

MEMORANDUM

TO: Cass County Planning Commission

FROM: Grace Puppe, Cass County Planner

DATE: May 20, 2022

SUBJECT: Subdivision Ordinance Update

Over the past year the Cass County Planning Department has been working with Joel Quanbeck at KLJ to update our Subdivision Ordinance. During the last few Planning Commission meetings, we have had discussions about major topics in the Subdivision Ordinance. The information obtained from these discussions has been used to update the Draft Subdivision Ordinance Document.

The new Draft Subdivision Ordinance will have the Minor and Major subdivisions separated into different parts to help avoid confusion of the requirements for each. The current Draft Subdivision Ordinance has sections with language for the General Provisions, Administration and Enforcement, Interpretation, Plat Approval Required and Minor Subdivisions. Additional sections will continue to be added for review as they are ready.

Included with this memo is a summary of the changes.

SUGGESTED MOTION: MOVE TO APPROVE THE SUBDIVISION ORDINANCE UPDATE TO THE COUNTY COMMISSION FOR FINAL REVIEW AND APPROVAL.

Article I. General Provisions

Section 1.01 TITLE

- (a) This Ordinance shall be known and may be cited and referred to as the “Cass County Subdivision Ordinance” and will be referred to herein as “this Ordinance.”

Section 1.02 AUTHORITY

- (a) This Ordinance is enacted pursuant to the powers granted and limitations imposed on counties by the laws of the State of North Dakota, including without limitation North Dakota Century Code (NDCC) §11-09.1, §11-33 and §11-33.2 and by the Cass County Home Rule Charter. The Board of County Commissioners hereby expresses that neither this Ordinance, nor any amendment to it or any decision under it, may be challenged on the basis of an alleged non-conformity with any other planning document, inclusive of the Cass County Comprehensive and Transportation Plan.

Section 1.03 PURPOSE

- (a) The purpose of this Ordinance is to promote the health, safety, morals, public convenience, general prosperity, and public welfare of Cass County and its residents.
- (b) The regulations herein established for the subdivision of land are adopted in order to:
 1. Establish standard procedures and requirements for the preparation, submission, and consideration for approval of plats for the subdivision of land as provided in NDCC §11-33.2 and NDCC §40-50.1 and this Ordinance.
 2. Encourage the rational development of land in ways that are consistent with the Cass County Comprehensive Plan.
 3. Encourage the development of land in ways that provide for safe and adequate transportation, access of emergency vehicles, and adequate ingress and egress to public and private property.
 4. Require that adequate public facilities and necessary public improvements are available and will have sufficient capacity to serve the subdivision.
 5. Promote development in ways that minimize costs to local citizens and that promote effective and efficient provision of public services.
 6. Encourage the wise use and management of natural resources throughout the County in order to preserve the integrity, stability and beauty of the County and the value of its land.
 7. Minimize impacts of development on surrounding property owners.
 8. Encourage that land development be consistent with the goals and strategies of the Cass County Multi-Hazard Mitigation Plan.
 9. Provide uniform monumentation of land subdivisions and transferring interests in real property by reference to a plat or certificate of survey.

Section 1.04 APPLICABILITY AND JURISDICTION

- (a) This Ordinance applies to all lands over which the Cass County Board of County Commissioners has jurisdiction under the constitution and laws of the State of North Dakota and of the United States, except for land within the corporate limits of any municipality or land within the area of application of extraterritorial zoning pursuant to NDCC §40-47-01.1.
- (b) This Ordinance applies to any person, partnership, corporation, or limited liability company who or which being the owner or agent of any lot, tract, or parcel of land shall lay out, construct, open, or dedicate any street, sanitary sewer, storm sewer, water main, or other improvements for public use, travel or other purposes or for the common use of occupants of buildings abutting thereon, or who or which sells, transfers, or agrees or enters into an agreement to sell or transfer any land in a subdivision or engages in the subdivision of land or erects any buildings thereon.
- (c) This Ordinance shall not prohibit or prevent the use of land or buildings for farming or any of the normal incidents of farming.
- (d) A county auditor's plat made pursuant to NDCC §57- 02-39 is for taxation purposes for convenience of tax officials in describing property on tax rolls and does not confer rights in or transfer title to land. Such an auditor's plat may only be initiated by a tax official of Cass County. Thus, an Auditor's Lot is not approved by the County as an instrument for the purposes of sale or development.

Section 1.05 COMPLIANCE

- (a) No lot of record that did not exist on the effective date of this Ordinance shall be created, by subdivision or any other mechanism, that does not conform to the applicable requirements of this Ordinance.
- (b) No access connection (new, changed, altered, re-constructed) including any field entrance, driveway or public/private roadway (permanent, temporary or field access/opening) onto a County highway or public right-of-way shall be permitted except in accordance with the applicable regulations as set forth within this Ordinance.

Section 1.06 SEVERABILITY

- (a) If any section, paragraph, clause, phrase, or part of this Ordinance is for any reason found to be invalid by a court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this Ordinance; and the application of the remaining provisions to any persons or circumstances shall not be affected.
- (b) If any application of any part of this Ordinance to a particular lot, tract, parcel, building, structure, land, or use is for any reason found to be invalid by a court of competent jurisdiction, such decision shall not affect the application of the same provision to any other lot, tract, parcel, building, structure, land or use not specifically included in the decision.

Section 1.07 EFFECTIVE DATE

- (a) The Cass County Subdivision Ordinance, and any amendment to this Ordinance, shall be effective after its passage, publication, and recordation as provided by NDCC §11-33.2-06.

Section 1.08 REPEAL

- (a) Any Cass County subdivision ordinances, resolutions or regulations previously established by the Cass County Board of County Commissioners, and all amendments of said ordinances, resolutions or regulations are hereby repealed.
- (b) Notwithstanding Section 1.08 (a) of this Ordinance, the Cass County Floodplain Regulations adopted [date] remain effective.

Section 1.09 TRANSITIONAL PROVISIONS

- (a) Decisions based on previous subdivision ordinances, resolutions or regulations approving divisions of land or other matters addressed by the previous ordinances, resolutions or regulations that were effective prior to the effective date of this Ordinance remain effective. It is the intention of this Ordinance to continue in force such existing provisions so that all rights and liabilities that have accrued thereunder are preserved and may be enforced, unless specifically surrendered by specific provisions of this Ordinance.
- (b) The adoption of this Ordinance, and any amendment thereto, shall not adversely affect the County's right to prosecute any violation of the predecessor subdivision ordinances, resolutions, or regulations provided that such violation first occurred while said ordinances, resolutions or regulations were in effect.
- (c) Applications for land use or development that were submitted in complete form and were pending approval on or before the effective date of this ordinance, or any amendment to this ordinance, shall be reviewed wholly under the terms of any ordinance, resolution, or regulation as it existed at the time the complete application was submitted.

Section 1.10 Reserved

Article II. Administration and Enforcement

Section 2.01 Board of County Commissioners

(a) Powers and Authority

In addition to all powers and authority granted to the Board of County Commissioners by general or specific law, the Board of County Commissioners shall have the following powers and authority under the provisions of this Ordinance.

(b) Appoint County Planner

The Board of County Commissioners may appoint a County Planner. The County Planner may be an employee of Cass County or a contract consultant.

(c) Appoint Planning Commission

The Board of County Commissioners shall appoint members of the Planning Commission.

(d) Comprehensive Plan

The Board of County Commissioners shall have the authority to adopt the Cass County Comprehensive Plan and, from time to time, approve or disapprove amendments to the Comprehensive Plan.

(e) Subdivision Ordinance

The Board of County Commissioners shall have the authority to adopt the Cass County Subdivision Ordinance, and from time to time, approve or disapprove amendments to the Ordinance.

(f) Plat Approval

The Board of County Commissioners shall have the authority to consider applications for plat approval, and to deny, amend, or approve such applications.

(g) Appeals

The Board of County Commissioners shall hear and decide any appeals of a decision made by the County Planner regarding the administration, interpretation, and enforcement of this Ordinance.

(h) Variance

The Board of County Commissioners shall have the authority to adjust the application or enforcement of any provision of this Ordinance in any specific case when a literal enforcement of such provision would result in great practical difficulties, unnecessary hardship, or injustice, so as to avoid such consequences, provided such action shall not be contrary to the public interest or the purposes of this Ordinance or the general purposes of NDCC §11-33.2.

(i) Other Actions

The Board of County Commissioners shall have the authority to take other actions not delegated to another decision-making or administrative body that the Board of County Commissioners deem necessary and desirable to implement provisions of the Comprehensive Plan or this Ordinance.

Section 2.02 County Planner

- (a) There is hereby created the position of County Planner, who shall be a duly appointed person charged with the administration, interpretation, and enforcement of this Ordinance.
- (b) The County Planner shall have the following duties:
 1. Complete such activities as will assist the Board of County Commissioners and the Planning Commission in fulfilling the duties established by this Ordinance
 2. Complete research and prepare findings of fact pertaining to applications for plat approval or other applications to be considered by the Planning Commission
 3. Make determinations regarding the interpretation of this Ordinance when it becomes necessary
 4. Carry out such activities as may be necessary to assist in the enforcement of this Ordinance
 5. Conduct such other business as may be authorized or directed by the Board of County Commissioners or the Planning Commission

Section 2.03 Planning Commission

- (a) The Planning Commission for Cass County shall be known as the "Cass County Planning Commission" and may be referred to as the "Planning Commission."
- (b) The membership of the Planning Commission shall consist of nine (9) members appointed by the Board of County Commissioners in a manner consistent with NDCC §11-33.2-04, §11-33-04, and §11-33-05.
- (c) The members of the Planning Commission may be compensated in a manner established by the Board of County Commissioners and consistent with NDCC §11-33-05.
- (d) The Planning Commission shall have the following duties:
 1. Prepare proposed subdivision ordinance to be submitted to the Board of County Commissioners
 2. Prepare proposed subdivision ordinance amendments to be submitted to the Board of County Commissioners
 3. Prepare recommendations to be submitted to the Board of County Commissioners pertaining to any proposed plat or other application which is presented for consideration
 4. Conduct such other business as may be authorized or directed by the Board of County Commissioners

Section 2.04 Appeals

- (a) Any person, unit of government or agency may file an appeal when aggrieved by a decision or interpretation by the County Planner, provided that the appeal is based on an allegation that:
 1. The County Planner made an error in the interpretation of this Ordinance, and
 2. The erroneous interpretation specifically aggrieves the appellant.
- (b) Application and Procedure.
 1. A letter of appeal must be filed with the Finance Director within 30 days of the date of written notice of interpretation or determination. The letter shall cite the decision made

- and state the alleged error. If an appeals fee is established by the Board of County Commissioners, the letter of appeal shall be accompanied by the fee so established.
2. If after such fee has been paid and a properly filed appeal is successful, the fee shall be refunded. Otherwise, no part of any such fee shall be refundable after an appeal is filed and such fee paid.
 3. A letter of appeal is not considered complete until such fee has been paid.
 4. After the Finance Director determines that letter of appeal is complete, the Finance Director shall transmit the letter of appeal to the Board of County Commissioners.
 5. The Finance Director shall set a hearing date within 30 days of acceptance of the letter of appeal and payment of the established appeal fee, publish notice thereof as provided for in this Ordinance, and notify all parties of interest. Public notice of the hearing shall be placed in the official County newspaper and any newspaper of general circulation in the County at the discretion of the Finance Director for two successive weeks prior to the date of the hearing.
 6. Where an appeal concerns a particular piece of property, written notice shall be mailed to all property owners with property within 5,280 feet of the subject property at least 15 days prior to the said hearing. Where the subject property abuts a right-of-way, the 5,280-foot measurement shall be in addition to this right-of-way along the abutting side.
 7. An appeal under the terms of this Ordinance stays all proceedings in the matters appealed unless the County Planner certifies to the Board of County Commissioners that the application, by reason of the facts stated in the certification, a stay would, in his opinion, cause imminent peril to life or property. In such case, proceedings shall not be stayed, except by a restraining order granted by the Board of County Commissioners or a court of record.
 8. The Board of County Commissioners shall conduct a public hearing on the letter of appeal. At that hearing, the Board of County Commissioners shall review the particular facts and circumstances of appeal and develop findings and conclusions. The Board of County Commissioners shall make a decision by motion. The concurring vote of a majority of the ~~quorum~~ of the Board of County Commissioners members present shall be necessary to reverse any order, requirement, decision, or determination of the County Planner or to decide in favor of the appellant on any other matter.
 9. Any person aggrieved by a decision of the Board of County Commissioners may file an appeal to the district court in the manner provided in NDCC §28-34-01.

(c) Findings Required.

Every decision of the Board of County Commissioners pertaining to a letter of appeal shall be based upon findings of fact and every finding of fact shall be supported in the record of its proceedings.

Section 2.05 Variance

- (a) Certain circumstances may exist or arise wherein an unnecessary hardship is created through strict adherence to the provisions of this Ordinance. Hereinafter are provisions for the granting of a variance to adjust the application or enforcement of any provision of this Ordinance, so that the public welfare is secured, and substantial justice can be done to those so affected.
- (b) Application and Procedure.
1. An application for a variance shall be made on a form provided by the County Planner. Requests for more than one variance for the same project on the same property may be filed on a single application and charged a single fee.
 2. The completed application and fee as set by the Board of County Commissioners shall be submitted to the County Planner.
 3. No part of any such fee shall be refundable after an application is filed and such fee paid.
 4. An application is not considered complete until such fee has been paid.
 5. After the County Planner determines that the application is complete, the completed application shall be transmitted to the Planning Commission and the Board of County Commissioners.
 6. The County Planner shall set a Planning Commission hearing date, publish notice thereof as provided for in this Ordinance, and notify all parties of interest. Public notice of the hearing shall be placed in the official County newspaper and any newspaper of general circulation in the County at the discretion of the County Planner or the Planning Commission for two successive weeks prior to the date of the hearing.
 7. Written notice shall be mailed to all property owners with property within 5,280 feet of the subject property at least 15 days prior to the hearing. Where the subject property abuts a right-of-way, the 5,280-foot measurement shall be in addition to this right-of-way along the abutting side.
 8. The Planning Commission shall conduct a public hearing on the variance application. At that hearing, the Commission shall review the particular facts and circumstances of the situation and develop findings and conclusions.
 9. When considering a variance application, the Planning Commission may recommend such conditions as are, in its judgment, necessary to promote the general provisions of this Ordinance.
 10. The Planning Commission shall make a decision by motion. It shall take the affirmative vote of a majority of the Planning Commissioners present to recommend approval of a variance. An affirmative vote by the Planning Commission shall mean that the Planning Commission recommends the Board of County Commissioners approve the requested variance. Any conditions included in the Planning Commission's affirmative vote are a part of the Planning Commission recommendation.
 11. The County Planner shall set a Board of County Commissioners hearing date, publish notice thereof as provided for in this Ordinance, and notify all parties of interest. Public notice of the hearing shall be placed in the official County newspaper and any newspaper of general circulation in the County at the discretion of the County Planner or the Board of County Commissioners for two successive weeks prior to the date of the hearing.

12. Written notice shall be mailed to all property owners with property within 5,280 feet of the subject property at least 15 days prior to the said hearing. Where the subject property abuts a right-of-way, the 5,280-foot measurement shall be in addition to this right-of-way along the abutting side.
13. The Board of County Commissioners shall conduct a public hearing on the variance application. At that hearing, the Commission shall review the recommendation of the Planning Commission and the particular facts and circumstances of the situation and develop findings and conclusions.
14. In approving a variance, the Board may impose such conditions as are, in its judgment, necessary to promote the general provisions of this Ordinance.
15. The Board of County Commissioners shall make a decision by motion. It shall take the affirmative vote of three members of the Board to grant a variance. Failing such vote, the request for variance is denied.
16. A hearing may be continued at the request of the applicant or upon motion of the Board, provided however, that the granting of a continuance is a matter of grace, resting solely in the discretion of the Board, and a refusal to continue is not a denial of a right, conditional or otherwise.
17. Decision on continuance of a hearing can be reached by a simple majority but must be made prior to voting on the application itself.
18. A variance shall be valid indefinitely, provided it is exercised within one year of the date of issuance, or as otherwise provided for by the Board of County Commissioners.
19. A request may be re-heard only when there has been a manifest error affecting the Board's decision or it appears that a substantial change in facts, evidence, or conditions has occurred. Such determination shall be made by the County Planner within 60 days of final action of the Board.
20. Any persons aggrieved by a decision of the Board of County Commissioners pertaining to a variance application may file an appeal with a court of competent jurisdiction.

(c) **Criteria for Consideration; Findings Required**

1. Findings are required to be made by the Board of County Commissioners for approval of a variance. No variance shall be granted unless the Board finds that all of the following conditions are met or found to be not pertinent to the particular case:
 - a. Strict compliance with the provisions of this Ordinance will:
 - i. Limit the reasonable use of the property, and
 - ii. Deprive the applicant of rights enjoyed by other properties similarly situated, and
 - iii. Will result in a hardship to the applicant.
 - b. The hardship is the result of lot size, shape, topography, or other circumstances over which the applicant has no control.
 - c. The hardship is peculiar to the property.
 - d. The hardship was not created by the applicant.
 - e. The hardship is not economic (when a reasonable or viable alternative exists).
 - f. Granting the variance will not adversely affect the neighboring properties or the public.

shall be posted and advertised once a week for two weeks prior to the hearing in the official County newspaper and any newspaper of general circulation in the county at the discretion of the County Planner or the Board of County Commissioners. Based on the results of the hearing, other public input, the staff report and findings of the Planning Commission, the Cass County Board of Commissioners may adopt the proposed amendments with such changes it may deem advisable.

10. Upon adoption of the proposed amendment with any changes it deems advisable, the Finance Director shall file a certified copy of the adopted amendment with the County Recorder. Immediately after the adoption of the amendment with any changes, the Finance Director shall cause notice of the same to be published for two successive weeks in the official newspaper of the County and in such other newspapers published in the county as the Board of County Commissioners may deem necessary. Said notice of the same shall describe the nature, scope, and purpose of the adopted amendment, and shall state the times at which it will be available to the public for inspection and copying at the office of the recorder. Proof of such publication shall be filed in the office of the Finance Director. If no petition for a separate hearing is filed within 30 days after the first notice publication pursuant to NDCC §11-33-10 or NDCC §11-33.2, the amendment thereto shall take effect upon the expiration of the time for filing said petition. If a petition for a separate hearing is filed within 30 days after the first notice publication pursuant to NDCC §11-33-10 or NDCC §11-33.2, the amendment shall not take effect until the Board of County Commissioners has affirmed such amendment in accordance with the relevant procedures established in the NDCC. This Ordinance may, from time to time, be amended or repealed by the Board of County Commissioners upon like proceedings as in the case of its original adoption or subsequent amendment.
 11. In the event that an application to amend this Ordinance is denied by the Board of County Commissioners or that the application for amendment is withdrawn after the hearing of the Planning Commission, the County Planner shall have the authority to refuse to accept another application for any similar amendment for one year from the date of hearing of the previous application by the Planning Commission.
- (d) Criteria for Consideration; Findings Required. When considering an application for amendment to the provisions of this Ordinance, the Planning Commission and the Board of County Commissioners shall be guided by and adopt findings of fact based upon the following:
1. Whether the proposed amendments are made in accordance with the Comprehensive Plan
 2. Whether the proposed provisions of the Ordinance are designed to:
 - a. Secure safety from fire and other dangers
 - b. Promote public health, safety, and general welfare, and
 - c. Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.
 3. Consideration of
 - a. The reasonable provision of adequate light and air;
 - b. The effect on motorized and non-motorized transportation systems;
 - c. Compatible urban growth in the vicinity of cities and towns that at a minimum must include the areas around municipalities;

Section 2.07 Procedures for the Review and Consideration of Plat Applications

- (a) Procedures for the Review and Consideration of Plat Applications in accordance with this Ordinance are described in Articles IV, V, and VI.

Section 2.08 Public Hearings Procedure

- (a) Public Hearings required by this Ordinance shall be conducted pursuant to the standards and procedures of this Section.
- (b) Notice
 - Unless state law requires differently, written notice of the public hearing, pursuant to Section 5.10 Public Notice, shall be sent by mail to the owner of the property that is subject to the public hearing and to owners of land that is with property within 5,280 feet of the property that is subject to the public hearing. In addition to the mailed notice, a Public Notice of the hearing that describes the application and provides the time, date and place of the public hearing shall be published in the official county newspaper and any newspaper of general circulation in the county at the discretion of the County Planner or the body holding the hearing. The Public Notices shall be mailed, and the published notice shall appear in each newspaper once a week for two successive weeks prior to the date of the hearing.
- (c) Announcement
 - The presiding officer shall announce the purpose and subject of the public hearing, verify that proper public notice was given and provide the opportunity for any member of the Commission or Board to declare a conflict of interest.
- (d) Right to Speak
 - Any interested person may appear at the public hearing and submit evidence or make comments either as an individual or on behalf of an organization. Each person appearing at the public hearing shall be identified by name and address of residence and name of organization if applicable.
- (e) Staff Report Presentation
 - The County Planner shall present a report that provides a detailed overview of the application and requested decision, its site, context and its compliance with the comprehensive plan and this ordinance.
- (f) Applicant Presentation
 - The applicant shall present any information the applicant deems appropriate.
- (g) Public Comments
 - Members of the public shall be provided the opportunity to speak about the merits or shortcomings of the application. At the discretion of the presiding officer, reasonable time limits may be placed on all speakers in the interest of accommodating all people desiring to speak and to provide for an efficient meeting. Comments shall be directed only to the presiding officer.
- (h) Applicant Response
 - After the members of the public have given their comments, the applicant shall be provided the opportunity to respond to any public comments made during the public hearing.

(i) Staff Response

After the public comments and applicant response, the County Planner or any other County official shall be provided the opportunity to clarify or address public comments and applicant responses made during the public hearing.

(j) Deliberation, Decision

The presiding officer shall declare the public comment period of the meeting to be closed and invite discussion, deliberation and a decision by the body holding the hearing (Board of County Commissioners or Planning Commission).

(k) Record of Proceedings

The public hearing and meeting shall be audio taped and the tape shall be retained by the County for the minimum length of time established by the Board of County Commissioners. A recording secretary shall record written minutes of the public hearing. All exhibits, reports, evidence and written materials submitted during the public hearing shall be retained by the County as part of the record of the proceeding.

(l) Continuance

The body conducting the public hearing, on its own initiative, may continue the hearing to a future date. Notice of continuance shall be posted in a conspicuous and visible location at the County Courthouse and other regular locations determined by the County Planner.

Section 2.09 Public Notice

(a) Public Notice shall be published in the official newspaper of the County. Public notice may also be published in any other newspaper of general circulation in the county at the discretion of the County Planner or the body holding the hearing. The public notice shall contain the following information and comply with public notice requirements of state law.

(b) Type of Application

The type of application, such as Subdivision, Variance, Appeal, or Ordinance Amendment.

(c) Description of Decision

A brief description of the decision or action sought by the applicant.

(d) Name of Owner, Applicant

The name of the landowner and applicant.

(e) Location of Land

A legal description and a general description of the location of the subject land, if applicable.

(f) Location, Date, Time

The location, date and time of the public hearing or public meeting.

(g) Where Information Available

The location where information about the application may be viewed and the general hours available for viewing.

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(h) Proposed Use

When applicable, a description of the type of use being proposed.

Article III. Interpretation

Section 3.01 Liberal Interpretation to Further Underlying Purposes

- (a) Interpretation and application of this Ordinance are the basic and minimum requirements for the protection of public health, safety, comfort morals, convenience, prosperity, and welfare. This Ordinance shall be liberally interpreted in order to further its underlying purposes. The meaning of any and all words, terms, or phrases in this Ordinance shall be construed in accordance with the following Rules and Definitions.

Section 3.02 Rules of Construction and Interpretation

- (a) Words, phrases, and terms defined in this Ordinance shall be given the defined meaning as set forth in the following text.
- (b) Words, phrases, and terms not defined in this Ordinance shall be given their usual and customary meanings except where the context clearly indicates a different meaning.
- (c) The word “shall” is mandatory and not permissive; the word “may” is permissive and not mandatory.
- (d) Words used in the singular include the plural, and words used in the plural include the singular.
- (e) Words used in the present tense include the future tense, and words used in the future tense include the present tense.
- (f) In computing any period of time prescribed or allowed by this Ordinance, the day of the notice or final application, after which the designated period of time begins to run, is not to be included. Further, the last day is to be included unless it is not a working day, in which event the period runs until the next working day.
- (g) The word “person” indicates a corporation, a sole proprietorship, an unincorporated association, a partnership, estate, or any other legally recognized entity, as well as an individual.
- (h) Within this Ordinance, sections prefaced “purpose” are intended to convey official statements of legislative findings or purpose. These statements are intended to guide the administration and interpretation of this Ordinance and shall be treated in the same manner as other aspects of legislative history. However, they are not binding standards.

Section 3.03 Definitions

- (a) The following words, unless the context otherwise requires, have the specific meaning listed:
 1. **AADT.** Annual average daily traffic count.
 2. **Abutting.** To physically touch or border upon; or to share a common property line.
 3. **Access.** A way or means of approach to provide physical entrance to a property.
 4. **Access Drive.** A private drive providing vehicular access to and between parking areas for more than two parking spaces within a subdivision; any drive servicing two or more units of occupancy on a single lot.

5. Adjacent. To be located in close proximity, but not necessarily touch at a common point or line.
6. Adjoining. To physically touch at a point or line.
7. Agricultural Land. Land used exclusively for the cultivation of the soil, the production of crops or livestock, or the science of forestry; also, land diverted from agricultural use by an active Federal farm program, provided the diverted land has a conservation cover of grass, legume, trees, or wildlife shrubs. Agricultural land may include, to a minor degree, farmsteads inhabited by the cultivator of the land housing for farm employees and land, used for preparation of agricultural products by the cultivator of the land.
8. Agricultural Operation. The science and art of producing plants and animals useful to people operated as a business. It includes the preparation of products resulting from said crops or animals and the disposition of these products by marketing or other means. The term includes livestock auction markets, horticulture, floriculture, viticulture, forestry and tree farming and nurseries, dairy, livestock, poultry, bee, and any and all forms of farm products, and farm production. It also includes agritourism activities.
9. Agriculture. See Agricultural Land.
10. Alley. A public right-of-way which affords a secondary means of access to abutting property (see also Street).
11. Animal Feeding Operation. A place where: livestock have been, are, or will be confined, concentrated and fed for 45 or more days in any 12 month period; pasture, crops, or other vegetation are not normally managed or sustained for grazing during the normal growing season; and, animal waste or manure accumulates. This term does not include an animal wintering operation. Adjoining animal feeding operations under common ownership are considered to be one animal feeding operation, if they use common areas or systems for manure handling.
12. Animal Wintering Operation. The confinement of cattle or sheep used or kept for breeding purposes in a feedlot or sheltered area at any time between October 15 and May 15 of each production cycle under circumstances in which these animals do not obtain a majority of their feed and nutrients from grazing. This term includes the weaned offspring of cattle and sheep but does not include the breeding operations of more than one thousand (1000) animal units (as defined by the North Dakota Department of Health) or weaned offspring which are kept longer than one hundred and twenty (120) days and that are not retained for breeding purposes.
13. Applicant. A developer and/or landowner, as hereinafter defined, including heirs, successors, and assigns, who has filed an application for subdivision, a variance, a text amendment, or some other application based on this Ordinance.
14. Application for Subdivision. The application form and all documents and exhibits required of an applicant by the County Planner, Planning Commission or Board of County Commissioners for subdivision review purposes.
15. Area Sketch. An area sketch is a rough map of a proposed subdivision and the surrounding land to be used for the purpose of discussion and clarification of proposed land divisions.
16. Block. A tract of land comprised of one or more lots which is entirely bounded by streets, public parks, cemeteries, railroads and/or watercourses.
17. Board of County Commissioners. The Board of County Commissioners of Cass County.

18. **Buildable Lot.** All lots in a proposed subdivision that are not defined as an unbuildable lot due to environmental conditions and lots meeting all requirements of this Ordinance, as specified in this Ordinance.
19. **Building.** Any enclosed or open structure, other than a boundary wall or fence, occupying more than four (4) square feet of area and/or having a roof supported by columns, piers, or walls.
 - a. **Accessory Building.** A detached, subordinate building, the use of which is customarily incidental and subordinate to that of the principal building, which is located on the same lot as that occupied by the principal building. Farm buildings not intended for habitation are considered to be accessory buildings.
 - b. **Principal Building.** A building which is enclosed within exterior walls or fire walls and is built, erected, and framed of component structural parts. The Principal Building is also designed for housing, shelter, enclosure and support of individuals, animals, or property of any kind and is a main structure on a given lot.
20. **Building Setback Line.** A line within a lot, designated on a plan as the minimum required distance between any structure and the adjacent street centerline, right-of-way line, lot line, natural feature, another structure, or as specified by any applicable zoning ordinances, regulations, or this Ordinance.
21. **Capacity.** The maximum number of vehicles that can be expected to pass over a given section of roadway or on a specific lane.
22. **Cass County Planning Commission.** The Cass County Planning Commission or, when authorized, the Planning Commission's staff.
23. **Cass County Subdivision Ordinance.** See Ordinance.
24. **Cemetery.** A tract of land used or established to be used as a human burial site for the human remains of one or more humans.
25. **Cemetery Plot.** An area of land within a cemetery, separated from other areas within the cemetery, to allocate for burial of human remains by a specified plot owner.
26. **Certificate of Survey.** A graphic representation of any parcel or tract of real property whose primary purpose is to show the results of a boundary survey.
27. **Clear Sight Triangle.** An area of unobstructed vision at a street intersection defined by a line of sight between points at centerlines.
28. **Comprehensive Plan.** A document consisting of maps, charts, and textual material, that constitutes a policy guide to decisions about the physical and social development of a township, city, or county.
29. **Condominium.** An estate in real property consisting of undivided interest of land and common facilities together with separate ownership interest of individual units of occupancy.
30. **County.** The County of Cass, North Dakota.
31. **County Commission.** See Board of County Commissioners.
32. **County Planning Commission.** See Cass County Planning Commission.
33. **Dedication.** The deliberate appropriation of land by its owner for general public use.
34. **Deed.** A written instrument whereby an estate in real property is conveyed.

35. Deed Restriction. A restriction upon the use of a property placed in a deed. As specified in this Ordinance, a deed restriction refers to the legally binding restrictions placed on development as it relates to this Ordinance.
36. Density. The number of buildable lots permitted per acre, exclusive of street rights-of-way.
37. Design Standards. The specifications to landowners or subdividers for the preparation of plats, both preliminary and final, indicating among other things, the optimum, minimum, or maximum dimensions of such items as rights of ways, blocks, easements and lots.
38. Detention Basin. A reservoir which temporarily contains stormwater runoff and releases it gradually into a watercourse or stormwater facility.
39. Developer. Any landowner, agent of such landowner, equitable owner, or tenant with the permission of the landowner, for whom subdivision plans are being or have been made.
40. Development. An activity which materially alters or affects the existing conditions or use of any land.
41. Development Plan. The provisions for development, including a plat of subdivision, all covenants relating to use, location and bulk of buildings and other structures, intensity of use or density of development, streets, ways and parking facilities, common open space, and public facilities. The phrase "provisions of the development plan" when used in this Ordinance shall mean the written and graphic materials referred to in this definition.
42. Development Rights. An interest in and the right to use and subdivide land for any and all residential, commercial and industrial purposes and activities which are not incident to agriculture and open space, in accordance with zoning and other regulations. Development rights can be used, held, or transferred, from adjacent property under common ownership, to plat an additional buildable lot on a contiguous receiving property.
43. Double Frontage Lot. A lot with front and rear street frontage.
44. Drainage Easement. The land required for the installation of storm sewer or drainage facilities or required along a natural stream or watercourse for preserving the channel and providing for the flow of water therein, or to safeguard the public against flood damage.
45. Driveway. A private drive providing vehicular access between a street or access drive and a parking area for a single residential unit of occupancy, or a private drive for non-residential uses permitted to provide less than three parking spaces.
46. Easement. A right-of-way granted for limited use of property by the landowner for a public or quasi-public or private purpose and within which the owner of the property shall not have the right to make use of the land in a manner that violates the right of the grantee.
47. Engineer. See Registered Engineer.
48. Farm. An agricultural operation.
49. Final Plat. See Plat.
50. Flood buyout. The purchase of private property by a federal, state, or local government for the purpose of mitigating flood damage to structures and properties.
51. Floodplain. The area of inundation which functions as a storage or holding area for floodwater to a width required to contain a base flood of which there is a one percent (1%) chance of occurring in any given year. The floodplain also contains both the floodway and the flood fringe. The floodway is the channel of a water course and the adjoining land area which are required to carry and discharge the base flood. The flood fringe is the adjoining area which may be covered by water of the base flood. The location of a floodplain shall be

- established in accordance with Section 612 of this Ordinance and may include an area of greater magnitude than the base flood if a greater flood hazard area is designated by a municipal ordinance.
52. Future Access Strip. A right-of-way reserved for the future improvement of a street.
 53. Grading. Any stripping, cutting, filling, stockpiling of earth or land, including the land in its cut or filled condition.
 54. Gross Floor Area. The total floor area of a building.
 55. Half Street. A street of less than the required right-of-way and/or road width, such as a street built from the shoulder edge to the eventual centerline (See also Street).
 56. Historic Feature. Any building, site, structure, object, district, or area that:
 - a. Is listed on the National Register of Historic Places.
 - b. Has received a Determination of Eligibility for the National Register from the National Park Service.
 - c. Which is listed on any officially adopted municipal register or inventory of historic features.
 - d. Which is listed on the State Historical Society of North Dakota 1990 North Dakota Comprehensive Plan for Historic Preservation: Archeological Component This term shall include the site, principal structures, accessory structures, yards, vegetation, fences, road alignments and signage associated with such features.
 57. Homeowners association (HOA). A group governing a subdivision through an association collecting monthly fees from all owners/members to pay for maintenance of common areas, handle legal and safety issues and enforce the covenants, conditions and restrictions set by the developer.
 58. Horizon Year. The anticipated opening year of a development, assuming full buildout and occupancy.
 59. Human Burial Site. any place of interment, by any means, of human remains or burial goods, which is designated by a grave marker or other burial structure or which is not so designated, but is, in fact, discovered or believed to exist on the basis of archaeological or historical evidence.
 60. Impervious Surface. A ground cover such as cement or asphalt through which water cannot penetrate.
 61. Improvements. Physical changes to the land, including but not limited to, grading, paving, curbs, gutters, storm sewers and drains, improvements to existing watercourses, sidewalks, street signs, monuments, water supply facilities and sewage treatment facilities.
 62. Influence Area. An area which contains 80% or more of the trips that will be attracted to a development site.
 63. Intensive Vegetation Clearing. The complete removal of trees or shrubs in a contiguous patch, strip, row, or block.
 64. Land Development. The subdivision of land, in contrast to development as separately defined in this ordinance.
 65. Landscape Architect. A landscape architect registered by the State of North Dakota
 66. Land Use. A description of how land is occupied or utilized.
 67. Legal Lot. A designated parcel, tract, or area of land established by a plat or otherwise permitted by law at the time of its creation to be used, developed, or built upon as a unit.

68. Level-of-Service. A measure of the effect of traffic on the capacity of a road.
69. Livestock. Beef cattle, dairy cattle, sheep, swine, poultry, horses, donkeys, bison, elk, fur animals raised for their pelts, and any other animals that are raised, fed, or produced as a part of farming or ranching activities. Livestock include alpacas, llamas, or other similar animals typically raised for their fleece, fiber, or hair.
70. Lot. Any separately described area of land capable of having title conveyed.
71. Lot Area. The area contained within the property lines of the individual parcel of land, excluding space within the street right-of-way. The lot area includes the area of any utility easement or stormwater management facility.
72. Lot Depth. The average distance between the street right-of-way and the rear lot line, measured perpendicular or radial to the right-of-way.
73. Lot Frontage. That side of a lot abutting on the street right-of-way and regarded as the front of the lot.
74. Lot Line Marker. A metal plate or pin used to identify lot line intersections.
75. Lot of Record. A lot that has a clear description stemming from a document on file at the County Recorder's office.
76. Lot Width. The average distance between the side lot lines of a lot, measured parallel to the right-of-way.
77. Major Subdivisions. See Subdivision.
78. Minor Subdivision. See Subdivision.
79. Mixed Use. A development that provides multiple compatible uses in close proximity to one another. And/or a land use pattern that seeks to increase concentrations of population and employment in well- defined areas with a mix of diverse and compatible land uses.
80. Mobile Home. A transportable, single-family dwelling intended for permanent occupancy, contained in one unit, or in two or more units, designed to be joined into one integral unit and capable of again being separated for repeated towing, which arrives at a site complete and ready for occupancy except for minor and incidental unpacking and assembly operations and constructed so that it may be used without a permanent foundation. The term "manufactured home" may be used synonymously.
81. Monument. A concrete or stone monument used to identify street line intersections.
82. Municipal Governing Body. The Council in cities, the Board of Commissioners in townships, the Board of County Commissioners, or any other similar body with the final decision-making, budgeting, and appointing authority of a general-purpose unit of government.
83. Municipality. Any city, township, county, or other similar general-purpose unit of government.
84. Non-Site Traffic. Vehicle trips passing within the study area as defined in the traffic impact study that do not enter or exit the site and are generally the result of through traffic and traffic generated by other developments.
85. Off-Street Parking. Parking spaces provided outside of the right-of- way of a street or highway.
86. On-Street Parking. Parking spaces provided within the right-of-way of a street or highway.
87. Ordinance. The Cass County Subdivision Ordinance, as subsequently amended.
88. Parcel. A lot or combination of lots that are contiguous and under common ownership; may or may not have a single tax parcel identification.

