

An aerial photograph of Lake Charlevoix, showing the lake's complex shoreline and surrounding land. The text is overlaid on the image.

[www.lakecharlevoixprotection.org](http://www.lakecharlevoixprotection.org)

# Lake Charlevoix Shoreline Protection Project Website - A tool for planning officials

Charlevoix County Planners Forum  
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LIAA is a Section 501(c)3 nonprofit corporation created in 1993 to stimulate & support greater civic engagement. Our mission statement is:

*Helping people shape better communities through:*

- *participation,*
- *education,*
- *information &*
- *the effective use of technology*



# Lake Charlevoix Shoreline Zoning Project

Understand, accept,  
and adopt common  
standards and zoning  
language around the  
lake with the intent of  
keeping the lake clean.



# Lake Charlevoix Shoreline Zoning Project

Part of the “Lake Charlevoix Watershed: Protection through Action Project” – funded through a DEQ grant

- Enacting Stormwater Control Ordinances – Cities
- Coordination and Enforcement of Water Quality Protections
- Establishment of the LCA Guardian Program
- Addressing Septic System Regulations





# 10 Jurisdictions Surrounding Lake Charlevoix

Boyne City

Evangeline Township

City of Charlevoix

Eveline Township

East Jordan

Hayes Township

Bay Township

Marion Township

Charlevoix Township

South Arm Township



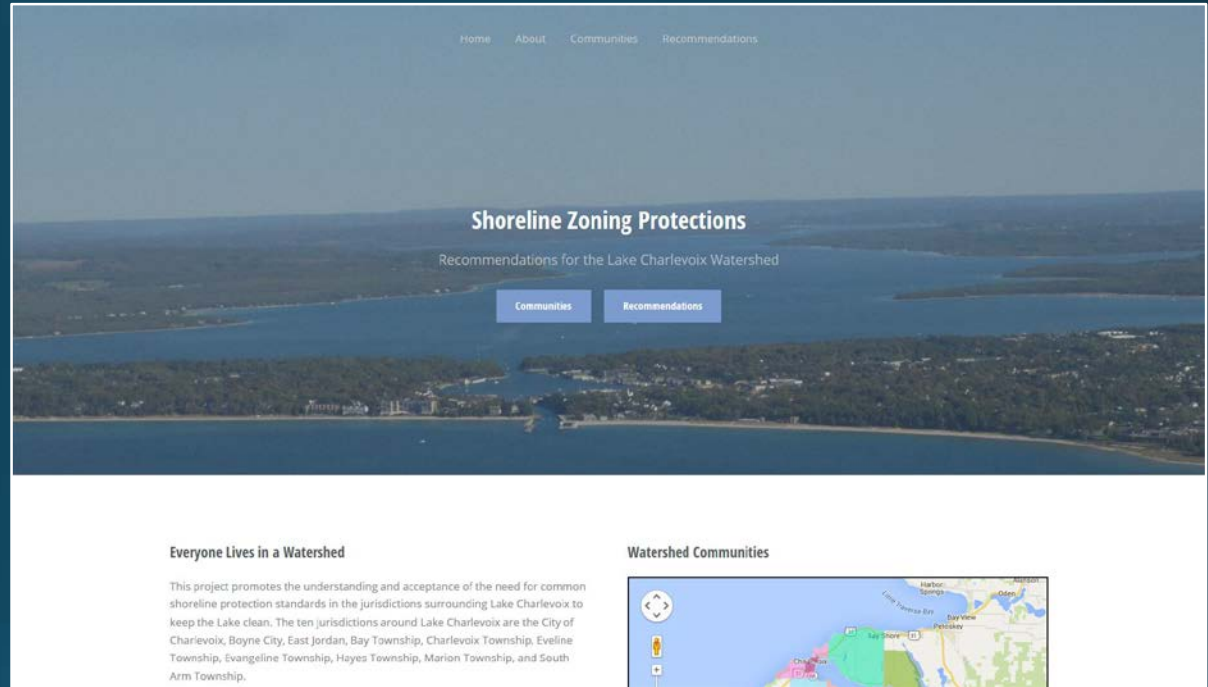
# Lake Charlevoix Shoreline Zoning Project



# Lake Charlevoix Shoreline Zoning Project



A project website has been created to be used as a tool by local planning officials and citizens to compare existing shoreline zoning standards and chart the progress of increasing water quality protection around the lake.



