information regarding development of those amenities)*

Campsite Revenue Potential

As stated earlier in this document, the rates of several nearby public and private campgrounds have been mentioned. The price or nightly rate of a campsite varies and correlates to what amenities are offered. The revenue potential is as follows and was gathered from the August 31 RV park meeting in 2006.

# of sites	Price	Length of Season (Days)	Revenue
50	\$7.50	150	\$56,250
50	\$12.50	120	\$75,00
100	\$7.50	150	\$112,00
100	\$12.50	120	\$150,00

Potential Operating Costs

A few things that may need to be considered when developing an RV park and campground are the operating costs. Several of the costs of operation are subjective to how many amenities and services will be provided. Some of the potential costs to consider are as follows but are not limited to:

- Lawn Mowers/Lawn Care
- Security
- Lighting
- Dump Station
- Camp Store
- Maintenance of Road/Trails
- Tree and shrubbery maintenance
- Utility Vehicle
- Trash Receptacles
- Employees to work in the office to manage RV park
- Cost to provide electricity
- Cost to provide water
- Cost to winterize site during winter months/flood preparation
- Cost of facility maintenance/replacing or fixing damaged items (picnic tables, fire pits, bathroom facilities, etc.)
- Cost to provide sewer connection (Dump Station)

Sources: MDEQ Campgrounds: Public Act and Rules Governing Campgrounds,

Tree House Camping

Description of Tree House Camping

Tree house camping will be an appropriate and unique use for a majority of the area on Moose and Rogers properties. Tree house camping is a small but growing market with potential for considerable growth in the future. Designs for tree houses can range from the very elaborate, complete with full kitchens and bath facilities to extremely rustic with little more than bunk beds and windows. We are recommending a design that is somewhere in the middle. Our tree house designs include electricity with overhead lights, bunk beds, a balcony, windows, ceiling fans and chairs.



Figure 29: Tree House Sketchup Design

Despite the name “tree house”, none of the tree houses will be built in the surrounding trees. The tree houses will be built on either steel or wood post depending upon the size and configuration. The tree houses will be elevated anywhere from 8 to 12 feet in the air. As a result of the tree houses being elevated, it will give the users a sense of being amongst nature and escape from the day-to-day life of living in the city.

