TRAVERSE CITY PLANNING COMMISSION
STUDY SESSION

TUESDAY, October 18, 2016
7:30 P.M.
Commission Chambers
Governmental Center, 2nd Floor
400 Boardman Avenue
Traverse City, Michigan 49684

Posted: 10/14/16

AGENDA

The City of Traverse City does not discriminate on the basis of disability in the admission or access to or treatment or employment in, its programs or activities. Penny Hill, Assistant City Manager, 400 Boardman Avenue, Traverse City, Michigan 49684, 922-4440, T.D.D., 922-4766, has been designated to coordinate compliance with the non-discrimination requirements. If you are planning to attend and you have a disability requiring any special assistance at the meeting and/or if you have any concerns, please immediately notify the ADA Coordinator.

Planning Commission
c/o Russell Soyring, Planning Director
400 Boardman Avenue, Traverse City, MI 49684
231-922-4778

1. **CALL MEETING TO ORDER**

2. **ROLL CALL**

3. **KIDS CREEK PROJECT, LOW IMPACT DESIGN AND GREEN INFRASTRUCTURE PRESENTATION, The Watershed Center (Discussion)**

4. **TREE CANOPY GRANT, The Watershed Center (Discussion)**

5. **NATURAL FEATURES OVERVIEW, Tim Lodge, Russ Soyring (Discussion)**

6. **SAW GRANT OVERVIEW, Tim Lodge (Discussion)**

7. **OVERVIEW OF CHAPTER 1068 GROUND-WATER PROTECTION AND STORM-WATER RUNOFF CONTROL ORDINANCE AND ITS GUIDELINES, Tim Lodge (Discussion)**

8. **IMPERVIOUS SURFACE LIMITS (SECTION 1368.03), Russ Soyring (Discussion)**

9. **PUBLIC COMMENT**

10. **ADJOURNMENT**

Agenda Item No. 3-8

Communication to the Planning Commission

FOR THE MEETING OF: October 18, 2016

FROM: Russ Soyring, Planning Director

SUBJECT: Planning Commission business

DATE: October 14, 2016

The Planning Commission study session of October 18, 2016 has several discussion items briefly described below.

3. Kids Creek Project, Low Impact Design and Green Infrastructure Presentation by The Watershed Center (Discussion)- The Watershed Center will present on their Kids Creek project and give examples of low impact design and green infrastructure.

4. Tree Canopy Grant (Discussion)- The Watershed Center will discuss the possibility of establishing a committee either staff led committee or a Planning Commission committee to address the action items outlined in the tree canopy grant. The specific tasks are outlined below:

Task 3: Approaches to improve preservation of urban vegetation resources for stormwater management in Traverse City

A. *Administer subcontracts as necessary; Monitor status and make adjustments as needed.*
B. *Complete a comprehensive review of Traverse City's existing ordinances and other regulatory documents to identify gaps in urban tree preservation and vegetation management as well as research approaches that similar communities have undertaken to utilize urban vegetation in stormwater management.*
C. *Work with Davey Resource Group and Traverse City staff and Planning Commissioners to develop a set of recommendations for Traverse City to improve urban vegetation resources to manage stormwater (including amendments to existing and new ordinances as well as other activities).*
D. *Meet with City staff and other stakeholders to determine the most efficient or productive recommendations for ordinance revisions to pursue (between 1-2 ordinance recommendations will be chosen). Research options for implementation, including identifying potential benefits and risks of each.*
E. *Form a stakeholder group and work with Davey Resource Group to draft specific language for new ordinances and/or revisions to existing ordinances.*
F. *Finalize ordinance language and present to the City of Traverse City.*

5. Natural Features Overview (Discussion)- Tim Lodge and Russ Soyring will discuss the intent of a Natural Features Inventory and availability of existing natural features data from a variety of

sources. While not all integrated into a single mapping system, they are readily available and used as resources.

City of Traverse City GIS data that encompasses Natural Features:

Traverse City Natural Features Data Library

Vegetation Polygon (Bushes)
Vegetation Point (Trees)
Hydro Line (Rivers)
Hydro Poly (Lakes)
Structure Line (Buildings)
Structure Poly (Buildings)
TC Contours
Spot Elevation
LIDAR Data, Ground Elevation VS Structure Elevation
Multi-Use Trails
Beaches
Flower beds
Hickory Hills data and Trails
Recreation Land
Winter Maintenance
Parks
Groomed Beach
Aerial Imagery
Marina
Parcel Data
pervious and Impervious Layers
Beginning of Invasive Species
Beginning of Phragmites Layer
Future Land Use
Zoning
Swim Area

Data Library from the State of Michigan

http://gis.michigan.opendata.arcgis.com

Bedrock Geology
Drinking Water Wells
Ecoregions
Land Type Associations
Quarternary Geology

GROUNDWATER

Agriculture_Use_By_Township_2004
Aquifer Characteristics Of Glacial Drift
Base Flow of Michigan Streams
Estimated Groundwater Recharge
Glacial Deposits Estimate Drawdown
Glacial Deposits Estimated Transmissivity
Glacial Deposits Estimated Yield
Glacial Landsystems
Non-Agriculture_Groundwater_Use
Water Table
Water Table Contours
Water Table Depth
Wellhead Protection Areas
Wells Complete Database
Wells Hydraulic Property Database
Wells Summary Database

HYDROGRAPHY

Darcy Groundwater Movement Model, V2
DEQ_Conservation_Easements
Final_Wetland_Inventory
Great Lakes Shoreline
Inland Lake Contours
Lake points
Lake Polygons
Major Watersheds-Subbasins
MI Geographic Framework Hydrography (v14a)
MI Geographic Framework Hydrography Lines (v14a)
MI Geographic Framework Hydrography Polygons (v14a)
National Wetlands Inventory
Potential_Wetland_Restoration
Reach Files (RF3)
River Valley Segments
Watershed Boundary - 12 Digit
Watershed Boundary - 8 Digit

HYDROLOGY

Great Lakes Assessment Units
Inland Lake Assessment Units
Point Location Assessment Units
Stream Rivers Assessment Units

LAND COVER/USE

1992 National Land Cover Dataset
Land Cover 1991
Land Cover 1993
Land Cover 2001
Land Cover 2002

Land Cover 2005

Land Cover Circa 1800

Land Cover/Use MIRIS 1978

MANAGEMENT BOUNDARIES

DNR Financial Operations and Services Management Units

DNR Fisheries Management Units

DNR Forest Management Units

DNR Law Enforcement Management Units

DNR Parks and Recreation Management Units

DNR Wildlife Management Units

Great Lakes Statistical Grids

MINERAL MANAGEMENT

DNR Mineral Lease Information

NATIONAL WETLANDS INVENTORY

PUBLIC LAND SURVEY FEATURES

Public Land Survey Quarter-Quarter Sections

Public Land Survey Sections

Public Land Survey Town/Range

SATELLITE IMAGERY

Satellite Imagery

SOILS

Critical Dunes

SSURGO Soils

STATSGO Soils

TOPOGRAPHY

Digital Elevation Model (DEM)

Digital Raster Graphic (DRG)

Great Lakes Bathymetric Contours

Great Lakes Bathymetry

Topo_Quad_Boundary

6. SAW Grant Overview- Tim Lodge will discuss the goals and objectives of the SAW grant and how the asset management programs will inform capital improvement planning.