# Water Quality Protection

## Why is water quality protection important?

Protection of water quality preserves

- Unique resources
- Quality of life
- Wildlife habitat
- Recreational opportunities
- Human health
- Aesthetics
- Economic vitality
- Property values

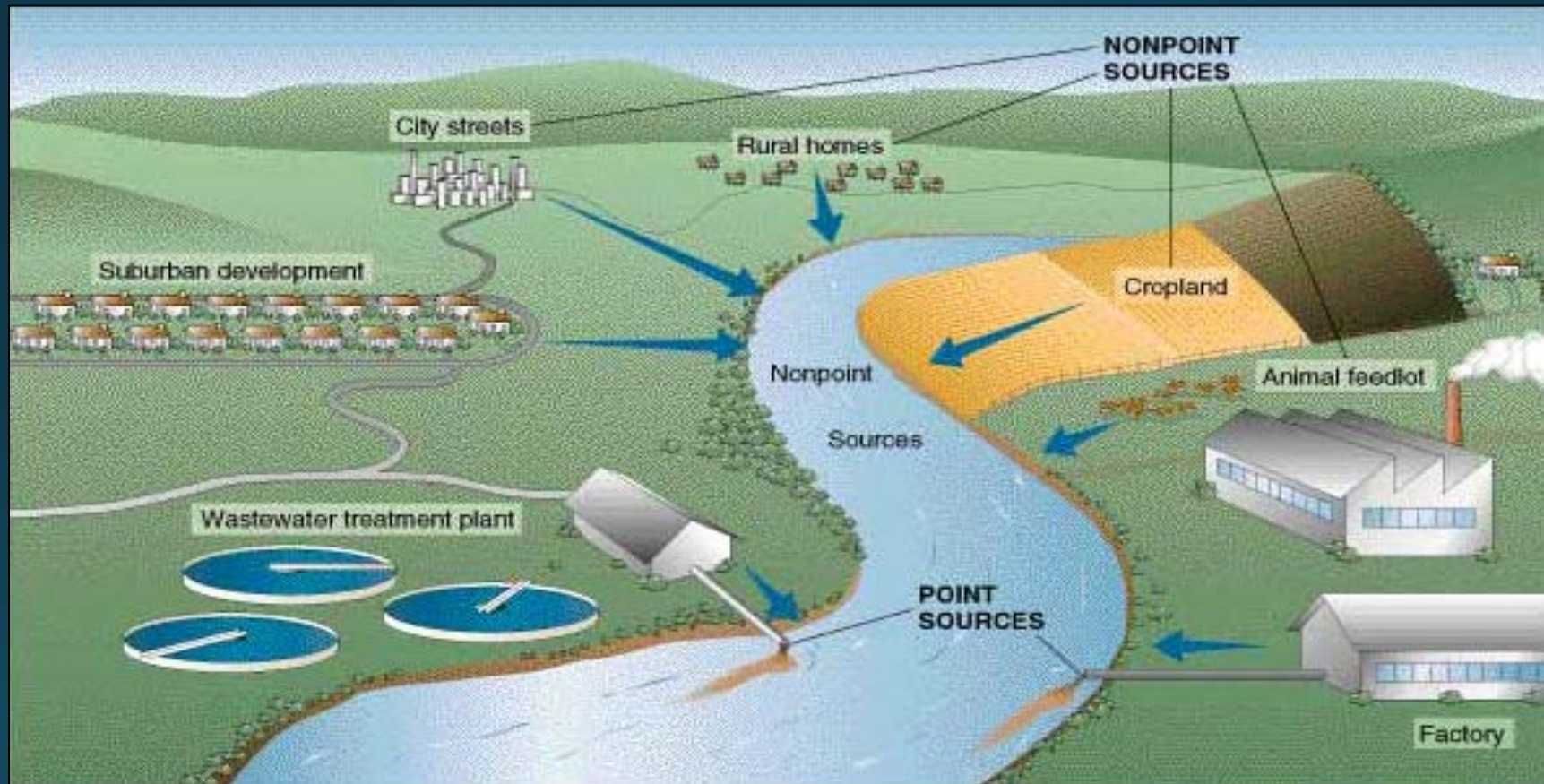


***Ultimately, the protection of water quality and prevention of degradation is significantly easier than restoring a damaged resource.***