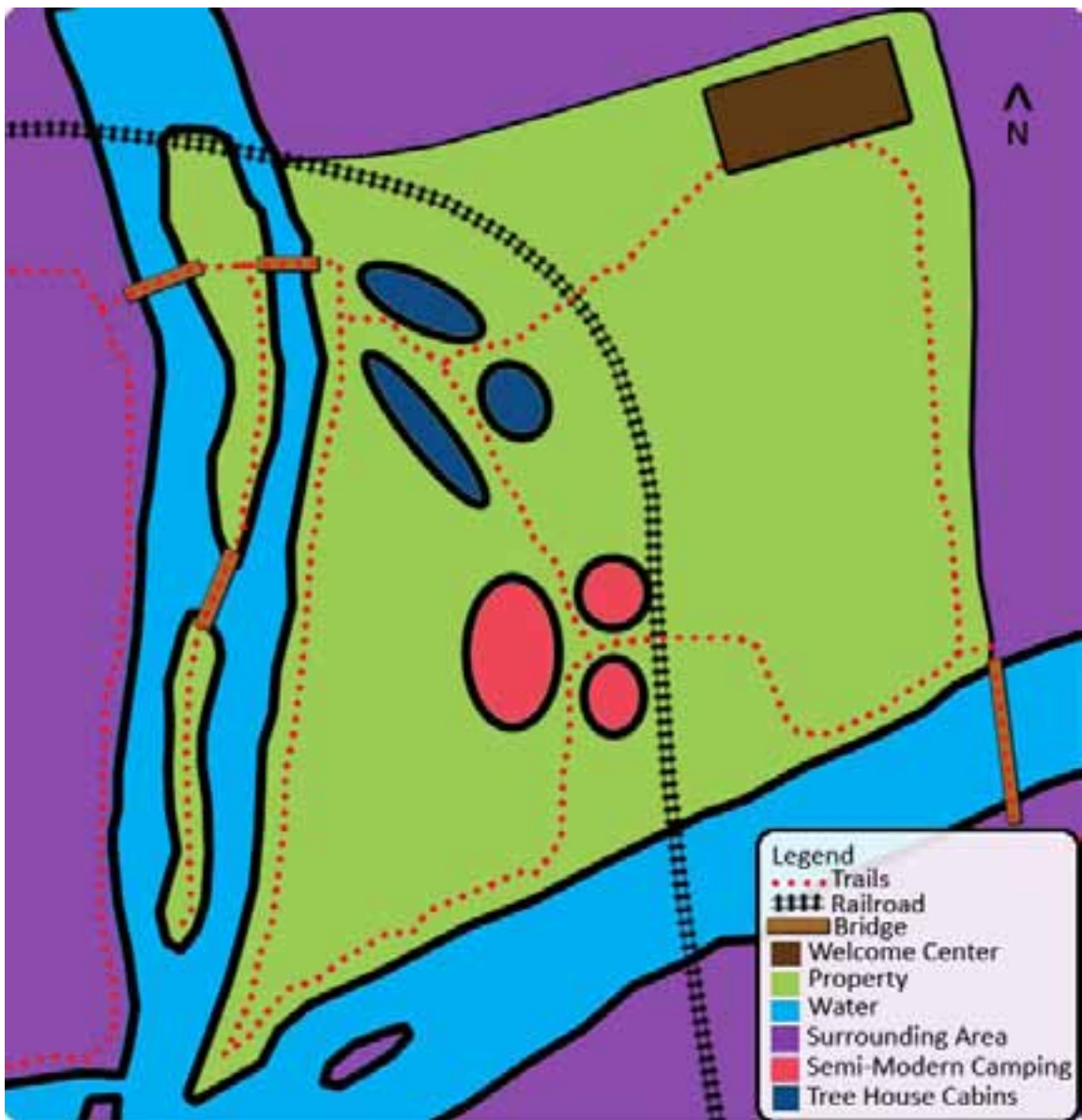


Figure 30: Proposed Tree House Camping, Moose and Rogers Properties, Lowell, MI

Amenities

The amenities for a tree house campground are very similar to those found in the RV Park and campground. A tree house campground would include the following, in addition to the amenities found with the Welcome Center:

- **Shower/Restroom Facilities:** *(please refer to the welcome center portion of this document for details regarding shower/restroom facilities)*
- **Electric Hook-up:** An electric outlet in tree house cabins would allow guests to enjoy a variety of amenities that require an electric hookup. Campers will be able to use an electric hook up to provide light, cooking appliances, or simply charge various camping gadgets such as flashlights.
- **Gravel Paths/Roads:** Gravel roads through the campground provide lower construction costs and lower maintenance costs. Additionally, gravel roads promote lower speeds, generally, so people are less likely to speed through the campground.
- **Picnic Tables:** One picnic table will be available at each campsite. Picnic tables provide a place to enjoy meals, play cards, have a friendly conversation, or simply just store your belongings so they are off the ground. Outdoor picnic tables start at about \$200.
- **Fire Pit:** Everyone goes camping to enjoy a good campfire and therefore every campsite at the tree house campground will have a campfire pit. Each site will have a fire ring that is 3/16" thick steel. Each ring will have a flip up cooking grate that will make for a great place to cook breakfast, lunch, or dinner. Each fire ring retails for about \$130.
- **Water Source/Spigot:** Every camper needs a water source for cooking and cleaning. Strategically located around the campground will be several water spigots. These spigots will be for the use of those who are staying in the campground to use at their own discretion for cleaning, cooking, or drinking.

- **Hiking Trails:** There will be numerous hiking trails going through both the Rogers and Moose properties. These trails will be in close proximity to the campground and other trails so that miles of hiking trails will be available for a day time activity. These trails are going to be multi-use and available for both bikers and foot traffic.
- **Canoe Livery:** A canoe livery will be available so that campground residents can rent canoes and go fishing, or just simply paddle the grand or flat river. Rates generally vary for a canoe rental from about \$10 an hour to \$30 to \$50 for the whole day. As an additional option, a dock and small rental hut can be added for relatively cheap. The dock would be temporary and removable during the winter time to prevent damage to the dock.

Semi-Modern Campground

Description of Semi-Modern Campground

In Michigan, primitive camping is defined as having no service building where flush toilets are provided and there are also no sewer connections to the sites. While Primitive Camping is the most cost effective option for the Moose and Rogers properties in comparison to an RV park as it requires fewer accommodations and amenities (electrical hookups, flush toilets, etc.) and is less restrictive in terms of regulations by the State, it seemed more logical to propose a Semi-Modern Campground (which includes a Welcome Center with flush toilets).



Figure 31: Semi-Modern Campground Sketchup Design



Figure 32: Proposed Semi-Modern Campground, Moose and Rogers Properties, Lowell, MI

Feasibility

As discussed in detail previously in the document, the Moose and Rogers properties are considerably low in elevation. A primitive campground in the state of Michigan does require that there be potable water hookups at least one foot above the base flood elevation. It is also required that there are privies for every 25 sites (per sex) and that they be at least 50 feet from the site boundary as well as one foot above the base flood elevation. To

avoid building privies and potable water hookups above the base floodplain elevation, this design alternative considers Semi-Modern Camping as a feasible option for these sites. This would ultimately incorporate a Welcome Center, parking lot, and walk-in-sites, circumventing the requirements that accompany the primitive camping designation

Basic Designs

The design layout of the Semi-Modern Campground will attempt to avoid being located in the wetlands. The Welcome Center and parking lot of about 40 spots (1.5 parking spots are required per camping site) will be located on the northwest corner of the site where the elevation is higher and no wetlands exist. Additionally, no roads will be built, only pathways for the walk-in-sites. The advantage to this design is the minimal cost that it offers; most of the major costs are invested in the Welcome Center.

Phased Development

The connecting trail way system would be the first phase of development for the primitive campground. This is probably the most crucial step as it establishes the Moose and Rogers properties for recreational use; connecting the islands to the fairgrounds on the west side of the Flat River to the Moose and Rogers properties is an essential aspect of this phase. The movement of pedestrians and bicyclists across the Flat River and the islands helps coordinate a more cohesive flow as well as utilizing the Moose and Rogers properties more extensively.