7. Overview of Chapter 1068 Ground-Water Protection and Storm-Water Runoff Control Ordinance and its Guidelines (Discussion)- Tim Lodge will discuss how Chapter 1068 works and how the Guidelines are applied.

8. Impervious Surface Limits (Discussion)- Russ Soyring will discuss a historic overview of why we established impervious surface limits.

Attachments: Ann Arbor Natural Features Inventory *web link: http://www.a2gov.org/departments/planning-development/planning/Documents/MasterPlans/NFMasterPlan_6-04.pdf*
Long Lake Township Natural Features Inventory *web link: http://www.longlaketownship.com/Portals/1040/pdfs/Long%20Lake%20NFI%20Final%20Report.pdf*
Michigan Natural Resources Inventory *web link: http://mnfi.anr.msu.edu/data/*
Chapter 1068 Ground-Water Protection and Storm-Water Runoff Control Ordinance
Ground-Water Protection and Storm-Water Runoff Control Ordinance Guidelines
Section 1368.03 Lot width, lot area, impervious surface and density requirements

Chapter 1068 - Ground-Water Protection and Storm-Water Runoff Control[19]

Footnotes:

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State Law reference— Drains and drainage; flood control projects, MCLA §§ 280.429, 280.431; Soil Erosion and Sedimentation Control Act, MCLA § 324.9101 et seq.

Cross reference— Sewers generally, Ch. 1042; Water generally, Ch. 1044; Flood plain management, Ch. 1458

1068.01 - Purposes.

The purposes of this chapter are to aid in the prevention of surface and ground-water contamination, to regulate and control the construction and use of storm-water runoff facilities, to control discharges to the public storm drain system, to protect the public health, safety and general welfare and to prevent the pollution, impairment or destruction of a natural resource and the environment of the City and the state.

(Ord. 323. Passed 12-16-91.)

1068.02 - Objectives.

The specific objectives of this chapter include the following:

(1) To prevent ground-water contamination and accelerated soil erosion and to control storm-water runoff resulting from proposed earth changes both during and after construction.

(2) To assure that property owners control the volume and rate of storm-water runoff originating from their property so that surface-water and ground-water quality is protected, soil erosion minimized and flooding reduced.

(3) To preserve and use where feasible the natural or existing drainage system for receiving and conveying storm-water runoff.

(4) To preserve natural infiltration and the recharge of ground-water and to maintain subsurface flows which replenish lakes, streams and wetlands.

(5) To assure that storm-water runoff control systems are incorporated into site planning at an early stage in the planning design process and to aid in the proper design, construction and maintenance of all storm-water control facilities.

(6) To reduce the need for costly maintenance and repairs to roads, embankments, ditches, streams, lakes, wetlands and storm-water control facilities, which are the result of inadequate soil erosion and storm-water runoff control.

(7) To reduce long-term expenses and remedial projects which are caused by uncontrolled storm-water runoff containing hazardous substances and polluting materials.

(8) To encourage the design and construction of storm-water control systems which serve multiple purposes, including, but not limited to, flood prevention and water quality protection.

(9) To reduce any detrimental impacts of storm-water flows on downstream storm-water facilities and to allow for off-site storm-water control facilities and measures if the proposals meet the requirements of this chapter.

(10) To designate a local enforcing agency responsible for the administration and enforcement of this chapter.

(11) To provide for the enforcement of this chapter and penalties for violations.

(Ord. 323. Passed 12-16-91.)

1068.03 - Definitions.

Words used in the present tense include the future; the singular includes the plural and the plural the singular. In addition, as used in this chapter:

(1) *Accelerated soil erosion* means the increased movement of soils that occurs as a result of human activities and development.

(2) *Best management practice* or *BMP* means a structural device, measure, facility or activity which helps to achieve ground-water protection and storm-water management control objectives at a designated site.

(3) *Channel* means the portion of a natural stream which conveys normal flows of water, or a ditch or channel excavated for the flow of water.

(4) *City engineer* means the City Engineer of the City of Traverse City or the authorized representative of the City Engineer.

(5) *City manager* means the City Manager of the City of Traverse City or the authorized representative of the City Manager.

(6) *Commercial use* means all land uses, except for registered and permitted home occupations and one-family and two-family detached dwellings and structures accessory thereto. "Commercial use" also means the use of private property in connection with or for the purchase, sale, display or exchange of goods, merchandise or personal services, as well as the maintenance or operation of businesses or recreational or amusement enterprises.

(7) *Depression storage* means the portion of precipitation trapped in depressions in the ground surface.

(8) *Design standard* or *engineering design standard* means a specification that prescribes the type of design, location, mode of construction, mode of operation or other engineering detail for storm-water control facilities.

(9) *Design storm* means a rainfall event that has a specific statistical probability of occurring in any given year. For example, a ten-year design storm is a storm with a ten percent chance of occurring during the year. Design storm figures are used to calculate the runoff volume and peak discharge rate through a detention or retention basin or other storm-water management facility.

(10) *Detention basin* means a structure or facility, natural or artificial, which stores storm-water on a temporary basis and releases it at a controlled rate. A detention basin may drain completely after a storm event, or it may be a body of water with a fixed minimum and maximum water elevation between runoff events.

(11) *Discharge* means the rate of flow of water through an outlet structure at a given point and time, measured in cubic feet per second (cfs).

(12) *Disturbed area* means an area of land subjected to erosion due to the removal of vegetative cover and/or earth-moving activities, including filling.

(13) *Downstream* means lands, waters or storm-water facilities which receive storm-water runoff and other surface-water flows from a designated site. Downstream lands, waters and storm-water facilities are normally downgrade from the designated site.

(14) *Drainage* means the interception and removal of ground-water or surface water by natural or artificial means.

(15) *Drainage system* means all facilities, channels and areas which serve to convey, filter, store and/or receive storm water, either on a temporary or permanent basis.

(16) *Drainage well* means a bed of stone or hole in the ground constructed for the purpose of trapping storm water for infiltration into the ground.

(17) *Earth change* means a man-made change in the cover or topography of land, including grading, building construction and cut-and-fill activities or other similar activities, which may result in, contribute to or have the potential to cause unwanted storm-water problems affecting either the quality or quantity of storm-water runoff.

(18) *Extended detention basin* means a detention basin designed to provide substantial removal of suspended solids and particulates, typically achieved by holding storm water for 24 hours or more.

(19) *Flood* means an overflow of surface water onto lands not normally covered by water.

(20) *Floodplain* means the area of land adjoining a lake or stream which is inundated when flow exceeds the capacity of the normal channel. For mapping purposes, floodplains are designated according to the frequency of the flood event, such as the 100-year floodplain.

(21) *Grading* means any extensive stripping, site clearing, stumping, excavating, filling, stockpiling, or any combination thereof, including the land in its excavated or filled condition.

