MANISTEE CITY PLANNING COMMISSION

Meeting of Thursday, September 5, 2013
7:00 p.m. - Council Chambers, City Hall, 70 Maple Street,
Manistee, Michigan

AGENDA

I Call to Order

II Roll Call

III Approval of Agenda

At this time the Planning Commission can take action to approve the September 5, 2013 Agenda.

IV Approval of Minutes

At this time Planning Commission can take action to approve the August 1, 2013 meeting Minutes.

V Public Hearing

PC-2013-06 – Dr. Edward P. Hybza D.C. and Jeanne Hybza – Speical Use Permit for a Medical Office at 311 Fourth Street.

A Public Hearing is being held in response to Dr. Edward P. Hybza D.C. and Jeanne Hbyza's request for a Special Use Permit to allow a Medical Office at 311 Fourth Street.

At this time the Chair shall open the hearing.
The Applicant shall present any comments and explanation of the case.
City Staff shall present their report
The hearing will be opened for public comments
The Chair will ask if any correspondence has been received in response to the request
The hearing will be closed

VI Public Comment on Agenda Related items

VII New Business

PC-2013-06 – Dr. Edward P. Hybza D.C. and Jeanne Hybza – Special Use Permit for a Medical Office at 311 Fourth Street

During the Business portion of the meeting the Planning Commission will review the request for a Special Use Permit from Dr. Edward P. Hybza D.C. and Jeanne Hybza for a Medical Office at 311 Fourth Street.

At this time the Planning Commission can take action to adopt a resolution to approve/approve with conditions or deny the request from Dr. Edward P. Hybza D.C. and Jeanne Hybza for a Special Use permit for a Medial Office at 311 Fourth Street as submitted with application PC-2013-06.

Manistee Environmental Stewardship Assessment

Members of the Planning Commission received a copy of the Manistee Environmental Stewardship Assessment prepared by the Northwest Michigan Council of Governments. Scott Gest, Michigan Council of Government will be at the Planning Commission to give an overview of the study and to answer questions.

VIII Old Business

IX Public Comments and Communications

At this time the Chair will ask if there are any public comments.

X Correspondence

At this time the Chair will ask if any correspondence has been received to be read into the record.

XI Staff/Sub-Committee Reports

At this time the Chair will ask Staff for their report.
At this time the Chair will ask if any of the Sub-Committees have anything to report.

XII Members Discussion

At this time the Chair will ask members of the Planning Commission if they have any items they want to discuss.

XIII Adjournment

CITY OF MANISTEE PLANNING COMMISSION

70 Maple Street
Manistee, MI 49660

MEETING MINUTES
August 1, 2013

A meeting of the Manistee City Planning Commission was held on Thursday, August 1, 2013 at 7 pm in the Council Chambers, City Hall, 70 Maple Street, Manistee, Michigan.

Meeting was called to order at 7 pm by Chair Yoder

Roll Call:

Members Present: Maureen Barry, David Crockett, Bill Dean, Ray Fortier, Marlene McBride, Mark Wittlief, Roger Yoder

Members Absent: None

Others: Dave Carlson and Denise Blakeslee (Planning & Zoning)

APPROVAL OF AGENDA

Motion by Ray Fortier, seconded by Mark Wittlief that the agenda be approved as prepared.

With a Roll Call vote this motion passed 7 to 0.

Yes: Barry, Crockett, Dean, Fortier, McBride, Wittlief, Yoder
No: None

APPROVAL OF MINUTES

Motion by Mark Wittlief, seconded by Bill Dean that the minutes of the July 11, 2013 Planning Commission Meeting be approved as prepared.

With a Roll Call vote this motion passed 7 to 0.

Yes: Wittlief, McBride, Fortier, Dean, Crockett, Barry, Yoder
No: None

PUBLC HEARING

None

PUBLIC COMMENT ON AGENDA RELATED ITEMS

None

NEW BUSINESS

None

OLD BUSINESS

None

PUBLIC COMMENTS AND COMMUNICATIONS

None

CORRESPONDENCE

None

STAFF/SUB-COMMITTEE REPORTS/ MEMBERS DISCUSSION

Denise Blakeslee, Planning & Zoning – Ms. Blakeslee discussed credits needed for Citizen Planner Continuing Education and workshops scheduled in October.

Staff is requesting to change the date of the October 3, 2013 Planning Commission Meeting. Staff will be attending the Michigan Association of Planning Conference in Kalamazoo.

MOTION by Ray Fortier, seconded by Maureen Barry to reschedule the October Planning Commission meeting to October 10, 2013.

With a voice vote MOTION PASSED UNANIMOUSLY

No Worksession in August

The next regular meeting of the Planning Commission will be held on Thursday, September 5, 2013

Meeting adjourned at 7:08 pm

Worksession - Notes

Worksessions are scheduled to allow the Planning Commission the opportunity to discuss in a less formal manner than a regular meeting. No motions can be made during a Worksession.

Existing Land Uses – The Commission worked on Aerials that will be used to update the Existing Land Map that will be part of the Master Plan Update.

ADJOURNMENT

Motion by Ray Fortier, seconded by Dave Crockett that the meeting/worksession be adjourned.

With a voice vote MOTION PASSED UNANIMOUSLY

Meeting adjourned at 7:53 pm

MANISTEE PLANNING COMMISSION

_____

Denise J. Blakeslee, Recording Secretary

City of Manistee

Planning & Zoning
231.398.2805
Fax 231.723-1546
www.manisteemi.gov

MEMORANDUM

TO: Planning Commissioners

FROM: Denise Blakeslee, Planning & Zoning

DATE: August 13, 2013

RE: Dr. Edward P. Hybza D.C. and Jeanne Hybza – Special Use Permit Medical Office

Commissioners, we received a request from Dr. Edward P. Hybza D.C. and Jeanne Hybza for a Special Use Permit for a Medical Office at the former Jehovah's Kingdom Hall 331 Fourth Street. The former Jehovah's Kingdom Hall was located on parcel 51-574-731-01 and the parking lot to the west is located on parcel 51-574-731-03. These parcels are located in the R-2 Medium Density Residential Zoning District.

In the R-2 Zoning District a Medical or Dental Office is a Special Use that requires frontage on a key street segment. Parcel 51-574-731-01 has frontage on Cypress Street which is a Key Street Segment as defined in Section 532 of the City of Manistee Zoning Ordinance.

Staff has reviewed the site plan and the request meets all of the requirements except for Section 903 District Standards, Item A Parcel area reads…"No duplex, multiple unit or commercial structure shall be established on any parcel less than ten thousand (10,000) square feet in area."… The applicant can meet this requirement by requesting that the two parcels be combined into one parcel.

Staff recommends that the following condition be placed on the Special Use Permit if the Planning Commission were to approve the request.

The Applicant shall request to combine both parcels 51-574-731-02 and 51-574-731-03 into one parcel to meet the requirement of Section 903.A "No duplex, multiple unit or commercial structure shall be established on any parcel less than ten thousand (10,000) square feet in area."

For your consideration staff has included with a copy of the request; site plan review, drafted resolution of approval and drafted resolution of denial.

Copies of the request have been sent to the Director of Public Safety and DPW Director for their review.

City of Manistee

Planning Commission/Planning & Zoning
City Hall
70 Maple Street, P.O. Box 358,
Manistee, MI 49660
231.398.2806 (phone)
231.723.1546 (fax)

Special Use Permit Application

A Detailed Site Plan is required for all Special Uses

Please Print

Submission of Application		
Applications must be submitted 25 doys priar to the meeting for review for completeness. Applications shall be submitted through the Zoning Administrator to the Planning Commission. Each application shall be accompanied by the payment of a fee **$750.00 and any applicant escrow payments** as required by **Section 2701** and in accordance with the schedule of fees adopted by the City Council to cover the costs of processing the application. An application shall be submitted to the Zoning Administrator on a Special Use application form. A Special Use application shall be placed on the agenda of the Planning Commission by the Zoning Administrator within thirty (30) days of the submission of a complete application prepared in accordance with this Zoning Ordinance. An application, which is incomplete or otherwise not in compliance with this Ordinance, shall be returned to the applicant. No application shall be processed until properly prepared and submitted and all required fees and escrow payments paid in full.		
Property Information		
Address: 331 4th St. Manistee	Parcel # 51-51-574-731-01+	
Applicant Information	51-51-574-731-03	
Name of Owner or Lessee: 1 Edward P. Hybza DC + Jeanne Hybza		
Address: 4008 Lakeshore Rd. Manistee, MI 49660		
Phone #: 231-723-7743	Cell#: 231-233-3491	e-mail: jeanne@hybzachiropractic.com
Name of Agent (if applicable): Sandy Larson		
Address: 1121 Parkdale Avenue. Manistee		
Phone #: 723-3555	Cell#: 633-7379	e-mail: Sandy@coldwellbankeralm.com
Data Required/Project Information		
Land Area: 132' x 124.7'	Zoning Classification: Residential	
Present/proposed Land Use: Medical/Dental		

Attach a Detailed Narrative for the following

☑	A letter or signed narrative describing in detail the proposed special use and detailing why the location selected is appropriate.
☑	Applicant's statement of the expected effect of the special use on emergency service requirements, schools, storm water systems, sanitary sewer facilities, automobile and truck circulation patterns, and local traffic volumes.
☑	Any additional material information necessary to consider the impact of the project upon adjacent properties and the general public as may be required by this ordinance, by the City Zoning Administrator or the Planning Commission; including, but not limited to, measures which will be undertaken to control soil erosion, shoreline protection, excessive noise, or adverse impacts of the development on the surrounding properties; elevations on all buildings, including accessory buildings; and, an environmental assessment.
☐	Supporting statements, evidence, data, information and exhibits that address the standards and requirements for assessing Special Use permit applications as provided in **Section 1802**.

Additional Information

Any additional information deemed necessary for the Planning Commission to determine the impact of the proposed Special Use on the adjacent properties, public infrastructure, and community as a whole. Such information may take the form of, but is not limited to, a traffic impact analysis as required by **Section 2203, E, 2**, an environmental assessment as required by **Section 2203, E, 1**, a market study as required by **Section 2203, E, 3,** or reports and/or testimony by officials representing state, county or local departments of public safety (police and fire), health, highways or roads, and/or environment.

Special Use review procedures. An application for Special Use Approval shall be processed in accordance with **Section 1801.C.**

Issuance of a Special Use permit. Special Use Permits shall be issued in accordance with **Section 1801.D.**

Appeals. No decision or condition related to a Special Use application shall be appealed to the Zoning Board of Appeals. An appeal of a Special Use decision or condition may be taken to Circuit Court.

Duration of Approval. The Special Use permit shall become effective upon Planning Commission approval and in accordance with **Section 1801.F.**

Amendments. Amendments to Special Use permits shall be handled in the same manner as the initial Special Use permit application. Minor non-substantive changes to a site plan in accordance with **Section 2208** may be made to an existing Special Use permit with the approval of the Zoning Administrator.

Transfers. Transfers shall be handled in accordance with **Section 1801.H.**

Expiration. A Special Use permit shall be valid for as long as the approved use continues in accordance with the terms and conditions of the approved permit. The Special Use permit will expire on the occurrence of one or more of the following conditions:

1. If replaced or superseded by a subsequent permitted use or Special Use permit.
2. If the applicant requests the rescinding of the Special Use permit.
3. If a condition of approval included stipulation to expire the Special Use permit by a certain date.
4. If the use is abandoned, moved or vacated for a period of one year.

Violations. Violations shall be handled in accordance with **Section 1801.J.**

Authorization

CERTIFICATION AND AFFIDAVIT:

The undersigned affirm(s) that he/she/they is/are the ☒ owner, ☐ leasee, ☐ owner's representative, ☐ contractor involved in the application; and that the information included in this application is correct. Further, if the request is approved, the applicant will comply with all of the requirements of the City of Manistee Zoning Ordinance and certifies that measures proposed to mitigate adverse impacts will be completed in a timely fashion. The undersigned, by signing the Application, agrees to pay any and all fees and escrow payments in full as provided in **Article 27.**

Signature: _____ Date: 7-29-13

Signature: _____ Date: 7-29-13

If applicant is Incorporated or a Limited Liability Corporation a copy of the Articles of Incorporation are to be submitted with application.

☒ By checking this box permission is given for Planning Commission Members to make a site inspection if desired.

☐ Yes ☒ No Please indicate if the applicant will be tax exempt, applying and/or eligible for tax abatements, credits or deferments for this proposed project. If Yes, explain:

Office Use Only

Fee: ☒ $750.00 ☐ $_____	Escrow Payment	Receipt # 28811
Date Received: 8-12-13	Hearing Date:	PC -

Hybza Chiropractic

428 First Street • Manistee, Michigan 49660 • 231-723-7743
Edward P. Hybza, D.C.

July 29, 2013

City of Manistee
Planning Commission/Planning & Zoning
City Hall
70 Maple Street, P.O. Box 358
Manistee, MI 49660

RE: Special Use Permit Application
331 4th Street, Manistee, MI 49660

Dear Planning Commissioners:

Hybza Chiropractic is interested in purchasing the property at 331 4th Street, Manistee. Our office is currently leasing a building located at 428 1st Street, Manistee. The property of interest is a vacant church building. If allowed we would convert the church to our new office building for a Chiropractic office.

The property located at 331 4th Street, Manistee has already been built for the public to access. This property is located on US31, and has an existing large lighted parking lot to the west. The lighting is existing and there would be no change (any issues with the lighted parking lot, we can put on a timer). The property is already handicap accessible which is a benefit for our practice. Our plan does not include any changes to the current property except minor aesthetic improvements.

The expected effect of Special Use requirements are:

1. Emergency Service Requirements: None
2. Schools: None
3. Storm Water Systems: None, no planned exterior changes
4. Sanitary Sewer Facilities: None
5. Automobile patterns: Very minimal, Maximum of 4 employees and about 4 patients per hour during business hours only. We are using the existing parking lot. There will be a bike rake installed. The waiting room size will not exceed 500 square feet.
6. Local Traffic Volumes: No significant change

Additional information that has been requested on the application is:

1. Soil erosion: None, no planned exterior changes
2. Shoreline Protection: N/A
3. Excessive Noise: None
4. Impacts on Surrounding Properties: Active Business
5. Elevations of Buildings: See Site Plan
6. Environmental Assessment: No change from current

The property located at 331 4th Street, Manistee appears to comply with the Section 1802's requirements for Medical/Dental usage for a single doctor practice.

We understand the requirements of Table 2100-1: Use Types and Sign Standards. Our practice falls under the Zoning District R1, R2, R3, & R4. Our cumulated sign area will not exceed 16 square feet.

The proposed entrance including the porch and steps listed on the revised Site Plan are at the maximum size. They will be within the proposed area. The new entrance will not necessarily be barrier free.

Please feel free to contact us should questions arise during this process. Thank you for your consideration for this Special Use Permit. This property will be purchased using our LLC; Three Bisons, LLC.

Sincerely,

Jeanne M Hybza
Co-Owner of Hybza Chiropractic

Edward P Hybza DC
Co-Owner of Hybza Chiropractic

Enclosures

Applicant: 331 4th ST / AYBZA		
Submission Guidelines		
Detailed site plan shall include fifteen (15) copies of all required information including any documents rendered in color and a digital PDF of the Site Plan shall be forwarded to the Planning and Zoning Department. Unless specifically waived by the Zoning Administrator the site plan shall be prepared by an Engineer, Architect, Landscape Architect or Surveyor licensed to work in Michigan and shall include and illustrate at a minimum the following information:		
Waived Initials	**Included**	**Detailed Site Plan Requirements**
	☐	The site plan shall be prepared by an Engineer, Architect, Landscape Architect or Surveyor licensed to work in Michigan
	☐	A scale drawing of the site and proposed development thereon, including the date, name, address and professional seal of the preparer. In no instance shall the scale of the drawing be greater than one inch equals 20 feet nor less than one inch equals 200 feet. One copy shall be submitted in a photo-reduced form on 17" x 11" paper.
	☐	The scale of the drawing and north arrow
	☐	A vicinity map illustrating the property in relation to the surrounding street system.
LR	☐	~~Topography of the site and its relationship to adjoining land illustrated at 2-foot contours and including an area extending 100 feet from the parcel boundary.~~
	☐	Existing man-made features, including buildings, fences, landscaping, parking, screening and the locations, heights and footprint of each.
	☐	Illustration of all proposed improvements and buildings, fences, landscaping, parking and screening, including location, height, footprint of each.
	☐	Setback lines and their dimensions.
LR	☐	~~Percentage of land covered by buildings and impervious surfaces~~ and that reserved for open space.
LR	☐	~~Dwelling unit density where~~ pertinent; including a density schedule demonstrating number of each dwelling type, if applicable.
LR	☐	~~Project phasing, if applicable.~~
	☐	Location of public and private rights-of-way and easements contiguous to and within the proposed development which are planned to be continued, created, relocated or abandoned, including grades and types of construction of those upon the site.
	☐	Curb-cuts, driving lanes, parking and loading areas, including the number of parking spaces and parking calculations; vehicular circulation patterns and features, location and size of all parking spaces and the identification of service lanes and parking.
LR	☐	~~Curb-cuts and driveways~~ on adjacent properties.
	☐	Location and type of drainage, sanitary sewers, storm sewers and other facilities, including surface and subsurface drainage for all impermeable surfaces on the site and all drainage calculations.
LR	☐	~~Existing and proposed water main, sanitary~~ and storm sewer, natural gas, electric, telephone, cable television and other utilities, the proposed location of connections to existing utilities and any proposed extensions thereof.
LR	☐	~~Proposed changes~~ to the topography of the site illustrated at no greater than two (2) foot contours.
	☐	Soil erosion and sediment control measures which shall include preventative soil erosion devices or measures, both during and after any site work related to the development.
	☐	Detail on proposed signage including an illustration of all proposed signs, their surface area, height and nature of illumination, in accordance with **Article 21.**
	☐	A lighting plan in conformance with **Section 525.**
	☐	A written and illustrated landscape plan prepared in accord with **Section 531** of this Zoning Ordinance.
LR	☐	~~If the parcel is a result of a~~ parcel division undertaken after the adoption of this Ordinance, the site plan shall ~~illustrate all structures~~ and buildings, drawn to scale located on the previously undivided property.
	☐	Any additional material information necessary to consider the impact of the project upon adjacent properties and the general public as may be requested by the Zoning Administrator or the Planning Commission.
	☐	Any required approvals, permits, changes or modifications required by any applicable regulatory agency.
LR	☐	Special Groundwater Protection. [If applicable – requirements will be provided]

APPROX. PROPERTY LINE

CURB

9 SPACES
10'x 18'

PINE TREE

CURB

51-51-574-731-03
LOT 2 BLK 16
62.33'x 122'

BLACKTOP

4TH STREET

CURB

BIKE RACK

10 SPACES
18'x 9'

ALLEY

CURB

CURB

GRASS

GRASS

5 SPACES
18'x 10'

32'x 70'
BUILDING

HANDICAP SPACE

EDGE OF SIDEWALK

51-51-574-731-01
LOT 1 BLK 16
62.33'x 122'

Robert J. Hyba
8/10/13

RAMP

BUSHES & SHRUBS

GRASS

LEDGE BRICK

BLACKTOP
GRASS

SEE DETAIL #1

15'

16.5'

GRASS

APPROX. PROPERTY LINE

EDGE OF SIDEWALK

← U.S. 31 →

4"x6" WOOD

APPROX.
6'x6'
AREA

DETAIL #1
1/4" = 1'-0"

NORTH

16'

SCALE

ED HYBZA
CHIROPRACTIC BLDG.

SITE PLAN

SCALE: 1/8" = 1'-0" | 7/20/13

DRAWN BY: ROBERT J. HYBZA

APPROX. PROPERTY LINE

CURB

9 SPACES
10'x 18'

PINE TREE

CURB

51-51-574-731-03
LOT 2 BLK 16
62.33'x 122'

BLACKTOP

4th STREET

ALLEY

7 SPACES
9'x 18'

CURB

FUTURE DESIGNATED WALKWAY

FUTURE STAIRS AND/OR RAMP IN THIS AREA

16'x 16'

BIKE RACK

CURB

APPROX. 16 SQ. FT. AREA

LIGHT

DETAIL #1
1/4"=1'-0"

CURB

GRASS

GRASS

GRASS

5 SPACES
10'x 18'

32'x 70'
BUILDING

HANDICAP SPACE

51-51-574-731-01
LOT 1 BLK 16
62.33'x 122'

Robert J. Hyb
8/10/13

EDGE of SIDEWALK

PORCH
NOT TO EXCEED
16'x 32'

RAMP

BERMS + SHRUBS

GRASS

LEDGE BRICK

(2) LIGHTS

SEE DETAIL #1

BLACKTOP

GRASS

GRASS

15'

16.5'

APPROX. PROPERTY LINE

EDGE of SIDEWALK

U.S. 31

NORTH

16'

SCALE

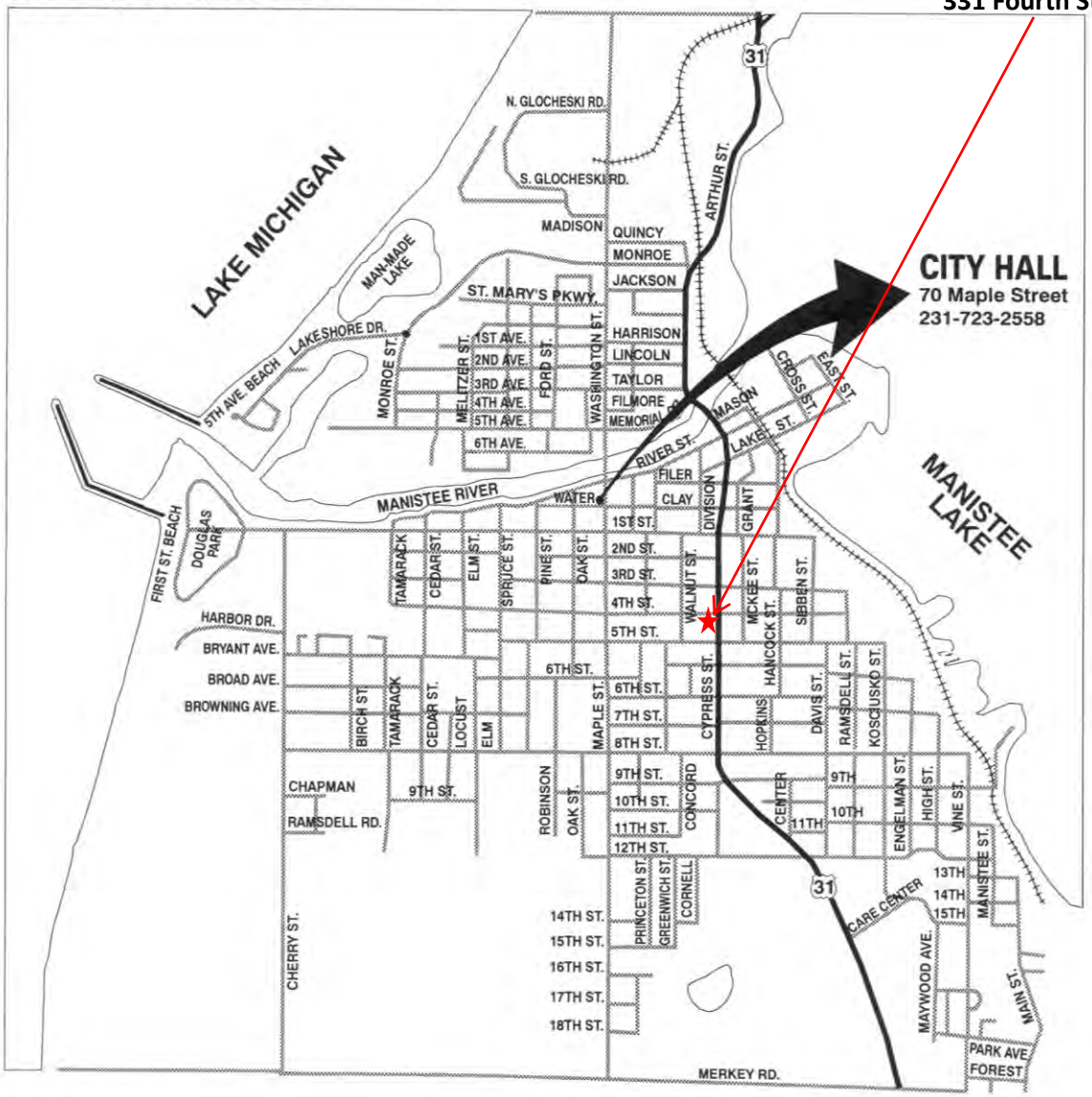
ED HYBZA
CHIROPRACTIC BLDG.

FUTURE SITE PLAN

SCALE: 1/8"=1'-0" | 8/9/13

DRAWN BY: ROBERT J. HYBZA

Vicinity Map
Dr. Edward P. Hybza D.C. & Jeanne Hybza
331 Fourth Street



Site Plan Review
R-2 Medium Density Residential District

Name of Applicant: ***Edward P. Hybza DC & Jeanne Hybza***				
Address/Parcel Code # ***331 Fourth Street/#51-574-731-01 & 03***				
Proposed Use: ***Medical Office***				
> = Greater than < = Less than +/- = More or Less than	Requirements	Proposed	Compliance Yes	No
Duplex or Commercial Minimum Lot Area Minimum Lot Width	 10,000 sq. ft. 80 ft.	***Parcel #574-731-01*** ***62.33' x 122' = 7,604.26 sq. ft.*** ***Parcel #574-731-03*** ***62.33' x 122' = 7,604.26 sq. ft.*** ***Parcels will need to be combined to meet requirement***	 X	
Maximum Building Height	2 ½ stories, or 35 ft.	***No change to building Height***	X	
Maximum Lot Coverage	40%	***With proposed porch - Lot coverage is less than 40%***	X	
Front Yard Set Back	15 ft.	***> 15 ft. Building*** ***Proposed porch will be within requirements of Section 502.D.1.a***		
Side Yard Set Back:	10 (each side)	***> 15 ft.***	X	
Rear Yard Set Back:	10 ft.	***> 15 ft.***	X	
Parking Requirements:	4 employees 10 for 500 sq. ft. waiting room Total 14 spaces	***21 spaces proposed after porch addition and installation of a bike rack***	X	
Signage – subject to Article 21: ***Proposed 16 sq. ft. sign meets requirements***			X	
Landscaping Requirements – subject to Section 531: ***No Change***			X	
Outdoor Lighting Requirements – subject to Section 525: ***Existing Lighting, Applicant will install a timer in the event there is an issue with outdoor lighting in parking lot.***			X	
U.S. 31 Corridor Overlay District Requirements – subject to Article 19: ***No new curb cuts on US 31 or change to existing parking layout.***			X	
Notes: ***Parcels will need to be combined to meet requirement*** ***Copy of Request has been forwarded to the Director of Public Safety and DPW Director for review.***				
Zoning Review by: Denise Blakeslee				
Compliance: ***Upon combination of parcels, staff review of Site Plan shows that all the requirements of the Ordinance have been met.***				
Approval:		Denial:		

City of Manistee

MEMORANDUM

Planning & Zoning
231.398.2805
Fax 231.723-1546
www.manisteemi.gov

TO: Planning Commissioners

FROM: Denise Blakeslee, Planning & Zoning

DATE: August 27, 2013

RE: Hybza – Updated Site Plan

Commissioners, Dr. Hybza dropped off an updated site plan that enlarged the proposed porch expansion. Staff review shows that the expansion of the porch meets the setback requirements.

Hand Delivered 8.27.13

APPROX. PROPERTY LINE

CURB

9 SPACES
10'x18'

PINE TREE

CURB

51-51-574-731-03
LOT 2 BLK 16
62.33'x 122'

BLACKTOP

4th STREET

CURB

ALLEY

6 SPACES
9'x18'

FUTURE DESIGNATED WALKWAY

BIKE RACK

FUTURE SIDE PORCH W/STAIRS AND/OR RAMP IN THIS AREA 16'x32' NOT TO EXCEED

CURB

GRASS

GRASS

5 SPACES
10'x18'

32'x70'
BUILDING

HANDICAP SPACE

51-51-574-731-01
LOT 1 BLK 16
62.33'x 122'

Robert J Hybza
8/19/13

FRONT PORCH NOT TO EXCEED 16'x32'

EDGE OF SIDEWALK

RAMP

FUTURE SIDE PORCH NOT TO EXCEED 10'x32'

GRASS

BLACKTOP
GRASS

LEDGE BRICK

BUSHES & SHRUBS

SEE DETAIL #1

15'

16.5'

GRASS

APPROX. PROPERTY LINE

EDGE OF SIDEWALK

U.S. 31

APPROX. 16 SQ. FT. AREA

LIGHT

DETAIL #1
1/4" = 1'-0"

NORTH

16'

SCALE

ED HYBZA
CHIROPRACTIC BLDG.

FUTURE SITE PLAN

SCALE: 1/8" = 1'-0" | 8/19/13

DRAWN BY: ROBERT J. HYBZA

City of Manistee
Planning Commission Resolution to Approve a
Special Use Permit, Case Number PC-2013-06
Dr. Edward P. Hybza D.C.
Jeanne Hybza

At a regularly scheduled meeting of the City of Manistee Planning Commission held on September 5, 2013, the following resolution was adopted to approve a Special Use Permit for a Medical Office as shown on Site Plan prepared by Robert J. Hybza Dated 7/20/13 & 8/9/13.