The second phase would incorporate a welcome center at the northwest corner of the site near the entrance. This is not only an obvious location for the welcome center, but also is one of the few elevated spots on the two properties that the center can be built due to floodplain and wetland restrictions and limitations. The welcome center would incorporate important information regarding the City of Lowell and its amenities to its visitors. The center would also generate guided tours and presentations in regards to the City of Lowell and its history as well as nature tours

throughout the campground and other parks throughout the city. Another portion of this phase is to build out the campground and incorporate approximately 25 primitive sites.

Conclusion

These two city-owned properties have a limited development potential. Administering phased development gives these parcels the ability to address the legislative and economic hurdles as they come. The first proposed phase requires the networking of trails, which has already been approved by LARA and is the most feasible for implementation, due the low amount of regulations and maintenance required for operation. Phase II proposes a primitive/semi-campground. This phase has the potential of moving forward, but will be dependent on the current regulatory climate, as well as other previously mentioned economic, environmental, and social feasibility indices. The third phase of development for these sites will hinge on the success of the aforementioned phases. This phase involves the highest and possibly best use of the site, which includes RVs. If the second phase is allowed, than the third phase could potentially push forward, turning decades old fallow ground into a hallmark for Lowell and a great place to visit for the many travelers who go RVing.

FINAL RECOMMENDATION

The city of Lowell is in a great position to develop Rogers and Moose property. The properties themselves are ideally located and fortunate enough to have extensive trees, water, wildlife and much more. It is the recommendation of the student planners at Michigan State University to move forward with development of a modern campground. This recommendation is based on many different sources of information including, legislation, communication with county officials, site visits and much more.

It is the opinion of the student planners that development of a recreation vehicle park will be far too costly for the environment as well as the city of Lowell and other surrounding communities. Development of less invasive ventures such as tree-house camping, hiking trails and tent camping would be a much more affordable and a feasible alternative to building a RV park.

It is also our recommendation that construction of the welcome center take place. This would not only serve as a greeting point for campers and trail users, but also as a educational center for various community functions, as well as for the area schools. Phased development of the properties would be the most effective and efficient for the community. Through public input, group cooperation and phased construction, the properties stand the best chance of being successful.

APPENDIX

Funding Sources

Possible funding sources identified at this point include Michigan Department of Natural Resources (DNR) grants, the Lowell Area Community Fund, and the Michigan Natural Resources Trust Fund.

Michigan Department of Natural Resources

Possible DNR grants include: Boating infrastructure grants; Recreational Improvement Fund grants; Recreational Trails Program grants; and Non-Game Wildlife Fund grants. It is unclear at this time whether the DNR grant programs are currently active, as most of them have fiscal year allocation dates of 2005 listed on the website, with no newer allocation data available. Further inquiry will be required to identify active grant programs.

The Lowell Area Community Fund

The Lowell Area Community Fund offers grants to governmental organizations within the City of Lowell and a couple surrounding townships. Grants are offered for projects that provide for “Arts & Culture, Community Development, Environment, Health, Human Services, and Recreation (<http://www.grfoundation.org/lowell.php>).” Due dates for grant applications are the third Friday of April, August, and December.

The Michigan Natural Resources Trust Fund

The Michigan Natural Resources Trust Fund provides grants to local governments to “to purchase land or rights in land for public recreation or protection of land because of its environmental importance or its scenic beauty. It also assists in the appropriate development of land for public outdoor recreation (MNRTF Website).” The fund is limited to no more than 25% for development each year, with most of the funding aimed at

acquisition projects. Further research is necessary to determine whether the 25% applies to projects individually, or if each municipality can use the funds as they see fit, so long as no more than 25% of the entire Fund goes to development.

Pest Control

Mosquitoes

Mosquitoes are often one of those pests that can be a huge deterrent to enjoying the outdoors. Campers remember those campgrounds in which mosquitoes are bad or are a hindrance on their weekend while in the woods. It is important to establish how bad the problem actually is by using light traps, biting counts, or input from the public. Natural methods of controlling Mosquitoes include addressing the obvious sources of mosquitoes and their breeding grounds. First, it is important to try and eliminate standing water in pools, bird baths, and potted plant trays. Additionally, it can be effective to replace all outdoor light bulbs with “yellow” bulbs, which attract fewer mosquitoes. It can also be effective to go as far as stocking lakes or rivers with fish that feed on mosquito larvae. Bacterial methods are also effective at times. Several pesticides such Methoprene and Temephos are applied usually by aircraft or truck mounted sprayers. Many of these sprayers use ULV methods of application, which stand for ultra low volume. This method allows the product to hang in the air for a long time and kill the flying mosquitoes in addition to lowering the risk of exposure to people and the environment.

Raccoons

The number one cause of a raccoon problem is garbage. It is important to make sure the campground is clean by picking up all trash and loose food scraps while keeping the dumpsters and trash receptacles enclosed so raccoons do not wander into these areas looking for food and therefore end up sticking around and becoming a pest. Also, make sure picnic tables are clean when you go to bed at night by picking up all the crumbs and food that may have fallen. You can even go as far as cleaning out the trash bins

so that they are not sticky with leaking food or standing water for the raccoons to drink. If there is food that is particularly tempting, such as meat, then it is important to double bag it to prevent the smell or the food from leaking. Often raccoons have several nests in their territory where they usually reside. It is important to attack these areas by not creating a place for them to stay. Any attic or crawl space in a building or lot's of fallen timber may create a perfect opportunity for a nest. If you do come across one of these areas, try and make the area inhospitable by adding bright lights, a radio for noise, or ammonia rags to make the raccoons feel uncomfortable. If all else fails, pest control has specialized methods in immediate removal of raccoons via traps and other processes. Raccoons are certainly a concern in many campgrounds and are often hard to control once the problem is created. Therefore, the best method for control is to not let the problem arise in the first place by keeping food off the ground and controlling the methods of waste by keeping them enclosed and secure.