(22) *Hazardous substances* and *polluting materials* means hazardous chemicals, as defined by the Michigan Department of Public Health and the Michigan Department of Labor; flammable and combustible liquids, as defined by the Michigan State Police Fire Marshal Division; critical materials, polluting materials and hazardous waste, as defined by the Michigan Department of Natural Resources; hazardous substances, as defined by the U.S. Environmental Protection Agency; and hazardous materials, as defined by the U.S. Department of Transportation.

(23) *Impervious area* means impermeable surfaces, such as paved or gravel driveways, parking areas or any structures which, in general, prevent infiltration of water into the soil.

(24) *Infiltration* means the downward movement or seepage of water from the surface to the subsoil and/or ground-water. The infiltration rate is expressed in terms of inches per hour.

(25) *Infiltration facility* means a structure or area which allows storm-water runoff to gradually seep into the ground (e.g. French drains, seepage pits, infiltration basins, dry wells, or perforated pipes).

(26) *Landscaping* means moving, seeding, sodding and other planned activity which is not classified as an earth change.

(27) *Maintenance agreement* means a binding agreement between the landowner and the City of Traverse City which sets forth the location and design of best management practices as well as the terms and requirements for storm-water control facility maintenance recorded with the County Register of Deeds.

(28) *Non-erosive velocity* means a rate of flow of storm-water runoff, measured in feet per second, which does not erode soils. Non-erosive velocities vary for individual sites, taking into account topography, soil type and runoff rates.

(29) *Normal maintenance* means landscaping, repairs, road leveling, minor excavation or filling at a developed site, or other activities determined by the City Engineer to be exempt from permit requirements, provided that such activities do not violate standards set forth in this chapter.

(30) *Off-site facility* means a storm-water management or erosion control facility which is located partially or completely off of the development site.

(31) *Outfall* means the point where water flows out from a conduit, drain or stream.

(32) *Outlet* means a stream or facility receiving the flow from a basin, drain or other storm-water management facility.

(33) *Owner* means the last recorded titleholder of any lot or parcel of land or the person whose name is last listed upon the tax roll as the owner of a certain lot or parcel of land.

(34) *Peak rate of discharge* or *peak flow* means the maximum calculated rate of storm-water flow at a given point in a channel, watercourse or conduit resulting from a predetermined frequency storm or flood, measured in cubic feet per second (cfs).

(35) *Permit* means a storm-water runoff control permit.

(36) *Person* means any individual, firm, partnership, association, public or private corporation, company, organization or legal entity of any kind.

(37) *Pollution* means the man-made or man-induced alteration of the chemical, physical, biological or radiological integrity of water.

(38) *Receiving body of water* means any lake, pond, stream, wetland or ground-water into which storm-water runoff is directed.

(39) *Regional detention basin* means a basin to detain water flow from a number of development sites or a small watershed.

(40) *Retention basin* means a wet or dry storm-water holding area, either natural or man-made, which does not have an outlet to adjoining watercourses or wetlands other than an emergency spillway.

(41) *Runoff* means storm-water runoff.

(42) *Sediment* means mineral or organic solid particulate matter that has been removed from its site of origin by soil erosion; suspension in water; and/or wind or water transport.

(43) *Site* means any tract, lot or parcel of land or combination of tracts, lots or parcels of land proposed for development.

(44) *Stop-work order* means a notice issued by the City Engineer requiring a person to cease grading or development activities.

(45) *Storage facility* means a basin, structure or area, either natural or man-made, which is capable of holding storm water for the purpose of reducing the rate of discharge from the site.

(46) *Storm drain* means a conduit, pipe, natural channel or man-made structure which serves to transport storm-water runoff.

(47) *Storm frequency* means the average period of time during which a storm of a given duration and intensity can be expected to be equaled or exceeded.

(48) *Storm sewer* means a sewer that carries storm-water, surface-water, street runoff and other runoff waters, unpolluted drainage or ground-water, but excludes domestic waste water and industrial waste water, and is also called a "storm drain."

(49) *Storm-water* means the excess water running off from the surface of a drainage area during and immediately after a period of rain. It is that portion of the rainfall and resulting surface flow that is in excess of that which can be absorbed through the infiltration capacity of the surface of the basin.

(50) *Storm-water control facilities and measures* means any facility, structure, channel, area or vegetative cover or measure which serves to control storm-water runoff in accordance with the purposes and standards of City regulations.

(51) *Storm-water runoff* means waters from rains falling within a tributary drainage basin, flowing over the surface of the ground or collected in channels, watercourses or conduits, measured in depth of inches.

(52) *Storm-water runoff control plan* means drawings and written information for a proposed land use or earth change which describe the way in which storm-water runoff will be controlled during and after completion of construction.

(53) *Storm-water runoff control permit* means a signed written approval issued under this chapter authorizing the applicant to engage in specified earth changes.

(54) *Stream* means a river, stream or creek which may or may not be serving as a drain which has definite banks, a bed and visible evidence of a continued flow or continued occurrence of water.

(55) *Stream bank* means the usual boundaries, not the flood boundaries, of a stream channel.

(56) *Swale* means a low-lying grassed area with gradual slopes which transports storm-water either on-site or off-site.

(57) *Vegetative cover* means grasses, shrubs, trees and other vegetation which hold and stabilize soils.

(58) *Water quality standards* means minimum standards established by the State of Michigan for water quality protection.

(59) *Watercourse* means any natural or man-made waterway, drainage-way, drain, river, stream, diversion, ditch, gully, swale or ravine having banks, a bed and a definite direction or course, either continuously or intermittently flowing.

(60) *Watershed* means a land area, also known as a drainage area, which collects precipitation and contributes runoff to a receiving body of water or point along a watercourse.

(61) *Wetland* means land characterized by the presence of water at a frequency and duration sufficient to support, and under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp or marsh. A wetland will contain a predominance, not just an occurrence, of wetland vegetation, aquatic life or hydric soil.

(Ord. 323. Passed 12-16-91. Ord. 634. Passed 4-19-04.)

1068.04 - Storm-water runoff control permits.

(a) *Regulated land uses and earth changes.* Earth changes and other construction and activity requiring a ground-water protection/storm-water runoff control permit from the City Engineer include the following:

(1) Earth changes proposed for any single-family or two-family residential site with one or more of the following characteristics:

a. Sites with a slope greater than ten percent (ten feet horizontal to one foot vertical).

b. Sites with heavy clay soils (commonly termed "hardpan clay"), and soils classified in hydrologic Group D in the Grand Traverse County Soil Survey.

(2) Earth changes for sites located within 100 feet of a protected wetland, stream or other body of water.

(3) Earth changes for other sites identified by the City as having a high potential for environmental degradation and/or flooding as a result of soil erosion, storm-water runoff or hazardous waste runoff, on-site or off-site.

(4) Earth changes for all multiple-family, commercial or industrial sites, including recreational and public facilities.

(5) All new land uses at the site of which 100 kilograms (25 gallons or 220 pounds) or more of hazardous substances are generated or used per month or accumulated at one time.

(6) All proposed connections, direct or indirect, to the City's storm drain system.