# Water Quality Protection

## Surface water pollution sources – Point vs. Non-point sources



# Water Quality Protection



## Stormwater Runoff

Stormwater runoff is rain water or snow melt that runs off the land and is released into rivers, lakes, and other bodies of water





# Water Quality Protection

## Stormwater Runoff

Development, increases in impervious surfaces, soil compaction, and loss of native ground cover impact both the quantity and quality of stormwater that reach water bodies

### Impacts include

- Increased flooding and property damage
- Channel and bank degradation
- Reduced groundwater recharge
- Impaired water quality
- Increased water temperature
- Habitat loss
- Decreased recreational opportunities



# Water Quality Protection



## Shoreline Protection

Implementing shoreline protection standards, including Low Impact Development (LID) practices:

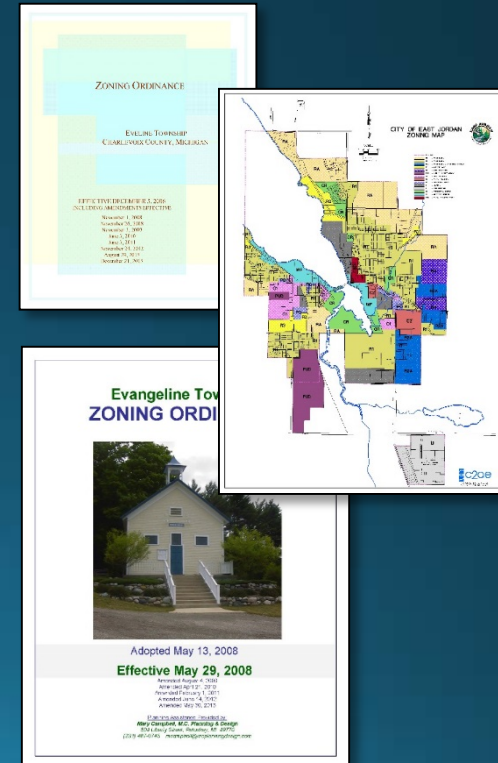
- Minimizes runoff volume
- Controls peak runoff rates
- Maximizes infiltration and groundwater recharge
- Protects water quality
- Helps prevent flooding
- Minimizes erosion
- Protects channels and banks
- Reduces sedimentation of water bodies



# Lake Charlevoix Shoreline Zoning Project



- Created steering committee of local zoning and planning officials
- Committee meetings held throughout the project for input and feedback
- Analyzed existing zoning ordinance standards of the 10 jurisdictions looking specifically at:
  - Defined high water elevation
  - Shoreline setbacks
  - Maximum impervious surface coverage
  - Shoreline buffer/greenbelt
  - Greenbelt regulations and standards
  - Permitting sequence requirements
  - Other standards





# Lake Charlevoix Shoreline Zoning Project



## Existing standards analysis results

|                 |                    |      |     |      |                    |    |    |
|-----------------|--------------------|------|-----|------|--------------------|----|----|
| Community       | City of Boyne City |      |     |      | City of Charlevoix |    |    |
| Zoning District | WRD                | MFRD | CSD | CBD? | R1                 | SR | MC |

|                                   |                     |     |     |     |                     |   |   |      |    |
|-----------------------------------|---------------------|-----|-----|-----|---------------------|---|---|------|----|
| Community                         | Charlevoix Township |     |     |     | Evangeline Township |   |   |      |    |
| Zoning District                   | R-1                 | R-2 | PRD | I-2 | SWB                 | K | P | R/CS | GB |
| Defined High Water Elevation/OHWM | 579.8' I.G.L.D.     |     |     |     | 582.35' I.G.L.D.    |   |   |      |    |