Camping and RV Specific Definitions

Campground: means a parcel or tract of land under the control of a person in which sites are offered for the use of the public or members of an organization, either free of charge or for a fee, (or) for establishment of temporary living quarters for 5 or more recreational units. This does not include a seasonal mobile home park licensed under the mobile home commission act.

Mobile home: means a structure transportable in one or more sections, which is built on a chassis and designed to be used as a dwelling with or without a permanent foundation, when connected to the required utilities, and includes the plumbing, heating, air conditioning and electrical systems contained in the structure.

Recreational Unit: means a tent or vehicular-type structure, primarily designed as temporary living quarters for recreational, camping, or travel use, which either has own motive power or is mounted on or drawn by another vehicle which is self-powered.

Travel Trailer: A vehicular portable structure, mounted on wheels, of such a size or weight as not to require special highway movement permits when drawn by a vehicle, primarily designed and constructed to provide temporary living quarters for recreational, camping or travel use.

Camping Trailer: A vehicular portable structure mounted on wheels and constructed with collapsible partial sidewalls of fabric, plastic or other pliable material which fold for towing by another vehicle and unfold at the campsite to provide temporary living quarters for recreational, camping or travel use.

Motor Home: A vehicular structure built on a self-propelled motor vehicle chassis, primarily designed to provide temporary living quarters for recreational, camping, or travel use.

Truck Camper: A vehicular structure built on a self-propelled motor vehicular chassis, primarily designed to provide temporary living quarters for recreational, camping or travel use.

Slide-in camper: Is a portable structure designed to be loaded onto and unloaded from the bed of a pickup truck, constructed to provide temporary living quarters for recreational, camping or travel use.

Chassis mounted camper: is a portable structure designed to be affixed to a truck chassis, and is constructed to provide temporary living quarters for recreational, camping or travel use.

Single section mobile home: used only to provide temporary quarters for recreational, camping, or travel use.

Recreational unit does not include a mobile home used as a permanent dwelling residence or living quarters.

Tent: A collapsible shelter of canvas or other fabric stretched and sustained by poles and used for camping outdoors

Camping Cabin: means a recreational unit that is a hard-sided tent of shelter, that is less than 400 square feet in area, that is on skids designed to facilitate relocation from time-to-time, and that does not have a direct connection to a source of water.

Modern Campground: A campground where water flush toilets and water under pressure are available at a service building or where a water outlet and sewer connection area available at each site.

Park Model Recreational Unit: a recreational unit that is built on a single chassis mounted on wheels, that has a gross trailer area of not more than 400 square feet in the set-up mode, and that is certified by the manufacturer as complying with American National Institute Standard A119.5

Primitive camping: A campground where a service building that has water flush toilets is not provided and where sewer connections are not provided to sites.

Sanitary facilities mean the following:

- The water supply and all water distribution facilities
- All sewage collection, sewage treatment and sewage disposal facilities
- Service buildings

Sanitary station: means a facility where recreational units equipped with freshwater storage tanks and sewage holdings tanks can be serviced.

Seasonally sited recreational unit: means a recreational unit that remains on site for a continuous period of time of more than 31 days in one calendar year.

Service building: means a structure or portion of a structure that is used to house sanitary facilities, such as water closets, lavatories and showers.

Site: Means the camp space or land designated for each recreational unit in a campground.

Temporary campground: A campground that is used on a temporary or short-term basis that is not more than 4 weeks.

Temporary living quarters: as related to camping, means a recreational unit that is occupied or used for more than 4 hours between the hours of 10 p.m. to 6 a.m.

Sources: MDEQ – Camp Grounds: Public Act and Rules Governing Campgrounds

Floodplain Specific Definitions

Floodplain: A river, stream, lake, or drain may on occasion overflow their banks and inundate adjacent land areas. The land that is inundated by water is defined as a floodplain. In Michigan, and nationally, the term floodplain has come to mean the land area that will be inundated by the overflow of water resulting from a 100-year flood (a flood which has a 1% chance of occurring any given year).

Floodway and floodway fringe: The floodplain is divided into two parts, the floodway which carries most of the flow during a flood event, and the floodway fringe which is an area of very slow moving water or "slack water". Floodways are the channel of a river or stream and those portions of the floodplain adjoining the channel which are reasonably required to carry and discharge the 100-year flood; these are high hazard areas of rapidly moving water during times of flood.