Planning Commissioner _____ moved, supported by Planning Commissioner _____, the adoption of the following resolution.

WHEREAS, on August 12, 3013 a request was received from Dr. Edward P. Hybza D.C. and Jeanne Hybza for a Special Use Permit for a Medical Office, and

WHEREAS, a Medical Office is provided for as a Special Use in the R-2 Medium Density Residential for parcels with Key Street Frontage, and

WHEREAS, the parcel at 331 Fourth Street has frontage on Cypress Street which is a Key Street Segment as defined in Section 532 of the City of Manistee Zoning Ordinance, and

WHEREAS, the Planning Commission has provided proper notice and held a public hearing on the proposed development on September 5, 2013, and

WHEREAS, the Planning Commission has received written comment, reviewed the site plan, and has completed review of the application, received input from the Applicant and input received at said public hearing.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

A. RESOLVED, that the Planning Commission has reached the following determination regarding Special Use Permit Standards (Section 1802.A):

1. The Special Use is consistent with the adopted City of Manistee Master Plan.

2. The Special Use is designed, constructed, operated and maintained to be consistent with the existing or intended character of the general vicinity and such use will not change the essential character of the area in which it is proposed.

3. The Special Use is not hazardous or disturbing to existing or future uses in the same general vicinity and in the community as a whole.

4. The Special Use is served adequately by essential public facilities and services, such as highways, streets, police and fire protection, storm water drainage, refuse disposal, water and sewage

facilities, and schools; or persons or agencies responsible for the establishment of the proposed use shall provide adequately for such services.

5. The Special Use does not create excessive additional requirements at public cost for facilities and services and will not be detrimental to the economic welfare of the community.

6. The Special Use does not involve uses, activities, processes, materials and equipment or conditions of operation that will be detrimental to any person, property or general welfare by reason of excessive production of traffic, noise, vibration, smoke, toxic emissions, fumes, glare, or odors.

7. The Special Use meets the intent and purpose of the Zoning Ordinance; be related to the standards established in the Ordinance for the land use or activity under consideration; and will be in compliance with these standards.

B. Findings of Fact – Section 1853 Medical or Dental Office of the City of Manistee Zoning Ordinance the Planning Commission has reached the following determinations with respect to the Project:

1. Within the R-2 and R-3 districts, a medical or dental office shall not exceed seven thousand (7,000) square feet in gross floor area. ***2,240 sq. ft.***

2. As a condition of approval, the Planning Commission may establish hours of operation for the Medical or Dental Office, if in the judgment of the Planning Commission such restrictions are needed to assure the compatibility of the facility with neighboring uses.

3. The exterior of the building shall be compatible with neighboring uses.

4. All exterior lighting shall be in accordance with Section 525 hereof.

5. Any dumpsters on site shall be enclosed on four (4) sides with an opaque fence equipped with a lockable gate and shall not be visible from lot lines. Any disposal of bio hazardous waste shall be in conformance with state and local requirements.

6. Within the R-2 and R-3 districts, Medical or Dental office shall front on and be accessed primarily from a key street segment, as defined herein. ***Property fronts on a key street segment***

7 All signs shall be in accordance with Article 21 of this Zoning Ordinance.

8. All parking shall be in accordance with Section 514 of this Zoning Ordinance.

9. Landscaping and Buffering shall be provided in accordance with Section 531 of this Zoning Ordinance.

BE IT FURTHER RESOLVED that the Special Use Permit for a Medical Office at 331 Fourth Street shall comply with the following conditions:

1. ***The Applicant shall request to combine both parcels 51-574-731-02 and 51-574-731-03 into one parcel to meet the requirement of Section 903.A "No duplex, multiple unit or commercial***

structure shall be established on any parcel less than ten thousand (10,000) square feet in area."

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CITY OF MANISTEE PLANNING COMMISSION:

AYES:

ABSTAINING:

NAYS:

ABSENT:

MOTION: CARRIED

CERTIFICATION:

I, Maureen Barry, Secretary of the City of Manistee Planning Commission certify that the foregoing is a true and complete record of action taken by the Planning Commission at their regular meeting of September 5, 2013

_____
Maureen Barry, Secretary

City of Manistee
Planning Commission Resolution to Deny a Special Use Permit, Case Number PC-2013-06

Dr. Edward P. Hybza D.C.
Jeanne Hybza

At a regularly scheduled meeting of the City of Manistee Planning Commission held on September 5, 2013, the following resolution was adopted to deny a Special Use Permit for a Medical Office as shown on Site Plan prepared by Robert J. Hybza Dated 7/20/13 & 8/9/13.

Planning Commissioner _____ moved, supported by Planning Commissioner _____, the adoption of the following resolution.

WHEREAS, on August 12, 3013 a request was received from Dr. Edward P. Hybza D.C. and Jeanne Hybza for a Special Use Permit for a Medical Office, and

WHEREAS, a Medical Office is provided for as a Special Use in the R-2 Medium Density Residential for parcels with Key Street Frontage, and

WHEREAS, the parcel at 331 Fourth Street has frontage on Cypress Street which is a Key Street Segment as defined in Section 532 of the City of Manistee Zoning Ordinance, and

WHEREAS, the Planning Commission has provided proper notice and held a public hearing on the proposed development on September 5, 2013, and

WHEREAS, the Planning Commission has received written comment, reviewed the site plan, and has completed review of the application, received input from the Applicant and input received at said public hearing.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

A. RESOLVED, that the Planning Commission has reached the following determination regarding Special Use Permit Standards (Section 1802.A):

   1. The Special Use is consistent with the adopted City of Manistee Master Plan.

   2. The Special Use is designed, constructed, operated and maintained to be consistent with the existing or intended character of the general vicinity and such use will not change the essential character of the area in which it is proposed.

   3. The Special Use is not hazardous or disturbing to existing or future uses in the same general vicinity and in the community as a whole.

   4. The Special Use is served adequately by essential public facilities and services, such as highways, streets, police and fire protection, storm water drainage, refuse disposal, water and sewage

facilities, and schools; or persons or agencies responsible for the establishment of the proposed use shall provide adequately for such services.

5. The Special Use does not create excessive additional requirements at public cost for facilities and services and will not be detrimental to the economic welfare of the community.

6. The Special Use does not involve uses, activities, processes, materials and equipment or conditions of operation that will be detrimental to any person, property or general welfare by reason of excessive production of traffic, noise, vibration, smoke, toxic emissions, fumes, glare, or odors.

7. The Special Use meets the intent and purpose of the Zoning Ordinance; be related to the standards established in the Ordinance for the land use or activity under consideration; and will be in compliance with these standards.

B. Findings of Fact – Section 1853 Medical or Dental Office of the City of Manistee Zoning Ordinance the Planning Commission has reached the following determinations with respect to the Project:

1. Within the R-2 and R-3 districts, a medical or dental office shall not exceed seven thousand (7,000) square feet in gross floor area. ***2,240 sq. ft.***

2. As a condition of approval, the Planning Commission may establish hours of operation for the Medical or Dental Office, if in the judgment of the Planning Commission such restrictions are needed to assure the compatibility of the facility with neighboring uses.

3. The exterior of the building shall be compatible with neighboring uses.

4. All exterior lighting shall be in accordance with Section 525 hereof.

5. Any dumpsters on site shall be enclosed on four (4) sides with an opaque fence equipped with a lockable gate and shall not be visible from lot lines. Any disposal of bio hazardous waste shall be in conformance with state and local requirements.

6. Within the R-2 and R-3 districts, Medical or Dental office shall front on and be accessed primarily from a key street segment, as defined herein. ***Property fronts on a key street segment***

7 All signs shall be in accordance with Article 21 of this Zoning Ordinance.

8. All parking shall be in accordance with Section 514 of this Zoning Ordinance.

9. Landscaping and Buffering shall be provided in accordance with Section 531 of this Zoning Ordinance.

BE IT FURTHER RESOLVED, that the Special Use Permit for a Medical Office at 331 Fourth Street is hereby denied for the reasons set forth in this resolution.

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CITY OF MANISTEE PLANNING COMMISSION:

AYES:

ABSTAINING:

NAYS:

ABSENT:

MOTION: CARRIED

CERTIFICATION:

I, Maureen Barry, Secretary of the City of Manistee Planning Commission certify that the foregoing is a true and complete record of action taken by the Planning Commission at their regular meeting of September 5, 2013

_____
Maureen Barry, Secretary

Manistee
Environmental Stewardship Assessment
2012

Let Our Resources Work For You.

Northwest Michigan Council of Governments

Workforce • Business • Community

Acknowledgements

The Northwest Michigan Council of Governments would like to thank all of the people who gave their time and resources towards the development of the City of Manistee's Environmental Stewardship Assessment.

Prepared by:

Let Our Resources Work For You.
Northwest Michigan Council of Governments
Workforce • Business • Community
PO Box 506
Traverse City, MI 49685-0506
www.nwm.org

With funding from:

Financial assistance for this project was provided, in part, by the Michigan Coastal Management Program, Office of the Great Lakes, Department of Environmental Quality, through a grant from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Michigan's Office of the Great Lakes leads policy development and implements programs to protect, restore and sustain our most precious natural resource. The office collaborates with partners to support sustainable use of these coastal resources, coordinate restoration of severely degraded areas, manage water quality and quantity, prevent aquatic invasive species and engage in emerging issues. We are committed to our Great Lakes mission to ensure a healthy environment, strong economy and high quality of life.

2012

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Contents Continued

Manistee County Map

I. Introduction

Environmental Stewardship and Economic Opportunity in Northwestern Lower Michigan's Coastal Cities and Villages

The Northwest Michigan Council of Governments received a grant from the Michigan Coastal Management Program to implement environmental stewardship and economic opportunity in the eleven coastal communities on Lake Michigan in the Northwest Michigan Council of Governments' region. The project work included assessing the current level of coastal environmental stewardship and then provided additional education for the communities on best management practices that would enhance and protect the natural resources. The communities will then learn how the health of the natural resources plays a key role in future economic development strategies in the region.

The eleven (11) coastal cities and villages included:

City of Harbor Springs (Emmet County)
City of Petoskey (Emmet County)
City of Charlevoix (Charlevoix County)
Village of Elk Rapids (Antrim County)
City of Traverse City (Grand Traverse County)
Village of Suttons Bay (Leelanau County)
Village of Northport (Leelanau County)
Village of Empire (Leelanau County)
City of Frankfort Benzie County)
Village of Elberta (Benzie County)
City of Manistee (Manistee County)

The approach of community engagement and content of the training programs for this project fundamentally promoted principles of sustainable development.

Essential Elements of the Project

- Perform stewardship assessments for each coastal city and village to benchmark the current level of environmental stewardship of the natural resources and the overall community health.
- Develop and provide educational programs for city and village officials and staff, citizens, agencies, economic development organizations, businesses and local organizations that focused on strategies and resources that optimize local environmental quality and on the value, benefits and strategies associated with leveraging an environmentally healthy coastal community to increase sustainable economic opportunities, create a sense of place, and attract and retain talent.
- Provide technical assistance to each community to help them adopt policies and implement actions to protect and enhance environmental quality and create and implement sustainable place-based economic development strategies.
- Create a regional report that provided the environmental quality benchmarks and stewardship status of each coastal community, accompanied by a one-stop-shop of coastal best practices and relevant sustainable economic development strategies that can be leveraged from a high quality coastal resource base. Also, create a general implementation strategy for the best management practices.

II. Community Profile: Manistee

HISTORY

The name "Manistee" is from an Ojibwa word first applied to the principal river of the county. The derivation is not certain, but it may be from ministigweyaa, "river with islands at its mouth." Other sources claim that it was an Ojibwe term meaning "spirit of the woods."

In 1841, the John Stronach family constructed a sawmill on Manistee Lake and later another on the Manistee River. By 1849, more settlers were arriving and the reservation was dismantled, with land given to settlers. The city was set back in 1871 when a fire swept through and destroyed over one-half of the city's buildings. Much was rebuilt, this time of brick.

In 1881, salt was discovered beneath Manistee and another industry was born. By 1885, there were forty sawmills operating and by the end of the century the population reached 14,260. Manistee claimed to have more millionaires per capita than any other city in the United States. They also had city-provided fire protection, a parks department, water, sewer and street lighting.

After 150 years Manistee County has both changed and remained the same. The early boom years of lumbering and exhaustive agriculture have evolved into a stable, diversified industrial base and a top fruit-producing agricultural center. It is the beauty and natural wonder that abounds in the region's forests, lakes and rivers that remain a constant factor and will always make Manistee County a special place to live and visit.

The gallery of architectural styles on display in Manistee, high-lights the major historical epochs that shaped the early City. These major epochs were the post Civil War (late Industrial Revolution) and the Guilded Age of the early 20th Century. This was a period which witnessed rapid growth and industrialization of the upper Midwest made possible by such major national events as the opening of the Erie Canal. During this period, many pioneering industrialists were drawn to Michigan, including the Manistee area, to mine and/or harvest locally abundant raw materials such as sand and timber. Frequently, their efforts spawned rapid urbanization, and yielded substantial personal fortunes resulting in the construction of elegant homes and - in the tradition of many of the famous philanthropists of the time - public gifts of hospitals, parks, libraries and other public monuments.

This was also a period characterized by strict social conventions, as well as manners and tastes, that were largely dictated by - and reflective of - one's social and economic standing. The City's large quantity of 'high' Victorian residences give us a glimpse into the late 19th Century lifestyles of the City's newly rich industrialists; whereas, the handful of Neo-Classical and Beaux Arts buildings found in Manistee reveal a high level of dawn-of-the-Century, cultural awareness and civic aspiration in the City Beautiful tradition. This is noteworthy considering the City's small size and relative remoteness.

Through the various plans and promotional materials prepared for the City over the years, much more has been written about Manistee's colorful history and its special character. Most of this work is quite good and will not be improved upon here. Needless to say, the City's historical legacy and rich architectural traditions are aspects of the City that residents rightfully take a great deal of pride[missing text between pages: City of Manistee Master Plan] systems in the vicinity of US- 31. This is perhaps the common thread that links the City's earliest planning efforts with those of the more recent past.

1958 – This year saw the adoption of the Transportation Plan for the City of Manistee. It was prepared by the same consultant who prepared the 1945 Master Plan, and expanded upon many of its same themes. Major plan recommendations were to widen and straighten the Manistee River channel in order to accommodate a new generation of larger Great Lakes freighters, and to construct an over-the-tracks grade separation for a proposed rerouted US-31 just north of the City limits.

1960 – The Comprehensive City Plan was adopted during this year. Its major focus was on the need to develop and enforce subdivision regulations - a theme that was first raised briefly in the original 1945 Master Plan. The plan was also notable in that it was here that the recommendation was first made that a highway bypass should be developed in order to relieve congestion downtown. The plan also called for an additional bridge over the Manistee River at Tamarack Street, and other street connections to span gaps in the City's street grid.

1981 – Focusing public attention on the value and techniques of historic preservation and urban design was the crux of the Manistee Downtown Preservation and Development Plan completed in 1981. This plan contains both a general urban design program to be applied city-wide, as well as specific building-by-building architectural guidelines including cost estimates. Much of this plan laid the groundwork for the subsequent National Register nomination of Manistee's downtown, the establishment of the City's Downtown Development Authority (DDA), the development of the City's renown riverwalk, and most recently, the streetscape improvements completed along River Street. Several other proposals presented in this plan have been successfully completed while many others have yet to be realized.

1988 – As the predecessor of this plan and its point of departure, the Manistee Development Plan is the planning document that has guided the City from the late1980s to the present. Recognizing the challenges and development opportunities posed by the City's numerous waterfront properties, this plan identified seven "special planning districts" (SPDs) which were felt to warrant special planning treatment. All have water frontage, and most are conceived as multi-use districts consisting of public access areas, marinas, water-front-appropriate commercial development, and housing of various densities. A major recommendation of the plan, and one which largely dictated the proposed treatments of at least two of the special districts, was the proposed relocations of the existing railroad right-of-way to the east side of Manistee Lake, and its replacement with a relocated US-31 business route. Also proposed to be relocated was the existing Consumer's Energy facility along the western shore of Manistee Lake (SPD-2). Much of what was called for in this plan has been achieved; however, the aforementioned relocations have not occurred thus forestalling several of the recommendations for the City's east-side.

1997 – Manistee County's most recent master land use plan was adopted in 1997 (Manistee County Land Use Plan) The plan's main emphasis is on economic development within the context of 'sustainable' land development practice. The plan goes to some lengths to state that these objectives should not be viewed as mutually exclusive. In this vein, the plan calls for the adequate allocation of lands for commercial and industrial expansion, along with streamlined permitting, but in discrete, centralized areas served by existing infrastructure. The plan specifically warns against 'strip' commercial development and other development practices that may over-strain public and natural resources. Through its stated objectives and land use recommendations, the plan affirms the role of the City of Manistee as the economic and administrative 'seat' of the County.

(Source: City of Manistee Master Plan 2002)

CLIMATE

Latitude and Lake Michigan are the primary factors in determining Manistee's climate. In winter, the average temperature for Manistee is 25.4 degrees F. The average daily minimum temperature is 18.8 degrees at Manistee. The lowest temperature during the period of record at Manistee, -22 degrees, occurred on February 17, 1979. In summer, the average temperature is 67 degrees. The average daily maximum temperature is 77.7 degrees. The highest temperature recorded at Manistee, 99 degrees, occurred on July 26, 1955.

The average annual total precipitation at Manistee is 33.27 inches. Of this total, 19.8 inches, or about 59 percent, usually falls in May through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 3.9 inches (June 26, 1969). Thunderstorms occur on about 37 days each year, and most occur between May and September.

The average seasonal snowfall is 57.4 inches. In Manistee, the greatest snow depth at any one time during the period of record was 75 inches recorded on February 13, 1982. In Manistee, on the average, 48 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 18 inches on December 18, 1963.

The average relative humidity in midafternoon is about 64 percent. Humidity is higher at night, and the average at dawn is about 81 percent. The sun shines 62 percent of the time possible in summer and 31 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, around 12 miles per hour, from November to April.

(Source: USDA Soil Survey of Benzie and Manistee Counties, Michigan)

GEOLOGY

Overview of Michigan's Geology

The geology of the State of Michigan is dominated by the Michigan Basin, which is an elliptical, intracratonic basin nestled against the southern margin of the Canadian Shield. The Basin occupies approximately 80,000 square miles, and the sedimentary rocks in the Basin, which are predominantly Paleozoic in age, reach a maximum thickness of 16,000 feet.

The Michigan Basin covers all of Michigan's Lower Peninsula and the eastern half of the Upper Peninsula. Strata from Middle Cambrian through Upper Pennsylvanian Periods are well represented throughout the subsurface as seen in the many oil and gas wells drilled throughout the Basin. There are also limited outcrops throughout the Basin, especially at the margins near the Great Lakes. Most of the rocks of the Michigan Basin are buried beneath thick deposits of Pleistocene glacial drift that are the only Cenozoic deposits known from the Basin. These sands, gravels, and clays are stacked in complex facies relationships and control the patterns of topography seen in much of the Basin. Beneath this veneer of glacial sediments is the eroded bedrock.

Natural resources abound in the Michigan Basin. Oil and natural gas have been produced from subsurface formations in the Basin in Michigan, Ohio, Indiana, and southwest Ontario. Almost 2 billion barrels of oil and 10 trillion cubic feet of natural gas have been produced since the late 1800s. Underground mines near Detroit have produced large quantities of rock salt from Silurian-age evaporite deposits. Solution mining of these salts has occurred nearer the Basin center. Large amounts of potash, bromine, sodium, and chloride have been solution mined from these layers. Limestone, dolomite, and gypsum have been extensively mined from surface quarries in the outcrop areas. Sand and gravel for construction and clay for ceramics

and bricks are mined statewide from surficial glacial deposits.

The Great Lakes of Michigan, Huron, and Erie represent the greatest fresh water resources in the region. Along with Lakes Superior and Ontario (which are not geologically part of the Michigan Basin), these five Great Lakes comprise the largest accumulation of fresh water on the earth's surface. There are also vast volumes of fresh water in the glacial drift and shallow bedrock throughout the Basin. The Great Lakes owe their origin to the erosional processes of lobes from the Laurentide ice sheet. The moving ice scoured the areas of softer bedrock, commonly composed of shales.

Quaternary Geology

Formation of the Great Lakes Basins - Episodic glaciation was the major process responsible for creating the Great Lakes basins; however, bedrock (type and distribution), regional structure and paleo-drainage patterns have all influenced the present-day configuration.

The watershed can be divided into two regions. The northern upland region (the Canadian Shield) is underlain by Precambrian granites, gneisses, and metavolcanic and metasedimentary rocks. The southern lowland region (the Michigan Basin) is underlain by relatively soft, Paleozoic sedimentary rocks. These rocks all dip toward the center of the state of Michigan into the structural basin. These rock layers appear as a series of stacked bowls with their truncated edges forming a circular pattern encompassing and forming the state of Michigan (much like a bull's-eye). This region includes the Lake Erie, the Lake Michigan, the western portion of the Lake Huron, and a portion of the Lake Ontario basins. Glacial erosion has scoured out these lake basins following the circular, structural pattern where the Paleozoic rocks crop out at the surface around the Michigan Basin. Here, the pattern is much more controlled and better developed than that formed by glacial erosion on the Canadian Shield granite, gneisses, and metasedimentary rocks. This difference is particularly apparent when observing the semi-circular shape of the western portion of Lake Huron carved out of the Paleozoic rocks, in comparison to the more random shape of the eastern portion (Georgian Bay) glacially scoured from the Precambrian Shield. This semicircular pattern is reflected in the curvilinear shape of Lake Michigan to the west and Straits of Mackinac to the north. The Great Lakes basins simply conform to the outcrop pattern of the soft limestones and shales of Upper Silurian, Ordovician, and Devonian age.

The Great Lakes watershed was subjected to long-term subaerial erosion prior to Quaternary glacial events. Glacial ice was then channeled through the region by this pre-existing drainage system. Relatively weak bedrock, already exploited by valleys of the paleo-drainage system, was increasingly scoured and eroded, thereby exerting one more control upon the formation of the present-day landscape. Glacial scouring varies considerably from lake to lake. The floor of the northern portion of Lake Michigan tends to be somewhat irregular.

Glacial sediments, often greater than 165 feet (50 meters) thick, and in places over 1,150 feet (350 meters) thick, blanket the region. Broad, low, glacial moraines and a few Paleozoic bedrock escarpments provide moderate relief. Quaternary glacial sediments also occur in the basins, often exceeding 330 feet (100 meters) in thickness. These glacial sediments indicate that the present-day Great Lakes Basins are the product of both glacial erosion and post-glacial deposition.

Glacial Events - The glacial history of the Michigan Basin is very complex. Six major ice sheets advanced across the Michigan region probably beginning as early as 2.4 million years ago. The last two advances are the Illinoian and Wisconsinan events. Illinoian events are inferred from deposits found primarily in Illinois. Warm conditions much like today, in a period 125–179 thousand years ago known as the Sangamon interglaciation, existed between the Illinoian and Wisconsinan glacial events. The last glacial episode, the Wisconsinan advance of the Laurentide Ice Sheet, is well documented throughout the Michigan Basin. Three

separate sublobes of this last glacial ice sheet advanced and retreated across the Basin (the Michigan, Saginaw, and Erie Lobes).

Wisconsinan glaciation began sometime between 65 and 79 thousand years ago. Glacial ice first invaded the eastern section of the Great Lakes watershed where the ice margin oscillated until approximately 25 thousand years ago. During this time, a boreal forest-tundra environment covered most of the western portion of the watershed (the Michigan Basin). After 25 thousand years ago, the ice sheet advanced from both the north and the east, overriding the western forest-tundra landscape, and covered the entire watershed. Ice eventually reached the Ohio River to the south and northern Wisconsin and east central Minnesota to the west. The ice front fluctuated there for nearly 4,000 years. After 18 thousand years ago, the ice margin began to retreat, but experienced a series of re-advances. Ice finally continued its retreat about 10 thousand years ago, and the watershed was completely ice-free by 9 thousand years ago.

Glacial Lakes - Large, glacial, ice-margin lakes (proglacial lakes) were developed during each retreat of the ice sheet. These lakes filled the newly scoured Great Lakes basins. The northern margin of each lake was established by the southern edge of the glacial ice sheet. The extent and elevation of these lakes varied as outlets were blocked by ice or uplifted by isostatic rebound. New outlets formed as rising lake levels found new low spots through ridgelines. Channels were eroded and downcut or melting ice re-opened old channels. Occasionally, catastrophic influx of water from neighboring glacial lakes left a legacy of lake sediments, abandoned spillways and channels, wave-cut cliffs, beach ridges, deltas, and abandoned shorelines. Some of those old shorelines can still be traced from one lake basin to another.

Fed by glacial meltwater during ice retreats, these lakes expanded, often to the point where they merged with one another. Conversely, the lakes contracted as water levels fell due to the opening of new drainage channels, or as glacial ice once again advanced through the various basins of the watershed.

The Lake Michigan Basin became ice free early in its history. Ice retreated from the southern portion of the basin about 16 thousand years ago, and the first of a series of proglacial lakes formed. This early lake, termed Lake Chicago, expanded and contracted in conjunction with a series of glacial retreats and re-advances. Glacial Lake Algonquin formed approximately 12 thousand years ago as ice retreated, the Straits of Mackinac opened, and Lake Chicago (Kirkfield Stage) expanded and merged with waters occupying the Huron Basin. Eventually, with continued ice retreat, waters in the Lake Michigan Basin joined those of Superior and Huron to form glacial Lakes Nipissing and Algoma.

High rates of bluff erosion, development of strong cliffs, and formation of very large sand dunes occurred in association with the Lake Nipissing Great Lakes stage. Mt. McSuba, just east of Charlevoix, is an example of these large Lake Nipissing dune fields. Sleeping Bear Dune, north of Frankfort, Michigan, is partially glacial moraine and outwash deposits covered by windblown sand dunes formed during this same time.

Glacial Landscapes - Glacial landscapes in Michigan result from two opposing processes: deposition and erosion. Thick deposits of glacial debris capped by associated depositional landforms blanket the entire Lower Peninsula of Michigan and the eastern portion of the Upper Peninsula.

Erosional Glacial Landforms - Glacial erratics (of Precambrian age), carried by the glacial ice southward into Michigan from the Canadian Shield, are found in glacial deposits throughout the state. Boulders of Banded Iron Formation (BIF) and pieces of native copper from the Upper Peninsula are occasionally found in Lower Michigan. Although fairly rare, they are easily spotted because they are so distinctive and tend to stand out from the drab sands and gravels. More commonly, rounded pebbles of gray and pink granite, derived from the Canadian Shield, are found in the gravels deposited throughout the Michigan Basin.

Most of the Michigan Basin is blanketed by glacial deposition in the form of diamictons (formerly termed "glacial tills") and glacial outwash. Landforms, such as drumlins and moraine systems, are composed of diamictons deposited directly from the glacial ice. Diamictons are unsorted and unstratified deposits composed of a heterogeneous mixture of materials in all shapes and sizes.

Outwash, on the other hand, is a very general term applied to sorted and stratified deposits laid down by glacial meltwaters. Depositional glacial landforms such as kames, kame terraces, eskers, and ice-channel fillings are indicative of ice-contact and outwash deposition. Landforms such as outwash plains and valley trains, pitted outwash plains, kettles, and kettle lakes usually indicate deposition near the ice but farther removed from the immediate ice front.

Diamicton and Drumlins - Numerous, well developed drumlins can be observed along both sides of Grand Traverse Bay. Drumlins in Charlevoix and Antrim Counties, just north of Torch Lake, trend south-southwest, indicating the direction of the ice movement. U.S. Route 31 follows the length of two drumlins between Torch Lake and Charlevoix. The exposed interior of these drumlins is composed of unsorted, unstratified clay and boulder diamicton (till).

Moraines - Moraine systems are the most prominent landscape features across Lower Michigan. Three major ice lobes advanced across Michigan during the Wisconsinan glaciation. These advancing ice masses took on lobate forms, fanning outward in radial patterns along their fronts as glacial ice was channeled through the pre-existing Great Lakes Basins. The Michigan Lobe advanced southward through the Lake Michigan Basin. The Saginaw Lobe advanced southwestward as it was channeled through the Saginaw Bay area. The Erie Lobe advanced westward as it was funneled through the Lake Erie Basin. These three lobes advanced into northern Illinois, Indiana, and Ohio, developing a pronounced terminal moraine (the Cary Border) approximately 16 thousand years ago. The state of Michigan was covered by thousands of feet of ice during this time. Retreat from this position lasted until about 13.5–13.2 thousand years ago, depositing a series of recessional moraines of "Cary" age. The prominent Valparaiso Moraine and Lake Border Moraine that parallel the Lake Michigan coastline through western Michigan, Indiana, Illinois, and Wisconsin formed during this time.