89. Peak Hour. The hour during which the heaviest volume of traffic occurs on a road.
90. Pedestrian Way. A right-of-way, publicly or privately owned, intended for human movement by walking or bicycling.
91. Pervious Surface. Ground cover through which water can penetrate at a rate comparable to that of water through undisturbed soils.
92. Planning Commission. See Cass County Planning Commission.
93. Plat. The map or plan of a subdivision, whether preliminary or final.
 - a. Preliminary Plat. A tentative drawing or map of a proposed subdivision meeting the requirements herein enumerated.
 - b. Final Plat. A drawing or map of a subdivision meeting all the requirements of the County and in such form as required by Cass County for the purpose of recording (See Certificate of Survey).
94. Public Improvement. Any improvement or other facility for which a governmental unit may ultimately assume responsibility for maintenance and operation.
95. Public Meeting. A forum held pursuant to NDCC §44-04-19 and §44-04-20
96. Public Utility. Any person, firm, corporation, municipal department, or board duly authorized to furnish and furnishing, under public regulation, to the public, electricity, gas, heat, power, steam, telephone, telegraph, transportation, or water.
97. Receiving Property. A parcel that receives a transferred development right from a contiguous undeveloped quarter-quarter section, **government lot**, or legal lot (See Sending Property) under common ownership, as specified in this Ordinance.
98. Registered Engineer. An individual licensed and registered as a professional engineer under the laws of the state of North Dakota.
99. Registered Land Surveyor. An individual licensed and registered as a professional land surveyor under the laws of the state of North Dakota.
100. Restrictive Covenant. A restriction on the use of land usually set forth in the deed.
101. Retention Basin. A reservoir designed to retain stormwater runoff with its primary release of water being through the infiltration of said water into the ground.
102. Reverse Frontage Lot. A lot with front and rear street frontage, where vehicular access is prohibited to and from the higher intensity street.
103. Right-of-Way. The total width of any land reserved or dedicated for public use to be occupied by a street, crosswalk, railroad, electric transmission line, oil or gas pipeline, water main, sanitary or storm sewer main, legal drains, flood diversion structures, flood diversion channels, shade trees, or for other special use.
104. Road. The surface of a street, drive, or alley available for vehicular traffic. (See also street)
105. Runoff. The surface water discharge and rate of discharge of a given watershed after a full rain or snow that does not enter the soil but runs off the surface of the land.
106. Sedimentation. The process by which soil or other surface material is accumulated or deposited by wind, water, or gravity.
107. Sending Property. A parcel that transfers its development right to a contiguous or eligible property under common ownership (see Receiving Property) as specified in Section 308 of this Ordinance.
108. Service Street. See Street, Alley (Service Street).
109. Setback Line. See Building Setback Line.

110. Shared Parking. When parking spaces are shared among different structures or uses or among mixed uses and can include properties with different owners.
111. Shared Trips. Vehicle trips entering and exiting the site which were using the facility on the adjacent streets and therefore did not generate new trips on the road.
112. Shopping Center. An area that is comprised of three (3) or more commercial establishments, the purpose of which is primarily retail sales, that has a combined gross floor area of twenty thousand (20,000) square feet or more, that is owned or managed as a unit.
113. Sight Distance. The length of road visible to the driver of a vehicle at any given point in the road when viewing is unobstructed by traffic.
114. Site. The existing lot of record proposed for a subdivision.
115. Solid Waste. Any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities. The term does not include:
 - a. Agricultural waste, including manures and crop residues, returned to the soil as fertilizer or soil conditioners; or
 - b. Solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges that are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as amended [Pub. L. 92-500; 86 Stat. 816; 33.
 - c. U.S.C. 1251 et seq.], or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended [68 Stat. 919; 42 U.S.C. 2011 et seq.].
116. Staff. The Cass County Planning and Highway Department staff.
117. Steep Slope. Lands having average slopes with a horizontal to vertical change of 11:1 (or steeper), slope to rise ratio, as measured over horizontal distances of fifty (50) feet or more.
118. Stormwater Management Data. The plan information, designed in accordance with this Ordinance, which identifies design and construction details for managing the quantity and quality of stormwater runoff.
119. Stormwater Management Facilities. Those controls and measures (e.g., storm sewers, berms, terraces, bridges, dams, basins, infiltration systems, ditches, watercourses, legal drains, flood diversion structures, flood diversion channels, and floodplains) used to implement a stormwater management program.
120. Street. A strip of land, including the entire right-of-way, publicly or privately owned, serving primarily as a means of vehicular and pedestrian travel, and furnishing access to abutting properties. This term shall include the terms avenue, boulevard, road, highway, freeway, parkway, lane, alley, viaduct, or any other way used for similar purposes. Streets shall conform to one of the following categories:
 - a. Principal Arterial. An interregional road in the street hierarchy system which carries vehicle traffic to and from the region as well as any through traffic. This street may be a controlled access street.
 - b. Minor Arterial. The Minor arterial street system interconnects with the principal arterial system. It provides connections between boroughs, larger villages, major

- resort areas and other traffic generators which develop substantial volumes of traffic.
- c. Collector. This classification includes streets that provide connections with local access and arterial streets. They may serve a traffic corridor connecting villages, small boroughs, shopping points, mining and agricultural areas on an intra-county or municipal basis.
 - d. Local Access. This classification provides direct access to adjacent land and includes connections to farms, individual residences, and commercial properties and to higher classes of highway systems.
 - e. Alley (Service Street). A service road that provides secondary means of access to lots. Alleys are on the same level as a local access street and are used in cases of narrow lot frontages. No parking shall be permitted, and alleys should be designed to discourage through traffic. AADT level corresponds to that of local access street.
 - f. Cul-de-sac. A street with a single means of ingress and egress and having a turnaround. The design of the turnaround may vary. Cul-de-sacs shall be classified and designed according to anticipated ADT level: A residential street will use the design standards of a local access street; a non-residential street will use the design standards for Commercial/Industrial streets.
 - g. Marginal Access Street. A service street that runs parallel to a higher-order street and provides access to abutting properties and separation from through traffic. Marginal Access Street may be designed as local access street or collector according to anticipated daily traffic.
 - h. Divided Street. A street in which the traffic directions are physically separated.
 - i. Stub Street. A short dead-end street which is a portion of a street which has been approved in its entirety. Stub streets may extend to a property line to permit connection of streets in adjoining subdivisions.
121. Street Line. The right-of-way line of any given street.
122. Street, private. A street not accepted for dedication by a municipality.
123. Structure. Any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land.
124. Subdivision. A division of a lot, tract, or parcel of land, creating one or more lots, tracts, or parcels for the purpose, either immediate or future, of sale or of building development and any plat or plan which includes the creation of any part of one or more streets, public easements, or other rights of way, whether public or private, for access to or from any such lot, tract, or parcel and the creation of new or enlarged parks, playgrounds, plazas, or open spaces. The term "subdivision" shall be further defined into two classifications, which are as follows:
- i. Minor Subdivision: A division of land into lots, tracts, or parcels not exceeding four (4) total buildable lots.
 - ii. Major Subdivision: A division of land into lots, tracts, or parcels exceeding four (4) lots.
125. Subject Tract. The site proposed for a subdivision.
126. Surveyor. See Registered Land Surveyor.
127. Tract. A lot or group of lots that are contiguous.

128. Top of Bank. The elevation at which water overflows the natural banks of streams or the waters of the state and begins to inundate upland areas.
129. Trip. A single or one-directional vehicle movement.
130. Unbuildable Lot. Those lots in a proposed subdivision or lots or parcels resulting from a subdivision of land that are restricted from development due to environmental conditions such as steep slopes, the presence of wetlands or waterways, or sending properties restricted from development because of this Ordinance.
131. Variance. A process for alleviating specific requirements imposed by this Ordinance and provided under this Ordinance.
132. Watercourse. A permanent topographic feature, whether natural or man-made, that serves to gather and carry flowing surface water such as a permanent or intermittent stream, a river, creek, brook, run, or ditch; and which measured by the width of the channel during normal high water.
133. Watershed. All land and water within the confines of a drainage basin.
134. Wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturate soil conditions, including swamps, marshes, bogs, and similar areas.

Section 3.04 Responsibility for Interpretation

- (a) In the event a question of interpretation arises concerning any provision or the application of any provision of this Ordinance, the County Planner, in consultation with the State's Attorney for Cass County as may be necessary, shall be responsible for such interpretation. Such interpretation shall look to the Cass County Comprehensive Plan and the overall purpose and intent of this Ordinance for guidance. The County Planner shall provide such interpretations in writing upon request. Records of all such interpretations shall be maintained at the County Planner's office for future reference. If any person having an interest in such an interpretation chooses to appeal such a decision, the matter may be referred to the Planning Commission to be reviewed. The Planning Commission shall make a recommendation to the Board of County Commissioners for a final decision on the appeal.

Article IV. Plat Approval Required

Section 4.01 Subdivision Review and Plat Approval Required

- (a) Within all of Cass County outside of any municipal boundary and outside the authority of any extraterritorial boundary for subdivision or zoning control, no subdivision of any lot, tract, or parcel of land shall be made; no street, road easement, sanitary sewer, water main, or other improvements in connection therewith shall be laid out, constructed, opened, or dedicated for public use or travel, or for the common use of occupants of buildings abutting thereon, except in accordance with a plat as reviewed and finally approved by the Board of County Commissioners.
- (b) For the purposes of this ordinance, “subdivision” means the division of a lot, tract, or parcel of land, creating one or more lots, tracts, or parcels for the purpose, whether immediate or future, of sale or of building development, and any plat or plan which includes the creation of any part of one or more streets, public easements, or other rights-of-way, whether public or private, for access to or from any such lot, tract, or parcel, and the creation of new or enlarged parks, playgrounds, plazas, or open spaces.
- (c) Any exemptions from subdivision review established by this Ordinance or by North Dakota law may be executed so long as the following requirements are met:
 - 1. All applications that are exempt from subdivision review shall be reviewed and approved by the following Cass County departments administratively prior to transfer of title: Planning Office, Auditor, Recorder, Assessor, State’s Attorney and County Highway Department. These departments will require a commitment of title or an attorney’s opinion of title and written consent from all property owners and lienholders prior to approving the use of an exemption.
 - 2. All lots created through the use of an exemption shall comply with the zoning district requirements of the applicable jurisdiction.
 - 3. All development on lots created through the use of an exemption shall comply with the development standards of this ordinance.
- (d) Any exemptions used under this section shall be executed via a certificate of survey and a deed of transfer filed with the Recorder’s Office.
- (e) Any exemptions that do not meet all of the requirements of this Section shall be reviewed as subdivisions and subject to all the subdivision review provisions of this Ordinance.

Section 4.02 Exemptions from Subdivision Review

- (a) A division of land pursuant to an allocation of land in the settlement of a decedent’s estate or a court decree for the distribution of real property.
- (b) A division of land for federal, state, or local government to:
 - 1. Acquire right-of-way for public use. Including but not limited to streets, crosswalks, railroad, electric transmission lines, oil or gas pipelines, water mains, sanitary or storm sewer mains, shade trees, legal drains, flood diversion structures, and flood diversion channels.
 - 2. Acquire land of flood prone properties for the purposes of a flood buyout.

3. Acquire land for the purpose of public parks.
 4. Acquire land for the purpose of a drainage easement or stormwater management facility.
- (c) A division of land into lots, tracts, or parcels of ten acres or more in size for the purpose of agricultural use with no anticipation of dwelling unit construction and does not involve any new streets, easements, or accesses other than field accesses.
- (d) A division of land into cemetery plots.
- (e) The combination or recombination of portions of previously subdivided and recorded lots if the number of lots is not increased.
- (f) A division of land involving a sale or transfer to an abutting property owner for the purpose of agricultural use.
- (g) A division of one parcel of land for the purpose of a mortgage of the agricultural operator's residence meeting the following criteria:
1. The site of the operator's residence must be within a farmstead which was developed prior to **March 6, 2006**.
 2. The new parcel must be less than 10 acres in size.
 3. All future divisions of either the parent parcel or the new parcel shall be reviewed as subdivisions and subject to all requirements of this Ordinance pertaining to subdivision of land.

Article V. Minor Subdivisions

Section 5.01 Minor Subdivision Procedures for Plat Review

- (a) **Pre-Application Sketch Plan Review.** An individual seeking to divide land within the subdivision jurisdiction of Cass County shall provide a sketch plan to the County Planner in order to verify the process and application requirements needed for plat review. It is recommended that a meeting be scheduled with the County Planner to discuss the review process and proposed plans. Such a meeting and/or review shall be considered confidential between the applicant and county staff. However, any documents submitted to the County relative or resulting from this meeting are subject to North Dakota Open Records Laws pursuant to NDCC §44-04.
- It is recommended that the applicant submit at least the information noted in Section 4.01 (b). Materials submitted, provided or discussed by the applicant for or during the pre-application review shall not satisfy any portion of the materials needed to complete a subdivision application. Any advice or assistance provided by county staff shall not be considered the County's final response. The Board of County Commissioners has the final authority on all matters relating to subdivision plat application, review, and approval.
- (b) **Final Plat Application – Minor Subdivision.** An application for Final Plat Approval for a Minor Subdivision may be submitted without a preliminary plat review and approval. Regardless of the results of a sketch plan review, submission of a final plat does not guarantee the final plat will be approved with or without changes. A final plat application shall be accompanied by all required documents and the required filing fee. Required final plat application documents include:
1. **An application form (obtained from the County Planning Office) completely and properly executed with all information legible and bearing all required signatures.**
 2. **A final plat containing all required information**
 3. **A filing fee consisting of a check or money order draw to the Cass County Highway Department.**
 4. **One copy of all supplemental information not included on the final plat.**
 5. **An attorney's opinion of title or similar document.**
- County staff shall have 7 days from the date of submission of an application to check the documents to determine if on their face they are in proper form and contain all the information required by this Ordinance. If defective, the application may be returned to the applicant with a statement that the application is incomplete; otherwise the application shall be deemed accepted as of the date of submission.
- (c) **Final Plat Review.** Upon acceptance of the final plat application, the following steps will be completed as part of the plat review process:
1. **A copy of the completed application documents will be sent by certified mail to the relevant township soliciting comments**
 2. **Copies of the completed application documents will be distributed to each of the following, when relevant, for review and comment:**

- a. Cass County Engineer
 - b. Cass County Planning Commissioners.
 - c. Water Resource District.
 - d. Electric company.
 - e. Telephone company.
 - f. Gas Company.
 - g. Cass Rural Water Users.
 - h. North Dakota Department of Transportation (if the subject site abuts a State road).
 - i. County Sanitarian.
 - j. Adjoining municipality (if site is located within one (1) mile of a municipal or ET boundary).
3. The County will notify the applicant or representing agent and all land owners within a minimum of 1,000 feet of the proposed final plat that the application is under review and will be considered by the Planning Commission at a public hearing on a specified date.
 4. The County Planner will schedule the Final Plat application for action at a regularly scheduled public meeting within ninety (90) days of the first public meeting of the Planning Commission after the date of filing.
 5. The County Planner will prepare a report of findings pertaining to the consistency of the proposed plat with this Ordinance and noting any comments or concerns raised by the relevant township or other reviewing parties.
- (d) Planning Commission Action. At a regularly scheduled Planning Commission meeting, following the closure of the relevant public hearing, the Planning Commission shall consider the reported findings and received public comment and shall make a determination if the requested plat is consistent with this Ordinance. The Planning Commission shall take an action to recommend denial of the application, approval of the application, or approval of the application with conditions.
- (e) Notification of Commission Action. Within fifteen (15) consecutive days after the meeting at which the Final Plat application is reviewed, the county staff shall send written notice of the Planning Commission's action to the following:
1. Landowner or his agent.
 2. Applicant.
 3. Firm that prepared the plan.
 4. Township Chairman.

- (f) If the application is disapproved, the staff will notify the above individuals, in writing, of the defects in the application and will identify the requirements which have not been met and citing the provisions of the statute or ordinance relied upon.
- (g) Compliance with Planning Commission Action. If the Planning Commission conditions its Final Plat approval upon receipt of additional information, changes and/or notifications, such data shall be submitted and/or alterations noted on two (2) copies of the Plan to be submitted to the county staff for approval.
- (h) Board of County Commissioner Agenda. If the Planning Commission recommendation is to deny the application, the Final Plat review shall be placed on the regular agenda of the Board of County Commissioners with a public hearing. If the Planning Commission recommendation is to approve the application (with or without conditions), the Final Plat review may be placed on the consent agenda of the Board of County Commissioners.
- (i) Board of County Commissioners Action. No plat shall be finally approved or disapproved by the Board of County Commissioners until the following has been met:
 1. Receipt of recommendation by the Planning Commission. The recommendations by the Planning Commission shall not be binding on the Board of County Commissioners.
 2. Receipt of written recommendation by the board of township supervisors of the township in which the proposed subdivision is located or more than 60 days have lapsed since notification to the relevant township without receipt of a recommendation by the board of township supervisors. If no written recommendation was received within the 60 day period, the Board of County Commissioners may take action on the final plat. The recommendations of the board of township supervisors shall not be binding on the Board of County Commissioners.
 3. The receipt of a Final Plat meeting all conditions established by the Planning Commission and all necessary information and materials prepared in accordance with this Ordinance.
 4. In determining whether a plat shall be finally approved or disapproved, the Board of County Commissioners shall inquire into the public use and interest proposed to be served by the subdivision. It shall determine if appropriate provisions are made for the public health, safety, and general welfare, for open spaces, drainage ways, streets, alleys, other public ways, water supplies, sanitary wastes, parks, playgrounds, sites for schools and school grounds, but its determination is not limited to the foregoing. The Board of County Commissioners shall consider all other relevant facts and determine whether the public interest will be served by the subdivision. If it finds that the proposed plat makes appropriate provisions for the public health, safety, and general welfare and for such open spaces, drainage ways, streets, alleys, other public ways, water supplies, sanitary wastes, parks, playgrounds, sites for schools and school grounds, and that the public use and interest will be served by the platting of such subdivision, and that the proposed plat complies with this Ordinance, such plat shall be finally approved with such conditions as the Board of County Commissioners may deem necessary. If it finds that the proposed plat does not make appropriate provisions, or that the public use and interest will not be served, or that the proposed plat does not so comply with this Ordinance, then the Board of County Commissioners shall disapprove the proposed plat. Dedication of land to any public body

may be required as a condition of subdivision approval and shall be clearly shown on the final plat.

- (j) Final Plat Recordation. Upon approval and certification of a final plat by the Board of County Commissioners, the applicant shall record the approved final plat in the office of the Cass County Recorder of Deeds.

Section 5.02 Minor Subdivision Sketch Plan Content

- (a) An individual seeking to divide land within the subdivision jurisdiction of Cass County may provide a sketch plan to the County Planner in order to verify the process and application requirements needed for plat review. It is recommended that a meeting be scheduled with the County Planner to discuss the review process and proposed division of land.
- (b) The sketch plan should include at least the following information.
 1. Name and address of the landowner, and the developer (if different than the landowner).
 2. Name of the individual and firm that prepared the sketch plan. The sketch plan may be prepared by the landowner or developer, but must meet the following requirements.
 3. Location map with labels showing the location of the land proposed to be platted and the sections adjacent to it.
 4. Existing parcel boundaries accurately labeled with the names of adjacent property owners and adjacent plats.
 5. Existing zoning of the land proposed to be platted and the land within 1,320 feet of it.
 6. Location map showing significant natural and man-made features (existing major buildings, bodies of water or wetlands, utilities, tree lines or groups of trees, excavations) on the land proposed to be platted and the land within 1,320 feet of it.
 7. Location of 100 year floodplain, floodway, and major drainage patterns on the land proposed to be platted and within 1,320 feet of it.
 8. Proposed lot layout in relationship to existing streets and drainageways drawn to approximate scale.
 9. Proposed land use(s) and their location in relationship to the proposed lot layout.
 10. Proposed methods for water supply and sewage treatment.

Section 5.03 Minor Subdivision Final Plat Content

- (a) Final plats shall be prepared by an engineer, a surveyor, or a landscape architect licensed in North Dakota.
- (b) Final plats must include the following information in order to be approved by the Cass County Board of County Commissioners and filed at the Cass County Recorder's Office.
 1. Lot lines, with accurate bearings and distances and lot areas for all lots. Curve segments shall be comprised of central angle, radii, and arc distances and also include arc, chord, bearing and distance for non-tangent curves. Along existing street rights-of-way, the description may utilize the existing deed lines or road centerlines; along all proposed street rights-of-way, the description shall be prepared to the right-of-way lines.

2. Complete description of the right-of-way lines for all new streets. This description shall include distances and bearings with curve segments comprised of central angle, radii, and arc distances and also include arc, chord, bearing and distance for non-tangent curves.
3. Easements and the purpose of each must be clearly stated. Easement dimensions must be sufficient to accurately describe their extent and boundaries.
4. Lot numbers and block designations.
5. Final street names.
6. Identification of any lands to be dedicated, reserved, donated or granted for public use or for donation to any individual, religious society, corporation, or limited liability company.
7. Any plat which includes lands abutting upon any lake, river, creek, or stream must show a contour line denoting the present shoreline, water elevation, and the date of survey. If any part of a plat lies within the one hundred year floodplain of a lake, river, or stream as designated by the department of water resources or a federal agency, the mean sea level elevation of that one hundred year flood must be denoted on the plat by numerals. Topographic contours at a two-foot contour interval referenced to mean sea level must be shown for the portion of the plat lying within the floodplain. All elevations must be referenced to a durable benchmark described on the plat with its location and elevation to the nearest hundredth of a foot, which must be given in mean sea level datum.
8. The names and adjacent boundary lines of any adjoining platted lands must be dotted on the plat. The designations and adjacent boundary lines of any unplatted parcels must be dotted on the plat.
9. The location and material of all permanent monuments and lot line markers, including a note that all monuments and lot line markers are set or indicating when they will be set.
10. Certificate, signature, and seal of the surveyor, to the effect that the survey is correct and certificate, signature and seal of the surveyor, engineer, or landscape architect that prepared the plat indicating that all other information shown on the plat is accurate.
11. A statement, duly acknowledged before an officer authorized to take acknowledgement of deeds and signed by the landowner, to the effect that the subdivision shown on the plat is the act and the deed of the owner, that all those signing are all the owners of the property shown on the survey and plat and that they desire the same to be recorded as such. This statement must be dated following the last change or revision to said plat. This statement shall be of the form shown in Figure X.

Figure 1.

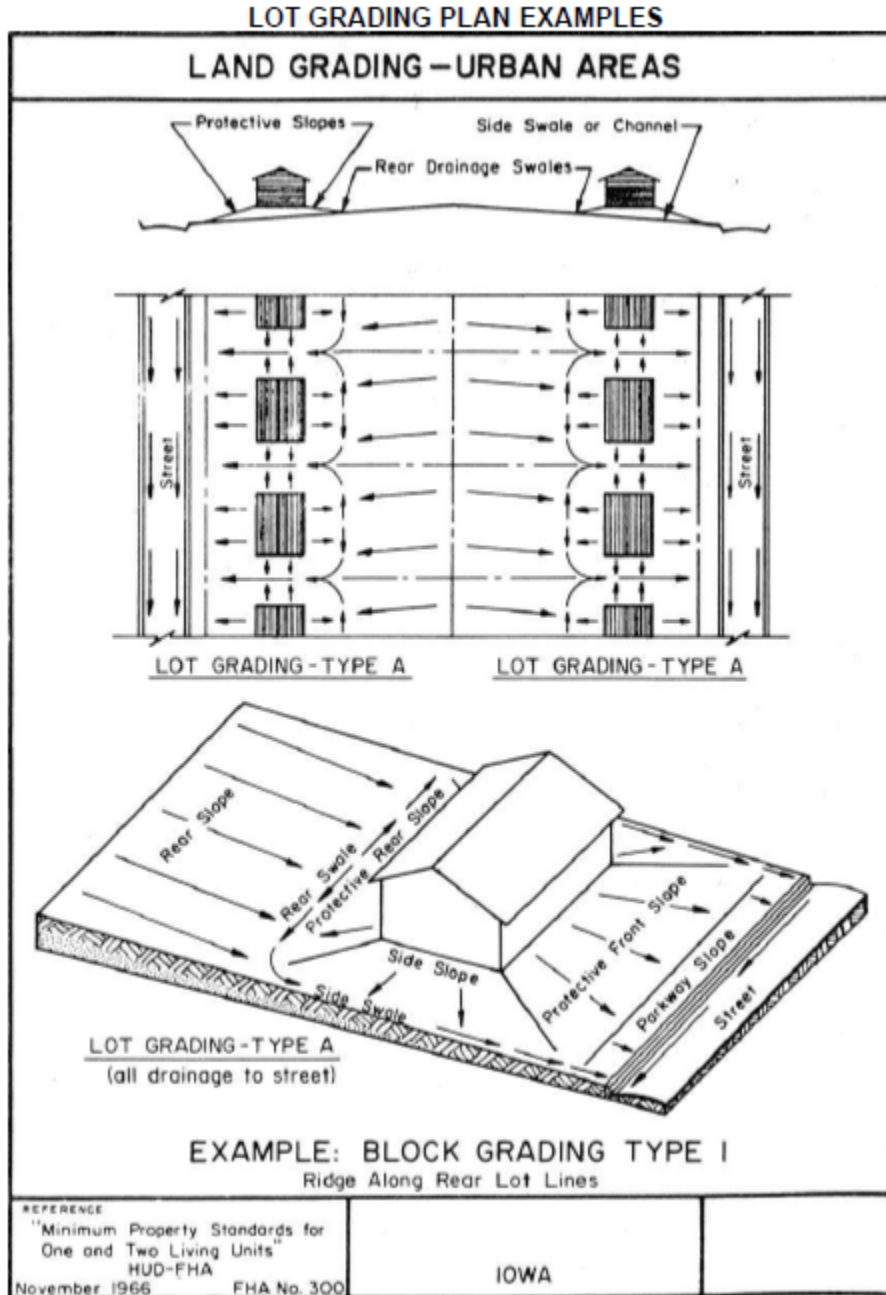
CERTIFICATE OF OWNERSHIP, ACKNOWLEDGMENT OF PLAN, AND OFFER DEDICATION
<u>INDIVIDUAL</u>
STATE OF NORTH DAKOTA COUNTY OF CASS
On this, the _____ day of _____, 20____, before me, the undersigned officer, personally appeared _____ who being duly sworn according to law, deposes and says that he is the * _____ of the property shown on this plan, that he acknowledges the same to be his act and plan, that he desires the same to be recorded and that all streets and other property identified as proposed public property (excepting those areas labeled "NOT FOR DEDICATION") are hereby dedicated to the public use.
** _____
*** _____
My Commission Expires _____, 20____
* Identity Ownership or Equitable Ownership
** Signature of the Individual
*** Signature and Seal of Notary Public

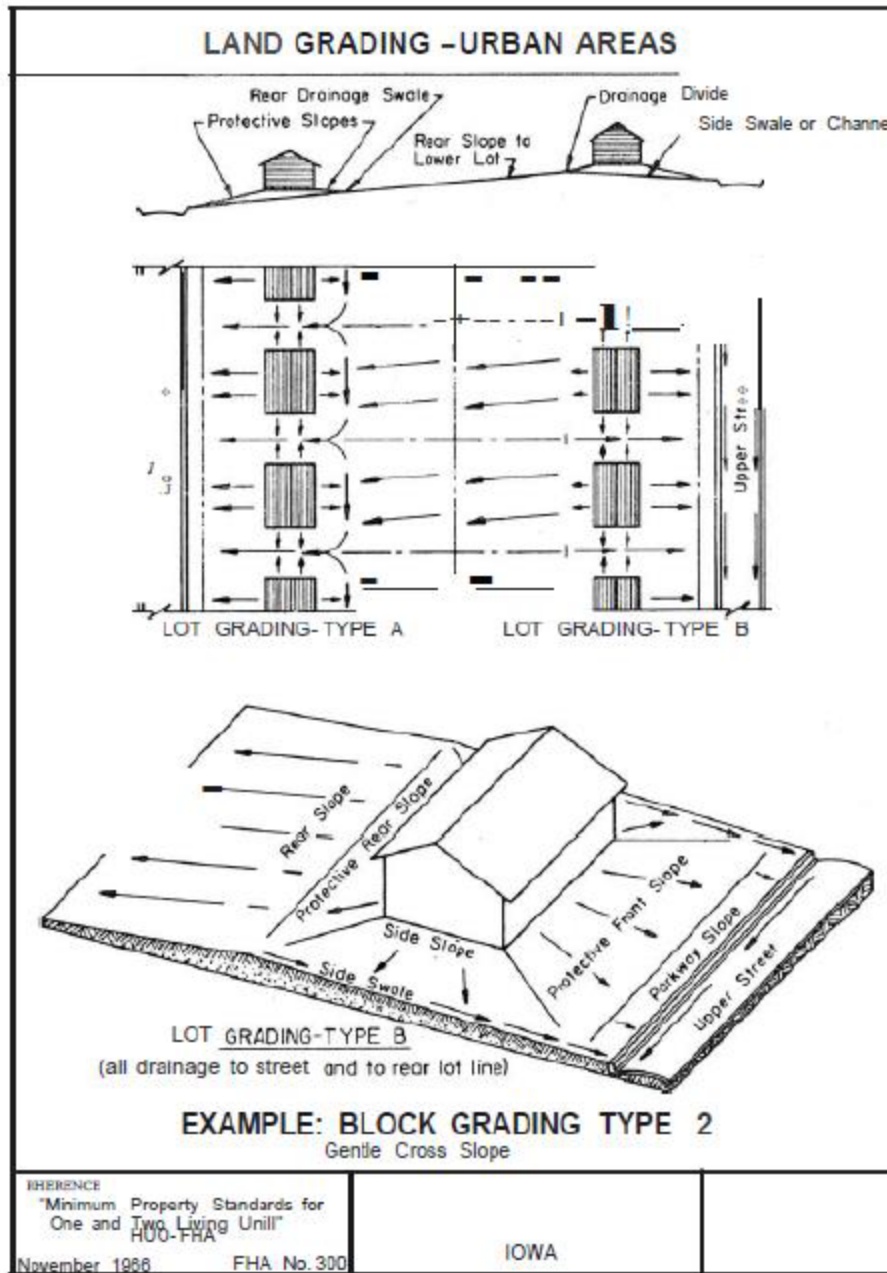
Section 5.04 Minor Subdivision Development Standards

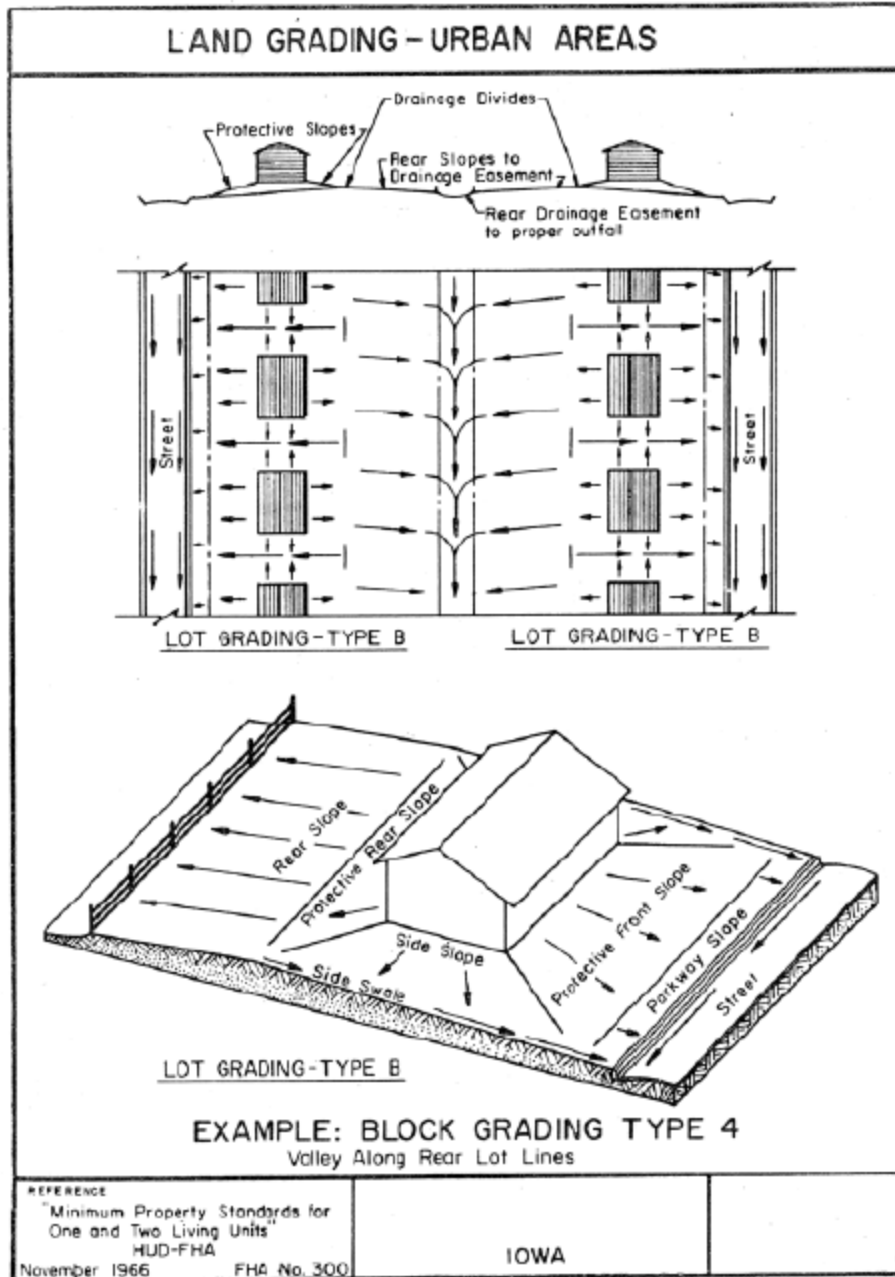
- (a) Lot Requirements. The lots of the Minor Subdivision shall meet all applicable yard and size requirements of the relevant zoning regulations, except that under no circumstances shall the minimum lot size be less than the minimum lot size required by the County Sanitarian.
- (b) Access and Easements. Access to the lots of the Minor Subdivision shall be determined by issuance of an access permit by the Cass County Highway Department. A single access point granting access to more than one lot is acceptable if appropriate easements across one lot to additional lots or parcels is provided.
- (c) Drainage and Floodplain.
 - 1. All developments with one (1) to four (4) buildable lots may construct and utilize open ditches for stormwater conveyance pursuant to this Ordinance. Ditches within the proposed subdivision and along all roads providing access to three (3) or more buildable lots shall have a minimum ditch grade of not less than two and one half tenths of one percent (0.25%) with inslope no steeper than five (5) horizontal to one (1) vertical (5:1) and backslope no steeper than four (4) horizontal to one (1) vertical (4:1) and a minimum ditch bottom of five (5) feet.
 - 2. Existing section line ditches within the proposed subdivision shall have a minimum ditch grade of not less one tenth of one percent (0.1%) with inslope no steeper than five (5) horizontal to one (1) vertical (5:1) and backslope no steeper than four (4) horizontal to one

(1) vertical (4:1) and a minimum ditch bottom of five (5) feet. This standard may extend to the section lines ditches outside of the proposed subdivision at the discretion of the County Engineer.

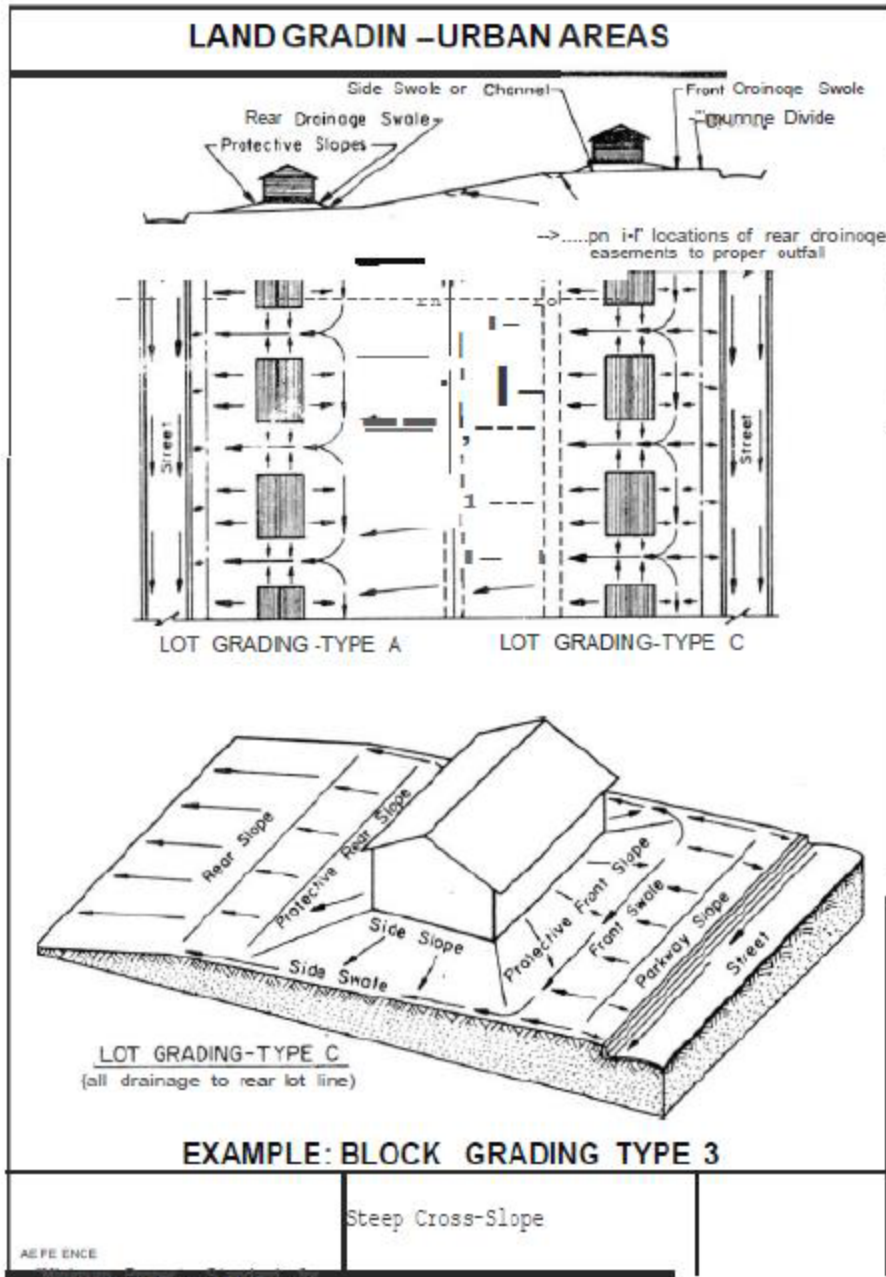
3. Lot grading plans that meet the requirements of the County Engineer shall be submitted (see examples below and on the following page).





