

NOTE TO ZONING BOARD OF APPEALS TAB 17 - CHAPTER 98, TECHNICAL STANDARDS

Chapter 98, Technical Standards, in the City Code of Ordinances, identifies the construction and development standards that the Planning Board uses to help implement the overall standards in Chapter 90, Site Plan, and Chapter 102, Zoning. The Planning Board considered these standards in determining if the construction/development specifications that Nordic identified on its Site Plan drawings/sheets for infrastructure concerns such as parking, stormwater, and such complied with City requirements. The Board did not make specific findings on the Technical Standard requirements, but did reference such in issuing many of its findings on issues/standards identified in both Chapter 90, Site Plan, and Chapter 102, Zoning.

The language in this document includes any and all amendments to the City Code of Ordinances that apply to Chapter 98, Technical Standards, as such were adopted by the City Council through December 31, 2020.

ARTICLE I In General

Sec. 98-1. Definitions. [Ord. No. 39-1998, ch. 2, 12-1-1998]

The subdivision ordinance, the definitions in section 66-1, the floodplain regulations (chapter 78, article II), the site plan regulations (chapter 90), and the zoning regulations (chapter 102) shall be used as a supplement to this chapter. The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

AASHTO — The American Association of State Highway and Transportation Officials. Most guidelines for roadway design are from this organization.

ADT — Average daily traffic.

ADT PER RESIDENTIAL UNIT — ADT per residential unit equals 10 trips. Source: Table 3-1, General Guide on Trip End Generation Rates by Land Use, Transportation and Land Development, by Vergil G. Stover and Frank J. Koepke, published by the Institute of Transportation Engineers.

BASE COURSE — The layers of select material (usually gravel) of designated thickness placed on a subgrade to support a surface course.

BOND — A surety bond, or a form of security approved as to form by the City manager and City attorney, which may include a letter of credit or escrow account.

CITY ENGINEER — The City engineer may be a regular employee of the City or a consultant to the City. The individual designated as City engineer shall be a registered professional engineer, licensed by the state.

DEVELOPER — Any person, group of persons, organization, etc., whose concern and desire is to improve land in accordance with the development regulations of the City.

DEVELOPMENT — Any improvement done on any property which bears on the matters covered in this chapter, and which triggers the need for approval by the City, by way of regulation, rule, or ordinance of City, state or federal government.

DRIVEWAY — A vehicular way that allows access onto private property from a street. Driveways having over 80 ADT, or serving commercial or industrial entities (home occupations and home

occupation expanded definition excluded), must be approved by the City engineer and the City safety director. Driveways having 80 ADT and over or serving commercial or industrial entities into parking lots are subject to street standards regarding grade and drainage.

ITE — The Institute of Transportation Engineers. The organization publishes a reference handbook entitled Traffic Engineering Handbook, current edition.

FRONT YARD — A yard between the front line of the principal structure and the front line of the lot and existing the full width of the lot as it abuts along a public or private street.

MDOT SPECIFICATIONS — State of Maine Department of Transportation Standard Specifications, Highways and Bridges, current revision.

PAVEMENT STRUCTURE — The combination of subbase, base course and surface course placed on a subgrade to support the traffic load and distribute it to the street bed.

PRIVATE WAY — A way totally owned by the entities being served. It can be a driveway, or it can be a street or lane, subject to the applicable standards.

RESERVE OR SPITE STRIP — Any land along a right-of-way located for the purpose of preventing development of abutting land through deprivation of required frontage or control of access to the right-of-way. See the subdivision ordinance, the site plan regulations (chapter 90) and the zoning regulations (chapter 102).

RIGHT-OF-WAY — A general term denoting land, property or interest therein, usually a strip, acquired for or devoted to a street or road.

ROAD — A general term denoting a public or private way for purposes of vehicular travel, including the entire area within the right-of-way. For the purpose of this chapter, the term "road" shall refer to non-development and rurally located public and private ways, usually of rural design. See the zoning regulations (chapter 102).

SIDEWALK — That portion of the street primarily constructed for the use of pedestrians, also called pedestrian way.

SLOPES — A side slope is the downward slope adjacent to the shoulder (or sidewalk) of the road, which may go to a ditch or original ground. A backslope is the upward slope to original ground on the other side of a ditch (or shoulder in case of a ledge cut).

STREET — A general term denoting a public way for the purpose of vehicular travel. This includes all of the right-of-way, and any other easements or fee, dedicated to that purpose. In regard to this chapter,

the term "street" shall refer to the design and development of all public and private ways, whether rural or urban. For the City, the factors in classifying streets concern access to property, mobility, and traffic volume. This chapter will not consider development of arterials or freeways, as they involve other funding and would be subject to standards other than City standards. The classification of streets, in ascending order, is as follows:

- (1) Driveway. A driveway is usually privately owned and not a named street. In its general usage, it has the lowest traffic volume of this grouping, and allows interior access to property. See the definition of "driveway."
- (2) Local street. A local street provides exterior access to adjacent land, such that vehicles travel short distances and connections are made to other streets. In regard to this chapter, local streets may be an urban lane (see figure 1 in section 98-85), a rural lane (see figure 1A in section 98-85), or a residential street (see figure 2 in section 98-85).
- (3) Collector street. A collector street serves as an intracity travel corridor, channelizing and distributing traffic to and from arterials and collector streets, in addition to providing exterior access to property. Residential collectors have an ADT range of 900 to 3,000. See figure 3 in section 98-85.
- (4) Industrial and commercial street. Industrial and commercial streets provide access to lots in commercial, business, and professional areas. See figure 4 in section 98-85.

The street and lane summary in section 98-85 provides a matrix comparison of the design requirements for these streets.

STREETWAY AND ROADWAY — That portion of a street or road, including the shoulder, for vehicular use.

SUBGRADE — The top surface of a street bed upon which the select material is placed, usually original ground or common fill material.

SURFACE COURSE — One or more layers of pavement designated to accommodate the traffic load. The top layer may be called the wearing course. The bottom layer may be called the binder course or pavement base course.

TURNAROUNDS INVOLVING DRIVEWAYS — All drives must have the ability for the using vehicle to turn around, or to pass directly through. One-unit residential drives are exempt from this provision. Parking lots for cars are considered to function as a turnaround as result of handicap spaces and the number of spaces required.

Commercial driveways and parking lots involving truck usage must provide proper geometry to turn the truck around. The use of AASHTO turning templates is required for truck (more than two axles) usage, and is to be shown on the plan.

UNPAVED WAY — Any driveway having over 80 ADT or serving commercial or industrial entities (home occupations and home occupation expanded definition excluded) must be paved. Any unpaved driveway must be maintained in compliance with chapter 102, article IX. The use of modern fabric grids or other methods in base material is a permissible design. The engineering design data is to be submitted for review, all subject to approval by the City engineer.

WALKWAY — A pedestrian way other than street sidewalk.

Sec. 98-2. Basis for chapter. [Ord. No. 39-1998, § 1.1, 12-1-1998]

This chapter is adopted based on accepted engineering practices, the Institute of Traffic Engineers' Transportation and Traffic Engineering Handbook, second edition, erosion control standards and other local municipal standards.

Sec. 98-3. Applicability of chapter. [Ord. No. 39-1998, § 1.2, 12-1-1998]

The standards outlined in this chapter are applicable to all new or expanded development in the City.

Sec. 98-4. Statutory authority. [Ord. No. 39-1998, § 1.3, 12-1-1998]

This chapter is adopted pursuant to 30-A M.R.S.A., 38 M.R.S.A., and 12 M.R.S.A.

Sec. 98-5. Conflicting regulations or restrictions. [Ord. No. 39-1998, § 1.4, 12-1-1998]

Unless specified in this chapter, this chapter does not repeal any other law, ordinance, regulation, rule, code or otherwise lawful deed restriction or covenant. Whenever the requirements of this chapter are at variance with the regulations or restrictions of any other lawfully adopted law, ordinance, rule or regulation imposed by any governmental authority or any deed restriction or covenant, that which is more restrictive or imposes the higher standards or requirements shall govern. Notwithstanding any other provisions of

this chapter, no premises shall be used or maintained in violation of any state or federal pollution control or environmental protection law or regulation.

Sec. 98-6. Amendments. [Ord. No. 39-1998, § 1.6, 12-1-1998]

The criteria set forth in this chapter may from time to time be amended, supplemented or repealed in accordance with the Revised Statutes of Maine, the Charter, and the comprehensive plan of the City. Any amendment to the provisions of this chapter shall be adopted by the City Council, provided it holds a public hearing on the proposed amendment, for which hearing seven days' advance public notice is given.

Sec. 98-7. through Sec. 98-30. (Reserved)

**ARTICLE II
Administration**

**DIVISION 1
Generally**

**Sec. 98-31. Administrative appeal. [Ord. No. 25-2005,
12-7-2004]**

The Zoning Board of Appeals shall have the power to hear and decide administrative appeals where it is alleged that there is an error in any order, requirement, decision, or determination made by, or failure to act by, Planning Board in the enforcement or administration of this chapter. A request for an administrative appeal shall comply with the procedures described in chapter 102, Zoning, article II, Administration, division 4, Appeals and Variances.

Sec. 98-32. through Sec. 98-50. (Reserved)

DIVISION 2
Waivers

Sec. 98-51. Waiver of submission requirements. [Ord. No. 68-1999, § 9.1, 5-18-1999]

The Planning Board, upon a positive vote of three-fourths or more of the voting members and issuance of written findings of fact, may waive portions of the submission requirements identified in this chapter. Waivers must be due to special circumstances of a particular site plan, subdivision or similar project to which this chapter applies, and shall satisfy the following criteria:

- (1) The public health, safety and welfare shall be protected;
- (2) The intent and purpose of the comprehensive plan, the zoning regulations (chapter 102), the site plan regulations (chapter 90), the shoreland zoning regulations (chapter 82), the floodplain regulations (chapter 78, article II), the subdivision ordinance or this chapter shall not be nullified; and.
- (3) Specific regulations in this chapter shall not prohibit the granting of a waiver.

Sec. 98-52. Waiver of improvement requirements. [Ord. No. 68-1999, § 9.2, 5-18-1999]

The Planning Board, upon a positive vote of three-fourths or more of the voting members and issuance of written findings of fact, may waive specific standards or a requirement for an applicant to provide certain required improvements identified in this chapter. Waivers are intended to allow a more practical and economical development and shall be due to special circumstances of a particular site plan, subdivision or similar project to which this chapter applies, and shall satisfy the following criteria:

- (1) The public health, safety and welfare shall be protected;
- (2) The intent and purpose of the comprehensive plan, the zoning regulations (chapter 102), the site plan regulations (chapter 90), the shoreland zoning regulations (chapter 82), the floodplain regulations (chapter 78, article II), the subdivision ordinance or this chapter shall not be nullified; and
- (3) Specific regulations in this chapter shall not prohibit the granting of a waiver; and
- (4) Shall satisfy one or more of the following criteria:

- a. Be deemed inappropriate because of inadequate or lacking connecting facilities in the proximity of the proposed development;
- b. Be deemed inappropriate because of the surrounding development and character of the area in which the project is proposed; or
- c. Be deemed inappropriate because of conflicts with the zoning regulations (chapter 102), site plan regulations (chapter 90), shoreland zoning regulations (chapter 82), floodplain regulations (chapter 78, article II), or subdivision ordinance.

Sec. 98-53. Procedure. [Ord. No. 39-1998, § 9.3, 12-1-1998]

The applicant shall submit all requests for waivers to the Planning Board in writing. Waivers may only be granted in accordance with sections 98-51 and 98-52. When granting waivers, the board shall establish conditions so that the purposes of this chapter are met.

Sec. 98-54. Waivers to be shown on final plan. [Ord. No. 68-1999, § 9.4, 5-18-1999]

All waivers granted by the board in accordance with section 98-52 shall be identified on the final plan.