These moraines took on the form of rolling ridges of diamicton and poorly sorted sediments laid down as ice contact deposits, grading into sloping wedges of outwash deposits farther away from the ice front. Minor re-advances interrupted the retreat, often smearing out and re-working the just-deposited recessional moraine system as the advancing ice moved over it.

The last major advance of Wisconsinan glacial ice occurred 11,800 thousand years ago (termed the Valders stadial). Ice, advancing from the north through the Lake Michigan Basin, picked up large quantities of red silt and clay from the Lake Superior Basin (evidence that the Lake Superior Basin must have been a proglacial lake prior to this event) and from the Precambrian iron formations of the Upper Peninsula. The resulting Valders-aged moraines and diamicton deposits, all of which lay north of the older Port Huron Border, are a distinctive red color as a result. This Valders ice advance is also responsible for the formation of the drumlins located in Leelanau and Charlevoix counties.

Proglacial Outwash and Valley Trains - Proglacial outwash is deposited as a sloping, apron-like fan of meltwater laid sediments out in front of an ice-contact recessional moraine being deposited along the ice lobe. Most recessional moraines throughout Michigan occur in association with proglacial outwash aprons that were initially deposited away from the glacial margin. The term "valley train" is applied to these sloping proglacial aprons when they are confined within valley walls. Good examples of valley trains can be observed in the valley extending from Mancelona to Kalkaska, Michigan.

Pitted Outwash, Kettles, and Kettle Lakes - Outwash sediments are frequently laid down around separate blocks of stagnant ice left in front of the retreating ice sheet. Large depressions in the outwash plain result when these ice blocks finally melt. These depressions are termed kettle holes, and the resulting outwash fan, pock-marked by a number of kettle holes, is termed a pitted outwash plain. Kettle holes become kettle lakes when they fill with water. Most of the numerous, small, inland lakes throughout Michigan are kettle lakes, and are associated with pitted outwash plains.

Modern-Day Geologic Processes - The geologic history of the Michigan Basin does not end with the retreat of the most recent glaciers. Rather, landscape development is an evolutionary, ongoing process. For example, several distinct types of shorelines exist along the Great Lakes.

High dolomite cliffs are common along the Lake Huron and Lake Michigan shorelines wherever they intersect the Niagaran Series of rocks. The eastern margin of the Door Peninsula, the Garden, Bruce, and Presque Isle Peninsulas, and the western margin of Manitoulin Island are examples of such areas. Rocky headlands and small pocket beaches composed of rounded limestone gravel and sand are found along these shores. Bluffs cut into glacial sediments are especially prominent along the southeastern shore of Lake Huron, the central section of Lake Michigan, and the shores of Lake Erie.

Erosional Shorelines - Coastal bluffs, composed of glacial sediments, are subject to erosion. Low lake levels, as experienced during recent years, have greatly reduced the rate of slope failures along the Michigan coastline. Also, water content of bluff materials is a major controlling factor. Bluff stability is greater, displaying little to no slope movement, during dry periods when water tables are low.

Depositional Shorelines

Sand Dunes - Beaches along the shores of the state of Michigan are some of the best-developed, quartz-rich, sand beaches in the world. Numerous areas of irregular sand accumulations and dune fields occur well inland from current lake shorelines. These areas originated in conjunction with earlier proglacial lakes standing at much higher elevations, and are generally the oldest dunes in the state of Michigan.

Inland, high dunes are common along all the shorelines that ring the state of Michigan. Many of these high dunes are related to high-water levels of Early Glacial Lake Nipissing (9 -2.2 thousand years ago). Along the western side of the state, many of the inland, high dunes are related to the high stages of Glacial Lake Chicago that occupied the Lake Michigan Basin. Generally, these inland dunes are no older than about 13,000 years. They were stabilized by vegetation long ago and are no longer sites of extensive dune growth.

Coastal dunes are younger than inland dunes, having formed along the modern Great Lakes shoreline. They are generally less than 4,500 years old, and are mainly related to Late Glacial Lake Nipissing water levels. Coastal dunes can be divided into two categories. Foredune ridges are low dunes (30–50 feet) that are found close to the water's edge. High dunes (greater than 100 feet) are generally found slightly farther inland behind the foredunes. High dunes may also be found at the water's edge in a few instances. Some of the older high dunes may have been deposited on the tops of glacial moraines and outwash deposits during periods of higher lake levels. These are termed perched dunes. Sleeping Bear Dune is just such a complex, standing 450 feet above the current Lake Michigan water level. Perched dunes tend to be less thick than other foredune types.

Foredunes are the youngest and most active dunes along the Michigan coast. Blowouts occur where dunes lack the stabilizing effects of vegetation. Sand is blown from the windward side of the dune, up and over the crest, to be deposited on the dune's lee side. The dune is observed to "march inland" as this process continues. However, the coastal dunes eventually stabilize as (1) they move away from the beach; (2) the source of sand supply diminishes; (3) they become more protected from the shore winds; (4) they encoun-

ter the fronts of the inland high dunes; and (5) vegetation takes hold and provides stabilization.

Beach Ridges - Many beaches along Michigan's shores are marked by a series of recessional beach ridges. These ridges, composed of gravel and coarse sands, were formed along the shorelines by progressively dropping glacial lake water levels. Sets of beach ridges can be observed along the Lake Michigan shoreline in the Sleeping Bear National Lakeshore. Examples can be found between Platte Lakes and the Lake Michigan shoreline evidenced by the closely spaced lines of trees parallel the present-day shoreline. These tree lines reflect former beach ridges, where sediments that favor tree growth have accumulated.

Hooked Spits - Sands necessary for the growth of spits and mid-bay and bay-mouth bars are supplied as beach drift. This beach drift develops as longshore currents erode sands from the beaches they are moving along.

Sand bars and spits grow as beach drift, moving along a shoreline, is deposited into an open embayment as it attempts to extend the beach. Waves, coming into the embayment from offshore, redistribute sediments near the end of the spit, carrying those materials farther into the as the end of the spit "bends" around toward the inner shore of the embayment.

Mid-Bay and Bay Mouth Bars - Waves, longshore currents, and wind action constantly re-shape the shorelines of Michigan. The Upper and Lower Herring Lakes, located in Benzie County about 6 miles south of Frankfort, are good examples of such evolving shorelines. The two lakes lie within a U-shaped depression. This depression is enclosed on the north, east, and south by the Manistee Moraine, but was originally open toward the west as an embayment to Lake Michigan. During late Lake Algonquin time, mid-bay bars developed within the embayment. These bars isolated Upper Herring Lake in the mid-eastern portion of the embayment and another small basin in the very eastern section. This eastern basin was a short-lived lake and is now filled with sediment and vegetation.

The remaining western portion of the embayment drained during the early stages of Glacial Lake Nipissing, but during late Nipissing time, the embayment was once again flooded. During post-Nipissing times, the current bay-mouth bar formed, isolating Lower Herring Lake in the western portion of the embayment. Eventually, during recent times, low foredunes developed on top of this bar and adjacent shorelines. Presently, the two Herring Lakes are isolated from Lake Michigan, being drained only by narrow Herring Creek that cuts across the mid-bay and bay-mouth bar systems.

Crystal Lake, located immediately north of Frankfort, formed in a similar manner. The area originally occupied a topographic low, situated between two east-west trending glacial moraines, and opened to Lake Michigan to the west. Development of a bay-mouth bar isolated the embayment, and complete closure was assured as dunes related to Glacial Lake Nipissing covered the bar.

Geology of Water Resources

Groundwater - Michigan is very fortunate, mostly due to its glacial heritage, that high quality water resources abound throughout the state. The majority of Michigan's water wells tend to be shallow, and can easily be pumped from surficial sands and gravels deposited by glaciers. Much of the groundwater in the Lower Peninsula comes from these glacial deposits, and is "hard" due to the lime ($CaCO_3$) held in solution. Gravels buried beneath impermeable glacial drift in Michigan are responsible for numerous artesian water systems.

Karst Topography Although Michigan is not normally thought of as a region of caves and karst topography, there are limited areas within the state where these conditions do exist. Paleozoic carbonates, now near the surface and only buried by a thin veneer of glacial debris, are readily susceptible to dissolution

and karst development.

Surface Water

Rivers - The surface topography of Michigan is primarily the result of glacial events, the last of which ended only 13 to 9 thousand years ago. Therefore, rivers and streams have played a somewhat limited role in the development of Michigan's landscape.

Deltas - Delta growth, where rivers enter standing bodies of water, is an important means of delivering sediments into these glacial lakes.

Many of the delta systems built into earlier glacial lakes have been rejuvenated as water levels dropped and/or as isostatic rebound raised the delta complexes in relationship to the water surface. Distributaries incised the delta floodplains attempting to maintain grade. This has resulted in newly incised river valleys cutting through older, broad, now terraced, deltaic, floodplain deposits.

Inland Lakes - The natural beauty of Michigan is in large part due to the hundreds of inland lakes found throughout the state. Kettle lakes abound and are the most common type of all Michigan's inland lakes.

Other lakes, primarily found in the northern portion of the Lower Peninsula, formed in basins scoured out by the glaciers. Glacial lake levels eventually dropped, causing the shallower portions of these basins to become dry land. Only the deeper portions of the basins remained submerged as inland lakes, now isolated by the shallower dry areas.

Coastal lakes, as already discussed, are the result of embayments being cut off from the surrounding Great Lakes by mid-bay and bay-mouth bars, and later being modified by the development of sand dune systems. Upper and Lower Herring, Hamlin, and Crystal Lakes are typical examples of these lakes.

(Source: Geology of Michigan and the Great Lakes, Robb Gillespie, William B. Harrison III, and G. Michael Grammer, Michigan Geological Repository for Research and Education – Western Michigan University)

MINERAL RESOURCES

Nonfuel Minerals - In 2008, Michigan's nonfuel raw mineral production was valued at $1.99 billion, based upon annual U.S. Geological Survey (USGS) data. This was a $19.7 million, or 1%, increase from the State's total nonfuel mineral production value for 2007, which had increased by $23.8 million, or 1.2%, from 2006 to 2007. With 2.8% of the U.S. total, the State remained ranked 12th in 2008 (11th in 2006) among the 50 States in total nonfuel mineral production value.

From 2007 to 2008, the most substantial decreases in nonfuel raw mineral production took place in portland cement, crushed stone, and construction sand and gravel and was owed to the slowdown in U.S. construction in 2007 and 2008. The value of Portland cement fell by $35 million, or 7%; crushed stone was down $28.7 million, or 22%, with a 21% decrease in quantity produced; construction sand and gravel value fell by $22.4 million while the quantity produced fell by 22%. Smaller, yet significant, decreases also took place in masonry cement, potash, and industrial sand and gravel. Sand and Gravel are one of the Manistee area's nonfuel raw mineral resources.

Salt Brines – The United States was the world's leading salt-producing nation until 2005, when China surpassed the United States to become the world leader. Total U.S. salt production in 2011 increased by 4% to 45 million metric tons (Mt) compared with that of 2010. According to U.S. Geological Survey (USGS) data for 2011, 28 companies operated 67 salt-producing plants in 16 States.

Salt, also known as sodium chloride, comprises the elements sodium and chlorine. Sodium is a silver-colored metal that is so unstable that it reacts violently in the presence of water, and chlorine is a greenish-colored gas that is dangerous and may be lethal, yet combined, these two elements form sodium chloride, which is a white-colored compound essential to life itself. Virtually every person in the world has some direct or indirect contact with salt daily. People routinely add salt to their food as a flavor enhancer or apply rock salt to walkways to remove ice in the winter. Salt is used as feedstock for chlorine and caustic soda manufacture. These two inorganic chemicals are used to make many consumer-related end-use products, such as polyvinyl chloride (PVC), a plastic made from chlorine, and paper-pulping chemicals manufactured from sodium hydroxide (caustic soda).

The Manistee salt industry began in Manistee with Charlie Rietz's 1881 1936 foot deep well and is active today. Morton International, Inc. currently produces Sodium Chloride from the solution mining of underground halite deposits. Manistee production capacity was listed as 360 thousand short tons in the USGS 2011 Minerals Yearbook

Today, an injection well is sunk, and pressurized freshwater is introduced to hydraulically fracture the bedded salt. Once communication with the production well is established, the brine is pumped to the surface for treatment. Solution mining can also use annulus injection, which uses a pair of concentric pipes (one carries the solvent downward and the other containing the brine upward), or tubing injection, which introduces the solvent at the bottom of the tube.

Solution mining is used to obtain a sodium chloride feedstock for vacuum pan salt production and for chlorine, caustic soda, and synthetic soda ash (excluding the United States) manufacture. The quantity of underground salt dissolved and recovered as brine to make vacuum pan salt usually is not reported as primary salt production; only the quantity of vacuum pan salt manufactured is reported. The quantity of brine used to make chloralkali chemicals is reported as either the amount of captive brine used or brine sold. The chemical industry is the leading consumer of salt brine worldwide.

(Source USGS 2011 Minerals Yearbook; MDNR History Of The Salt, Brine And Paper Industries And Their Probable Effect On The Ground Water Quality In The Manistee Lake Area Of Michigan, 1970)

Other Brines – Magnesium is the eighth most abundant element and constitutes about 2% of the Earth's crust, and it is the third most plentiful element dissolved in seawater. Although magnesium is found in over 60 minerals, only dolomite, magnesite, brucite, carnallite, and olivine are of commercial importance. Magnesium and other magnesium compounds are also produced from seawater, well and lake brines and bitterns. Magnesium compounds, primarily magnesium oxide, are used mainly as refractory material in furnace linings for producing iron and steel, nonferrous metals, glass, and cement. Magnesium oxide and other compounds also are used in agricultural, chemical, and construction industries. Magnesium metal's principal use is as an alloying addition to aluminum, and these aluminum-magnesium alloys are used mainly for beverage cans. Magnesium alloys also are used as structural components of automobiles and machinery. Magnesium also is used to remove sulfur from iron and steel. Magnesium oxide and other compounds are recovered from well brines in Manistee by Martin Marietta Magnesia Specialties LLC. In 2011 the USGS listed the annual capacity of the Martin Marietta facility as 314,000 metric ton MgO equivalent. Products include caustic-calcined magnesia, dead-burned magnesia, and magnesium hydroxide.

In 2011, environmental applications (water treatment and stack-gas scrubbing), remained the largest tonnage end use for caustic-calcined magnesia, with 42% of the total. The other major end-use sectors for caustic-calcined magnesia (with the individual components in descending order of consumption in parentheses) were agriculture (animal feed and fertilizers), 30% and chemical intermediates, 26%. The remaining categories each had less than 2% of the total use—manufacturing (rubber and electrical), construction

(primarily oxychloride and oxysulfate cements), and medicines and cosmetics. Magnesium hydroxide was used for water treatment, as a chemical intermediate, in medicines and pharmaceuticals, and in fertilizer (in descending order of quantity). Magnesium sulfate was used mostly for chemicals, fertilizers, rubber, pulp and paper, pharmaceuticals, and water treatment (in descending order of quantity). Magnesium chloride was used mainly for ice control. Magnesium chloride brines were used for road dust and ice control.

Historically, the Manistee area had brine wells that produced bromine. However, as indicated in the 2011 USGS Minerals Yearbook, production has ceased.

(Source USGS 2011 Minerals Yearbook)

Oil and Gas – The majority of the oil and gas exploration in the Manistee region has been in the Silurian-Niagaran pinnacle reefs and the Antrim Shale. The Antrim Shale is located in the upper portion of the lower peninsula of Michigan within the Michigan Basin. This Late Devonian-age shale is bounded by shale (Bedford Shale) above and by limestone (Squaw Bay Limestone) below and occurs at depths of 600 ft to 2,200 ft.

Aside from the Barnett, the Antrim Shale has been one of the most actively developed shale gas plays with its major expansion taking place in the late 1980. The Antrim Shale encompasses an area of approximately 12,000 square miles and is characterized by distinct differences from other gas shales: shallow depth, small stratigraphic thickness with average net pay of 70 ft to 120 ft, and greater volumes of produced water in the range of 5 to 500 bbls/day/well. The gas content of the Antrim Shale ranges between 40 scf/ton and 100 scf/ton.. Well spacing ranges from 40 acres to 160 acres per well.

According to the 2004 USGS's Assessment of Undiscovered Oil and Gas Resources of the U.S. Portion of the Michigan Basin, The Devonian Antrim Shale has the greatest potential for undiscovered gas, having an estimated mean of 7 trillion cubic feet of undiscovered, technically recoverable gas. The Silurian Niagara Reef also has significant potential for undiscovered, technically recoverable gas.

Recently interest in the Utica Collingwood Shale, resulting from a 2010 demonstration well located in Missaukee County, could signal future development of this oil and gas resource. This resource composed of the overlapping Utica and Collingwood Shales is located 10,000 to 12,000 feet below the surface with current activity focused in Antrim, Kalkaska, and Missaukee counties.

TOPOGRAPHY

The Manistee area has a diverse topography, including sand dunes, sand lake plain, ground and end moraines, and outwash. Morainal bluffs and sand dunes rise abruptly along the shoreline of Lake Michigan. The shoreline is noted for these large sand dunes.

Coarse-textured endmoraine ridges are the predominant landforms in the south and also north of Manistee. At Manistee, a broad flat area of lake plain and ground moraine separates the more steeply sloping moraines into northern and southern parts. In the south, the end moraines, 3 to 5 miles wide and 100 to 300 feet high, are separated by wide outwash channels. North of Manistee, the endmoraine ridges are much steeper than ridges in the south and without broad outwash channels between them. Most of the soils on the end moraines are well-drained sands. (Source USGS Regional Landscape Ecosystems of Michigan, Minnesota, and Wisconsin)

WATER RESOURCES

Four main bodies of water directly affect the City. The western boundary of the City is Lake Michigan. The City owns and maintains approximately one mile of beach front for recreational use. The eastern boundary of the City is Manistee Lake. This lake is not a primary recreation lake, but fishing and boating are practiced, mostly by local residents. There are few residences on this lake as it is largely owned by industry or units of government. The City currently operates a sewage treatment plant adjacent to the lake, with primary and secondary treatment capability. Man-made Lake is located on the North end of the City. This seven-acre lake was created approximately 50 years ago by sand mining operations. For the past 11 years it has been leased by the City for recreational use. Dividing the northern and southern portions of the City is the Manistee River Channel. Swimming is not allowed in the Channel and it is used primarily for transit to and from Lake Michigan for pleasure boaters, private and commercial fishing and Manistee Lake industry.

The City of Manistee industry has included lumber in the latter half of the 19th century, salt and other extractive industries from the late 1800's to today, paper, foundries, and forging plants. These industries have based their operations around Manistee Lake with access to freighter traffic both for delivery of product and supplying fuel to the industries. For many years Manistee Lake was, additionally, a convenient place to dispose of any waste or by-products of an industrial operation. It was not until the latter half of the 20th century that any real efforts began to focus on minimizing pollution to the lake and efforts at cleaning it up. Manistee Lake is fed by the Little Manistee and Big Manistee Rivers with a combined flow of a billion gallons per day. It is only through this continuous flushing that Manistee Lake has managed to hold its own in the face extensive pollution sources. The last 25 years have seen dramatic improvements in water quality in Manistee Lake and it continues to improve. However, the status needs to be monitored.

Overall, water quality in the area is good and plays an important part in industrial operations. At the same time, guarding water quality is crucial in sustaining recreational use for boating, fishing and swimming. (Source: Manistee, Michigan Parks and Recreation Plan 2012-2017)

Manistee River

The Manistee River is located in the northwest portion of Michigan’s Lower Peninsula and drains an area about 1,780 square miles. The mainstem is 232 mi long, with a 671 foot drop in elevation from the source to Lake Michigan. Portions of eleven counties are included in the watershed: Antrim, Benzie, Crawford, Grand Traverse, Kalkaska, Lake, Manistee, Missaukee, Osceola, Otsego, and Wexford. There are three major tributaries: Bear Creek, North Branch of the Manistee, and Pine rivers. Other important tributaries include Goose, Portage, Big Cannon, Hopkins, Manton, Buttermilk, Wheeler, Slagle, and Pine creeks. Also, there are hundreds of other tributaries that empty directly into the mainstem or named tributaries.

The watershed was settled beginning in mid-1800s, near the mouth of the mainstem. Interior portions were not exploited until the late 1800s, when lumbering affected river habitat and adjacent uplands. Hydroelectric development followed in the early 1900s, along with placement of small dams on tributaries.

The Manistee River has one of the most stable flow patterns in the country, producing good conditions for fish reproduction and survival. These stable flows are from the watershed geology that provide excellent groundwater flows. The settlement agreement, between Consumers Energy Company, Michigan Department of Natural Resources, Michigan State Historic Preservation Officer, United States Department of Interior-Fish and Wildlife Service, United States Department of Interior-National Parks Service, and United States Department of Agriculture-Forest Service established stable flows for the lower portion of the mainstem that formerly had peaking high and low flows below the hydroelectric facilities.

An accurate description of the original fish communities in the Manistee River watershed is not available. Michigan grayling disappeared from the watershed shortly after 1900 despite efforts to culture it in hatcheries. The demise of the grayling was due to three factors: over fishing; habitat destruction; and introduction of exotics (brook trout). Muskellunge are another rare species originally more abundant in the Manistee River. It may be present today in very limited numbers. Lake sturgeon, a formerly abundant species that used high gradient waters now inundated by Tippy Dam for spawning, is making a comeback with stable flows.

Seventy-six species of fish made up the native fish community. Thirteen non-native species of fish have been introduced into the watershed through accidental and intentional introductions or migrations. One species, the Michigan grayling, has been extirpated. Three other species: pugnose shiner, tadpole madtom, and white bass are historic records and may be extirpated. Additional fish surveys are needed to accurately determine distributions of these and other species in the watershed.

Urban and agricultural development are minor in the watershed. However, the number of rural homes and seasonal dwellings are on the rise. Upland erosion into watercourses is significant. Water withdrawal for irrigation is not a factor on the mainstem, but is an issue on some tributaries. Hundreds of road and stream crossings exist and are major sediment producers.

Sixty-three dams and impoundments are located in the watershed. Two major backwaters, both operating hydroelectric dams, are located on the mainstem. Most other dams are small recreational structures on tributaries. All dams are detrimental to the overall health of the river because they impound high gradient habitat, eliminate areas of river habitat, raise water temperatures, trap sediment, nutrients, and large woody debris, kill fish, block fish movement, and fragment aquatic habitats. Five dams are wildlife floodings sited on cold water tributaries and are candidates for removal.

Overall water quality in the Manistee River is very good. Deep permeable sands and limited development have served to preserve water quality. The stream bed quality however is degraded in many portions due primarily to human activity. Chemical contaminants causing public health advisories on eating fish in the watershed include mercury, PCBs, chlordane, and PAHs. DDT, DDE, and dioxins are other chlorinated organic chemical contaminants in fish that can affect the health of wildlife species. Organic contaminants in fish have been reduced significantly since the 1970s and are primarily found in species that use Lake Michigan for part of their life history. Mercury is a concern for inland fish species and levels do not appear to be decreasing; atmospheric emissions appear to be the predominant source of mercury.
(Source: MDNR Manistee River Assessment, 1998)

SOILS

Soils in Manistee consist of a mix of Fern-Spinks-Tekenink Association and Coloma-Spinks Association. The Fern-Spinks-Tekenink Association are comprised of level to very steep, moderately well drained and well drained, sandy and loamy soils on moraines, till plains, and outwash plains. The Coloma-Spinks Association are comprised of level to very steep, somewhat excessively drained and well drained, sandy soils on moraines, deltas, stream terraces, and outwash plains.

Soils of Minor Extent consist of the somewhat poorly drained Capac and poorly drained Parkhill soils in depressions and drainageways; the well-drained Mollineaux, Boyer, and Shavenaugh soils in landscape positions similar to or slightly higher than those of the major soils; the moderately well drained Marlette and Perrinton soils in landscape positions similar to those of the Fern soils; and the poorly drained Dair soils in depressions and drainageways.

Major potential uses of the main soil types for the area are forestlands and croplands. Major management concerns include equipment limitations and erosion

VEGETATION AND WILDLIFE

Vegetation – White pine and red pine were extensively cut from the lake plain area around Manistee. The flat, sandy lake plain supports second-growth forest, used both for timber and recreation. Pine regeneration has generally been poor on the pine plains, with trembling aspen, red maple, and paper birch increasing in dominance after logging. There were attempts to establish orchards and farms on the sand lake plain after logging, but low productivity and easily eroded soils have resulted in high rates of abandonment. (Source: USGS Regional Landscape Ecosystems of Michigan, Minnesota, and Wisconsin)

Manistee Lake Fishery – A 2008 MDNR fisheries survey showed that Manistee Lake has healthy game fish populations. Although relatively few largemouth and smallmouth bass were collected in the 2008 survey, the populations appear to be well balanced, with multiple year classes represented and many individuals of both species exceeding the minimum legal-size limit of 14 inches. Another indicator of robust bass populations in Manistee Lake is the number of bass fishing tournaments that are held each summer on Manistee Lake. Northern pike in particular are numerous and are a keystone predator. The 31 individuals collected in the 2008 survey represented 6 different year classes and were growing extremely well. Also, Master Angler records indicate that Manistee Lake is capable of producing large, trophy-sized northern pike. Although only four walleye were collected in the 2008 survey, Manistee Lake has a reputation as providing a good walleye fishery, including fish of large, trophy size. It is likely that Manistee Lake walleye run into the Manistee River to spawn, and they may also migrate into Lake Michigan after spawning to forage. A shore fishery develops in late May and early April on the piers that form Manistee harbor, and many anglers troll Manistee Lake, the channel, the harbor, and the pierheads seeking large, post-spawn walleye. No walleye are stocked in Manistee Lake, so the fish present are either naturally reproduced or migrants from other areas. The excellent growth shown by predatory fish from Manistee Lake is likely due to the connection of Manistee Lake with Lake Michigan, and the plentiful forage that Lake Michigan provides in the form of alewives, rainbow smelt, and round goby, and juvenile salmonids migrating to Lake Michigan.

The panfish populations of Manistee Lake also appear to be healthy. Individuals were present in the catch of the 2008 survey from a number of different year classes, indicating consistent natural reproduction. Master Angler catches have been recorded in recent years for rock bass, black crappie, and bluegill. Although growth rates for panfish were not above State average, they are clearly good enough to provide good numbers of "catchable" panfish. Master Angler yellow perch have also been caught by anglers in recent years, although it is possible that they were migrants from Lake Michigan. It is well-known that yellow perch migrate into Manistee Lake from Lake Michigan, particularly during the winter in preparation for spawning.

One of the primary values of Manistee Lake from a fisheries perspective is its use as a staging ground for spawning runs by Chinook salmon, Coho salmon, steelhead. Staging salmon and steelhead in Manistee Lake provide popular fisheries that generate many thousands of angler hours each year. Manistee Lake also provides critical habitat for lake sturgeon, a state-threatened species. Adult lake sturgeon utilize Manistee Lake as a staging area for spawning runs, and both adults and juvenile lake sturgeon live and feed in Manistee Lake at different times of the year (Damstra 2007). The Manistee River/Manistee Lake population of lake sturgeon is one of the largest found on the eastern shore of Lake Michigan.

(Source: MDNR 2010 Status of the Fishery Resource Report for Manistee Lake)

ENERGY

Local electrical generation facilities include the Filer City Plant, owned by T.E.S. Filer City Station Limited Partnership a subsidiary of the Tondu Corporation. The co-generation power plant uses coal, wood waste, petroleum coke and tire derived fuel and has a rated output of 60 MW and 50,000 pounds of 600 psi steam per hour. The plant began commercial operations in 1990 (Source: Tondu Corporation)

Packaging Corporation of America ("PCA") installed a biogas refinery that produces methane gas at their Filer City Containerboard Mill. It used bacteria to convert spent cooking liquid into gas without the use of recovery boilers or evaporators, which themselves use considerable energy. The methane was burned as fuel in an existing boiler, replacing less sustainable fuels. The process used new technology developed internally by PCA. Current operational status is unknown. (Source: PCA)

ECONOMIC ACTIVITY

In 2011 Manistee's top 10 economic sectors for total employees (Source: US Census - ACS):

1. Educational services, and health care and social assistance
2. Manufacturing
3. Arts, entertainment, and recreation, and accommodation and food services
4. Retail trade
5. Public administration
6. Professional, scientific, and management, and administrative and waste management services
7. Other services, except public administration
8. Wholesale trade
9. Construction
10. Finance and insurance, and real estate and rental and leasing

Lumber, agriculture and salt gave rise to Manistee. All still play an important part in a now diverse industrial and agricultural base. In addition chemicals, machine tools, furniture, forging, gannents, boats, highway markers, machine fabrications and machine tooling add to the economic vitality of the community.

AIR QUALITY

The Michigan Department of Environmental Quality ambient air monitoring network utilizes the Little River Band of Ottawa Indians Air Monitoring Station for Manistee area data collection.

The Air Quality Program for the Little River Band of Ottawa Indians ("LRBOI") has been operating since September of 2005 with the hiring of staff and since April 2006 with monitoring. It has been built around three areas of focus: Monitoring, Policy, and Services.