(7) Landscaping and grounds maintenance as may be outlined by the City Engineer are exempt from permit requirements provided that such activities do not violate standards in this chapter.

(b) *Application submittal.*

(1) All applications for storm-water runoff control permits shall include three copies of the proposed ground-water protection and storm-water runoff control plan, unless more copies are requested by the City Engineer. Copies of the permit application form shall be made available by the City Engineer.

(2) Permit applications shall be submitted to the City Engineer.

(3) Application for a permit shall be made prior to the start of any earth change or activity requiring a permit, including construction of access roads, driveways, tree and shrub removal or grading. Permit approval shall be given prior to the initiation of any work activity. Any unauthorized work shall be considered a violation of this chapter regardless of any later actions taken toward compliance. Soil test borings, cutting of vegetation for land surveys, percolation tests and normal maintenance shall not be considered a start of work under this chapter.

(4) Proposed ground-water protection and storm-water runoff control plan facilities shall be included as part of the final site plan requirements per Chapter 1252 of the Planning and Zoning Code.

(5) The application review period begins upon receipt of a completed application with all required drawings.

(c) *Sequential applications.*

(1) On projects which are so large or complex that a plan encompassing all phases of the project cannot reasonably be prepared prior to initial ground-breaking, application for a permit on successive major incremental earth change activities may be allowed. Requests for sequential applications shall be approved by the City Engineer prior to submittal of a permit application.

(2) Approval of sequential applications shall take place in two phases. First, the overall conceptual plan for the entire development shall be submitted for review and approval. Second, detailed plans for sections of the total project may be submitted for review and approval.

(3) All permits processed and issued for phases of a project shall be clearly defined as to the nature and extent of work covered. Each phase of the project must be reviewed and permitted prior to construction.

(d) *Permit approval or disapproval.*

(1) If the City Engineer determines that the proposed ground-water protection and storm-water runoff control plan complies with the standards in this chapter, a permit shall be issued specifying the work approved. If the proposed plan does not comply with the standards in this chapter, the permit request shall be modified or denied.

(2) Upon request, the City Engineer shall furnish the applicant or other interested person with a statement, in writing, of the reasons for permit approval or denial.

(3) A decision on a permit application will normally be made within seven to 14 days of the time that a completed application and ground-water protection and storm-water runoff control plan have been received. The City Engineer shall determine whether the application and control plan submitted with the application provide sufficient information for review purposes. Review of permits may take longer if special engineering reviews are necessary or the development is of a large scale, thereby requiring extra time.

(e) *Permit expiration or revocation.*

(1) Permits shall terminate automatically if construction has not commenced within one year of the date of issuance. The permit holder may request a one-year extension if there are valid reasons to support such an extension.

(2) Any permit issued by the City Engineer under this chapter may be revoked or suspended after notice for any of the following causes:

a. A violation of a condition of the permit.

b. A misrepresentation made when obtaining a permit or failure to fully disclose relevant facts in the application or ground-water protection and storm-water runoff control plan. A change in a condition that requires a temporary or permanent change in the activity.

(f) *Penalties for initiating earth change activities without a permit.* Any person initiating a land use or earth change activity under this chapter without a valid permit shall be considered in violation of this chapter and subject to fines and other penalties as provided in this chapter.

(g) *Permits and approvals of other governmental agencies.* Approvals under this chapter shall not relieve a property owner of the need to obtain other permits or approvals from Federal, State, county and local agencies.

(h) *Soil erosion and sedimentation control act.* The City Engineer or his or her authorized representative shall be the local enforcing agency responsible for the administration and enforcement of Soil Erosion and Sedimentation Control (Part 91), 1994 PA 451, as amended, and all rules promulgated thereunder. All such rules are hereby incorporated by reference.

(i) *Permit fees.* Charges for ground-water protection/storm-water runoff control permits shall be determined, from time to time, by resolution of the City Commission.

(Ord. 342. Passed 3-15-93. Ord. 633. Passed 4-19-04.)

1068.05 - Ground-water protection and storm-water runoff control plan.

(a) *Generally.* A ground-water protection and storm-water runoff control plan shall be prepared for any land use or earth change subject to permit requirements. The plan for a given site shall be designed to effectively reduce problems associated with soil erosion, ground-water contamination due to hazardous substances and polluting materials, and to control the quality and quantity of storm-water runoff during and after the completion of construction.

(1) Any project and related improvements shall incorporate in its design measures to protect the natural environment, including lakes, ponds, streams, wetlands, floodplains, ground-water and steep slopes.

(2) Storm-water management practices and drainage facilities shall be designed to maintain the natural retention and storage capacity of any wetland, water body or watercourse, and shall not increase unwanted flooding potential, on-site or off-site.

(3) Sites at which hazardous substances and polluting materials are stored, used or generated shall be designed to prevent spills and discharges to the air, surface of the ground, ground-water, lakes, streams, rivers or wetlands.

(4) 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 discharges to ground-water, including direct and indirect discharges, shall be allowed without required permits and approvals.

(5) The location and extent of any known contaminated soils and/or ground water on the site shall be shown on the site plan and shall be considered in the overall protection and control proposal to adequately protect the public health and the environment.

(b) *One-and two-Family residential site control plan.* Unless waived by the City Engineer, a residential site plan will need to show the following:

(1) The location of the site, including description, lot dimensions and ordinance-required setbacks.

(2) Site characteristics, including utility, building and drive locations, slopes and soil type.

(3) Proposed earth change activity and ground-water protection and runoff control measures proposed.

(4) If there are severe development limitations in regard to the existing site characteristics, the City Engineer may require that a residential development site plan be prepared by a registered professional engineer or architect licensed to practice in the State of Michigan.

(c) *Multiple-family, commercial and industrial site control plans.*

(1) A multiple-family/commercial/industrial site plan shall be prepared by a registered engineer or architect licensed to practice in the State of Michigan.

(2) In addition to other required information, the submitted site plans shall show the following information:

a. A drawing or drawings at a scale sufficient to show all of the required information as may be determined by the City Engineer, including a legal description and site location sketch; predominant land features; and contour intervals and/or sufficient elevations or slope description.

b. A soils survey or written description of the soil types of the exposed land area contemplated for the earth change, and the location of the physical limits of each proposed earth change.

c. The location of all lakes, streams and protected wetlands partially or completely contained within the boundaries of the site.

d. A description and the location of all existing and proposed on-site ground-water protection and storm-water management facilities and measures, including existing public storm drain facilities and proposed method of connection.

e. A description and the location of all proposed temporary and permanent soil erosion control facilities and measures, including existing public storm drain facilities and proposed method of connection.

f. Storm-water runoff calculations.

g. For large sites, a program for the continued maintenance of all ground-water protection and storm-water runoff control facilities and measures, including the designation of the person or agency responsible for the maintenance and financial arrangements. A maintenance agreement shall become a part of any sales or exchange agreement for the land on which permanent soil erosion and storm-water runoff control facilities and measures are required.

h. Other information which the City Engineer requires to review the impact of the proposed earth change in relationship to the standards and requirements of this chapter.