Sources: MDEQ – Floodplains

Regulations

Federal Floodplain Regulations

The relevant regulations at the federal level regarding construction in floodplains can be found in Part 60 of Chapter one of Title 44 – Emergency Management Assistance. The pertinent sections of this regulatory piece are 60.3 (c) or 60.3 (d) and all of their subsections, as well as all of the subsections of 60.3 (a) and 60.3 (b)

The community must "require that all new construction and substantial improvements of residential structures within Zones A1–30, AE and AH zones on the community's Flood Insurance Rate Map have the lowest floor (including basement) elevated to or above the base flood level, unless the community is granted an exception by the Administrator for the allowance of basements in accordance with §60.6 (b) or (c)"

60.6 (b) states that "a community proposing the adoption of floodplain management regulations which vary from the standards set forth in §§60.3, 60.4, or §60.5, shall explain in writing to the Administrator the nature and extent of and the reasons for the exception request and shall include sufficient supporting economic, environmental, topographic, hydrologic, and other scientific and technical data, and data with respect to the impact on public safety and the environment."

Sources: FEMA, Code of Federal Regulations

State Floodplain Regulations

Below is a list of various fees (which are relevant until October 1, 2011) associated with obtaining an application for a floodplain permit:

Minimal Cost for Minor Projects (these have less potential for causing	Typical Cost of a floodplain application	Additional Cost to cover the department's cost of further review
--	--	--

harmful interference)		(engineering computations)
\$100.00	\$500.00	\$1,500.00

Section 3108, part 1 of Act 451 (1994) states that a floodplain shall not be occupied, filled or graded unless used for agricultural purposes “or [no person shall] undertake...on or with respect to land that is determined by the department to interfere harmfully with the discharge or stage characteristics of a stream...” However, part 2 of Section 3108 does identify that construction of building (including a basement) can occur on a floodplain if properly filled above the floodplain if one or more of the following conditions apply:

- “The lowest floor...will be constructed above the 100-year-flood elevation”;
- “A licensed professional engineer [with a specialty in soil mechanics]” evaluates the soil type of the site and recognizes that “hydrostatic pressures are not exerted upon the basement walls or floor while the watercourse is at or below the 100-year flood elevation”. They will also analyze whether or not “placement of the fill will prevent settling of the building...and that the building is equipped with a positive means of preventing sewer backup”;
- A certified engineer or architect concludes that “basement walls and floors are designed to be watertight and to withstand hydrostatic pressure from a water level equal to the 100-year flood elevation.”

Sources: MDEQ, Michigan Legislature

State Wetland Regulations

Under Section 324.30307, “If a local unit of government does not have an ordinance regulating wetlands, the department shall promptly send a copy of the permit application... The recommendation of the local unit of government, if any, shall be made and returned to the department at any time within 45 days

after the local unit of government's receipt of the permit application.”

To determine whether or not the use will benefit the public, there are several guidelines the department considers in the permit process:

- “(a) The relative extent of the public and private need for the proposed activity;
- (b) The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity;
- (c) The extent and permanence of the beneficial or detrimental effects that the proposed activity may have on the public and private uses to which the area is suited, including the benefits the wetland provides;
- (d) The probable impact of each proposal in relation to the cumulative effect created by other existing and anticipated activities in the watershed;
- (e) The probable impact on recognized historic, cultural, scenic, ecological, or recreational values and on the public health or fish or wildlife;
- (f) The size of the wetland being considered;
- (g) The amount of remaining wetland in the general area;
- (h) Proximity to any waterway;
- (i) Economic value...of the proposed land change to the general area.”

To conduct alterations to wetlands, the City must file for a permit. The permit application includes providing the location and description of the wetland, describe and provide appropriate drawings for the proposed use to be developed, and possibly an assessment of the wetland if requested by the department.

It is further determined by Act 451 (1994), Section 30311, that any permit filed for prohibited activities are only subject to approval if the department ensures the use “is in the public interest, that the

permit is necessary to realize the benefits derived from the activity, and that the activity is otherwise lawful.”

Additionally, the department is responsible for reviewing findings of other state agencies in regards to the proposed use. “A permit shall not be issued unless it is shown that an unacceptable disruption will not result to the aquatic resources.” The applicant must also display that the proposed use “is primarily dependent upon being located in the wetland [and that] a feasible... alternative does not exist.”

Sources: MDEQ

Lowell Zoning Ordinances

“Development, including erection of structures...within a flood hazard area shall not occur except upon issuance of a zoning compliance permit in accordance with the requirements of this ordinance and the following standards”:

- “The requirements of this chapter shall be met.”
- “The requirements of the underlying zoning district and applicable general provisions of this ordinance shall be met.”
- “All necessary development permits shall have been issued by appropriate local, state, and federal authorities, including a floodplain permit, approval or letter of no authority from the Michigan Department of Natural Resources.”

The use that is proposed shall not interfere with the “water impoundment capacity of the floodplain or significantly change the volume or speed of...the water”.

The Lowell Zoning Ordinance specifies that the most recent base flood elevation data be utilized for new construction or substantial improvements. The lowest floor shall be at least one foot above the floodplain; however, regulations for nonresidential structures and their utilities can be constructed at or below the

base flood level. Consequently, if the structure is at or below the floodplain, it must be watertight and have the “capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.” A certified engineer or architect will ensure that these standards have been met and “indicate the elevation to which the structure is flood proofed.”

“Utilities, streets, off-street parking, railroads, structures, and buildings for public or recreational uses may be permitted when designed so as not to increase the possibility of flood or be otherwise detrimental to the public health, safety and welfare.”

A registered civil engineer shall submit, prior to the issuance of a building permit, an approved permit by the Michigan DNR, “topographic data, engineering studies, proposed site plan and/or other similar data needed to determine the possible effects of flooding on a proposed structure and/or the effect of the structure on the flow of water.”