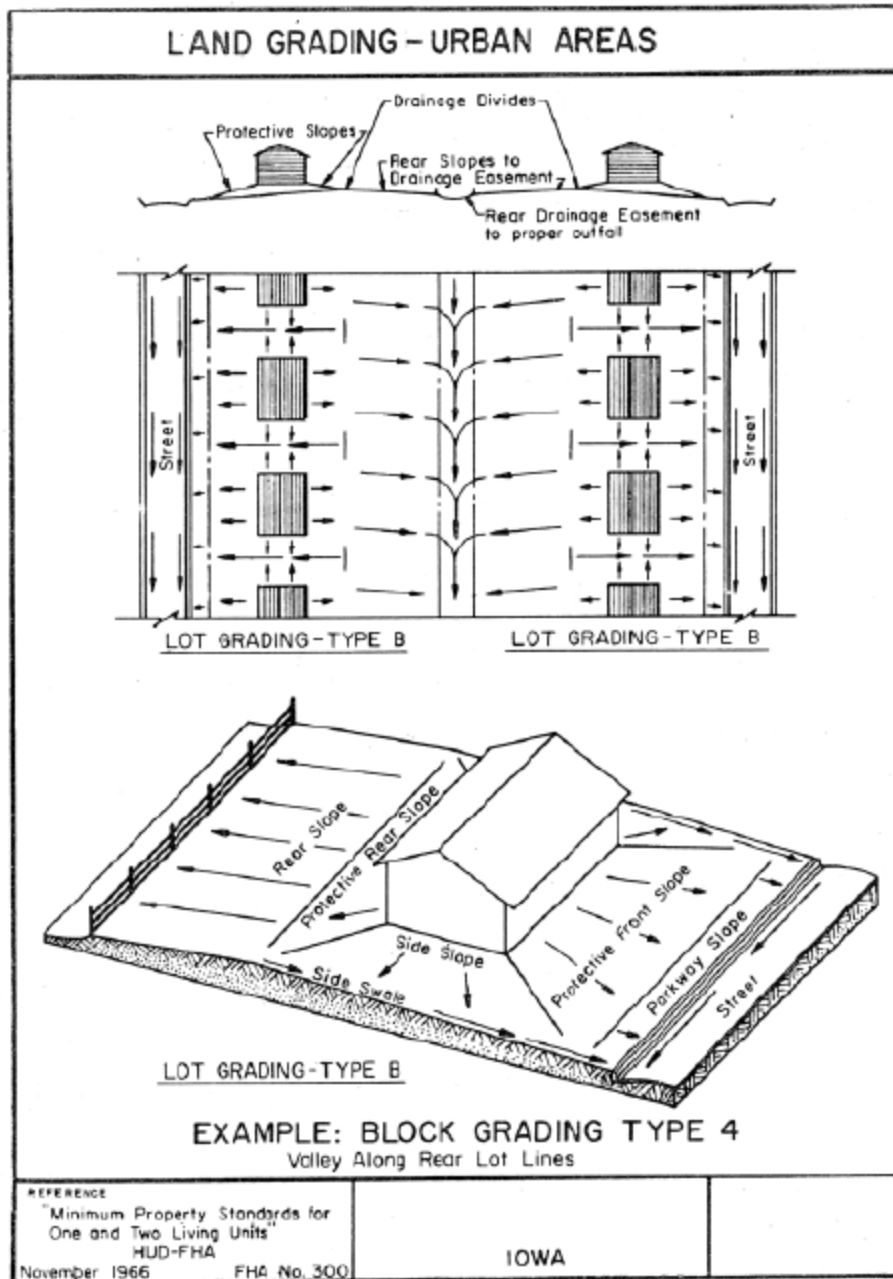


Source: Iowa Department of Soil Conservation, *Guidelines for Soil and Water Conservation in Urbanizing Areas*



REFERENCE
Minimum Property Standards for
One and Two Living Units
H.U.O.-F.H.A.
November 1966 F.H.A. No. 300

IOWA



Source: Iowa Department of Soil Conservation, *Guidelines for Soil and Water Conservation in Urbanizing Areas*

4. All necessary drainage easements shall be provided on the plat.
5. Proposed drainage shall demonstrate no adverse impact on surrounding land and drainage systems.
6. All proposed developments, except those in townships with adopted floodplain management regulations, shall be built pursuant to the Cass County Flood Damage Ordinance #1998-2, as it presently exists or may hereafter be amended.

- (d) Lot Density Restrictions. For the purpose of encouraging orderly and economically-feasible growth, preventing new developments from creating economic strains on county residents, protecting the county's valuable farmland and agricultural traditions, promoting development that will more easily convert to an urban environment and implementing the goals and objectives established by the 2005 Cass County Comprehensive Plan and supported in the 2018 Cass County Comprehensive Plan the following lot density restriction is established. This density restriction will promote small, truly rural developments that will mesh more easily with existing agricultural land and activities and will encourage larger urban style subdivisions to develop in the urban fringe and other areas with supportive infrastructure. Developments built beyond the density restriction will be constructed with full supportive urban infrastructure, ensuring developments that will more easily transition into an urban development upon annexation without extensive and costly infrastructure upgrades. Except as noted in the exemptions below, no subdivision of land shall exceed one (1) buildable lot per quarter-quarter section or government lot.
1. If the development has followed the transfer of development rights pursuant to this Ordinance and in accordance with all other required provisions of this Ordinance; or
 2. If the subdivision will be built to full urban design standards and the strictest requirements outlined within Article VI of this Ordinance; including but not limited to paved roads with curb and gutter, a paved access road, municipal sewer system, public water supply system with functioning fire hydrants, stormwater facilities, street lights, street trees, street signs, sidewalks, bike paths and park dedications.
- (e) Development Rights. Except as noted below, every quarter-quarter section, **government lot**, or existing legally subdivided lot or "legal lot" as of **March 6, 2006** is granted one (1) Development Right to create a buildable lot. Development Rights can be used, held or transferred to contiguous properties under common ownership. Development Rights may not be transferred if the land has any one of the following characteristics:
1. Land that has an existing dwelling, either residential or agricultural. In these situations, the Development Right has been used.
 2. Land that has an existing commercial use or other non-agricultural use.
 3. Land that is not under complete and common ownership.
 4. Land that does not have a suitable building site due to a covenant, easement, conservation easement or deed restriction, unless and until such time as said covenant, easement or restriction is dissolved or rescinded.
 5. The subdivision will be built to full urban design standards and the strictest requirements outlined within Article VI of this Ordinance; including but not limited to paved roads with curb and gutter, a paved access road, municipal sewer system, public water supply system with functioning fire hydrants, stormwater facilities, street lights, street trees, street signs, sidewalks, bike paths and park dedications.

- (f) Development Rights Transferable. Development rights can be used to increase the density permitted on contiguous land under common ownership when platted to meet all applicable requirements of this Ordinance. The development right of a property may be transferred to another eligible property. The maximum number of development rights that can be transferred onto a quarter- quarter section, **government lot**, or legal lot is eleven (11), therefore limiting each quarter-quarter section, **government lot**, or legal lot to a maximum of twelve (12) buildable lots (i.e., one permitted existing buildable lot per quarter- quarter section, **government lot**, or legal lot and up to eleven (11) additional transferred developable rights). Each development right that is transferred provides the receiving property with one additional buildable lot. In order to transfer a development right, the owner of the sending property must submit the following materials to the County Planner during the subdivision and platting process:
1. A copy of the Deed Restriction, as outlined in this Ordinance, expressing that a development right has been transferred to the proposed building site from a contiguous quarter-quarter section, **government lot**, or legal lot under common ownership.
 2. A map showing the location of the proposed building site's quarter-quarter section, **government lot**, or legal lot (the receiving property) and the quarter-quarter section, **government lot**, or legal lot from which the development right was transferred from (the sending property) on a standard 8 ½ by 11 inch sheet of paper.
- (g) Deed Restrictions. The transfer of development rights as regulated in this Ordinance requires the sending property to be deed restricted, limiting future development on the sending property until such time as:
1. The deed restricted property is completely within the extraterritorial (ET) boundaries of an incorporated city of Cass County, or
 2. The deed restricted property is completely annexed by an incorporated city of Cass County, or
 3. The deed restricted property is platted as a major subdivision to be built to full urban design standards and the strictest requirements of this Ordinance; including but not limited to paved roads with curb and gutter, a paved access road, municipal sewer system, public water supply system with functioning fire hydrants, storm water facilities, street lights, street trees, street signs, sidewalks, bike paths and park dedications.

When one of these three circumstances exist the deed restriction on the land will be retired and the property will follow the necessary procedures for development of the applicable jurisdiction.

The deed **restriction** shall limit any further residences, subdivisions, or nonagricultural development on the sending property, and shall be on a form provided by the County Planner and shall include the following information:

1. Record Fee Owner(s) legal name
2. Legal description of the deed restricted property

3. Agreement description stating the following:
 - a. The land meets the criteria established by this Ordinance for sending properties
 - b. The legal description of the receiving property on the adjacent quarter-quarter section, **government lot**, or legal lot
 - c. The described sending property cannot be developed by subdivision or construction of any further residences or nonagricultural structures or uses
 - d. Date and signature of Fee Owner(s)
 - e. Date and signature of Notary Public
 - f. Date and signature of County Engineer

When an existing deed restriction needs modification in order to accomplish a legitimate objective allowed by this Ordinance, the process, forms, and requirements applicable to the original deed restriction shall be required for the modification of the original deed restriction. The form shall be provided by the County Planner and contain the same information as was on the original deed restriction form. When a deed restriction is being retired, the retirement shall be noted on the same form as used for modifications of deed restrictions. In the event a deed restriction is retired completely, the formerly restricted property will follow the necessary procedures for development of the applicable jurisdiction.

(h) Watercourse Setback Requirements.

1. Purpose. In order to minimize the potential for slumping, bank failures, landslides, other environmental impacts, and the associated damage to structures and property certain requirements are established by this ordinance for all proposed subdivisions adjacent to blue line perennial watercourses, as identified on the most recent version of a 1:100,000 or 1:24,000 USGS quadrangle.
2. Setbacks. Applicants proposing subdivisions adjacent to blue line perennial watercourses, as identified on the most recent version of a 1:100,000 or 1:24,000 USGS quadrangle, shall delineate building control lines on the recorded plat limiting certain activities and land uses in these designated areas.
3. Building Control Lines. Except when using the Alternate Method of establishing the Minimal Disturbance Zone Setback of this Ordinance, all subdivisions shall provide the following building control lines, measured horizontally and perpendicular from the centerline of the watercourse towards the proposed development, regulating the use and activities within these building control lines in accordance with Minimal and Limited Disturbance Zone Requirements of this Ordinance:
 - a. Minimal Disturbance Zone Setback: three hundred and fifty (350) feet for the Red and Wild Rice rivers. All other blue line perennial watercourses Minimal Disturbance Zone Setback may be based on the three hundred and fifty (350) foot setback or be equal to vertical difference between the top of bank and the river bottom (plus any additional flood plain elevation requirements) multiplied by eight (8).

- b. Limited Disturbance Zone Setback: beginning at the outer edge of the Minimal Disturbance Zone Setback and extending one hundred (100) feet.
- 4. Alternate Method of establishing Minimal Disturbance Zone Setbacks. As an alternative to using the established Minimal Disturbance Zone Setback along the blue line perennial watercourses, an applicant may request to use a site specific Minimal Disturbance Zone Setback, determined as a result of a detailed geotechnical investigation. The investigation must be performed by a registered professional engineer and testing firm acceptable to the County Engineer. Sufficient number of soil borings must be performed and at appropriate locations to provide a representative sampling of the site. The soils report and determination shall use accepted engineering/ASTM evaluation methods including, but not limited to, triaxial shear test in a supersaturated condition. Borings must be of sufficient depth to allow evaluation of the soils within the Upper Brenna Formation. Report recommendations shall use a minimum 1.3 factor of safety. The County reserves the right for the County Engineer or Planning Commission to reject proposed alternate building control lines.
 - a. The alternate Minimal Disturbance Zone Setback shall meet the requirements set forth in Minimal Disturbance Zone Setback Requirements of this Ordinance.
 - b. The Limited Disturbance Zone Setback Requirements shall apply to all subdivisions employing the alternate method of establishing the Minimal Disturbance Zone Setback.
- 5. Minimal Disturbance Zone Setback Requirements. All property within the minimal disturbance zone setback shall conform to the following regulations:
 - a. No permanent structures shall be allowed except the following:
 - i. Stairways, lifts, and landings.
 - ii. Roads, bridges, trails, storm drainage, stormwater management facilities, and utilities are permitted within the minimal disturbance zone provided that an alternatives analysis has clearly demonstrated that no other feasible alternative exists and that minimal disturbance will take place. These structures shall be located, designed, constructed and maintained to provide maximum erosion protection, to have the least adverse effects on wildlife, aquatic life and their habitats and to maintain hydrologic processes and water quality. Following any disturbance, the impacted area shall be restored.
 - iii. Bike paths, walking trails, or other multi-use paths.
 - b. No additional fill shall be allowed, except fill required to plant new trees or vegetation pursuant to the Vegetation Standards of this Ordinance
 - c. No grading shall be allowed, except grading for bank restoration in areas experiencing bank slumping.
 - d. No excavating shall be allowed, except excavating required to plant new trees or vegetation pursuant to the Vegetation Standards of this Ordinance.
 - e. On-site septic systems and drain fields shall not be permitted.
 - f. Irrigation systems shall not be permitted.

- g. Vegetation Standards. Alterations of vegetation and topography shall prevent erosion into public waters, fix nutrients, preserve watercourse natural aesthetics, preserve historic values, prevent bank slumping and protect fish and wildlife habitat. Removal or alterations of vegetation is allowed according to the following standards:
- i. Intensive vegetation clearing shall not be allowed.
 - ii. Vegetation previously disturbed or disturbed during the construction of the development or dwellings shall provide native riparian vegetation cover.
 - iii. Replacement of native riparian vegetation with non-native species shall not be allowed.
 - iv. Limited clearing of trees and shrubs and cutting, pruning and trimming of trees to accommodate the placement of stairways and landings, access paths and watercraft access areas, as well as providing a view to the watercourse from the principal dwelling unit or dwelling site, provided that:
 1. The removal of vegetation shall be limited to a width less than six (6) feet to provide the placement of a stairway or path access to watercourse for residential lots. The removal of vegetation shall be limited to a width less than ten (10) feet to provide the placement of a stairway or path to provide access to watercourse for commercial properties or public open-space recreational properties.
 2. The removal of vegetation shall be limited to a width less than six (6) feet for facilities such as ramps, lifts or mobility paths for physically challenged to achieve watercourse access on residential lots. The removal of vegetation shall be limited to a width less than ten (10) feet for facilities such as ramps, lifts or mobility paths for physically handicapped persons to achieve watercourse access for commercial properties or public open-space recreational properties.
 3. The removal of vegetation shall be limited to an area less than forty-nine (49) square feet for stairway and lift landings on residential lots. The removal of vegetation shall be limited to eighty-one (81) square feet for landings used for commercial properties or public open-space recreational properties.
 4. Limited pruning of trees limbs to afford a view of the watercourse from the principal dwelling unit or dwelling site shall be permitted and shall be performed in conformance with good nursery and landscape practices. The complete removal of trees or intensive vegetation clearing to afford a view of the watercourse shall not be permitted.
 5. The screening of structures, vehicles or other facilities as viewed from the watercourse, assuming summer leaf-on conditions, is not substantially reduced.

6. Along rivers, existing shading of water surfaces is preserved.
 7. The above provisions are not applicable to the removal of trees, limbs or branches that are dead, diseased, or pose safety hazards.
6. Limited Disturbance Zone Setback Requirements. All property within the limited disturbance zone setback shall conform to the following regulations:
- a. No permanent structures shall be allowed except the following:
 - i. Stairways, lifts, and landings.
 - ii. Roads, bridges, trails, storm drainage, stormwater management facilities, and utilities are permitted within the minimal disturbance zone provided that an alternatives analysis has clearly demonstrated that no other feasible alternative exists and that minimal disturbance will take place. These structures shall be located, designed, constructed and maintained to provide maximum erosion protection, to have the least adverse effects on wildlife, aquatic life and their habitats and to maintain hydrologic processes and water quality. Following any disturbance, the impacted area shall be restored.
 - iii. Bike paths, walking trails, or other multi-use paths.
 - iv. One accessory building not to exceed one hundred and twenty (120) square feet.
 - b. No additional fill shall be allowed.
 - c. No grading shall be allowed, except grading for bank restoration in areas experiencing bank slumping.
 - d. On-site septic systems and drain fields shall not be allowed.
 - e. Irrigation systems shall not be allowed.

(i) **Vegetative Buffer Requirements.**

1. Purpose. A vegetative buffer is a strip of undisturbed native vegetation, either original or reestablished, that borders streams, rivers, ponds and lakes, wetlands, and seeps. These vegetative buffer areas filter excess sediment, provide flood protection, reduce storm runoff velocities, protect channel bank areas from scour and erosion, stabilize riverbanks and provide shade to cool adjacent water.
2. A vegetative buffer shall be required along all blue line perennial watercourses and wetlands as identified on the most recent version of a 1:100,000 or 1:24,000 USGS quadrangle map based on the following requirements.
 - a. In areas where a floodway profile has been computed as part of an approved flood study, the buffer zone shall be the width of the floodway plus at least fifty (50) feet perpendicular from the edge of the floodway on each side of the waterway.
 - b. In areas where a floodway profile has not been computed as part of an approved flood study, the buffer zone shall be at least fifty (50) feet perpendicular from the top of bank on each side of the waterway.

- c. When a delineated wetland extends beyond the edge of the required buffer zone width, the buffer zone shall be adjusted so that the buffer zone consists of the extent of the delineated wetland plus twenty five (25) feet extending perpendicular beyond the wetland edge.
- d. When a vegetative buffer is established parallel to contour lines along the watercourse and at increased widths for areas of steeper slopes, the minimum required width may be reduced in accordance with the following table:

Table 1. Buffer Reduction Table	
Percent Slope	Width of Buffer
0%-2%	Subtract 15 feet
3%-5%	Subtract 10 feet
6%-10%	Subtract 5 feet
11%-14%	No change

- 3. The vegetative buffer zone width shall be adjusted to meet the following requirements:
 - a. All vegetative buffer zone widths shall be adjusted if the following slopes are present within the vegetative buffer zone:

Table 2. Slope-Width Table	
Percent Slope	Width of Buffer
15%-17%	Add 10 feet
18%-20%	Add 30 feet
21%-23%	Add 50 feet
24%-25%	Add 60 feet

- b. If the proposed or existing land use or activity involves the storage of hazardous substances or petroleum facilities, the buffer zone width shall also be adjusted to include an additional one hundred and fifty (150) feet plus any additional distance required based on the Slope-Width Table.
 - c. If the proposed or existing land use or activity involves animal feeding operations, the buffer zone width shall also be adjusted to include an additional two hundred and fifty (250) feet, plus any additional distance required based on the Slope-Width Table.
 - d. If the proposed or existing land use or activity involves solid waste landfills or junkyards, the buffer zone width shall also be adjusted to include an additional three hundred (300) feet, plus any additional distance required based on the Slope-Width Table.
- 4. Management of the vegetative buffer zone includes specific limitations on alteration of the natural conditions pursuant to the minimal and limited disturbance zone setbacks of this Ordinance.
- 5. Stream banks and other areas within the vegetative buffer zone must be left in a stabilized condition upon completion of the development activities. The vegetative condition of the entire streamside vegetative buffer zone must be monitored and landscaping or stabilization performed to repair erosion, damaged or removed vegetation, bare ground, or other problems identified. Only native riparian vegetation may be used in conjunction with stabilization activities.

6. All vegetative buffer zones must be protected during development activities. Prior to the initiation of development activities, ensure adequate visibility of the water quality buffer zones by staking and flagging. Vegetative buffer zones, except vegetative buffer zones that are completely within the limited or minimal disturbance zone setbacks, shall be surveyed and iron pins set in the ground on side lots lines.

(j) Erosion and Sedimentation Requirements.

1. Purpose. In order to minimize erosion and sedimentation, certain requirements shall apply to all sites disturbing one or more acres of land by grading or excavation. The following standards are intended to ensure conformance with requirements established by the ND Department of Environmental Quality.
2. No changes shall be made in the contour of the land; no grading, excavating, removal, or destruction of topsoil, trees, or other vegetative cover of the land shall be commenced within a proposed subdivision tract until such time that a plan for minimizing erosion and sedimentation control has been reviewed by the Planning Commission and the County Engineer.
3. The following measures are effective in minimizing erosion and sedimentation and shall be included where applicable in the control plan using the ND Department of Transportation Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended.
 - a. Stripping of vegetation and grading shall be kept to a minimum;
 - b. Development plans shall preserve significant natural features, cut and fill operations shall be kept to a minimum and plans shall conform with the topography so as to create the least erosion potential and adequately handle the volume and velocity of surface water runoff.
 - c. Whenever feasible, natural vegetation shall be retained, protected and supplemented.
 - d. The disturbed area and the duration of exposure shall be kept to a practical minimum.
 - e. Disturbed soils shall be stabilized by permanent vegetation and/or by engineered erosion control and drainage measures as soon as practicable in the development process.
 - f. Temporary vegetation and/or mulching shall be used to protect exposed critical areas during development.
 - g. Provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development. Where necessary the rate of surface water runoff will be mechanically retarded.
 - h. Sediment in the runoff water shall be trapped until the disturbed area is stabilized by the use of debris basins, sediment basins, silt traps, or similar measures.
 - i. Basin and perimeter controls shall be established at the commencement of work on the site.
 - j. Storage piles shall be protected and stabilized within thirty (30) days.
 - k. Earth or paved interceptors and diversions shall be installed at the top of cut or fill slopes where there is a potential for erosive surface runoff.

4. In order to prevent pollution of any watercourse and to reduce erosion of soil, sediment control devices shall be installed prior to any grading, filling, or excavation. Such devices shall be designed to retain sediment on the site or flowing adjacent to the site.
5. Within thirty (30) days after completion of grading, all surfaces disturbed by vegetation removal, grading, haul roads, or other construction activity that alters natural vegetative cover, are to be revegetated to control erosion, unless covered with impervious or other improved surfaces authorized by approved plans. Erosion controls may include any combination of approved engineering or vegetative measures using the North Dakota Department of Transportation (NDDOT) Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended.
6. Within thirty (30) days after completion of grading, all surfaces disturbed by vegetation removal, grading, haul roads, or other construction activity that alters natural vegetative cover, are to be revegetated to control erosion, unless covered with impervious or other improved surfaces authorized by approved plans. Erosion controls may include any combination of approved engineering or vegetative measures using the North Dakota Department of Transportation (NDDOT) Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended.

Article VI. Major Subdivisions

Section 6.01 Major Subdivision Procedures for Plat Review

- (a) Pre-Application Sketch Plan Review. An individual seeking to divide land within the subdivision jurisdiction of Cass County shall provide a sketch plan to the County Planner in order to verify the process and application requirements needed for plat review. It is recommended that a meeting be scheduled with the County Planner to discuss the review process and proposed plans. Such a meeting and/or review shall be considered confidential between the applicant and county staff. However, any documents submitted to the County relative or resulting from this meeting are subject to North Dakota Open Records Laws pursuant to NDCC §44-04.

It is recommended that the applicant submit at least the information noted in Section 6.01 (b). Materials submitted, provided or discussed by the applicant for or during the pre-application review shall not satisfy any portion of the materials needed to complete a subdivision application. Any advice or assistance provided by county staff shall not be considered the County's final response. The Board of County Commissioners has the final authority on all matters relating to subdivision plat application, review, and approval.

- (b) Preliminary Plat Application – Major Subdivision. An application for Preliminary Plat Approval for a Major Subdivision shall be submitted for review and approval. Regardless of the results of a sketch plan review, submission of a preliminary plat does not guarantee the preliminary plat will be approved with or without changes. A preliminary plat application shall be accompanied by all required documents and the required filing fee in the form of a check or money order made payable to the Cass County Highway Department. Required preliminary plat application documents include:
1. An application form (obtained from the County Planning Office) completely and properly executed with all information legible and bearing all required signatures.
 2. A preliminary plat containing all required information. Required information includes:
 - a. Location and identification
 - b. Existing features
 - c. Street, easement, lot and block information
 - d. Floodplain information
 - e. Watercourse setback lines
 - f. Vegetative buffer information
 3. One copy of all supplemental information not included on the preliminary plat. Required supplemental information includes:
 - a. Preliminary stormwater management plans, existing and proposed easements for stormwater management, proposed grading, existing and proposed facilities for stormwater management, and relevant calculations
 - b. Erosion and sedimentation information
 - c. Identification of buildings and historic features proposed to be removed
 - d. Typical cross section of each proposed street type

- e. Street centerline profile for each proposed street
 - f. Preliminary design of proposed sanitary sewer mains
 - g. When connection to an existing sanitary sewer system is proposed, written notice from the authority providing sanitary sewer service indicating intent to serve the proposed development.
 - h. Preliminary design for proposed water supply mains
 - i. When connection to an existing water supply system is proposed, written notice from the authority providing water supply service indicating intent to serve the proposed development.
 - j. Where the subject tract contains an electric transmission line, a gas pipeline, a telecommunication line, or a petroleum or petroleum product transmission line located within the lots proposed to be developed, written notice from the entity with rights to such area as to the location of required setback and/or right-of-way lines and approval of any changes to the land located within such area shall be provided.
 - k. Written statement of proposed variances along with supporting justification
 - l. Such other information as may be requested by the County Planning Office.
4. A filing fee consisting of a check or money order drawn to the Cass County Highway Department.

County staff shall review the application documents to determine if on their face they are in proper form and contain all the information required by this Ordinance. If defective, the application may be returned to the applicant with a statement that the application is incomplete; otherwise the application shall be deemed accepted as of the date of submission.

- (c) Preliminary Plat Review. Upon acceptance of the preliminary plat application, the following steps will be completed as part of the plat review process:
1. A copy of the completed application documents will be sent by certified mail to the relevant township soliciting comments
 2. Copies of the completed application documents will be distributed to each of the following, when relevant, for review and comment:
 - a. Cass County Engineer
 - b. Cass County Planning Commissioners.
 - c. Water Resource District.
 - d. Electric company.
 - e. Telephone company.
 - f. Gas Company.
 - g. Cass Rural Water Users.
 - h. North Dakota Department of Transportation (if the subject site abuts a State road).
 - i. County Sanitarian.
 - j. Adjoining municipality (if site is located within one (1) mile of a municipal or ET boundary).

3. The County will notify the applicant or representing agent and all land owners within a minimum of 1,000 feet of the proposed final plat that the application is under review and will be considered by the Planning Commission at a public hearing on a specified date.
 4. The County Planner will schedule the Preliminary Plat application for action at a regularly scheduled public meeting within ninety (90) days of the first public meeting of the Planning Commission after the date of filing.
 5. The County Planner will prepare a report of findings pertaining to the consistency of the proposed plat with this Ordinance and noting any comments or concerns raised by the relevant township or other reviewing parties.
- (d) Planning Commission Action. At a regularly scheduled Planning Commission meeting, following the closure of the relevant public hearing, the Planning Commission shall consider the reported findings and received public comment and shall make a determination if the requested plat is consistent with this Ordinance. The Planning Commission shall take an action to recommend denial of the application, approval of the application, or approval of the application with conditions.
- (e) Notification of Commission Action. Within fifteen (15) consecutive days after the meeting at which the Preliminary Plat application is reviewed, the county staff shall send written notice of the Planning Commission's action to the following:
1. Landowner or his agent.
 2. Applicant.
 3. Firm that prepared the plan.
 4. Township Chairman.

- (f) If the application is disapproved, the staff will notify the above individuals, in writing, of the defects in the application and will identify the requirements which have not been met and citing the provisions of the statute or ordinance relied upon.
- (g) Compliance with Planning Commission Action. If the Planning Commission conditions its Preliminary Plat approval upon receipt of additional information, changes and/or notifications, such data shall be submitted and/or alterations noted on two (2) copies of the Plan to be submitted to the county staff for approval.
- (h) Planning Commission Approval. Approval of a preliminary plat application shall constitute approval of the proposed subdivision as to the character and intensity of development and the general arrangement of streets, lots, structures and other planned facilities, but shall not constitute Final Plat approval. The Preliminary Plat may not be recorded in the office of the Cass County Recorder of Deeds.
- (i) Preliminary Plat Approval Duration. Preliminary Plat approval will be effective for a one (1) year period from the date of the Planning Commission's approval of the Preliminary Plat application; therefore, Final Plat applications for the entire project must be filed within one (1) year of Preliminary Plat approval unless the Planning Commission grants a variance by extending the effective time period of the approval.
- (j) Final Plat Application – Major Subdivision. An application for Final Plat Approval for a Major Subdivision may be submitted only when one of the following is true:
 - 1. The final plat application is consistent in all respects with an unconditional preliminary plat approval from the Planning Commission.
 - 2. The final plat application demonstrates conformance with all conditions of a preliminary plat approval from the Planning Commission.
 - 3. Either paragraph (1) or (2) occurs and the final plat application proposes a change to the approved preliminary plat that is determined by the Planning Commission to be insignificant because it does not change any impact to the surrounding properties.
- (k) The application for Final Plat Approval may be submitted in sections of the preliminary plat approved by the Planning Commission in the case that at least 25% of the total number of lots on the approved preliminary plat are included in the final plat application, except that the last possible Final Plat application may be for a smaller number of lots.
- (l) Required final plat application documents include:
 - 1. An application form (obtained from the County Planning Office) completely and properly executed with all information legible and bearing all required signatures.
 - 2. A final plat containing all required information
 - 3. A filing fee consisting of a check or money order draw to the Cass County Highway Department.
 - 4. One copy of all supplemental information not included on the final plat.
 - 5. An attorney's opinion of title or similar document.

County staff shall have 7 days from the date of submission of an application to check the documents to determine if on their face they are in proper form and contain all the information required by this Ordinance. If defective, the application may be returned to the applicant with a statement that the application is incomplete; otherwise the application shall be deemed accepted as of the date of submission.

- (m) Final Plat Review. Upon acceptance of a final plat application, the following steps will be completed as part of the plat review process:
 - 1. A copy of the completed application documents will be sent by certified mail to the relevant township soliciting comments
 - 2. Copies of the completed application documents will be distributed to each of the following, when relevant, for review and comment:
 - a. Cass County Engineer
 - b. Cass County Planning Commissioners.
 - c. Water Resource District.
 - d. Electric company.
 - e. Telephone company.
 - f. Gas Company.
 - g. Cass Rural Water Users.
 - h. North Dakota Department of Transportation (if the subject site abuts a State road).
 - i. County Sanitarian.
 - j. Adjoining municipality (if site is located within one (1) mile of a municipal or ET boundary).
 - 3. The County will notify the applicant or representing agent and all land owners within a minimum of 1,000 feet of the proposed final plat that the application is under review and will be considered by the Planning Commission at a public hearing on a specified date.
 - 4. The County Planner will schedule the Final Plat application for action at a regularly scheduled public meeting within ninety (90) days of the first public meeting of the Planning Commission after the date of filing.
 - 5. The County Planner will prepare a report of findings pertaining to the consistency of the proposed plat with this Ordinance and noting any comments or concerns raised by the relevant township or other reviewing parties.
- (n) Planning Commission Action. At a regularly scheduled Planning Commission meeting, following the closure of the relevant public hearing, the Planning Commission shall consider the reported findings and received public comment and shall make a determination if the requested plat is consistent with this Ordinance. The Planning Commission shall take an action to recommend denial of the application, approval of the application, or approval of the application with conditions.
- (o) Notification of Commission Action. Within fifteen (15) consecutive days after the meeting at which the Final Plat application is reviewed, the county staff shall send written notice of the Planning Commission's action to the following:
 - 6. Landowner or his agent.
 - 7. Applicant.

8. Firm that prepared the plan.
 9. Township Chairman.
- (p) If the application is disapproved, the staff will notify the above individuals, in writing, of the defects in the application and will identify the requirements which have not been met and citing the provisions of the statute or ordinance relied upon.
- (q) Compliance with Planning Commission Action. If the Planning Commission conditions its Final Plat approval upon receipt of additional information, changes and/or notifications, such data shall be submitted and/or alterations noted on two (2) copies of the Plan to be submitted to the county staff for approval.
- (r) Board of County Commissioners Agenda. If the Planning Commission recommendation is to deny the application, the Final Plat review shall be placed on the regular agenda of the Board of County Commissioners with a public hearing. If the Planning Commission recommendation is to approve the application (with or without conditions), the Final Plat review may be placed on the consent agenda of the Board of County Commissioners.
- (s) Board of County Commissioners Action. No plat shall be finally approved or disapproved by the Board of County Commissioners until the following has been met:
1. Receipt of recommendation by the Planning Commission. The recommendations by the Planning Commission shall not be binding on the Board of County Commissioners.
 2. Receipt of written recommendation by the board of township supervisors of the township in which the proposed subdivision is located or more than 60 days have lapsed since notification to the relevant township without receipt of a recommendation by the board of township supervisors. If no written recommendation was received within the 60 day period, the Board of County Commissioners may take action on the final plat. The recommendations of the board of township supervisors shall not be binding on the Board of County Commissioners.
 3. The receipt of a Final Plat meeting all conditions established by the Planning Commission and all necessary information and materials prepared in accordance with this Ordinance.
 4. In determining whether a plat shall be finally approved or disapproved, the Board of County Commissioners shall inquire into the public use and interest proposed to be served by the subdivision. It shall determine if appropriate provisions are made for the public health, safety, and general welfare, for open spaces, drainage ways, streets, alleys, other public ways, water supplies, sanitary wastes, parks, playgrounds, sites for schools and school grounds, but its determination is not limited to the foregoing. The Board of County Commissioners shall consider all other relevant facts and determine whether the public interest will be served by the subdivision. If it finds that the proposed plat makes appropriate provisions for the public health, safety, and general welfare and for such open spaces, drainage ways, streets, alleys, other public ways, water supplies, sanitary wastes, parks, playgrounds, sites for schools and school grounds, and that the public use and interest will be served by the platting of such subdivision, and that the proposed plat complies with this Ordinance, such plat shall be finally approved with such conditions as the Board of County Commissioners may deem necessary. If it finds that the proposed plat does not make appropriate provisions, or that the public use and interest will not be served, or

that the proposed plat does not so comply with this Ordinance, then the Board of County Commissioners shall disapprove the proposed plat. Dedication of land to any public body may be required as a condition of subdivision approval and shall be clearly shown on the final plat.

Comment: Insert may be needed here for an illustration of Appendix 13 – Certificate of ownership and offer of dedication and Appendix 19 – Memorandum of Understanding and Appendix 20 Improvement Agreement.

- (t) Final Plat Recordation. Upon approval and certification of a final plat by the Board of County Commissioners, the applicant shall record the approved final plat in the office of the Cass County Recorder of Deeds.

Section 6.02 Major Subdivision Sketch Plan Content

- (a) An individual seeking to divide land within the subdivision jurisdiction of Cass County may provide a sketch plan to the County Planner in order to verify the process and application requirements needed for plat review. It is recommended that a meeting be scheduled with the County Planner to discuss the review process and proposed division of land.
- (b) The sketch plan should include at least the following information.
 1. Name and address of the landowner, and the developer (if different than the landowner).
 2. Name of the individual and firm that prepared the sketch plan. The sketch plan may be prepared by the landowner or developer, but must meet the following requirements.
 3. Location map with labels showing the location of the land proposed to be platted and the sections adjacent to it.
 4. Existing parcel boundaries accurately labeled with the names of adjacent property owners and adjacent plats.
 5. Existing zoning of the land proposed to be platted and the land within 1,320 feet of it.
 6. Location map showing significant natural and man-made features (existing major buildings, bodies of water or wetlands, utilities, tree lines or groups of trees, excavations) on the land proposed to be platted and the land within 1,320 feet of it.
 7. Location of 100 year floodplain, floodway, and major drainage patterns on the land proposed to be platted and within 1,320 feet of it.
 8. Proposed lot layout in relationship to existing streets and drainageways drawn to approximate scale.
 9. Proposed land use(s) and their location in relationship to the proposed lot layout.
 10. Proposed methods for water supply and sewage treatment.

Section 6.03 Major Subdivision Preliminary Plat Information and Requirements

- (a) Drafting Standards.
 1. The Plan shall be clearly and legibly drawn at a scale of 10 feet, 20 feet, 30 feet, 40 feet, 50 feet, 60 feet, 80 feet, or 100 feet to the inch.

2. Dimensions shall be in feet and decimals; bearings shall be in degrees, minutes and seconds. Lot line descriptions shall read in a clockwise direction.
3. Dimensions shall be in feet and decimals; bearings shall be in degrees, minutes and seconds. Lot line descriptions shall read in a clockwise direction.

The sheet size shall be twenty-two (22) inches by thirty-four (34) inches and shall have border lines $\frac{1}{2}$ inch from the top, bottom and right sides and $1\frac{1}{2}$ inches from the left side. If the Plan is prepared in two (2) or more sections, a key map showing the location of the sections shall be placed on each sheet. If more than one (1) sheet is necessary, each sheet shall be numbered to show the relationship to the total number of sheets in the Plan (e.g. Sheet 1 of 5).

(b) Location and Identification.

1. Proposed name of subdivision shall not duplicate or too closely resemble names of existing subdivisions.
2. The name and address of the owner of the tract (or an authorized agent), the developer or subdivider and the firm preparing the plat and development plans.
3. A north arrow, a graphic scale, and a written scale.
4. The entire existing tract boundary with bearings and distances. (If a landowner is to retain a single lot with a lot area in excess of ten acres and consistent with the exemptions for a subdivision set forth in this Ordinance, the boundary of that lot may be identified as a deed plotting and may be drawn at any legible scale; if the remaining lot has a lot area of ten or less acres, it must be described to the accuracy requirements of this Ordinance.
5. The total acreage of the entire existing tract.
6. The location of existing lot line markers along the perimeter of the entire existing tract.
7. A location map, drawn to a scale of a minimum of one inch equals two thousand feet relating the subdivision to at least two intersection of road center lines. the approximate distance to the intersection of the centerlines of the nearest improved street intersection shall be identified; minimum maintenance roads shall not constitute an improved street.
8. A note indicating the types of sewer and water facilities to be provided.

(c) Existing Features.

1. Existing contours at a minimum vertical interval of two feet for land with average natural slope of four percent or less and at a minimum vertical interval of five feet for more steeply sloping land. Contours shall be accompanied by the location of the benchmark and notation indicating the datum used. Contours platted from the United States Geological Survey will not be accepted.
2. The names of all immediately adjacent landowners, the names of all previously recorded plats for adjacent property, and descriptions of all other adjacent property.
3. The following items when located within the subject tract or within two hundred feet of the subject tract:
 - a. The location and name of existing rights-of-way for streets, access drives, driveways and service streets.
 - b. The rights-of-way and locations of existing or proposed sanitary sewer mains, water supply mains, fire hydrants, buildings and stormwater management facilities.
 - c. The location of existing rights-of-way for electric, water, gas and oil transmission lines and railroads.