Sec. 98-55. through Sec. 98-80. (Reserved)

ARTICLE III
Street Design Standards

Sec. 98-81. Purpose; waiver of ADT requirements. [Ord. No. 39-1998, § 3.1, 12-1-1998]

- (a) The purpose of the street design standards in this article is to ensure that public right-of-way improvements implemented in the City provide for safe and efficient vehicular and pedestrian traffic, including handicap access; provide for minimum longterm maintenance costs of public improvements; protect the environment, the public and abutting landowners by providing the necessary controls for stormwater runoff, soil erosion and siltation, and groundwater; and protect the public health and safety.
- (b) These standards provide for flexibility, having the design fit into the surroundings, attempting not to waste the City's valuable natural resources, etc. Some previous limitations have been relaxed by providing strict guidelines on how to deal with those situations without loss of quality.
- (c) If the road or street is to be totally owned and maintained by a private entity and located entirely on the property of that private entity, and the posted speed is not more than 25 miles per hour, and side access is only permitted by curb cuts to parking areas, and no parking is allowed anywhere on the roadway pavement, then the ADT requirements can be waived by the planning board in the approving of a roadway section.

Sec. 98-82. Drainage of water from base material. [Ord. No. 39-1998, § 3.2, 12-1-1998]

Water shall be removed from any base material to protect the roadway surface from frost damage. All subbase surfaces must be sloped to drain, with no pools, puddles, or trapped water that would be internal to the base material.

Sec. 98-83. Horizontal alignment. [Ord. No. 39-1998, § 3.2.1, 12-1-1998]

The horizontal alignment of streets proposed in all subdivisions shall conform to the following standards:

- (1) When centerline tangents deflect from each other, except at intersections, they shall be connected by a centerline curve

having a minimum radius of 110 feet for residential streets, 175 feet for collector streets and 75 feet for lanes.

- (2) Between reverse curves, where the radius of one or both curves is less than 200 feet, there shall be a tangent section of centerline not less than 50 feet in length. There shall be no superelevation in such cases.
- (3) Streets intersecting an arterial street shall do so at a ninety-degree angle. All streets intersecting collector or residential streets shall not vary from 90° by more than 15°.
- (4) At street intersections, the right-of-way lines shall be rounded by a circular arc having a minimum radius of 20 feet. A greater radius may be required for streets intersecting at an angle other than 90°.
- (5) Dead-end streets shall be provided with a turnaround having an outside paved roadway diameter of 112 feet and a right-of-way diameter of not less than 130 feet. Where any subdivision includes a dead-end street, not designed to be so permanently, the subdivider shall make temporary provisions for a turnaround as the City engineer may deem necessary. For a circular turnaround, applicants are encouraged to utilize larger diameter turnarounds with green space at the center of the turnaround, instead of paving the entire turnaround. Plowing snow and drainage should be a consideration in the design, along with having enough width for large vehicles to negotiate the turnaround. The tee turnaround illustrated in figure 6 in section 98-85 is a permissible permanent design, if posted for no parking.
- (6) Street intersections with more than four legs are prohibited.
- (7) Minimum centerline offset distances of adjacent intersections shall be as follows, unless, in the opinion of the City engineer, a shorter distance is unavoidable due to local conditions:

Residential to residential	250 feet
Residential to collector	300 feet
Residential to arterial	500 feet
Collector to collector	300 feet
Collector to arterial	500 feet

- (8) See section 98-155 for sight distance standards.

Sec. 98-84. Vertical alignment. [Ord. No. 39-1998, § 3.2.2, 12-1-1998]

The vertical alignment of streets proposed in all subdivisions shall conform to the following standards:

- (1) The maximum grade for the centerline profile of all streets shall not exceed 8%, except that, in residential subdivisions, where topographic constraints exist, the maximum grade for the centerline profile may be increased to 10% for no more than 200 feet, or 20% of total length, whichever is less. For rural and urban lane sections where there is no heavy truck volume, the maximum centerline profile grade shall not exceed 10%.
- (2) The minimum desired tangent grade of the street centerline shall not be less than 1%. Grades between 0.5% and 1% will allowed only if strict construction control is adhered to, and as approved to by the City engineer. As a minimum, strict construction control involves the setting of grade stakes, utilizing a competent grade foreman, and final field work approved by the City engineer.
- (3) Street grades at an intersection shall not be more than plus or minus 3% for a distance of not less than 75 feet from the center of the intersection on each intersecting street.
- (4) Cross slopes for sidewalks shall be three-eighths inch per foot. Cross slopes for streets shall be one-fourth inch per foot.
- (5) The minimum length of vertical curves shall be based upon the stopping sight distance, and in no case may be less than 100 feet. The stopping sight distance is based upon the posted speed limits as determined in the latest AASHTO publication titled "A Policy on Geometric Design of Highways and Streets." The method of physically calculating the stopping sight distance is found in that reference, or the ITE Handbook.
- (6) All changes in grade (intersecting tangents) along a roadway shall be connected by vertical curves, with the length determined by appropriate engineering methods. (Reference: ITE Handbook, Transportation and Traffic Engineering.) The following minimum stopping sight distances are required:

Design Speed (mph)	Stopping Sight Distance (feet)
20	125
25	150

Design Speed (mph)	Stopping Sight Distance (feet)
30	200
35	250

Stopping sight distance shall be calculated with a height of eye at 3.5 feet and a height of object of 0.5 foot. (Reference: Transportation and Traffic Engineering Handbook, Institute of Transportation Engineers, latest edition.)

**Sec. 98-85. Street and lane summary; street design figures.
[Ord. No. 39-1998, §§ 3.2.4, 3.2.4.2, 12-1-1998]**

(a) Street and lane summary. The following table provides a summary of the design requirements for streets and lanes. This table, and the street and line drawings in this section, replace appendices D and G found in the subdivision ordinance. The table is to be used with the appropriate figure.

Description	Urban Lane	Rural Lane	Residential Street	Collector Street	Industrial/Commercial Street
Reference drawing	Figure 1	Figure 1A	Figure 2	Figure 3	Figure 4
Minimum right-of-way (feet)	40	50	50	60	60
Minimum pavement (feet)	24	20	30	34	32
Minimum shoulders (2)	Included	3 feet	Included	Included	Included
Sidewalk ^d	Yes	No/Yes	Yes	Yes	No/Yes
Minimum grade	0.5%	0.5%	0.5%	0.5%	0.5%
Maximum grade	10%	10%	8%	6%	6%
Minimum centerline radius (feet)	75	75	110	175	250

Description	Urban Lane	Rural Lane	Residential Street	Collector Street	Industrial/Commercial Street
Minimum tangent between curves ^a	Variable	Variable	Variable	Variable	Variable
Roadway crown	2%	2%	2%	2%	2%
Street intersection angle (minimum)	75°	75°	75°	90°	90°
Grade within 75 feet of main road	-3% to +3%	-3% to +3%	-3% to +3%	-3% to +3%	-3% to +3%
Minimum curb radius at intersection (feet)	15	15	15	20	20
Minimum right-of-way radius (feet)	20	20	20	20	30
Curbed section	Yes	No	Yes	Yes	Yes
Parking status	See figure 1	See figure 1A	Both sides	Both sides	None

^a	See section 98-83(2). A standard of good engineering practice is required where no specification exists.
^b	Curbed section with no parking permitted consists of two ten-foot traffic lanes, plus three feet either side of lanes, for a total of 26 feet of pavement. Using a rural section (non-curbed) with no parking requires a three-foot gravel shoulder with two ten-foot paved traffic lanes (with parking use six-foot gravel shoulders).
^c	For aesthetic effect, increasing vegetated area, and for phosphorous reduction, it is permitted to place two inches of loam on the gravel base in the shoulder area for the purpose of maintaining a mowed grass area.

^d	See section 98-90 for sidewalk specifics.
^e	An urban lane section (featuring curbs and closed drainage) can be used in the rural zones, and a rural lane section (featuring gravel shoulders and open ditches) can be used in the urban zones. The names of such are taken from the predominant usage for that zone.

- (b) Drainage system requirements. Closed drainage systems are required for all curbed streets. Ditches may be allowed where the lot layout provides an average lot frontage of at least 200 feet. If the portion of the lot abutting the ditch is to be lawn, a 3:1 minimum backslope will be required.
- (c) Figures. Street design figures referred to in this chapter are as follows:¹

Sec. 98-86. Streetlights. [Ord. No. 39-1998, § 3.2.5, 12-1-1998]

Streetlights shall meet electrical utility standards.

Sec. 98-87. Survey controls. [Ord. No. 39-1998, § 3.2.6, 12-1-1998]

- (a) Horizontal controls.
 - (1) Monumentation of streets along the right-of-way shall include the following points:
 - a. Points of curvature (PC's).
 - b. Points of tangency (PT's).
 - c. Points of compound curvature (PCC's).
 - (2) A minimum of two intervisible right-of-way monuments shall be tied into the Maine State Plane Coordinate System. This survey connection shall be required when the monuments are within 1/2 mile of a triangulation or traverse station established in conformity with the standards prescribed in 33 M.R.S.A. § 805.
 - (3) The code enforcement officer/planner will maintain an updated list of control stations located within the City.
- (b) Vertical controls.

1. Editor's Note: The Street Design Figures are included as attachments to this chapter.

- (1) All established elevations must be based on NGVD mean sea level datum and referenced from a specific benchmark.
 - (2) A minimum of two right-of-way monuments within each development shall be a benchmark monument with an established elevation.
 - (3) Maximum distance between benchmarks shall be 800 inches horizontally, and 50 inches vertically.
- (c) Surveying standards. Survey control determination shall be to third order national control standards and specifications, as outlined in publications prepared by the Federal Geodetic Control Committee, NOS, NOAA, by a registered land surveyor licensed to practice in the state. Boundary surveys shall be in accordance with state board of registration for land surveyors standards, category 1, condition 2 (or better), with no exceptions.

Sec. 98-88. Stormwater collection. [Ord. No. 39-1998, § 3.2.7, 12-1-1998]

- (a) Stormwater runoff collection from streets and sidewalks shall be handled in accordance with the standards of article VI of this chapter.
- (b) Storm drainage systems must be designed in accordance with standards for a ten-year storm for a rural or residential street and a twenty-five-year storm for a collector, commercial/industrial, or arterial street.

Sec. 98-89. Handicap accessibility. [Ord. No. 39-1998, § 3.2.8, 12-1-1998]

All public portions of the development shall be handicap accessible in accordance with current federal, state or City laws or regulations.

Sec. 98-90. Sidewalks. [Ord. No. 39-1998, § 3.2.9, 12-1-1998]

- (a) Unless other pedestrian accommodations are made, all residential subdivisions shall provide for a sidewalk on at least one side of the street, with the width of the sidewalk to be a minimum of 48 inches.
- (b) Sidewalks may be provided, but shall not be required, where lot frontages in a residential subdivision are an average of 300 feet or where lot sizes average more than two acres.

- (c) Municipal sidewalks shall be provided a clear passage width of 60 inches.

Sec. 98-91. Esplanades. [Ord. No. 39-1998, § 3.2.10, 12-1-1998]

There shall be an esplanade located between the curb and sidewalk on residential and collector streets in accordance with the design standards found in section 98-85. Esplanades shall be planted with trees, bushes, shrubbery or grass.

Sec. 98-92. Guardrails. [Ord. No. 39-1998, § 3.2.11, 12-1-1998]

- (a) Guardrails shall be used in any locations where street embankments exceed three to one, or 33% (downslopes only). Street intersections which form a "T" shall have a reflective guardrail opposite the street which terminates at the intersection. MDOT specifications shall be used.
- (b) The face of any guardrail shall be aligned so as not to reduce the width requirement of any section feature, such as shoulder width, sidewalk width, etc. This will require an additional width (usually two feet) to allow for the guardrail. A guardrail can be any suitable device designed for the purpose that meets AASHTO or MDOT standards. Other systems such as ornamental stones must be approved by the planning board, based on review by the City engineer.

Sec. 98-93. through Sec. 98-120. (Reserved)

ARTICLE IV
Street Construction Specifications

Sec. 98-121. Applicability; references to state standards; measurement units. [Ord. No. 39-1998, ch. 4, 12-1-1998]

The standards and specifications in this article shall apply to all new street construction within the City. Whenever the state department of transportation specification is required, it shall mean the latest revised specification as most recently published. The latest revision of these specifications is written in metric units (primary system) with imperial units (secondary system). It is intended that all plans and documents created for the City utilize imperial units as the primary system, until such time as metric conversion is convenient.

Sec. 98-122. Utility installations. [Ord. No. 39-1998, § 4.1, 12-1-1998]

- (a) All underground utilities shall be installed in conformance with the standards and specifications as set forth by the district or company regulating the utility. Proper horizontal and vertical control for the installation of the utilities shall be maintained to ensure that they are installed in conformance with the locations shown on the plans.
- (b) For new street construction, underground building sewers, water lines, power lines, telephone lines, cable television lines, conduits for utilities, foundation drains or other storm drain line service connections shall be installed to the right-of-way line prior to paving. See figure 5, Location of Utilities, in section 98-85.