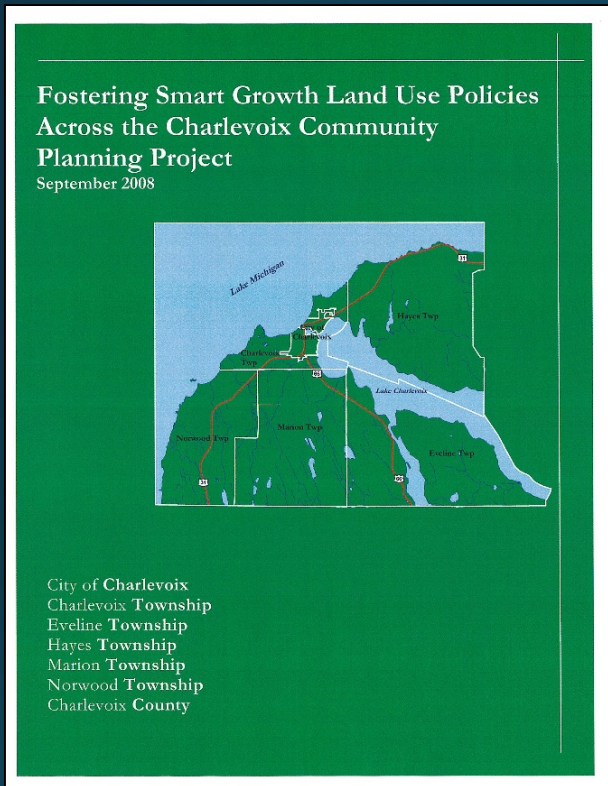
|                                   |                     |    |    |   |    |    |                   |                   |                    |
|-----------------------------------|---------------------|----|----|---|----|----|-------------------|-------------------|--------------------|
| Community                         | City of East Jordan |    |    |   |    |    | Bay Township      |                   |                    |
| Zoning District                   | RA                  | R1 | R3 | I | WF | CR | A (Water Overlay) | C (Water Overlay) | R1 (Water Overlay) |
| Defined High Water Elevation/OHWM | 581.5' I.G.L.D.     |    |    |   |    |    | 581.5' I.G.L.D.   |                   |                    |

|                                                                                                   |                  |            |           |            |           |                 |      |                       |  |                       |     |
|---------------------------------------------------------------------------------------------------|------------------|------------|-----------|------------|-----------|-----------------|------|-----------------------|--|-----------------------|-----|
| Community                                                                                         | Eveline Township |            |           |            |           | Hayes Township  |      | Marion Township       |  | South Arm Township    |     |
| Zoning District                                                                                   | S.F. Res.        | Vill. Com. | Farm-For. | Gov./Util. | Vill. M-U | R-1             | A    | R-1                   |  | R2                    | C1  |
| Defined High Water Elevation/OHWM                                                                 | 582.3' I.G.L.D.  |            |           |            |           | 582.3' I.G.L.D. |      | As established by law |  | As established by law |     |
| Setback from OHWM                                                                                 | 50'              | 50'        | 50'       | 50'        | 50'       | 100'            | 100' | 50'                   |  | 100'                  | 75' |
| Maximum Impervious Surface Coverage                                                               | 20%              | 20%        | 20%       | 20%        | 20%       | 15%             | 30%  | -                     |  | 30%                   | -   |
| Shoreline Buffer/Greenbelt Requirement                                                            | 50'              | 50'        | 50'       | 50'        | 50'       | 50'             | 50'  | 50'                   |  | 50'                   | -   |
| Native vegetation requirement in greenbelt                                                        | Yes              | Yes        | Yes       | Yes        | Yes       | Yes             | Yes  | -                     |  | -                     | -   |
| Prohibition of pesticides, herbicides, fertilizers in greenbelt                                   | Yes              | Yes        | Yes       | Yes        | Yes       | Yes             | Yes  | Yes                   |  | -                     | -   |
| Specific prohibition of lawn in greenbelt                                                         | -                | -          | -         | -          | -         | -               | -    | -                     |  | -                     | -   |
| Requirement of trees/woody plants in greenbelt                                                    | Yes              | Yes        | Yes       | Yes        | Yes       | Yes             | Yes  | -                     |  | -                     | -   |
| Cutting/pruning of greenbelt vegetation limited                                                   | Yes              | Yes        | Yes       | Yes        | Yes       | Yes             | Yes  | -                     |  | Yes                   | Yes |
| Requirement of all county, state, federal permits be obtained prior to zoning permit being issued | -                | -          | -         | -          | -         | Yes             | Yes  | Yes                   |  | -                     | -   |
| Formal Planning Commission site plan review for all waterfront uses                               | -                | -          | -         | -          | -         | -               | -    | -                     |  | -                     | -   |
| Violation fines in place for agents of property owners                                            | ?                | ?          | ?         | ?          | ?         | ?               | ?    | ?                     |  | ?                     | ?   |
| Septic system setback from high water elevation                                                   | -                | -          | -         | -          | -         | 50'             | 50'  | 50'                   |  | -                     | -   |
| Health department septic permit required prior to zoning permit                                   | -                | -          | -         | -          | -         | Yes             | Yes  | Yes                   |  | -                     | -   |
| Specific keyhole/funneling standards                                                              | Yes              | Yes        | Yes       | Yes        | Yes       | Yes             | Yes  | -                     |  | -                     | -   |