(3) In addition to the information required to be shown on site plans listed previously, the following additional provisions shall apply to all land uses and facilities, including private and public facilities, which use, store or generate substances or polluting materials in quantities greater than 25 gallons or 220 pounds.

a. Listing of types and quantities of hazardous substances and polluting materials which will be used or stored on-site at the facility in quantities greater than 25 gallons or 220 pounds.

b. Completion of the "Hazardous Substances Reporting Form for Site Plan Review."

c. Location of existing and proposed service facilities and structures, above and below ground, including:

1. Areas to be used for the storage, use, loading/unloading, recycling or disposal of hazardous substances and polluting materials, including interior and exterior areas.

2. Underground storage tank locations.

3. Location of floor drains, exterior drains, water wells, dry wells, catch basins, retention/detention areas, sumps and other facilities designed to collect, store or transport storm water or waste water.

d. Delineation of areas on the site which are known or suspected to be contaminated, together with a report on the status of site cleanup.

(Ord. 323. Passed 12-16-91.)

1068.06 - General standards for approval of ground-water protection and storm-water control plans.

(a) The City Engineer shall approve or disapprove storm-water runoff control permit applications and plans in accordance with written guidelines which shall be on file in the Traverse City Engineering Department.

(b) All site plans subject to review under the requirement of this chapter shall be designed, constructed and maintained to aid in the protection against the detrimental effects of storm-water quality, incorporating therein best management practices (BMP's), which may include, but are not limited to, detention basins, retention ponds, infiltration basins, wet basins, drainage wells, grass swales, grass swales with check dams, filter strips, catch basins and other storm-water control facilities.

(c) All storm-water control plans shall be designed, constructed and maintained to prevent detrimental off-site flooding of downstream properties and of the City storm-water drainage system.

(d) The amount of storm-water permitted to discharge from a site to the City's existing storm-sewer system shall be as determined by the City Engineer.

(e) Measures required for ground-water protection and storm-water runoff control shall take into consideration natural features, proximity of the site to lakes, streams and protected wetlands, extent of impervious surfaces, potential for soil erosion and flooding and the size of the site.

(f) Storm-water conveyance, storage facilities and infiltration facilities shall be designed to provide for non-erosive velocities of storm-water runoff. Alterations to natural drainage patterns shall not create downstream flooding or sedimentation.

(g) Sites at which hazardous substances and polluting materials are stored, used or generated shall be designed to prevent spills and discharges to the air, surface of the ground, ground-water, lakes, streams, rivers or wetlands.

(h) In lieu of complete on-site storm-water facilities and measures, the use of off-site storm-water facilities and measures may be proposed, together with on-site soil erosion, ground-water protection control and storm-water quality control.

(i) General standards specified in this section shall be used in reviewing proposed ground-water protection and storm-water runoff control plans for storm-water facilities and measures.

(Ord. 323. Passed 12-16-91.)

1068.07 - Maintenance of facilities.

(a) All ground-water protection and storm-water runoff control facilities and measures shall be maintained in accordance with applicable permit conditions.

(b) The person(s) or organization(s) responsible for maintenance shall be designated in the ground-water protection and storm-water runoff control plan or the permit application submitted to the City Engineer. Options include:

(1) The owner of the property.

(2) A property owners association or other nonprofit organization, on the condition that provisions for financing necessary maintenance are included in deed restrictions or other contractual agreements.

(c) Maintenance agreements shall specify responsibilities for financing maintenance and emergency repairs, including, but not limited to, the procedures specified in Sections 1068.12 and 1068.13.

(Ord. 323. Passed 12-16-91.)

1068.08 - Storm-water management easements.

(a) Storm-water management easements shall be provided by the property owner, if necessary, for access for facility inspections and maintenance, or for preservation of storm-water runoff conveyance, infiltration and detention areas and facilities, including flood routes, for a major storm event. The purpose of the easement shall be specified in the maintenance agreement signed by the property owner.

(b) Storm-water management easements are required for all areas used for off-site storm-water control, unless a waiver is granted by the City Engineer.

(c) Easements shall be recorded with the County Register of Deeds prior to the issuance of a permit by the City Engineer.

(Ord. 323. Passed 12-16-91.)

1068.09 - Compliance assurances.

(a) *Performance guarantees.*

(1) Applicants proposing construction projects identified by the City Engineer as having high potential for storm-water related problems may be required to post a cash escrow, letter of credit or other acceptable form of performance security in an amount determined by the City Engineer to assure proper completion of the work as may be approved.

(2) Letters of credit, if used as a performance guarantee, shall extend for a minimum of one year with the option of renewal. Letters of credit will be returned to the applicant when the site is certified by the developer or engineer for the project that the site is completely in accordance with the approved site plan requirements as set forth by the City Engineer.

(b) *Construction certification by registered professional.*

(1) For any sites that require a professional site plan, a certification statement and plan shall be submitted after ground-water and storm-water runoff control facilities have been installed to affirm that construction has been completed in accordance with the approved ground-water protection and storm-water runoff control plan. This certification statement and plan shall be prepared by a registered engineer, or architect licensed to practice in the State of Michigan.

(2) If there are changes during the course of construction, the City Engineer may require final "as-built" drawings for final approval of the site work.

(c) *Certificate of compliance.* Upon receipt and approval of the certification letter, the City Engineer shall issue a certificate of compliance to the property owner.

(Ord. 323. Passed 12-16-91.)

1068.10 - Inspections.

(a) Authorized representatives of the City Engineer may enter at reasonable times upon any property to conduct on-site inspections. Such inspections may take place before, during and after any earth change or other activity for which a permit has been issued.

(b) The permit holder shall notify the office of the City Engineer at least 48 hours before starting any earth change or activity for which a permit was issued.

(c) If upon inspection existing site conditions are found not to be as stated in the permit or approved ground-water protection and storm-water runoff control plan, the permit will be invalidated and a stop-work order may be issued. No earth-disrupting work shall be undertaken or continued until revised plans have been submitted and a valid permit issued.

(d) Requests for revisions must be submitted to and approved by the City Engineer in writing before being put into effect, unless approved by the City Engineer on the site. If this is done, a revised site plan shall be submitted for review and approval.

(Ord. 323. Passed 12-16-91.)

1068.11 - Enforcement.

(a) *Notices of violations: administrative adjustment.* Whenever the City Engineer finds that any person or property owner has engaged in conduct which violates the requirements of the storm-water runoff control permit or of this chapter, the City Engineer shall serve or cause to be served upon such person or owner a written notice, either personally or by certified mail, stating the nature of the alleged violation. Within ten days of the date of receipt of the notice, said person or owner shall respond personally or in writing to the City Engineer, advising the City Engineer of his or her position with respect to the allegations. Thereafter, the City Engineer and said person or owner shall meet and confer to discuss the allegations and, where necessary, to establish a plan for the satisfactory correction thereof.