Sec. 98-123. Construction preparation. [Ord. No. 39-1998, § 4.2, 12-1-1998]

- (a) Before any clearing in the right-of-way is to begin, the clearing limits are to be plainly marked at fifty foot intervals, or as necessary to delineate such limits.
- (b) Before any fill or cut operation is started, the entire right-of-way shall be cleared of all stumps, roots, brush, and other objectionable material. All ledges, large boulders, and tree stumps shall be removed from the right-of-way or as shown on the plans.

Sec. 98-124. Subgrade. [Ord. No. 39-1998, § 4.3, 12-1-1998]

- (a) All organic materials shall be removed to a depth of two feet below the subgrade of the roadway. Rocks and boulders visible at subgrade and exceeding six inches in size shall also be removed. Subsoils which have been identified by the City engineer as not suitable for roadways shall be removed from the street site to a depth of two feet below the subgrade and replaced with material meeting the specifications for gravel aggregate subbase as noted in this article.
- (b) As an alternative, the City engineer may approve the use of a geotextile fabric which meets the MDOT specifications under sections 620 and 722 (Stabilization Geotextile).
- (c) Except in a ledge cut or for bridge approaches, side back slopes shall be no steeper than a slope of two feet horizontal to one-foot vertical, and shall be graded, loamed, limed, fertilized, and seeded according to the specifications of the erosion and sedimentation control plan. Where a cut results in an exposed ledge or in cases such as bridge approaches, a side slope no steeper than four feet vertical to one-foot horizontal is permitted. There shall be a snow shelf provided in ledge cut areas with a minimum width of six feet behind the curb.
- (d) The subgrade is to be shaped so as to drain the base. No irregularities which cause water to be trapped will be allowed.

Sec. 98-125. Aggregate base and subbase. [Ord. No. 39-1998, § 4.4, 12-1-1998]

- (a) The base course must drain to a ditch or to underdrain. The depth of the base course on a granular material subgrade may be reduced to a total of 18 inches, subject to the approval of the City engineer. The aggregate base course shall be sand or gravel of hard, durable particles free from vegetative matter, lumps or balls of clay and other unsuitable substances. The gradation of the part that passes a three-inch-square mesh sieve shall meet the following grading requirements:

MDOT Type B	
Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
1/2 inch	35%—75%
1/4 inch	25%—60%
No. 40	0%—25%

MDOT Type B	
Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
No. 200	0%—5%

Aggregate for subbase shall contain no particles of rock exceeding four inches in any dimension.

- (b) The aggregate base course shall be sand or gravel of hard, durable particles free from vegetative matter, lumps or balls of clay and other unsuitable substances. The gradation of the part that passes a three-inch-square mesh sieve shall meet the following grading requirements:

MDOT Type A	
Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
1/2 inch	45%—70%
1/4 inch	30%—55%
No. 40	0%—20%
No. 200	0%—5%

Aggregate for the base shall contain no particles of rock exceeding two inches in any dimension.

- (c) Copies of the sieve analysis results of the samples of base and subbase aggregate to be used shall be submitted to the City engineer for review no later than one week before the placement of any gravel in the street.
- (d) Gravel shall be placed and compacted in accordance with the MDOT standard specifications, section 304.03 (Placing).
- (e) Compaction tests shall be taken at locations along the road as specified by the City engineer. All costs associated with the compaction tests shall be paid by the developer. No pavement shall be placed until the compaction tests have been reviewed and approved by the City engineer.

Sec. 98-126. Street and sidewalk pavement. [Ord. No. 39-1998, § 4.5, 12-1-1998]

- (a) Streets.

- (1) The binder course shall be type B and the finish course shall be type C pavement.
 - (2) Hot bituminous pavement materials and placement for streets shall be in accordance with the MDOT specifications, division 400 (Pavements).
- (b) Sidewalks. Sidewalks shall be constructed in conformance with the MDOT specifications, section 608.04 (Hot Bituminous Sidewalk). See typical street sections for base and pavement design, figures 1 through 4 in section 98-85.

Sec. 98-127. Curbing. [Ord. No. 39-1998, § 4.6, 12-1-1998]

- (a) Granite curb, bituminous curb, and stone edging (type 1, type 3, and type 5 respectively) shall conform to the MDOT specifications for curbing under section 609.
- (b) Islands located within rights-of-way and at the center of the cul-de-sac shall be curbed with type 5 curbing.
- (c) All intersection radii shall be curbed with type 1 circular vertical curbing.

Sec. 98-128. Culverts. [Ord. No. 39-1998, § 4.7, 12-1-1998]

Any culverts installed in the roadway to handle cross drainage shall be HDPE (high-density polyethylene) pipe such as ADS N-12 or equal. Minimum cover over pipes shall be 24 inches unless otherwise approved by City, and the pipe shall be installed on a bed of compacted gravel a minimum of eight inches in depth. The backfill material for the pipe shall meet the standards for type B gravel, aggregate base. Backfill shall be compacted in six-inch lifts to a density of 95%, modified proctor test. Culverts are to be designed to meet AASHTO HS20 loading requirements, and to handle the storm requirements of any governing approval agency. Other agencies may require permits.

Sec. 98-129. Construction plans. [Ord. No. 39-1998, § 4.8, 12-1-1998]

Plans for street construction shall be designed by a registered professional engineer, currently licensed in the state, who will stamp all engineering plans submitted to the City. Any plans dealing with survey work must be stamped by a registered land surveyor, currently licensed in the state. The developer, or his agent, is solely responsible for any defect in the development plan which affects any individual

or the general public, and shall hold the City or its agents harmless, regardless of any acceptance of any plan or portion thereof. The plans shall contain the following:

- (1) Plan view. The plan view shall be plotted on a twenty-four-inch by thirty-six-inch sheet size and shall include all of the following:
 - a. Centerline with stationing at fifty- and one-hundred-foot stations;
 - b. Horizontal control points such as point of curvature, point of tangency, point of reverse curvature, point of curvature on a curve with stations and curve data;
 - c. Radius points for intersections and culs-de-sac with station and offset locations;
 - d. Proposed street name (requires approval of the City council);
 - e. All aboveground utilities (hydrants, power and/or telephone pole locations);
 - f. Catchbasin locations if required;
 - g. Curb and sidewalk lines;
 - h. Right-of-way and easement lines;
 - i. Proposed monuments;
 - j. Any proposed entrance locations;
 - k. Outstanding physical features (such as brooks, streams, or gullies affected by the street);
 - l. North arrow;
 - m. Benchmark locations; and
 - n. Descriptions with reference to datum, match lines, lot numbers, and any other information pertinent to the project.
- (2) Profile. The profile shall include:
 - a. Both existing and proposed grade, vertical control points such as PVC, PVT, and PVI with stations and elevations listed;
 - b. Design grades;
 - c. Vertical curve lengths;

- d. Fifty- and one-hundred foot stations with existing and proposed grades;
- e. Scale;
- f. Grid line elevations in righthand and lefthand margins;
- g. Catchbasin locations and rim elevations; and
- h. Any other information pertinent to the project.

(3) Cross sections. Cross sections shall include:

- a. Both existing and proposed grade;
- b. Centerline station and elevation;
- c. Side slopes;
- d. Right-of-way lines;
- e. Scale;
- f. Grid line elevations at right and left of each section; and
- g. Any other information pertinent to the project.

Cross sections shall be shown at least at every fifty-foot station.

(4) Scale.

- a. The scale of the plan and profile sheets shall be:
 - 1. One inch equals 20 feet or one inch equals 40 feet horizontal; and
 - 2. One inch equals two feet, one inch equals four feet, or one inch equals five feet vertical.

A scale of one inch equals 50 feet horizontal may be used with the approval of the City engineer.

- b. Cross sections shall be drawn with the same vertical scale as the horizontal scale. The following scales are permitted:
 - 1. One inch equals two feet.
 - 2. One inch equals four feet.
 - 3. One inch equals five feet.

A scale of one inch equals 10 feet is not allowed.

- c. The scale shall be clearly marked on the plan and shall be in written and bar scale form. Sheet size shall be 24 inches by 36 inches, and the grid, if used, shall be 10 squares to the inch.
- (5) Contours. The detail sheet shall include a separate contour plan showing existing grades at a contour interval of two feet minimum; the road layout and centerline stationing shall be shown. The origin (from what data) of the depicted contours shall be indicated on the plan.
- (6) Details.
- a. The detail sheets shall include, but not be limited to, the following information:
 1. Typical cross section (preferred scale of one inch equals five feet horizontal and vertical).
 2. Typical underdrain trench section.
 3. Handicap wheelchair [access] detail.
 4. Sedimentation and erosion control details.
 5. Curb type detail.
 - b. Standard detail sheets shall include:
 1. Erosion and sedimentation details;
 2. Stormwater control details;
 3. Catchbasin rim installation details; and
 4. Any related site improvement details.
 - c. Separate intersection details (including culs-de-sac and temporary turnarounds) shall be shown at a scale of one inch equals 10 feet. These plans shall detail drainage design for these areas and may require several spot elevations to clearly explain construction details.

Sec. 98-130. through Sec. 98-150. (Reserved)

ARTICLE V
Traffic Control

Sec. 98-151. Traffic/parking study required. [Ord. No. 39-1998, § 5.1, 12-1-1998]

The City engineer may request the developer to submit a prepared traffic and/or parking impact report for any proposed development where the proposed development is calculated to generate an increase of more than 35 new vehicle trips during the peak hour (times when the highest traffic volumes are recorded, generally 7:00 to 9:00 a.m. and 3:00 to 6:00 p.m.). This standard sets the threshold for determining when a traffic/parking study is required. The traffic generation calculation will be performed by the developer's engineer using data contained in the 1982 edition (or current edition) of the Institute of Transportation Engineers Trip Generation Handbook, which is on file in the City code enforcement office. A parking assessment may be requested when the proposed development can be expected to have a total parking demand of 30 spaces or more as determined by values contained in the 1985 (or current edition) of the Institute of Transportation Engineers handbook titled "Parking Generation," which is also on file in the City code enforcement office. The developer will be required to retain a state-registered professional engineer, specializing in traffic/transportation engineering, to complete any necessary studies. All issues and questions raised by the City will be adequately responded to as determined by the City engineer. The planning board may request a traffic study even if the increase is less than 35 new vehicle trips, if it is determined by the City engineer that one is warranted.

Sec. 98-152. Traffic impact standards. [Ord. No. 39-1998, § 5.2, 12-1-1998]

- (a) Vehicular access to developments shall be from streets or roads that have adequate capacity to accommodate the additional traffic generated by the development. Level of service after development at intersections on major access routes to the development and at the intersection of any development access drive or proposed street shall be at a minimum at pre-development levels of service. The developer shall mitigate development impacts that result in a reduced level of service.
- (b) For development that will result in a reduction in level of service, the level of service restriction may be lowered by the City engineer after consultation with the state department of

transportation, if applicable, and upon written recommendation from the public safety committee. At a minimum, recommendations shall be based upon adopted goals and policies.

- (c) The City engineer may waive and/or modify any of the requirements of this section if the developer's certified traffic engineer can demonstrate that they are not necessary because of size, type, or location of the development and/or because other traffic impact analysis methods or procedures are equally effective.