“Data furnished by the Federal Insurance Administration shall take precedence over data from other sources.”

Sources: City of Lowell – Code of Ordinances, City of Lowell Planning Commission, City of Lowell Zoning Map

State Campground Regulations

Location: A campground owner shall locate all outlets to the water distribution system above the elevation defining the 100-year floodplain. The owner is also required to locate all the top of sewer connections above the elevation defining the 100-year floodplain. One may conclude that at each site the water outlet has to be above the Base Flood Elevation (BFE). Sewer connections must also meet the same requirements of being above the BFE.

Campsite information: A site in a campground, unless designated on an approved plan as a walk-in site, shall abut on a roadway, shall be such a size and so arranged to provide space for a

recreational unit and vehicle parking, and shall have not less than 15 feet of road frontage width and 1,200 square feet of area.

Number of privies for primitive camping: The campground owner shall provide 1 privy per each sex for every 25 sites or fraction of 25 sites or 2 unisex privies for every 30 sites or fraction of 30 sites. The privies must meet statewide regulations with regard to elevation and other sanitary issues. In addition, privies must be at least one foot above the BFE.

Manager: A campground owner shall designate a manager or a person in charge of the campground. The owner shall post a notice indicating where the manager can be contacted when the manager is not on duty.

Roads and vehicles: An owner shall provide a right-of-way that is no less than 20 feet. A campground owner shall maintain the traveled portion of the right-of-way in a passable and relatively dust free condition when road is in operation.

Parking: A campground owner shall provide space for vehicle parking equal to a minimum of 1.5 the number of sites in a campsite.

Water Supplies: A campground owner shall provide a potable water supply.

- A campground owner shall provide water under pressure to a campsite occupied by a single sectional mobile home.
- A campground owner shall ensure that a potable water supply system is designed, installed and maintained to prevent contamination from non-potable water sources and other non-potable liquids.

Sewage Disposal: A campground owner shall connect his or her campground to a local government sewer system, when available. The Moose and Rogers Properties have visible and available sewer connections.

Sources: MDEQ

Businesses and Organizations

The development of the Moose and Rogers properties into a recreation destination will bring lots of tourism to the area. Some of the businesses and organizations, as well as events and festivals, which may benefit from this influx of people, are included below.

Dining and Café

Ball's Softee Crème <http://>

Jim Ball

503 E Main St - Lowell MI 49331

(616) 897-7870

Ball's Softee Creme, established in 1971, offers premium soft serve ice cream, great chili dogs and friendly service.

Flat River Grill

www.thegilmorecollection.com

Chris West

201 E Main St - Lowell MI 49331

(616) 897-8523

Overlooking the Flat River in downtown Lowell, this Gilmore Collection restaurant offers the finest wood fired pizzas, pastas and entrees. Open daily @ 11:30 AM for lunch & dinner with brunch service on Sundays

Larkin's Fine Food & Cocktails <http://>

Mike Larkin

301W Main St - Lowell MI 49331

(616) 897-5977

Open 7 days A Week. Serving Steak, Seafood, Mexican and more for over a Quarter Century. Banquet Facilities and Catering Available.

Sneaker's <http://>

Shelley Catlin

211 E Main St - Lowell MI 49331

(616) 897-6746

Casual dining, Open Mon- Saturday, 11 AM-10 PM. Family Friendly with Adult Beverages. Soup, Salads, Sandwiches, Dinners & Specials.

Arts, Culture and History

Lowell Area Historical Museum

www.lowellmuseum.org

Pat Allchin

(616) 897-7688

325 W Main St, PO Box 81 - Lowell MI 49331-0081

Exhibitions about Lowell area history. A beautiful Victorian parlor, dining room and porch allows visitors to step back in time. Small admission fee. Museum available for special occasions. Gallery hours: Tues 1-4, Thur 1-8, Sat 1-4, Sun 1-4.

Shopping

Chimera Design Fine Jewelry

www.chimeradesign.ws

Cliff Yankovich & Julie DeVoe

(616) 897-9480

208 E Main St - Lowell MI 49331

Fine jewelry in silver and gold. Jewelry repair, custom design, and one of a kind jewelry from Julie DeVoe. Loose diamonds and gemstones. Citizen & Bel Air watches. Watch batteries. Hours Tuesday-Friday, 10 am to 7 pm; Sat 10 am to 4 pm.

Collector's Korner <http://>

Rodger Ackerson

218 W Main St - Lowell MI 49331

(616) 821-9232

Take a step back in time. See coins, pocket watches, jewelry and postage stamps that your grandparents and great grandparents once used and thought of as "everyday". Hours: Tues 10 am - 5 pm, Wed - Sat 10 am - 6 pm.

Cousins' Hallmark/River Hollow

Karen Hale

223 W Main St - Lowell MI 49331

(616) 897-5000 <http://>

Dovetail Antiques

Debbie Parks Karrie Scudder

211 W Main St - Lowell MI 49331

(616) 897-0898 <http://>

A quaint shop with a large variety of true antiques from postcards, primitives, toys, textiles, furniture, fishing, books, jewelry and

more. Open Tue. – Sat. 11-5, Sun. 11-3. We also offer Estate Services.