Monitoring – LRBOI's Air Monitoring Station (AMS) is located at the tribe's Justice Center. LRBOI monitors ambient (outdoor) air for:

- Ground level ozone (O3)
- Particulate matter (dust) 2.5 microns in diameter and smaller (PM2.5)
- Meteorological conditions (Met)

Following is a brief description of each:

O3 – Ozone is a chemical similar to molecular oxygen, but it has three oxygen atoms instead of two. It is probably most famous for the Ozone Layer and the Ozone Hole over Antarctica. The ozone in the Ozone Layer is the same chemical that we are monitoring for at the ground level. Often people wonder why ozone up above is good, but ozone down here is bad. Simply put, ozone like many chemicals has good and bad properties. One of its good properties is that it blocks ultra-violet rays coming from the sun. Some of its bad properties are that it irritates our lungs and damages plant leafs. So, as you can see depending on where ozone is it can be helpful or detrimental to humans and the environment.

Ground level ozone is monitored in Michigan from April through September every year. This is because ground level ozone is not emitted as pollution, but rather created from the combination of pollutants in the air and hot weather "cooking" the pollutants to form ozone. Thus, ozone is only monitored for during the hottest months of the year.

The shoreline counties throughout West Michigan are heavily impacted from ozone due to pollution originating from the Chicago-Gary-Milwaukee corridor region of Lake Michigan. Studies have shown this time and time again to be true. LRBOI is working in conjunction with the State of Michigan's Department of Environmental Quality (MDEQ) to monitor this situation. LRBOI's monitoring data can be viewed real time on MDEQ's web site along with all the other monitoring stations around the state.

The State of Michigan also forecasts Ozone Action days to warn citizens of impending conditions that may lead to the heavy formation of ozone. MDEQ's EnviroFlash program sends out notices to warn citizens a day or two in advance of hazardous air events.

PM2.5 – PM2.5 is basically dust that is 2.5 microns in diameter and smaller. However, it is not formed by the wearing away of rocks or other matter but rather by the chemical reactions inside engines and furnaces. PM2.5 is dangerous to human health because the particles are so small that they are readily absorbed into the bloodstream. This increases blood volume and thus blood pressure in the person breathing the pollutant. Furthermore, PM2.5 usually has more carcinogenic and haphazard chemicals in it than larger sizes of particulate matter. Also, the very small nature of it causes it to act more like a gas than like dust so it travels much further from its sources than larger particles of particulate matter.

All size ranges of particulate matter are monitored throughout the year. A sampler collects dust on a filter for twenty-four hours once every three days or once every six days. All the samplers in the entire country run on the same days to ensure a snapshot can be taken of what is going on throughout the United States. Obviously, the sites that sample once every six days only run every other run day that the sites that sample once in every three days run on.

Met – Met or meteorological conditions are monitored throughout the year as well. The met conditions monitored for are: temperature, wind speed, wind direction, barometric pressure and solar radiation. The monitoring of these conditions allows LRBOI staff to determine trends on weather's affect and air pollution at the site. It also helps us to backtrack to possible sources and causes when there is an air pollution event.

Policy

LRBOI staff monitor decisions before the MDEQ and EPA for potential impacts to tribal members and the environment in the tribe's service area. These can be anything from a change in permitting levels at a source, changes with the monitoring network, changes in the standards for "clean" air, as well as many other situations.

Services

LRBOI staff perform many services to members. In addition to monitoring the air, the staff also answers questions from members, comments on permit decisions in the service area and gives out notices of hazardous air events.

(Source: Little River Band of Ottawa Indians Website)

III. Results of the Environmental Stewardship Assessment

❖ Environmental Stewardship Dashboard

Water Systems	▲	Wellhead Protection/Source Water Protection	
	▲	Water Metering	
Wastewater Treatment	—	Sufficient Capacity	
	▲	Extends to Surrounding Community	
	▼	Non-Combined Stormwater System	Sewer Separation in Process
	—	Technology	
Solid Waste	▼	Reduction Programs	
	▲	Recycling	
	▼	Reuse	
	▼	Purchase Recycled Content	
Energy Management	▲	EnergyStar Portfolio Manager	
	▲	Energy Conservation	
	▲	Efficiency Updates	
	▼	Renewable Use	
Stormwater Management	▼	Municipal Low Impact Development	
	▼	Stormwater Management Plan	
	▼	Incentives/Requirements for Private Develop LID Use	
Transportation Policy	▲	Complete Streets Policy	
	▲	Street Cleaning	
	▲	Non-Motorized Priority	
	▲	Public Transportation	
Environmental Data	▼	DMR Pollutant Releases	
	▼	TRI Releases	
	▼	MAERS	
	158	WDS Sites	
	9	NPDES Permits	
Planning	▲	Smart Growth	
	▲	Open Space Preservation	
	▲	Transportation Options	
	▲	Walkable Higher Density Housing	
	▲	Placemaking	
Recreation	▲	Environmental Management of Recreational Resources	
	▲	Certified Clean Marina	
Watershed Protection	▼	Watershed Protection Plan	
	—	Areas of Concern	
Economic Development	▲	Economic Development Strategy	
	▲	Economic Sustainability Policy	
	▲	New Economy	

❖ Community Water System

A. Source
4 Ground Water Wells, three to the south of the City and one to the north

B. Capacity
5,500 gpm production with two 500,000 Gallon Storage Tanks. Annual water distribution in 2012 was 326,179,000 gallons.

C. Number of Customers
3,300 Connections

D. Length of Distribution System
50 miles

E. Wellhead Protection Plan/Source Water Protection Plan
Yes:

The adoption of Manistee's Wellhead Protection Program dates from April 2000. The program was initiated in part, by the discovery of elevated levels of chlorides in the vicinity of the City's wellfield. Other contaminants that could potentially pose a threat to the City's water supply include: salts, fertilizers, pesticides, nitrates and leeches from nearby brine wells and septic systems. The Wellhead Protection Plan outlines a series of precautionary measures and best management practices designed to lessen or prevent both the introduction of new contaminants, and the migration of known contaminants, into the City's underground aquifer. It is important that future zoning initiatives offer adequate protective measures for the City's system of wells, including proper isolation distances, controls on area land uses, and like factors. The Wellhead Protection Plan is incorporated into the City's zoning ordinance and the Filer Charter Township's ordinance where most of the wells are located.

The water is chemically treated with sodium hypochlorite (chlorine) and fluorosilicic acid (fluoride)

❖ Wastewater Treatment

A. Type
Activated Sludge

B. Size
The plants design capacity is 1.3 MGD. Current agreements with Filer Charter Township anticipate enlarging the capacity to 1.5 MGD

C. Service Area
Four square miles within the City limits plus service to the hospital, prison, industrial park in Manistee Township as well as various commercial enterprises by contract in Manistee Township and Filer Charter Township.

D. Length of Distribution System
55 miles

❖ Solid Waste

A. Source Reduction
N/A

B. Recycling
Yes. The City provides a drop-off recycling program, and recycles office paper through the municipal organization.

C. Reuse
N/A

D. Buy Recycled
N/A

❖ Energy Management

The City completed the Introductory Energy Evaluation (IEE), a Rebuild Michigan Program of the the Pure Michigan Energy Office.

A. Consumption/one year
Annual Electric Cost: $259,000,
Annual Natural Gas Cost: $74,000
Annual Streetlight Costs: $140,000

B. Utilities and Sources
Electrical service provided by Consumers Energy. DTE Energy and Volunteer Energy provide natural gas service.

C. Energy Star® Portfolio Manager
Yes. The City initiated it under a previous energy grant program.

D. Energy Conservation
The City installed programmable thermostats, fluorescent and LED lighting, and limits the idling of municipal vehicles.

E. Energy Efficiency
The City installed high efficiency boilers, LED lights, computerized HVAC controls, and LED streetlights.

F. Renewable Energy
No current use of renewable energy

G. Education
N/A

❖ Other Stewardship Activities/Policies

- Manistee City Brownfield Redevelopment Authority
  The City of Manistee Brownfield Redevelopment Authority was formed in 2006 to facilitate the sensible redevelopment of numerous underutilized or vacant commercial and industrial properties throughout the city.

❖ Stormwater

A. Piping—type, length, discharges to
40 miles of Stormwater pipe discharge to Manistee Lake and the Manistee River Channel.

B. Low Impact Development
N/A

C. Stormwater Management Plan
No.

Combined Sewer Overflow (CSO) Control Program
When the original sewer system was constructed in the City of Manistee several decades ago it was a combined sewer system. A combined system transports sewage and stormwater in the same pipe.

When it rains and stormwater enters the sewer system, the hydraulic load becomes too high to sustain treatment. The Wastwater Treatment Plant (WWTP) is then forced to regulate the amount of flow entering the plant, which causes the excess inflow to be discharged at CSO outfalls in the city.

Outfalls

In 1996 Manistee entered into a Final CSO Control Program with the Michigan Department of Environmental Quality (MDEQ) to provide for the elimination or adequate treatment of the combined sewage discharges containing raw sewage, to comply with the Water Quality Standards at times of discharge. The MDEQ lists the following CSO outfalls and separation timelines:

- **Outfall Number: 003**
  Outfall Location: First St @ Cedar
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016
- **Outfall Number: 004**
  Outfall Location: Water St @ Cedar
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016
- **Outfall Number: 005**
  Outfall Location: Water St @ Spruce
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016

❖ Stormwater Continued

- **Outfall Number: 006**
  Outfall Location: River St @ Pine
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2011
- **Outfall Number: 007**
  Outfall Location: River St @ Oak
  Receiving Water: Manistee River
  Current Treatment Provided: n/a
  CSO Permit Requirements: Separation-complete 10/98
- **Outfall Number: 010**
  Outfall Location: River St @ Maple
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016
- **Outfall Number: 012**
  Outfall Location: River St @ Greenbush
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016
- **Outfall Number: 013**
  Outfall Location: River St @ Division
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016
- **Outfall Number: 014**
  Outfall Location: River St @ Jones
  Receiving Water: Manistee River
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2011
- **Outfall Number: 018**
  Outfall Location: 5th St @ Ramsdell
  Receiving Water: Manistee Lake
  Current Treatment Provided: none
  CSO Permit Requirements: Separation-by 2016
- **Outfall Number: 026**
  Outfall Location: 10th St @ US 31
  Receiving Water: Manistee Lake
  Current Treatment Provided: n/a
  CSO Permit Requirements: Separation-complete 12/97

❖ Transportation

A. Complete Streets

Yes. A Complete Streets Ordinance was adopted June 2012, which references The City of Manistee Non-Motorized Transportation Plan.

B. Street Cleaning

Yes: Street cleaning is conducted with sweep based equipment with vacuum cleaning of catch basins.

C. Snow Removal/Storage

Snow is removed from the Downtown and stored in the Parking Lot at First Street/ Douglas Park.

D. Non-motorized Transportation Facilities

The City contains 3.5 miles of trails, and approximately 80 miles of sidewalk.

The City of Manistee Non-Motorized Transportation Master Plan

The City adopted its City of Manistee Non-Motorized Transportation Master Plan on February 5, 2008.

Mission Statement: The City of Manistee Non-Motorized Transportation Committee will work to provide safe, scenic routes throughout the City that encourage non-motorized transportation use for fitness, transportation and tourism while enhancing the City's attributes and appeal and connecting the city to surrounding communities.

Overview: The City of Manistee Master Plan establishes that there historically and currently is an interest in non-motorized facilities within the City of Manistee. Established non-motorized facilities are those improvements and provisions made to enhance bicycling and walking such as bike lanes, bike racks, sidewalks, river walk, etc. Creating a transportation environment that provides universal accessibility and encourages bike usage, walking and the combined use of aforementioned and public motorized transportation (dial-a-ride) will enhance the City in providing for the following:

- Increased safety for pedestrians, persons with wheelchairs/disabilities and cyclists;
- Other transportation and fitness opportunities;
- Alternatives for maintaining a healthy lifestyle;
- Environmental stewardship;
- Increased awareness for community sustainability;
- Connectivity, being the linkage between various destination points in the community and surrounding communities;

Northwest Michigan Regional Non-Motorized Transportation Plan and Investment Strategy 2008

The Michigan Department of Transportation (MDOT) commissioned the Northwest Michigan Council of Governments to develop the Northwest Michigan Regional Non-Motorized Transportation Plan and Investment Strategy 2008 for the 13 counties of Emmet, Charlevoix, Antrim, Kalkaska, Grand Traverse, Leelanau, Benzie, Manistee, Wexford, Missaukee, Osceola, Lake, and Mason in northwest, Lower Michigan. MDOT has used the Strategy to prioritize funding projects in the region. The guiding vision of this project is to connect existing trails, offering residents and visitors more opportunities for non-motorized transportation and to enjoy more of the region's natural resources.

❖ Transportation Continued

The project gathered information on existing and future trails from the county, township, city and village board members, planning commissions, parks and recreation commissions, and staff. Sub-regional meetings took place with trail organizations, groups, and stakeholders to review the proposed trail maps for their input. Then the compiled maps were presented to the public at sub-regional trail gatherings for input and to prioritize the proposed trails.

Please see Appendix H. Northwest Michigan Non-Motorized Strategy 2008 – Manistee County on Page 78

E. Public Transportation

Manistee County Transportation is a public transportation system which began service in March of 1975. It provides dial-a-ride service for Manistee County citizens. Funding comes from a combination of state and federal support, local millage, and individual and contract fares. Patients traveling to Munson Medical Center in Traverse City ride free of charge

❖ Airport

Manistee Blacker Airport (MBL), located just north of the City of Manistee, offers the nearest commercial air service and major general aviation facilities. The airport has two runways (Rwy09/27 – 5,500 feet in length, Rwy18/36 – 2,721 feet in length) and instrument approaches procedures. Currently there is one commercial air carrier offering service to Chicago Midway.

As part of the critical infrastructure system that connects people and goods globally, airports are a valuable asset. An airport's impact on Michigan's economy and quality of life can be compared to that of an interstate highway interchange, a railroad station or harbor.

PA 327 of 1945 established the Michigan Aeronautics Code and created the Michigan Aeronautics Commission with general supervisory authority over aeronautics in the state. The Office of Aeronautics within the Department of Transportation carries out the day to day duties of the Commission per statute and rules. One of the primary roles is implementing the provisions of the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012 in regard to the Airport Improvement Program (AIP) which provides federal funding for airport planning and development through 2015.

Asset management is a vital component of any strategy to identify airport improvement projects based on criteria established through a process of prioritization. This is accomplished with the Michigan Airport System Plan (MASP) and the Airport Capital Improvement Plan (AICP), which is included in the MDOT 5-year Transportation Plan.

❖ Environmental Data

Environmental Data Descriptions

◆ National Pollutant Discharge Elimination System (NPDES)

The Clean Water Act (CWA) requires anyone who wants to discharge pollutants from point sources to first obtain an NPDES permit, or else that discharge will be considered illegal. As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. For example, NPDES permits control municipal and industrial sources of wastewater pollution. Permits typically require monitoring and reporting. NPDES permits limit a facility's discharge of water quality parameters, specific chemicals, bulk parameters, and flow.

The permit provides two levels of control: technology-based limits (based on the ability of dischargers in the same industrial category to treat wastewater) and water quality-based limits (if technology-based limits are not sufficient to provide protection of the water body). See EPA's Industrial Water Pollution Controls Web page and Water Quality Standards for Surface Waters Web page for more information. The Water Permits Division of EPA's Office of Wastewater Management directs and organizes the program in cooperation with EPA regional offices, states, tribes, and others.

Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to our nation's water quality.

Source: MDEQ http://www.deq.state.mi.us/owis/Page/main/Home.aspx

◆ Discharge Monitoring Report (DMR) Pollutant Loading Tool

The DMR Pollutant Loading Tool ("Loading Tool") is a Web-based tool that calculates and reports facility pollutant discharges in pounds per year or by monitoring period. The tool also weights chemicals by their relative toxicity and calculates the toxic-weighted equivalent amount of each chemical released. With this tool you can rank facilities and pollutants by total amount of each pollutant released each year and by the total amount of toxic-weighted pounds released each year. The tool allows users to quickly identifies the facilities that discharge the largest amount of particular pollutants or pollutant groupings with simple filters

Source: EPA http://cfpub.epa.gov/dmr/ez_search.cfm

◆ Toxic Release Inventory (TRI)

The Toxics Release Inventory (TRI) program maintains a publicly available database containing information on toxic chemical releases and waste management activities reported annually by certain industries as well as federal facilities. EPA compiles the TRI data each year and makes it available through several data access tools, including the TRI Explorer and Envirofacts. The TRI Comparative Analysis tool uses the most recent official year of TRI data.

This data tool includes wastewater pollutant discharge data from EPA's Toxics Release Inventory (TRI). Data is available for the years 2007 through 2010. Users can search TRI data to find the facilities with the largest pollutant discharges to surface waters or municipal sewage treatment plants.

Source: EPA http://iaspub.epa.gov/triexplorer/tri_release.facility

❖ Environmental Data Continued

◆ Michigan Air Emissions Reporting Systems (MAERS)

The Federal Clean Air Act requires that each state maintain an inventory of air pollution emissions for certain facilities and update this inventory every year. Michigan's emission inventory is the Michigan Air Emissions Reporting System (MAERS). The Michigan Department of Environmental Quality (DEQ), Air Quality Division (AQD) maintains MAERS reports for commercial, industrial, and governmental sources of air pollution in Michigan. Emissions data is submitted to the United States Environmental Protection Agency (U.S. EPA) to be added to the national data bank. This information is used to track air pollution trends, determine the effectiveness of current air pollution control programs, serve as a basis for future year projections of air quality, track source compliance, provide information for permit review, and calculate the emissions portion of the air quality fee.

Source: MDEQ http://www.deq.state.mi.us/maers/emissions_query.asp

◆ Waste Data Systems (WDS)

The Waste Data System (WDS) tracks activities at sites regulated by the Solid Waste, Scrap Tire, Hazardous Waste, and Liquid Industrial Waste programs. WDS can provide information on ownership and operation of the site; the status of any required permits, licenses, registrations, or certifications; compliance status; authorized transporters; shipments of hazardous or liquid industrial waste (manifest); and user fees.

Source: MDEQ http://www.deq.state.mi.us/wdspi/AdvancedSearch.aspx

◆ Environmental Permit Counts

National Pollutant Discharge Elimination Systems (NPDES) 2011	9 pemits	
MI Waste Data Systems (WDS) 2013	158 sites	169 pemits

❖ Environmental Data Continued

◆ Environmental Data Report

Discharge Monitoring Report (DMR)	
Pollutant Loading - Top Pollutants by Pounds (2011)	**Total Pounds**
Solids, total dissolved	23,797,517.0000
Chloride	13,815,540.0000
Solids, total suspended	39,745.0000
Ammonia as N	21,943.0000
BOD, carbonaceous, 05 day, 20 C	8,730.0000
Phosphorus	946.0000
Mercury	0.0035
Lead	-
Oil and grease	-
Benzene, ethylbenzene, toluene, xylene combination	-
	-
	-
	-
	-
	-
	-

Toxic Release Inventory (TRI)*		
Reported Disposed of or Otherwise Released in 2011	**Total On-site Disposal or other Releases (lbs)**	**Total Off-site Disposal or other Releases (lbs)**
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY) (311/312 - Food/Beverages/Tobacco)	194,026	-
LEAD COMPOUNDS (311/312 - Food/Beverages/Tobacco)	213	115
METHYL METHACRYLATE (326 - Plastics and Rubber)	956	-
STYRENE (326 - Plastics and Rubber)	9,126	-
Total	204,321	115
Zip Codes Searched: 49660		

*TRI data reflect releases and other waste management activities of chemical, not whether (or to what degree) the public has been exposed to those chemicals.

Michigan Air Emissions Reporting Systems (MAERS)	
2010 Emissions	**Tons**
Ammonia	0.02
Carbon monoxide (CO)	839.38
Lead (Pb)	0.11
NOx	654.83
Particulate Matter (PM)	-
PM-2.5	70.92
PM10 FIL	46.07
PM10 PRI	74.63
Sulfur dioxide (SO2)	1,941.91
Volatile Organic Compounds (VOCs)	33.83

❖ Existing Planning Efforts

The assessment of the Master Plan identified the follow components that addressed environmental stewardship and sustainable economic strategies:

MASTER PLAN CITY OF MANISTEE

VISION

- The issue isn't whether the City can prosper--rather it is for us to decide how much, and to define the efforts that we will take to preserve the quality of life for those who live and work here.
- The issue isn't about whether growth will be good for us or bad--but how we will take advantage of the opportunities presented to us and address any problems that might arise.

Goals of the Plan:

GOAL BASE GROWTH ON SOUND DESIGN PRINCIPLES

Manistee is e a dynamic, unified community with stable neighborhoods and businesses. Our residents, businesses, government, and social organizations will work together to maintain and strengthen Manistee's small town, historic, character. This will be achieved through growth and redevelopment that balances the encouragement of new uses of land with appropriate growth management principles, and cooperative decision making with the surrounding townships.

GOAL MAINTAIN BALANCED DEVELOPMENT

Land use decisions will be guided by the desire to achieve an equitable balance between land use, economic, and social benefits, and the costs associated with development. These decisions will acknowledge existing land use relationships in the City, as well as those of the adjoining townships.

Achieving a balance of land use will require recognition of changing economic and social conditions of the region, state, and the nation, with its shift toward retail and service employment, and the growing need for human services. As the demographics of the community change and the population ages, land use needs will vary as new services, housing, and other uses will be required.

GOAL MAINTAIN A SMALL TOWN CHARACTER

Manistee's small town character will be preserved by maintaining property, continuing improvements to the downtown, protecting existing neighborhoods, and caring for the natural features and parks located within the City, making it an attractive place to live, work and play.

Long Term Objectives

- Manistee is aware of the need to balance and properly integrate new growth opportunities with that of existing development such that harmonious relationships result. This will be achieved through the implementation of proper planning and growth management techniques and cooperation with neighboring communities

❖ Existing Planning Efforts Continued

- There is no model for a perfect land use "balance" in a community. Rather, it is the function of the community to determine the ultimate direction for its use of land. This means identifying and achieving a reasonable balance between various types of uses, including housing, commercial, industrial, and public uses. Determining the "ideal" balance involves an examination of a combination of factors, including existing land uses, available land and infrastructure, and the overall community vision.
- Among the many reasons that Manistee is a desirable place to live is because it is a clean, attractive community. Small cities in particular can quickly lose their character if attention is not paid to the physical environment. Communicating the importance of the City's identity to the entire community is essential. Maintaining a positive, small town character and keeping the City attractive is largely a matter of individual and community cooperation. It also requires ordinances to assist in the enforcement of property maintenance, protection of natural resources and views (view sheds) of the City's lakes and rivers, and other aspects that make up Manistee's small town character.
- Utility and transportation planning provides many benefits. To achieve these benefits at lower cost, land use policies should encourage infill, and discourage extensions of infrastructure that may compromise other land use goals, such as preserving sensitive lands from development pressures.
- Pertinent recommendations of the 1981 urban design plan that have particular relevance to land usage for the present Master Plan.
  - Mixed Use - Prevent the overexpansion of the core downtown in order to preserve its distinctive and compact character. Encourage greater use of the upper floors of downtown buildings for offices and apartments. Prevent the downtown from unraveling at the edges through inappropriate new construction or rehabilitations.
  - Pedestrian Comforts - Streetscape and building improvements should continue to focus on enriching the pedestrian environment of the City. The riverwalk should be extended along the entire length of the north bank.
- Neighborhood Linkage - Maintain high quality physical connections between the downtown and the residential neighborhoods abutting the downtown. This is accomplished through regular maintenance of public sidewalks, street terraces, and pedestrian lighting; maintenance of the non-public sides and sites of commercial buildings (e.g. rear of buildings); and, maintenance of the residential sites and buildings abutting the downtown.
- Companion Growth - To improve business potential, encourage the continued growth of residential development in the City and surrounding townships as a means of increasing the seasonal and year round resident base.
- Adaptability of Land - Environmental resources and constraints were also considered in the development of the Future Land Use provisions of the Plan. It was considered important by the City that the land itself be able to accommodate planned uses, while also protecting those natural assets considered important.

❖ Existing Planning Efforts Continued

- To improve the appearance of existing developments, and those of future projects, the industrial development strategies noted under the Park/Light Industrial classification should be followed. Moreover, due to the placement of the district along Manistee Lake, careful attention should be given to:
  - maintaining the quality and integrity of the shoreline and water resource.
  - limiting the removal of natural vegetation along the shoreline. If necessary, the shoreline should be re-stabilized with appropriate plants.
  - recognizing the desire of the general public to use the shoreline and water resource for recreational pursuits.

POLICIES

Economic Development Goals

GOAL ENCOURAGE MIXED-USE DEVELOPMENT OPPORTUNITIES

While the mixing or integration of certain uses can result in conflict, the City has also discovered the positive opportunities to be achieved from well-planned and well-designed mixed-use developments. Opportunities for future mixed-use projects exist in several sectors of the City. The City supports well-planned and well-designed mixed-use projects that complement the City's other land uses.

GOAL PROMOTE A BALANCE OF COMMERCE AND INDUSTRY

The long term well-being of the City is based on a balance of commerce and industry. Therefore, the City supports efforts to provide suitable locations for each and to supply the necessary infrastructure and public services needed for economic success.

Economic Development Long Term Objectives

- Much of the City's historic development mirrors "New Urbanism" philosophies in which residential, commercial, and industrial development are harmoniously mixed in an integrated fashion. Several areas of the City, in need of future redevelopment, may best be served by a mixed-use form of development.
- The vitality of a community is often measured in terms of its economic health. The economy of the Manistee area is driven by the businesses and industries within the City. Since the livelihoods of many of the residents in the Manistee area depend on the health and continued growth of business and industry, those residents will generally support actions that maintain and improve the business climate. However, fostering a healthy economic climate can not be simply an exercise in "growth for the sake of growth."

❖ Existing Planning Efforts Continued

FUTURE LAND USE MAP DESCRIPTIONS

Low Density Residential

Lot Size Range: 12,000 to 21,000 square feet
Lot Width Range: 100 to 120 feet
Density Range: 2-3.5 units/acre, with potential allowances for additional density on "large acreage planned" sites.
Purpose To provide for large lot residential sites resulting in low density development patterns. Land within this classification would satisfy the demand for a "suburban" type of development theme, and would function as a transition land use between the rural residential sectors of the Townships adjoining the City and higher density development internal to the City.

Medium Density Residential

Lot Size Range: 5,000 to 12,000 square feet
Lot Width Range: 40 to 100 feet
Density Range: 4 to 8 units/acre with potential allowances for increased density on "large acreage planned" sites.
Purpose: To recognize Manistee's most predominant residential land development patterns and to foster continued residential grow of the City consistent with those patterns and density levels which are characteristic of an urban setting.

High Density Residential

Lot Size Range: 2,500 to 6,000 square feet/unit
Lot Width Range: 65-80 feet
Density Range: 7 to 17 units/acre
Purpose: To provide alternative housing opportunities that would satisfy the needs and/or desires of a broad range of residents including low and moderate income individuals and families, empty nesters, senior citizens, professionals, young families, and others. Where possible, areas of higher densities should incorporate the preservation of open space and natural features and/or incorporate sound building and site design elements that promote a high quality living environment for residents.

Central Business District

Lot Size: No requirement
Lot Width: No requirement
Purpose: To build a stronger, vital downtown which is highly pedestrian oriented and comprised of a range of synergistic uses. The Central Business District classification is strictly confined to downtown Manistee as detailed on the Future Land Use Map. Mixed use development of the downtown area is encouraged provided said uses serve to enhance the economic viability of the downtown. While encroachment into existing, stable residential neighborhoods is generally discouraged, the Plan recognizes the importance of fostering an environment in which the CBD and contiguous neighborhoods function in highly compatible, cohesive, fashion.

❖ Existing Planning Efforts Continued

◆ Highway Commercial

Lot Size: 0.5 acres and above
Lot Width: 100 feet or more
Purpose: To provide commercial services that satisfy the needs of the City, regional residents, and guests. Uses within this classification would tend to be automobile-oriented and traffic dependent. Therefore, development in the Highway Commercial Classification should be located on major roadways.

◆ Neighborhood Commercial

Lot Size: Predicated on the use.
Lot Width: Predicated on the use.
Note: In many instances, the Neighborhood Commercial areas reflect small commercial nodes/sites established prior to modern zoning regulations.
Purpose: To provide convenience/neighborhood commercial services to the residents of nearby neighborhoods and to recognize and promote the existence and rehabilitation of small commercial centers historic to several of Manistee's mature residential neighborhoods.

◆ Light Industrial

Lot Size: 1 acre
Lot Width: 150 feet
Purpose: To provide for light industrial development that is properly located and has adequate public services. The Plan calls for future light industrial development to be placed in industrial park settings, such as the City's Industrial Renaissance Park which offers highly attractive financial incentives.

◆ General Industrial

Lot Size: Predicated on the use.
Lot Width: Predicated on the use.
Note: Generally, no parcel should be less than 1 acre.
Purpose: To provide for general industrial development that is properly located and has adequate public services. The Plan calls for General Industrial development to be placed primarily along the southwestern shore of Manistee Lake, consistent with the existing character of the lake's industrial use.