Sec. 98-153. Procedure for conducting traffic impact analysis. [Ord. No. 39-1998, § 5.3, 12-1-1998]

The procedure for conducting a traffic impact analysis is as follows:

- (1) Inventory existing and proposed land use.
- a. Existing land use. Site location and setting are important in determining the potential impacts of development on a given site. The site description shall include the following:
 1. Exact physical location of the proposed development.
 2. Physical characteristics such as land configuration, unique features, water bodies, trees, developable acres, and topography.
 3. Existing land uses, including zoning and land use classification.
 4. Land uses of adjacent property.
 - b. Proposed land use. Adopted comprehensive plans, community development plans, long range plans, or similar documents shall be reviewed when inventorying proposed land uses. This will provide an indication of the type and direction of future development that is generally acceptable to the community and that may be facilitated by community facilities such as streets, sewers, and water lines. Quantification of trip generation shall also be developed.
- (2) Inventory existing and proposed transportation system.
- a. Existing transportation system. An understanding of the nature and function of the existing and proposed transportation system in the area near a proposed development site is essential for predicting traffic patterns, performing the traffic analysis, and developing necessary

improvement alternatives. The following information shall be provided:

1. Current and proposed street network, including functional classification, route jurisdiction, and the number of moving traffic lanes.
 2. Geometrics and characteristics, especially at critical intersections, including such items as curb parking and potential street improvements.
 3. Intersection traffic control.
 4. Signal timing and system operation at signalized intersections.
 5. Existing or proposed intersection and development access points and configurations.
 6. Existing and proposed rights-of-way.
 7. Available hourly traffic counts.
 8. Peak period turning movements at critical intersections.
 9. Accident information.
 10. Transit routes/headways.
 11. Transit stops/station locations.
- b. Proposed transportation system.
1. Comprehensive transportation plan.
 2. Future improvements, committed and planned.
- (3) Forecasted nonsite traffic volumes. Nonsite traffic consists of through traffic volumes, having neither an origin nor a destination in the vicinity of the development, and traffic generated by developments adjacent to and affected by, or having an impact on, the proposed development. Methods used to determine nonsite traffic volumes shall include use of the following:
- a. Comprehensive transportation plan or related data projections; check land use and socioeconomic information.
 - b. Typical annual growth rates; provide sufficient historic volume information and develop factors to apply to existing counts.

- c. Estimate development-generated units of measure and rates for components.

(4) Site-related traffic.

- a. Divide activities associated with development into components.
- b. Identify trip generation units of measure and rates for components.
- c. Estimate development-generated units of measure and rates for components.
- d. Identify the critical hours of analysis such as the adjacent street morning and evening peak hours and/or the proposed development peak hour of activity.
- e. Trip distribution: The trips generated shall then be distributed to the transportation system on the basis of land use, population or employment, distance, accessibility, and any local factors affecting distribution. The distribution should reflect conditions for the analysis year, and the methodology should be well documented.
- f. Modal split: If the magnitude of the development is significant, a determination of the mode of travel may be necessary. The determination of trips generated is most likely in terms of vehicle trips; therefore, an assessment of vehicle occupancy shall be performed to convert vehicle-trips to person-trips. Then, the alternative modes of travel shall be analyzed as to their attractiveness to development-generated traffic.
- g. Trip assignments: Trips for various transportation modes shall be assigned to existing and proposed transportation networks based on available system capacity, convenience, and other relevant criteria. Traffic assignments shall reflect logical routing and realistic roadway capacity potential.

(5) Traffic analysis.

- a. Combine non-site and site-related traffic (i.e., the traffic volumes for the various stages of the proposed development and the determined analysis periods: morning, evening, and/or development peak hours, estimated in previous steps, in order to obtain estimates of total projected traffic volumes).

- b. Capacity analyses shall be conducted for all critical intersections and access points during peak traffic periods. Critical intersections usually fall into the following categories:
 - 1. All major intersections within a certain distance of the development as agreed to by the City engineer.
 - 2. All affected intersections where development traffic would increase the volume to a level that would warrant improvements.
 - 3. All affected intersections that operate or would, after development, operate below design levels of service.
 - c. The results of the capacity analyses shall be used to identify street and road segments and intersections near the development that are or will, after development, be deficient in capacity; and to identify safety-related constraints.
- (6) Street/road and access improvements. The previous information is then used to identify and evaluate improvements that can be made to maintain acceptable levels of service and to help decision-makers to determine whether the impact of the proposed development on the surrounding area is acceptable. Level of service D shall be considered appropriate for urban design unless otherwise indicated by the City engineer. The 1988 growth management plan, section 3.3.3, defines levels of service. The following elements shall be addressed as applicable:
- a. External street/road system improvements.
 - 1. Review of design vehicle requirements.
 - 2. New streets/roads, lanes.
 - 3. New or modified interchangers.
 - 4. Additional through lanes.
 - 5. Turn lanes (including storage lengths).
 - 6. Acceleration/deceleration and bypass lanes.
 - 7. New signals.
 - 8. Modification of existing signals.
 - b. Internal street system.
 - 1. Review of design vehicle requirements.

2. Lane requirements.
 3. Traffic control.
 4. Driveway design.
- c. Evaluation of improvements.
1. Impact on operating characteristics.
 2. Cost.

Sec. 98-154. Driveways and access control generally. [Ord. No. 39-1998, § 5.4, 12-1-1998]

- (a) Vehicle storage area; base requirements for driveways. Driveways not subject to other standards shall have a vehicle storage area for purposes of safely entering onto the street or lane, adjacent to the shoulder of the road. This area shall be 20 feet in length for the width of the drive, and have grades of not more than 6%, up or down, from the edge of the shoulder. An existing structure whose proximity to the right-of-way is such that it prohibits this relationship will be exempt. Minimum base requirement for a driveway is 18 inches of aggregate base course. Regular usage of a driveway, in a working operation, by commercial trucks over 23,000 GVW requires 24 inches of gravel base.
- (b) Curb openings in residential districts. No permit for a permanent street curb opening in a residential district shall be issued for a use which is not listed as a permitted use or permitted use requiring planning board review in that district. Residential districts are outlined in chapter 102.
- (c) Authority of City engineer. The City engineer is authorized and directed to determine locations and widths for driveways in the City in accordance with the standards specified in this section.
- (d) Surfacing. All new surface for curb cuts or driveway openings within the right-of-way will be bituminous hot top, and such work shall extend to the rear of the sidewalk line only. All costs for such cuts shall be borne by the property owner, and, if the City does the work, the work will be paid for in advance on a per-foot basis as approved by public works director.
- (e) Drainage. For drainage requirements, see article VI of this chapter.
- (f) Single- and two-family driveways (up to four parking spaces).

- (1) Width. Any site shall have a minimum twelve-foot driveway. Where multifamily dwellings are proposed, a minimum twenty-foot driveway shall be required.
 - (2) Location. Wherever possible, driveways shall be located on the lot in a manner to provide a minimum twenty-foot spacing between existing or proposed driveways.
- (g) Commercial, industrial and multifamily driveways (three units or more).
- (1) Width of one-way driveways. Any site with driveway access to a street shall have a minimum fifteen-foot-wide driveway for one-way ingress or egress. Driveways shall permit traffic to enter and leave the site simultaneously without conflict in aisles, parking or maneuvering areas. Both the entrance and exit drives shall be marked with appropriate signage. Maximum driveway width shall not exceed 24 feet.
 - (2) Width of two-way driveways. Any site with driveway access to a street shall have a minimum twenty-four-foot wide and maximum thirty-five-foot wide driveway for two-way ingress and egress.
 - (3) Curbing.
 - a. Where driveways enter on an existing street, the full radius of the driveway shall be curbed if necessary.
 - b. The radius shall be a minimum of 15 feet. Where truck traffic is anticipated, the radius may be increased up to a maximum of 25 feet based on the turning radius of the vehicles anticipated to enter and exit the site.
 - c. If curb cuts or culverts are required, they will be as approved by the City engineer, and installed by public works department at the developer's cost.
 - (4) Maneuvering area. The area within the site to which a driveway provides access shall be of sufficient size to allow all necessary functions for loading, unloading and parking maneuvers to be carried out on the site and completely off the street right-of-way.
 - (5) Location and spacing. The location and spacing of driveways shall be determined as follows:
 - a. Along local streets, access driveways to corner lots shall be located a minimum of 35 feet from the intersection of

the projection of the right-of-way line to the centerline of the driveway, except as otherwise provided in this section.

- b. Along arterial, collector and industrial streets, access driveways to corner lots shall be located a minimum of 150 feet from the intersection of the projection of the right-of-way line to the centerline of the driveway, except as otherwise provided in this section.
- c. Along arterial, collector and industrial streets, minimum acceptable spacing between double or multiple driveways shall meet the following criteria:

Speed Limit (mph)	Minimum Separation (feet)
30	125
35	150
40	185
45	230

Distances between adjacent one-way driveways with the ingress drive separated from the egress drive may be 1/2 the distance shown in this subsection.

- d. Driveways shall be located in the most appropriate location, based on the existing and proposed adjacent and opposing driveways and land use.
- (6) Number of driveways.
- a. One one-way driveway shall be permitted for ingress and one for egress purposes to any development per street frontage. These may be combined at one location.
 - b. A joint access driveway shall be considered as adequate access for any two adjacent sites and shall be encouraged.
- (7) Off-street vehicular circulation. An off-street facility shall have full internal vehicular circulation and storage. Vehicle circulation shall be completely contained within the facility, and vehicles located within one portion of the facility shall have access to all other portions without using the adjacent street system.

- (8) Off-street truck maneuvering. Where the use of a parcel includes truck loading, parking or service facilities, adequate space shall be provided such that all truck maneuvering is performed off the street. The design truck shall be one most appropriate for the operation.
- (h) Ingress lanes (slip lanes).
- (1) Ingress left-turn lane. A twelve-foot-wide left-turn lane with appropriate storage and transition, based on the Institute of Traffic Engineers accepted standards, shall be provided at each driveway where the peak hour inbound left-turn volume is 30 vehicles or more.
 - (2) Ingress right-turn lanes. For any site, a twelve-foot-wide right-turn lane with appropriate storage and transition, based on the Institute of Traffic Engineers accepted standards, shall be provided at each driveway where the highway average daily traffic exceeds 10,000 vehicles per day, permitted highway speeds exceed 35 miles per hour, and driveway volume exceeds 1,000 vehicles per day with at least 40 right-turn movements during peak periods. For any site, a right-turn lane as described in this subsection shall be provided at each driveway where right-turn ingress volumes exceed 75 vehicles per peak hour.
- (i) Maximum length of driveway.
- (1) The maximum length of a driveway within the area zoned for shore land protection shall be 500 feet.
 - (2) A driveway may have any length, as it could access a parking lot or a single-unit residence at a distance from the street. Any one-lane driveway over 500 feet in length must provide a fifty-foot by ten-foot passing lane at five-hundred-foot intervals for the purpose of passing emergency vehicles running in the opposite direction to traffic.
- (j) Driveways with steep slopes. For any driveway with any slopes steeper than 12%, the applicant must provide a statement or plan that addresses maintenance (especially winter maintenance), erosion, and drainage. Should there be a question of safety (emergency vehicles, access use, etc.), then the approval of the City public safety director is required.

Sec. 98-155. Sight distance. [Ord. No. 39-1998, § 5.5, 12-1-1998]

Where driveways or roadways are proposed to enter onto an existing street, vehicular sight distance shall conform to the recommended sight distance listed in this section, and shall not be less than the minimum sight distance standard. The minimum sight distance standards are taken from table 5-4, page 127 of the Institute of Transportation Engineers Handbook, current edition, titled Transportation and Land Development, which is on file in the City services engineering bureau. Vehicular sight distance shall be calculated with the height of eye at 3.5 feet and the height of an object at 3.5 feet.

Posted Speed Limit	Recommended Sight Distance (feet)	Minimum Sight Distance (feet)
25 mph	250	150
30 mph	300	200
35 mph	350	250
40 mph	400	325
45 mph	450	400
50 mph	500	475

Sec. 98-156. Parking spaces and aisles. [Ord. No. 39-1998, § 5.7, 12-1-1998; Ord. of 1-5-2010(1)]

- (a) Parking space requirements. The standard parking space requirements are outlined in article VIII of this chapter.
- (b) Aisles. Vehicular access shall be provided by one or more aisles. Minimum widths of aisles shall comply with section 98-242 standards.

Sec. 98-157. Standards for construction of parking lots or parking areas. [Ord. No. 39-1998, § 5.8, 12-1-1998; Ord. of 1-5-2010(1)]

Where off-street parking is required or provided, the following standards shall apply:

- (1) Driveways shall be designed in accordance with the traffic standards for driveways; see section 98-154.