Fire and Water Art!

www.fire-and-water-art.com

Kathleen Mooney

219 W Main St - Lowell MI 49331

(616) 890-1879

25 leading local artists featuring painting, textiles, photography, sculpture, clay, jewelry and gifts made by our artists. You will also find custom framing & framing, art, art gifts and art classes.

Flat River Cottage

www.flatrivercottage.com

Rita Reister

317 E Main St - Lowell MI 49331

(616) 897-8601

Flat River Cottage offers antiques, art consignments home furnishings, jewelry, soy candles & all natural soaps & bath/beauty products. Our consignments are eclectic blend of items from local artists. Mon thru Sat 10am - 6pm & Sun 11am - 4pm, Nov - Dec.

Gary's Country Meats <http://>

Gary Laux

205 E. Main St - Lowell MI 49331

(616) 897-7306

Family owned since 1965 old fashioned butcher shop offering fresh beef, pork, chicken, and custom cuts to order. Homemade jerky & sausage as well as deli meats, cheeses and salads. Hours T-F, 8 am – 6 pm, Sat 8 am - 5 pm

Glass House Designs

www.glasshousedesigns.com

Susan Molnar

215 W Main St - Lowell MI 49331

(616) 987-4527

A gallery of American-made craft with 40+ artists. Also, glass artist's studio and classroom. Offering stained glass, fusing & lampworking classes.

Lowell Beer Store <http://>

Ronbert Huber

213 E Main St - Lowell MI 49331

(616) 897-9074

We sell beer, wine, liquor, pop, snacks. Hours: Monday-Friday,
9:00 a.m. to 12:00 p.m. Sunday, 12:00 p.m. to 10:00 p.m.

Pep Talk http://

Amy Hayes

207 E Main St - Lowell MI 49331

(616) 897-7200

Unique and inspirational gifts. Custom order, silkscreen &
embroidery.

Rookies Sportcards Plus

www.rookies-sportcards.com

Jack Reedy

106 W Main St - Lowell MI 49331

(616) 897-5650

Your local hobby shop specializing in sports cards, comic books
and games! Buy-Sell-Trade! Open M/W/F 10-6:30, Tu/Thur 1-6:30,
Sat 10-5

Springrove Variety http://

Mike Sprenger

123 W Main St - Lowell MI 49331

(616) 897-9918

Step back in time in Lowell's five & dime store, offering a wide
variety of stock such as bulk candy, toys, crafts, yarns, stationery,
cards and much more. Hours M-S, 9 am - 6 pm.

The Hanger

www.hangerhotclothing.com

Kristina Laux

209 W Main St. - Lowell MI 49331

(616) 897-8200

A unique clothing store where the cloths are hot and the prices
are cool! Featuring today's trendy styles for juniors and women.
Hours: M-F, 11 am to 6 pm, Sat, 11 am-5 pm

Golf Courses and Recreation

Arrowhead Golf Course

www.arrowheadontheweb.com

Josh Bruwer

2170 Alden Nash - Lowell MI 49331

(616) 897-7264

Our course will challenge the best golfer, without intimidating the novice player. Over 200 acres of rolling, wooded terrain, treats golfers to an exceptional value without compromise. Men's & ladies leagues outings of any size.

Deer Run Golf Club

www.deerrungolfclub.net

Toni Versluys

13955 Cascade Rd - Lowell MI 49331

(616) 897-8481

We specialize in golf outings and banquet functions. Please visit our website to learn more about our facilities.

Lowell Area Trailway

www.lowellareatrailway.org

Betsy Davidson

PO Box 98 - Lowell MI 49331

(616) 897-5671

Organization to provide a multi-use community trail system that is accessible to all residents of Lowell. The trail is planned to be paved and non-motorized.

Tyler Creek Golf Course & Campground

www.tylercreekgolf.com

Samuel Pyle

13495 92nd St SE - Alto MI 49302

(616) 868-6751

Tyler Creek Golf Course & Campground offers a unique opportunity to golf & camp in a picturesque setting just minutes from Grand Rapids & Lowell. Several improvements have been made to the entire property in the last two years. Have you seen us lately?

Wittenbach/Wege Agri-science & Nature Center

www.lowellschools.com/index.php?option=com_content&task=blogcategory&id=138&Itemid=97

Meggan Johnson

11715 Vergennes - Lowell MI 49331

(616) 987-1002

The center's mission is to provide tools, skills, and knowledge to develop environmentally responsible, agriculturally-aware citizens

who actively participate in practices that preserve the integrity and sustainability of the natural world.

Entertainment

Roll Away Family Fun Center

www.rollaway.biz

Bob Van Noller

805 E Main St - Lowell MI 49331

(616) 897-0001

Bowling, roller-skating, laser tag and mini golf. Rent all or part of Roll Away for birthdays, corporate or church parties. All night events available.

Century Post Pub <http://>

Ronald Potter

203 E Main St - Lowell MI 49331

(616) 987-9188

Live Music Wednesday - Saturday. Small "drop in" pub with limited snacks, friendly, casual atmosphere

Festivals and Events

2009 Lowell Showboat Sizzlin' Summer Concerts

Thursday Nights: Beginning June through August

Riverwalk Plaza – Downtown Lowell

Concerts begin at 7:00 p.m.

through 9:00 pm

Farmer's Market – May through October

Riverwalk Gallery Shows

Lowell Area Chamber of Commerce, 113 Riverwalk Plaza.