◆ Marine Oriented Mixed-Use Development

Lot Size: Predicated on use.
Lot Width: Predicated on use.
Note: It is envisioned that the development of this category will be handled under the provisions of a PUD, thereby offering some degree of flexibility regarding the size of individual sites and uses.
Purpose: To provide for the marine oriented development and redevelopment of the mixed-use area located in the City's extreme northeast sector, between Manistee Lake and the area lying west of Veteran's Oak Grove Drive.

❖ Existing Planning Efforts Continued

◆ Residential/Commercial Mixed-Use Redevelopment District

Lot Size: Predicated on use.
Lot Width: Predicated on use.
Note: It is envisioned that the development of this category will be handled under the provisions of a PUD, thereby offering some degree of flexibility regarding the size of individual sites and uses.
Purpose: To provide for the redevelopment of the mixed-use area located east of US-31 and bordered by the Manistee River Channel (north) and Manistee Lake.

◆ Waterfront Overlay Districts

- Manistee Lake Front Overlay
- Manistee River Channel Overlay

Purpose: To provide for the recognition and protection of the City's water resources and to ensure their long term use and access by the public.

Please see Appendix C. Future Land Use Map – City of Manistee

❖ Existing Zoning Efforts

The assessment of the Zoning Ordinance identified the follow components that addressed environmental stewardship and sustainable economic strategies:

Manistee Zoning Ordinance Districts

G-C	Golf Course
R-2	Moderate Density Residential
R-3	High Density Residential
R-4	Manufactured Housing Community
C-1	Regional Commercial
C-2	Neighborhood Business
C-3	Central Business District
W-F	Waterfront District
P-D	Peninsula District
L-I	Light Industrial
G-I	General Industrial

Wellhead Protection Overlay
Renaissance District
U.S. 31 Corridor

❖ Existing Zoning Efforts Continued

ARTICLE THREE DISTRICTS, DIMENSIONAL STANDARDS USES TABLE AND ZONING MAP

Table 3-1 – City of Manistee Schedule of Regulations

District	Minimum Lot Dimensions		Maximum Lot Coverage	Minimum Yard Requirements (feet)			Maximum Density	Maximum Height	Minimum Floor Area Per Dwelling and Width
	Area (sq. ft.)	Width (feet)	(%) of gross lot area[h]	Front [a]	Side	Rear/ Waterfront[f]	DU/Acre	Feet/stories (Principal Bld)	(Sq.Ft. & Ft)
P-D									
Single Unit	6,000	60							
Duplex or Commercial	10,000	80	60%	15	10	10/20	17	35/2½	500/20
Multi-Unit	10,000[c]	80							
G-C	15,000	100	40%	30	10	10/100	4	35/2½	1,500/25
R-1	15,000	100	40%	30	10	10/100	4	35/2½	1,500/25
R-2									
Single Unit	6,000	60		15	10	10/20	8	35/2½	960/20
Duplex or Commercial	10,000	80	40%						
Multi-Unit	10,000[c]	80							
R-3									
Single Unit	6,000	60						35/2½	
Duplex or Commercial	10,000	80	60%	15	10	10/20	17		960/20 (for single family)
Multi-Unit	10,000[c]	80							500/20 (for multi-family)
R-4									
Single Unit	6,000	60	40%	15	10	10/20	8	35/2½	750/20
Duplex or Commercial	10,000	80							
Mfg Hsng	Per Requirements of Section 1105 and the Rules and Regulations of the Manufactured Housing Commission								
C-1	20,000[c]	120	60%	30	10[d]	20	17	40/3	500/20
C-2	6,000[c]	60	90%	4	0 or 4[d][e]	10/20	17	35/2½	500/no min. width
C-3	2,500	25	100%	0	0 or 4[d][e]	6/20	(g)	50/4	500/no min. width
W-F									
Single Unit	6,000	60							
Duplex or Commercial	10,000	80	60%	15	10	10/20	17	35/2½	500/20
Multi-Unit	10,000[c]	80							
L-I	12,000	120	70%	25	10[i]	10[i]	N/A	50/4[j]	N/A
G-I	12,000	120	70%	45	10[i]	10/50[i]	N/A	50/4[j]	N/A

Notes:

f. This standard shall not apply to walkways,, boat docks, boat slips, boat houses and boat launches. In the C-3 District, the waterfront setback shall be twenty (20) feet, provided the Planning Commission may approve a lesser setback in response to site conditions or surrounding uses and structures.

ARTICLE FOUR NONCONFORMITIES

SECTION 403 RECONSTRUCTION AND REPLACEMENT

C When repairing or rebuilding any building which is located in a high risk erosion area, affirmative steps to minimize future erosion damage may be required.

ARTICLE FIVE GENERAL PROVISIONS

SECTION 503 PERFORMANCE STANDARDS

A. No parcel, building or structure in any Zoning District shall be used or occupied in any manner so as to create any dangerous, injurious, noxious or otherwise objectionable element or condition so as to adversely affect the surrounding area or adjoining premises provided any use permitted by this Ordinance may be undertaken and maintained if acceptable measures and safeguards are employed to limit dangerous and objectionable elements to acceptable limits as established by the following performance requirements:

❖ Existing Zoning Efforts Continued

3. No storm water runoff, which is a result of development site design, or other manmade features, shall be allowed to collect which results in water standing on the surface, unless the standing water is a part of a properly managed and maintained storm water retention system, sediment pond; or the standing water is in a naturally occurring wetland or water body.

◆ SECTION 505 WATER PROTECTION

D. No building or structure shall be built, located or constructed within a 100 year flood plain, as may be determined by the Michigan Department of Natural Resources or the Federal Emergency Management Agency, unless constructed according to the Michigan Construction Code, as it applies to construction in flood plains, consistent with criteria set forth in Section 1910 of National Flood Insurance Program Regulations, promulgated under the National Flood Insurance Act of 1968.

E. Where buildings and structures are proposed to be located within or adjacent to floodplains and areas of high-risk erosion, techniques shall be implemented to mitigate any impact on water bodies and bluff lines. The mitigation techniques shall also be designed to minimize the economic hardships that individuals and the City may face in the event of property loss due to severe erosion or flooding. The Planning Commission may require an applicant to submit an Environmental Assessment on the condition of the floodplain or the bluff line. Where a bluff is determined to be eroding or in danger of eroding, structures and buildings shall be setback a minimum of ten (10) feet in addition to the respective minimum waterfront yard setback, from the bluff line; provided, that a minimum of 30 years protection from shore land or bluff erosion is provided by said setback, as determined by the Department of Natural Resources.

◆ SECTION 507 CONDITIONS OF APPROVAL

The Zoning Administrator, Planning Commission, City Council and Zoning Board of Appeals may attach reasonable conditions with the approval of special land uses, planned unit developments, site plans, variances, and other discretionary zoning decisions. These conditions may include those necessary to insure that public services and facilities affected by a proposed land use or activity will be capable of accommodating increased service and facility loads caused by the land use or activity, to protect the natural environment and conserve natural resources and energy, to insure compatibility with adjacent uses of land, and to promote the use of land in a socially and economically desirable manner. Any conditions imposed, however, shall meet all of the following requirements:

A. Be designed to protect natural resources, the health, safety, and welfare and the social and economic well being of those who will use the land use or activity under consideration, residents and landowners immediately adjacent to the proposed land use or activity, and the community as a whole.

◆ SECTION 520 HAZARDOUS SUBSTANCE GROUNDWATER PROTECTION

A. Applicability. All businesses and facilities (except fuel stored in a fuel tank which is part of a motor vehicle for purposes of use by that vehicle's motor) which:

1. use or generate hazardous substances in quantities greater than one hundred (100) kilograms (approximately two hundred twenty (220) pounds) per month or ninety five (95) liters (approximately twenty five (25) gallons) per month, whichever is less; or
2. store greater than one hundred (100) kilograms (approximately two hundred twenty (220) pounds) or ninety five (95) liters (approximately twenty five (25) gallons), whichever is less, shall comply with the following groundwater protection requirements.

❖ Existing Zoning Efforts Continued

B. Groundwater Protection Requirements:

1. Groundwater Protection, generally:
   a. The project and related improvements shall be designed to prevent groundwater contamination from hazardous substance discharge to the natural environment, including lakes, ponds, streams, wetlands, floodplains, groundwater, street slopes, and natural and man-made drainage systems.
   b. Stormwater management and drainage facilities shall be designed to retain the natural retention and storage capacity of any wetland, water body, or watercourse, and shall not increase flooding or the potential for pollution of surface or groundwater, on-site or off-site.
   c. General purpose floor drains and storm drains shall be:
      1) connected to an on-site holding tank (not a septic tank/drain field or a dry well) in accordance with state, county and municipal requirements; or
      2) authorized through a state groundwater discharge permit; or
      3) connected to a storm water system.
   d. State and federal agency requirements for storage, spill prevention, record keeping, emergency response, transport and disposal of hazardous substances and polluting materials shall be met. No discharge to groundwater, including direct and indirect discharges, shall be allowed without appropriate state and county permits and approvals.
   e. In determining conformance with the standards in this Ordinance, the Administrator or Commission, whichever is applicable, shall take into consideration the publication titled "Small Business Guide to Secondary Containment; Practical Methods for Above-ground Storage and Containment of Hazardous Substances and Polluting Materials" published by the Clinton River Watershed Council, May 1990, and other references.
   f. Out-of-service water wells shall be sealed and abandoned in accordance with applicable requirements of the Michigan Department of Public Health and the Manistee-Mason District Health Department.
   g. If the site plan includes territory within a Wellhead Protection Overlay Area submit a signed statement providing permission for periodic follow-up groundwater protection inspections by the Administrator, county and state officials.
3. Above-ground Storage
   a. Primary containment of hazardous substances shall be product-tight containers which are protected from weather, leakage, accidental damage, and vandalism.
   b. Secondary containment for the storage of hazardous substances and polluting materials is required. Secondary containment shall be one of the following, whichever is greatest:
      1) sufficient to store the substance for the maximum anticipated period of time necessary for the recovery of any released substance; or
      2) shall be at least as great as volumes required by state or county regulations; or
      3) shall, if not protected from rainfall, contain a minimum of
         a) 110 percent of the volume of the largest storage container within the dike of the secondary containment area, plus3. Above-ground Storage
         b) the volume that is occupied by all other objects within and below the height of the dike of the secondary containment area plus
         c) the volume of a 6 inch rainfall.

❖ Existing Zoning Efforts Continued

c. Secondary containment structures such as out buildings, storage rooms, sheds and pole barns shall not have floor drains which outlet to soils, groundwater, or nearby drains or rivers.
d. Areas and facilities for loading/unloading of hazardous substances and polluting materials, as well as areas where such materials are handled, stored or used, shall be designed and constructed to prevent discharge or runoff to floor drains, rivers, lakes, wetlands, groundwater or soils.
e. State of Michigan and Federal agency requirements for storage, leak detection, record keeping, spill prevention, emergency response, transport and disposal shall be met.
f. Bulk storage of pesticides shall be in accordance with requirements of the Michigan Department of Agriculture.

4. Underground Storage
   a. Underground storage tank installation, operation, maintenance, closure and removal shall be in accordance with the requirements of the State Police Fire Marshal Division and the Michigan Department of Natural Resources.
   b. Bulk storage facilities for pesticides and fertilizers shall be in compliance with requirements of the Michigan Department of Agriculture.

◆ SECTION 523 PARCEL DIVISIONS

C. Open Space Preservation Development: Within the R-1 District, the owner of property may elect to develop an Open Space Preservation Development in accord with the terms of this subparagraph. A maximum of eighty (80%) percent of the parcel's buildable area may be divided into new parcels averaging not less than 10,000 square feet in area. The remaining twenty (20%) percent of the parcel shall be kept as useable open space in perpetuity by conservation easement, plat dedication, restrictive covenant, or other legal means acceptable to the Planning Commission.

1. Minimum Open Space Requirement: The development density which would normally be realized on the entire parent parcel shall be transferred to the area of the parent parcel which is not the twenty (20%) percent of the parent parcel which shall be kept as usable open space in perpetuity by conservation easement, plat dedication, restrictive covenant, or other legal means.
2. Determining Maximum Allowable Parcel Divisions: The maximum number of new parcels which may be created within the parent parcel shall be the same number that would be permitted on the site under the provisions of the R-1 district. To determine this density, the applicant shall either:
   a. Submit a conceptual plan of division of the parcel. This conceptual plan shall contain proposed parcels, roads, rights-of-way, areas which are not in the buildable area, and other pertinent features, in compliance with City ordinances and stipulations. This plan must be drawn to scale; or
   b. Multiply the buildable area of the parcel as defined herein, by 85% to account for rights-of-way and divide the result by the minimum parcel area in the R-1 district.
3. Siting Criteria for New Parcels: Creativity and originality in parcel layout shall be encouraged to achieve the best possible relationship between buildable land and open space. The Planning Commission shall evaluate proposals to determine whether the proposed site plan meets the site plan criteria of Article 22 and the following:

❖ Existing Zoning Efforts Continued

a. Protection and preservation of beach areas contiguous to a lake or stream, wetland, flood plain; existing public utility easements; existing public rights-of-way; waterfront setback areas; slopes over twenty five (25%) percent; and buffer areas around such features from clearing, grading, filling, and construction.
b. Maintenance or creation of a significant an upland buffer of natural native species vegetation adjacent to wetlands and surface waters.
c. Preservation of scenic views and vistas unblocked and uninterrupted, particularly as seen from adjacent roads and surface water.
d. Protection of wildlife habitat areas of species listed as endangered, threatened or of special local concern.
e. Protection and preservation of sites of historic, archaeological, or cultural value
f. Provision of reasonable and contiguous open space areas that are attractive and useful for future residents and the larger community.
g. Documentation that a homeowners association made up of parcel owners in the development, or a recognized non-profit land conservancy shall own or control the open space. The owner(s) of the open space shall be required to maintain the open space. In the alternative, the City of Manistee may, but shall in no way be required to, accept title to the open space as an addition to the City's park system.

◆ SECTION 531 LANDSCAPING AND SCREENING

Whenever a greenbelt, buffer area or vegetation belt is required under the terms of this ordinance, it shall be established in accord with the terms of this Section within six (6) months from the date of issuance of a certificate of occupancy, unless the Planning Commission in any conditions of approval provide for another timeframe for completion.

A. A landscape plan required under the terms of this ordinance shall be prepared and submitted in conjunction with a site plan. Such landscape plan shall be prepared by a Registered Landscape Architect, professional engineer or by a qualified landscape designer. Such landscape plan shall provide, to the greatest extent possible, for the preservation and protection of existing natural features on the site.

B. The landscape plan shall include an inventory of existing trees, wood lots, streams, lakes, wetlands, view sheds and other natural features of the site and detail on the measures proposed to preserve and protect such features. All existing trees having five (5) inches or greater diameter at breast height shall be identified by common or botanical name. Trees proposed to remain, to be transplanted or to be removed shall be so designated. A cluster of trees standing in close proximity (5 feet or closer) may be designated as a "stand" of trees, and the predominant species, estimated number, and average size shall be indicated.

E. Not less than thirty percent (30%) of the proposed landscaped area shall consist of woody vegetation, including trees and shrubbery. Landscaped open space shall not include driveways and parking areas. To the greatest extent possible, existing trees over five inches (5") diameter at breast height, shall be retained and protected. Areas of a site plan intended for stormwater detention or retention shall only be included in such required minimum landscaped area if formally landscaped with shrubbery and turf and contoured such that no fencing shall be required.

❖ Existing Zoning Efforts Continued

ARTICLE SIX P-D PENINSULA DISTRICT

SECTION 604 DIMENSIONAL STANDARDS

Within the Peninsula District, the following dimensional standards shall apply:

C. Yard and Setback Requirements - The following requirements shall apply to every parcel, building or structure.

4. Waterfront Yards: The minimum setback from the ordinary high watermark of Manistee Lake shall be twenty (20) feet. Provided that this provision shall not apply to walkways, boat docks, boat slips, boat houses and boat launches.

F. Lot Coverage: Not more than sixty percent (60%) of the parcel area shall be covered by buildings.

SECTION 605 PENINSULA DISTRICT RENAISSANCE ZONE STANDARDS

A. Purpose. It is the intent of this district to provide for development in certain parts of Manistee City, which have been designated by the Michigan Legislature as Renaissance Zones, pursuant to P.A. 376 of 1996 (being the Michigan Renaissance Zone Act, MCL 125.2681 et. seq.); to provide for alternative permit processing in cooperation with the Alliance for Economic Success; to provide for an accelerated schedule for special use permit review and action; to provide protection to Manistee Waterways, their water quality, to protect the shoreline from erosion or instability, to minimize the disturbance of heavy metals which may be on the lake bottom; to recognize, encourage the development and/or redevelopment of certain waterfront properties; while at the same time to be consistent with the provisions of Manistee City Master Plan, the Manistee Lake Management Plan of 1982, the Manistee County Land Use Plan and the Manistee County Economic Development Strategy.

ARTICLE EIGHT R-1 – LOW DENSITY RESIDENTIAL DISTRICT

SECTION 800 PURPOSE AND INTENT

It is the intent of this District to establish and protect residential areas consisting primarily of low density; single-family neighborhoods designed and maintained promote an attractive, healthy and stable living environment for families, singles and the elderly. In portions of the district near Lake Michigan, this district is intended to protect the Lake Michigan shoreline environment while enabling sustainable enjoyment of this unique feature of the community.

SECTION 804 WELLHEAD PROTECTION OVERLAY for R-1, R-2,

B. Land Use Restrictions.

2. Prohibited Uses. Within the Wellhead Protection Overlay, any land use that uses, generates or stores a minimum threshold quantity of any hazardous substance as defined herein and which has not received and maintained in good standing a bona fide permit for the use, generation and/or storage of such substance, shall be prohibited. For the purpose of this subparagraph, a minimum threshold quantity of hazardous substances shall mean

❖ Existing Zoning Efforts Continued

a. For the use or generation of hazardous substances: Quantities of at least one hundred (100) kilograms (approximately two hundred twenty (220) pounds), or ninety-five (95) liters (approximately 25.1 gallons), whichever is less, per month; or b. For the storage of hazardous substances: Quantities of at least one hundred (100) kilograms (approximately two hundred twenty (220) pounds) or ninety-five (95) liters (approximately 25.1 gallons), whichever is less, routinely stored on site.

ARTICLE TWELVE W-F -- WATERFRONT DISTRICT

SECTION 1200 PURPOSE AND INTENT

It is the intent of this District to establish a mixed-use district incorporating a variety of recreational, residential, business or service uses on or near the Waterfront. This district is intended to encourage and promote sustainable, environmentally and aesthetically compatible developments that use or compliment the shoreline while promoting expanded use of the shoreline by the public. The W-F District is intended to host a variety of land uses including, but not limited to, residential, commercial, entertainment and recreational, service and industrial uses.

SECTION 1204 WATERFRONT RENAISSANCE ZONE STANDARDS

A. Purpose. It is the intent of this district to provide for industrial development in certain parts of Manistee City, which have been designated by the Michigan Legislature as Renaissance Zones, pursuant to P.A. 376 of 1996 (being the Michigan Renaissance Zone Act, MCL 125.2681 et. seq.); to provide for alternative permit processing in cooperation with the Manistee County Economic Development Office; to provide for an accelerated schedule for special use permit review and action; to provide protection to Manistee Lake, its water quality, to protect its shoreline from erosion or instability, to minimize the disturbance of heavy metals which may be on the lake bottom; to recognize, encourage and maintain a higher proportion of industries in the central and southern portion of the lake near railroad and shipping access that does not adversely affect the area; to prioritize the use of certain lakefront property on Manistee Lake for industrial businesses which require the use of the lake and require being in the proximity of the lake, (conversely, it is the intent of this district to encourage the development of businesses which do not need proximity to Manistee Lake to be located in those other landward areas); while at the same time to be consistent with the provisions of Manistee City Master Plan, the Manistee Lake Management Plan of 1982, the Manistee County Land Use Plan and the Manistee County Economic Development Strategy.

ARTICLE THIRTEEN C-1 – REGIONAL COMMERCIAL DISTRICT

SECTION 1300 PURPOSE AND INTENT

It is the intent of this District to provide areas for commercial uses intended to serve the larger community and the traveling public in the vicinity of highway U.S.-31 and to promote the economic development of the City in conformity with the Manistee City Master Plan, while establishing standards for curb cut location, pedestrian facilities, parking and shared parking, loading/unloading area, landscaping, and building form intended to mitigate the negative impacts of lineal development along highway U.S.-31; and potential conflicts with nearby residential districts.

❖ Existing Zoning Efforts Continued

ARTICLE SEVENTEEN G-I GENERAL INDUSTRIAL

SECTION 1700 PURPOSE AND INTENT

It is the intent of this District to protect adjacent residential areas from the negative effects of the General Industrial District while allowing industries which traditionally heavier and more intense in the nature of their uses; to provide protection to Manistee Lake including its water quality, to protect its shoreline from erosion or instability or other negative effects; and to be compatible with the City's Master Plan.

SECTION 1704 GENERAL INDUSTRIAL RENAISSANCE ZONE STANDARDS

A. Purpose. It is the intent of this district to provide for industrial development in certain parts of Manistee City, which have been designated by the Michigan Legislature as Renaissance Zones, pursuant to P.A. 376 of 1996 (being the Michigan Renaissance Zone Act, MCL 125.2681 et. seq.); to provide for alternative permit processing in cooperation with the Manistee County Economic Development Office; to provide for an accelerated schedule for special use permit review and action; to provide protection to Manistee Lake, its water quality, to protect its shoreline from erosion or instability, to minimize the disturbance of heavy metals which may be on the lake bottom; to recognize, encourage and maintain a higher proportion of industries in the central and southern portion of the lake near railroad and shipping access that does not adversely affect the area; to prioritize the use of certain lakefront property on Manistee Lake for industrial businesses which require the use of the lake and require being in the proximity of the lake, (conversely, it is the intent of this district to encourage the development of businesses which do not need proximity to Manistee Lake to be located in those other landward areas); while at the same time to be consistent with the provisions of Manistee City Master Plan, the Manistee Lake Management Plan of 1982, the Manistee County Land Use Plan and the Manistee County Economic Development Strategy.

ARTICLE EIGHTEEN STANDARDS AND REQUIREMENTS FOR SPECIAL USES

SECTION 1801 SPECIAL USE PROCEDURES

A Special Use application shall be submitted and processed according to the following procedures. The applicant is strongly encouraged to take advantage of the Optional Sketch Plan Review, as provided for in Section 2202 prior to the submission of an application:

B. Data Required. For submission to the Planning Commission Twelve (12) copies of an application for a Special Use permit shall be presented to the Zoning Administrator and accompanied by the following documents and information. [Annotation: The language for submission to the Planning Commission was added by amendment 07-12, effective 5/29/07]

1. A complete Special Use permit application including the following information:
   h. Any additional material information necessary to consider the impact of the project upon adjacent properties and the general public as may be required by this ordinance, by the City Zoning Administrator or the Planning Commission; including, but not limited to, measures which will be undertaken to control soil erosion, shoreline protection, excessive noise, or adverse impacts of the development on the surrounding properties; elevations on all buildings, including accessory buildings; and, an environmental assessment.

❖ Existing Zoning Efforts Continued

4 Any additional information deemed necessary for the Planning Commission to determine the impact of the proposed Special Use on the adjacent properties, public infrastructure, and community as a whole. Such information may take the form of, but is not limited to, a traffic impact analysis as required by Section 2203, E, 2, an environmental assessment as required by Section 2203, E, 1, a market study as required by Section 2203, E, 3, or reports and/or testimony by officials representing state, county or local departments of public safety (police and fire), health, highways or roads, and/or environment. (Note: the Planning Commission may request this additional information after the Public Hearing on the application.)

◆ SECTION 1802 SPECIAL USE REVIEW STANDARDS

A. General Review Standards. The Planning Commission, before acting on a Special Use permit application, shall employ and be guided by standards which shall be consistent with and promote the intent and purpose of this Zoning Ordinance, and ensure that the land use or activity authorized shall be compatible with adjacent uses of land, the natural environment, and the capacities of public services and facilities affected by the land use. The Planning Commission shall review each application and take action to approve a special use application only if it finds that such Special Use meets each of the following standards, together with any and all Special Use standards reflected for the zoning district, and any and all applicable specific review standards found in this Article. The Planning Commission shall find adequate evidence that each use at its proposed location will be consistent with the public health, safety, and welfare of the City and shall comply with the following standards:

B. Conditions and Approval Standards. The Planning Commission may establish reasonable conditions of approval for a Special Use permit. The conditions may include, but are not limited to, conditions necessary to insure that public services and facilities affected by a proposed land use or activity will be capable of accommodating increased service and facility loads caused by the land use or activity, to protect the natural environment and conserve natural resources and energy, to insure compatibility with adjacent uses of land, and to promote the use of land in a socially and economically desirable manner. Further, the Planning Commission may adopt specific review standards for any proposed Special Use proposed if this Article 18 does not provide such specific review standards for such use. Any such conditions imposed or specific review standards employed shall:

1. Be designed to protect natural resources, the health, safety, and welfare, and the social and economic wellbeing of those who will use the land use or activity under consideration, residents and land owners in the vicinity of the proposed land use or activity, and the community as a whole.

◆ SECTION 1811 AUTOMOBILE REPAIR FACILITY

B. Regulations and Conditions.

5. All hazardous material storage and handling shall be conducted in accord with Section 520 hereof, and with any applicable State or Federal requirements.

❖ Existing Zoning Efforts Continued

◆ SECTION 1814 BILLBOARD

B. Intent. It is the intent of this Section 1814 to:

1. Protect the City's distinctive community character and natural landscape
2. Protect scenic resources and view sheds located within the City,
3. Enhance the economic base of the community associated with tourism and the community's overall economic well-being by protecting natural and scenic resources

C. Regulations and Conditions.

2. It is hereby determined that a reasonable number of billboards provide the traveling public and the community with helpful information and a reasonable number of billboards can be important to the economic well-being of local and regional businesses. It is further determined that an excess number of billboards in the community will detract from the aesthetic character and scenic nature of the community and present the traveling public with confusing visual clutter rather than helpful information. The Planning Commission shall not approve a special land use application for a new billboard in the City of Manistee if such approval would result in there being more than ten (10) billboard structures or more than nineteen (19) billboard faces in the City.

◆ SECTION 1816 CAR WASH

B. Regulations and Conditions.

1. All such facilities shall be connected to a public sewer system and all wastewater discharge facilities shall be designed and maintained in accordance with the City of Manistee Industrial Pre-Treatment program to properly manage excess loading to the City's wastewater collection and treatment system.
5. Adequate drainage shall be provided, to prevent flooding, freezing of runoff, and environmental damage.

◆ SECTION 1819 COMMUNICATION TOWER

B. Purpose and Intent. The Telecommunications Act of 1996 as amended on February 6, 1996 sets forth provisions concerning placement, location and construction of towers and related facilities for communication. The purpose of this section is to establish general guidelines for the siting of Communication Towers, which include antenna structures. In order that such towers not cause visual pollution or create a safety hazard or reduce property values on adjacent properties, reasonable regulations for the location, use of existing structures (e.g., water towers, school and church steeples, tall buildings), design of structures and towers, is appropriate. Communication Towers are specifically determined to NOT be essential services nor to be public utilities as such terms are used in this Ordinance. The intent of these provisions is to encourage users of towers to:

7. Configure them in a way that minimizes the adverse visual impact of the towers and antennas through careful design, siting, landscape screening, and innovative camouflaging techniques.

❖ Existing Zoning Efforts Continued

◆ SECTION 1820 CONTRACTOR'S FACILITY

B. Regulations and Conditions.

6. There shall be no off-site discharge of storm water except to an approved drainage system in accord with the City's engineering requirements.
9. Any hazardous materials proposed to be stored, used or handled on site shall be disclosed by the applicant and all such storage, use and handling shall be conducted in accordance with Section 520 hereof, and any applicable State or Federal requirements.

◆ SECTION 1841 GASOLINE STATION

B. Regulations and Conditions.

9. Any hazardous materials proposed to be stored, used or handled on site shall be disclosed by the applicant and all such storage, use and handling shall be conducted in accordance with Section 520 hereof, and any applicable State or Federal requirements.

◆ SECTION 1843 GOLF COURSE

B. Regulations and Conditions.

4. A new golf course development shall include storm water management facilities satisfactory to the City Engineer and/or the Michigan Department of Environmental Quality intended to prevent the runoff of storm water carrying excess concentrations of fertilizer or nutrients from entering natural streams, Lake Michigan, Manistee Lake or the Manistee River Channel.

◆ SECTION 1844 GREENHOUSE AND NURSERY

B. Regulations and Conditions.

3. Refuse and waste shall be disposed of in a manner which precludes any odors and fumes from being perceptible at any lot line; and any pesticides, fertilizers, or other chemicals shall be handled in a manner which precludes pollution of the environment and the City's water resources.

◆ SECTION 1850 LAUNDRY AND DRY CLEANING ESTABLISHMENT

B. Regulations and Conditions.

1. Pursuant to Section 520 hereof, all storage tanks or other facilities used to store hazardous, toxic, odorous, explosive or flammable substances shall be equipped with appropriate containment structures or equipment; to prevent any migration of such substances into the groundwater or surface waters of the City; and to prevent said substances from being perceptible outside such containment.