# Lake Charlevoix Shoreline Zoning Project



## Existing Study Group Recommendations



## Fostering Smart Growth Land Use Policies Across the Charlevoix Community

- Focused mainly on greenbelt implementation and standards

# Lake Charlevoix Shoreline Zoning Project



## Existing Study Group Recommendations

### Shoreline Protection Strategies

- Focused on a variety of strategies including
  - Greenbelt implementation and standards
  - Shoreline setbacks
  - Maximum impervious surface coverage
  - Permitting process and zoning enforcement
  - Shoreline protection structures

#### Shoreline protection strategies:

Report of the Lake Charlevoix Shoreline Zoning Study Group  
City of Boyne City



Dean Solomon, Senior Extension Educator, MSU Extension  
Rod Cortright, Charlevoix County MSU Extension Director Emeritus

September 2012



# Lake Charlevoix Shoreline Zoning Project



General shoreline protection recommendations have been made based on the findings of the previous work groups and input from the steering committee





# Zoning Language Recommendations

## *High Water Elevation*



Define a High Water Elevation for Lake Charlevoix as 582.35' IGLD

- Historical high water marks have frequently been higher than the defined OHWM (581.5')
- Standardizing a High Water Elevation of 582.35' helps ensure the effectiveness of shoreline buffers around the lake
- 3 of 10 jurisdictions currently meet or exceed this standard



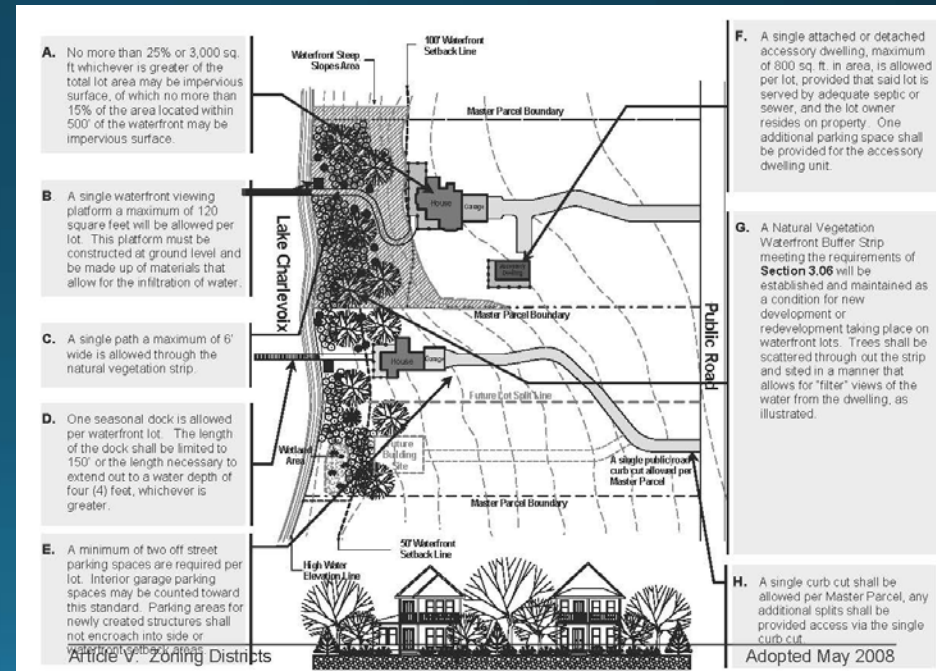
# Zoning Language Recommendations



## Shoreline Setbacks – Single Family Residential Areas

Require shoreline setbacks of at least 50' from the High Water Elevation for all principle and accessory structures. Setbacks of 100' will be required when steep slopes are present, impervious surface coverage is high, or poor drainage conditions exist