(b) *Hearings.* Where a violation is not corrected by timely compliance by means of an administrative adjustment, the City Engineer may suspend or revoke the permit. A written notice shall be served on the property owner by personal service or by certified mail, specifying the time and place of a hearing to be held by the City Engineer regarding the violation, the reasons why the enforcement action is to be taken and the proposed enforcement action, and directing the property owner to show reasons why the proposed enforcement action should not be taken. The notice of the hearing shall be served not less than ten days before the hearing. Service may be made on any agent, officer or authorized representative of the property owner. The City Engineer shall hold a hearing, consider evidence and then enter appropriate orders with respect to the alleged improper activities of the property owner. Appeals of such orders may be taken by the property owner to the Circuit Court by filing an action within 21 days after the order being appealed. The Circuit Court shall review such orders on the record to determine if they are supported by material, competent and substantial evidence. If the Court finds such support, the orders shall be affirmed.

(c) *Judicial proceedings* . The City may commence an action to enforce this chapter and any order in the Circuit Court.

(Ord. 323. Passed 12-16-91. Ord. 523. Passed 2-19-01.)

1068.12 - Stop-work orders and emergency actions.

(a) If necessary to assure compliance with permit requirements, standards and other provisions of this chapter, the City Engineer may issue a stop-work order for the purpose of preventing or minimizing ground-water contamination, storm-water runoff or other conditions posing imminent and substantial danger to public health, safety, welfare or natural resources.

(b) If necessary to protect public safety or natural resources, including lakes, streams, protected wetlands and other receiving bodies of water, the City Engineer may initiate emergency action to abate imminent and substantial danger and risk, subject to the following:

(1) Storm-water control measures or facilities may be constructed or maintained by the City at the property owner's expense if the necessary provisions for the correction of a violation are not successfully implemented within ten calendar days after the notice of violation is mailed.

(2) All expenses incurred by the City to construct and maintain measures and facilities to bring the site into compliance, including actual attorney fees, shall be reimbursed by the property owner. The City shall have a lien for the expenses incurred. The lien shall have priority over all liens and encumbrances filed or recorded after the date of such expenditure. Except for single-family or multiple-family residential properties, the lien for such expenses shall be collected and treated in the same manner as provided for property tax liens.

(c) Except as otherwise provided through maintenance agreements, the property owner may be held responsible for reimbursing the City for all costs incurred, including actual attorney fees and administrative costs, as a result of emergency action provided, that a finding is made that the property owner violated provisions of this chapter, a permit of this chapter or an approved maintenance agreement.

(d) Violations of permit requirements will initially be brought to the attention of the individual in charge of on-site construction activities. Should efforts toward immediate compliance be unsuccessful, a stop-work order may be issued. Said order shall describe the specific alleged violation and the steps deemed necessary to bring the project back into compliance.

(e) The stop-work order, when issued, shall require all specified earth change activities to be stopped.

(f) If the City Engineer determines that ground-water contamination and/or sedimentation of the waters of this state has or will reasonably occur from a parcel of land in violation of this chapter, then the City Engineer, at his or her determination, may seek to enforce this chapter by notifying the person who owns the land by mail with return receipt requested. The notice shall contain a description of specific control measures which, if implemented by the property owner, would bring the owner into compliance.

(g) The persons who own or occupy land subject to this chapter shall implement and maintain ground-water protection and storm-water runoff control measures in conformance with this chapter within ten days after the notice of violation has been given as specified in subsection (f) hereof.

(Ord. 323. Passed 12-16-91.)

1068.13 - General requirements; violations.

(a) *Duty.* A person shall not authorize or conduct an earth change or land use which requires a storm-water runoff control permit without first applying for and receiving such a permit. A person shall not authorize or conduct an earth change or activity requiring a permit under this chapter except in conformity with a properly issued permit.

(b) *Guideline violation.* A violation of any guideline, regulation or standard adopted or authorized by this chapter or a violation of any order, notice or permit authorized by this chapter shall be deemed to be a violation of this chapter and shall be subject to the same penalty and remedies as would a violation of this chapter.

(Ord. 323. Passed 12-16-91.)

1068.99 - Penalty.

(a) Persons who own or occupy land that is not in compliance with this chapter and who, after notice, refuse to implement and maintain ground-water protection and storm-water runoff control measures and facilities in conformance with these regulations, shall each be subject to a fine of not more than $500.00 or 90 days in jail, or both, plus the cost of prosecution.

(b) Each act of violation and every day upon which any violation shall occur or continues to occur shall constitute a separate offense.

(c) In addition to the penalties provided in this section, any person found to have violated any of the provisions of this chapter shall be liable to the City for any expense, loss, damage and actual attorney fees occasioned by such violation.

(Ord. 323. Passed 12-16-91.)

Editor's note— See § 202.99 for general Code penalty if no specific penalty is provided.

TRAVERSE CITY GROUND-WATER PROTECTION AND STORM-WATER CONTROL ORDINANCE
GUIDELINES

PREAMBLE

The guidelines were developed to be used in conjunction with the Traverse City Ground-Water Protection and Storm-Water Runoff Control Ordinance. These guidelines will be updated as needed to reflect the new technology and best management practices available to deal with ground-water protection and storm-water runoff on sites within the City of Traverse City.

A. GROUND-WATER PROTECTION

1. General-purpose floor drains shall be allowed only if they are connected to: an on-site holding tank; to the public sanitary sewer system with approved oil separator system or; a system authorized through a State ground-water discharge permit.

2. Secondary containment for above-ground areas where hazardous substances and polluting materials are stored or used shall be provided. Secondary containment shall be sufficient to store the substance for the maximum anticipated period of time necessary for the recovery of any released substance.

3. Outside storage of hazardous substances and polluting materials shall be prohibited except in product-tight containers which are protected from weather, leakage, accidental damage and vandalism and are stored within a secondary containment system.

4. Out-of-service abandoned tanks shall be emptied and removed in accordance with the State of Michigan Underground Storage Tank Rules.

B. STORM-WATER RUNOFF CONTROL FACILITIES

1. Earth changes and related improvements shall be designed, constructed and maintained to minimize the extent and duration of earth disruption and to protect the natural environment.

2. On-site storm-water runoff control facilities which protect water quality and prevent unwanted flooding shall be required for all sites. Storm-water runoff control facilities may include but are not limited to detention basins, retention ponds, infiltration trenches, infiltration basins, drainage wells, grass swales, grass swales with check dams, filter strips and other facilities.

3. Storm-water control facilities shall be planned and designed to reproduce the pre-development hydrology of the site to the maximum possible extent.

4. Infiltration trenches, perforated pipe and infiltration basins shall be encouraged provided that (a) sediment is removed from storm-water runoff before runoff reaches the infiltration facility and (b) adequate provisions for facility maintenance have been made.

5. Infiltration basins shall be lined with a vegetative cover designed to slow the flow of runoff and to trap pollutants. Sediment traps, catch basins and/or sediment basins shall be provided for the purpose of collecting sediment before storm water reaches the infiltration basin or trench. Infiltration facilities shall be designed to distribute storm-water runoff volume evenly over the floor of the basin or trench and to prevent ponding or standing water.