◆ SECTION 1852 MARINA

B. Regulations and Conditions.

3. Marinas shall not interfere with riparian interests or the integrity and quality of the water body.
7. All Marinas shall provide watercraft sanitary holding tank pump out services, in accordance with Act 451 of 1994 (Part 301 of Inland Lakes and Stream Act).

❖ Existing Zoning Efforts Continued

◆ SECTION 1856 MINE, SAND, AND GRAVEL

B. Regulations and Conditions.

1. General Site Plan Requirements: In addition to the regular application for a Special Use and payment of fees, the application shall be accompanied by a General Site Plan. The plan shall be drawn to a scale of 1" - 100' and said plan shall include the following information:
   d. A plan for extraction and reclamation for the total project which shall include:
      1) Surface overburden and topsoil stripping and stockpiling plans.
      2) Provisions for grading, re-vegetation, and stabilization that will prevent soil erosion, sedimentation and public safety problems.
      3) A feasible and detailed plan for the re-use of the reclaimed site, consistent with the intent of the zoning district(s) in which the facility is located.
   e. Surface water drainage provisions and outlets.
   f. The location and size of any structures
   g. Approved soil erosion permits. If such permit has not been issued, a copy of the permit application may be appended to the special use application and any approval shall be conditioned upon issuance of such soil erosion permit.
2. Reclamation: All extraction areas shall be reclaimed progressively as they are worked out. Reclaimed sites shall be reasonably natural and inconspicuous and shall be reasonably lacking in hazard. All slopes and banks remaining above water level and below water level to a depth of six (6) feet shall be graded to angles which do not exceed one (1) foot in elevation for each three (3) feet of horizontal surface and they shall be treated to prevent erosion or any other potential deterioration. No more than five (5) acres of the site shall be open at any time.

◆ SECTION 1870 PLANNED UNIT DEVELOPMENT

A. Definition. A special land use intended to accommodate developments with mixed or varied uses, innovative design features and/or sites with unusual topography or unique settings.

B. Statement of Intent. It is the purpose of this section to permit flexibility in the regulation of land development, and to encourage innovation and variety in land use and design of projects. The basic provisions concerning Planned Unit Development are the subdivision, development, and use of land as an integral unit, combining more than one primary land use and which may provide for single-family residential, multi-family residential, education, business, commercial, recreation, park and common use areas, which are compatible with one another and provide for efficient use of land. The objectives of these Planned Unit Development standards shall be:

1. To permit flexibility in the regulation of land development.
2. To encourage innovation in land use and variety in design, layout, and type of structures constructed.
3. To achieve economy and efficiency in the use of land, natural resources, energy, and the providing of public services and utilities.
4. To encourage useful open space, and to provide improved housing, employment, and shopping opportunities particularly suited to the needs of the residents of the State and City.
5. To encourage the innovative use, re-use, and improvement of existing sites and buildings.

❖ Existing Zoning Efforts Continued

C. Regulations and Conditions: In its establishment and authorization as a special use, in addition to the foregoing provision, the following procedures, standards and conditions shall be observed. Where the Planning Commission determines it is necessary to allow a more flexible and innovative development to occur it may recommend that the terms of the Manistee Zoning Ordinance and Subdivision Regulations be adjusted in accordance with the provisions of this Section. Planned Unit Developments shall meet the following general standards:

1. The use shall be compatible with adjacent land use, the natural environment, and the capacities of affected public services and facilities, and that such use is consistent with the public health, safety and welfare of the residents of the City of Manistee and the benefits of the development shall not be achievable under any single zoning classification.
7. Existing important natural, historical and architectural features within the development shall be preserved.

E. PUD Application. A planned unit development application shall be submitted to the Site Plan Review Committee (Subcommittee) of the Planning Commission for review, analysis, and recommendation. An application fee is required and shall be non-refundable. The City Council shall by resolution establish the amount of the application fee. All land for which application is made must be owned by or under the control of the applicant, and the parcel must be capable of being planned and developed as one integral unit including any non-contiguous parcels. The application must be signed by all applicants and must contain the materials described in this Section. Failure of the applicant to provide such requested information in a timely manner may delay the process of review. The following shall accompany a planned unit development special use application, unless waived by the Site Plan Review Committee (Note: the Planning Commission may request this additional information after the Public Hearing on the application:

1. A detailed narrative description of the applicant's intent and objectives (physical, social, and environmental).
8. Waste emissions and methods of handling smoke, dust, noise, odors, liquid and solid wastes, and vibrations, if applicable.

G. Decisions.

1. If the Planning Commission determines that the PUD application is consistent with the intent of this Section and with the other standards and requirements herein contained, it shall adopt a resolution approving the proposed PUD in accordance with the application and material submitted, or approving the proposed PUD in accordance with the application and material submitted and subject to any conditions that the Planning Commission believes are necessary to carry out the intent and standards of this ordinance. Such conditions of approval shall:
   a. Be designed to protect natural resources, the health, safety and welfare of the community, including those who will use the proposed development,

◆ SECTION 1871 POWER GENERATING FACILITY

Regulations and Conditions.

1. A proposal to establish a Power Generating Facility shall not be approved unless the Planning Commission reaches a finding, based on objectively verified evidence, that all processes to be used in the handling of fuel material, the combustion of fuels, the disposal of any byproduct, the handling of cooling water, the transmission of electrical energy, the handling of process chemicals and liquids, the maintenance of equipment and all processes and procedures associated with the facility shall be the most advanced such systems in terms of the following criteria:

❖ Existing Zoning Efforts Continued

a. Potential environmental impacts on air, surface water, ground water, soils, and natural features, shall be minimized or fully mitigated,
b. Potential community impacts on nearby land uses, public infrastructure and the economic vitality of the community shall be demonstrated to be either neutral or positive,
c. Potential impacts on the health of residents of the City of Manistee and surrounding communities and on plant and wildlife communities in the vicinity shall be negligible,

2. The applicant shall fully disclose
   a. The nature and quantity of all fuels, chemicals, hazardous materials to be used or stored on site and all uses and activities shall at all times comply with Section 520 hereof.
   c. The chemical constituents of all emissions to the air, groundwater and surface waters.
3. An application for a Power Generating Facility shall include an environmental assessment in accord with the requirements of the City of Manistee as established by the Zoning Administrator.
4. Wastewater discharges to the City of Manistee municipal wastewater system shall conform to the requirements of the City's industrial pre-treatment program. No toxic or hazardous materials shall be discharged to groundwater or surface waters. No process or cooling waters shall be discharged to Manistee Lake or the Manistee River Channel if the average temperature of such process or cooling water exceeds the natural and seasonally adjusted temperature of the receiving body of water by more than five degrees (5 □) Fahrenheit.

◆ SECTION 1873 PROCESSING AND MANUFACTURING

B. Regulations and Conditions.

1. The applicant shall disclose the nature and quantity of all chemicals, hazardous materials to be used or stored on site and all uses and activities shall at all times comply with Section 520 hereof.
2. Wastewater discharges to the City of Manistee municipal wastewater system shall conform to the requirements of the City's industrial pre-treatment program. No toxic or hazardous materials shall be discharged to groundwater or surface waters.

◆ SECTION 1883 TATTOO PARLOR

B. Regulations and Conditions.

8. Any biohazard materials or byproducts shall be disposed of as required by the Manistee County Health Department, the Michigan Department of Public Health, or other duly appointed authority.

◆ SECTION 1888 VETERINARY CLINIC

B. Regulations and Conditions.

1. Animal wastes, biohazard materials or byproducts shall be disposed of as required by the Manistee County Health Department, the Michigan Department of Public Health, or other duly appointed authority. All other wastes shall be contained in leak-proof and odor proof containers removed not less frequently than once per week. No animal wastes, biohazard materials or byproducts shall be buried or incinerated on site. Any failure on the part of the operator to maintain proper licensing shall be grounds for the revocation of a special use approval for a Veterinary Clinic.

❖ Existing Zoning Efforts Continued

◆ SECTION 1891 WELLS, EXTRACTION

B. Regulations and Conditions. The following standards shall apply to all Extraction Wells.

10. A new Extraction Well shall include measures or controls satisfactory to the City Engineer to prevent any discharge of any hazardous materials to the City of Manistee sanitary sewer system, stormwater system or any natural or man-made stream or lake. There shall be no off-site discharge of storm water except to an approved drainage system in accord with the City's engineering requirements.

◆ SECTION 1892 WINDMILL (WIND ENERGY CONVERSION SYSTEM)

B. Regulations and Conditions. The following standards shall apply to all Wind Energy Conversion Systems as defined herein except a Wind Monitoring Station.

1. A Windmill or Wind Energy Conversion System shall be located on a parcel at least two and one-half (2-1/2) acres in size.
2. In addition to the special use application, the applicant shall submit an evaluation of the likely impacts of the proposed facility in the following areas:
   a. Noise and vibration at any property line,
   b. Potential impacts on wildlife, including native and migrating birds,
   c. Shadow and glare impacts on adjacent properties, and
   d. Aesthetic impacts of the Windmill on adjoining properties.

◆ ARTICLE NINETEEN U.S. 31 CORRIDOR OVERLAY ZONE

◆ SECTION 1902 APPLICABILITY

The standards of this Section shall apply to all lands with frontage along U.S. 31 and illustrated as the U.S. 31 Corridor Overlay Zone on the Zoning Map, or within 200 feet of the U.S. 31 right-of-way. The regulations herein apply in addition to, and simultaneously with, the other applicable regulations of the zoning ordinance. Permitted and special land uses within the U.S. 31 Corridor Overlay Zone shall be as regulated in the underlying zoning district (as designated on the zoning map), and shall meet all the applicable requirements for that district, with the following additional provisions:

G. For building or parking lot expansions, or changes in use, or site redevelopment that cannot meet the standards of this ordinance due to parcel size or configuration, the Planning Commission shall determine the extent of upgrades to bring the site into greater compliance with the access standards of this overlay district. In making its decision, the Planning Commission shall consider the existing and projected traffic conditions, any sight distance limitations, site topography or natural features, impacts on internal site circulation, recommendations within the U.S. 31 Corridor Improvement Plan, and any recommendations from the MDOT. Required improvements may include removal or rearrangement or redesign of site access points.

❖ Existing Zoning Efforts Continued

ARTICLE TWENTY-TWO SITE PLAN REVIEW

SECTION 2200 PURPOSE

The intent of this section is to provide for consultation and cooperation between the applicant and the Planning Commission in order that the applicant may accomplish his/her objectives in the utilization of land within the regulations of the Ordinance, with minimal adverse effect on the land, shores, roadways, natural features, infrastructure, and on existing and future uses of property in the immediate vicinity, and to insure that a proposed land use or activity is in compliance with this Ordinance. In this connection, a site plan includes the documents and drawings required by the Zoning Ordinance to insure that a proposed land use or activity is in compliance with local ordinances and state and federal statutes.

SECTION 2202 OPTIONAL SKETCH PLAN REVIEW

Preliminary sketches of proposed site and development plans may be submitted for review to the Zoning Administrator and/or the Planning Commission or a committee of the Planning Commission, prior to official review and approval. The purpose of such procedure is to allow discussion between an applicant and the Zoning Administrator and/or Planning Commission, to better inform the applicant of the acceptability of the proposed plans prior to incurring extensive engineering and other costs which might be necessary for final site plan approval. Such sketch plans shall, at a minimum, include the following:

C. Sketch plans showing tentative site and development plans, produced on a scaled drawing illustrating existing and proposed structures, parcel boundaries, natural features, and all improvements, easements, streets, and sidewalks.

SECTION 2203 APPLICATION PROCEDURE

Request for site plan review shall be made by filing with the Zoning Administrator the required filing fee and escrow, the application form and either a basic, medium or detailed site plan, together with any special studies required. The Zoning Administrator may waive any site plan submittal requirement upon a finding that the required information is not applicable to the site. The following describes the required submittals.

C. Basic Site Plan. A basic site plan shall be required for new dwellings, additions to dwellings, or construction of accessory structures, single family dwellings; accessory structures and additions to existing single family dwellings; and accessory structures and additions to multiple unit dwellings which do not result in an increase in the number of units, the site plan shall be subject to Zoning Administrator review. Basic site plans shall include and illustrate at a minimum the following information:

8. Natural features, including trees with a diameter at breast height of three inches or more, water bodies and wetlands, high-risk erosion areas, beach, sand dunes, slopes in excess of 25%, drainage and similar features.

❖ Existing Zoning Efforts Continued

D. Medium Site Plan. A medium site plan shall be required for all uses other than those that may submit a basic site plan or require a detailed site plan. Additions and alterations to existing structures will be reviewed by the Zoning Administrator who shall reserve the right to forward it to the Site Plan Review Committee for approval. Medium Site Plans for new construction shall be reviewed by the Site Plan Review Committee who shall reserve the right to forward it to the Planning Commission for approval. A medium site plan shall include six (6) copies of all required information including any documents rendered in color and a digital PDF of the Site Plan shall be forwarded to the Planning and Zoning Department. Unless specifically waived by the Zoning Administrator the site plan shall be prepared by an Engineer, Architect, Landscape Architect or Surveyor licensed to work in Michigan and shall include and illustrate at a minimum the following information:

14. Location and type of drainage, sanitary sewers, storm sewers and other facilities, including surface and subsurface drainage for all impermeable surfaces on the site and all drainage calculations.
16. Proposed changes to the topography of the site illustrated at no greater than two (2) foot contours.
17. Soil erosion and sediment control measures which shall include preventative soil erosion devices or measures, both during and after any site work related to the development.
24. Special Groundwater Protection. Site Plans for facilities which use or generate hazardous substances in quantities greater than one hundred (100) kilograms (approximately two hundred twenty (220) pounds) per month or ninety five (95) liters (approximately twenty five (25) gallons) per month, whichever is less; or store greater than one hundred (100) kilograms (approximately two hundred twenty (220) pounds) or ninety five (95) liters (approximately twenty five (25) gallons), whichever is less; shall be subject to the following additional site plan submittal requirements:

E. Special Studies or Research. For complex site plans and/or for land uses that may generate significant impacts on surrounding land uses or public facilities, the Zoning Administrator or Planning Commission may require any or all of the following reports or studies as a part of a complete site plan.

1. Environmental Assessment shall be a summary review of the environmental impacts of a project in accordance with the following standards:
   a. The purpose of the Environmental Assessment shall be
      1) to provide relevant information to the Planning Commission on the potential environmental impact of applications for special land use permits for substantial projects that may have an impact on the natural, social and economic environment of the City;
      2) to inject into the developer's planning process consideration of the characteristics of the land and the interests of the community at large, and
      3) to facilitate participation of the citizens of the community in the review of substantial developments.
   c. Content. The following material shall be included and/or addressed in the Environmental Assessment, unless specifically waived by the Zoning Administrator or Planning Commission as not applicable:
      1) A description of the site in its current condition. This shall indicate any buildings to be preserved and those to be removed along with an indication of what will be done with the demolition debris. This must also include information on:

❖ Existing Zoning Efforts Continued

a) Flora and fauna (be sure to list any endangered species on-site)

b) General topography and drainage patterns including any regulated features such as wetlands, high risk erosion areas or other features

c) Adjacent waterways

d) Existing wells, approximate depth and use

3) A description of any existing contamination on-site. This should include a description of the nature of the contamination on-site and what will be done on this project to mitigate or contain it, including the proposed methodology and any state or federal regulatory agency reviews that may apply. If the project includes work that may disturb or displace existing contaminated soils or water, this should include a description of proposed methods to contain and/or dispose of the generated waste.

4) If the proposed project will impact any coastal areas or floodplain or involve riparian work along adjacent waterways, a description of the proposed work and the methodology proposed to protect waterways shall be provided.

5) A description of the existing soils on-site and as to the suitability of these soils for the proposed use.

6) A description of any historical or archeological significance associated with the site. If any such areas are present, this shall include a description of methods to protect and preserve any historic or archeological resources.

7) A description of any emissions from the proposed development as it relates to air quality. If any emissions are proposed, this shall include a description of each constituent and the effects of each constituent to nature and human life.

8) A description of any hazardous materials or waste to be stored on-site. This shall include a description of proposed methods to contain such materials and prevent any migration into adjoining soils or groundwater or into the atmosphere.

9) A description of any storm water or process water discharges from the site. This shall include a characterization of such discharge in terms of the quantity, quality and chemical constituents and temperature and a description of the possible effects this discharge may have on the receiving waters.

13) A description of plans for site restoration after construction.

◆ SECTION 2204 ACTION ON APPLICATION AND SITE PLANS

E. After conducting a review of the site plan, the Planning Commission shall approve, approve conditionally or reject the site plan, as it pertains to requirements and standards contained in the Zoning Ordinance. Any conditions required by the Planning Commission shall be stated in writing and shown on the site plan, together with the reasons for such conditions, and delivered to the applicant. Decisions by the Planning Commission shall be made within one hundred (100) days of the receipt of the completed application. Any conditions imposed on the application and site plan shall:

1. Be designed to protect natural resources; the health, safety, welfare, and social and economic well being of users of the land use or activity under consideration, residents, and landowners immediately adjacent to the proposed land use or activity; and the community as a whole.

❖ Existing Zoning Efforts Continued

◆ SECTION 2205 REVIEW CRITERIA

In the process of reviewing a site plan, the Planning Commission or Zoning Administrator shall consider:

A. That there is a proper relationship between the existing streets and highways within the vicinity, and proposed deceleration lanes, service drives, entrance and exit driveways, and parking areas to assure the safety and convenience of pedestrian and vehicular traffic, and that the proposed streets and access plan conform to any street or access plan adopted by the City or the Michigan Department of Transportation.

C. That as many natural features of the landscape shall be retained as possible, particularly, where they furnish a barrier or buffer between the project and adjoining properties used for dissimilar purposes and where they assist in preserving the general appearance of the neighborhood or help control erosion or the discharge of storm waters.

G. That plans for erosion control and storm water discharge has been approved by the appropriate public agency.

H. The relationship to shore and river preservation principles where appropriate.

I. That the plan as approved is consistent with the intent and purpose of zoning to promote public health, safety and general welfare; to encourage the use of lands in accordance with their character and adaptability; to avoid the overcrowding of population; to lessen congestion on the public roads and streets; to reduce hazards to life and property; to facilitate adequate provisions for a system of transportation, sewage disposal, safe and adequate water supply, education, recreation and other public requirements; and to conserve the expenditure of funds for public improvements and services to conform with the most advantageous uses of land, resources and properties; to preserve property values and natural resources; and to give reasonable consideration to character of a particular area, its peculiar suitability for particular uses and the general appropriate trend and character of land, building, and population development.

L. Projects proposed within three hundred (300) feet of Lake Michigan, Manistee Lake and/or the Manistee River Channel shall be arranged to preserve the maximum possible view corridor from public activity areas to said bodies of water. For the purpose of this Section public activity centers shall include pedestrian walkways, outdoor recreation areas, outdoor eating/drinking facilities, outdoor attractions or amenities (such as fountains, statues, monuments, public benches/seating, and other similar features) which are designed to attract and promote the gathering of the general public on-site.

Please see Appendix D. Zoning District Map

❖ Recreational Resources

MANISTEE, MICHIGAN COMMUNITY RECREATION PLAN 2012 – 2017

Standards

Recreation Standards

Since standards are recommended planning guides, not absolute rules, people may view their application in different ways. Cities vary in space and time. Manistee hasn't the same development pattern as another city, nor will its own physical and human properties remain static as time advances. For this reason, the City of Manistee continues to plan for recreation and park areas to meet the needs of its citizens, with additional consideration for its visitors.

Minimum Local Recreation Standards

The National Recreation and Parks Association have established guidelines for communities to measure their inventory of parks/facilities against national norms for recreation facilities. While the City exceeds the recommended minimums in many cases, there are areas where the community is lacking.

Walking, biking and non-motorized transportation in general needs continued attention. Connecting routes, bike lanes, and signage will continue to be developed to provide safe, non-motorized transportation throughout the City. The City Council appointed Non-Motorized Transportation Committee has developed a master plan which is included in the appendix. Since 2010 the City of Manistee Non-Motorized Transportation Committee and the Shoreline cycling Club have been developing a plan to build multi-use trails and a mountain bike skills park on this parcel.

Goals And Objectives

Goal 3 Develop a system of scenic areas and points of historic interest.

Objectives:

- Acquire and/or develop land for passive recreational use.
- Connect scenic areas with walking, bicycle, cross country skiing trails, etc.
- Provide appropriate signage to guide and inform residents and visitors.
- Encourage historic preservation efforts which enhance Manistee's unique character.

Goal 4 Develop more water-based recreation facilities.

Objectives:

- Encourage development of marina facilities, restaurants and other compatible uses on and around the area lakes and rivers.
- Encourage development of additional inland water access sites for boat launching, fishing and recreational use.
- Implement zoning, based on a land use plan, for the protection of land along shorelines and rivers.
- Continue development of a system of walkways along the Manistee River with view points, fishing piers, benches and drinking fountains.

❖ Recreational Resources Continued

◆ Summary

Manistee is “landlocked,” boundaries to the east and west by water and north and south by City limits that abut townships. Current City parks and play areas are in need of attention, while future development will rely on the dedication of remaining City properties, outright purchase, cooperative agreements or as conditions for private development. It will be a challenge to its planners to meet resident and visitor, passive and active, developed and natural parkland needs in a city in positive transition.

Manistee is the county seat in an area blessed with an abundance of natural resources. As such, it attracts government business and retail commerce within an approximate twenty-five mile radius; while attracting statewide visitations for fishing, hunting and other outdoor recreation opportunities. The City is benefitted by and is constricted by its physical location between Manistee Lake and Lake Michigan and surrounded by Manistee National Forest.

Current total City acreage dedicated to parks and open land recreational use is approximately 10%. National standards indicate this figure should approach 10%. Additionally the surrounding national forest and adjacent Lake Michigan bless the Manistee area with abundant outdoor recreation opportunity. This somewhat offsets deficiencies in developed play fields and facilities, as a portion of the population is given to hunting, fishing, boating and other outdoor pursuits. At the same time however, there has been significant growth in youth and girls team sports which creates ever increasing pressure on existing facilities.

◆ Universal Accessibility, Obesity

Taking into consideration the input received from the surveys that were conducted within City limits distribution and number of parks and facilities appear inappropriate to neighborhood delineations. However, the total City is 3.5 square miles, so many parks and facilities which appear in statistics by neighborhoods are in fact used by all residents. At the same time there appears to be a need for small neighborhood parks and play fields, particularly on the north and east sides of town.

City projections forecast increased small business, tourism and an aging resident population as evolving demographics, which will further impact future recreation facility and program needs. It is therefore important that the City seek opportunity to increase its recreation land and facility resources through construction, exchange, purchase, easements, subsidies or other methods, while at the same time maintaining cooperative arrangements with current property owners of recreational lands and facilities in order to properly serve its current and future citizen needs.

The demand for additional recreational opportunities will continue to grow commensurately with the growing value of leisure time. The quality of life in Manistee is, and will be, exemplified through the recreation and park opportunities provided through comprehensive community planning.

◆ Recommendations

Current Priorities For All Existing Parks

1. Update and add universally accessible playground equipment
2. Signage
3. Trees / shrubs / landscaping
4. Pavilions / tables / benches
5. Better utilization of existing park lands

❖ Recreational Resources Continued

Future Needs - Additional Parks/Facilities

1. Community/Recreation Center: Growth projections indicate tourism and senior related facilities could be incorporated into a full community recreation center complex.
2. Neighborhood Pocket Parks: current locations of parks have gaps. Seek development of current City properties, cooperative agreements, acquisitions, conditions for private development, etc.
3. Play Fields: remaining large open areas within the City limits are limited and should be developed before lost piecemeal.
4. Bike / Pedestrian Pathways: future planning should address bicycle/foot traffic throughout the City.
5. Community Garden: development of produce growing area for apartment dwellers, seniors, etc. Could be combined with a City nursery for park plantings, boulevards, etc.
6. Continue Riverwalk, other lake and river front improvements including around the peninsula.

◆ Review Of Park System Accomplishments 2007 - 2011

The 2007 - 2011 period was a good one for the Manistee park system. Major strides were made to address past deficiencies, meet current needs and lay groundwork for future additions and improvements to the system.

The acquisition of 23 acres of land that abuts Lake Michigan and most of Man-Made Lake, made possible through a Michigan Natural Resources Trust Grant, partnership of organizations and residents.

The addition of a new multi-purpose Beach House at Fifth Avenue Beach was completed which includes a concession area. As part of the upgrade a removable walkway was installed that provides Universal Accessibility from the Parking Lot to Lake Michigan.

The Arthur Street Boat Launch facility was upgraded with the support of the Great Lakes Fishery Trust, the “Explore the Shores” program with the Department of Natural Resources. The upgrade included Universal Accessibility amenities.

The Manistee Municipal Marina building was replaced in 2011. The new building features expanded facilities for boaters, public restrooms and meeting room. These upgrades were possible with funding from Waterways, Main Street/DDA, and the Marina.

A new lift facility was installed at the Manistee Municipal Marina which enables people who need assistance to get in and out of boats. This was possible with funding support through the Access to Recreation Program funded by the W.K. Kellogg Foundation.

The City collaborated with Manistee Area Public Schools and the Paine Family Foundation to support the operations of the Manistee Aquatic Center located at the High School. This provides a community pool for the community.

The City of Manistee Non-Motorized Transportation Committee and the Shoreline cycling Club have been developing a plan to build multi-use trails and a mountain bike skills park on the M-55 Property. This will be a four season City of Manistee Park for Mountain Biking, Walking, Running and Cross Country Skiing.

❖ Recreational Resources Continued

◆ THE CITY OF MANISTEE NON-MOTORIZED TRANSPORTATION MASTER PLAN

MISSION STATEMENT

The City of Manistee Non-Motorized Transportation Committee will work to provide safe, scenic routes throughout the City that encourage non-motorized transportation use for fitness, transportation and tourism while enhancing the City's attributes and appeal and connecting the city to surrounding communities.

OVERVIEW

The City of Manistee Master Plan establishes that there historically and currently is an interest in non-motorized facilities within the City of Manistee. Established non-motorized facilities are those improvements and provisions made to enhance bicycling and walking such as bike lanes, bike racks, sidewalks, river walk, etc. Creating a transportation environment that provides universal accessibility and encourages bike usage, walking and the combined use of aforementioned and public motorized transportation (dial-a-ride) will enhance the City in providing for the following:

- Increased safety for pedestrians, persons with wheelchairs/disabilities and cyclists;
- Other transportation and fitness opportunities;
- Alternatives for maintaining a healthy lifestyle;
- Environmental stewardship;
- Increased awareness for community sustainability;
- Connectivity, being the linkage between various destination points in the community and surrounding communities;

ACTION PLAN

Goal: Create a transportation environment that encourages non-motorized alternatives throughout the city of Manistee and increase connectivity to routes outside the city limits.
Objectives:

1. Maintain an active Non-Motorized Transportation Committee.
2. Increase Awareness
3. Develop non-motorized routes within City limits.
4. Provide non-motorized storage facilities
5. Work with adjacent municipalities and the State of Michigan to connect and lengthen the City of Manistee's non-motorized routes and pathways.
6. Maintain Non-motorized Transportation Facilities
7. Emphasize Non-motorized Transportation facilities when designing construction/reconstruction projects.

❖ Marinas

◆ Michigan Clean Marina Program

The Michigan Clean Marina Program was developed to protect water resources and wildlife habitat by promoting environmentally sound marina and boating best practices. This is a voluntary stewardship program open to all public and private marinas in Michigan. The Michigan Clean Marina Program encourages marinas to develop environmentally sound and economically feasible approaches to reduce waste and prevent the release of hazardous substances. Marinas pledge to join the program, and then follow a 10-step process to achieve Clean Marina certification.

Program Objectives

The Michigan Clean Marina Program was developed through a public-private partnership involving the marine industry, academic institutions and state government in an effort to sustain and improve water quality in Michigan and the Great Lakes.

Objectives include:

- Promoting voluntary implementation of pollution prevention strategies, environmental risk reduction and fish and wildlife habitat enhancement.
- Encouraging industry compliance with environmental laws and regulations.
- Developing economic incentives and recognition for environmentally proactive marina operations.
- Fostering communication among marina operators, state government, universities and the boating industry.

Benefits for Certified Clean Marinas:

- Reducing pollution and protecting water quality, fish, plant and wildlife habitat in Michigan's waterways and the Great Lakes.
- Enhancing the public image of boating and marinas by promoting environmentally sound best practices.
- Saving money, such as a reducing insurance costs and reducing waste disposal fees through recycling. In fact, some marinas are generating revenue through oil reclamation programs.
- Accessing free boater education information and marketing tips through program outreach and promotions.