- (2) When surfacing permanent lots, there shall be a minimum 12 inches of gravel base below the pavement. If heavy vehicles (GVW 23,000 pounds or greater) routinely use the parking lot after final construction, the depth of base shall be 24 inches, or as determined by proper engineering analysis and subject to approval by the City engineer. For all parking lots:
 - a. All water shall be drained from the base material by ditching or underdrain.
 - b. No grading or geometry that allows trapped water in the base shall be permitted.
 - c. In the case of slopes draining down to the parking lot, perimeter drains shall be required.
- (3) A storm drain system is required such that stormwater shall not cross any public sidewalk or street. The parking lot shall be graded so that there is no standing water.
- (4) When parking lots abut the street, a continuous curb guard or wheel stop, at least six inches in height and permanently anchored, shall be provided and maintained for a width of at least three feet along that part of the lot line abutting the street. Alternatively, a continuous bumper guard of adequate strength, at least 20 inches in height, shall be provided and maintained, so that bumpers of vehicles cannot project beyond its face towards the street or lot line involved.
- (5) The surface of parking lots and parking areas must be paved, except parking areas that are used exclusively for a single-family or two-family residence.

Notwithstanding this requirement, the Planning Board has the authority to waive this requirement and to allow the use of a crushed stone surface for any parking lot or parking area that satisfies one or more of the following criteria:

- a. A parking lot that serves 10 or less vehicles;
- b. A parking lot which serves a use that experiences a low turnover in parking demand;
- c. A parking lot that serves a periodic or occasional type of use, such as but not limited to a church;
- d. A parking lot that mostly serves as an overflow parking area;

- e. A parking lot located in a predominately rural area, or which is located on a property which fronts on an unpaved road; or
- f. Circumstances similar to the above which the Planning Board finds appropriate.

Sec. 98-158. Off-street loading bays. [Ord. No. 39-1998, § 5.9, 12-1-1998]

Each loading bay shall have minimum dimensions of 50 feet by 14 feet and be located either within a building or outside and adjoining an opening in the building, except that, in the case of hospitals, nursing homes and convalescent homes, the off-street loading area provided for ambulances and other emergency vehicles shall be exempt from the minimum dimension requirement but shall be of sufficient width and depth to permit safe and convenient access and egress from the loading area. Every part of such loading bay shall be located completely off the street. In any case where trucks, trailers, or other motor vehicles larger than the dimensions of the minimum loading bay habitually serve the building in question, additional space shall be provided so that each vehicle shall park or stand completely off the street.

Sec. 98-159. through Sec. 98-180. (Reserved)

ARTICLE VI Water Quality

Sec. 98-181. Intent and applicability of article. [Ord. No. 39-1998, § 6.1, 12-1-1998]

The intent and applicability statements for this article are found in the zoning regulations, chapter 102.

Sec. 98-182. Classifications of drainage systems. [Ord. No. 39-1998, § 6.1.1, 12-1-1998]

The following are general standards based on the type of drainage system in existence in the development area:

- (1) Urban systems. Drainage facilities located within the bypass of the City shall include an enclosed underground system capable of effectively removing stormwater and groundwater from the street and adjacent areas. Discharge of drainage shall be into natural drainage courses or approved connection to an existing system capable of handling the increased flow. Direct connections to existing combined sewer systems is prohibited. Applicants for development requiring storm drain systems will be required to pay the cost of extending the storm drain system to the site if such extension is possible. If conditions warrant, and upon approval of the City engineer and/or code enforcement officer, the Planning Board may allow a combination of rural and urban drainage standards or utilize rural standards entirely.
- (2) Rural systems. Drainage facilities located within areas defined by this chapter as rural may, if approved by the City engineer, consist of a system of culverts and open drainage channels capable of effectively carrying stormwater into natural drainage courses and dewatering the roadway subgrade.
- (3) Urban and/or rural systems. Drainage facilities located within areas defined by this chapter as urban and/or rural shall comply with subsections (1) and (2) of this section, as appropriate.

Sec. 98-183. Design and construction of drainage systems. [Ord. No. 39-1998, § 6.1.2, 12-1-1998]

(a) Generally.

- (1) A drainage system plan is required. See chapter 102.

- (2) Stormwater management plans shall show means whereby the peak discharge for the developed site shall not exceed the peak discharge for the undeveloped site for the two- and twenty-five-year storms. Emergency spillways shall be provided for storms in excess of the twenty-five-year storm.
- (3) In the case of major subdivisions, street drainage shall be designed to detain stormwater through a number of means, with detention ponds as a last resort. All runoff entering the street drainage system from proposed lots shall not exceed the pre-development rate of runoff.
- (4) Pipe inlet and outlet invert elevations shall be shown on the profiles of the drainage plan. Catchbasin inlet grate elevations shall be shown on the plans.
- (5) All drainage systems within the development shall be designed to meet the criteria of the performance standards for a twenty-five-year storm based on rainfall data as available. Flows shall be computed by appropriate methods, with design computations being submitted for review by the City engineer and the highway superintendent. Other agencies may have different requirements.
- (6) Upstream drainage shall be accommodated by an adequately sized drainage system through the proposed development for existing and future potential development in the upstream drainage area or areas tributary to the proposed development.
- (7) Existing upstream and downstream drainage facilities shall be studied to determine the effect of the proposed development's drainage. The developer shall demonstrate to the satisfaction of the City engineer that the storm drainage from the proposed development will not, in any way, overload or damage existing storm drainage systems upstream or downstream from the proposed development.
- (8) Where open ditches (other than street-side ditches), channels, streams, or natural drainage courses are used to collect, discharge, and/or transmit water through the development, an adequately sized, perpetual drainage easement shall be provided. The easement shall be centered as closely as possible to the middle of the watercourse and shall be no less than 30 feet in width in order to allow adequate ingress and egress for maintenance equipment.

(9) Where a drainage easement is to contain an open ditch, channel, stream or natural drainage course, the following shall apply:

- a. The easement shall be cleared of all trees and brush and all stumps shall be removed to the extent necessary to allow adequate drainage and to provide vehicular access for maintenance where determined necessary.
- b. The channel shall be constructed according to a plan which will show the following:
 1. The location and boundaries of the easement.
 2. Contour lines depicting the shape and slope of the channel.
 3. Typical cross section of the channel showing how the channel will be constructed to prevent erosion.

(10) Drainage easements shall be private, and adequate care and maintenance of the easements shall be a provision of the deeds and covenants of the respective private properties on which the easements are located unless otherwise permitted by the Planning Board.

(11) No clean water (stormwater) will be allowed to connect into any sanitary sewer system.

(b) Urban systems.

- (1) Underdrain shall be installed on both sides of curbed streets, unless the base can drain to a ditch. Type C underdrain systems are allowed with appropriate design considerations, and approval of City engineer. The City engineer may approve the installation of underdrain on only the uphill side of the street on streets traversing a slope or on only one side of the street in relatively flat areas if the developer's engineer can demonstrate that the street area surface water infiltration will be quickly drained from the street aggregate base/subbase and that groundwater will not reach the street aggregate base/subbase once the development is fully developed.
- (2) The minimum pipe size for closed conduit systems shall be eight inches in diameter, and the minimum size shall be 15 inches in diameter for open systems, except for type B underdrain pipe, which may be six inches in diameter.

- (3) The design of storm drains shall be on the basis of flowing full at a minimum velocity of 2.5 feet per second.
 - (4) Three hundred fifty feet shall be considered as the maximum length for carrying stormwater in a street gutter to an intake at a catchbasin otherwise approved by the City engineer or the highway superintendent.
 - (5) Catchbasin inlet grate elevations shall be recessed two inches below gutter line grades.
 - (6) No water shall be permitted to drain across a street or an intersection.
 - (7) Catchbasins or manholes shall be placed at all vertical and horizontal changes in the alignment or pipe, and at all junctions. However, in no case shall catchbasins or manholes be placed at intervals exceeding 350 feet, unless otherwise approved by the City highway superintendent.
 - (8) A minimum of four feet of cover is required over the tops of all storm drain pipe, or frost protection must be provided subject to the approval of the code enforcement officer or City engineer.
 - (9) House foundation perimeter drains and roof drains with backflow check-valves may be connected to the storm drainage system upon written approval by and under the supervision of the highway superintendent.
- (c) Rural systems.
- (1) Streetside ditches and outlet channels shall be of a configuration and size to carry the contributory stormwater and subsurface flows from the streetway structure and streetside embankments. In all instances, the invert of the ditch shall be a minimum of six inches below the subgrade of the streetway extended to the shoulder, except as follows:
 - a. In areas of well-drained native soils, when approved by the City engineer; or
 - b. In areas where subsurface soils are of a nature requiring an underdrain system, in which case subgrades may be constructed to direct subsurface water to the storm drain system.
 - (2) Ditches shall drain in a positive manner.

- (3) Streetside ditches shall be at a minimum grade of 1.5% or the grade required to handle the design flow, whichever is greater, unless otherwise approved by the City engineer. Grades between the minimum stated and 0.5% will be allowed only if strict construction control is adhered to, and as approved by the City engineer.
- (4) Ditch linings shall be provided to protect the side slopes and bottom from erosion and scour. Minimum channel linings for corresponding longitudinal slopes shall conform to the following table:

0.5%—3.0%	Loam and seed
3.0%—6.0%	Loam and seed, protected by erosion control mesh
6.0%—8.0%	Sod placed over loam
Over 8.0%	Stone, masonry or bituminous concrete

- (5) Standards for culverts are as follows:
 - a. Cross culverts. Culverts crossing under roads or streets shall be sized to pass a twenty-five-year frequency storm from the contributing drainage area with a maximum hydrostatic head of two feet above the culvert inlet invert or three inches below the outside edge of the shoulder, whichever is the greater elevation.
 - b. Driveway culverts. Culverts shall be installed under any proposed or existing driveway that interrupts the natural or proposed longitudinal drainage along any street or road. Driveway culverts shall be of a size capable of passing a ten-year frequency storm from the contributing drainage area with a maximum hydrostatic head as specified in subsection (c)(5)a of this section. Driveway culverts shall be ADS or equal, unless otherwise approved by the director of public works, and have a minimum diameter of 12 inches. The final determination of the culvert size shall be made by the City engineer. Driveway culverts shall be installed on the grade of the streetside ditch line.
 - c. Minimum cover. The minimum cover over culverts in the roadway areas shall be 24 inches. The minimum cover over driveway culverts shall be 12 inches.

- d. Ditch lines. Street-side ditch lines shall be extended laterally and lowered to accommodate culverts with inlet and/or outlet inverts below the normal grade of the ditch line.
- (d) Drainage system materials. The following materials shall be utilized for drainage system construction and shall conform to criteria established by the City highway superintendent and the City engineer, and sanitary district specifications:
- (1) Reinforced concrete pipe. Concrete pipe shall be class IV reinforced concrete pipe meeting ASTM designation C-76.
 - (2) PVC pipe. All PVC pipe shall meet the requirements of SDR-35 of ASTM specification D-3034.
 - (3) Corrugated metal pipe. Corrugated metal pipe and fittings shall be plain galvanized, aluminum or bituminous coated conforming to the requirements of MDOT specifications, section 707 (Metallic Pipe). Pipe gauge shall be as required to meet soil and traffic loads with a deflection of not more than 5%.
 - (4) Underdrain. Pipe for underdrain shall be perforated PVC-SDR-35 meeting the requirements of ASTM specification D-3034.
 - (5) Manholes.
 - a. Manholes shall be precast concrete sections conforming to ASTM C478.
 - b. Manhole steps shall be polypropylene plastic, M.A. Industries PS2-PF-SL or equal. The spacing between the steps shall be 12 inches.
 - c. The manhole frame and cover shall be Etheridge No. E265S or equal. Covers shall be marked "Drain."
 - d. Manholes shall have a minimum inside diameter of four feet in the barrel section and two feet in the cone or top slab ingress/egress opening.
 - e. Manhole inverts shall be constructed of hard brick meeting federal specification SS-B-656 and shaped to the crown of the pipe.
 - f. All openings in the manhole for receiving pipe shall have a neoprene boot meeting ASTM C-443.

(6) Catchbasins.

- a. Catchbasins shall be pre-cast concrete sections conforming to ASTM C478.
- b. Cast iron catchbasin frames and grates shall be Lebaron type F, Etheridge type M or equal.
- c. Catchbasins shall have a minimum two-foot sump for the retention of waterborne solids.
- d. Catchbasins shall have a minimum inside diameter of four feet in the barrel section and two feet in the cone or top slab ingress/egress opening.
- e. All openings in the catchbasin for receiving pipe shall have a neoprene boot meeting ASTM C-443.

(e) Installation of drainage systems.