6. Drainage wells, commonly known as dry wells, may be used as a storm-water control method if the use of storm-water retention or detention basins, either on- or off-site, is not feasible. All drainage wells must provide the following: (1) catch basins, sediment basins, silt traps or vegetative filter strips to remove sediment from storm water flowing to the drainage well, (2) an approved overflow system and (3) adequate provisions for maintenance.

7. Detention basins shall be designed as extended detention basins to detain runoff on the site for 24 hours or more to allow for maximum settling and removal of suspended solids and other pollutants. Vegetation shall be installed and maintained in the basin to help absorb pollutants.

8. When a downstream outlet (open channel or storm sewer) is unacceptable, minimum detention, retention and infiltration basins on the site shall have the storage capacity to hold the increase in runoff volume generated by the earth change. The required volume shall be calculated by comparing the undeveloped condition to the developed condition for a 25-year 24-hour frequency storm event. Provisions for overflow shall be made. In general, this paragraph shall apply to larger open areas where storm sewers do not exist.

9. If a quantity or capacity problem exists with an outlet as may be determined by the City Engineer, the peak rate of discharge from a site shall be as determined by the City Engineer. It should be assumed for design purposes, that such problems exist with almost all storm sewers within the City. However, in general, such runoff rate will normally not be less than the pre-developed rate, and required on-site storage shall not be greater than that required for a 10-year frequency storm event with 24 hour minimum detention. In general, a short hand design method of a 2½" rain over all impervious surfaces may be used. Drainage facilities for quantity purposes shall be designed to pass a 10-year frequency storm event.

10. As a minimum, all drainage control on all multi-family, commercial and industrial sites when developed shall be designed to allow infiltration or to retain in some acceptable manner all small storms or first-flush runoff which shall be the first one-half (½") inch of runoff. The City Engineer, at the written request of the Michigan Department of Environmental Quality, may reduce the minimum infiltration retention requirements if it is determined that the introduction of surface storm-water infiltration into the groundwater would increase and/or exacerbate the existing known pollution at a site.

11. A two-stage design for detention and retention basins shall be used on sites where parking lots and other impervious surfaces exceed five (5) acres in size as well as for other sites identified by the City Engineer or the Michigan Department of Environmental Quality as requiring special protection for water quality purposes. In such cases, a meeting will be set up between the property owner/developer and City Engineer to discuss details of design and requirements.

12. The use of Swirl Concentrator technology or other "new technology" systems in which the removal of a minimum of 80% of pollutants, including grit, oil, hydrocarbons and floating contaminants for on-site storm-water runoff control facilities, is encouraged. Where these "new technology" systems are designed within projects for areas where off-site receiving and conveyance facilities have adequate capacity, the City Engineer may reduce or eliminate on-site retention/detention requirements.

C. STORM-WATER CONVEYANCE FACILITIES AND RECEIVING WATERS

1. Unless otherwise approved, storm-water runoff shall be conveyed through swales, vegetated buffer strips or other approved facilities so as to decrease runoff velocity, to remove pollutants, to allow suspended sediments to settle and to encourage infiltration.

2. When storm sewers are determined to be necessary by the City Engineer, the applicant shall design the drainage system to mitigate any harmful impact on water quality by using appropriate structural devices or other best management methods.

3. Drain spouts from roofs and sump pumps from basements shall be directed to on-site swales, detention basins or other measures designed to slow the flow of storm-water runoff to non-erosive velocities whenever possible.

D. SITE CONSTRUCTION CONTROL

1. All earth changes shall be designed, constructed and maintained in such a manner as to minimize the extent and duration of earth disruption.

2. Soil erosion control facilities shall be designed to remove sediment from storm water before the storm water leaves the site of the earth-change activity.

3. Vegetative stabilization or other soil erosion control measures shall be installed and maintained throughout the development process. Critical areas exposed during construction shall be protected with temporary vegetation, mulching, filter fences or other methods of stabilization.

4. Storm-water runoff control and soil erosion control measures shall be installed before grading, filling or removal of vegetative cover is initiated.

5. Filter fences and other soil erosion control facilities installed at the perimeter of a development site shall be installed at least five (5') feet from the property boundary to allow for on-site maintenance.

6. Fill slope grades on the perimeter of the graded area adjacent to lakes, streams, wetlands and storm-water ponds, or adjoining properties shall not have a slope steeper than a 33 percent rise (3 feet horizontal to 1 foot vertical) unless approved by the City Engineer.

7. Retention and detention basins shall have an emergency overflow system. The overflow system shall be designed to accommodate flow from the 100-year storm event, or as otherwise required by the Michigan Department of Environmental Quality.

8. Side slopes of any storm-water retention or detention basin shall be no greater than 3:1 (horizontal to vertical) so as to prevent soil erosion and allow for basin maintenance.

9. Storm-water basins with depths greater than three feet shall have one or more of the following safety features: (a) Safety ledges at the basin perimeter which are at least eight feet wide for every three feet of vertical height; (b) aquatic vegetation surrounding the basin which discourages wading; or (c) fencing to prevent unauthorized access to the basin.

10. Soil erosion control measures shall be maintained throughout the duration of the earth change including the later stages of development. Maintenance activities include but are not limited to removal of accumulated sediment, structural repairs, reseeding or replacement of vegetative cover and lawn mowing.

11. Removal of natural vegetation and tree roots within twenty five (25) feet of the ordinary high water mark of any wetland, lake or stream shall be prohibited unless approved for recreational uses. A lake or stream buffer area greater than twenty five (25) feet may be required by the City Engineer if necessary for soil erosion control purposes.

12. Grading of land or other earth changes shall not be permitted in any flood plain unless approved by the Michigan Department of Environmental Quality as well as the City Engineer. Further, all approved grading of land or other earth changes within a flood plain or within the required buffer area of a lake or stream shall not reduce the storage capacity of the flood plain and shall meet the requirements of the City Zoning Ordinance.

E. DESIGN PARAMETERS FOR FACILITY CONSTRUCTION

1. Design parameters for ground-water protection, storm-water management and soil erosion facilities shall follow best management practices as identified by the City Engineer, the Grand Traverse County Soil Conservation Service and/or the Michigan Department of Environmental Quality.

2. The Michigan Department of Environmental Quality "Urban Storm-water Best Management Practices Manual" will be used as a reference along with other manuals such as "Controlling Urban Runoff" by the Metropolitan Washington Council of Governments and the Small Business Guide To Secondary Containment by the Clinton River Watershed Council.

1368.03 - Lot width, lot area, impervious surface and density requirements.

(a) *Density.* Density standards serve several purposes. They match housing density with the availability of public services and with the carrying capacity of the land. For example, more housing can be allowed on flat areas than on steep, slide-prone zones. At the same time, density standards promote development opportunities for housing and promote urban densities in less developed areas. The density regulations are a tool to judge equivalent density when comparing standard and nonstandard land divisions (such as Planned Unit Developments).

(b) *Lot size.* In standard land divisions, lot size limits help to preserve the overall character of developed neighborhoods by assuring that new houses will generally have the same size lots as the surrounding built-up area. They also assure that development on a lot will, in most cases, be able to comply with all applicable development standards.