◆ Michigan Clean Marina Program Participation

- ◆ Cedar Street Marine – Not currently certified
- ◆ Harbor Village Marina – Not currently certified
- ◆ Manistee Municipal Marina – Certified Michigan Clean Marina on June 2, 2008
- ◆ Riverside Motel & Marina – Not currently certified
- ◆ Seng's Marina – Not currently certified
- ◆ Shipwatch Marina – Not currently certified
- ◆ Solberg Marina and Fisherman's Center – Not currently certified

❖ Watershed Protection

◆ MANISTEE RIVER WATERSHED

Watershed Overview

The City of Manistee lies within the Manistee River Watershed and a small portion of the southern tip of the Betsie Platte Watershed. The Manistee River Watershed is an eight digit hydrologic unit code (HUC) watershed located in the northwest corner of Michigan's Lower Peninsula with an area of 1,906 square miles, with less than a half mile of Lake Michigan shoreline. The watershed has just over 15 square miles of inland lakes, 833 miles of waterways. It is one of 33 major subwatersheds of the Lake Michigan basin. Its Hydrologic Unit Code (HUC) is 04060103.

Fed by groundwater as its main source of hydrology, the Manistee River is one of the most stable, high-quality, coldwater streams in the country and has been designated as a natural river.

The Manistee River is a regionally important Lake Michigan tributary that supports a nationally recognized fishery. Sediment is the primary pollutant of concern in the watershed. Major erosion problems with streambanks and road/stream crossings are degrading water quality and instream habitat on the Manistee main stem and important coldwater tributaries, primarily Bear Creek and the Pine River. The river is also impounded by two hydro electric dams, Tippy and Hodenpyl. Land use in the watershed is approximately 41% forested, 39% agricultural, 3% urban or suburban, 13% wetlands, 2% range lands, and 2% lakes and streams.

There are three waterways that have been TMDL listed. Two are listed for one contaminant and one is listed for three contaminants. Excessive sediment is the primary concern in the watershed affecting fish production, channel morphology, and aquatic invertebrates. The primary sources are from erosion from degraded streambanks and poorly designed stream crossings.

The Nature Conservancy has identified two critical ecological resources in the watershed. The Little Manistee River has Great Lakes Leatherleaf Intermittent Wetland, and the Lower Manistee River has Great Lakes Hemlock – Beech – Hardwood Forest. The Eastern Massasauga has also been found on the Manistee River.

Watershed Activities

Watershed restoration work on the Manistee River is carried out by a diverse group of partners organized as members of the Upper Manistee River Restoration Committee. The committee is administered by Huron Pines RC&D and has actively worked on stabilizing streambanks, restoring access sites, and creating aquatic habitat. Streambanks and road/stream crossings within the Bear Creek Watershed have been targeted for repair.

In addition to the Upper Manistee River Restoration Committee's efforts, The Little River Band of Ottawa Indians received one of the first 20 national watershed grants to support their efforts to restore and monitor the water quality of the Manistee River. They have also received a 319 grant to address four failing road stream crossings, improve access to the water's edge, and reclaim a lake sturgeon spawning ground.

❖ Watershed Protection Continued

Manistee River Watershed Groups

A. Upper Manistee River Association
B. Conservation Resource Alliance
C. Little River Band or Ottawa Indians
D. Huron Pines Resource Conservation & Development Council
E. Northwest Michigan Council of Governments
F. Little Manistee Watershed Conservation Council

LAKE MICHIGAN LAKEWIDE MANAGEMENT PLAN

Lake Michigan is the second largest Great Lake by volume and the only one located totally within the United States. The northern portion of the basin's 45,000 square miles, is covered with second growth forest and less developed except for the Fox River Valley. 307 miles to the south, the more temperate southern portion is very developed from Milwaukee through Chicago to Northwest Indiana. Lake Michigan flows into Lake Huron through the straights of Mackinac at a rate that allows for a complete change of water about every 100 years.

Lake Michigan contains the world's largest collection of fresh water sand dunes along with many wetlands, prairies, and savannas, these all provide essential habitat to a great diversity of life. The aquatic food web supports fish for food, sport and culture. The fertile southern-soils are amenable to agriculture and the coast is home to 25 harbors and hundreds of marinas. The Lake Michigan coastlines also serve as a key North American migratory bird flyway.

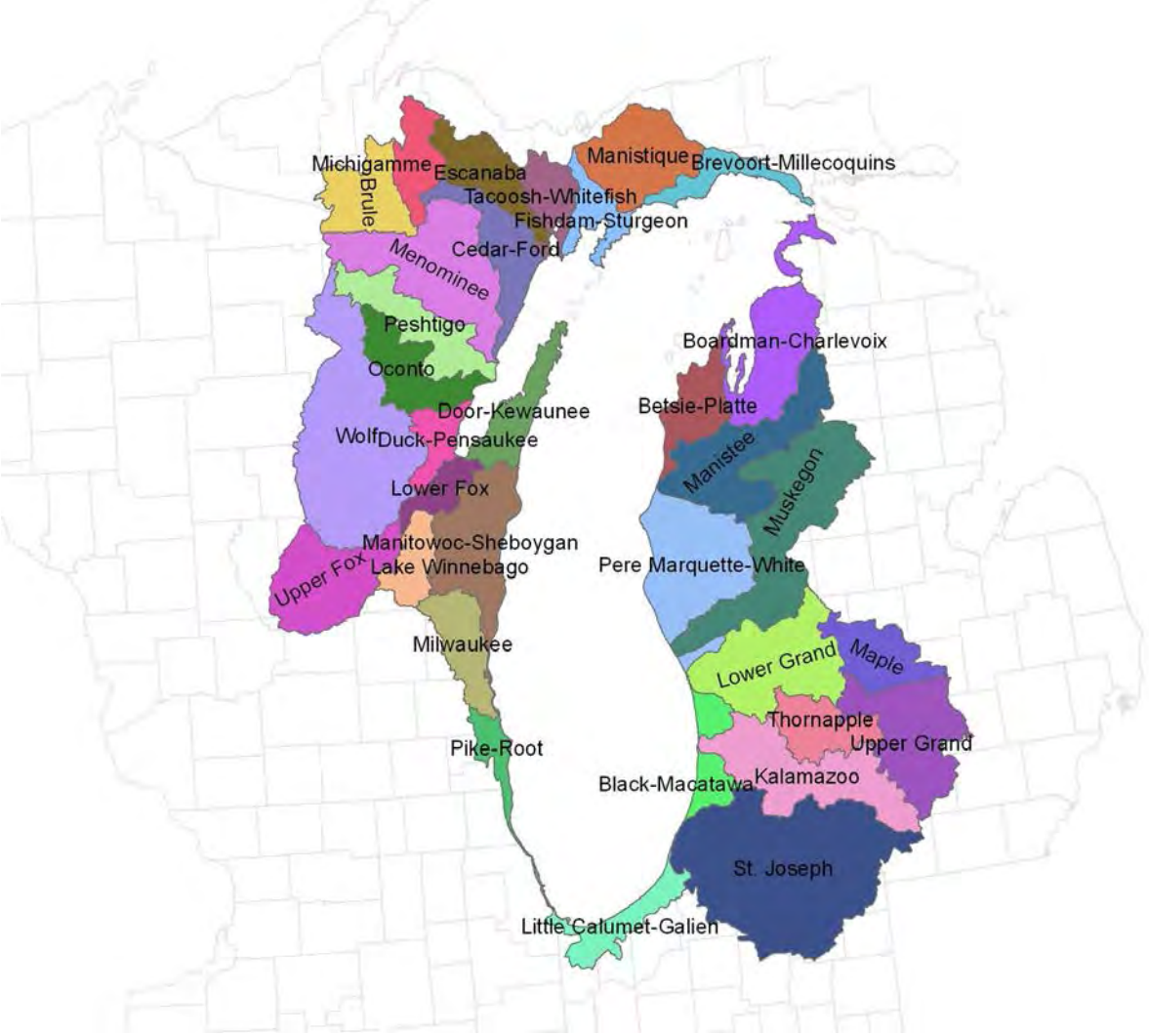
The LaMP vision is of "a sustainable Lake Michigan ecosystem that ensures environmental integrity and that supports and is supported by economically viable, healthy human communities." The primary goal "is to restore and protect the integrity of the Lake Michigan ecosystem through collaborative, place-based partnerships." Through a collaborative effort, LaMP projects focus on meeting the vision and goal through monitoring the changing environmental conditions and adapting management strategies by addressing the following 12 sub-goals:

1. Can we eat any fish?
2. Can we drink the water?
3. Swim in the water?
4. Are habitats healthy, naturally diverse, and sufficient to sustain viable biological communities?
5. Does the public have access to abundant open space, shorelines, and natural areas, and does the public have enhanced opportunities for interaction with the Lake Michigan ecosystem?
6. Are land use, recreation, and economic activities sustainable and supportive of a healthy ecosystem?
7. Are sediment, air, land, and water sources or pathways of contamination that affect the integrity of the ecosystem?
8. Are aquatic and terrestrial nuisance species prevented and controlled?
9. Are ecosystem stewardship activities common and undertaken by public and private organizations in communities around the basin?

❖ Watershed Protection Continued

10. Is collaborative ecosystem management the basis for decision-making in the Lake Michigan basin?
11. Do we have enough information, data, understanding, and indicators to inform the decision-making process?
12. What is the status of the 33 Lake Michigan subwatersheds?

Lake Michigan Subwatershed Map



VISION:	**A sustainable Lake Michigan ecosystem that ensures environmental integrity and that supports and is supported by economically viable, healthy human communities.**
STATUS:	**Lake Michigan is an outstanding natural resource of global significance, under stress and in need of special attention.**
GOAL:	**To restore and protect the integrity of the Lake Michigan ecosystem through collaborative, place-based partnerships.**

❖ Watershed Protection Continued

Table 2-1. End Point Subgoals

End Point Subgoals Endpoint subgoals describe the desired levels of ecosystem integrity and ecological services required to restore beneficial uses and provide for healthy human and natural communities in the basin.		
Subgoal 1	We can all eat any fish.	
Subgoal 2	We can all drink the water.	
Subgoal 3	We can all swim in the water.	
Subgoal 4	All habitats are healthy, naturally diverse, and sufficient to sustain viable biological communities.	
Subgoal 5	Public access to open space, shoreline, and natural areas is abundant and provides enhanced opportunities for human interaction with the Lake	
Subgoal 6	Land use, recreation, and economic activities are sustainable and support a healthy ecosystem.	

Table 2-2. Means to End-Point Subgoals

Means to End-Point Subgoals Means subgoals describe the natural and organizational processes required to achieve the endpoint subgoals.		
Subgoal 7	Sediments, air, land, and water are not sources or pathways of contamination that affect the integrity of the ecosystem.	
Subgoal 8	Exotic species are controlled and managed.	
Subgoal 9	Ecosystem stewardship activities are common and undertaken by public and private organizations in communities around the basin.	
Subgoal 10	Collaborative ecosystem management is the basis for decision-making in the Lake Michigan basin.	
Subgoal 11	We have enough information/data/understanding/indicators to inform the decision-making process.	

❖ Watershed Protection Continued

GREAT LAKE RESTORATION INITIATIVE

Plan Overview

This Great Lakes Restoration Action Plan (Action Plan) outlines methods and actions to advance implementation of the Initiative through FY 2014 and will help protect and restore the chemical, physical and biological integrity of the Great Lakes Basin ecosystem.

Five principal focus areas have been identified which encompass the most significant environmental problems in the Great Lakes (other than water infrastructure) for which urgent action is required. These include4:

- Toxic Substances and Areas of Concern
- Invasive Species
- Nearshore Health and Nonpoint Source Pollution
- Habitat and Wildlife Protection and Restoration
- Accountability, Education, Monitoring, Evaluation, Communication and Partnerships

Within the five focus areas, the Action Plan will address the highest priority projects. It is the intent of the Initiative's federal agencies to target efforts and funds to these projects in a way that maximizes results. Targeted, cooperative efforts are necessary to ensure meaningful progress on many of the complex and costly issues that have plagued the Great Lakes for decades. Some issues exist basin wide (e.g., invasive species, nonpoint source pollution,) and require broad, expansive action, while others are more localized (e.g., Areas of Concern, habitat) and will have site-specific remedies.

In each focus area there are efforts which will be given special attention.

- In the focus area of Toxic Substances and Areas of Concern, efforts will be targeted to remediate contaminated sediments and to address other major pollution sources in order to restore and delist the most polluted sites in the Great Lakes basin.
- In the focus area of Invasive Species, efforts will be targeted to institute a "zero tolerance policy" as a long term goal toward new invasions, including the development of ballast water technology, an early detection surveillance program, and a rapid response capability to address threats from new invasive species such as Asian Carp.
- In the focus area of Nearshore Health and Nonpoint Source Pollution, efforts will be targeted geographically to focus on watersheds of extreme ecological sensitivity (such as the Green Bay/Fox River, Genesee River, Maumee River, St. Louis River, and Saginaw River, places where environmental problems and their solutions have been clearly identified).
- Efforts will target implementation of lakewide biodiversity conservation blueprints and restoration of important species such as the Lake Sturgeon and the Piping Plover.

❖ Watershed Protection Continued

- In the focus area of Accountability, Education, Monitoring, Evaluation, Communication and Partnerships, efforts will include implementation priority Lakewide Management Plan projects for restoring the lakes, as well as establishment of quality goals and results-based accountability measures, learning initiatives, outreach and strategic partnerships.

In addition to new federal funding through GLRI, the Initiative will rely on partnerships to leverage and harness a wider set of resources for the protection and restoration of the Great Lakes. In many instances, the most effective solutions to the challenges facing the Great Lakes will require effective use of non-GLRI baseline federal funding, federal regulatory or other policy tools, and the significant regulatory and policy tools and resources of states, tribes, and other non-federal partners. These efforts, summarized below, are complementary to GLRI efforts.

- **Non-GLRI baseline federal funding.** For example, construction of water infrastructure for treatment and conveyance of drinking water and wastewater.
- **Federal regulatory or other policy tools.** For example, national rulemakings and permitting that reduce the risk of future invasions of ANS; permitting activities under the Clean Water Act; or regulatory means to reduce atmospheric mercury deposition to the Great Lakes.
- **Tools and resources of non-federal partners.** For example, stewardship of properties by a state, tribe or non-governmental organization for the purpose of enhancing habitat protection or connectivity; or implementation of source water protection plans for drinking water treatment facilities with intakes that draw from surface or groundwater within the Great Lakes basin.

◆ Long Term Goals

Goal 1: Nearshore aquatic communities consist of healthy, self-sustaining plant and animal populations dominated by native and naturalized species.

Goal 2: Land use, recreation and economic activities are managed to ensure that nearshore aquatic, wetland and upland habitats will sustain the health and function of natural communities.

Goal 3: The presence of bacteria, viruses, pathogens, nuisance growths of plants or animals, objectionable taste or odors, or other risks to human health are reduced to levels in which water quality standards are met and beneficial uses attained to protect human use and enjoyment of the nearshore areas.

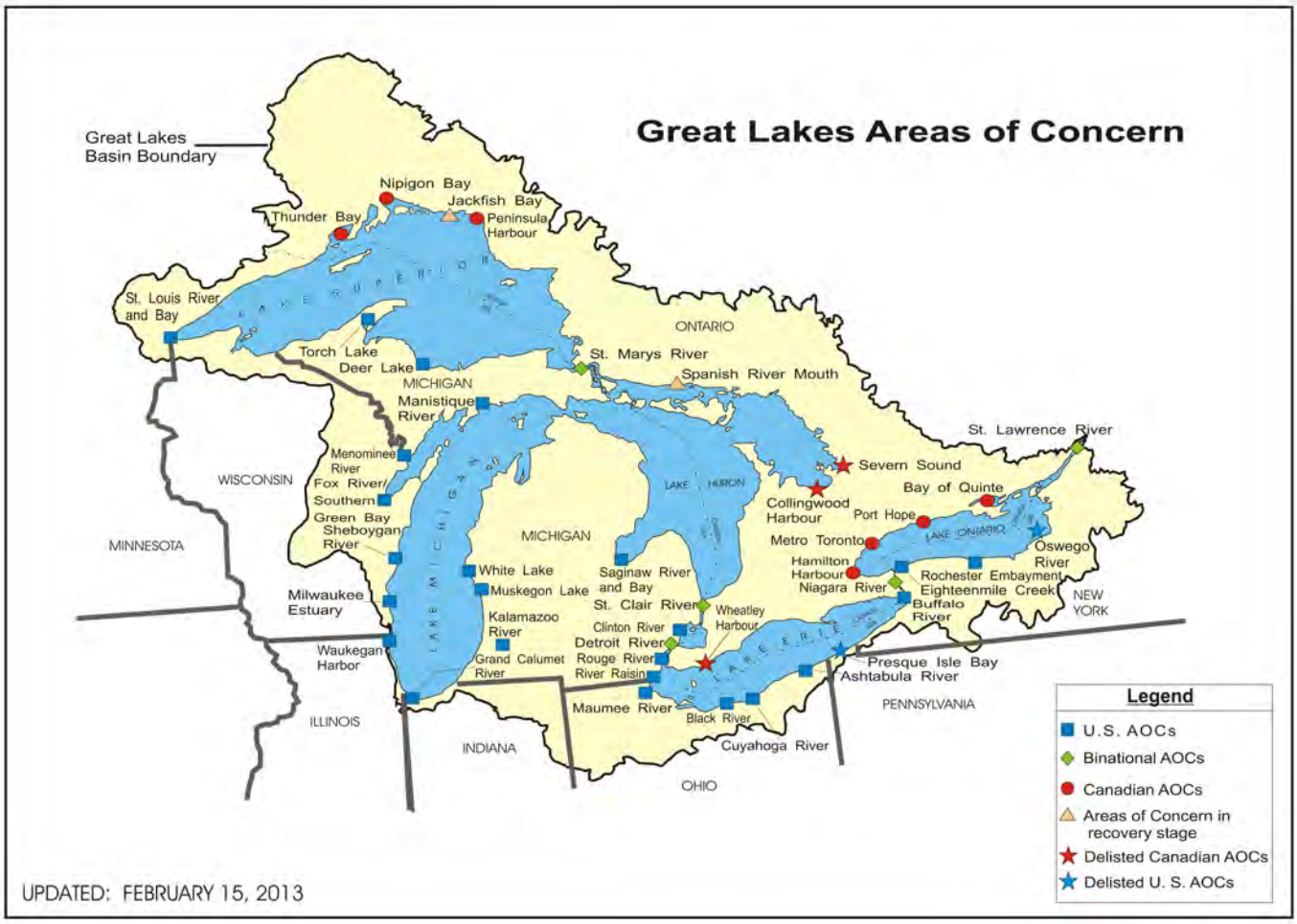
Goal 4: High quality bathing beach opportunities are maintained by eliminating impairments from bacterial, algal and chemical contamination; effective monitoring for pathogens; effective modeling of environmental conditions, where appropriate; and timely communications to the public about beach health and daily swimming conditions.

Goal 5: A significant reduction in soil erosion and the loading of sediments, nutrients and pollutants into tributaries is achieved through greater implementation of practices that conserve soil and slow overland flow in agriculture, forestry and urban areas.

Goal 6: High quality, timely and relevant information about the nearshore areas is readily available to assess progress and to inform enlightened decision making.

❖ Watershed Protection Continued

◆ Great Lakes Areas of Concern



❖ Economic Development

◆ City of Manistee Downtown Development Authority (DDA)

The Downtown Development Authority is charged with overseeing the orderly development of the downtown. It is funded by taxpayer dollars through a tax increment financing arrangement. This board also oversees the Main Street program.

Manistee Downtown Strategic Plan

1. Importance of Public Infrastructure and Spaces

   The City of Manistee and the Manistee DDA have made significant investments in the downtown through the installation of the riverwalk, streetscape elements, a public restroom building, off-street parking, and recreational boating facilities. In addition to this, successful downtown revitalization needs a committed level of well-designed public investment and a consistent level of maintenance to attract the people needed to support local businesses and create a memorable place. In retail, more people usually means more business.

   Public investment in the downtown infrastructure spawns private investment and redevelopment in buildings and businesses. There is no “chicken” and “egg” in downtown revitalization - the public sector takes the lead.

❖ Economic Development Continued

3. Encourage Multiple Uses and Mixed-Use

   Viable downtowns provide a variety of venues for residents, patrons, and visitors through the use of multiple uses and mixed-use developments. Multiple uses do not necessarily have to be contained within the same building and can easily be a collection of buildings which support each other. For example, the Manistee City Hall, Public Library, and City Marina are within walking distance of the downtown and some retail businesses downtown are within several hundred feet of single-family homes. This combination of uses creates opportunities for exchange between people and activities and extends the downtown beyond the 9 a.m. to 5 p.m. time frame.

   Mixed-uses are typically integrated vertically within the same building. There are many examples in downtown Manistee where commercial buildings have retail, office, and residential tenants and this trend needs to be encouraged and promoted. Zoning ordinances are addressing this trend through the use of vertical zoning and/or form-based codes, which regulate the form and design of the building while allowing for greater use flexibility within the building. It is recommended that the City pursue this form of ordinance to streamline reuse and redevelopment of buildings in the downtown.

   As residential dwellings increase in the downtown the DDA and City will need to balance the needs of retailers who desire public and open parking areas with private and individual parking spaces desired by the residents.

6. Density and Compactness

   Land development studies have shown that land use sprawl is fiscally unsound, promotes disinvestment in traditional communities, is energy consumptive, minimizes the investment in public infrastructure, increases traffic, and creates a sense of “Anywhere USA.” Conversely, density of land uses has been shown to increase fiscal resources, create business opportunities, promote redevelopment and in-fill, and most importantly create a sense of place. In downtown Manistee there are still commercial buildings with vacant upper stories and the site assessment determines the availability of several redevelopment sites in or adjacent to the downtown. These spaces and areas should all be capitalized on for redevelopment. Increasing retail opportunities, restaurants, residential units and offices in the downtown will increase the success of downtown revitalization and aid in the retention of existing businesses. The east peninsula neighborhood, as proposed in earlier concepts as a mixed-use and multiple use neighborhood, would be very beneficial for downtown Manistee. The Framework Plan envisions the linkage of this redevelopment proposal to the downtown.

7. Connectivity

   Connectivity involves a layered approach within a downtown setting. The basic downtown fabric created by the buildings and road system forms a base for connectivity. Layered on that base in downtown Manistee is the vehicular system (roads and parking lots), pedestrian system (sidewalks, cut-throughs, and public plazas), watercraft system (channel and docking facilities), and open space areas. Collectively, these layers determine the connectivity of the downtown.

   The importance of connectivity in a downtown is directly related to retail merchandising activity. This is where the adage “the 100% corner” derives its meaning. It’s that spot in the downtown with the most connectivity. Downtowns with a low connectivity have a difficult time sustaining businesses and recruiting quality merchants. Therefore, efforts to maintain and improve connectivity in downtown Manistee are important.

❖ Economic Development Continued

Where connectivity focuses on the structural elements of an area or site, walkability reflects the effectiveness of connectivity. According to the Sustainable Glossary, walkability "reflects overall walking conditions and usually takes into account the quality of pedestrian facilities, roadway conditions, land use patterns, community support, security, and comfort for walking. The quality of pathways, building access ways and related facilities; the existence of sidewalks and crosswalks, roadway conditions (road widths, traffic volumes and speeds), accessibility (the relative location of common destinations) and the quality of connections between them all affect walkability."

9. The "M" Words: Management and Maintenance

   Downtowns districts are comprised of many individual and independent property owners both private and public. This differs dramatically from planned shopping centers or suburban centers where a property manager or leasing agent manages the property and maintenance is conducted regularly. Downtown maintenance is usually shared between entities such as the City, DDA, and individual property owners and the quality of the maintenance is usually determined by the weakest link of the participating parties. To compete effectively and maintain a sense of place, all property, public and private, needs to be maintained to a uniform standard. As a result, maintenance within the downtown needs to be managed in the same manner as a planned shopping center. This includes landscape maintenance, annual flower planting, snow removal, street and sidewalk sweeping, daily removal of trash in receptacles, establishing standards and guidelines for trash removal, and coordinating and providing funding assistance for building maintenance.

◆ City of Manistee Brownfield Redevelopment Authority

The City of Manistee Brownfield Redevelopment Authority was formed in 2006 to facilitate the sensible redevelopment of numerous underutilized or vacant commercial and industrial properties throughout the city. The Brownfield Redevelopment Authority utilizes the Environmental Protection Agency's (EPA) Brownfields Grants that empowers states, communities and other stakeholders to work together to prevent, assess, safely clean up and sustainably reuse Brownfields. The purpose of EPA's Brownfield Assessment Grants is to provide funding to inventory, plan, assess, conduct community outreach and promote the redevelopment of Brownfield sites.

◆ City of Manistee Harbor Commission

Purpose and Duties

A. The purpose of the Commission shall be to advise the City Council, City Departments and City Boards and Commissions on matters pertaining to the orderly development and maintenance of the City Marina and City boat launches; and identifying and planning City Marina and boat launch projects.

B. The responsibility and duties of the City of Manistee Harbor Commission shall include:
   1. Establish bylaws with consent of the City Council.
   2. Make recommendations to City Council and City Departments about the operation, maintenance and policies of the City Marina and City operated boat launches.
   3. Review and make recommendations on all significant City Marina and City boat launch improvement projects.
   4. To recommend to City Council and City Departments on the acquisition of such additional waterfront property, wharves and docks.

❖ Economic Development Continued

5. To study and make recommendations to City Council and City Departments on the use of waterways, channels, municipal docks or other navigational facilities which are under the control of the city.
6. To recommend to City Council and City Departments the adoption by the City of such ordinances or rules as public safety may require with respect to safety of boats and ships in the navigable waters under the jurisdiction of the City of Manistee.
7. Provide an annual report to City Council on the progress of the Harbor Commission and its projects and to seek Council approval for public projects.

❖ Sustainable Business Practices

The sustainable business practices survey for Manistee was not circulated.

❖ Other Stewardship Efforts

◆ Envision Manistee County

Government & Infrastructure

Local government services are directly related to quality of life. All governmental units in Manistee County provide a variety of essential services, from maintaining public safety to protecting the natural environment. Adequate infrastructure is also essential for Manistee County's health and vitality. Infrastructure guides community growth and is fundamental to the well-being of a community. Understanding the issues relating to government and infrastructure creates opportunities for inclusive decision making and sustainable growth throughout Manistee County.

enVision Statement: "In the year 2015, individuals, groups, and governmental units continue their collaborative efforts to promote exceptional quality of life for all. Infrastructure is well maintained and expands to provide affordable, convenient access, while being environmentally sensitive. Broad participation in the government process makes Manistee County a dynamic community in which to live, grow, and prosper."

Action Plan

- Create a forum for local planning collaboration;
- Create a county road / recreation map;
- Seek way to connect existing trail systems;
- Create a Manistee County Recreation Plan;
- Create a county-wide recycling program;
- Create a Citizen Involvement Committee;
- Create a county-wide broadband network.

Natural Environment & Recreation

The natural environment and recreation are key elements to quality of life in Manistee County. The county's natural beauty, resources, and recreational opportunities provide immeasurable benefitsprofoundly influencing the county's quality of life. Without doubt, Manistee County's great appeal is intrinsically linked to its natural environment and the resources and recreational opportunities it affords. Manistee County should take care in decisionmaking affecting these two issue areas.

enVision Statement: "In the year 2015, Manistee County's geography is the magnet, and broad-based collaboration is the means, based on fact based decision making, technology and analysis. This results in improved natural resources, natural environment, individual health, and recreation opportunities."

❖ Other Stewardship Efforts Continued

Action Plan

- Create a Manistee County Recreation Plan;
- Create a Recreation Intergovernmental Sharing Agreement;
- Create an Environmental Intergovernmental Sharing Agreement;
- Create a natural environmental and recreation outreach and education program;
- Implement a program to connect existing trail systems;
- Create a septic tank inspection program.