- d. The size, capacity and condition of the existing stormwater management system and any other facility that may be used to convey storm flows from the subject tract.
 4. The following items when located within the subject tract or within two hundred feet of the subject tract:
 - a. Significant environmental or topographic features including but not limited to floodplains, wetlands, quarry sites, solid waste disposal areas, historic features, cemeteries or other human burial sites, archaeological sites, highly erosive soils, or wooded areas. Additionally, the preliminary plat shall indicate any proposed disturbance, encroachment, or alternation to such features when located upon the site proposed for development.
- (d) Street, Easement, Lot and Block Information.
 1. The layout of streets, alleys, and sidewalks including right-of-way widths
 2. The layout of lots and blocks with approximate dimensions
 3. Total number of lots, units of occupancy, density and proposed land use; (if multiple land uses are proposed, an indication of the location of each land use)
 4. Easements
 5. Building setback lines, with distances from the street centerline or street right-of-way, as may be required by the applicable zoning regulations
 6. Proposed street names
- (e) Certificates, Notifications, and Reports.
 1. Where the preliminary plat covers only a part of the entire landholding, a sketch of the future street system of the unsubmitted part shall be furnished. The street system of the submitted part will be considered in light of adjustments and connections with future streets in the part not submitted.
 2. Where the land included in the subject application has an electric transmission line, telecommunications line, a gas pipeline, or a petroleum or petroleum products transmission line located within the tract, the application shall be accompanied by a letter from the owner or lease of such right-of-way stating any conditions on the use of the land and the minimum building setback and/or right-of-way lines. This requirement may also be satisfied by submitting a copy of the recorded agreement.
 3. Certificate, signature and seal of the surveyor to the effect that the survey is correct and certificate, signature, and seal of the surveyor, engineer, or landscape architect that prepared the plat that all other information shown on the plat is accurate. See Figure 7 below.

Figure 7.

CERTIFICATION OF ACCURACY

I hereby certify that, to the best of my knowledge, the survey and plan shown and described hereon is true and correct to the accuracy required by the Cass County Subdivision Ordinance.

_____, 20____ * _____

**

* Signature of the registered engineer or registered surveyor responsible for the preparation of the plan.

** Seal of the engineer or surveyor.

4. In the case of a Preliminary Plat calling for the phased installation of improvements, a schedule shall be filed delineating all proposed sections as well as deadlines within which applications for Final Plat approval of each section are intended to be filed. Each section in any residential subdivision, except for the last section, shall contain a minimum of twenty-five (25) percent of the total number of dwelling units as depicted on the Preliminary Plat unless the Planning Commission specifically approves a lesser percentage for one or more of the sections.
 5. Where the land included in the subject application has an agricultural, woodland or other natural resource easement located within the tract, the application shall be accompanied by a letter from the party holding the easement stating any conditions on the use of the land. This requirement may be satisfied by submitting a copy of the recorded agreement.
- (f) No plat shall be finally approved or disapproved by the Board of County Commissioners until the following has been met:
1. Existing contours at a minimum vertical interval of two feet for land with average natural slope of four percent or less and at a minimum vertical interval of five feet for more steeply sloping land. Contours shall be accompanied by the location of the benchmark and notation indicating the datum used. Contours platted from the United States Geological Survey will not be accepted.

Section 6.04 Major Subdivision Final Plat Content

- (a) Final plats shall be prepared by an engineer, a surveyor, or a landscape architect licensed in North Dakota.
- (b) Final plats must include the following information in order to be approved by the Cass County Board of County Commissioners and filed at the Cass County Recorder's Office.
 1. Lot lines, with accurate bearings and distances and lot areas for all lots. Curve segments shall be comprised of central angle, radii, and arc distances and also include arc, chord, bearing and distance for non-tangent curves. Along existing street rights-of-way, the description may utilize the existing deed lines or road centerlines; along all proposed street rights-of-way, the description shall be prepared to the right-of-way lines.
 2. Complete description of the right-of-way lines for all new streets. This description shall include distances and bearings with curve segments comprised of central angle, radii, and arc distances and also include arc, chord, bearing and distance for non-tangent curves.
 3. Easements and the purpose of each must be clearly stated. Easement dimensions must be sufficient to accurately describe their extent and boundaries.
 4. Lot numbers and block designations.
 5. Final street names.
 6. Identification of any lands to be dedicated, reserved, donated or granted for public use or for donation to any individual, religious society, corporation, or limited liability company.
 7. Any plat which includes lands abutting upon any lake, river, creek, or stream must show a contour line denoting the present shoreline, water elevation, and the date of survey. If any part of a plat lies within the one hundred year floodplain of a lake, river, or stream as designated by the department of water resources or a federal agency, the mean sea level elevation of that one hundred year flood must be denoted on the plat by numerals. Topographic contours at a two-foot contour interval referenced to mean sea level must be shown for the portion of the plat lying within the floodplain. All elevations must be referenced to a durable benchmark described on the plat with its location and elevation to the nearest hundredth of a foot, which must be given in mean sea level datum.
 8. The names and adjacent boundary lines of any adjoining platted lands must be dotted on the plat. The designations and adjacent boundary lines of any unplatted parcels must be dotted on the plat.
 2. The location and material of all permanent monuments and lot line markers, including a note that all monuments and lot line markers are set or indicating when they will be set.
 3. Certificate, signature, and seal of the surveyor, to the effect that the survey is correct and certificate, signature and seal of the surveyor, engineer, or landscape architect that prepared the plat indicating that all other information shown on the plat is accurate.
 4. A statement, duly acknowledged before an officer authorized to take acknowledgement of deeds and signed by the landowner, to the effect that the subdivision shown on the plat is the act and the deed of the owner, that all those signing are all the owners of the property shown on the survey and plat and that they desire the same to be recorded as such. This statement must be dated following the last change or revision to said plat. This statement shall be of the form shown in Figure 8.

Figure 8.

CERTIFICATE OF OWNERSHIP, ACKNOWLEDGMENT OF PLAN, AND OFFER DEDICATION
<u>INDIVIDUAL</u>
STATE OF NORTH DAKOTA COUNTY OF CASS
On this, the _____ day of _____, 20____, before me, the undersigned officer, personally appeared _____ who being duly sworn according to law, deposes and says that he is the * _____ of the property shown on this plan, that he acknowledges the same to be his act and plan, that he desires the same to be recorded and that all streets and other property identified as proposed public property (excepting those areas labeled "NOT FOR DEDICATION") are hereby dedicated to the public use.
** _____
*** _____
My Commission Expires _____, 20_____
* Identity Ownership or Equitable Ownership
** Signature of the Individual
*** Signature and Seal of Notary Public

Section 6.05 Major Subdivision Development Standards

- (a) Streets, Access Drives, and Driveways. The following criteria shall be considered in the design of streets in all major subdivision plats:
1. The arrangement shall provide for the appropriate extension of existing streets and shall conform as closely as possible to the original topography
 2. Residential local streets shall be arranged so as to minimize through traffic and discourage excessive speeds.
 3. Streets shall be designed with drainage grates that are safe for crossing by bicycles, when such are employed or required.
 4. Adequate vehicular and pedestrian access shall be provided to all lots.
 5. Curvilinear streets and cul-de-sacs should be utilized only where their use will be consistent with adjoining development patterns, topography and natural features of the site. Cul-de-sacs and dead-end streets shall not be used where it is possible to provide loop streets that

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provide better access for emergency vehicles, fewer restrictions for snow removal and improved pedestrian access. Curvilinear streets shall not be used immediately adjacent to an existing grid street system without providing a transition that continues and protects the historic grid. New project street systems, platted adjacent to an existing development, shall not be merely looped back on local access streets, but shall connect with or be designed to connect with, in the future, streets of a higher class (see *Table 3. Residential Street Hierarchy Definitions*). Consideration shall be given to the dispersal of traffic from commercial and employment centers and to the ultimate functioning of the street system.

Table 3. Residential Street Hierarchy Definitions		
Street Type	Function	Maximum ADT
Principal Arterial	An interregional road in the street hierarchy system: carries vehicle traffic to and from the region as well as any through traffic. This street may be a controlled access street.	3000+
Minor Arterial	The Minor arterial street system should interconnect with the principal arterial system. It provides connections between boroughs, larger villages, major resort areas and other traffic generators which develop substantial volumes of traffic.	3000+
Collector	This classification includes streets that provide connections with local access roads and arterial. They may serve a traffic corridor connecting villages, small boroughs, shopping points, mining and agricultural areas on an intra-county or municipal basis.	3000
Local Access	This classification provides direct access to adjacent land and includes connections to farms, individual residences and commercial properties and to higher classes of highway systems.	800
-----Special Purpose Streets-----		
Alley (service street)	A service road that provides secondary means of through access to lots. Alleys function as special purpose streets and are used in cases of narrow lot frontages. No parking shall be permitted within the right-of-way and alleys should be designed to discourage through traffic. ADT level shall not exceed that of a local access street. Alleys shall be designed as one or two lane	Local Access: 800 Collector: 3000
Cul-de-Sac	A street with a single means of ingress and egress and having a turnaround. Design of turnaround may vary. Cul-de-sacs shall be classified and designed according to anticipated ADT level: Residential street will use the design standards of a local access street; non-residential will the design standards for	Local Access: 250 Collector: 500
Marginal Access Street	A service street that runs parallel to higher-order street and provides access to abutting properties and separation from through traffic. Shall be designed as local access street or collector according to anticipated daily traffic.	Local Access: 500 Collector: 1000
Divided Street	Municipalities may require streets to be divided in order to provide alternate emergency access, to protect environmental features, or to avoid grade changes. Design standards should be applied to the combined dimensions of the two-street segments as required by the street class.	Local Access: 800 Collector: 3000
Stub Street	A portion of a street which has been approved in its entirety. Permitted as part of phased development; may be required if part of overall adopted master plan of the municipality.	Local Access: 800 Collector: 3000
Driveway	A private drive providing access between a public or private street or drive and a parking area for a single unit of occupancy.	Residential Access: 10

6. Streets shall be laid out to provide convenient and safe access to the property. Where appropriate, the Planning Commission may require additional street improvements and/or right-of-way width along existing street frontages to accommodate the anticipated traffic increases and to facilitate vehicular turning movements to and from individual lots.
7. Where a development abuts an existing or proposed arterial street, the Planning Commission may require the use of marginal access streets, reverse frontage lots, or other

such treatment that will provide protection for abutting properties, reduce the number of intersections with the arterial street and separate the local and through traffic.

8. No structure shall be constructed, erected, or moved such that it will be located within one hundred and twenty five (125) feet of any public dedicated road surface or street classified as a collector or arterial by the County Engineer, measured along the centerline of the road.
9. When a subdivision has a direct impact on a public road, the County Engineer shall make a recommendation about the plat.

(b) *Street Hierarchy.*

1. Streets shall be classified in a street hierarchy system with design tailored to function and average daily traffic (ADT).
2. The street hierarchy system shall be defined by road function and ADT, calculated by trip generation rates prepared by the Institute of Transportation Engineers (ITE) as indicated in
3. the latest edition of the ITE Trip Generation Manual. Trip generation rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.
4. Each street shall be classified and designed for its entire length to meet the standards for one of the street types defined in Table 3.
5. The applicant shall demonstrate to the Planning Commission's satisfaction that the distribution of traffic to the proposed street system will not exceed the ADT thresholds indicated in *Table 3. Residential Street Hierarchy Definitions* for any proposed street type for a design period of ten (10) years from the proposed date of completion of the road.
6. Private streets and private driveway accesses, except those completely contained on one or two lots and providing access to only two (2) buildable lots or a proposed single lot subdivision sharing access currently used by only one (1) existing dwelling, are prohibited unless such streets meet the design standards of this Ordinance for local access streets. All subdivision streets shall be dedicated to the public unless design objectives of the development warrant private ownership. Approval of a subdivision involving a private street shall be solely at the discretion of the Planning Commission. Applications which propose a private street shall be accompanied by an agreement which shall be recorded with the Cass County Recorder of Deeds as part of the Final Plat. This agreement shall establish the conditions under which the street will be constructed and maintained, as well as conditions controlling an offer of dedication and shall stipulate:
 - a. That the street shall be constructed and maintained to conform to the specifications of this Ordinance.
 - b. The establishment of the owners of said road and their maintenance responsibly
 - c. The establishment that the owners of road are responsible for all associated maintenance of said road.
 - d. The method of assessing maintenance and repair cost.
 - e. The establishment of minimum road standards criteria controlling how and when maintenance of road will occur.
 - f. The frequency for routine maintenance procedures which may include but are not limited to graveling, grading, patching, dust control, crack sealing, chip sealing, sweeping and snow removal.

- g. That an offer for dedication of the street shall be made only for the street as a whole.
 - 7. When the proposed subdivision contains or is adjacent to the right-of-way of a State, County, Township, or Federal Highway which is classified as a collector or arterial by the County Engineer, provision shall be made for reverse frontage so that lots do not need direct access unto said roads, unless frontage roads will be utilized. For such cases, said lots shall be provided with screen planting contained in a non-access reservation along the rear property line in all major subdivisions, as set forth in this Ordinance. Lot depth for reverse frontage lots shall be determined with due consideration for the minimum distances required for approach connections to future grade separations. There shall be only one access per one-quarter (0.25) mile on section line roads or roads classified as arterials by the County Engineer, except where it may result in real practical difficulties, unnecessary hardship or injustice.
 - 8. Dedication of half streets or roads will not be approved, except where it is essential to the reasonable development of the subdivision and in conformity with the other requirements of this Ordinance, where it is found that it will be practical to require the dedication of the other half when the adjoining property is subdivided, or where it becomes necessary to acquire the remaining half by condemnation so that it may be improved in the public interest.
- (c) Determination of Required Right-of-Way and Roadway Width for Local and Collector Streets.
- 1. Right-of-way and roadway width for each local and collector street classification shall be determined by the proposed use, projected ADT and the intensity of development of each street. The local street requirements shall only pertain to streets or private streets and private driveway accesses, except those completely contained on one or two lots and providing access to only two (2) buildable lots or a proposed single lot subdivision sharing access currently used by only one (1) existing dwelling.
 - 2. Parking and shoulder requirements shall also be based on intensity of development. Intensity of development shall be determined by lot frontage and ADT as follows:

Table 4. Intensity of Development			
Lot Frontage	Average Daily Traffic		
	less than 400	400 to 1000	more than 1000
less than 150	low	medium	high
150 or more	low	low	medium

- 3. Right-of-way and roadway widths for each street classification are as shown in *Table 5. Right-of-Way and Roadway Widths* below.

Table 5. Right-of-Way and Roadway Widths			
Street Type		Right-of-Way	Roadway Surface
Arterial			
	Principal	200 ft*	varies
	Minor	200 ft*	varies
Collector		150 ft	36 ft
Local			
	Rural Section**	120 ft	32 ft****
	Urban Section***	70 ft	30 ft
Alleys		20 ft	20 ft

Each street shall be designed for its entire length, to meet the design requirements of the most intense use with all non-residential uses designed to commercial/industrial street standards. All plans shall be designed to provide for the entire required right-of- way and roadway.

4. The right-of-way shall be measured from lot line to lot line and shall be sufficiently wide to contain the roadway, curbs, shoulders, sidewalks, graded areas, utilities and shade trees.
5. The right-of-way width of a new street that is a continuation of an existing street shall in no case be continued at a width less than the existing street. Where the right-of-way width of the new street is greater than the existing street, a transition area shall be provided, the design of which is subject to Commission approval.

(d) Shoulders.

1. The Planning Commission shall require construction of shoulders and drainage ditches where curbs and gutter are not required.
2. Shoulder requirements shall vary according to street hierarchy and intensity of development, or where non-motorized vehicle use is prevalent.

(e) Curb and Gutters.

1. Curbing may be required by the Planning Commission for:
 - a. Stormwater management
 - b. Road stabilization
 - c. To delineate parking areas
 - d. Ten feet on each side of drainage inlets
 - e. At intersections
 - f. At corners
 - g. At tight radii
2. Curb and gutter shall be required by the Planning Commission for all major subdivisions.
3. Curb requirements shall vary according to street hierarchy and intensity of development in accordance with the requirements in *Table Z Curb and Sidewalk Requirements*.
4. Curbs shall be constructed according to the material and method specifications set forth in the most recent version of the City of Fargo’s Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended.
5. Curbing shall be designed to provide a ramp for bicycles and/or wheelchairs at each intersection, at the principal entrances to buildings which front on parking lots and at all

crosswalks and shall conform to the American with Disabilities Act (ADA) for surface and coloring.

(f) Sidewalks.

1. Sidewalks and/or graded areas shall be required depending on road classification and intensity of development in accordance with the requirements set forth in *Table 6. Curb and Sidewalk Requirements* below.

Table 6. Curb and Sidewalk Requirements			
Street Type		Curb	Sidewalk or Graded Area
Industrial/Commercial			
Local Access			
Low Intensity		not required	not required
Medium-High Intensity		curb	not required
Collector			
Low Intensity		not required	not required
Medium-High Intensity			
	On-Street Parking	curb	not required
	Off-Street Parking	not required	not required
Residential			
Local Access			
	2-4 buildable lots	not required	not required
	5+ buildable lots	curb	sidewalk (each side)
Collector			
	2-4 buildable lots	not required	graded area (each side)
	5+ buildable lots	curb	sidewalk (each side)

2. Where sidewalks are optional, they may be required by the Planning Commission when the project is close to pedestrian generators such as schools, to continue a walk on an existing street, to link areas, or as indicated in local comprehensive plans.
3. In conventional developments, sidewalks shall be placed parallel to the street within the right-of-way unless a variance has been granted to preserve topographical or natural features, or to provide visual interest, or unless the applicant shows that an alternative pedestrian system provides safe and convenient circulation.
4. The outside edge of the sidewalk shall be two (2) feet within the outside edge of the right-of-way line unless a variance has been granted to preserve topographical or natural features, or to provide visual interest, or unless the applicant shows that an alternative pedestrian system provides safe and convenient circulation.
5. A minimum ten (10) foot vegetation strip shall be placed between the edge of the curb and the nearest edge of the sidewalk.

6. In planned developments, sidewalks may be located away from the road system to link dwelling units with other dwelling units, the street and on-site activity centers such as parking areas and recreational areas. They may also be required parallel to the street for safety and other reasons.
 7. Pedestrian way easements ten (10) feet wide may be required by the Planning Commission through the center of blocks more than six hundred (600) feet long to provide circulation or access to schools, playgrounds, shopping, or other community facilities.
 8. Sidewalk width shall be a minimum of five (5) feet; wider widths may be necessary near pedestrian generators and employment centers, or where they serve as multiuse paths. Where cars overhang the sidewalk, widths shall be a minimum of seven (7) feet.
 9. Sidewalks and graded areas shall be constructed according to the specifications set forth in *Table Z Curb and Sidewalk Requirements* and shall meet the following requirements:
 - a. Sidewalks within residential areas shall have a minimum clear travel width of five feet
 - b. Sidewalks within commercial and industrial developments shall have a minimum clear-travel width of six feet
 - c. Sidewalks shall be constructed so as to discharge drainage
 - d. A minimum ten foot vegetative strip shall separate the edge of the curb from the closest edge of the sidewalk.
 10. The construction of sidewalks shall conform to the material and method specifications set forth in the most recent version of the City of Fargo’s *Standard Specifications for Construction of Public Utilities*, as it presently exists or may hereafter be amended.
- (g) Vertical Alignments. Vertical street alignments shall be measured along the centerline. The minimum grade and maximum grade of all streets shall be as specified in below.

STREET GRADE AND INTERSECTION STANDARDS				
	Special Purpose		Local Access Street	Collector
	Alley	Cul-de-sac Access Drive		
INTERSECTION STANDARDS				
Minimum Grade	0.5%	0.5%	0.5%	0.5%
Maximum Grade	5%	5%	5%	5%
Maximum Grade Within 75' of Intersection of Centerlines	2%	2%	2%	2%
Minimum Centerline Radius	50'	50'	100'	150'
Minimum Tangent Length Between Reverse Curves	0'	50'	50'	150'
Roadway Radii	10'	15'	25'	35'

1. Vertical curves shall be used in changes in grade exceeding one (1) percent. The minimum lengths (in feet) of vertical curves shall be fifteen (15) times the algebraic difference in grade. For example, if a three (3) percent upgrade is followed by a four (4) percent downgrade, the algebraic difference in grade is seven [3 - (- 4)= 7]; the minimum length of

the vertical curve would then be one hundred five (105) feet [the product of fifteen and seven equals one hundred five ($15 \cdot 7 = 105$)].

2. The grade within the diameter of a turnaround at the terminus of a permanent cul-de-sac shall be as specified in *Table A Street Grade and Intersection Standards*.

STREET GRADE AND INTERSECTION STANDARDS				
	Special Purpose		Local Access Street	Collector
	Alley	Cul-de-sac Access Drive		
INTERSECTION STANDARDS				
Minimum Grade	0.5%	0.5%	0.5%	0.5%
Maximum Grade	5%	5%	5%	5%
Maximum Grade Within 75' of Intersection of Centerlines	2%	2%	2%	2%
Minimum Centerline Radius	50'	50'	100'	150'
Minimum Tangent Length Between Reverse Curves	0'	50'	50'	150'
Roadway Radii	10'	15'	25'	35'

(h) Horizontal Alignments. Horizontal street alignments shall be measured along the centerline. Horizontal curves shall be used at all angle changes in excess of two (2) degrees. Single, long radius curves shall be used rather than a series of curves with varying radii and/or a series of short curves separated by short, straight segments. The minimum horizontal curve radius for streets shall be one hundred and fifty (150) feet.

1. Perimeter Streets. Plans with street locations along the perimeter of a property shall be required to show building setback lines and clear sight triangles within the adjacent properties. Permission shall be obtained from the adjacent landowner.
2. Roadway Alignment. The centerline of the street roadway shall correspond with the centerline of the street right-of-way.

(i) Street Intersections.

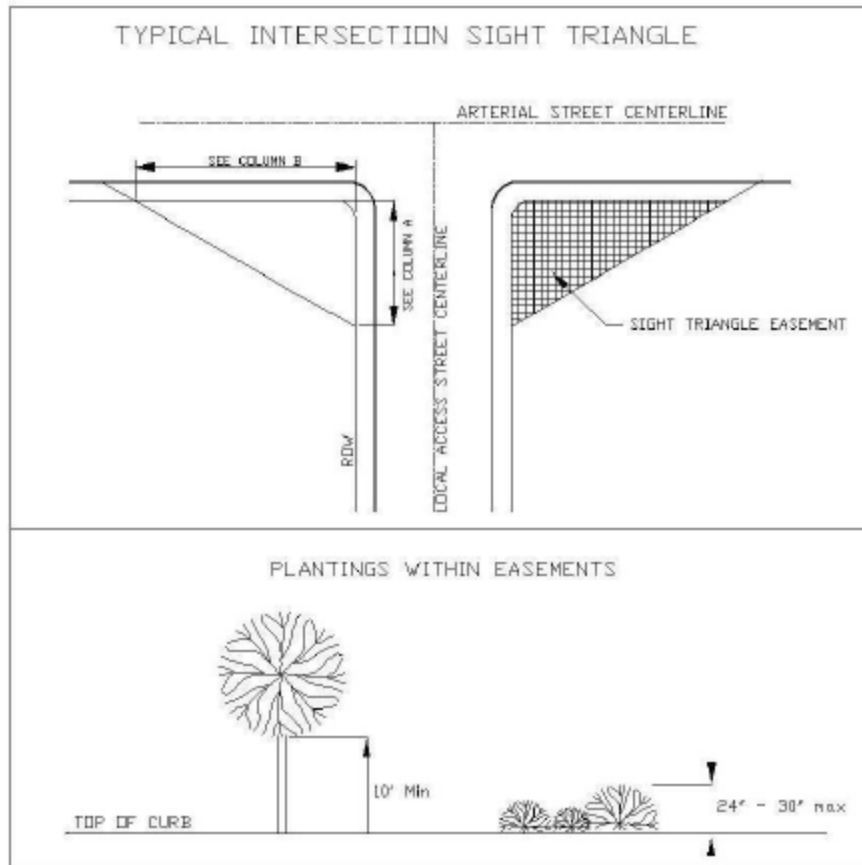
1. Multiple intersections involving the junction of more than two streets are prohibited.
2. The distance between the centerline of streets intersecting at grade with a local street shall be no less than one hundred and fifty (150) feet measured along the centerline of the street being intersected based on the safe stopping distance of a road with a design speed of twenty-five (25) mph at a moderate grade.
3. The distance between the centerline of streets intersecting at grade with a collector street shall be no less than three hundred (300) feet measured along the centerline of the street being intersected based on the safe stopping distance of a road with a design speed of forty (40) mph at a moderate grade.
4. The distance between the centerline of streets intersecting at grade with an arterial street shall be no less than one thousand three hundred and twenty (1320) feet measured along the centerline of the street being intersected based on the safe stopping distance of a road with a design speed of fifty-five (55) mph at a moderate grade.
5. Right angle intersections shall be used whenever possible. No street shall intersect another at an angle of less than seventy-five (75) degrees.

6. The roadway edge at street intersections shall be rounded by a tangential arc with a minimum radius as specified in *Table A Street Grade and Intersection Standards*. The right-of-way radii at intersections shall be substantially concentric with the edge of the roadway.

STREET GRADE AND INTERSECTION STANDARDS				
	Special Purpose		Local Access Street	Collector
	Alley	Cul-de-sac Access Drive		
INTERSECTION STANDARDS				
Minimum Grade	0.5%	0.5%	0.5%	0.5%
Maximum Grade	5%	5%	5%	5%
Maximum Grade Within 75' of Intersection of Centerlines	2%	2%	2%	2%
Minimum Centerline Radius	50'	50'	100'	150'
Minimum Tangent Length Between Reverse Curves	0'	50'	50'	150'
Roadway Radii	10'	15'	25'	35'

7. Where appropriate, the Planning Commission may require additional traffic lanes to facilitate vehicular turning movements at existing or proposed street intersections within or bordering subdivision plans.
 8. Clearly marked crosswalks shall be provided at all intersections when sidewalks or pedestrian easements are provided in a development. Crosswalks may also be required by the Planning Commission at other locations to promote the convenience and safety of pedestrian traffic. The design of crosswalks and the materials used shall be consistent with other crosswalks in the area.
- (j) **Sight Distance at Intersections.**
1. Proper sight distance shall be provided at all new street and all new access drive intersections in accordance with the latest edition of the American Association of State Highway and Transportation Officers (AASHTO) A Policy on Geometric Design of Highways and Streets. Sufficient design and plan information shall be submitted with the plan application proving that this minimum standard will be achieved and such design information shall be performed by a professional registered in North Dakota to perform such design work.
 2. At all intersections where stop signs or other stop control devices are not proposed, sight triangle easements or dedicated right-of-way shall be required and shall include the area on each street corner that is bounded by the line which connects the sight or "connecting" points located on each of the right-of-way lines of the intersecting street. The planting of trees or other plantings or the location of structures exceeding thirty (30) inches in height that would obstruct the clear sight across the area of the easements or right-of-way shall be prohibited; and a public right-of-entry shall be reserved for the purpose of removing any object, material or otherwise, that obstructs the clear sight. The distances shown in *Figure X. Sight Triangles* between the connecting points and the intersection of the right-of-way lines shall be required.

Figure X. Sight Triangles



	COLUMN A	COLUMN B		
		Local Access	Residential Collector	Arterial
Local Access	30'	30'	120'	130-150'
Residential Collector	120'	30'	120'	130-150'
Arterial	130-150'	30'	120'	130-150'

(k) Lot Access.

1. The Planning Commission may disapprove any point of ingress or egress to any lot, tract, parcel, or development from any street or highway when the proposed ingress or egress would create unsafe conditions, reduce the capacity of the adjoining street or highway, result in substandard circulation and impaired vehicle movement, or if inconsistent with county, township, city, state or other entity's spacing requirements.
2. The Planning Commission may require the applicant to provide ingress and egress to a particular lot or tract through the remainder of his property or other properties over which he has control.
3. Lot access shall conform with the county's one-quarter (.25) mile minimum spacing requirements on all section line roads or roads classified as arterials by the County Engineer and three hundred (300) feet on roads classified as collectors.
4. In approving ingress or egress from any State road or highway, the Planning Commission can only approve those access points that are not in conflict with safety standards of the North Dakota Department of Transportation. In the case of a plan requiring access to a highway under the jurisdiction of the North Dakota Department of Transportation, the applicant shall

submit documentation from the North Dakota DOT demonstrating the approved access onto such road.

- (l) Non-motorized Vehicle Lanes. All non-motorized vehicle lanes shall be designed according to one of the following standards:
 1. Separate bicycle paths shall be required if such paths have been specified as part of an adopted comprehensive plan.
 2. Bicycle lanes, where required, shall be placed in the outside lane of a roadway, adjacent to the curb or shoulder. When on-street parking is permitted, the bicycle lane shall be between the parking lane and the outer lane of moving vehicles. The lanes shall be delineated with markings, preferably striping. Raised reflectors or curbs shall not be used.
 3. Movement within the non-motorized lanes shall flow in the same direction as the adjacent travel lane.
 4. Non-motorized vehicle lanes shall be constructed according to the specifications set forth in *Figure Y Non-Motorized Lanes Requirements*.

Figure Y Non-motorized Lanes Requirements

Non-motorized vehicle lanes shall be constructed to one of the following specifications:

1. Bicycle Paths - A two-way off-street bike path should have a minimum paved width of ten (10) feet and a maximum width of twelve (12) feet.

- A. The bicycle path shall consist of one of the following surface types and construction methods:
 - a. Aggregate Surface: The topsoil shall be removed, clay subgrade compacted, six (6) inches of compacted gravel meeting the North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction* manual for Class 13 and constructed with a with a minimum two (2) percent slope.
 - b. Bituminous Surface: The topsoil shall be removed, clay subgrade compacted, six (6) inches of compacted gravel meeting the North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction* manual for Class 13, a minimum of four (4) inches of asphalt meeting North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction* manual for Class 31 and constructed with a with a minimum two (2) percent slope.
 - c. Concrete Surface: Concrete used for bicycle paths shall be constructed to the same specifications as sidewalks as set forth in Section 602.06 (J) of this Ordinance.
- B. Gradients of bicycle paths should generally not exceed a grade of five (5) percent, except for short distances where the grade shall not exceed fifteen (15) percent.
- C. The radius of curvature shall be based on the grade of the path entering the curve. The following table shall be used to determine the radius:

PERCENT GRADE	MINIMUM RADIUS
0 - 5%	70 ft
5% - 15%	125 ft

- D. Design consideration shall consider the intersection of a bicycle path and a street to provide maximum safety.
 - E. Bicycle paths shall be constructed so as to discharge drainage.
2. Bicycle Lanes - Bicycle lanes shall be designed to one of the following standards:
- A. A one-way bicycle lane on a curbed street shall have a minimum width of six (6) feet excluding the curb and gutter. The paving material and construction shall be the same as the adjacent street.
 - B. A one-way bicycle lane next to a parking lane shall be located between the parking lane and the travel lane and have a minimum width of six (6) feet. The paving material and construction shall be the same as the adjacent parking lane.
 - C. A one-way bicycle lane on a street without a curb or gutter shall be a minimum of six (6) feet. The shoulder can and should be used when possible. The shoulder shall be kept clear of any obstructions and clean to remove any excess gravel or other debris. The paving material and construction shall be the same as the shoulder. If the lane is being constructed on an existing road that has no shoulder or if the shoulder is in poor condition the lane shall be constructed to the standards set forth in Section 602.12 (B-C).

- (m) Street Provisions for Future Developments. Where appropriate, areas shall be reserved for future street usage in conjunction with the development of adjacent tracts. Areas reserved for future street usage will not be required to be improved; however, these areas shall be reserved for street improvements to be provided by the developer of the adjacent tract. Wherever there exists a dedicated or platted area reserved for future street usage along the boundary of a tract being developed, the adjacent street shall be extended into the proposed project provided this use is not adverse to the man-made or natural features of the site.
- (n) Extension of Existing Streets. The extension of existing streets which are presently constructed with a roadway different from the standards of this Ordinance shall be provided with a transition area, the design of which is subject to Commission approval.
- (o) Street Improvements. Streets shall be constructed to the minimum standards established in the following specifications:
 - 1. All subdivisions shall provide a minimum of one (1) road providing access into the subdivision built with an elevation at or above the base flood elevation (BFE). If the BFE has not been established the applicant may use the best available information to determine this elevation.
 - 2. No subdivision shall use minimum maintenance roads for the sole access into the subdivision until such road has been graded to provide a four (4) percent crown, built with an elevation at or above the base flood elevation (BFE) and a road surface with a minimum of six (6) inches of compacted gravel meeting the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction manual for Class 13 gravel.
 - 3. Private streets and private driveway accesses, except those completely contained on one or two lots and providing access to only two (2) buildable lots or a proposed single lot subdivision sharing access currently used by only one (1) existing dwelling, shall meet the following specifications:
 - a. The topsoil shall be removed and a clay subgrade constructed with ninety-five (95) percent compaction rate when tested in accordance using a standard modified proctor method (ASTM D698).
 - b. Six (6) inches of compacted gravel meeting the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction manual for Class 13 gravel.
 - c. The road shall have a four (4) percent crown.
 - d. Road elevation shall be built to a minimum of six (6) inches above the base flood elevation (BFE). If the BFE has not been established the applicant may use the best available information to determine this elevation.
 - e. Built to the width set forth in *Table Y. Roadway ROW Width* below.

ROADWAY/RIGHT-OF-WAY WIDTH		
Street Type	Right-of-Way (ROW)	Roadway Surface
Arterial		
Principal	200 feet*	varies
Minor	200 feet*	varies
Collector	150 feet	36 feet
Local		
Rural Section**	120 feet	32 feet****
Urban Section***	70 feet	30 feet
Alleys	20 feet	20 feet

4. New and existing streets within major subdivisions shall provide asphalt or concrete roads within the subdivision. The construction of the roads shall conform to all applicable sections of this Ordinance, the construction of the roads shall conform to the material and method specifications set forth in the most recent version of the City of Fargo’s Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended and shall conform to the following:
- a. The base shall be built with six (6) inches of compacted gravel meeting the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction manual for Class 5 gravel.
 - b. The road shall be built with six (6) inches of asphalt or six (6) inches of concrete.
 - c. Asphalt roads shall initially be built with four (4) inches of asphalt with a two (2) inch asphalt wear course constructed following the completion of eighty (80) percent of the development’s primary structures. All low spots and areas experiencing settling shall be filled to grade with asphalt prior to the final two (2) inch wear course.
 - d. The road shall have a two (2) percent crown.
 - e. Street grade shall be built to specifications in *Table A Street Grade and Intersection Standards*.

STREET GRADE AND INTERSECTION STANDARDS				
	Special Purpose		Local Access Street	Collector
	Alley	Cul-de-sac Access Drive		
INTERSECTION STANDARDS				
Minimum Grade	0.5%	0.5%	0.5%	0.5%
Maximum Grade	5%	5%	5%	5%
Maximum Grade Within 75' of Intersection of Centerlines	2%	2%	2%	2%
Minimum Centerline Radius	50'	50'	100'	150'
Minimum Tangent Length Between Reverse Curves	0'	50'	50'	150'
Roadway Radii	10'	15'	25'	35'

- f. Road elevation shall be built to a minimum of six (6) inches above the base flood elevation (BFE). If the BFE has not been established the applicant may use the best available information to determine this elevation.
- g. Built to the width set forth in Table Y. Roadway ROW Width below.

ROADWAY/RIGHT-OF-WAY WIDTH		
Street Type	Right-of-Way (ROW)	Roadway Surface
Arterial		
Principal	200 feet*	varies
Minor	200 feet*	varies
Collector	150 feet	36 feet
Local		
Rural Section**	120 feet	32 feet****
Urban Section***	70 feet	30 feet
Alleys	20 feet	20 feet

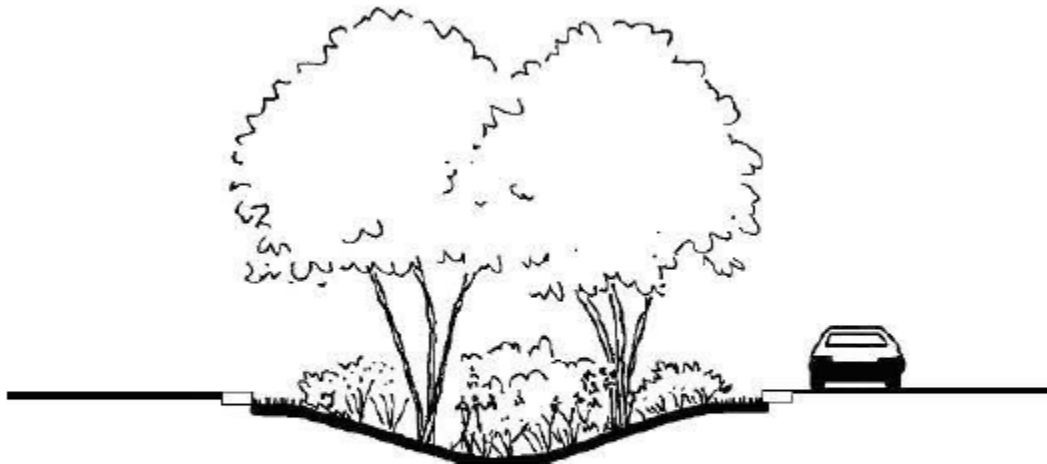
- 5. Major subdivisions with thirteen (13) or more buildable lots shall have a minimum of one (1) paved county or township road providing access to a minimum of one (1) entrance of the subdivision or a private paved road meeting the requirements set forth in *Table Y. Roadway ROW Width* above.

(p) Cul-de-Sac Streets.

- 1. A cul-de-sac will not be permitted when a through street is feasible. The feasibility of a through street will be based on the physical features of the tract proposed for development, the potential for extension of the street to adjoining lands, restrictions imposed by other government regulations and the ability of the design to meet all other requirements of this Ordinance. When cul-de-sac streets, are proposed, the application shall be accompanied by a written analysis of the merits of the design and the reasons that a through street would not be feasible. Approval of cul-de-sac streets shall be at the sole discretion of the Planning Commission.
- 2. Except where they occur temporarily, cul-de-sacs shall not be allowed where there is a reasonable opportunity to provide for future connections to adjoining streets. If allowed, cul-de-sacs shall normally not be longer than six hundred (600) feet. A transition from the turn-around shall be either a straight line or a curve tangent to the turn around and one hundred (100) feet minimum in length or radius.
- 3. The length of a cul-de-sac street shall be measured from the centerline intersection with the through street to the center point of the turnaround.
- 4. Permanent cul-de-sacs shall have a circular turnaround with a minimum radius of sixty (60) feet. The right of way for the turnaround shall maintain the same distance between the roadway edge and the right of way line as is maintained for the straight sections of the street.
- 5. Temporary cul-de-sacs shall be constructed completely within the right-of-way. Restoration of paved areas within the right of way shall be the responsibility of the developer connecting to the temporary cul-de-sac.