- (1) Drainage system construction shall conform to all City standards.
- (2) All trenching shall be accomplished in accordance with all appropriate state and federal safety standards.
- (3) The maximum trench width at the pipe crown shall be the outside diameter of the pipe plus two feet.
- (4) Pipe, excluding culvert pipe, shall be bedded in three-quarter-inch screened stone with a minimum depth of six inches below the pipe. The top of the stone shall be to the top of the pipe or above. A minimum of 12 inches of cover sand shall be placed over the top of the pipe. When the excavated trench bottom is not sufficiently firm to properly support the pipe, the City engineer may direct the developer to excavate below grade to suitable foundation material and backfill with additional three-quarter-inch screened stone.
- (5) All gravity pipe shall be laid with a laser device designed for the purpose unless other means are approved by the City engineer.
- (6) All catchbasins and manholes shall be founded below the frost line on a minimum depth of six inches of three-quarter-inch screened stone compacted to a uniform density.
- (7) All drain outlets shall be terminated with riprap to prevent erosion. Facilities for energy dissipation shall be provided.

Culvert pipe inlets shall be constructed so as to prevent or decrease damage to embankments and/or to improve the efficiency of the culvert. Inlet control devices shall be approved by the planning board.

- (8) Type B underdrain (six-inch diameter, for intercepting groundwater) shall be laid with the perforations down on a minimum six-inch bed of three-quarter-inch screened stone. The three-quarter-inch screened stone shall be brought to a point 12 inches above the top of the underdrain pipe. The remainder of the trench to the bottom side of the subgrade of the road shall be backfilled with clean granular material.

**Sec. 98-184. Erosion and sediment control requirements.
[Ord. No. 39-1998, § 6.1.3, 12-1-1998]**

- (a) Generally. Chapter 102 outlines the intent and applicability of the standards in this section.
- (b) Performance standards.
 - (1) Erosion and sediments shall be controlled through appropriate management practices to prevent adverse downstream water quality impacts. Hydraulic calculation techniques and design standards for facilities to achieve this performance standard shall be of accepted methods and subject to approval of the code enforcement officer and City engineer.
 - (2) Natural and manmade drainageways and drainage outlets shall be protected from erosion from water flowing through them. Drainageways shall be designed and constructed in order to carry water from a twenty-five-year storm or greater, and shall be stabilized with vegetation or lined with riprap.
- (c) Control measures to apply during all stages of activity. Erosion and sedimentation control measures shall apply to all aspects of the proposed project involving land disturbance, and shall be in operation during all stages of the activity. The amount of exposed soil at every phase of construction shall be minimized to reduce the potential for erosion.
- (d) Maintenance of facilities. The developer shall maintain all components of the erosion and sediment control and stormwater management system unless the system is formally accepted by the City, or sanitary district or is placed under the jurisdiction of a legally created property owners' association whose charter and

powers require maintenance of the system, including adequate financing to carry out this responsibility.

(e) Stabilization timelines.

- (1) In general, all activities regulated by these standards shall be conducted after March 1 and before October 30 unless accomplished in conjunction with approved construction.
- (2) Disturbed soil shall be stabilized within one week from the time it was last actively worked using temporary or permanent measures such as placement of riprap, sod, mulch or erosion control blankets, or other comparable measures.
- (3) In all cases within the shoreland zones, permanent stabilization shall occur within nine months of the initial date of exposure.
- (4) Fill sites shall be graded and seeded within 30 calendar days of their closure or by October 31 (whichever date occurs first). Fill sites may remain open after October 31 only by written permission of the code enforcement officer.
- (5) Permanent revegetation of all disturbed areas, using native plant material wherever possible, shall occur:
 - a. Within 30 days from the time the areas were last actively worked;
 - b. For spring and summer activities, by October 31; or
 - c. For fall and winter activities, by June 15, except where precluded by the type of disturbance (e.g., riprap, road surfaces, etc.). The vegetative cover shall be maintained.
- (f) Adaptation to existing topography. In order to create the least potential for erosion, development shall be designed to fit with the topography and soils of the site. Areas of steep slopes where high cuts and fill may be required shall be avoided wherever possible, and natural contours shall be followed as closely as possible.
- (g) Anchoring of mulch. If mulch is likely to be moved because of steep slopes or wind exposure, it shall be anchored with netting, peg and twine, or other suitable method and shall be maintained until a catch of vegetation is established over the entire disturbed area.

- (h) Prevention of sedimentation of water. In addition to placement of riprap, sod, erosion control blankets or mulch, additional steps shall be taken, where necessary, in order to prevent sedimentation of the water. Evidence of sedimentation includes visible gully erosion, discoloration of water by suspended particles and slumping of banks. Silt fences, staked hay bales and other sedimentation control measures, where planned for, shall be in place prior to commencement of work, but shall also be installed whenever necessary due to sedimentation.
- (i) Maintenance of temporary control measures. Mulch or other temporary erosion control measures shall be maintained until the site is permanently stabilized with vegetation or other permanent control measures.
- (j) Application of mulch. Where mulch is used, it shall be applied at a rate of at least one bale per 500 square feet and shall be maintained until a catch of vegetation is established.
- (k) Disposal of excavated materials. Any and all excavated material shall be removed to approved locations. The City shall provide a list of approved sites within the City limits.

Sec. 98-185. Submission requirements. [Ord. No. 39-1998, § 6.1.4, 12-1-1998]

The checklist of required submissions relative to this article is as follows:

- (1) Map submissions.
 - a. Location map with boundaries of the development clearly marked.
 - b. USGS topographic map, or larger-scale map when available or if necessary for clarification, with boundaries of the site clearly marked and drainage areas used for stormwater management calculations noted. Predevelopment drainage areas shall be noted. Post-development drainage areas shall be noted.
 - c. Topographic maps specifically for the project with:
 - 1. Pre-development contours noted.
 - 2. Post-development contours noted.
 - 3. Limits of clearing and grading noted.

4. Location of stormwater control structures.
 5. Location of sediment and erosion control practices.
 6. Pre-development drainage patterns noted.
 7. Post-development drainage patterns noted.
 8. Flow lengths used in time-of-concentration calculations noted.
- d. SCS medium intensity soils map with boundaries of the development clearly marked and drainage areas used for stormwater management calculations noted.
 - e. High-intensity soil survey for the development site.
- (2) Narrative submissions.
- a. Description of the development, which shall:
 1. Describe the nature of the development.
 2. Describe present and post-development land use cover.
 3. Describe which areas will be disturbed by construction.
 4. Describe adjacent areas which will be disturbed by construction.
 5. Describe areas on-site especially vulnerable to erosion.
 6. Describe the soils found on-site.
 - b. Description of stormwater handling, which shall include the following:
 1. Summary and analysis of existing stormwater movement.
 2. Analysis of post-development stormwater movement.
 3. Methods being proposed to control stormwater.
The method of calculation shall be noted.
 - c. Description of erosion and sedimentation control, which shall list and describe the practices and structures to be used and shall:
 1. Indicate how accelerated erosion will be minimized.
 2. Indicate how sedimentation will be minimized.

- d. Schedule of construction, including a schedule of installation/implementation of temporary and permanent sediment and erosion control structures and management practices.
 - e. Description of inspection and maintenance for sediment and erosion control measures.
- (3) Design drawings and calculations.
- a. Detail drawing of any structural practices used that are not referenced.
 - b. Calculations for stormwater management practices, which shall include the following:
 - 1. Worksheets, showing assumptions used.
 - 2. Detention basins.
 - 3. Culverts.
 - 4. Ditches and waterways.
 - 5. Other calculations.
 - c. Calculations for sediment and erosion control practices, which shall include the following:
 - 1. Worksheets.
 - 2. Sediment basins.
 - 3. Diversions.
 - 4. Ditches and waterways.
 - 5. Other calculations.

Sec. 98-186. Resource publications for preparing erosion and sediment control plans. [Ord. No. 39-1998, § 6.1.5, 12-1-1998]

Resource publications (current revisions) for preparing erosion and sediment control plans are as follows:

- (1) The Maine Erosion and Sediment Control Handbook for Construction, prepared by the state department of environmental protection.
- (2) Stormwater Management Manual, prepared by the Greater Portland Council of Governments.

- (3) Technical Release 55, Urban Hydrology for Small Watersheds, R-55, June 1986, available from National Technical Information Service NTIS, U.S. Department of Commerce, Springfield, VA 22161, (703) 487-4650 (TR 20 may also be used).
- (4) Other publications, subject to approval of the stormwater management board.
- (5) Maine Erosion and Sediment Control Handbook for Construction Best Management Practices, prepared by Cumberland SWCD and the state department of environmental protection.

Sec. 98-187. General criteria for sediment and erosion control plans. [Ord. No. 39-1998, § 6.1.6, 12-1-1998]

General criteria for sediment and erosion control plans are as follows:

- (1) All denuded areas shall be stabilized.
- (2) All soil stockpiles shall be stabilized.
- (3) Permanent vegetation shall be established.
- (4) Adjacent properties shall be protected from sediment from the development.
- (5) Adjacent properties shall not be subjected to erosion due to increased runoff water from the development.
- (6) Cut and fill slopes shall be constructed and stabilized in a way to reduce erosion.
- (7) On-site waterways and outlets shall be stabilized.
- (8) Storm sewer inlets shall be protected from sediment.
- (9) If working in or crossing live streams, they shall be protected during construction.
- (10) Construction access routes shall be stabilized to include dust control.
- (11) Temporary sediment and erosion control structures shall be removed when the development is finished.
- (12) Maintenance of stormwater, sediment, and erosion control structures shall be addressed adequately.

Sec. 98-188. Appurtenances to erosion control measures. [Ord. No. 39-1998, § 6.1.7, 12-1-1998]

- (a) Riprap. MDOT specifications, section 610 (Stone Fill, Stone Blanket and Stone Ditch Protection), shall be applicable to this subject.
- (b) Erosion control blankets. MDOT specifications, section 613 (Erosion Control Blankets), shall be applicable to this subject.
- (c) Sodding. MDOT specifications, section 616 (Sodding), shall be applicable to this subject.
- (d) Loam. MDOT specifications, section 615 (Loam), shall be applicable to this subject. All esplanades, circular turnaround islands, ditch slopes, and other planting strip areas at the sides of streets shall receive at least four inches of loam.
- (e) Seeding. MDOT specifications, section 6.18 (Seeding), shall be applicable to this subject. Seeding method number 1 (Park Mixture) shall be used on areas specified in subsection (d) of this section.
- (f) Mulch. MDOT specifications, section 619 (Mulch), shall be applicable to this subject.
- (g) Geotextiles. MDOT specifications, section 620 (Geotextiles), shall be applicable to this subject.
- (h) Landscaping. MDOT specifications, section 621 (Landscaping) and section 622 (Transplanting Shrubs, Hedges and Trees), shall be applicable to this subject.
- (i) Dust control. MDOT specifications, section 637 (Dust Control), shall be applicable to this subject. Dust control shall be provided for all areas as necessary to prevent the visible emissions of dust in the air.

Sec. 98-189. through Sec. 98-210. (Reserved)

ARTICLE VII
Public Safety

Sec. 98-211. Scope of article. [Ord. No. 39-1998, § 7.1, 12-1-1998]

Each site plan review and subdivision will be reviewed by the public safety director in an effort to provide a reasonable degree of safety for the occupants and the properties of the proposed developments. The standards in this article are established as minimum requirements, and additional considerations may be necessary to offset unusual circumstances.

Sec. 98-212. Required information. [Ord. No. 39-1998, § 7.2, 12-1-1998]

In addition to the information required by the zoning regulations (chapter 102) and the site plan regulations (chapter 90), the public safety director requires that plans submitted for review and approval shall include the following information:

- (1) Existing and proposed hydrants or alternate fire protection water supply.
- (2) All streets, culs-de-sac, hammerheads and emergency access routes.
- (3) Any geographical or structural barriers to the site or to proposed structures.
- (4) Building construction type.
- (5) Building occupancy.
- (6) Any special usage or materials storage that might present a significant fire protection problem.

Sec. 98-213. Hydrants. [Ord. No. 39-1998, § 7.3, 12-1-1998]

- (a) All structures constructed within the hydrant district of the City shall have hydrants located within the distance specified by the fire chief. All hydrants, public and private, shall comply with the standards of the City and the Belfast Water District.
- (b) In the absence of fire hydrants, consideration shall be given to an alternate method of providing adequate fire protection.