(c) *Compliance required.* Every single-family dwelling and every two-family dwelling erected or structurally altered after the effective date of this Zoning Code in the R-1a, R-1b, and R-2 districts shall be located on a lot.

(d) *Impervious surface.* Surface parking areas shall not exceed the total floor areas of all buildings on the lot in the C-4 and GP districts. In the NMC-1 and NMC-2 districts, the surface parking area shall not exceed 15 percent of the total area of any lot over 10 acres.

(e) *Table.* The lot width, lot area and impervious surface and density requirements for each district shall be as indicated in each district and as on the following chart:

District	Minimum Lot Width (feet) [1]	Minimum Lot Area (square feet)	Maximum Density (dwelling units per acre)	Maximum Impervious Surface %
OS	20	None	N/A	20
RC	20	None	4.4	20
R-1a	90	9,000	Not applicable	30
R-1b	35/45 [6]	5,000	Not applicable	45
R-2	50 or 35 for a single-family dwelling	8,000 per two-family dwelling or 4,000 per single-family dwelling	Not applicable	45
R-9	50	7,500	9 (18 [4])	35 (45 [5])
R-15	50	7,500	15 (30 [4])	40 (50 [5])
R-29	50	7,500	29 (58 [4])	50 (68 [5])

HR	50	7,500	29; 44 rooms/acre	70
C-1	20	3,750	N/A	60
C-2	20	3,750	N/A	70
C-3	20	3,750	N/A	80
C-4	None	None	N/A	100 [3]
D	See Chapter 1347 for requirements			
T	20	None	None	70
GP	20	None	None	70 [2]
I	100	None	None	80
PRD	See Chapter 1352 for requirements			
NMC-1	20	None	15	30 [2]
NMC-2	20	None	29	50 [2]
H-1	20	None	29	70
H-2	20	None	29	60

[1] See access control restrictions, Traverse City Code, Section 1374.04.

[2] The surface parking area shall not exceed 15 percent of the total area of any lot over 10 acres.

[3] The surface parking area shall not exceed the total floor area of all buildings on the lot.

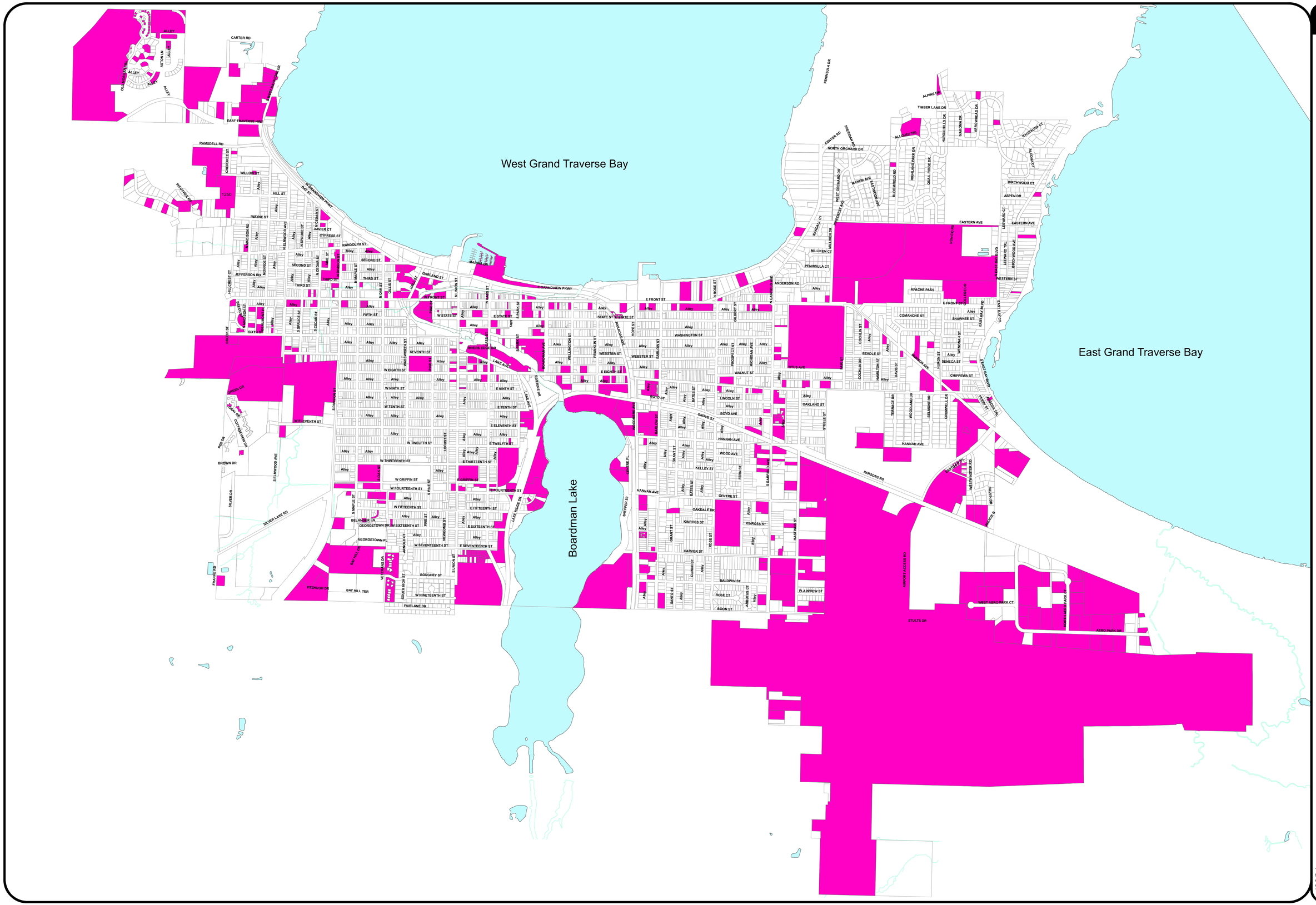
[4] A density bonus shall be provided equal to one market-rate unit for each affordable housing unit provided according to the requirements of Chapter 1376. Density shall not exceed the maximum density specified.

[5] The maximum impervious surface percentage may be increased by up to 10 percentage points for projects that include affordable housing units that meet the standards of Chapter 1376, as authorized by the Planning Director, if the modification is necessary to reasonably achieve the permitted density,

including the bonus units; or to achieve a greater number of affordable housing units than the defined affordable housing incentives.

[6] The minimum lot width for parcels located north or east of the US31/M-72, east of Milliken Drive and south of Eastern Ave are 45 feet.

(Ord. 476. Passed 7-6-99. Ord. 489. Passed 4-17-00. Ord. 534. Passed 6-4-01. Ord. 551. Passed 12-3-01. Ord. 555. Passed 2-4-02. Ord. 568. Passed 7-11-02. Ord. 624. Passed 3-15-04. Ord. 654. Passed 8-16-04. Ord. 829. Passed 3-16-09. Ord. 832. Passed 5-4-09. Ord. 890. Passed 11-1-10. Ord. 917. Passed 6-6-11. Ord. 956. Passed 1-7-13)



TC ENGINEERING
City of Traverse City

Stormwater Permit Locations

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