6. Any temporary cul-de-sac street designed for access to an adjoining property or for authorized phased development and which is greater than one (1) lot deep shall be provided with a temporary all-weather turnaround within the subdivision. The use of such turnaround shall be guaranteed to the public until such time as the street is extended.
7. Preferably, cul-de-sacs will be designed below street grade as a rain garden/bioretention system to treat and retain surface runoff (see Cul-de-Sac Bioretention example below); reducing the total runoff and size of auxiliary retention/detention ponds. Bioretention systems shall be designed using appropriate best management practices (BMP's) and/or the following:
 - a. The bioretention systems shall not create swampy and/or unmaintainable conditions.
 - b. Utilization of filter strips or other appropriate BMP's to filter and remove suspended soils to ensure proper functioning and reduced clogging of the bioretention system.
 - c. Designed to pond six (6) to nine (9) inches above filter bed.
 - d. Cul-de-sac infiltration bioretention systems (see Cul-de-Sac Bioretention example below) shall be designed using applicable infiltration basin BMPs.
 - e. Vegetated islands shall consist of a minimum of one tree as set forth in Section 603.02 (K) subsections 6-13 of this Ordinance.

CUL-DE-SAC BIORETENTION SYSTEM DESIGN



Cul-de-sac infiltration island accepts stormwater from the surrounding pavement. Note flat curb.

Source: Metropolitan Council. 2001. *Minnesota urban small site BMP manual: storm water best management practices for cold climates*. St. Paul, Minnesota: Metropolitan Council Environmental Services.

http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPImpCuldeSac.pdf

pdf

- (q) Future Access Strips. Future access strips and street plugs are rights-of-way reserved for future street improvements. They shall be designed in conformance with the design requirements of a street and the contiguous parcels must contain proper setbacks and sight distance reservations.
- (r) Driveways. Proposed driveways shall conform to any municipal standards which may exist within the applicable zoning ordinance or other applicable ordinances or regulations. Additionally, all driveways shall, at a minimum, be designed in accordance with the following:
 1. Driveway locations shall not interfere with the normal traffic movement nor be inconsistent with the design, maintenance and drainage of the street.
 2. The Planning Commission will generally not allow direct access to arterial highways and may limit the number of driveways providing access to a single property or development from a collector street. Any access from such streets must be designed in conformance with the safe stopping distance and respective intersection separation distance requirements specified in this Ordinance.
 3. All accesses along county roads and any road classified as an arterial by the County Engineer shall have a minimum access spacing of thirteen hundred and twenty (1320) feet.
 4. Driveway access to a local street shall not be located less than fifty (50) feet from the edge of the roadway of any street intersection and shall provide adequate sight distance.
 5. Driveway access to lots shall be provided to the street of lesser classification.
 6. The Planning Commission may require the joint or shared use of driveways to provide ingress and egress when such design would increase traffic safety by decreasing the potential for vehicular conflicts. In such cases an ingress and egress easement shall be provided on the plat.
 7. Every lot must be provided with at least one driveway location which meets the above criteria. Should a site contain more than one location which conforms to these requirements, the plan may delineate the range of available driveway locations. As an alternative, the plan may show locations where driveways are not permitted due to noncompliance with this or other applicable ordinance or regulation.
 8. Shared driveway access is preferred for subdivisions utilizing open ditches along roads to limit the total number of culverts.
- (s) Street Names. Continuations of existing streets shall be known by the same name. Names for new streets shall not duplicate or closely resemble names of existing streets. All new street names are subject to the approval of the Planning Commission. Notice that the proposed new street names are acceptable shall be submitted prior to Final Plat approval. All street names shall conform, where applicable, to the local municipal plan for street names. Private streets shall be named in conformance with this section.
- (t) Signs.
 1. Design and placement of traffic signs shall follow the requirements specified in the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the U.S. Department of Transportation.
 2. At least two (2) street name signs shall be placed at each four-way street intersection and one at each "T" intersection. Signs shall be installed under light standards, when applicable,

and free of visual obstruction. The design of street name signs should be consistent, of a style appropriate to the municipality, of a uniform size and color and erected in accordance with municipal standards.

3. Private streets shall be provided with street name signs in conformance with this section.
4. Parking regulation signs shall be placed along roadways within the right-of-way in areas that restrict parking.
5. Site information signs in planned residential developments shall follow a design theme related and complementary to other elements of the overall site design.
6. The applicant shall purchase and place all required street signs.

(u) Utility and Shade Tree Areas.

1. Utilities and shade trees shall generally be located within the right-of-way on both sides of and parallel to the street.

(v) Lighting.

1. Lighting for highway safety shall be provided at entryways to commercial land developments and in parking lots adjacent to public streets.
2. Street lights shall be provided in all residential subdivisions with thirteen (13) or more buildable lots.
3. Lighting in residential developments, starting at the entrance of the development and extending throughout, shall be architecturally integrated with the thematic design aspects of the development as well as building styles, materials and colors used within the development.
4. Wood utility light poles shall not be permitted.
5. Lighting shall be provided in conformance with the IES Lighting standards contained in *Table C Illumination Guidelines*.

Table C Illumination Guidelines

A. STREET ILLUMINATION						
Street Hierarchy	Commercial		Intermediate		Residential	
	Lux	Footcandles	Lux	Footcandles	Lux	Footcandles
Collector	13	1.2	10	0.9	6	0.6
Minor-Residential	10	0.9	6	0.6	4	0.4
Subcollector/Local	6	0.6	4	0.4	4	0.4

B. PARKING ILLUMINATION						
Level of Activity	Vehicular Traffic		Pedestrian Safety		Pedestrian Security	
	Lux	Footcandles	Lux	Footcandles	Lux	Footcandles
Low activity	5	0.5	2	0.2	9	0.8
Medium activity	11	1	6	0.6	22	2
High activity	22	2	10	0.9	43	4

C. PEDESTRIAN WAY ILLUMINATION						
Walkways & Bikeway Classification	Minimum Average Level		Average Levels for Special Pedestrian Security			
	Lux	Footcandles	Lux	Footcandles	Lux	Footcandles
			Mounting Heights 3 to 5 meters (9 to 15 feet)		Mounting Heights 5 to 10 meters (15 to 30 feet)	
Sidewalks (Roadside) and Type A Bikeways:						
Commercial Areas	10	0.9	22	2.0	43	4.0
Intermediate	6	0.6	11	1.0	22	2.0
Residential Areas	2	0.2	4	0.4	9	0.8
Walkways Distant From Roadways and Type B Bikeways:						
Park Walkways and Bikeways	5	0.5	6	0.6	11	1.0
Pedestrian Tunnels	43	4.0	54	5.0	--	---
Pedestrian Overpasses	3	0.3	4	0.4	--	---
Pedestrian Stairways	6	0.6	9	0.8	--	---

ILLUMINATION GUIDELINES FOR STREET, PARKING, AND PEDESTRIAN AREAS

IES Lighting Handbook definitions:

I. Area classification:

1. Commercial: That portion of a municipality in a business development where ordinarily there are large numbers of pedestrians during business hours.
2. Intermediate: That portion of a municipality often characterized by a moderately heavy nighttime pedestrian activity such as in blocks having libraries, community recreation centers, large apartment buildings or neighborhood retail stores.

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3. Residential: A residential development, or a mixture of residential and commercial establishments, characterized by a few pedestrians at night. This definition includes areas with single family homes, townhouses and/or small apartment buildings.

II. Activity level:

1. High activity: Major league athletic events, major cultural or civic events and major regional shopping centers.
2. Medium activity: Fast food facilities, area shopping centers, hospital parking areas, transportation parking (airports, etc.), cultural, civic or recreational events and residential complex
3. Low activity: Local merchant parking, industrial employee parking and educational facility parking.

III. Bikeway classification

1. Type A bikeway: a strip within or adjacent to a public roadway or shoulder, used for bicycle travel.
2. Type B bikeway: an improved strip identified for public bicycle travel and located away from a roadway or its adjacent sidewalk system.

Source: Illuminating Engineering Society of North America, IES Lighting Handbook (New York, NY: IES, 1981)

6. Light standards shall be measured from the finished grade to the highest point on the light fixture.
7. The maximum height of standards shall not exceed the maximum building height permitted or twenty (20) feet in residential areas, whichever is less. The minimum height of standards shall not be less than fourteen (14) feet in height.
8. The maximum height of standards shall not exceed the maximum building height permitted or twenty-five (25) feet in commercial and industrial developments, whichever is less.
9. Open space light standards shall not exceed twelve (12) feet in height; recreational facilities such as basketball, volleyball, ice rinks, handball, horseshoes, lawn bowling, shuffleboard and bocce ball courts shall have light standards no greater than twenty five (25) feet; and

athletic fields for baseball, football, soccer and nighttime practice golf ranges shall have light standards not exceeding eighty (80) feet.

10. Street light fixtures within residential developments and within commercial and industrial developments adjacent to existing residential dwellings or land zoned residential shall be fully shielded so light rays emitted by the fixture are projected below the horizontal plane passing through the lowest point on the fixture from which light is emitted.
11. Street light fixtures shall not exceed one hundred and fifty (150) watts along residential local access streets.
12. All lighting shall be served by underground electrical service.
13. Pole-mounted lighting fixtures shall be located so the centerline of each pole is not more than two (2) feet from the face of the curb.
14. The height and shielding of lighting standards shall provide proper lighting without hazard to drivers or nuisance to residents.

(w) **Underground Utility Lines.**

1. All electric, telephone, television and other communication facilities, both main and service lines servicing within new developments, shall be provided by underground wiring within easements or dedicated public rights-of-way, installed in accordance with the prevailing standards and practices of the utility or other companies providing such services.
 - a. New electrical substation developments shall be exempt from this requirement; they are however encouraged to minimize the visual impact as much as is possible.
2. Lots which abut existing easements or public rights-of-way where overhead electric or telephone distribution supply lines and service connections have heretofore been installed may be supplied with electric and telephone service from those overhead lines, but the service connections from the utilities' overhead lines shall be installed underground. In the case of existing overhead utilities, should a road widening, or an extension of service, or other such condition occur as a result of the subdivision and necessitate the replacement or relocation of such utilities, such replacement or relocation shall be underground and installed in accordance with the prevailing standards and practices of the utility or other companies providing such services.
3. Where overhead lines are permitted as the exception, the placement and alignment of poles shall be designed to lessen the visual impact of overhead lines as follows: Alignments and pole locations shall be carefully routed to avoid locations along horizons; clearing swaths through treed areas shall be avoided by selective cutting and a staggered alignment; trees shall be planted in open areas and at key locations to minimize the view of the poles and the alignments; and alignments shall follow rear lot lines and other alignments.

- (x) Vehicular Parking Facilities. All vehicular parking facilities and internal drives within parking areas shall be designed to allow for the safe and efficient movement of vehicles within a development and on the adjacent street. Developments shall minimize parking as the dominant land use of a proposed development and preferably, parking will be provided on the side and rear of lots.
- (y) Variance and Exception.
 1. It is the intent of these regulations that all new subdivisions shall be provided with a sufficient amount of off-street motor vehicle parking, while allowing for some flexibility of site design to accommodate the unique characteristics of individual properties.
 2. Except for buildings or parts of buildings used or occupied for residential use, all or part of the off-street parking requirements may be waived by the Planning Commission when sufficient publicly owned parking spaces are within five hundred (500) feet of the proposed subdivision.
 3. If the applicant believes the required parking amounts are in excess of what is needed for the proposed use, the applicant may submit a written request with justification to the Planning Commission for a reduction in parking space requirements.
 4. The Planning Commission may approve parking lots with more spaces than the allowed maximum provided all of the spaces above the maximum number are composed of pervious surface. The Planning Commission may also approve parking lots with additional impervious parking spaces above the allowed maximum spaces where the use of pervious spaces would not be environmentally sound; in such case the applicant shall provide written documentation supporting such claim and the decision to allow additional impervious surface shall ultimately be made by the Planning Commission.
 - a. Examples of pervious materials include, but are not limited to, grid pavers, block pavers, and porous pavements and surfaces.
 - b. Alternative pavers and semi-permeable surfaces are not recommended for high traffic volume areas and are not suitable for handicapped parking.
 - c. Pervious areas shall generally include overflow parking areas.
 - d. Snow disposal or storage areas shall generally be located in a pervious area, but the applicant shall demonstrate a design considering the issues relating to debris and salt and sand sediments in relation to containment, drainage and access.
 5. For phased developments, the Planning Commission may provide that up to fifty (50) percent of the parking spaces required by this section will not be immediately constructed and may be kept in reserve. Such reserve parking areas shall be kept planted and maintained rather than surface parking until such time the additional parking space is necessary to serve the completed phases of the associated development. No above ground improvements shall be placed or constructed upon such reserve parking area. The area designated on the phased development site plan and the terms and conditions of phasing the parking area completion as determined by the Planning Commission, must be clearly set forth in notations on the approved plan.

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- (z) General Parking Standards. Off-street vehicular parking facilities shall be provided in accordance with the following standards.
 - 1. Off-street parking shall be provided and maintained in connection with the use, substantial change in use, construction, conversion or increase in intensity of use of buildings or structures using the standards outlined in *Table B Vehicular Parking Facilities below*.

Table B Vehicular Parking Facilities

Each single family residential dwelling unit shall be provided with at least two (2) parking spaces. For uses not listed in this section, the required spaces shall be comparable to the closest other similar land use as determined by the Planning Commission.

VEHICULAR PARKING FACILITIES		
Land Use	Maximum	Minimum
Bank	3 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Big Box Retail	3 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Drive-Thru Restaurant	9 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Free Standing Retail	3 per 1000 ft. ² GFA	1 per 1000 ft. ² GFA
General Office Building	5 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Industrial Plant	2 per 1000 ft. ² GFA	1 per 1000 ft. ² GFA
Medical Office Building	9 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Nursing Home	3 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Restaurants	11 per 1000 ft. ² GFA	6 per 1000 ft. ² GFA
Small Shopping Centers	6 per 1000 ft. ² GFA	3 per 1000 ft. ² GFA
Bed and Breakfast	1.2 spaces per guest room or suite	1 spaces per guest room or suite
Personal Services	3 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Day Care Centers	1 space per 4 children at max. capacity	1 space per 8 children at max. capacity
Churches and Places of Worship	1 space per 3 seats in portion of building uses for services	1 space per 5 seats in portion of building uses for services
Museums and Libraries	2 per 1000 ft. ² GFA	1 per 1000 ft. ² GFA
Social, Fraternal Clubs and	4 per 1000 ft. ² GFA	3 per 1000 ft. ² GFA
Elementary, Middle and High Schools	1 space per 3 seats in the auditorium	1 space per 5 seats in the auditorium
Hotels and Motels	1.2 space per guest room or suite	1 space per guest room or suite
Warehouse	1 space per 10 compartments	1 space per 20 compartments
Self Service Warehouse	4 per dwelling unit plus 1.5 per non-resident employee	2 per dwelling unit plus 1.5 per non-resident employee
Home Occupation	2.5 per dwelling unit	1 per dwelling unit
Multi-Family Residences	3 per 1000 ft. ² GFA	1 per 1000 ft. ² GFA
Commercial Kennel	3 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Automotive Sales and/or Rental	4 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Gymnasiums, Physical Fitness Centers, Health Spas, Martial Arts Centers and Dance	4 per 1000 ft. ² GFA	2 per 1000 ft. ² GFA
Indoor Recreational Facilities	5 per 1000 ft. ² GFA	5 per 1000 ft. ² GFA
Outdoor Recreational Facilities	Determined by parking demand study	Determined by parking demand study

GFA = Gross Floor Area

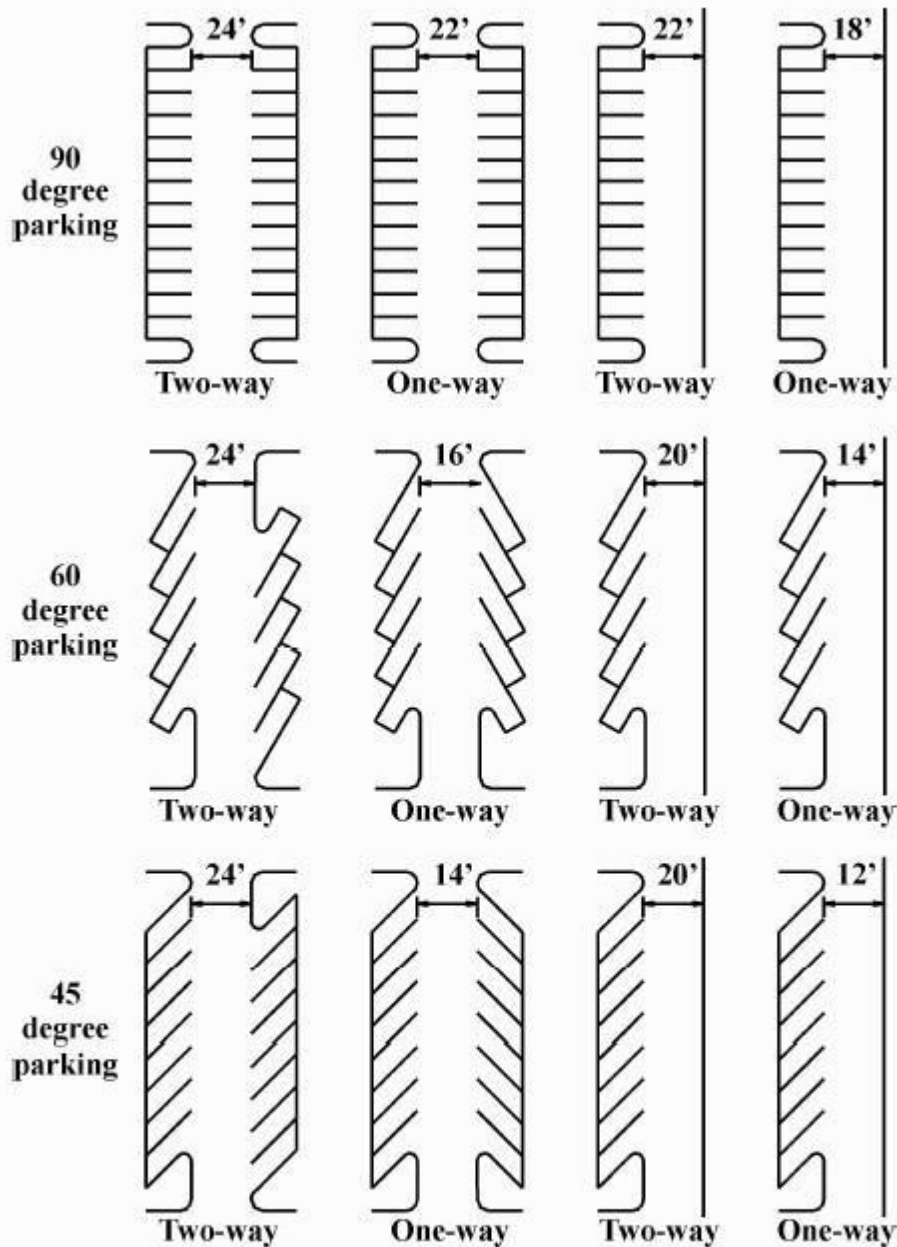
Source: Northwester Connecticut Council of Governments and Litchfield Hills Council of Elected Officials. 2003. *Model Zoning Regulations for Parking in Northwestern Connecticut.* <http://www.fhiplan.com/PDF/NW%20Parking%20Study/NW%20Connecticut%20Parking%20Study%20Phase%202.pdf>

2. Off-street parking areas shall be oriented to and within a reasonable walking distance of the buildings they are designed to serve according to the following standards:
 - a. For commercial and industrial developments, the farthest space in a lot shall be a maximum of one thousand (1,000) feet for employee parking; five hundred (500) to eight hundred (800) feet for customers.
 - b. For single-family or two-family structures, off-street parking shall be provided behind the street right-of-way line and may be attached or separate garage(s), carport(s), or driveway(s).
 - c. For multi-family structures of more than two units, off-street parking shall be located within two hundred (200) feet of the structure.

- d. Handicapped parking shall be provided for all non- residential developments and multi-family structures of more than two units. These spaces shall be located closest to the nearest accessible entrance. The number of spaces shall be provided according to the following chart:
- 3. Parking facilities shall not be permitted within ten (10) feet of a side or rear property line unless formal arrangements, satisfactory to the Planning Commission, have been made for the establishment of a common parking facility.
- 4. Each angled off-street parking space shall measure ten (10) feet in width by eighteen (18) feet in length, smaller compact parking space stalls may be considered. Parking spaces for the physically handicapped shall be fifteen (15) feet wide, including a three (3) foot wide painted cross hatch. Parallel parking spaces shall measure eight (8) feet wide and a minimum of twenty-three (23) feet long. Off-street parking involving the use of semi-tractor trailer combinations or other vehicles in excess of twenty five (25) feet in length shall provide minimum parking space measuring twelve (12) feet by fifty four (54) feet.
- 5. Aisle widths and parking angles in minimum ration as shown as follows:

Parking Angle	Minimum Aisle Width	Direction of Flow
45°	12'3"	One way
50°	12'9"	One way
55°	13'3"	One way
60°	14'3"	One way
65°	15'2"	One way
70°	16'	One way
75°	24'	Two way
90°	24'	Two way

Alternative Parking Lot/Space Arrangements



Drives with no parking are 24' (two-way) and 12' (one-way) typical.

For drives serving thirty (30) or fewer vehicles and where parking is not provided on either side, the width for two-way drives can be reduced to twenty-two (22) feet.

For drives serving fifteen (15) or fewer vehicles and where parking is not provided on either side, the width for two-way drives can be reduced to twenty (20) feet.

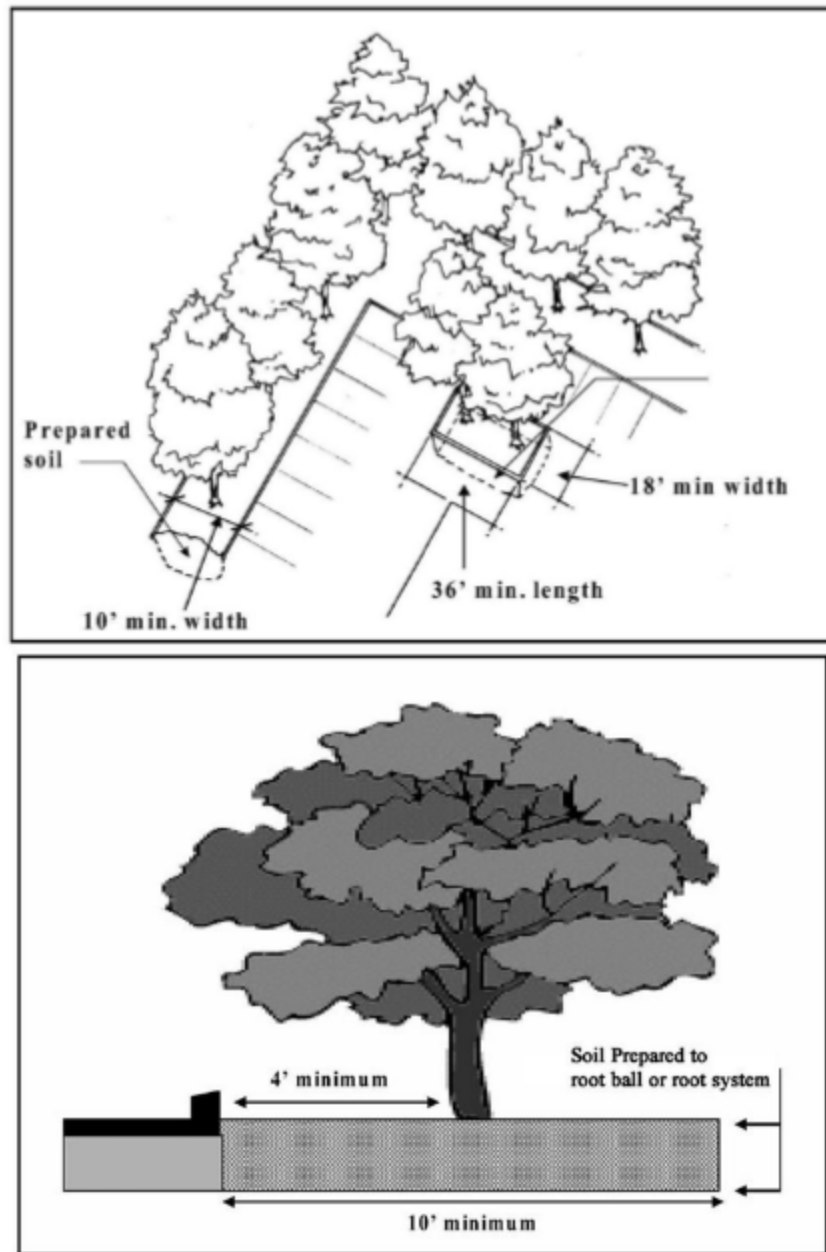
Driveways serving Mini-Warehouse Facilities. One-way drives shall be a minimum of twenty-two (22) feet in width.

<http://www.fhiplan.com/PDF/NW%20Parking%20Study/NW%20Connecticut%20Parking%20Study%20Ph>

6. Where sidewalks occur in parking areas, parked vehicles shall not overhang or extend over the sidewalk unless an additional two (2) feet of width of the sidewalk is provided in order to accommodate such overhang.
7. Not less than a four (4) foot radius of curvature shall be permitted for horizontal curves in parking areas.
8. All dead end parking lots shall be designed to provide, when necessary, sufficient back-up area for all end stalls.
9. Painted lines, arrows and dividers shall be provided and maintained to control parking and when necessary to direct vehicular circulation.
10. The typical section of any paved parking lot shall be prepared to meet the following minimum standards and the construction of parking lots shall conform to the material and method specifications set forth in the most recent version of the City of Fargo's Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended.
 - a. Crushed aggregate based course with a minimum thickness of six (6) inches of compacted gravel meeting North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction manual for Class 5 gravel.
 - b. Pavement shall consist of a minimum of five (5) inches of asphalt meeting the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction manual for Class 31 and shall be placed in three (3) lifts.
11. Parking areas shall be suitably landscaped to provide shade, minimize noise, glare and other nuisance characteristics as well as to enhance the environment and ecology of the site and surrounding area. Large parking lots, containing more than fifty (50) spaces, shall be broken down into sections, not to exceed fifty (50) spaces, separated from other sections by landscaped dividing strips. The standards do not apply to areas used for storing vehicles or equipment in conjunction with a sales or rental establishment.

Landscaped beds shall be provide on the perimeter of the parking lot and shall be a minimum of ten (10) feet wide and the minimum planting area per tree shall be one hundred and forty four (144) square feet (see Off Street Parking Tree Placement Illustration below).

OFF STREET PARKING TREE PLACEMENT

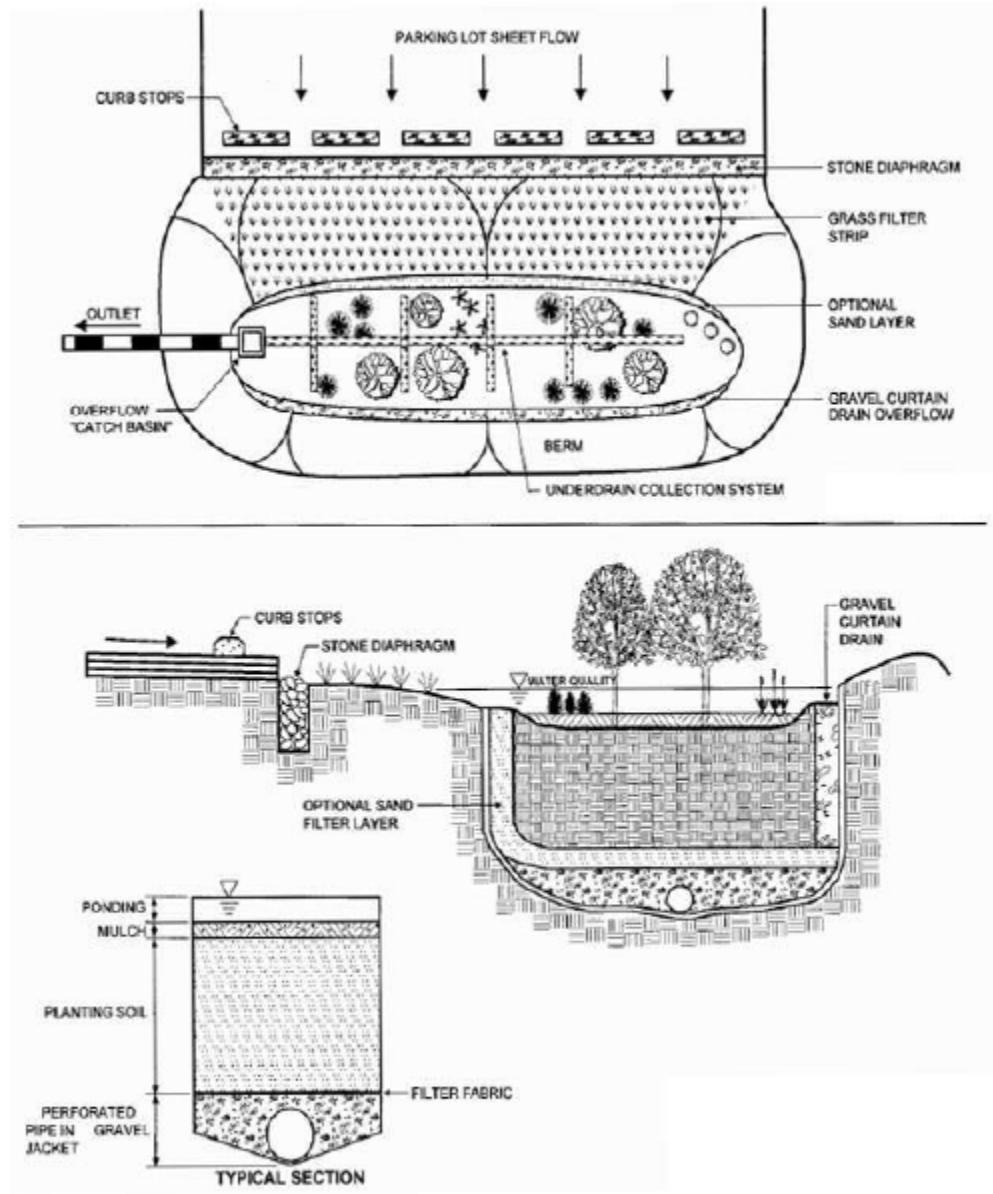


Source: Georgia Forestry Commission. 2002. *Community tree planting and establishment guidelines*. Macon, Georgia.

- a. Interior parking islands shall be a minimum of eighteen (18) feet wide and thirty-six (36) feet long and the minimum planting area per tree shall be one hundred and ninety two (192) square feet (see Off Street Parking Tree Placement Illustration above).
- b. Preferably, interior and exterior landscaping areas will be designed below parking lot grade as rain gardens/bioretention systems to treat and retain surface runoff

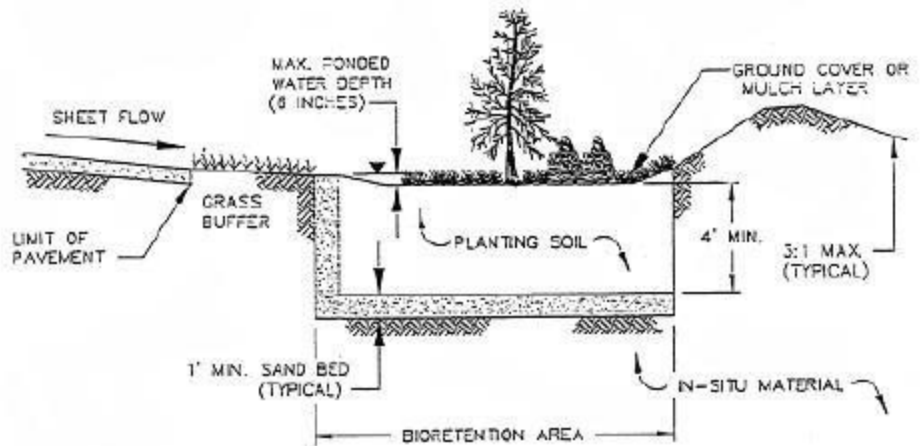
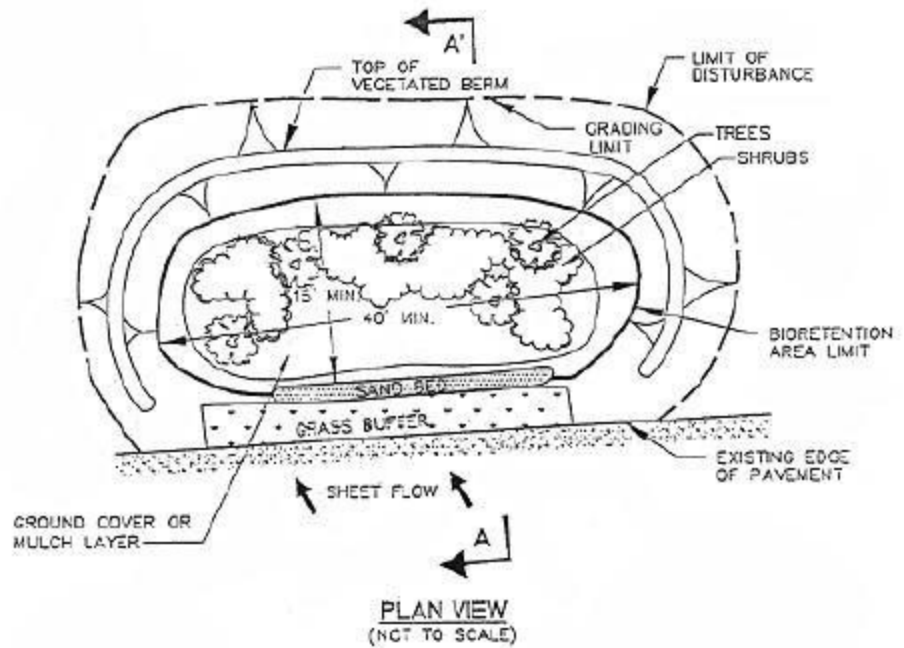
(see Parking Lot Bioretention System Designs A and B below for examples); reducing the total runoff and size of auxiliary retention/detention ponds.

PARKING LOT BIORETENTION SYSTEM DESIGN (WITH UNDER-DRAIN)



Source: South Florida Water Management District. 2002. *Best Management Practices for South Florida Urban Stormwater Management Systems*.

PARKING LOT BIORETENTION SYSTEM DESIGN



Source: Metropolitan Council. 2001. *Minnesota urban small site BMP manual: storm water best management practices for cold climates*. St. Paul, Minnesota: Metropolitan Council Environmental Services.
[http://www.metrocouncil.org/environment/Watershed/BMP/CH3_STFilterBioretention.p](http://www.metrocouncil.org/environment/Watershed/BMP/CH3_STFilterBioretention.pdf)
df

Bioretention systems shall be designed using appropriate best management practices (BMP's) and/or the following:

- i. Such rains gardens shall not create swampy and/or unmaintainable conditions.
- ii. Utilize filter strips or other appropriate BMP's to filter and remove suspended soils to ensure proper functioning and reduced clogging of the bioretention system.
- iii. Designed to pond six (6) to nine (9) inches above filter bed.

- iv. Parking lot under-drain bioretention systems (see examples above) shall be designed using applicable infiltration trench BMPs.
- v. Parking lot infiltration bioretention systems (see examples above) shall be designed using applicable infiltration basin BMPs.
- c. Trees shall be planted so that each parking space is no more than fifty (50) feet from a tree, measured on center.
- d. The perimeter of parking lot shall be landscaped with hedgerow (continuous shrubs) or six (6) shrubs per twenty five (25) linear feet and interior parking islands shall be landscaped with six (6) shrubs per twenty five (25) linear feet. All shrubs shall be a minimum of one (1) gallon.
- e. The placement of trees shall consider the mature size of the tree in relation to structures and overhead utility. Trees shall not be placed within four (4) feet of a parking stop or curb.
- f. The trees shall be nursery grown in a climate similar to that of the locality of the project.
- g. All trees shall have a normal habit of growth and shall be sound, healthy and vigorous; they shall be free from disease, insects, insect eggs and larvae.
- h. The trunk diameter, measured at a height of six (6) inches above finish grade, shall be a minimum of two (2) inches.
- i. All planting shall be performed in conformance with good nursery and landscape practices. The planting areas shall be loosened to a depth of the root ball or rooting system and the width of three (3) times the root ball and preferably five (5) times the root ball when practical.
- j. Requirements for the measurements, branching, grading, quality, balling and the burlapping of trees shall follow the code of standards recommended by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock, ANSIZ60, current edition, as amended.
- k. Trees shall be located so as to maximize the growth potential of the plant material, minimize the potential for root interference with public infrastructure and enhance the quality of the development. Trees shall be one of the following species:

Prairie Spire Ash*	American Linden
Patmore Ash*	Redmond Linden
Northern Treasure Ash*	Boulevard Linden
Northern Gem Ash*	Greenspire Linden
Northern Blaze Ash*	Frontyard Linden
Mancana Ash*	Norlin Linden
Dakota Centennial Ash*	Harvest Gold Linden
Prairie Dome Ash*	Dropmore Linden
Bergeson Ash*	Glenleven Linden
Prairie Torch Ohio Buckeye	Shamrock Linden
Homestead Ohio Buckeye	Autumn Blaze Maple
Autumn Splendar Ohio Buckeye	Sienna Glen Maple
New Horizon Elm**	Firefall Maple
Jefferson Elm**	Fairview Maple
Discovery Japanese Elm**	Unity Maple
Cathedral Elm**	Jefcam Maple
Vangaurd Elm**	Fall Fiesta Maple
Washington Elm**	Green Mountain Sugar Maple
Valley Forge Elm**	Tatarian Maple
Accolade Elm**	Amur Maple
Common Hackberry	Emerald Lustre Maple
Northern Acclaim Honey-locust	Bur Oak
Perfection Honey-locust	Mongolian Oak
Stately Manor - Kentucky Coffeetree	

*Seedless varieties preferred

**Dutch Elm Disease (DED) resistant

Other tree species may be used, provided acceptable information is submitted to indicate that the species are hardy street trees with a maturing height of thirty-five (35) feet or greater; fast growing, short lived trees shall not be permitted. Smaller trees, approved by the Planning Commission, will be permitted in areas with existing overhead utilities. No one species shall comprise more than twenty- five (25) percent of the entire number of trees in a particular development.