Hours: Tuesday - Friday 10:00 a.m. - 4:00 p.m.

Sponsored by the Lowell Area Chamber of Commerce, the

Riverwalk Gallery showcases artworks by local artists.

2009 Riverwalk Festival

Thursday July 9th, Friday July 10th, Saturday July 11th, Sunday July 12th

This four-day event includes many activities where you and your family will enjoy Thursday, Friday and Saturday night concerts, arts and crafts, parade, pet parade, Brian Mead Memorial Riverwalk Cruise-in, Rumble the Riverwalk, Brew-B-Q event, children's area, historic riding tours and river tours, pontoon rides, kayak and canoe race, kayak fun, food booths, downtown

merchants sidewalk sales and open house, health & fitness fair, street musicians, \$1500 duck race, fireworks and much more.

Kent County Youth Fair

The Kent County Fairground facility has numerous buildings and areas designed for multiple uses. The fair grounds are capable of entertaining thousands of people at once and providing ample parking and camping areas at the same time. There can even be multiple events going on at the same time.

14th annual Mayfest Bluegrass Festival!

May 15, 16, 17 at the Kent County Fairgrounds in Lowell, Michigan

41st Fallsburg Fall Festival -Harvest Celebration

- Annual Lowell Community Wellness Harvest Hustle 5K Run/Walk
- Annual Kent County Youth Fair Arts and Crafts Show
- Great Mini Pumpkin Chuckin' Contest
- Scarecrow Building Hoedown, children and adults build a scarecrow to decorate downtown, supplies provided or bring your own
- Larkin's Annual Chili Madness Chili Cook-off & Live Music
- Annual Flat River Antique Fair
- Fresh Apple Pie Sale at the Harvest Celebration – Farmers market 10 am to 2 pm

*Sources: Lowell Area Chamber of Commerce
(<http://www.lowellchamber.org/>)*

List of Contemporary Parks

Parks located within Muskegon, Ottawa, Allegan, Barry, Kent, Newaygo, Montcalm, and Ionia counties.

Public Michigan Campgrounds

Bass River Recreation Area

Lamont, MI 49430
(231) 798-3711

Newaygo State Park

2793 Beech Ave.
Newaygo, MI 49337

(231) 856-4452

Duck Lake State Park

3560 Memorial Drive
North Muskegon, MI 49445
(231) 744-3480

P.J. Hoffmaster State Park

6585 Lake Harbor Rd.
Muskegon, MI 49441
(231) 798-3711

Grand Haven State Park

1001 Harbor Ave.
Grand Haven, MI 49417
(616) 847-1309

Saugatuck Dunes State Park

Saugatuck, MI 49453
(269) 637-2788

Ionia Recreation Area

2880 West David Hwy
Ionia, MI 48846
(616) 527-3750

Yankee Springs Recreation Area

2104 S. Briggs Rd.
Middleville, MI 49333
(269) 795-9081

Private Michigan Campgrounds

Bertha Brock

2311 Bluewater Highway
Ionia, MI 48846
(616) 522- PARK

Lakeside Camp Park

13677 White Creek Ave.
Cedar Springs, MI 49319
616-696-1735

Duke Creek Campground

15190 White Creek Ave NE
Cedar Springs, MI 49319
(616) 696-2115

Lincoln Pines Campground and Mobile Home Park

13033 19 Mile Road
Gowen, MI 49326
616-984-2100

Double R Ranch

4424 Whites Bridge Rd
Belding, MI 48809
(616) 794-0520

Miller Lake Campground

2130 Miller Lake Dr
Hopkins, Michigan 49328

Drew's Country Camping

12850 Ransom
Holland, MI 49424
(616) 399- 1886

Oak Grove Resort

2011 Ottawa Beach Rd
Holland, MI 49424
(616) 399-9230

Dumont Lake Campground

3106 125th Avenue
Allegan, MI 49010
(269) 673-6065

River Pines RV Park & Campground

8275 Warner
Allendale, MI 49401
616-895-6601

Dutch Treat

10300 Gordon Street
Zeeland, MI 49464
(616) 772 4303

Sandy Pines RV Resort

2745 136th Avenue
Hopkins, MI 49328
616-896-8315

East Lake Camping

Scalley Lake Park

3091 Weicks Dr
Hopkins, MI 49328
(269) 793-7177

Giles Campground

697 44th St
Allegan, MI 49010-9328
(269) 521-6171

Grand Rogue Campgrounds

6400 West River Dr.
Belmont, MI 49306
616-361-1053

Hungry Horse Campground

2016 142nd Avenue
Dorr, Michigan 49323
(616) 681-9843, (616) 681-9836

KOA Kampgrounds

3500 Strand Rd
Muskegon, MI 49445
(231) 766-3900

5775 Scalley Avenue. R#1
Belding, MI 48809
(616)691-8534

Tyler Creek Golf & Campground

13495 92nd Ave.
Alto, Michigan 49302
Phone: (616) 868-6751

Warner Memorial Camp

60 55th Street
Grand Junction, Michigan 49056
(269) 434-6844

Woodchip Campground

7501 Burlingame Ave. SW
Byron Center, MI 49315
616.878.9050

Yogi Bear Jellystone Park

10990 US Highway 31
Grand Haven, MI 49417
(616) 842-9395

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