Sec. 98-214. Access for emergency vehicles. [Ord. No. 39-1998, § 7.4, 12-1-1998]

(a) Access to subdivisions shall comply with the following:

1 to 34 units	A single access road
34 to 68 units	2 access roads or single access road and an emergency access lane
68 or more units	2 access roads

(b) Where residential units are provided with an approved sprinkler system designed in accordance with NFPA standards and approved by the code enforcement officer, the following minimum access standards may be substituted:

1 to 68 units	1 access road
68 to 100 units	1 access road and an emergency lane
100 or more units	A minimum of 2 access roads

(c) Building setbacks shall allow for access by emergency vehicles and their related functions, and shall be evaluated on the following merits:

- (1) Construction type.
- (2) Building occupancy.
- (3) Building height.
- (4) Impediments to the actual structures.
- (5) Safety features/systems provided.

(d) No turning radius (inside) shall be less than 25 feet.

(e) Emergency access lanes shall be a minimum of 16 feet wide and be of such design and so maintained as to support the weight of emergency vehicles during all weather conditions.

(f) The blockading of any emergency lane shall be done by gates which are locked by chain and padlock. Emergency lanes shall be maintained and accessible for use at all times. A key to the lock shall be given to the City police department and fire department.

Sec. 98-215. through Sec. 98-240. (Reserved)

ARTICLE VIII
Parking And Loading Facilities

Sec. 98-241. Purpose of article. [Ord. No. 39-1998, § 8.1, 12-1-1998; Ord. of 1-5-2010(1)]

The purpose of the standards in this article is to protect and promote the public health, safety and welfare by ensuring that:

- (1) Peak parking demands are accommodated on-site so that streets, nearby properties, and neighborhoods are kept free from congestion and inappropriate traffic;
- (2) Parking facilities are designed to enhance the dignity, pride, and visual quality of the City and complement the visual appearance of, and maintain the aesthetic appeal of views from, neighboring properties, streets and highways, the Belfast Bay, and other places where people congregate;
- (3) Parking facilities are safe, healthy, attractive, and easily entered, exited and traveled for both vehicles and pedestrians;
- (4) The economic stability of residential, business, commercial, institutional, and industrial areas, the value of land and buildings on surrounding properties and neighborhoods, and the accessibility and economic utility of land are maintained and enhanced; and
- (5) Parking demand is determined by carefully considering appropriate opportunities for joint use and shared parking, the proximity of the use to public parking, and the customary and unique parking needs of each use.

Sec. 98-242. Off-street parking requirements. [Ord. No. 39-1998, § 8.2.1, 12-1-1998; Ord. of 1-5-2010(1)]

- (a) Off-street parking space required. No use of premises shall be allowed, changed or expanded and no structure shall be constructed or enlarged unless adequate off-street parking, including handicapped parking, is provided and maintained.
- (b) Amount of parking required. An appropriate amount of off-street parking spaces, including handicapped parking spaces (reference 98-243 for these standards), shall be required for each principal and accessory use located on a parcel. The following table entitled "Schedule of Required Off-Street Parking" (hereinafter, the Schedule), shall serve as a guideline in establishing the

minimum amount of parking which must be provided for a use, and also the maximum amount of parking which shall be allowed. If a specific use is not listed or is dissimilar to a use listed in the schedule, the Planning Board is authorized to determine an appropriate amount of parking.

In determining the minimum amount of parking, any fraction shall be rounded up to the nearest whole number. In determining the maximum amount of parking allowed, multiply the amount of parking identified in the Schedule by 1.20.

- (c) Planning Board use of the schedule and ability to adjust amount of parking. The Planning Board may adjust the amount of parking identified in the Schedule based on factors such as the following:
1. The Schedule identifies parking requirements for many uses. The City, however, recognizes that some uses are not listed in the Schedule. As such, the Planning Board may determine that a specific use has specific parking demands and shall consult the most current edition of the Institute of Transportation Engineers (ITE) Parking Generation manual to assist in determining the amount of parking required.
 2. The Planning Board may use information, such as the following, to allow an increase or decrease in the amount of parking identified in the Schedule:
 - a. A parking demand analysis prepared by the applicant that is based on at least two comparable sites in Maine for a comparable type of business. The analysis must compare parking demands for differing days and times of week. The Board may engage the services of an engineering firm to review this analysis.
 - b. Information from the ITE manual.
 - c. Information from another qualified industry source, such as but not limited to information provided by a company that has identified its parking demands for comparable facilities. The Board may engage the services of an engineering firm to review this information.

The city, in granting the Planning Board the authority to adjust on-site parking requirements, recognizes that the ITE manual that is used to identify parking requirements is often based on a limited number or variety of analyses of parking demands for specific uses. For example, the parking studies listed in the ITE manual are often based on three or fewer studies, the studies are for limited periods of time, the studies are for uses in communities that may be very dissimilar to Belfast, or the studies may be very dated, 15 or more years old, as well as other concerns. Thus, the city recognizes that better data could be available through other sources to assist the Planning Board in making a good decision regarding the amount of on-site parking which it should require.

Table 98-242. Schedule of Required Off-Street Parking		
Use	Unit of Measure	Number of Spaces
Residential:		
Single-family and two-family (duplex)	Dwelling unit	2.0 per unit. Such units are exempt from the maximum number of parking spaces requirement.
Multi-family	Dwelling unit	2.25 per dwelling unit, except 1.5 per unit for 1 bedroom efficiency
Elderly independent housing	Dwelling unit	1.0 per unit
Congregate housing		
Independent units	Dwelling unit	1.0 per unit
Assisted living	Living units	1.0 per 3 units
Nursing home	Beds and employees	1 space per 6 beds and 1 space/employee maximum shift
Bed and breakfast	Dwelling unit and rooms	2 for residence and 1 per each rental room
Rooming/boarded house	Manager and rental room	2 for manager/owner and 1 for each rental room

Table 98-242. Schedule of Required Off-Street Parking		
Use	Unit of Measure	Number of Spaces
Home occupation	Dwelling unit (residence) and equivalent use	2 for dwelling unit/ resident and number of spaces required for type of home occupation proposed
Institutional		
Elementary and junior high	Teachers/employees and visitor area	1 per teacher/employee and 2 per classroom
Senior high	Teachers/employees and students	1.2 per teacher/ employee and 0.25 per student
College/university	Instructors/ employees and student enrollment	1.2 per instructor/ employee and 0.25 per student enrollment
Church	Gross floor area (gfa) or seats	1 per 75 sq. ft. gfa or 1 per 2.5 seats
Day care center	Gross floor area (gfa) or teachers/ employees and student	1 per 250 sq. ft. gfa or 1.2 per teacher/ employee and 1 per 4 students
Day care home	Dwelling unit/ residence and students	2 for dwelling unit and 1 per 4 students
Library	Gross floor area (gfa)	1 per 250 sq. ft. gfa
Convention center, theater and similar	Gross floor area (gfa) or per number of seats	1 per 250 sq. ft. gfa or 1 for every 3 seats
Medical/Office		
Hospital	Beds and employees *note offices/clinics in hospital different formula	1 space/3 beds and 1 space/employee on maximum shift
Clinic and medical/ dental office	Physicians/ practitioners and employees	4 per physician and 1 per employee
Veterinary clinic	Practitioners and employees	3 per practitioner and 1 per employee

Table 98-242. Schedule of Required Off-Street Parking				
Use		Unit of Measure		Number of Spaces
Nursing home		Refer to congregate care		Refer to congregate care
Professional office		Gross floor area or number of employees		1 space per 300 sq. ft. 1.2 space per employee
Retail/Services				
Shopping center		Gross floor area		
a.	Less than 30,000 sq. ft.			a. 1 space per 225 sq. ft.
b.	30,000 — 100,000 sq. ft.			b. 1 space per 200 sq. ft.
c.	Greater than 100,000 sf			c. 1 space per 175 sq. ft.
Retail store		Gross floor area		
a.	Less than 20,000 sq. ft.			a. 1 space per 250 sq. ft.
b.	More than 20,000 sq. ft.			b. 1 space per 200 sq. ft.
Hardware store, lumber yard or furniture store		Gross floor area		1 space/400 sq. ft.
Grocery store/ supermarket		Gross floor area		1 space per 175 sq. ft.
Convenience store		Gross floor area		1 space per 200 sq. ft.
Drug store or bank		Gross floor area		
a.	Without drive-through			a. 1 per 250 sq. ft.
b.	With drive-through			b. 1 per 300 sq. ft.
Restaurant				
a.	Sit-down restaurant	a.	Seats	a. 0.4 spaces per seat
b.	Fast food restaurant without drive-through	b.	Seats	b. 0.75 spaces per seat

Table 98-242. Schedule of Required Off-Street Parking		
Use	Unit of Measure	Number of Spaces
c. Fast food restaurant with drive-through	c. Seats	c. 0.6 spaces per seat
Hotel/motel	Rooms	
a. Without conference facility		1.1 per room
b. With conference facility		1.4 per room
Movie theater/performance center	Seats	0.33 spaces per seat
Bowling alley	Per lane	5 spaces per lane
Industrial		
Manufacturing	Number of employees	1.2 spaces/employee for number of employees on maximum shift
Self-storage	Gross floor area	0.2 spaces per 1,000 sq. ft.

Sec. 98-243. Location of parking lots or areas. [Ord. No. 39-1998, § 8.2.2, 12-1-1998; Ord. of 1-5-2010(1)]

All off-street parking shall be located on the same lot as the principal structure or use to be served, except as may be permitted by the Planning Board in accordance with the provisions of this article.

Sec. 98-244. Handicapped parking. [Ord. No. 39-1998, § 8.2.3, 12-1-1998; Ord. of 1-5-2010(1)]

(a) Amount of handicapped parking required. A new use shall be required to provide at least the minimum amount of handicapped parking required by the American with Disabilities Act. A change of use or expansion of an existing use shall be required to provide at least the minimum amount of handicapped parking required for at least the number of new parking spaces required, and preferably for the total amount of parking (existing and new) on the site. Parking requirements identified in the American with Disabilities Act are:

Total Number of Parking Spaces in the Lot	Minimum Number of Accessible Spaces
1 to 25	1
25 to 50	2
51 to 75	3
75 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2% of total
1,000 and over	20 plus 1 for each 100 spaces over 1,000

- (b) Location of handicapped parking. Handicapped parking spaces shall be well located on a site to allow handicapped persons good access to the entrance of the building, and to minimize conflicts associated with vehicular circulation on the site. In locating spaces, an applicant shall consider opportunities to allow handicapped persons to use doors located on all sides of their vehicle.

- (c) Construction standards. All handicapped parking spaces shall be a minimum of 10 feet in width and shall provide an adjacent clear/protected zone that is a minimum of four feet in width. The clear/protected zone shall be properly striped. In certain circumstances, the clear/protected zone may also serve as a customer entrance to the site. Such parking spaces shall preferably be built at grade and shall not exceed a slope of 2%, and the spaces and clear zone shall be paved. Signage shall be installed that clearly identifies the spaces as handicapped spaces.

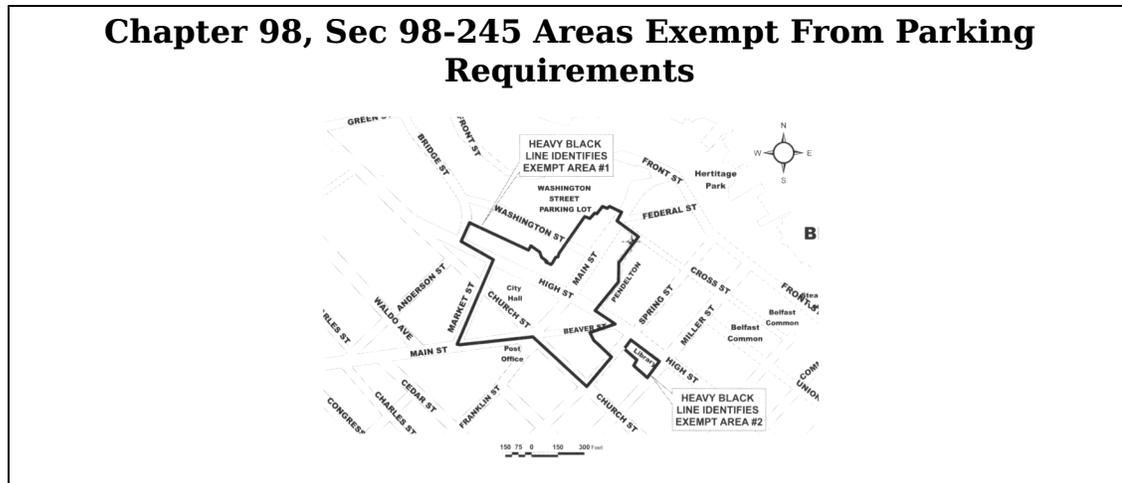
Sec. 98-245. Areas exempt from parking requirement. [Ord. No. 39-1998, § 8.2.4, 12-1-1998; Ord. of 1-5-2010(1)]

Notwithstanding the provisions of section 98-242, there shall be no off-street parking required for existing uses or uses proposed to be permitted on any property in the areas identified on the map entitled; Areas Exempt from On-site Parking, Section 98-245. The two areas which are exempt from on-site parking requirements, as such are

shown on the above referenced map, are described below. Parcels identified by map and lot numbers in this section are based on the map and lot that were in effect in May 2008.