- I. Trees shall be maintained and guaranteed for a minimum of two years. Planting of trees shall occur within the standard planting season (May through November). Acceptable stock will not have more than one-third (1/3) of the tree canopy damaged or dead without replacement. Replacement trees shall conform to all requirements of this section and shall be maintained and guaranteed for a minimum of two planting seasons.

- (aa) Parking Facilities for Mixed Use Developments. In Mixed-Use developments, or developments where parking is affected by cooperative agreements between different land uses, the applicant shall submit a parking demand analysis that demonstrates parking demand patterns. The parking demand analysis must be approved by the Planning Commission and will serve as the basis for determination of required parking at the mixed-use site.
- (bb) Shared Parking. The Commission encourages parking lots for different structures or uses, or for mixed uses be shared. At the applicant's request, shared parking may be provided, subject to the following provisions:
1. A reciprocal written agreement has been executed by all the parties concerned that assures the perpetual joint use of such common parking, a copy of which has been submitted to and is acceptable to the Planning Commission and its legal counsel.
 2. The Planning Commission may require the applicant to provide a parking study with all information deemed necessary to its decision-making on a shared parking arrangement. This information includes but is not limited to a) the type and hours of operation and parking demand, for each use, b) a site plan displaying shared use spaces in the lot and walking distance to the uses sharing the lot, c) a description of the character of land use and parking patterns of adjacent land uses, and d) an estimate of anticipated turnover in parking space use over the course of 12 (twelve) to 24 (twenty-four) hours at the site.
 3. Parking spaces to be shared must not be reserved for individuals or groups on a twenty four (24) hour basis.
 4. Uses sharing a parking facility do not need to be contained on the same lot, but each use shall be a maximum of five hundred (500) feet from the closest parking space in the lot providing the shared spaces. A variance of the maximum allowable distance between the use and associated shared parking may be approved by the Commission with written justification and supporting information provided by the applicant.
 5. Uses sharing a parking facility shall provide for safe, convenient walking between uses and parking, including safe, well marked pedestrian crossings, signage, and adequate lighting.
- (cc) Reduction in Parking Space Requirements for Shared Parking. Where shared parking is provided among a mix of land uses, the Commission may allow the following, at the applicant's request:
1. Up to thirty (30) percent of the parking spaces required for the predominant use on a site may be shared with other uses operating during the same time of day and days of the week. The predominant use is considered to be that which requires the most parking of those sharing the parking facilities.
 2. Up to seventy five (75) percent of the parking spaces required for uses such as theaters, public auditoriums, bowling alleys, nightclubs, movie theaters, and similar predominantly evening uses may be shared with uses such as banks, offices, and similar predominantly daytime uses.
 3. Up to seventy five (75) of the parking spaces required for uses such as churches and other uses exclusively in operation during the weekend may be shared with uses such as medical offices, banks, and other similar uses predominantly in operation on weekdays.

(dd) Bicycle Parking Facilities. Bicycle parking facilities for non-residential land uses shall be provided in accordance with the following regulations:

1. Five (5) percent of the first fifty (50) vehicular spaces shall be for bicycle use. If more than fifty (50) spaces are to be provided, at least three (3) percent of the number of spaces over fifty (50) shall be for bicycle use.
2. Each bicycle space shall be equipped with a device to which a bicycle frame and one (1) wheel can be attached using a chain or cable. There shall be adequate separation between adjacent devices to allow bicycles to be attached or removed without moving other bicycles. The devices shall also be suitable for use by bicycles not equipped with kickstands and the appearance of the device shall be generally consistent with nearby urban design and architectural features.
3. Bicycle parking spaces shall be convenient to the structure for which they are provided. They shall be visible from at least one (1) entrance to the structure and shall be provided with lighting.
4. Bicycle parking devices shall permit at least two (2) feet of free space between any bicycle attached to the device and the edge of the curb or sidewalk. For areas where motor vehicles are permitted to park overhanging the curb or sidewalk, the distance shall be increased to four (4) feet. For roads involving no curb or sidewalk, the minimum clearance shall be three (3) feet between any bicycle attached to a parking device and the outside edge of the roadway shoulder.

(ee) Pedestrian Access Design Standards. Provisions for safe and convenient pedestrian access shall be incorporated into landscaping plans for parking areas.

1. Potential conflict areas points between pedestrians, bicycles and motor vehicles shall be minimized.
2. Safe separated walkways with safe, well-articulated pedestrian crossings demarcated with pavement markings shall be provided and designed to accommodate individuals per Americans with Disabilities Act (ADA) requirements.

(ff) Blocks and Lots. The configuration of blocks and lots shall be based upon the minimum lot area requirements, the salient natural features, the existing improvements, the proposed improvements and the adjacent development pattern. Lot configurations should provide for flexibility in building locations, while providing safe vehicular and pedestrian circulation. Lots with areas that are two (2) or more times the typical urban lot may be required to be designed with configurations allowing for additional subdivision.

1. For Residential Blocks, in general, intersecting streets and roads, determining block lengths, shall be provided at such intervals as will serve cross traffic adequately and to meet existing streets and roads. Where no existing plats control, the blocks in subdivisions shall normally not exceed thirteen hundred and twenty (1,320) in length, except where topography or other conditions justify departure from this maximum.
2. The design of residential blocks longer than eight hundred (800) feet shall give special consideration to the requirements of fire protection, pedestrian access and utility service. The Planning Commission may require easements as necessary for these purposes.

3. Blocks in nonresidential areas may vary from the requirement of Section 604.02 of this Ordinance when required by the nature of the use. Adequate provisions shall be made for off-street parking, loading areas and traffic circulation.

(gg) Specific Lot Configurations

1. In order to avoid jurisdictional problems, lot lines shall, wherever feasible, follow municipal boundaries rather than cross them. Where a lot is divided by a municipal boundary, the minimum standards of both municipalities shall apply.
2. Generally, side lot lines shall be radial to street right-of-way lines. Exceptions may include cases where proposed lot lines follow existing lot lines, improvements, or natural features.
3. All lots shall front on a public street, unless a private street is approved for access pursuant to Section 602.02 (E) of this Ordinance. Principal vehicular access to lots shall be provided from the frontage along the approved street.
4. Lots resulting from a proposed subdivision that will be large enough to be further subdivided shall be configured to facilitate such future subdivision, when deemed necessary by the Planning Commission. Adequate street right-of-way shall be provided as necessary. The Planning Commission may require a sketch plan of such large lots that indicates the potential future subdivision generally in conformance with the design standards of this Ordinance. The Planning Commission may also require restrictive covenants be recorded with the plat restricting homes to a specified area within each parcel to allow for easier future subdividing of lots.
5. Subdivisions shall be designed to accommodate the current and future development of the tract being subdivided, the development potential of adjacent lands, the development goals and policies of the applicable comprehensive plans and applicable standards of the zoning ordinance. Whenever possible, lots shall be designed with adequate access by providing the required lot width at the street right of way line.
6. Double frontage lots are prohibited except where provided as reverse frontage lots. Reverse frontage lots are only permitted when a reduction of driveway intersections along a street with a high volume of vehicular movements is desired. Additionally, reverse frontage lots may be permitted when rear alleys are proposed to provide vehicular access to lots. All reverse frontage lots shall include an identification of the frontage for use as a road access.
7. All residential reverse frontage lots in major subdivisions shall have within every rear yard that is adjacent to section line or arterial road a planted buffer consistent with Section 614.01 of this Ordinance.

(hh) Easements. Easements for sanitary sewer facilities, stormwater drainage facilities, public or private utilities, or pedestrian access shall meet the following standards:

1. Location of Easements. To the fullest extent possible, easements shall be adjacent to property lines.
2. Easement Conflicts Prohibited. Nothing shall be placed, planted, set, or put within the area of an easement that would adversely affect the function of the easement or conflict with the easement agreement.
3. Width of Pedestrian Easements. Pedestrian easements shall have a minimum width of six (6) feet. Pedestrian easements located in the middle of the block pursuant to Section 602.06 (G) of this Ordinance shall have a minimum width of ten (10) feet and bike path and trail easements shall be a minimum of fifteen (15).

4. Width of Utility Easements. Public utility easements shall have a minimum width of twenty (20) feet and private utility easements shall have a minimum width of ten (10) feet and shall be required along lot frontage and may be required along the back of lots. All utility companies are encouraged to use common easements.
 5. Stormwater Drainage Easements Required. The applicant shall reserve easements where stormwater or surface water drainage facilities exist or proposed, whether located within or beyond the boundaries of the property, easements shall be required for all conveyance systems crossing private property. Easements shall have a minimum width of twenty (20) feet and shall be adequately designed to provide area for the collection and discharge of water, the maintenance, repair and reconstruction of the drainage facilities and the passage of machinery for such work. The easements shall clearly identify who has the right-of-access and responsibility of maintenance.
 6. Variable Petroleum Easement Widths. Where any petroleum or petroleum product transmission line traverse a subdivision, the applicant shall confer with the applicable transmission or distribution company to determine the minimum distance which shall be required between each structure and the centerline of such petroleum or petroleum product transmission line. Additionally, the Planning Commission will require, with the Final Plat application, a letter from the owner of the tract and the right-of-way, a copy of the recorded agreement which shall contain the above data.
- (ii) Survey Monuments and Markers.
1. Location. Developers shall place permanent reference monuments at block corners, control points and lot corners.
 2. Material Specifications.
 - a. Block corner and control point monuments shall be iron pins set in concrete.
 - b. Lot corner monuments shall be iron pins set in the ground.

Section 6.06 Major Subdivision Stormwater Management

- (a) All developments with five (5) or more buildable lots shall construct an underground storm sewer piping system within the development consisting of street gutters, stormwater inlets and manholes pursuant to this Ordinance. Storm Sewer systems shall be constructed according to the material and methods set forth in the most recent version of the City of Fargo's Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended.
- (b) If stormwater management information provided in accordance with Section 403.04 (P) of this Ordinance indicates that the existing stormwater management system on the subject tract does not meet the requirements of this Section, then stormwater management facilities must be designed and proposed to meet the requirements of this Ordinance.
- (c) When the proposed stormwater management system will utilize or be integrated into an existing stormwater collection or conveyance system, the existing facilities within the proposed subdivision shall be improved to the standards of this Ordinance. The applicant shall determine the impacts of any proposed improvements of the existing system to downstream properties. If, in the opinion of the Planning Commission, the improvements will cause adverse impacts on downstream properties, the applicant shall mitigate such impacts.
- (d) Stormwater Management. All major subdivision applications shall include stormwater management data in a form acceptable to the Planning Commission. The stormwater management data shall identify all proposed stormwater management facilities and supportive information as required by this Ordinance. Stormwater management data shall be prepared by individuals registered in the North Dakota to perform such duties and include the certification illustrated below.

**STORM DRAINAGE PLAN
CERTIFICATION**

I hereby certify that, to the best of my knowledge, the storm drainage facilities shown and described hereon are designed in conformance with the Cass County Subdivision Ordinance.

_____, 20__ * _____

**

* Signature of the registered engineer or registered surveyor responsible for the preparation of the plan.

** Seal of the engineer or surveyor.

Developers and consultants are urged, but not required to discuss stormwater management design approaches for specific projects with the Planning Commission staff prior to the submission of the Preliminary or Final Plat.

(e) General Design Data.

1. Location of Easements. To the fullest extent possible, easements shall be adjacent to property lines.
2. In the interest of reducing the total area of impervious surface, preserving existing features which are critical to stormwater management and reducing the concentration of stormwater flow, the developer may consider the design flexibility provided by the variance process.
3. Maximum use shall be made of the existing on-site natural and man-made stormwater management facilities.
4. Storm facilities not located within a public right-of-way shall be centered within an easement.
5. Innovative stormwater management and recharge facilities may be proposed (e.g., rooftop storage, drywells, cisterns, diversion structures, aeration of lawns, holding tanks, infiltration systems, stream channel storage, in line storage in storm sewers and grading patterns), provided they are accompanied by detailed engineering plans and performance capabilities that are acceptable to the Planning Commission.
6. When Final Plat applications are submitted in sections and if temporary facilities are required for construction of a section, such facilities shall be included in the submitted plans. In the event temporary measures cannot adequately handle the stormwater runoff, the main outfall line shall be included as part of the construction of the proposed section.
7. Special provisions shall be required for outfalls to rivers, county drains, and lakes; including but not limited to tied joints, outfalls structure, and backup protection.
8. Flap gates, shear gates and pump stations shall be installed where appropriate to provide flood protection.
9. The following principles shall be applied to the design plan and construction schedule to minimize soil erosion and sedimentation using the North Dakota Department of Transportation (NDDOT) Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended:
 - a. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion.
 - b. Whenever feasible, natural vegetation shall be retained and protected.
 - c. The extent of the disturbed area and the duration of its exposure shall be kept to a minimum, within practical limits.
 - d. Temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during construction.
 - e. Drainage provisions shall accommodate the stormwater runoff both during and after construction.
 - f. Soil erosion and sedimentation facilities shall be installed prior to any on-site grading.

(f) System Demand.

1. Peak rate of discharge calculations shall be used to determine the configurations and sizes of pipes, channels, and other routing or flow control structures. Runoff volume calculations shall be used to determine the necessity for, and sizing of, detention and retention facilities.
2. Stormwater management facilities shall be provided so that the peak discharge of the calculated post development runoff to an adjacent property does not exceed the peak discharge of the calculated pre- development runoff.
Runoff calculations for the pre and post development comparison shall consider three (3) different storm frequencies: the two (2), ten (10) and one hundred (100) years storm events.

Storm Event	Inches of Rainfall
2 years	2.31
10 years	3.58
100 years	5.29

Source: NOAA. 1961. Technical Paper 40, Rainfall Frequency Atlas of the United States for Durations from 30 minutes to 24 Hours and Return Periods from 1 to 100 Years. Washington, D.C. (50-56).

For pre-development computations, all runoff coefficients with the project shall be based on actual land use assuming summer or good land cover conditions (see Table D. Runoff Coefficients below). Off-site land use conditions used to determine storm flows for designing storm facilities shall be based on existing land uses assuming winter or poor land cover conditions (see Table D. Runoff Coefficients below).

Table D. Runoff Coefficients

RUNOFF COEFFICIENTS "C" FOR RATIONAL FORMULA												
SOIL GROUP	A			B			C			D		
Slope	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Land Use												
<u>Cultivated Land</u>												
winter conditions	.14	.23	.34	.21	.32	.41	.27	.37	.48	.34	.45	.56
summer	.10	.16	.22	.14	.20	.28	.19	.26	.33	.23	.29	.38
<u>Fallowed Fields</u>												
poor conditions	.12	.19	.29	.17	.25	.34	.23	.33	.40	.27	.35	.45
good conditions	.08	.13	.16	.11	.15	.21	.14	.19	.26	.18	.23	.31
Forest/Woodland	.08	.11	.14	.10	.14	.18	.12	.16	.20	.15	.20	.25
<u>Grass Areas</u>												
good conditions	.10	.16	.20	.14	.19	.26	.18	.22	.30	.21	.25	.35
average	.12	.18	.22	.16	.21	.28	.20	.25	.34	.24	.29	.41
poor conditions	.14	.21	.30	.18	.28	.37	.25	.35	.44	.30	.40	.50
<u>Impervious Areas</u>												
Weighted Residential	.90	.91	.92	.91	.92	.93	.92	.93	.94	.93	.94	.95
<u>Weighted Residential</u>												
Lot size 1/8 acre	.29	.33	.36	.31	.35	.40	.34	.38	.44	.36	.41	.48
Lot size 1/4 acre	.26	.30	.34	.29	.33	.38	.32	.36	.42	.34	.38	.46
Lot size 1/3 acre	.24	.28	.31	.26	.32	.35	.29	.35	.40	.32	.36	.45
Lot size 1/2 acre	.21	.25	.28	.24	.27	.32	.27	.31	.37	.30	.34	.43
Lot size 1 acre	.18	.23	.26	.21	.24	.30	.24	.29	.36	.28	.32	.41

Group A: Soils having a low runoff potential due to high infiltration rates. These soils consist primarily of deep, well-drained sands and gravels.

Group B: Soils having a moderately low runoff potential due to moderate infiltration rates. These soils consist primarily of moderately deep to deep, moderately well to well-drained soils with moderately fine to moderately coarse textures.

Group C: Soils having a moderately high runoff potential due to slow infiltration rates. These soils consist primarily of soils in which a layer exists near the surface that impedes the downward movement of water or soils with moderately fine to fine texture.

Group D: Soils having a high runoff potential due to very slow infiltration rates. These soils consist primarily of clays with high swelling potential, soils with permanently high water tables, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious parent material.

Dual hydrologic groups: A/D, B/D and C/D, are given for certain wet soils that can be adequately drained. The first letter applies to the drained condition, the second to the undrained. Only soils that are rated D in their natural condition are assigned to dual classes. Soils may be assigned to dual groups if drainage is feasible and practical.

N/A: Soils not classified

- The design of stormwater management collection facilities that service drainage areas within the site shall be based upon a ten (10) year storm frequency event.
- All developments must also include design provisions that allow for the overland conveyance of the post Q100 year storm flows through the site without damage to any private or public property.
- Runoff calculations for on-site stormwater management facilities shall be based upon the Rational method, where peak rate of discharge is termed Qp and is expressed as cubic feet per second:

$$Q_p = CIA$$

where

Qp = The peak runoff rate in cubic feet per second (CFS)

C = The runoff coefficient

I = The average rainfall intensity in inches per hour (in./hr.), occurring at the time of concentration t_c (min.)

A = The size of the drainage area

6. Criteria and assumptions to be used in the determination of stormwater runoff and design of management facilities are as follows:

- a. Runoff coefficients shall be based on the land use coefficients listed in *Table D. Runoff Coefficients.*

Table D. Runoff Coefficients

RUNOFF COEFFICIENTS "C" FOR RATIONAL FORMULA												
SOIL GROUP	A			B			C			D		
Slope	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Land Use												
<u>Cultivated Land</u>												
winter conditions	.14	.23	.34	.21	.32	.41	.27	.37	.48	.34	.45	.56
summer	.10	.16	.22	.14	.20	.28	.19	.26	.33	.23	.29	.38
<u>Fallow Fields</u>												
poor conditions	.12	.19	.29	.17	.25	.34	.23	.33	.40	.27	.35	.45
good conditions	.08	.13	.16	.11	.15	.21	.14	.19	.26	.18	.23	.31
Forest/Woodland	.08	.11	.14	.10	.14	.18	.12	.16	.20	.15	.20	.25
<u>Grass Areas</u>												
good conditions	.10	.16	.20	.14	.19	.26	.18	.22	.30	.21	.25	.35
average	.12	.18	.22	.16	.21	.28	.20	.25	.34	.24	.29	.41
poor conditions	.14	.21	.30	.18	.28	.37	.25	.35	.44	.30	.40	.50
<u>Impervious Areas</u>												
Weighted Residential	.90	.91	.92	.91	.92	.93	.92	.93	.94	.93	.94	.95
<u>Weighted Residential</u>												
Lot size 1/8 acre	.29	.33	.36	.31	.35	.40	.34	.38	.44	.36	.41	.48
Lot size 1/4 acre	.26	.30	.34	.29	.33	.38	.32	.36	.42	.34	.38	.46
Lot size 1/3 acre	.24	.28	.31	.26	.32	.35	.29	.35	.40	.32	.36	.45
Lot size 1/2 acre	.21	.25	.28	.24	.27	.32	.27	.31	.37	.30	.34	.43
Lot size 1 acre	.18	.23	.26	.21	.24	.30	.24	.29	.36	.28	.32	.41

Group A: Soils having a low runoff potential due to high infiltration rates. These soils consist primarily of deep, well-drained sands and gravels.

Group B: Soils having a moderately low runoff potential due to moderate infiltration rates. These soils consist primarily of moderately deep to deep, moderately well to well-drained soils with moderately fine to moderately coarse textures.

Group C: Soils having a moderately high runoff potential due to slow infiltration rates. These soils consist primarily of soils in which a layer exists near the surface that impedes the downward movement of water or soils with moderately fine to fine texture.

Group D: Soils having a high runoff potential due to very slow infiltration rates. These soils consist primarily of clays with high swelling potential, soils with permanently high water tables, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious parent material.

Dual hydrologic groups: A/D, B/D and C/D, are given for certain wet soils that can be adequately drained. The first letter applies to the drained condition, the second to the undrained. Only soils that are rated D in their natural condition are assigned to dual classes. Soils may be assigned to dual groups if drainage is feasible and practical.

N/A: Soils not classified

MUID	MUSYM	Soil Name	Hydrologic
6021	1	Fargo-Erlose Silty Clays	D
6022	2	Tonka Silt Loam	C/D
6023	3	Pamell Silty Clay Loam	D
6024	4	Parilla Silty Clay Loam	C/D
6025	5	Dowray Silty Clay	D
6026	6	Pamell Silty Clay Loam, Ponded	D
6029C	9C	Nutley-Fargo Silty Clays, 1 To 6% Slopes	D
60210	10	Fargo-Hyan Silty Clays	D
60211	11	Nathan Silt Loam, 0 To 2% Slopes	D
60212	12	Hegne-Erlose Silty Clays	D
60214B	14B	Barnes-Buse Loams, 3 To 6% Slopes	B
60214C	14C	Barnes-Buse Loams, 6 To 9% Slopes	B
60214D	14D	Barnes-Buse Loams, 9 To 15% Slopes	B
60215	15	Emrick-Heimdal Loams, 1 To 3% Slopes	B
60216B	16B	Heimdal-Emrick Loams, 3 To 6% Slopes	B
60215C	15C	Heimdal-Esmond Loams, 0 To 9% Slopes	B
60215D	15D	Esmond-Heimdal Loams, 0 To 15% Slopes	B
60216B	16B	Barnes-Sioux Loams, 3 To 6% Slopes	B
60216C	16C	Barnes-Sioux Loams, 6 To 9% Slopes	B
60216D	16D	Barnes-Sioux Loams, 9 To 15% Slopes	B
60217B	17B	Barnes-Svea Loams, 2 To 5% Slopes	B
60218	18	Bearden Silty Clay Loam	C
60219	19	Colvin Silty Clay Loam, Saline	C/D
60220	20	Bearden Silty Clay Loam, Saline	C
60222	22	Bearden-Parilla Silty Clay Loams	C
60223F	23F	Buse-Barnes Loams, 15 To 35% Slopes	B
60225	25	Cashel Silty Clay, Channeled	D
60226	26	Colvin Silty Clay Loam	C/D
60227	27	Divrie Loam	C
60229	29	Fargo Silty Clay, Saline	D
60211B	31B	Embsden Fine Sandy Loam, Gravelly Substratum, 1 To 6% Slopes	B
60232	32	Fargo Silty Clay, 1 To 3% Slopes	D
60235	35	Fairdale Silt Loam, 1 To 3% Slopes	B
60236	36	Fargo Silty Clay	D
60237	37	Fargo Silty Clay, Depressional	D
60238	38	Fargo Silty Clay Loam	D
60239	39	Galchutt Silt Loam	C
60240	40	Fargo-Hegne Silty Clays	D
60241	41	Hegne-Fargo Silty Clay Loams	D
60243	43	Gardena Silt Loam	B
60240	40	Gardena-Glyndon Silt Loams, 0 To 3% Slopes	B
60247	47	Fargo Silty Clay, Smooth Surface	D
60248	48	Glyndon Silt Loam, 0 To 3% Slopes	C
60249	49	Glyndon Silt Loam, Saline, 0 To 3% Slopes	C
60250	50	Hamerly-Tonka Loams, 0 To 3% Slopes	C
60250B	50B	Hamerly Loam, 3 To 6% Slopes	N/A
60254	54	Lamoure Silty Clay Loam	B/D
60255	55	Ladelle Silty Clay Loam	B
60257	57	Fairdale Silt Loam, Channeled	D
60256B	56B	Madlock Fine Sandy Loam, 1 To 6% Slopes	A
60256B	56B	Overly Silty Clay Loam, 3 To 6% Slopes	B

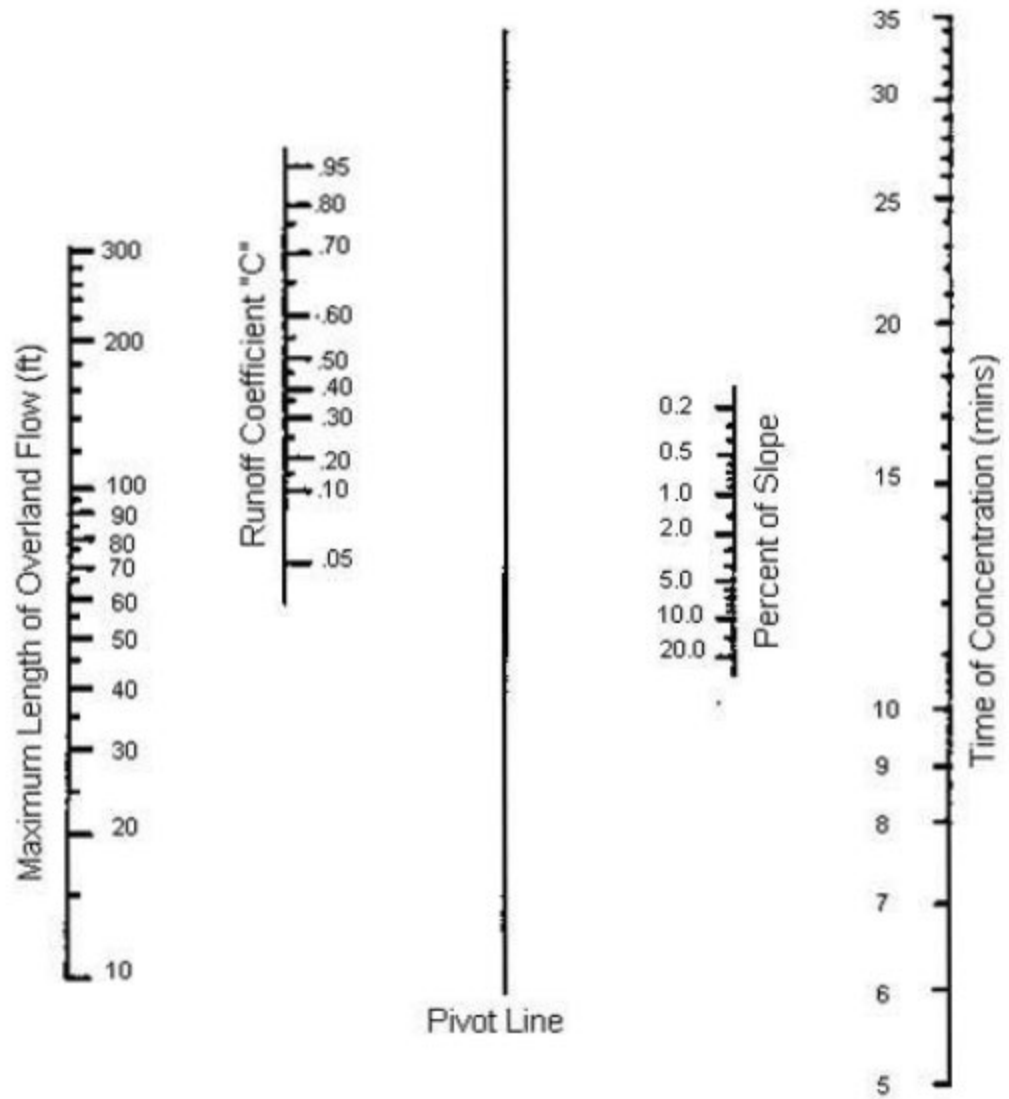
MUID	MUSYM	Soil Name	Hydrologic
60262	62	Overly-Bearden Silt Loams, 0 To 3% Slopes	B
60263B	63B	Hanshaw-Sioux Loams, 1 To 6% Slopes	B
60263C	63C	Sioux Gravelly Sandy Loam, 3 To 6% Slopes	A
60264	64	Pits,Gravel	A
60265	65	Svea-Barnes Loams, 0 To 2% Slopes	B
60266	66	Wyand-Hamerly Loams, 1 To 3% Slopes	B
60267	67	Galchutt Fine Sandy Loam	C
60271	71	Vallers Loam	C/D
60272	72	Walperton Silty Clay	D
60273	73	Rauville Silty Clay Loam	D
60276B	76B	Wynalmsa Silt Loam, Undulating	B
60278	78	Wynalmsa Silt Loam, 0 To 3% Slopes	B
60277	77	Vallers Loam, Saline	C/D
60276B	76B	Svea-Buse Loams, 3 To 6% Slopes	B
60280	80	Wynalmsa-Tiffany Loams, 0 To 3% Slopes	B
60282	82	Glyndon-Tiffany Silt Loams, 0 To 3% Slopes	C
60283	83	Galchutt-Fargo Silty Clay Loams	C
60284	84	Bearden-Lindasa Silty Clay Loams	C
60285	85	Fairdale Variant Silt Loam	B
60280	80	Dumps And Pits	B
352024	Ad	Aberdeen Silt Loam	C
352025	Ak	Alluvial Land	D
352026	An	Arveson Fine Sandy Loam	B/D
352027	Ar	Arveson Fine Sandy Loam, Moderately Shallow	B/D
352028	Aw	Arveson Loam	B/D
352029	BaB	Barnes Loam, Undulating	B
352030	BbC	Barnes-Buse Loams, Rolling	B
352031	BbD	Barnes-Buse Loams, Strongly Rolling	B
352032	BbE	Barnes-Svea Loams, Undulating	B
352033	Be	Bearden Silt Loam	C
352034	Bf	Bearden Silty Clay Loam	C
352035	Bg	Bearden Soils, Saline	C
352036	Bh	Bearden-Overly Silt Loams	C
352037	Bo	Borup Silt Loam	B/D
352038	Bp	Borup Silt Loam, Very Wet	B/D
352039	BuD	Buse Loam, Hilly	B
352040	Do	Dimmick Clay	D
352041	Dv	Divrie Loam	C
352042	EoA	Edkman Loam, Nearly Level	B
352043	EoB	Edkman Loam, Undulating	B
352044	EoC	Edkman Loam, Rolling	B
352045	EgB	Edkman Loam, Till Substratum, Undulating	B
352046	EnA	Egeland Fine Sandy Loam, Nearly Level	B
352047	EnB	Egeland Fine Sandy Loam, Undulating	B
352048	Em	Embsden Fine Sandy Loam	B
352049	Ep	Embsden-Gardena Complex	B
352050	Es	Embsden-Glyndon Fine Sandy Loams	B
352051	Et	Embsden And Heola Fine Sandy Loams	B
352052	Ex	Exline Complex	D
352053	Fa	Fairdale Silt Loam, Levee	B
352054	Fo	Fargo Clay	D
352055	Fg	Fargo Silt Loam	D
352056	Fh	Fargo Silty Clay Loam	D
352057	Fk	Fargo Silty Clay Loam, Saline	D
352058	Fi	Fargo-Exline Silty Clay Loams	D
352059	Fw	Southern Soils	D

MUID	MUSYM	Soil Name	Hydrologic
352080	G6A	Gardena Loam, Very Deep, Nearly Level	B
352081	G6B	Gardena Loam, Very Deep, Undulating	B
352082	G6A	Gardena Loam, Deep, Nearly Level	B
352083	G6A	Gardena Loam, Moderately Shallow, Nearly Level	B
352084	G6B	Gardena Loam, Moderately Shallow, Undulating	B
352085	G6A	Gardena Loam, Till Substratum, Nearly Level	B
352086	G6A	Gardena-Eckman Loams, Till Substratum, Nearly Level	B
352087	G6A	Gardena-Glyndon Loams, Nearly Level	B
352088	G6A	Gardena-Glyndon Loams, Till Substratum, Nearly Level	B
352089	GmA	Glyndon Loam, Very Deep, Nearly Level	C
352090	GmB	Glyndon Loam, Very Deep, Undulating	C
352091	GnA	Glyndon Loam, Deep, Nearly Level	C
352092	GsA	Glyndon-Bonup Loams, Strongly Saline, Nearly Level	B/D
352093	GA	Glyndon And Gardena Loams, Nearly Level	C
352094	GsA	Glyndon And Hamerly Loams, Saline, Nearly Level	C
352095	Gv	Gravel Pits	A
352096	H6	Hamar Fine Sandy Loam	B
352097	H6	Hamar-Ulen Fine Sandy Loams	B/D
352098	H6B	Hamerly Complex, Undulating	C
352099	HeA	Hamerly Loam, Nearly Level	C
352100	H6B	Hamerly-Barnes Loams, Undulating	C
352101	H6Ax	Hecla Fine Sand, Nearly Level	A
352102	H6Ax	Hecla Fine Sandy Loam, Nearly Level	A
352103	HmA	Hecla Fine Sandy Loam, Moderately Shallow, Nearly Level	A
352104	H6Ax	Hecla Loamy Fine Sand, Loamy Substratum, Nearly Level	A
352105	H6Ax	Hecla Loamy Fine Sand, Moderately Shallow, Nearly Level	A
352106	H6A	Hecla Sandy Loam, Loamy Substratum, Nearly Level	A
352107	H6Ax	Hecla Soils, Nearly Level	A
352108	H6Ax	Hecla And Embelen Fine Sandy Loams, Nearly Level	A
352109	HuB2	Hecla-Hamar Complex, Hummocky, Eroded	A
352110	HuAx	Hecla And Hamar Loamy Fine Sands, Nearly Level	A
352111	H6Ax	Hecla-Ulen Fine Sandy Loams, Nearly Level	A
352112	H6Ax	Hecla-Ulen Fine Sandy Loams, Loamy Substratum, Nearly L. Level	A
352113	La	Lamoure Silty Clay Loam	B/D
352114	LF	La Prairie And Fairdale Soils	B
352115	Lp	La Prairie Silt Loam	B
352116	MaAx	Maddock Fine Sandy Loam, Nearly Level	A

MUID	MUSYM	Soil Name	Hydrologic
352097	MaBx	Maddock Fine Sandy Loam, Undulating	A
352098	MaDx	Maddock Fine Sandy Loam, Rolling	A
352099	M6Ax	Maddock Loamy Fine Sand, Nearly Level	A
352100	M6Bx	Maddock Loamy Fine Sand, Undulating	A
352101	MFD	Maddock Soils, Hilly	A
352102	M6Ax	Maddock Loamy Fine Sand, Moderately Shallow, Nearly Level	A
352103	Mh3	Maddock-Hamar Complex, Severely Eroded	A
352104	O6A	Overly Silt Loam, Nearly Level	B
352105	ObA	Overly Silt Loam, Saline, Nearly Level	B
352106	O6A	Overly Silty Clay Loam, Nearly Level	B
352107	Ox6	Overly-Eckman Complex, Nearly Level	B
352108	Oy6	Overly-Gardena Loams, Nearly Level	B
352109	Pa	Parnell Soils	D
352110	Pe	Perella Silt Loam	C/D
352111	Pr	Perella Silty Clay Loam	C/D
352112	Ra	Rauville Soils	D
352113	RnA	Renshaw And Sioux Loams, Nearly Level	B
352114	RnB	Renshaw And Sioux Loams, Undulating	B
352115	R6A	Renshaw And Sioux Sandy Loams, Nearly Level	B
352116	R6C	Renshaw And Sioux Sandy Loams, Rolling	B
352117	Sa	Sioux Gravelly Loam	A
352118	S6C	Sioux And Renshaw Loams, Rolling	B
352119	SoA	Spottswood Loam, Loamy Substratum, Nearly Level	B
352120	SoA	Spottswood Sandy Loam, Loamy Substratum, Nearly Level	B
352121	SmA	Spottswood-Emboen Sandy Loams, Nearly Level	B
352122	SoA	Spottswood-Gardena Loams, Nearly Level	B
352123	St	Sturum-Glyndon Complex	D
352124	S6x	Svea-Barnes Loams	B
352125	Sy	Svea-Hamerly Loams	B
352126	Tf	Tiffany Fine Sandy Loam	B/D
352127	Tk	Tetonka Silt Loam	C/D
352128	Uc	Ulen Complex, Saline	B
352129	UF	Ulen Fine Sandy Loam	B
352130	Um	Ulen Fine Sandy Loam, Loamy Substratum	B
352131	Un	Ulen Fine Sandy Loam, Moderately Shallow	B
352132	Us	Ulen-Gardena Fine Sandy Loams	B
352133	Vr	Vallers Loam	C/D
352134	W6A	Fordville Loam, Nearly Level	B
352135	W6B	Fordville Loam, Undulating	B
352136	W6A	Fordville Sandy Loam, Nearly Level	B
352137	W6B	Fordville Sandy Loam, Undulating	B
352138	Z6B	Zell Fine Sandy Loam, Undulating	B
352139	Z6B	Zell Loam, Undulating	B
352140	Z6B	Zell Loam, Undulating	B
352141	Z6D	Zell Loam, Strongly Rolling	B

- b. Times of concentration shall be based on the following design parameters:
 - i. Overland Flow: The maximum length for each reach or overland flow before concentrated ditch and/or sheet flow develops is three hundred (300) feet. The Time of Concentration Nomograph below shall be used for determination of the times of concentration.

TIME OF CONCENTRATION NOMOGRAPH



- ii. Concentrated flows: At points where overland flows concentrate in field depressions, ditches, gutters, curbs, or pipe collection systems, the time of concentration between these design points shall be based upon Manning's Equation and/or acceptable engineering design standards as determined by the Planning Commission.
- iii. The Rainfall Intensity-Duration-Frequency Chart shown in below and on the following pages shall be used with the Rational Method to compute the rainfall intensities.

RAINFALL INTENSITY-DURATION FREQUENCY CHART

RAINFALL INTENSITY-DURATION FREQUENCY CHART							
Storm Event	1 yr.	2 yrs.	5 yrs.	10 yrs.	25 yrs.	50 yrs.	100
Time of Concentration	Rainfall Intensity (Inches/Hour)						
5	4.21	5	6	7	8.1	9.1	10
10	3.33	3.8	4.8	5.6	6.6	7.3	8
15	2.76	3.2	4	4.8	5.5	6.2	6.8
20	2.35	2.7	3.5	4.05	4.85	5.4	6
25	2.05	2.4	3.1	3.7	4.2	4.85	5.3
30	1.82	2.15	2.8	3.2	3.85	4.3	4.85
35	1.63	1.95	2.5	2.95	3.6	3.95	4.2
40	1.48	1.75	2.35	2.65	3.2	3.7	4.05
45	1.36	1.62	2.1	2.48	3	3.45	3.8
50	1.25	1.5	2	2.35	2.85	3.25	3.6
55	1.16	1.4	1.9	2.1	2.7	3.05	3.35
60	1.08	1.3	1.7	2.05	2.5	2.9	3.15
65	1.01	1.25	1.65	1.95	2.4	2.7	3
70	0.95	1.2	1.55	1.8	2.2	2.5	2.85
75	0.90	1.15	1.45	1.7	2.05	2.38	2.7
80	0.85	1.05	1.35	1.6	1.9	2.25	2.5
85	0.81	1	1.28	1.5	1.75	2.1	2.4

Source: City of Moorhead, Minnesota. *Rainfall Intensity-Durations Charts*, developed by Houston Engineering, 1985.