- Reduces impervious surface coverage near lake
- Provides greater opportunity for stormwater infiltration
- 8 of 10 jurisdictions meet or exceed the 50' setback standard



# Zoning Language Recommendations

## *Greenbelt/Vegetated Buffer Strips - Single Family Residential Areas*

Require a greenbelt, or vegetated buffer strip, on shore lots

- Help protect water quality by limiting shoreline erosion and amount of runoff that reaches the lake
- Allow for greater infiltration rates
- Reduce potential for chemicals and nutrients to enter the lake
- 7 of 10 jurisdictions have greenbelt/vegetated buffer strip standards



# Zoning Language Recommendations

## *Greenbelt/Vegetated Buffer Strips - Single Family Residential Areas*

Required greenbelt standards include

- 50' minimum depth
- Require native vegetation
- Require trees, woody plants
- Prohibit lawn
- Prohibit beach sanding between greenbelt and water
- Prohibits alteration between water and High Water Elev.
- Allow reasonable pruning
- Prohibit structures (except docks, shoreline protection structures) between greenbelt and water
- Allow small, single viewing platform
- Allow a single path through greenbelt
- Allow for maintenance of existing natural buffers



# Zoning Language Recommendations



## *Engineered Stormwater Control Systems – Com./mixed-use Areas*

Require an engineered stormwater control system that accommodates all stormwater from on-site impervious surfaces and allows it to percolate prior to flowing in to the lake

- Incorporation of greenbelts is more difficult on smaller lots with intense uses
- Captures stormwater and allows percolation prior to flowing in to lake
- Reduces potential for shoreline erosion and nutrients reaching the lake



City of Grand Rapids

# Zoning Language Recommendations



## *Maximum Impervious Surface Lot Coverage – Single Fam. Res. Areas*

Establish a 15% maximum for impervious surface coverage on single family lots within 500' of the High Water Elevation

- Reduces quantity and speed of stormwater runoff
- Allows for greater infiltration rates
- Reduces potential for shoreline erosion
- Reduces potential for pollutants to enter the lake
- 2 of 10 jurisdictions meet or exceed this standard