IV. Appendices

Appendix A. Manistee River Watershed Map

Appendix B. Manistee River Watershed Land Cover Map

Appendix C. Future Land Use Map – City of Manistee

Appendix D. Zoning Map

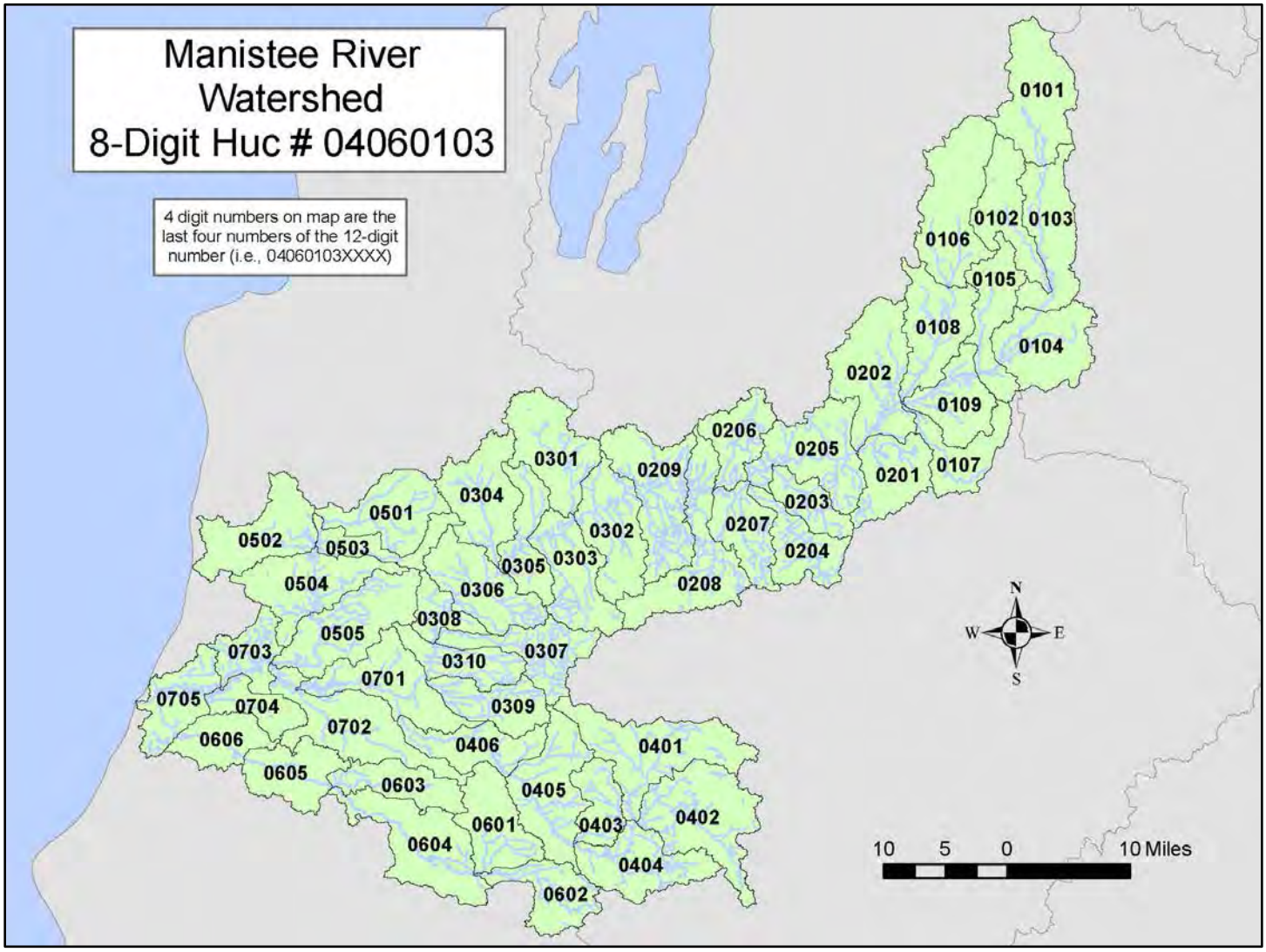
Appendix E. Recreational Facilities Map - East

Appendix F. Recreational Facilities Map - West

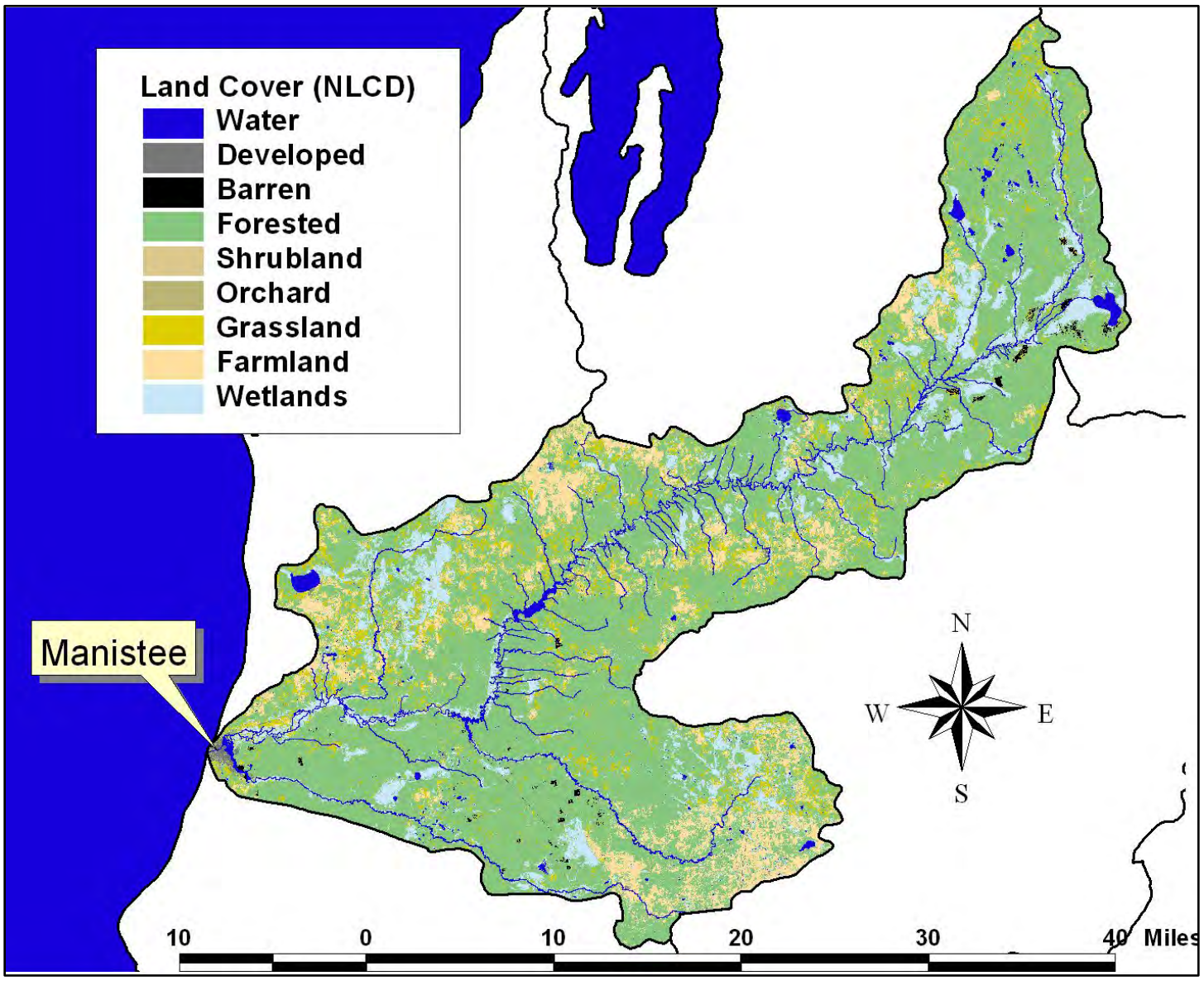
Appendix G. Recreational Facilities Map - North

Appendix H. Northwest Michigan Non-Motorized Strategy 2008 – Manistee County

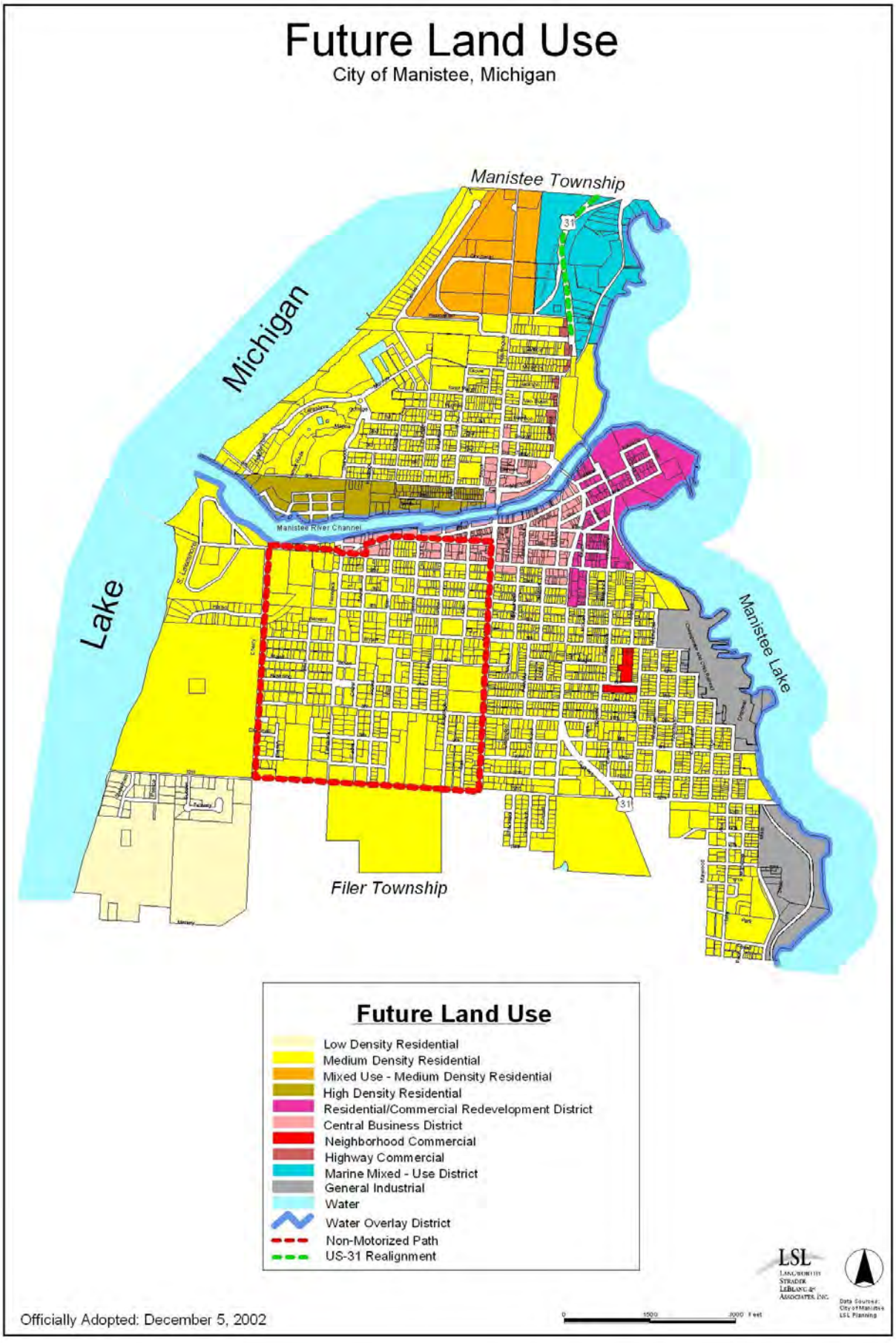
Appendix A. Manistee River Watershed Map



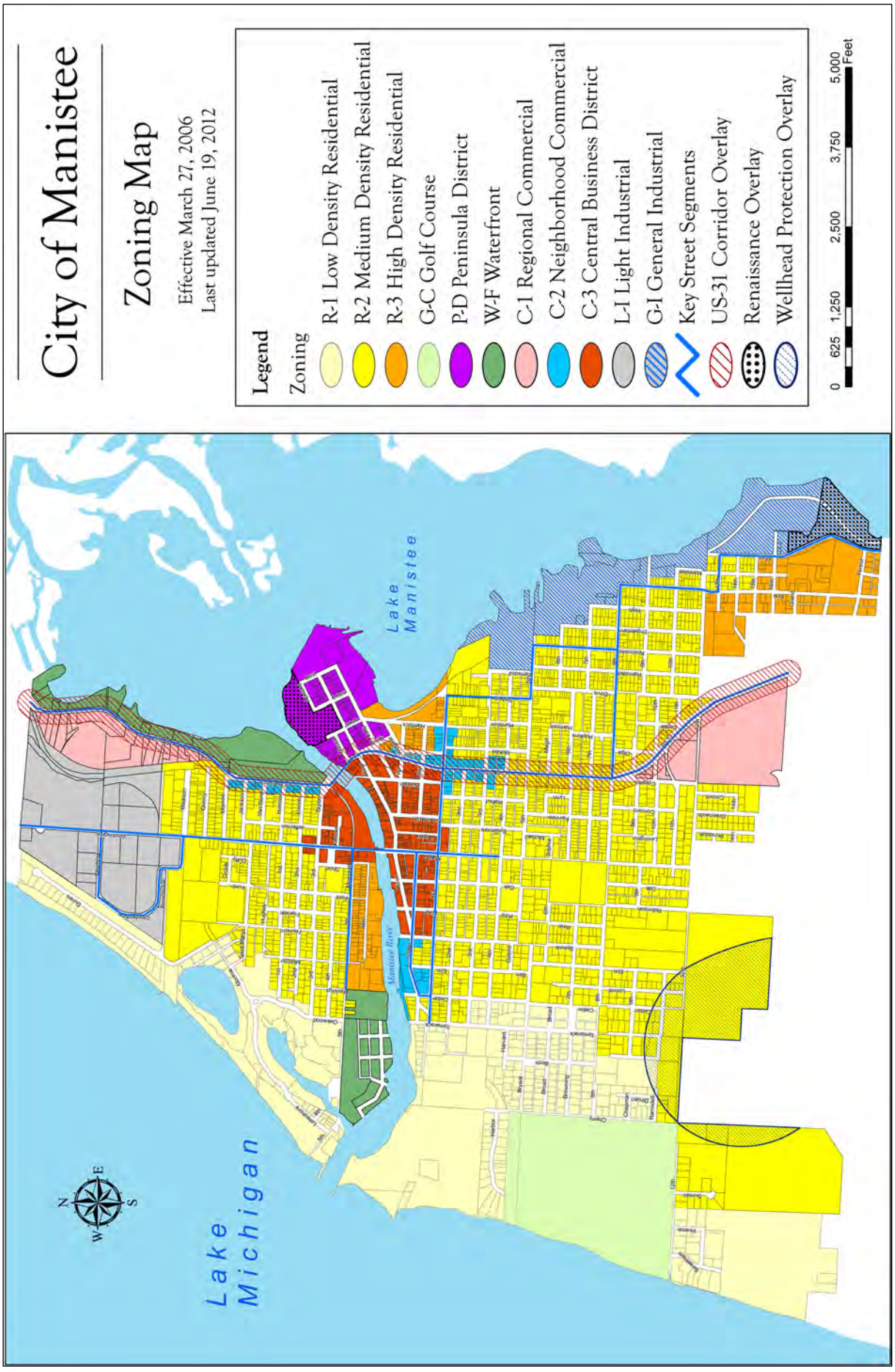
Appendix B. Manistee River Watershed Land Cover Map



Appendix C. Future Land Use Map – City of Manistee



Appendix D. Zoning Map

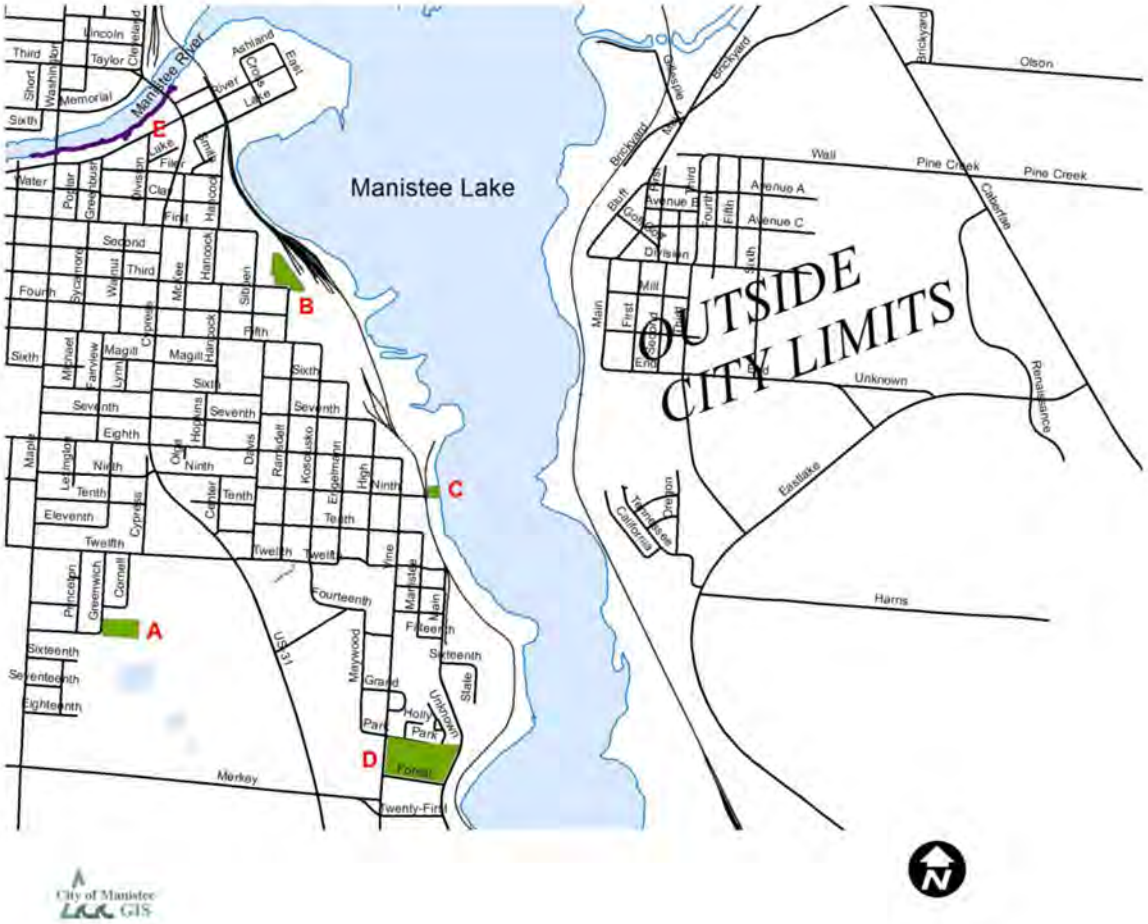


Appendix E. Recreational Facilities Map - East

East

	East [south of the Manistee River and east of Maple Street	Map Location	Classification	Acres	Bikeways/ Walkways
+	Art Park	n/a	Mini Park	.2	
*	Mack Park	A	Mini/Neighborhood Park	2.2	
+	Manistee Catholic Central School	n/a	School Park	10.0	
+	Maxwelltown Community Park/ CASMAN School Academy	n/a	School Park	1.0	
*	Morton Park	B	Mini/Neighborhood Park	2.6	
*	Ninth Street Boat Launch *(Water Recreation)*	C	Special Use	1.0	
*	Reitz Park	D	Neighborhood Park	8.0	
*	South Riverwalk *(Park Trail – Type I)*	E	Greenway		.36 miles
			TOTAL	**25.0**	**.36 miles**

Map Showing City owned or parks with long term lease arrangements



Appendix F. Recreational Facilities Map - West

West

	West [south of the Manistee River and west of Maple Street]	Map Location	Classification	Acres	Bikeways/ Walkways
+	Centennial Track	n/a	School Park	5.0	
*	Douglas Recreation Area (52 acres) First Street Beach (1.5 acres) Lighthouse Park (1.0 acres)	**A-1** **A-2** **A-3**	Community Park	68.0	
+	Hamlin Field *(Ball Field)*	n/a	Special Use	1.8	
+	Jefferson Elementary School	n/a	School Park	3.0	
+	Manistee High School/Manistee Middle School/Paine Aquatic Center	n/a	School Park	20.0	
+	Kennedy Elementary School	n/a	School Park	1.5	
*	Municipal Marina *(Water Recreation)*	**B**	Special Use	2.0	
*	On Street Bikeway (Cherry Street)	**C**	On –Street Bikeway		1.25 miles
*	Sands Park	**D**	Neighborhood Park	5.0	
*	South Riverwalk *(Park Trail – Type I)*	**E**	Greenway		1.20 miles
+	Trinity Lutheran School	n/a	School Park	.5	
			TOTAL	**106.8**	**2.45 miles**

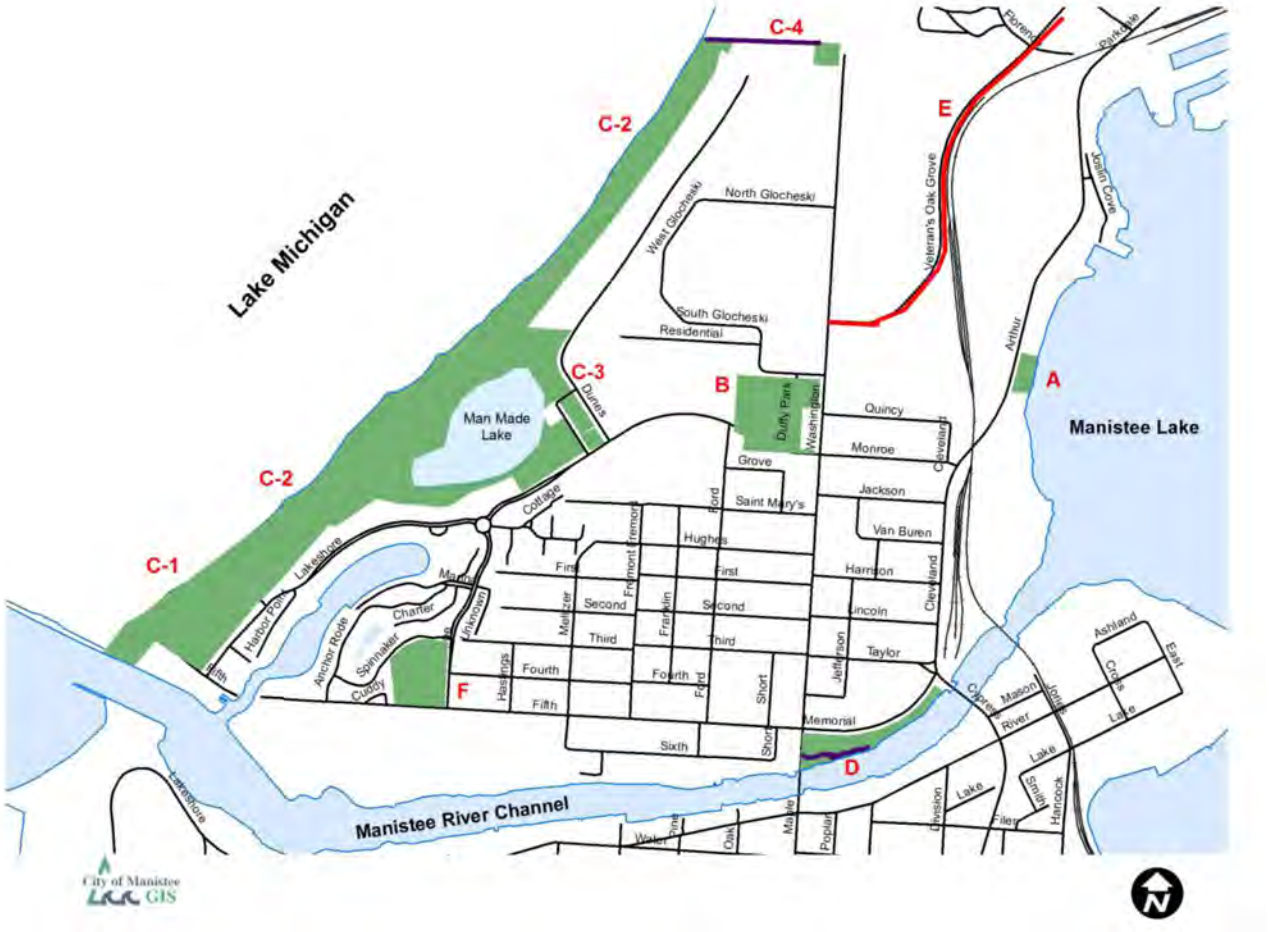
Map Showing City owned or parks with long term lease arrangements

Appendix G. Recreational Facilities Map - North

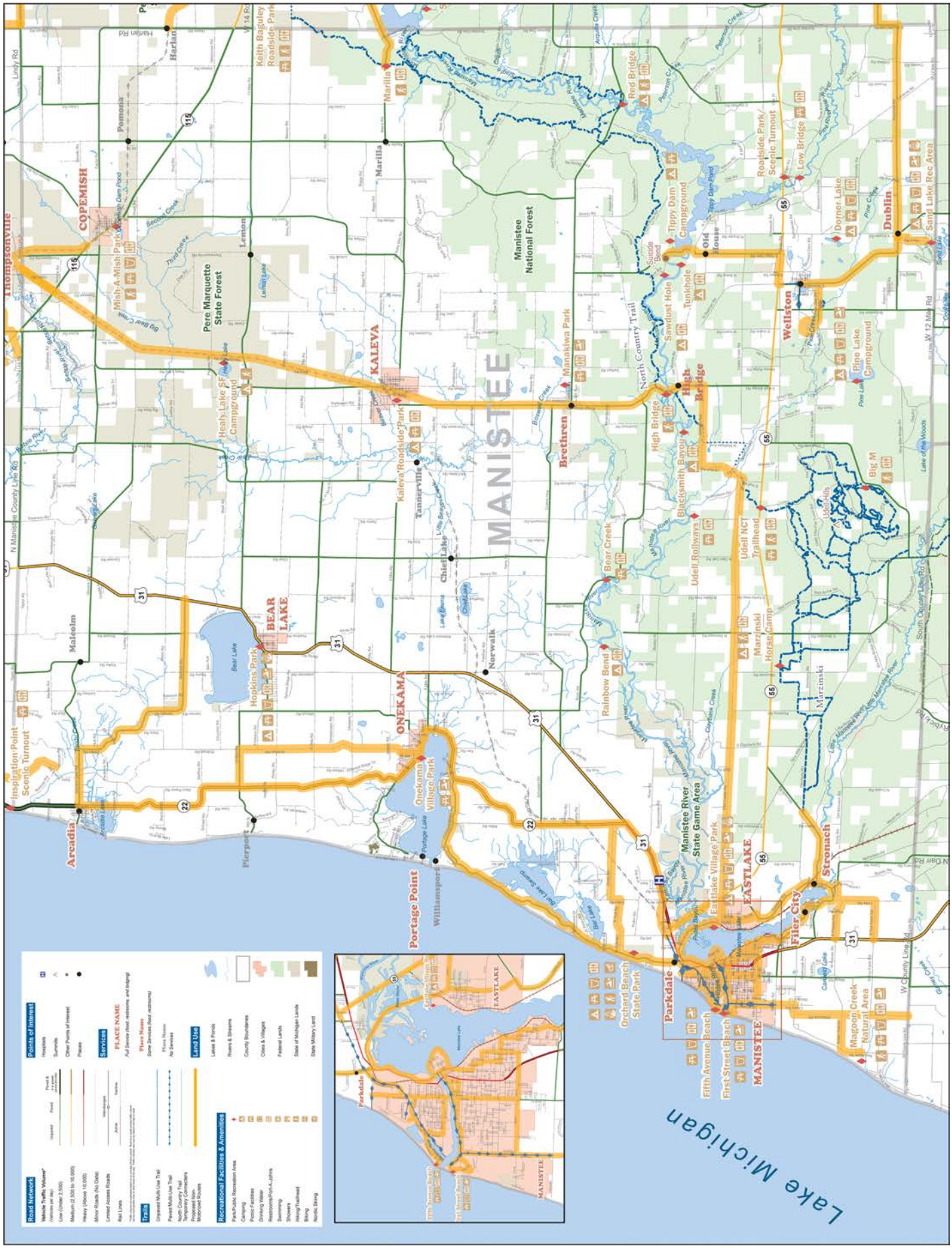
North

	North [north of the Manistee River]	Map Location	Classification	Acres	Bikeways/ Walkways
*	Arthur Street Boat Launch *(Water Recreation)*	A	Special Use	.9	
*	Duffy Park	B	Neighborhood Park	6.3	
*	Fifth Avenue Beach (18.0 acres)	C-1	Community Park/ Greenway	79.0	
*	Lake Michigan Frontage (32.8 acres)	C-2			
*	Man Made Lake (27.0 acres)	C-3			
*	North Beach Access (1.2 acres)	C-4			.2 miles
*	North Riverwalk/Memorial Park	D	Mini/Neighborhood Park	3.3	.1 miles
*	On Street Bikeway (Veteran's Oak Grove Dr)	E	On Street Bikeway		.65 miles
*	Red Szymarek Park	F	Neighborhood Park	4.0	
			TOTAL	**93.5**	**.68 miles**

Map Showing City owned or parks with long term lease arrangements



Appendix H. Northwest Michigan Non-Motorized Strategy 2008 – Manistee County



V. Resources

❖ Information Collection

The Northwest Michigan Council of Governments collected information about the community through document review of included published information from federal, state and local agencies and organizations. This involved sources of information such as the U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) database, CERCLIS database, pollutant loading; State of Michigan Department of Environmental Quality reports, the City's master plans and zoning ordinances, and watershed management plans. Also, interviews were conducted of government staff together with the completion of information checklists.

Based on the information gathered, an outline of preliminary findings was developed that summarized the information collected in very general terms and then identified opportunities to enhance environmental stewardship in the coastal community. The City of Manistee Environmental Stewardship Assessment was then presented to the Planning Commission where the public, businesses, and organizations were invited to attend.

1. City of Manistee Website
2. City of Manistee Master Plan
3. City of Manistee DDA
4. City of Manistee Zoning Ordinance
5. Northwest Michigan Council of Governments. *Green Infrastructure Manual*. 2009
6. Northwest Michigan Council of Governments. *Northwest Michigan Regional Non-Motorized Strategy 2008*
7. EPA: Great Lakes Website
8. Great Lake Restoration Initiative Website
9. Michigan Clean Marina Program Website
10. US Census
11. Envision Manistee County

Cover photographs courtesy of Scott Gest and the Northwest Michigan Council of Governments