- c. Use of other criteria, assumptions, references, calculation methods and/or computer modeling may be utilized, provided detailed design information and programming with references are submitted and approved by the Planning Commission.
 - 7. Consideration shall be given to the relationship of the subject property to the drainage pattern of the watershed.
 - 8. A concentrated discharge of stormwater to an adjacent property shall be within an existing watercourse, legal drain, public right-of-way or enclosed in an easement.
- (g) System Strategy.
- 1. Hydraulic Capacity shall be determined by the Manning Equation. The hydraulic capacity is termed Q and is expressed as discharge in cubic feet per second:

$$Q = 1.486 AR^{2/3} S^{1/2}$$
 n
 where:
 Q = The hydraulic capacity
 A = Cross-sectional area of flow in square feet
 N = Manning's roughness coefficient
 R = Hydraulic radius in feet (R = A/P, where P is equal to the Wetted Perimeter)
 S = Slope of conduit in feet per foot
 - 2. Minimum Slopes design grade for storm sewer systems shall be self- cleaning, based on three (3) feet per second using the Manning Equation. Minimum grades for the reinforced concrete pipe (RCP) shall be designed using the following:

Pipe Size	Percent Slope
12"	0.36%
15"	0.24%
18"	0.18%
21"	0.15%
24"	0.12%
27"	0.11%
30"	0.09%
33"	0.08%
36"	0.07%
42"	0.06%
48"	0.05%
54"	0.04%
60"	0.04%
66"	0.032%
72"	0.029%
84"	0.023%

3. Velocities in open channels shall not be greater than the velocity which cause the following:
 - a. It neither aggrades nor degrades beyond tolerable limits.
 - b. The channel banks do not erode to the extent that the channel cross section is changed appreciably.
 - c. Sediment bars do not develop.
 - d. Erosion does not occur around culverts and bridges or elsewhere.
 - e. Gullies do not form or enlarge due to the entry of uncontrolled stormwater runoff.

(h) Pipe Capacity, Materials and Placement

1. Pipe size shall be dictated by design runoff and hydraulic capacity.
2. In general, no pipe size in the storm drainage system shall be less than fifteen (15) inch diameter. A twelve (12) inch diameter pipe may be permitted as a cross-drain to a single inlet.
3. All discharge pipes shall terminate with a precast concrete or corrugated metal end section.
4. Storm sewers shall be constructed of reinforced concrete pipe (RCP) constructed according to the material and method specifications set forth in the most recent version of the City of Fargo's Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended. Polyvinyl Chloride (PVC) may be for backyard runs and shall be constructed according to the material and method specifications set forth in the most recent version of the City of Fargo's Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended.
5. The minimum depth of cover over concrete pipe shall be twelve (12) inches.

(i) Inlets, Catch Basin and Manholes

1. Inlets, catch basins and manholes shall be consistent with the material and method specifications set forth in the most recent version of the City of Fargo’s Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended.
2. Manholes shall be installed at the end of each sewer, at all changes in sewer size, grade, pipe material or alignment and at all junctions. The maximum permitted manhole spacing shall be based on the following:

Pipe Size	Manhole Spacing
15" or less	500'
18" - 36"	600'
42" - 60"	700'
60"+	700'+

3. Curves in pipes or box culverts without an inlet or manhole are prohibited. Tee joints, elbows and wyes are also prohibited.
4. If a proposed lot or development site is to be graded so as to redirect post development flow into a gutter or when an existing gutter or ditch is to be integrated into the proposed stormwater conveyance system, a maximum depth of six (6) inches shall be permitted in the roadside gutter or ditch.

(j) Retention and Detention Basins.

1. Retention basins and detention basins shall be designed to safely discharge the peak discharge of a post development one hundred (100) year frequency storm event through an emergency spillway in a manner which will not damage the integrity of the basin.
2. Retention basins and detention basins and water carrying facilities shall be stabilized in accordance with current engineering and Soil Conservation Service practices.
3. Retention basins and detention basins shall be designed and maintained to insure the design capacity after sedimentation has occurred.
4. Along rivers and other areas prone to bank instability, retention and detention ponds shall be located in areas that will decrease the probability of bank failures or accelerate existing bank failure problems resulting from the saturation of river bank soils. All discharge pipes shall terminate with a precast concrete or corrugated metal end section.
5. Basins which are not designed to release all stormwater shall be specifically identified as retention basins or permanent pond basins and shall provide aerators and/or fountains to prevent stagnant water. All other basins shall have provisions for de-watering, particularly the bottom and shall not create swampy and/or unmaintainable conditions. Low flow channels and tile fields may be used to de-water the bottom of the basin. Discharge structures shall be designed to eliminate the possibility of blockage during operation.
6. Retention basins and detention basins which are designed with earth fill dams shall incorporate the following minimum standards:
 - a. The maximum water depth shall not exceed ten (10) feet, unless a variance is approved by the Planning Commission.
 - b. The minimum top width of all dams shall be five (5) feet.

- c. Basins without restricted access shall have impoundment areas with side slopes no greater than six (6) horizontal to one (1) vertical. Basins with steeper side slopes shall be protected by fencing that will discourage access. Fence material shall generally be consistent with nearby urban design features and the fencing material shall not be chain link.
 - d. A cutoff trench of impervious material shall be provided under all dams.
 - e. All pipes and culverts through dams shall have properly spaced concrete cutoff collars or factory welded anti-seep collars.
 - f. A minimum one (1) foot freeboard above the maximum design water surface elevation of the emergency spillway shall be provided.
7. Retention basins and detention basins shall incorporate the following minimum standards:
- a. The maximum water depth shall not exceed ten (10) feet, unless a variance is approved by the Planning Commission.
 - b. Basins without restricted access shall have impoundment areas with side slopes no greater than six (6) horizontal to one (1) vertical. Basins with steeper side slopes shall be protected by fencing that will discourage access. Fence material shall generally be consistent with nearby urban design features and the fencing material shall not be chain link.
- (k) Ownership, Administration and Maintenance of Stormwater Management Facilities. The Final Plat shall reflect and/or be accompanied by supporting documentation identifying the ownership and method of administering and maintaining all permanent stormwater management facilities. With regard to the maintenance of these facilities, they must be either:
- 1. Dedicated to and accepted by a municipality.
 - 2. Maintained by a private entity (e.g., homeowners association or individuals that own the land) in accordance with the terms of an agreement, declaration of easements or other legally binding documentation approved in form by the Planning Commission. The agreement, declaration of easements or other legally binding documentation shall provide that the county or water resource district shall have the right to:
 - a. Inspect the facilities at any time.
 - b. Require the private entity to take corrective measures and assign the private entity reasonable time periods for any necessary action.
 - c. Authorize maintenance to be done and lien all cost of the work against the properties of the private entity responsible for maintenance.
- The agreement, declaration of easements or other legally binding documentation shall be submitted to the Planning Commission which may require the agreement to contain provisions requiring the posting and/or periodic payment of escrow funds by the private entity to guarantee proper maintenance of the facility.

Section 6.07 Standards and Requirements for Development Near Watercourses

- (a) Watercourse Setback Requirements.
- 3. Purpose. In order to minimize the potential for slumping, bank failures, landslides, other environmental impacts, and the associated damage to structures and property certain

- requirements are established by this ordinance for all proposed subdivisions adjacent to blue line perennial watercourses, as identified on the most recent version of a 1:100,000 or 1:24,000 USGS quadrangle.
4. Setbacks. Applicants proposing subdivisions adjacent to blue line perennial watercourses, as identified on the most recent version of a 1:100,000 or 1:24,000 USGS quadrangle, shall delineate building control lines on the recorded plat limiting certain activities and land uses in these designated areas.
 5. Building Control Lines. Except when using the Alternate Method of establishing the Minimal Disturbance Zone Setback of this Ordinance, all subdivisions shall provide the following building control lines, measured horizontally and perpendicular from the centerline of the watercourse towards the proposed development, regulating the use and activities within these building control lines in accordance with Minimal and Limited Disturbance Zone Requirements of this Ordinance:
 - a. Minimal Disturbance Zone Setback: three hundred and fifty (350) feet for the Red and Wild Rice rivers. All other blue line perennial watercourses Minimal Disturbance Zone Setback may be based on the three hundred and fifty (350) foot setback or be equal to vertical difference between the top of bank and the river bottom (plus any additional flood plain elevation requirements) multiplied by eight (8).
 - b. Limited Disturbance Zone Setback: beginning at the outer edge of the Minimal Disturbance Zone Setback and extending one hundred (100) feet.
 6. Alternate Method of establishing Minimal Disturbance Zone Setbacks. As an alternative to using the established Minimal Disturbance Zone Setback along the blue line perennial watercourses, an applicant may request to use a site specific Minimal Disturbance Zone Setback, determined as a result of a detailed geotechnical investigation. The investigation must be performed by a registered professional engineer and testing firm acceptable to the County Engineer. Sufficient number of soil borings must be performed and at appropriate locations to provide a representative sampling of the site. The soils report and determination shall use accepted engineering/ASTM evaluation methods including, but not limited to, triaxial shear test in a supersaturated condition. Borings must be of sufficient depth to allow evaluation of the soils within the Upper Brenna Formation. Report recommendations shall use a minimum 1.3 factor of safety. The County reserves the right for the County Engineer or Planning Commission to reject proposed alternate building control lines.
 - a. The alternate Minimal Disturbance Zone Setback shall meet the requirements set forth in Minimal Disturbance Zone Setback Requirements of this Ordinance.
 - b. The Limited Disturbance Zone Setback Requirements shall apply to all subdivisions employing the alternate method of establishing the Minimal Disturbance Zone Setback.
 7. Minimal Disturbance Zone Setback Requirements. All property within the minimal disturbance zone setback shall conform to the following regulations:
 - a. No permanent structures shall be allowed except the following:
 - iv. Stairways, lifts, and landings.
 - v. Roads, bridges, trails, storm drainage, stormwater management facilities, and utilities are permitted within the minimal disturbance zone provided

that an alternatives analysis has clearly demonstrated that no other feasible alternative exists and that minimal disturbance will take place. These structures shall be located, designed, constructed and maintained to provide maximum erosion protection, to have the least adverse effects on wildlife, aquatic life and their habitats and to maintain hydrologic processes and water quality. Following any disturbance, the impacted area shall be restored.

- vi. Bike paths, walking trails, or other multi-use paths.
- b. No additional fill shall be allowed, except fill required to plant new trees or vegetation pursuant to the Vegetation Standards of this Ordinance
- c. No grading shall be allowed, except grading for bank restoration in areas experiencing bank slumping.
- d. No excavating shall be allowed, except excavating required to plant new trees or vegetation pursuant to the Vegetation Standards of this Ordinance.
- e. On-site septic systems and drain fields shall not be permitted.
- f. Irrigation systems shall not be permitted.
- g. Vegetation Standards. Alterations of vegetation and topography shall prevent erosion into public waters, fix nutrients, preserve watercourse natural aesthetics, preserve historic values, prevent bank slumping and protect fish and wildlife habitat. Removal or alterations of vegetation is allowed according to the following standards:
 - v. Intensive vegetation clearing shall not be allowed.
 - vi. Vegetation previously disturbed or disturbed during the construction of the development or dwellings shall provide native riparian vegetation cover.
 - vii. Replacement of native riparian vegetation with non-native species shall not be allowed.
 - viii. Limited clearing of trees and shrubs and cutting, pruning and trimming of trees to accommodate the placement of stairways and landings, access paths and watercraft access areas, as well as providing a view to the watercourse from the principal dwelling unit or dwelling site, provided that:
 - 8. The removal of vegetation shall be limited to a width less than six (6) feet to provide the placement of a stairway or path access to watercourse for residential lots. The removal of vegetation shall be limited to a width less than ten (10) feet to provide the placement of a stairway or path to provide access to watercourse for commercial properties or public open-space recreational properties.
 - 9. The removal of vegetation shall be limited to a width less than six (6) feet for facilities such as ramps, lifts or mobility paths for physically challenged to achieve watercourse access on residential lots. The removal of vegetation shall be limited to a width less than ten (10) feet

for facilities such as ramps, lifts or mobility paths for physically handicapped persons to achieve watercourse access for commercial properties or public open-space recreational properties.

10. The removal of vegetation shall be limited to an area less than forty-nine (49) square feet for stairway and lift landings on residential lots. The removal of vegetation shall be limited to eighty-one (81) square feet for landings used for commercial properties or public open-space recreational properties.
 11. Limited pruning of trees limbs to afford a view of the watercourse from the principal dwelling unit or dwelling site shall be permitted and shall be performed in conformance with good nursery and landscape practices. The complete removal of trees or intensive vegetation clearing to afford a view of the watercourse shall not be permitted.
 12. The screening of structures, vehicles or other facilities as viewed from the watercourse, assuming summer leaf-on conditions, is not substantially reduced.
 13. Along rivers, existing shading of water surfaces is preserved.
 14. The above provisions are not applicable to the removal of trees, limbs or branches that are dead, diseased, or pose safety hazards.
8. Limited Disturbance Zone Setback Requirements. All property within the limited disturbance zone setback shall conform to the following regulations:
- a. No permanent structures shall be allowed except the following:
 - v. Stairways, lifts, and landings.
 - vi. Roads, bridges, trails, storm drainage, stormwater management facilities, and utilities are permitted within the minimal disturbance zone provided that an alternatives analysis has clearly demonstrated that no other feasible alternative exists and that minimal disturbance will take place. These structures shall be located, designed, constructed and maintained to provide maximum erosion protection, to have the least adverse effects on wildlife, aquatic life and their habitats and to maintain hydrologic processes and water quality. Following any disturbance, the impacted area shall be restored.
 - vii. Bike paths, walking trails, or other multi-use paths.
 - viii. One accessory building not to exceed one hundred and twenty (120) square feet.
 - b. No additional fill shall be allowed.
 - c. No grading shall be allowed, except grading for bank restoration in areas experiencing bank slumping.
 - d. On-site septic systems and drain fields shall not be allowed.

- e. Irrigation systems shall not be allowed.

(b) Vegetative Buffer Requirements.

- 9. Purpose. A vegetative buffer is a strip of undisturbed native vegetation, either original or reestablished, that borders streams, rivers, ponds and lakes, wetlands, and seeps. These vegetative buffer areas filter excess sediment, provide flood protection, reduce storm runoff velocities, protect channel bank areas from scour and erosion, stabilize riverbanks and provide shade to cool adjacent water.
- 10. A vegetative buffer shall be required along all blue line perennial watercourses and wetlands as identified on the most recent version of a 1:100,000 or 1:24,000 USGS quadrangle map based on the following requirements.
 - a. In areas where a floodway profile has been computed as part of an approved flood study, the buffer zone shall be the width of the floodway plus at least fifty (50) feet perpendicular from the edge of the floodway on each side of the waterway.
 - b. In areas where a floodway profile has not been computed as part of an approved flood study, the buffer zone shall be at least fifty (50) feet perpendicular from the top of bank on each side of the waterway.
 - c. When a delineated wetland extends beyond the edge of the required buffer zone width, the buffer zone shall be adjusted so that the buffer zone consists of the extent of the delineated wetland plus twenty five (25) feet extending perpendicular beyond the wetland edge.
 - d. When a vegetative buffer is established parallel to contour lines along the watercourse and at increased widths for areas of steeper slopes, the minimum required width may be reduced in accordance with the following table:

Buffer Reduction Table	
Percent Slope	Width of Buffer
0%-2%	Subtract 15 feet
3%-5%	Subtract 10 feet
6%-10%	Subtract 5 feet
11%-14%	No change

- 11. The vegetative buffer zone width shall be adjusted to meet the following requirements:
 - a. All vegetative buffer zone widths shall be adjusted if the following slopes are present within the vegetative buffer zone:

Slope-Width Table	
Percent Slope	Width of Buffer
15%-17%	Add 10 feet
18%-20%	Add 30 feet
21%-23%	Add 50 feet
24%-25%	Add 60 feet

- b. If the proposed or existing land use or activity involves the storage of hazardous substances or petroleum facilities, the buffer zone width shall also be adjusted to include an additional one hundred and fifty (150) feet plus any additional distance required based on the Slope-Width Table.

- c. If the proposed or existing land use or activity involves animal feeding operations, the buffer zone width shall also be adjusted to include an additional two hundred and fifty (250) feet, plus any additional distance required based on the Slope-Width Table.
 - d. If the proposed or existing land use or activity involves solid waste landfills or junkyards, the buffer zone width shall also be adjusted to include an additional three hundred (300) feet, plus any additional distance required based on the Slope-Width Table.
 12. Management of the vegetative buffer zone includes specific limitations on alteration of the natural conditions pursuant to the minimal and limited disturbance zone setbacks of this Ordinance.
 13. Stream banks and other areas within the vegetative buffer zone must be left in a stabilized condition upon completion of the development activities. The vegetative condition of the entire streamside vegetative buffer zone must be monitored and landscaping or stabilization performed to repair erosion, damaged or removed vegetation, bare ground, or other problems identified. Only native riparian vegetation may be used in conjunction with stabilization activities.
 14. All vegetative buffer zones must be protected during development activities. Prior to the initiation of development activities, ensure adequate visibility of the water quality buffer zones by staking and flagging. Vegetative buffer zones, except vegetative buffer zones that are completely within the limited or minimal disturbance zone setbacks, shall be surveyed and iron pins set in the ground on side lots lines.
- (c) Erosion and Sedimentation Requirements.
15. Purpose. In order to minimize erosion and sedimentation, certain requirements shall apply to all sites disturbing one or more acres of land by grading or excavation. The following standards are intended to ensure conformance with requirements established by the ND Department of Environmental Quality.
 16. No changes shall be made in the contour of the land; no grading, excavating, removal, or destruction of topsoil, trees, or other vegetative cover of the land shall be commenced within a proposed subdivision tract until such time that a plan for minimizing erosion and sedimentation control has been reviewed by the Planning Commission and the County Engineer.
 17. The following measures are effective in minimizing erosion and sedimentation and shall be included where applicable in the control plan using the ND Department of Transportation Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended.
 - a. Stripping of vegetation and grading shall be kept to a minimum;
 - b. Development plans shall preserve significant natural features, cut and fill operations shall be kept to a minimum and plans shall conform with the topography so as to create the least erosion potential and adequately handle the volume and velocity of surface water runoff.
 - c. Whenever feasible, natural vegetation shall be retained, protected and supplemented.

- d. The disturbed area and the duration of exposure shall be kept to a practical minimum.
 - e. Disturbed soils shall be stabilized by permanent vegetation and/or by engineered erosion control and drainage measures as soon as practicable in the development process.
 - f. Temporary vegetation and/or mulching shall be used to protect exposed critical areas during development.
 - g. Provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development. Where necessary the rate of surface water runoff will be mechanically retarded.
 - h. Sediment in the runoff water shall be trapped until the disturbed area is stabilized by the use of debris basins, sediment basins, silt traps, or similar measures.
 - i. Basin and perimeter controls shall be established at the commencement of work on the site.
 - j. Storage piles shall be protected and stabilized within thirty (30) days.
 - k. Earth or paved interceptors and diversions shall be installed at the top of cut or fill slopes where there is a potential for erosive surface runoff.
18. In order to prevent pollution of any watercourse and to reduce erosion of soil, sediment control devices shall be installed prior to any grading, filling, or excavation. Such devices shall be designed to retain sediment on the site or flowing adjacent to the site.
19. Within thirty (30) days after completion of grading, all surfaces disturbed by vegetation removal, grading, haul roads, or other construction activity that alters natural vegetative cover, are to be revegetated to control erosion, unless covered with impervious or other improved surfaces authorized by approved plans. Erosion controls may include any combination of approved engineering or vegetative measures using the North Dakota Department of Transportation (NDDOT) Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended.
20. Within thirty (30) days after completion of grading, all surfaces disturbed by vegetation removal, grading, haul roads, or other construction activity that alters natural vegetative cover, are to be revegetated to control erosion, unless covered with impervious or other improved surfaces authorized by approved plans. Erosion controls may include any combination of approved engineering or vegetative measures using the North Dakota Department of Transportation (NDDOT) Erosion and Sediment Control Handbook, as it presently exists or may hereafter be amended.

(d) Wetlands.

1. In addition to the above requirements no subdivision shall involve uses, activities or improvements which would entail encroachment into, the regrading of, or the placement of fill in wetlands in violation of state or federal regulations. Applicants must submit evidence to the Planning Commission that, if wetlands are present on the site, the North Dakota Fish and Wildlife Service, the U.S. Fish and Wildlife and/or U.S. Army Corps of Engineers have been contacted to determine the ability of state and federal wetland regulations. Any approval of the Planning Commission shall be contingent on full compliance with any requirements of any regulatory agency and no action by the Planning Commission shall be relied on in lieu of a permit issued by the appropriate agency.

Section 6.08 Landscaping and Additional Vegetation Requirements

(a) Landscaping.

1. Vegetative buffer planting shall be provided around the perimeter of commercial or industrial properties adjacent to residentially zoned property or existing residential development. Vegetative buffer planting shall also be provided in major subdivisions for all areas adjacent to land used for the production of crops (including CRP and idle land) or livestock, existing commercial or industrial developments without buffer plantings, or lots with frontage or reverse frontage along a section line road. The design of the buffer planting shall be consistent with the North Dakota NRCS Design and Installation Guide: Windbreak/Shelterbelt Establishment-380 and the following requirements and shall be outlined in a site specific plan presented to the Planning Commission:
 - a. Parking and buildings are prohibited within the buffer area.
 - b. Buffer areas shall consist of a minimum of three (3) rows including one (1) row of medium to tall trees.
 - c. The buffer shall be designed to the standards for a snow fence using the North Dakota NRCS Design and Installation Guide: Windbreak/Shelterbelt Establishment-380.
 - d. Trees and shrubs are to be maintained and guaranteed for a minimum of two years. Planting of trees shall occur within the standard planting season (May through November) and shall not be planted prior to the construction of drainage improvements or other improvements within the vicinity of the buffer. Acceptable stock will not have more than one-third (1/3) of the tree canopy damaged or dead without replacement. Replacement trees shall conform to all requirements of this section and shall be maintained and guaranteed for a minimum of two planting seasons.
 - e. Setback distances shall be designed on a site specific basis.
 - f. No trees shall be placed within utility easement areas.
 - g. Vegetation and plant material existing on site prior to development may be used to satisfy the landscaping standards of this section, provided that it meets all size, variety and locational requirements of this section.
 - h. Landscaping provided to meet the buffer planting requirements of this section shall not be counted towards meeting a subdivisions open space or park dedication requirements of this Ordinance.
2. Service loading and trash disposal areas such as dumpster or compactor sites shall be effectively screened so as not to be visible from parking areas, roadways, or adjacent properties. Such areas shall be screened with a combination of architectural masonry (or fencing) and landscaping with a height of at least six (6) feet.

(b) Existing Wooded Areas.

1. Existing wooded areas shall be protected to prevent unnecessary destruction. It is recommended, at least twenty-five (25) percent of the number of trees (minimum trunk caliper of five (5) inches at six (6) inches above ground) that exist at the time of Plan submission shall be maintained or replaced immediately following construction.

(c) Street Trees.

1. Street trees shall be provided in all residential major subdivisions and all commercial and industrial subdivisions utilizing curb and gutter streets. Street trees may be required by the Planning Commission in other developments upon request of the municipality. All street trees shall be provided by the applicant in accordance with the following standards:
 - a. The trees shall be nursery grown in a climate similar to that of the locality of the project.
 - b. All trees shall have a normal habit of growth and shall be sound, healthy and vigorous; they shall be free from disease, insects, insect eggs and larvae.
 - c. The trunk diameter, measured at a height of six (6) inches above finish grade, shall be a minimum of two (2) inches.
 - d. Trees shall be planted within the street right-of-way. The trees' growth shall not interfere with the street roadway, sidewalk, or utility lines. Street tree branching shall not interfere with clear sight triangles. Typical branching shall not be within ten (10) feet of ground level after ten (10) years of growth.
 - e. All planting shall be performed in conformance with good nursery and landscape practices and shall not be planted within four (4) feet of a curb or parking stop. The planting areas shall be loosened to a depth of the root ball or rooting system and the width of three (3) times the root ball and preferably five (5) times the root ball when practical.
 - f. Requirements for the measurements, branching, grading, quality, balling and the burlapping of trees shall follow the code of standards recommended by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock, ANSIZ60, current edition, as amended.
 - g. A minimum of one (1) canopy street trees shall be provided for every thirty five (35) linear feet of street frontage, street trees need not be placed exactly at thirty five (35) foot intervals, but shall be placed fairly evenly along the street frontage. Organic mulch (wood chips) shall be installed to a minimum coverage of two (2) inches around street tree plantings within a radius of three (3) feet of the trunk base. Street trees shall be located so as to maximize the growth potential of the plant material, minimize the potential for root interference with public infrastructure and enhance the quality of the development. Street trees shall be one of the following species:

Prairie Spire Ash*	American Linden
Patmore Ash*	Redmond Linden
Northern Treasure Ash*	Boulevard Linden
Northern Gem Ash*	Greenspire Linden
Northern Blaze Ash*	Frontyard Linden
Mancana Ash*	Norlin Linden
Dakota Centennial Ash*	Harvest Gold Linden
Prairie Dome Ash*	Dropmore Linden
Bergeson Ash*	Glenleven Linden
Prairie Torch Ohio Buckeye	Shamrock Linden
Homestead Ohio Buckeye	Autumn Blaze Maple
Autumn Splendar Ohio Buckeye	Sienna Glen Maple
New Horizon Elm**	Firefall Maple
Jefferson Elm**	Fairview Maple
Discovery Japanese Elm**	Unity Maple
Cathedral Elm**	Jefcam Maple
Vangaurd Elm**	Fall Fiesta Maple
Washington Elm**	Green Mountain Sugar Maple
Valley Forge Elm**	Tatarian Maple
Accolade Elm**	Amur Maple
Common Hackberry	Emerald Lustre Maple
Northern Acclaim Honey-locust	Bur Oak
Perfection Honey-locust	Mongolian Oak
Stately Manor - Kentucky Coffeetree	

*Seedless varieties preferred

**Dutch Elm Disease (DED) resistant

Other tree species may be used, provided acceptable information is submitted to indicate that the species are hardy street trees with a maturing height of thirty-five (35) feet or greater; fast growing, short lived trees shall not be permitted. Smaller trees, approved by the Planning Commission, will be permitted in areas with existing overhead utilities. No one species shall comprise more than twenty-five (25) percent of the entire number of street trees in a particular development.

- h. . Street trees are to be maintained and guaranteed for a minimum of two years. Planting of trees shall occur within the standard planting season (May through November) and shall not be planted prior to the construction of the streets, curbs, sidewalks and drainage improvements. Acceptable stock will not have more than one-third (1/3) of the tree canopy damaged or dead without replacement. Replacement trees shall conform to all requirements of this section and shall be maintained and guaranteed for a minimum of two planting seasons.

- (d) Ground Cover. Ground cover shall be provided on all areas of the project to prevent soil erosion. All areas which are not covered by paving, stone, or other solid material shall be protected with a suitable ground cover, consisting of turf grass. Areas within the watercourse and vegetation zone setbacks shall have ground cover consistent with the requirements set forth in this Ordinance.
- (e) Top Soil Preservation. Top soil moved during construction shall be redistributed on all regarded unimproved surfaces so as to provide at least four (4) inches of even cover to all disturbed areas of the development and the amount of top soil moved shall be minimized.
- (f) Removal of debris. All stumps and other tree parts, litter, brush, weeds, excess or scrap building materials or other debris shall be removed from the site and disposed of in accordance with the law. No tree stumps, or portions of tree stumps or limbs shall be buried anywhere in the development. All dead or dying trees, standing or fallen, shall be removed from the site. If trees are reduced to chips, they may be used as mulch in landscaped areas.

Section 6.09 Sanitary Wastewater Treatment and Water Supply

- (a) Sanitary Wastewater Treatment. The applicant shall provide the highest type of sanitary wastewater treatment facility consistent with existing physical, geographical, geological and economic conditions. The following types of sanitary sewage wastewater treatment facilities are listed in order of desirability:
 - 1. Publicly owned sanitary wastewater treatment system.
 - 2. Privately owned sanitary wastewater treatment system used by one unit of occupancy with subsurface absorption.
 - 3. Privately owned sanitary wastewater treatment system used by two (2) or more units of occupancy with treatment other than subsurface absorption or holding tank which is owned by a single individual.
 - 4. Privately owned subsurface absorption or drainage fields used by two (2) or more units of occupancy.
 - 5. A municipal sewage facility having sufficient capacity for the proposed development shall be considered accessible and shall require connection if the closest property line of the proposed subdivision is within the following distances, at the discretion of the Planning Commission these distance may be increased:

Buildable Lots	Distance
1-2	400 feet
3-4	800 feet
5-12	2,640 feet

Subdivisions with thirteen (13) or more buildable lots shall connect to a municipal sanitary sewer system. Subdivisions with proposed commercial or industrial developments shall connect to a municipal sanitary sewer system, unless the applicant can demonstrate the

- commercial or industrial development is a minimum water usage site and obtains a nontransferable permit to utilize a holding tank system from the Environmental Health Office of the Community Health Department of the City of Fargo, North Dakota.
6. Those developments not required to connect to a municipal system based on Section 615.01 (E) of this Ordinance may provide individual subsurface treatment systems subject to applicable regulations of Fargo-Cass Public Health, all applicable state regulations and this Ordinance.
 - a. Where on-site sanitary wastewater treatment facilities are utilized, each lot served shall be of a size and shape to accommodate the necessary subsurface wastewater treatment system at a safe distance from the water supply in accordance with Fargo-Cass Public Health regulations and all other state or federal regulations. The sewage treatment system shall be adequate to prevent serious health risks. This system shall be detailed in a sewage treatment plan that is approved in accordance with the rules, regulations and standards of the Environmental Health Office of the Community Health Department of the City of Fargo, North Dakota and all other applicable health regulations, including Cass County on-site sewage regulations adopted March 4, 1993 and all subsequent amendments to said regulations. .
 - b. The lot shall provide a minimum area not less than forty thousand (40,000) square feet. All applicable setbacks and floodway areas within the lot shall not be included in the computation of the forty thousands (40,000) square foot minimum.
 - c. On-site sanitary wastewater treatment facilities shall be located on the highest feasible area of undisturbed soils on all lots located within the one hundred (100) year flood plain.
 - d. No on-site sanitary wastewater treatment facilities shall be located within the floodway.
 - e. On-site sanitary wastewater treatment facilities shall only be constructed in areas of undisturbed soils.
 - f. On-site sanitary wastewater treatment facilities located within the one hundred (100) year flood plain shall include a valve system located between the storage tank and drainfield used to close the drainfield during times of high or excessive water inundating the drainfield.
 - g. On-site sanitary wastewater treatment systems shall not be less than one hundred (100) horizontal feet from any water supply well less than fifty (50) feet in depth. On-site sanitary wastewater treatment systems shall not be less than fifty (50) horizontal feet from any water supply well greater than fifty (50) feet in depth.
 - h. On-site sanitary wastewater treatment facilities shall not be less than one hundred (100) feet from any private or on-site water supply system serving three (3) or more residences.
 7. When connection to an existing sanitary sewer system is proposed:
 - a. The Preliminary Plat application shall include a statement from the authority or organization providing such service that sufficient capacity to service the proposed development is available. Such notice shall:
 - i. Be dated within six (6) months of the plan application
 - ii. Identify the term of the reservation

- iii. Provide capacity for the entire development (partial capacity, based on phases of development, will not be acceptable).
 - b. The Final Plat application shall include a statement from the authority or organization providing such service indicating approval of the plans for design, installation and financial guarantees as well as indicating the reservation of sufficient capacity to accommodate the project.
- (b) Water Supply. All proposed subdivisions shall supply a potable water source adequate to the completed developments demands. Whenever an existing or approved water system is accessible and has sufficient capacity, the proposed project shall connect to said distribution system.
1. Applicants shall submit to the Planning Commission documentation if the project is located in an area served by a municipal water supply system or other public water supply system. A municipal or public water supply system, shall be considered accessible to a project and shall be connected to the project, if service is available within the following distances, at the discretion of the Planning Commission these distances may be increased:

Buildable Lots	Distance
1-2	400 feet
3-4	800 feet
5-12	2,640 feet

- Subdivisions with thirteen (13) or more buildable lots shall connect to a municipal or public water supply system.
2. Major subdivisions required to connect to public water supply system shall design a water supply system pursuant to the following:
 - a. The water supply system shall be adequate to handle the necessary flow based on the complete development.
 - b. The demand rates for all uses shall be considered in computing the total system demand.
 - c. Average daily residential demand shall be computed in accordance with the housing unit type and size data (see Residential Water Demand Chart below). Daily residential demand rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.

WATER DEMAND BASED ON TYPE AND SIZE OF HOUSING UNIT

HOUSING TYPE & SIZE	NUMBER OF RESIDENTS	RESIDENTIAL* WATER DEMAND
Single-Family Detached		
2 Bedroom	2.13	215
3 Bedroom	3.21	320
4 Bedroom	3.93	395
5 Bedroom	4.73	475
Garden Apartment		
1 Bedroom	1.57	120
2 Bedroom	2.33	175
3 Bedroom	3.56	270
Townhouse		
1 Bedroom	1.69	125
2 Bedroom	2.02	150
3 Bedroom	2.83	210
4 Bedroom	3.67	275
High-Rise		
Studio	1.07	80
1 Bedroom	1.34	100
2 Bedroom	2.14	160
Mobile Home		
1 Bedroom	1.73	130
2 Bedroom	2.01	150
3 Bedroom	3.47	260

* Based on one hundred (100) gallons per day (GPD) per person for single-family detached units and seventy five (75) GPD for other housing types (rounded).

Source: U.S. Census, Public Use File - New Jersey (unit built 1975-1980 and monitored by the 1980 Census).

- d. Nonresidential demand shall be computed in accordance with the data shown in Non-Residential Water Demand Chart below. Nonresidential demand rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.

WATER DEMAND BASED ON TYPE AND SIZE OF NONRESIDENTIAL FACILITY

NONRESIDENTIAL USES	EXPECTED WATER CONSUMPTION		
	Parameter	Mean Annual Gallons/Day Per Unit of Parameter	Peak Hour
Commercial-Institutional¹			
Office Building	square foot	0.093	0.521
Medical Office	square foot	0.618	4.970
Retail	square foot	0.106	0.271
Hotel	square foot	0.256	0.433
Motel	square foot	0.224	1.550
Restaurant	seat	24.200	167.000
Drive-in restraint	car stall	100.000	547.000
School, elementary	student	3.830	37.400
School, high	student	8.020	79.900
Service station	inside square footage	0.251	4.890
Theater	seat	3.530	3.330
Industrial²	Parameter	Gallons Per Day Per Employee	Peak Hour
Bakery	employee	220	NA
Textile-finishing	employee	810	NA
Home furniture	employee	122	NA
Basic chemicals	employee	2,744	NA
Pharmaceutical	employee	457	NA
Agriculture chemicals	employee	449	NA
Petroleum refining	employee	3,141	NA
Plastic products	employee	527	NA
Cement	employee	353	NA
Engines	employee	197	NA
Metalwork	employee	196	NA
Electronic components	employee	203	NA
Motor Vehicles	employee	318	NA
Scientific instruments	employee	181	NA
Medical instruments	employee	506	NA

NA - Information not available

Source¹: U.S. Greenberg, M., G. Belnay, W. Cesanek, N. Neuman and G. Shepherd. 1979. *A primer on industrial environmental impact*. Center for Urban Policy Research. New Brunswick, NJ: 116.

Source²: Hittman Associates, Inc. 1969. *Forecasting municipal water requirements*. Columbia, MD.

- e. For the safety and protection of residents, rural subdivisions are encouraged to install water systems capable of providing fire flow capacity to include the following:
 - i. (a) Installation of volume water supply or reservoir facilities.
 - ii. (b) Installation of fire hydrants
- 3. Major subdivisions required to connect a municipal water supply system shall design a water supply system pursuant to the following or to the standards and specifications of municipality supplying the water:
 - a. The water supply system shall be adequate to handle the necessary flow based on complete development.
 - b. The demand rates for all uses shall be considered in computing the total system demand.
 - c. Average daily residential demand shall be computed in accordance with the housing unit type and size data (see Residential Water Demand Chart above). Daily residential demand rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.

- d. Nonresidential demand shall be computed in accordance with the data shown in Non-Residential Water Demand Chart above. Nonresidential demand rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.
 - e. The minimum size of lines within the subdivision plat boundaries shall be eight (8) inch diameter. Branches less two hundred and fifty (250) feet in cul-de-sacs may be six inch diameter for domestic feed only.
 - f. If the municipal water supply system is capable of providing fire flow capacity the applicant shall install fire hydrants at a maximum spacing of four hundred (400) feet. No residential structure shall be more than two hundred and fifty (250) from the nearest fire hydrant. A hydrant shall be located at all low points and at all high points with adequate means of drainage provided. Hydrant installation shall occur when sufficient water volume is available for fire protection requirements.
 - g. The distribution system within the subdivisions shall be designed to provide a minimum flow of one thousand (1,000) gallons per minute with twenty (20) pounds per square inch (PSI) residual pressure.
 - h. The distribution system within the subdivision shall be constructed in accordance with the City of Fargo's Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended, for water mains and fire hydrants. The requirements for service lines made of copper shall not apply.
4. Subdivisions with thirteen (13) or more buildable lots shall connect to a public water supply system, shall provide functioning fire hydrants and shall design a water supply system pursuant to the following:
- a. The water supply system shall be adequate to handle the necessary flow based on complete development.
 - b. The demand rates for all uses shall be considered in computing the total system demand. The system shall be capable of providing the required fire demand plus the required domestic demand.
 - c. Average daily residential demand shall be computed in accordance with the housing unit type and size data (see Residential Water Demand Chart above). Daily residential demand rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.
 - d. Nonresidential demand shall be computed in accordance with the data shown in Non-residential Water Demand Chart above. Nonresidential demand rates from other sources may be used if the applicant demonstrates that these sources better reflect local conditions.
 - e. The minimum size of lines within the subdivision plat boundaries shall be eight (8) inch diameter. Branches less two hundred and fifty (250) feet in cul-de-sacs may be six inch diameter for domestic feed only.
 - f. The installation of fire hydrants shall be provided at a maximum spacing of four hundred (400) feet. No residential structure shall be more than two hundred and fifty (250) from the nearest fire hydrant. A hydrant shall be located at all low points and at all high points with adequate means of drainage provided.