Grand Valley State University

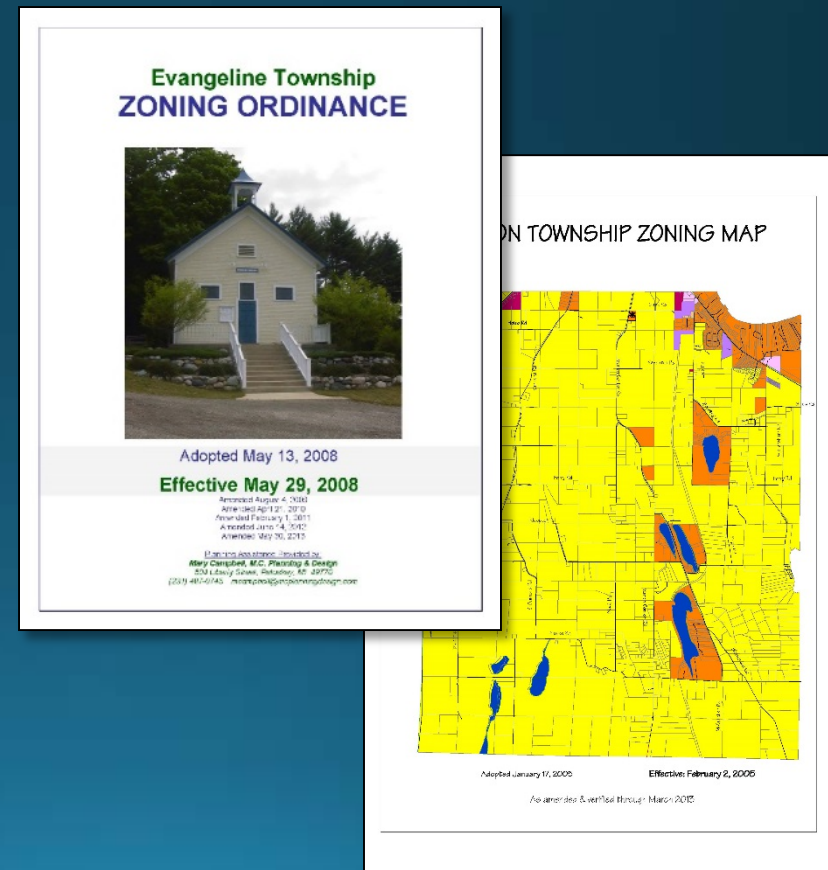
# Zoning Language Recommendations

## *Conditions for Issuance of Zoning Permit*



Require that all necessary state, federal, and county permits (including Health Department septic permits) be obtained prior to a zoning permit being issued

- Ensures that the requirements of all other agencies are being met by proposed development
- 3 of 10 jurisdictions meet or exceed this standard



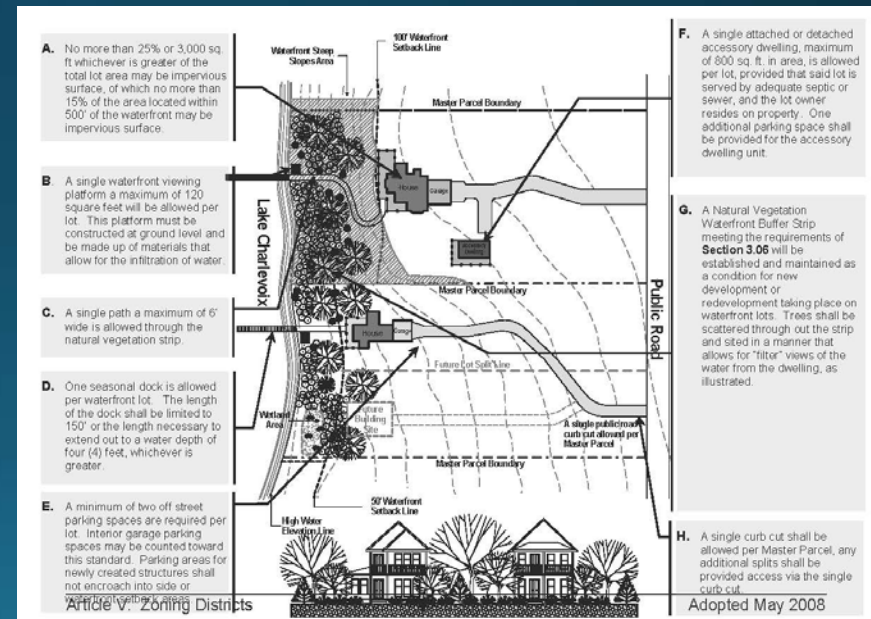
# Zoning Language Recommendations

## Formal Planning Commission Site Plan Review



Require formal Planning Commission site plan review for all waterfront property development projects – require high water elevation, setbacks, topography, impervious surfaces, structures, greenbelts, etc. on site plans

- Gather detailed information and precise documentation on proposed projects
- Identifies exactly what will happen on site
- Reduces burden on zoning staff
- Makes process transparent and clear to public, applicants, etc.
- 1 of 10 jurisdictions meets or exceeds this standard





# Lake Charlevoix Shoreline Zoning Project



## Next steps:

- Distribute report and website, with help of local staff, to Planning Commissions
- Attend Planning Commission meetings to discuss recommendations and develop specific recommendations for each ordinance
- Draft jurisdiction specific zoning ordinance language for review and adoption by Planning Commissions

# Lake Charlevoix Shoreline Zoning Project



Project Website Created to:

- Describe project
- Provide project information
- Provide an overview of current zoning standards for 10 jurisdictions
- List and describe the general recommendations of the project team
- Visually show on a map where recommendations are being met
- Compare existing standards around the lake