Area 1: Beginning at a point which is the centerline of the intersection of Main Street and Market Street; thence proceeding easterly along the centerline of Main Street until said centerline intersects with the centerline of Church Street; thence southeasterly along the centerline of Church Street until said centerline intersects with the centerline of Spring Street; thence northeasterly along the centerline of Spring Street until said centerline intersects with a projection of the rear (northerly) lot line for a parcel identified as Map 11, Lot 26; thence continue northwesterly along the rear lot line of Map 11, Lot 26, until said line intersects with the centerline of Beaver Street; thence northeasterly along the centerline of Beaver Street until said centerline intersects with the centerline of High Street; thence westerly along the centerline of High Street until said centerline intersects with the centerline of Pendelton Lane; thence northerly along the centerline of Pendelton Lane until said centerline intersects with the centerline of Cross Street; thence westerly along the centerline of Cross Street until said centerline intersects with the centerline of Main Street; thence northerly along the centerline of Main Street for a distance of 40 feet until said centerline intersects with a projection of the northerly side lot line for a parcel identified as Map 11, Lot 26; thence northwesterly along the side lot line for the parcel identified as Map 11, Lot 26 for a distance of about 50 feet to the northwesterly rear corner of this parcel; thence southerly along the rear boundaries of parcels identified as Map 11, Lots 123A, 123, 122, 121, 121A, 117, and after crossing Washington Street, the boundaries of parcels identified as Map 11, Lot 76, 75 and 74, to the southeasterly (rear) corner of a parcel identified as Map 11, Lot 90; thence westerly along the rear boundaries of parcels identified as Map 11, Lots 90, 89, 88, 87, 86, and 84, until said line intersects with the centerline of Bridge Street; thence southerly along the centerline of Bridge Street until said centerline intersects with the centerline of High Street; thence easterly along the centerline of High Street until said centerline intersects with the centerline of Market Street; and thence southeasterly along Market Street to the point of beginning.

Area 2: This area includes the parcels identified as Map 11, Lot 37, which is an apartment complex, and Map 11, Lot 35, which is the City Library, both of which have street frontage on High Street.



Sec. 98-246. Alternative parking options. [Ord. No. 39-1998, § 8.2.5, 12-1-1998; Ord. of 1-5-2010(1)]

The City strives to ensure that each use has adequate on-site parking, but also wants to avoid the construction of excess parking spaces, particularly in areas of Belfast in which it is often difficult to construct the required amount of onsite parking. As such, the Planning Board is authorized to consider and approve alternative parking arrangements to an applicant providing the minimum amount of on-site parking; reference subsections a.-c. below. These alternative parking options also are consistent with the City's goal to minimize the adverse aesthetic and environmental impacts associated with constructing parking areas and other impervious surfaces.

- a. Joint use parking. The Planning Board may approve the joint use of a parking facility by two or more uses (establishments) where it is clearly demonstrated that said parking facility would substantially meet the intent of the requirements of this chapter. The board shall consider factors such as but not limited to the following in considering a request to approve a joint use parking facility:
 - 1. A variation in the probable time of maximum use by patrons or employees of such establishments;
 - 2. The total number of parking spaces available and the adequacy of said spaces to satisfy projected parking demands; and
 - 3. The proximity of the parking facility to the respective uses, with the parking facility being located a maximum of 300 feet from each establishment and preferably within 100 feet of each establishment.

The Planning Board may require an applicant to prepare an analysis of parking demand to demonstrate the desirability and adequacy of the proposed joint use parking facility. Further, said joint use must be declared by written agreement among the establishments.

- b. Proximity to public parking facility and on-street parking. The board may allow a reduction in the amount of on-site parking required, up to eliminating the requirement for any on-site parking, for a use that is located within 1,000 feet of a City parking facility in the following zoning districts; Downtown Commercial, Waterfront 1-A and Waterfront Mixed Use. The City has committed public monies to the construction of public parking facilities in these zoning districts. Thus, the construction of on-site parking on properties that are located within reasonable proximity of such parking facilities could result in a redundancy of parking spaces and could be inconsistent with the purposes of this chapter.
- c. Proximity to on-street parking. The Planning Board may allow a nonresidential use or home occupation that is located within the bounds of the Route One bypass to use available on-street parking to satisfy all or a portion of the on-site parking requirement for said use. This alternative requires the applicant to demonstrate that the use of on-street parking would not degrade the character of the surrounding area or neighboring properties and that it would not pose a safety hazard to motorists, bicyclists or pedestrians. This option is particularly intended to address the parking demands of establishments that often generate high periodic amounts of parking, such as but not limited to a church, a club or a school.

**Sec. 98-247. Front yard parking restricted in certain districts.
[Ord. of 1-5-2010(1)]**

In the Residential I and Residential II Districts, no off-street parking shall be located in the front yard. The Planning Board may grant relief from this front yard parking provision provided that:

- a. Parking is for a single-family residence/single-family occupancy only.
- b. A plan shall be submitted showing the location of existing and/or proposed structures, location of the driveways and location of the existing and/or proposed parking.

- c. On the plan, the front yard parking area shall not be more than 400 square feet in area and the driveway shall not exceed 20 feet in width.
- d. There shall be no front yard parking for a home occupation or any use other than a single-family house.

This provision in no way prohibits parking in front of a private garage for a single-family residence or a two-family residence.

Sec. 98-248. Dimensions of parking stalls. [Ord. of 1-5-2010(1)]

The minimum dimensions for parking stalls shall be as follows. Stall depth is perpendicular to the aisle.

Parking	Application	Stall Width (feet)	Stall Depth (feet)	Aisle Width (feet)
90-degree	Standard	9	18	26
60-degree	Standard	9	15.6	23
One-way (45-degree)	Standard	9	12.7	24

Alternatives to these dimensions are permitted provided that the applicant demonstrates that the proposal complies with the standards outlined in the most recent edition of the Institute of Transportation Engineers Manual, and as defined and modified by standards provided in this chapter.

Sec. 98-249. Landscaping of parking areas. [Ord. of 1-5-2010(1)]

The landscaping standards in this section apply to all properties located in Belfast, except properties that are used for a nonresidential use and which are located in the following zoning districts: Route 3 Commercial District, Searsport Avenue Waterfront District, Searsport Avenue Commercial District, Route 141 and Mill Lane Commercial District, Route 137 Commercial District, Route One South Commercial District and the Office Park District. The standards for the landscaping of parking lots in the above zoning districts are subject to the nonresidential performance standards identified in Chapter 102, Zoning, Article IX, Performance Standards, for these respective zoning districts.

Parking lots serving six or more vehicles shall be landscaped according to the following provisions. Landscaping shall be designed to accommodate attractive and safe pedestrian circulation patterns, allow required sight distances at driveway intersections and good visibility of oncoming pedestrians and vehicles throughout the parking area.

- (1) Perimeter landscaping. The perimeter of parking lots shall be landscaped adjacent to other uses and rights-of-way with trees, shrubs, fencing and/or earth berming to avoid the impact of glare, headlights, parking lot lights, noise and dust and to protect and enhance visual character. The quality of perimeter landscaping is a particular concern in areas in which a nonresidential use is located adjacent to a residential use.
- (2) Landscaping within large parking areas. Landscaping areas shall be provided within parking areas serving more than 70 vehicles to provide visual and climatic relief from broad expanses of pavement and to channelize and separate areas for pedestrian and vehicular circulation. The following standards shall apply:
 - a. Large parking areas shall be subdivided into smaller parking cells of up to 70 vehicles contained within a planting buffer. No aisle with a planting cell may be longer than 300 feet, although a maximum length of 150 feet is preferred.
 - b. Planting strips shall be located so as to demonstrate the ends of parking rows, avoiding long rows of parked cars, and to channel pedestrian circulation. Planting strips should be a minimum of 10 feet in width to accommodate canopy and/or understory trees. Planting strips should be edged with granite or a six-inch continuous vertical curb or wheel stops to prevent vehicles from overhanging into the planting areas, and designed to allow efficient snow removal. Where feasible, planting strips shall be oriented at right angles to the main entrance of the principal building or use in order to maximize pedestrian safety and convenience.
 - c. For every 24 vehicles, the guideline is three canopy trees, two under-story trees, and 10 low shrubs to be planted in landscaped areas. The location of plantings shall be designed to accommodate snow plowing and storage without damage to plant materials.
- (3) Landscaping between parking lots and buildings. Landscaping shall be provided between buildings and paved areas, except in the case of an auto drop-off, a leaving area, or a vehicular entry

into a building, in order to enhance the appearance of the site and avoid impacts to occupants from exhaust fumes and noise. In residential zoning districts, the landscaped area shall be no less than 10 feet deep from all buildings. The area shall be landscaped with shrubs, ground cover, and trees where appropriate, and may include a walkway up to five feet in width if it is 10 feet deep or more. In commercial zoning districts, the landscaped area shall be no less than four feet in width, and may be eliminated if a sidewalk that is at least four feet in width is located adjacent to the building.

- (4) Maintenance of landscaping. An applicant or property owner shall maintain all landscaping that is required pursuant to this section in good condition and in perpetuity. Any plants that die shall be replaced within one growing season. This provision does not preclude the cutting of trees which have died and which may be a hazard. Any such tree which is cut shall be replaced by a tree of similar species which is a minimum of six feet in height and two inches in caliper at time of planting.
- (5) Flexibility in requirements. To accommodate circumstances in which required landscaping may not be appropriate for site conditions, an applicant may submit and request approval of an alternative plan for the siting of landscaped areas, provided that an equal or greater amount of landscaped area is provided than would otherwise be required. The Planning Board may approve an alternative plan, provided the board determines that areas viewed by the public are attractively landscaped. Loading bays and industrial areas reserved for vehicles other than cars do not require landscaping, provided that such areas cannot be seen by the public and are adequately buffered from the wind.

Sec. 98-250. Lighting. [Ord. of 1-5-2010(1)]

Where artificial lighting is provided for parking facilities, it shall be shaded or screened so that no light source or unreasonable glare shall be directly visible from outside the area and its access driveways.

Sec. 98-251. Circulation. [Ord. of 1-5-2010(1)]

- (a) Vehicular entrances and exits. Entrances and exits shall be clearly identified by the use of signs, curb cuts, and landscaping. Entrance and exit design shall be in conformance with the requirements of section 98-154, pertaining to driveway and access standards.

(b) Interior vehicular and pedestrian circulation.

- (1) Interior travel lanes may be required between parking cells to allow continuous and uninterrupted traffic movement. Parking spaces shall not be located along interior travel lanes.
- (2) Entrances and exits shall be designed to allow adequate stacking/cueing of vehicles without blocking interior vehicle circulation lanes.
- (3) Walkways shall be designed to connect parking areas with residential areas, commercial establishments, the City sidewalk system and other points of interest as appropriate.
- (4) In paved parking areas, painted stripes shall be used to delineate parking stalls. In aisles utilizing diagonal parking, arrows shall be painted on the pavement to indicate traffic flow.
- (5) A six-inch vertical curb and/or wheel stops shall be provided where necessary to restrict vehicles to the confines of the designated parking area. Use of continuous curb stops is preferred.

**Sec. 98-252. Parking requirements in shoreland districts.
[Ord. of 1-5-2010(1)]**

The provisions of Chapter 82 shall apply to parking areas in shoreland districts.