- g. The water supply system shall be designed to meet the following minimum fire flows based on recommendations by the American Insurance Association and the National Board of Fire Underwriters:

Population	Flow (gpm)*	Duration of flow (hours)
Under 100	500	4
1,000	1,000	4
1,500	1,250	5
2,000	1,500	6
3,000	1,750	7
4,000	2,000	8
5,000	2,250	9
6,000	2,500	10
10,000	3,000	10

* gpm = gallons per minute

- h. The distribution system within the subdivisions shall be designed to provide a minimum flow of one thousand (1,000) gallons per minute with twenty (20) pounds per square inch (PSI) residual pressure.
- i. The distribution system within the subdivision shall be constructed in accordance with the City of Fargo’s Standard Specifications for Construction of Public Utilities, as it presently exists or may hereafter be amended, for water mains and fire hydrants.
5. When connection to an existing municipal or public water supply system is proposed:
- a. The Preliminary Plat application shall include a statement from the authority or organization providing such service that sufficient capacity to service the proposed development is available. Such notice shall:
 - i. Be dated within six (6) months of the plan application
 - ii. Identify the term of the reservation.
 - iii. Provide capacity for the entire development (partial capacity, based on phases of development, will not be acceptable).
 - b. The Final Plat application shall include a statement from the authority or organization providing such service indicating approval of the plans for design, installation and financial guarantees as well as indicating the reservation of sufficient capacity to accommodate the project.
6. Those developments not required to connect to a municipal or public water supply system may provide individual or private water supply systems in accordance with this Ordinance and all applicable state and federal regulations.
- a. A private or on-site water supply system well less than fifty (50) feet in depth shall not be less than one hundred (100) horizontal feet from any on-site sanitary wastewater treatment system. A private or on-site water supply system well greater than fifty (50) feet in depth shall not be less than fifty (50) horizontal feet from any on-site sanitary wastewater treatment system.
 - b. Any private or on-site water supply system serving three or more residential structures shall not be less than one hundred (100) feet from any sewage drain field.

7. Those developments proposing the use of shared private wells shall submit a well agreement establishing the respective rights and obligations of each user pertaining to the well and water distribution system. All shared well agreements shall be signed, notarized and recorded with the Final Plat and shall typically include the following elements and when warranted additional language to protect the interest of each party:
 - a. Description of the parcels or properties the well will serve and identify which property the well is located and the wells location relative to property lines.
 - b. Establish that well has undergone a water quality analysis from a certified lab or agency and found to supply safe and potable water.
 - c. Designate future owners/heirs of said properties shall have access to the well and associated water works.
 - d. Designate ownership of the well and associated water works.
 - e. Define under what conditions the water service can be stopped to users.
 - f. Define payment for power costs.
 - g. Define the type of water use allowed by users.
 - h. Define conservation measures expected of users in the event of a water shortage.
 - i. Establish access to user's properties to correct an emergency situation in the absence of one of the users.
 - j. Define emergency situation.
 - k. Define payment responsibility of emergency repair costs.
 - l. Define payment responsibility of third party damage to the well or associated water works.
 - m. Require consent by each user prior to maintenance, operation, replacement, improvements, or other activities deemed as non-routine, defining routine and non-routine activities. Establish means to resolve disagreement in the event users cannot agree regarding the said expenditures.
 - n. Define payment responsibility for maintenance, operation, replacement, or improvement costs.
 - o. Establish time frame for payment of maintenance, operation, replacement, or improvement costs.
 - p. Establish action available to users in the event of a default payment or other obligation by one of the users.
 - q. Identify those responsible for maintaining, repairing, or replacing well, pump house, common water works or individual pipelines.
 - r. In the event each residence has their own pump and associated water works, establish responsibility for maintenance, repair and replacement.
 - s. Establish the location of easements surrounding the well site and pump house for access, maintenance, replacement and repairs.
 - t. Identify those parties allowed access to pump house for access, maintenance, replacement and repairs.
 - u. Establish the water line easements, including location, width and purpose and include location on the Final Plat.
 - v. Establish standards for landscaping and improvements within easements.

- w. If common boundary fencing or walls exist, establish the parties permitted to remove and replace fencing or walls and the conditions said parties are allowed to do so.
 - x. Establish when and how the shared well agreement shall cease and terminate for all parties and individual parties.
- (c) On-site Water Supply Testing. Proposed water supply systems served by individual or shared wells in major subdivisions shall provide sufficient evidence that a viable water supply with sufficient quantity is available using existing data or new data collected and calculated by a hydrologist or registered engineer with hydrological experience.
1. The applicant shall obtain a water quality test, conducted by a certified laboratory for all wells utilized to supply potable drinking water. The quality of the water tested shall meet the minimum public health drinking water standards as set forth in the National Primary Drinking Water Regulations of the Environmental Protection Agency as it presently exists or may hereafter be amended, or be capable of treatment to attain said standard of quality. No person shall divide and sell land, in major subdivisions unless the water to be supplied by the proposed on-site water supply system meets the minimum standards set forth herein. All buyers of lots shall be provided copies of the water quality tests.
 2. The well system shall be designed and wells located to prevent any adverse impact on surrounding wells pumping rates, including other wells within the same development.
 3. The well(s) shall be placed in such a location, constructed to such a depth, have such an efficiency and pumped at such a rate that will not unreasonably restrict further development of the aquifer system.

Section 6.10 Parks and Open Space Uses.

- (a) Dedication. All plans for residential subdivision of land shall provide for the dedication of land for park and open space uses and/or, upon agreement by the applicant, the construction of recreation facilities, the payment of fees in lieu thereof, the private reservation of land, or any combination thereof.

Any such dedications shall be determined to be acceptable by the municipal governing body and approved by the Cass County Planning Commission. The developer shall provide for the construction, at no cost to the county, school district, or public, all roads adjacent to publicly dedicated sites, extensions of all utilities to the site and other public infrastructure as required by the Planning Commission.

- (b) Amount of Land to be Dedicated. The amount of park and open space land to be dedicated shall utilize the following criteria:
1. The amount of park and open space land to be dedicated shall equal seven hundred (700) square feet for each single family unit and four hundred and seventy (470) square feet for each multifamily unit. The developer shall provide the Planning Commission with information concerning the density based upon the number and type of dwelling units proposed. In the event of a dispute as to the estimated population of the proposed residential subdivision, the determination of the Planning Commission staff shall control.
 2. For the purposes of calculating the required dedication, existing dwelling units within a proposed subdivision shall be excluded from the calculation of the park requirement if they

- have previously been included in the calculation of park dedication or fee-in-lieu through the subdivision process. If the existing dwelling units have not previously been included in the calculation for park land dedication or fee-in-lieu of land, then they will be included in the calculation.
3. Residential minor subdivisions shall be exempt from the park land dedication requirements of this Ordinance.
 4. Development of parks, open space and/or trails shall be the responsibility of the developer. Maintenance of parks, open space and/or trails shall be the responsibility of the developer, homeowners association, or a local governing entity.
 5. Residential subdivisions of land where more than twenty (20) percent of the units are to be reserved for the housing of low-income households or where the housing is financed by public monies, may be exempted from these requirements if adequate parks and open space is provided by other means.
 - a. The applicant shall enter into an agreement with the Planning Commission to provide low-income housing and shall demonstrate that such housing is affordable to low-income households within the county. A low-income household is defined as a household earning less than fifty (50) percent of the median family income of Cass County.
 - b. After development, it shall be the responsibility of the developer to present evidence to the Planning Commission, that the housing, as constructed, is affordable to low-income households. Failure to provide low-income housing when dedication of park and open space land has been exempted because of the pledge to provide such housing shall constitute a violation of this Ordinance and shall require that the applicant pay a fee in lieu of the dedication in accordance with Section 616.03 of this Ordinance.
- (c) Fee in lieu of Dedication. Fee-in-lieu of land dedication shall be used in cases in which the cash value of park land dedication is deemed, by the Planning Commission, to be more appropriate in satisfying the needs of the proposed development than land within the proposed development. Such cases include, but are not limited to, small developments, development adjacent to existing facilities that could be expanded.
1. The amount of any fee to be paid in lieu of dedication of land shall be equivalent to the full market value of the acreage required for park land dedication. Value shall be based on anticipated market value after completion of platting. The applicant shall submit a proposal for the fee-in-lieu of dedication and supply the information necessary for the Planning Commission to evaluate the adequacy of the proposal. This information shall include at least one appraisal of the property by a qualified appraiser.
 2. The formula to be used in computing the fee based upon full market value shall be:
where:
Fee = N (FMV)
N = The number of acres required to be dedicated for park and open space purposed, calculated in accordance with Section 616.02 of this Ordinance
FMV = Average full market value of one acre

Such fee shall be payable to Cass County prior to the recording of each final phase of the plan and shall be in an amount equal to the percentage of the total number of dwelling units in the phase.

- (d) Parkland Acquisition Fund. All fees paid by the developer in lieu of dedication of park and open space land shall be paid to Cass County and upon its receipt shall be deposited in a separate interest-bearing fund.
1. The Fee-in-lieu shall be held by the county until such time as a local governing entity is in place and submits in writing, a request for the fee-in-lieu along with a park plan and development schedule.
 2. It is preferred that the fee-in-lieu be used by such governing entity to construct a trail system not to exceed one-quarter (0.25) mile from the subdivision the fee-in-lieu originated or for the construction of a neighborhood or community park. If the construction of a neighborhood or community park or local trail system is not reasonably achievable, then the fee-in-lieu may be used for the construction of a regional park or used for improvements on existing regional parks.
- (e) General Design Criteria. Except for trails and linear parks, the type of areas to be dedicated for park and open space land within a subdivision shall principally involve pocket, neighborhood, community, or regional parks.

The land set aside for park and open space uses shall meet the following design criteria:

1. The park and open space land shall be reasonably located so as to serve all of the residents of the subdivision.
2. The park and open space land shall be accessible from a public street or shall adjoin and become a part of an already existing public park or open space area which is accessible from a public street. Where access to the park is by public road, the width of the frontage shall be a minimum length deemed necessary for access, visibility of the site and public safety.
3. No more than twenty-five (25) percent of the park and open space land shall contain detention or retention basins or other stormwater management facilities, or be located within a floodplain or wetland unless such area is part of a linear trail or green way along an existing watercourse. No percentage of park or open space land shall contain retention or detention ponds if the total park or open space requirement is less than two and half (2.5) acres.
4. The park and open space land shall be compact and contiguous and shall meet lot configuration requirements for lots within a residential subdivision unless the land shall be used as a continuation of an existing trail as set forth in Section 616.07 of this Ordinance, as a trail or linear park as set forth in Section 616.08 herein, or the land is located adjacent to and combined with existing park and open space land, or specific topographic features require a different configuration. An example of such topographic features would be the provision of public open space along a scenic creek.
5. When the park and open space land required to be dedicated is less than five (5) acres in size (unless development will utilize a pocket park), the park and open space land shall be located at a suitable place on the periphery of the subdivision so a more usable tract will result when additional park and open space land is obtained upon development of the adjacent land.

6. When public park and open space land exists adjacent to the tract to be subdivided or developed, the park and open space land shall be located to adjoin and enlarge the presently existing park and open space land.
 7. At least fifty (50) percent of the finished grade of the site shall have a slope of three (3) percent or less unless the land shall be used as a continuation of an existing trail as set forth in Section 616.07 of this Ordinance, as a trail or linear park as set forth in Section 616.08 herein, or the preservation of specific, valuable topographic features results in a greater slope (e.g. provision of public space along a scenic watercourse).
 8. The park and open space land shall be accessible to utilities such as sewer, water and power that are provided within the subdivision and if so requested by the Planning Commission or the municipality that will accept dedication of the land, the developer shall extend such utilities to the park and open space land.
 9. If the developer is planning to construct facilities for recreation on the dedicated property as an amenity for the development, such facilities shall be constructed in accordance with current standards established by the National Recreation and Park Association. Where applicable, facilities constructed shall also comply with the accessibility guidelines of the Americans with Disabilities Act of 1990, as it presently exists or may hereafter be amended. Playground equipment constructed or placed on parkland shall be in compliance with guidelines from the Consumer Products Safety Commission.
 10. All park elements shall generally be consistent with nearby urban design and architectural features.
 11. Landscaping provided to meet the buffer planting requirements standards of this Ordinance shall not be counted towards meeting a subdivision's open space or park dedication requirements.
- (f) **Specific Design Criteria.** The following criteria shall be used in the design of parks, open space and trails.
1. Pocket parks are specialized facilities serving individual neighborhoods and usually owned and maintained by a homeowners association. This type of park should be considered as an alternative where providing a typical neighborhood park is impractical, infeasible, or utilized with small developments. The site should be residential in character and afford a quiet setting for park use, typically not serving an area greater than one-quarter (.25) of a mile and typically no larger than two and one half (2.5) acres. Development should have a strong emphasis on passive uses such as picnic areas, informal gathering areas and landscaping.
 - a. The site shall be centrally located within the surrounding neighborhood and homes preferable facing the park site to provide a secure environment.
 - b. Strong pedestrian and bicycle linkages shall be provided to and within the park.
 - c. The facility development should reflect the needs of the surrounding neighborhood. Typical facilities include turf grass areas, picnic tables and benches. Support facilities such as bike racks, pursuant to Section 603.06 (B-D) of this Ordinance and trash receptacles should also be provided. Optional facilities may include gazebos or similar shade structures; special horticultural plantings or gardens to be maintained by residents; and public art. The design and materials of structures shall be generally consistent with nearby urban design features.
 - d. Seating and picnic areas shall be provided within the park.

- e. Pocket parks shall have a minimum of five (5) canopy trees per tenth (0.10) of an acre pursuant to the specifications in Section 616.06 (E) Subsection 8 of this Ordinance.
2. Neighborhood parks are intended to provide for a mix of non-programmed active and passive recreational activities that serve the needs of individual neighborhoods. Neighborhood parks shall be accessible within walking or bicycling distance, typically not serving an area greater than one-half (0.5) of a mile radius and typically have a minimum area of five (5) acres.
 - a. The site shall provide appropriate bicycle facilities and on or off street multiuse paths to support such access. Limited on or off street parking may be provided as feasible.
 - b. The site is preferable adjacent to an elementary or middle school or the center of residential development with good neighborhood pedestrian and bicycle access and served on one or two sides by local streets.
 - c. Neighborhood parks should not have a standard design, but instead should vary in size, topography and vegetation and should utilize unique site conditions.
 - d. A mixture of facilities should be provided which are suited to the site and the social/recreation preferences of surrounding residents.
 - e. Multiuse active areas, playgrounds, multiuse hard court will typically meet the active needs of the park, while gathering areas and walking paths will typically meet the passive needs of the park.
 - f. Picnic facilities, seating areas, trash receptacles and bike racks, pursuant to Section 603.06 (B-D) of this Ordinance, shall be provided.
 - g. Shade shall be provided with a combination of landscaping or structures.
 - h. Parking and portable restrooms provided responsive to size and level of use.
3. Community parks are large in size and serve a broader purpose than neighborhood parks. Their focus is on meeting the recreational needs of several neighborhoods or large sections of the community. These parks are developed for both passive and active recreation activities. These parks serve an area approximately four (4) or five (5) square miles and one (1) to (2) miles for smaller community parks, covering an area typically ranging from twenty (20) to eighty (80) acres.
 - a. The site may include recreational facilities such as programmed athletic facilities, swimming pools and recreation centers. Between twenty five (25) and fifty (50) percent should be planned as undeveloped green space for informal play and natural aesthetics.
 - b. The sites adaptability for recreational development should play a major role in its selection, with an emphasis on sites located in close proximity to residents while minimizing impacts on adjacent neighborhoods.
 - c. If located on the site, natural features such as large trees and drainage ways should be preserved.
 - d. The site should be serviced by arterial and collector streets and accessible via interconnecting trails.
 - e. Off street parking should be provided commensurate with anticipated level of use and size of site.

- f. Visually screened restroom facilities should also be provided and when appropriate the utilization of portable restrooms.
 - g. Trash receptacles, seating areas, picnic facilities, bike racks, pursuant to Section 603.06 (B-D) of this Ordinance, shading provided from vegetation or structures and shelters or gazebos shall be provided.
 - h. Lighting for playing fields and tennis courts may be provided, when warranted and if there is sufficient buffer from surrounding residential neighborhoods.
 - i. Active use facilities typically include a medium to large playground, regulation softball, baseball, or soccer fields, basketball court, open play area, tennis courts, multiuse hard court, swimming pool.
 - j. Passive uses typically include individual and group picnic areas and walking trails.
4. Regional parks are community signature parks by virtue of their size, location, unique nature resources or settings, or facilities. These parks typically provide active and passive recreational facilities and typically range in size from eighty (80) to one hundred and fifty (150) acres and serve as a regional attraction.
- a. The sites adaptability for recreational development should play a major role in its selection with an emphasis on sites with close proximity to residents while minimizing impacts on adjacent neighborhoods. Natural features such as large trees and drainage ways should be preserved.
 - b. Site should be serviced by arterial and collector streets and easily accessible via interconnecting trails.
 - c. These parks are typically developed for both active and passive uses and accommodate cultural, educational, or interpretative facilities and may provide “one of a kind” facilities for the area.
 - d. Off street parking commensurate with site size and level of use and distributed among one or more parking lots serviced by internal roads.
 - e. Permanent plumbed restrooms shall be provided commensurate with the size of park and level of use.
 - f. Active use facilities typically include a medium to large playground, regulation softball, baseball, or soccer fields, basketball court, open play area, tennis courts, multiuse hard court, swimming pool, multiuse pavilion and recreation center.
 - g. Passive uses typically include individual and group picnic areas and walking trails.
 - h. Trash receptacles, seating areas, picnic facilities, bike racks, pursuant to Section 603.06 (B-D) of this Ordinance, shading provided from vegetation or structures and shelters or gazebos shall be provided.
5. Open space areas are used to preserve open land, sensitive natural areas and rural community character that would be lost under conventional development. This would preferably allow smaller compact neighborhood residential development utilizing a shared open space setting. Open space typically preserves open land, including those areas containing unique and sensitive natural features such as woodlands, steep slopes, streams, floodplains and wetlands, by setting them aside from development and are typically owned and maintained by a homeowners association. Landscaping provided to meet the street tree or parking lot landscaping standards of this Ordinance shall not be counted towards meeting a subdivisions open space landscaping requirements.

- a. Open space may preserve scenic views.
- b. Open space may provide direct visual access to open land with amenities in the form of neighborhood open space and with a strong neighborhood identity.
- c. Open space may create new woodlands and vegetation areas through reforestation and replanting of natural species to encourage the preservation and improvement of habitat for various forms of wildlife as well as provide a visually aesthetic area.
- d. Pedestrian and bicycle path connections to and within the open space may be required.
- e. Ground cover shall be provided on all areas of the project to prevent soil erosion. All areas which are not covered by paving, stone, or other solid material shall be protected with a suitable ground cover, consisting of turf grasses or native grasses.
- f. Common and noxious weeds shall be removed pursuant to all applicable laws and regulations and the area landscaped in such a manner to prevent the return of common and noxious weeds.
- g. The area should consist of large scale tree cover from deciduous hardwood and/or evergreens.
- h. Open space lacking the presence of large scale tree cover shall plant trees using the following criteria:
 - i. The trees shall be nursery grown in a climate similar to that of the locality of the project.
 - ii. All trees shall have a normal habit of growth and shall be sound, healthy and vigorous; they shall be free from disease, insects, insect eggs and larvae.
 - iii. The trunk diameter, measured at a height of six (6) inches above finish grade, shall be a minimum of two (2) inches.
 - iv. All planting shall be performed in conformance with good nursery and landscape practices. The planting areas shall be loosened to a depth of the root ball or rooting system and the width of three (3) times the root ball and preferably five (5) times the root ball when practical.
 - v. Requirements for the measurements, branching, grading, quality, balling and the burlapping of trees shall follow the code of standards recommended by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock, ANSIZ60, current edition, as amended.
 - vi. A minimum of five (5) canopy trees shall be provided for every tenth (0.10) of an acre of open space. The trees shall be located so as to maximize the growth potential of the plant material, minimize the potential for root interference with public infrastructure and maximize the useful of the area.

Prairie Spire Ash*	American Linden
Patmore Ash*	Redmond Linden
Northern Treasure Ash*	Boulevard Linden
Northern Gem Ash*	Greenspire Linden
Northern Blaze Ash*	Frontyard Linden
Mancana Ash*	Norlin Linden
Dakota Centennial Ash*	Harvest Gold Linden
Prairie Dome Ash*	Dropmore Linden
Bergeson Ash*	Glenleven Linden
Prairie Torch Ohio Buckeye	Shamrock Linden
Homestead Ohio Buckeye	Autumn Blaze Maple
Autumn Splendar Ohio Buckeye	Sienna Glen Maple
New Horizon Elm**	Firefall Maple
Jefferson Elm**	Fairview Maple
Discovery Japanese Elm**	Unity Maple
Cathedral Elm**	Jefcam Maple
Vangaurd Elm**	Fall Fiesta Maple
Washington Elm**	Green Mountain Sugar Maple
Valley Forge Elm**	Tatarian Maple
Accolade Elm**	Amur Maple
Common Hackberry	Emerald Lustre Maple
Northern Acclaim Honey-locust	Bur Oak
Perfection Honey-locust	Mongolian Oak
Stately Manor - Kentucky Coffeetree	

*Seedless varieties preferred

**Dutch Elm Disease (DED) resistant

Other tree species may be used, provided acceptable information is submitted to indicate that the species are hardy trees with a maturing height of thirty-five (35) feet or greater; fast growing, short lived trees shall not be permitted. Smaller trees, approved by the Planning Commission, will be permitted in areas with existing overhead utilities. No one species shall comprise more than twenty- five (25) percent of the entire number of planted trees in a particular development.

- vii. Trees are to be maintained and guaranteed for a minimum of two years. Planting of trees shall occur within the standard planting season (May through November). Acceptable stock will not have more than one-third (1/3) of the tree canopy damaged or dead without replacement. Replacement trees shall conform to all requirements of this section and shall be maintained and guaranteed for a minimum of two planting seasons.

6. Existing Trails. When a subdivision is traversed by or abuts an existing public trail, customarily used by pedestrians and/or equestrians, the applicant shall make provision for the continued recreational use of the trail subject to alterations of the course of the trail within the boundaries of the development under the following conditions:
 - a. The points at which the trail enters and exits the tract shall remain unchanged.
 - b. The proposed alteration exhibits quality trail design according to the generally accepted principles of landscape architecture.
 - c. The proposed alteration does not run coincidentally with the paved road intended for use by motorized vehicles.
 - d. The land set aside for the continuation of such existing trail may be included within the amount of park and open space land required by Section 616.02 herein.
7. Trails and Linear Parks. The Planning Commission may require, as a condition of Final Plat approval the dedication and improvement of trails and linear parks, proposed subdivisions along the Red and Wild Rice rivers will generally be required to provide a constructed trail on an easement or dedicated land along the river. The dedication and improvement of trails and linear parks may be credited toward the park and open space land requirement described in Section 616.02 of this Ordinance, provided such trails and linear parks meet the following standards:
 - a. Actual dedications of land of linear parks shall be a minimum width of seventy five (75) feet.
 - b. The minimum right-of-way width of an easement containing a trail which crosses private land shall be fifteen (15) feet. In all cases, however, such easements must provide for public use at reasonable times.
 - c. Trails shall have a vertical clearance of no less than ten (10) feet.
 - d. Width of the trail surface may vary depending upon type of use to be accommodated, but in no case shall such width be less than ten (10) feet.
 - e. Trails shall be constructed according to the specifications set forth in Figure Y Non-Motorized Lanes Requirements.

Figure Y Non-Motorized Lanes Requirements

Non-motorized vehicle lanes shall be constructed to one of the following specifications:

1. Bicycle Paths - A two-way off-street bike path should have a minimum paved width of ten (10) feet and a maximum width of twelve (12) feet.

- A. The bicycle path shall consist of one of the following surface types and construction methods:
 - a. Aggregate Surface: The topsoil shall be removed, clay subgrade compacted, six (6) inches of compacted gravel meeting the North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction* manual for Class 13 and constructed with a with a minimum two (2) percent slope.
 - b. Bituminous Surface: The topsoil shall be removed, clay subgrade compacted, six (6) inches of compacted gravel meeting the North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction* manual for Class 13, a minimum of four (4) inches of asphalt meeting North Dakota Department of Transportation *Standard Specifications for Road and Bridge Construction* manual for Class 31 and constructed with a with a minimum two (2) percent slope.
 - c. Concrete Surface: Concrete used for bicycle paths shall be constructed to the same specifications as sidewalks as set forth in Section 602.06 (J) of this Ordinance.
- B. Gradients of bicycle paths should generally not exceed a grade of five (5) percent, except for short distances where the grade shall not exceed fifteen (15) percent.
- C. The radius of curvature shall be based on the grade of the path entering the curve. The following table shall be used to determine the radius:

PERCENT GRADE	MINIMUM RADIUS
0 - 5%	70 ft
5% - 15%	125 ft

- D. Design consideration shall consider the intersection of a bicycle path and a street to provide maximum safety.
- E. Bicycle paths shall be constructed so as to discharge drainage.

2. Bicycle Lanes - Bicycle lanes shall be designed to one of the following standards:

- A. A one-way bicycle lane on a curbed street shall have a minimum width of six (6) feet excluding the curb and gutter. The paving material and construction shall be the same as the adjacent street.
- B. A one-way bicycle lane next to a parking lane shall be located between the parking lane and the travel lane and have a minimum width of six (6) feet. The paving material and construction shall be the same as the adjacent parking lane.
- C. A one-way bicycle lane on a street without a curb or gutter shall be a minimum of six (6) feet. The shoulder can and should be used when possible. The shoulder shall be kept clear of any obstructions and clean to remove any excess gravel or other debris. The paving material and construction shall be the same as the shoulder. If the lane is being constructed on an existing road that has no shoulder or if the shoulder is in poor condition the lane shall be constructed to the standards set forth in Section 602.12 (B-C).

- f. Developer shall construct trails within one (1) year of the recording of the plat.
 - g. Trail meets applicable requirements set forth in Section 616.08 of this Ordinance.
 - h. Location and length of trail approved by the Planning Commission.
8. Municipal Fund Reimbursement. A municipality may from time-to-time decide to purchase land for parks in or near the area of actual or potential development. If a municipality does purchase park and open space land for a neighborhood, community, or regional park, using the definition provided in this Ordinance, subsequent park and open space land dedications within that area may, upon agreement with the applicant, be in cash only and shall be calculated on a percentage basis to reimburse the municipality's actual cost of acquisition and/or cost of development of such land for park and open space purposes. The cash amount provided to the municipality which purchased the land shall be calculated in accordance with this Ordinance. Once the municipality has been reimbursed entirely for all

- such park and open space land, this subsection shall cease to apply and the other subsections of this section shall again be applicable. The reimbursed value shall be based on the purchase price of the land plus all other actual costs for streets, on-site utilities and other improvements (or an estimate of such actual costs provided by the municipal engineer).
9. Additional Recreation Reservations. The provisions of this section are minimum standards and shall not be construed as prohibiting a developer from dedicating or reserving other land for recreation purposes in addition to the requirements of this Ordinance.
 10. Private Reservation of Land. Notwithstanding anything contained in the above sections, the applicant may, with the consent and approval of the Planning Commission, elect to fulfill the open space requirements through the private reservation of a recreation area.
 - a. Those developments proposing a private park, open space, or trail or if the park, open space and/or trail not accepted for dedication by a local governing entity shall be accompanied by an agreement establishing the respective rights and obligations of each lot owner. All park agreements shall be signed, notarized and recorded with the Final Plat and shall include the following elements and when warranted additional language to protect the interest of each party:
 - i. That maintenance of the designated open space is the responsibility of the applicant, a homeowners association, a condominium unit owners' association, or other recognized conservation organization.
 - ii. The availability of such private open space to non-residents of the development.
 - iii. The method by which the private reservation may be offered for public dedication.
 - iv. Restrictions limiting the land for only open space purposes.
 - v. Define payment responsibility for maintenance, operation, replacement, or improvement costs to the park, open space, or trail and how such payment shall be collected.
 - vi. Establish time frame for payment of maintenance, operation, replacement, or improvement costs.
 - vii. Establish action available to owners in the event of a default payment or other obligation by one of the owners.
 - viii. That the land cannot be sold or disposed of by the association except to another organization formed to own and maintain said open space and without first offering to dedicate the land and improvements to a local governing entity.
 11. Construction of Recreation Facilities. Notwithstanding anything contained in the above sections, the applicant may, with the consent and approval of the Planning Commission and municipal governing body, elect to fulfill the open space requirements through the construction of recreational facilities.
 - a. Facilities will be maintained, owned and operated by a local municipality or government entity or other entity approved by the Planning Commission.
 - b. Facilities shall be available to general public.
 - c. Facilities shall meet a demonstrated public need.

- d. Facilities shall replace or supplement existing facilities that would generally be provided by a local municipality or government entity.
- e. All approved recreation facilities constructed in lieu of land dedication shall be completed and dedicated to the municipality before fifty (50) percent occupancy has been reached in any applicable subdivision.

Section 6.11 Historic and Cultural Resources

- (a) Archaeological Investigations. No project shall be developed on a site identified by the State Historical Society of North Dakota or other state or federal entity as containing features of archaeological significance until:
 - 1. A complete level 1 and level 2 archaeological survey of the site is completed.
 - 2. The State Historical Society of North Dakota determines the project will not disturb the cultural significance or artifacts on the site.

- (b) Method of Survey. If a complete archaeological survey is required, it shall be conducted under the supervision of a professional archeologist in compliance with standards prescribed by the State Historical Society of North Dakota. Even if a complete survey is not required, the Planning Commission may, upon advice of the State Historical Society of North Dakota, require the developer to retain the services of and have present at the site during any excavations or trenching, an archeologist with authority to investigate and document any cultural material that might be unearthed.
- (c) Report Required. A complete copy of the report of the archeologist, including a copy of the field notes shall be submitted to the Planning Commission and the State Historical Society of North Dakota. Arrangements shall be made by the developer for transfer of any significant artifacts to a depository where such items can be conserved and made available for future study.
- (d) Preservation of Historic Features. Subdivisions shall be designed to preserve, adaptively reuse, or otherwise provide for the historic features of Cass County. Modifications or exterior alterations to historic features or sites or new construction adjacent to historic features shall be consistent with the Secretary of the Interior's Standards for Rehabilitation of Historic Properties as published by the National Park Service. Subdivisions shall also be designed so that new structures do not block historic views, or obstruct the view of historic properties and new construction should be visually complementary to historic structures, consistent with the Secretary of the Interior's Guidelines. If because of size, scale, construction material, or type of use a proposed subdivision would jeopardize the historic value of a site or structure, such new construction shall be screened or otherwise visually buffered.
- (e) Demolition Restricted. No historic feature as defined in this Ordinance shall be demolished or moved from its original foundations without approval of the Planning Commission. The applicant shall submit to the Planning Commission a letter from the State Historical Society of North Dakota identifying the significance of the property, potential effects of the project that would be adverse and possible mitigation measures that could be employed. In evaluating any request for demolition of a historic feature the Planning Commission shall take into account the significance of the property, the condition of the feature the potential for repair, restoration, stabilization and reuse, the impact of the feature in relation to the total project and the hardship, if any, on the applicant.

Article VII. Traffic Impact Studies

Section 7.01 Purpose. Whenever a proposed project will generate one hundred (100) new vehicle trips in the peak direction (inbound or outbound) during the site peak traffic hour or seven hundred and fifty (750) daily trips, the applicant shall perform a traffic impact study. Based on this study, certain improvements may be identified to provide safe and efficient access to the development.

In addition, a traffic impact study shall be prepared if the following conditions exist within the impact study area:

- (a) Current traffic problems exist in the local area, such as a high-accident location, confusing intersection, or a congested intersection which directly affects access to the development.
- (b) The ability of the existing, roadway system to handle increased traffic or the feasibility of improving the roadway system to handle increased traffic is limited.
- (c) The development includes the following:
 - 1. Truck Stop
 - 2. Hospital
 - 3. High Schools
 - 4. Elementary or middle schools over 600 students
 - 5. Major recreation and entertainment facilities (indoor or outdoor)
 - 6. Medical office building of 100,000 square feet or greater at build-out of all phases
 - 7. General or corporate office building of 100,000 square feet or greater at build-out of all phases
 - 8. Retail or shopping center of 100,000 square feet or greater at build-out of all phases

Section 7.02 Traffic Impact Study

- (a) Area of Traffic Impact Study. The traffic impact study area shall be based on the characteristics of the surrounding area. The intersections to be included in the study shall be adjacent to the site or have direct impact upon the access to the site. The intersections shall be mutually agreed upon by the Cass County Engineer and the traffic engineer preparing the study. The Planning Commission shall be called upon to resolve any disputes between the county and the traffic engineer.
- (b) Preparation by Transportation Engineer Required. Traffic impact studies shall be prepared under the supervision of qualified and experienced transportation engineers with specific training in traffic and transportation engineering and at least 2 years of experience related to preparing traffic studies for existing or proposed developments.
- (c) Horizon Year. The traffic forecasts shall be prepared for the anticipated opening year of the development, assuming full buildout and occupancy. This year shall be referred to as the horizon year in the remainder of this Ordinance.
- (d) Non-Site Traffic Estimates. Estimates of non-site traffic shall be made and will consist of through traffic and traffic generated by all other developments within the study area for which Final Plats have been approved. Non-site traffic may be estimated using any one of the following three methods: "Build-up" technique, area transportation plan data or modeled volumes and trends or growth rates.
- (e) Trip Generation Rates Required. The traffic impact study report shall include a table showing the categories and quantities of land uses, with the corresponding trip generation rates or equations (with justification for selection of one or the other) and resulting number of trips. The trip generation rates used must be either from the latest edition of Trip Generation by ITE, or from a local study of corresponding land uses and quantities. All sources must be referenced in the study.
- (f) Consideration of Pass-By Trips. If pass-by trips or shared trips are a major consideration for the land use in question, studies and interviews at similar land uses must be conducted or referenced.
- (g) Rate Sums. Any significant difference between the sums of single-use rates and proposed mixed-use estimates must be justified in the study report.
- (h) Explanations Required. The reasoning and data used in developing a trip generation rate for special/unusual generators must be justified and explained in the report.

- (i) Definition of Influence Area. Prior to trip distribution of site-generated trips, an influence area must be defined which contains eighty (80) percent or more of the trip ends that will be attracted to the development. A market study can be used to establish the limits of an influence area, if available. If no market study is available, an influence area should be estimated based on a reasonable documented estimate. The influence area can also be based on a reasonable maximum convenient travel time to the site, or delineating area boundaries based on locations of competing developments.

Other methods such as using trip data from an existing development with similar characteristics or using an existing origin-destination survey of trips within the area can be used in place of the influence area to delineate the boundaries of the impact.

- (j) Estimates of Trip Distribution Required. Trip distribution can be estimated using any one of the following three methods:

1. Analogy
2. Trip Distribution Model
3. Surrogate Data

Whichever method is used, trip distribution must be estimated and analyzed for the horizon year. A multi-use development may require more than one distribution and coinciding assignment for each phase (for example, residential and retail phases on the same site). Consideration must also be given to whether inbound and outbound trips will have similar distributions.

- (k) Trip Assignments. Assignments must be made considering logical routings, available roadway capacities, left turns at critical intersections and projected (and perceived) minimum travel times. In addition, multiple paths should often be assigned between origins and destinations to achieve realistic estimates rather than assigning all of the trips to the route with the shortest travel time. The assignments must be carried through the external site access points and in large projects (those producing five hundred (500) or more additional peak direction trips to or from the site during the development's peak hour) through the internal roadways. When the site has more than one access driveway, logical routing and possibly multiple paths should be used to obtain realistic driveway volumes. The assignment should reflect conditions at the time of the analysis.

Assignments can be accomplished either manually or with applicable computer models. If a thorough analysis is required to account for pass-by trips, the following procedure should be used:

1. Determine the percentage of pass-by trips in the total trips generated
2. Estimate a trip distribution for the pass-by trips
3. Perform two separate trip assignments, based on the new and pass-by trips
4. Combine the pass-by and new trip assignment

Upon completion of the initial site traffic assignment, the results should be reviewed to see if the volumes appear logical given characteristics of the road system and trip distribution. Adjustments should be made if the initial results do not appear to be logical or reasonable.

- (l) Total Traffic Impacts. Traffic estimates for any site with current traffic activity must reflect not only new traffic associated with the site's redevelopment, but also the trips subtracted from the traffic stream because of the removal of a land use. The traffic impact report should clearly depict the total traffic estimate and its components.
- (m) Capacity Analysis. Capacity analysis must be performed at each of the major street and project site access intersection locations (signalized and non-signalized) within the study area. In addition, analyses must be completed for roadway segments, deemed sensitive to site traffic within the study area. These may include such segments as weaving sections, ramps, internal site roadways, parking facility access points and reservoirs for vehicles queuing off site and on site. Other locations may be deemed appropriate depending on the situation.

The recommended level-of-service analysis procedures detailed in the most recent edition of the Highway Capacity Manual must be followed. The Planning Commission considers the overall level-of-service ratings A, B and C to be acceptable for signalized intersections (Levels B or better are considered desirable); level-of-service D, E or F is considered to be unacceptable.

The operational analyses in the Highway Capacity Manual should be used for analyzing existing conditions, traffic impacts, access requirements, or other future conditions for which traffic, geometric and control parameters can be established.

- (n) Required Levels of Service. The recommendations of the traffic impact study shall provide safe and efficient movement of traffic to and from and within and past the proposed development, while minimizing the impact to non-site trips. The current levels of service must be maintained if they are C or D, not allowed to deteriorate to worse than C if they are currently A or B and improved to D if they are E or F.
- (o) Documentation Required. A traffic impact study report shall be prepared to document the purpose, procedures, findings, conclusions and recommendations of the study.
 - 1. The documentation for a traffic impact study shall include, at a minimum:
 - a. Study purpose and objectives
 - b. Description of the site and study area.
 - c. Existing conditions in the area of the development.
 - d. Recorded or approved nearby development.
 - e. Trip generation, trip distribution and modal split.
 - f. Projected future traffic volumes.
 - g. An assessment of the change in roadway operating conditions resulting from the development traffic.

- h. Recommendations for site access and transportation improvements needed to maintain traffic flow to, from, within and past the site at an acceptable and safe level of service.
2. The analysis shall be presented in a straight forward and logical sequence. It shall lead the reader step-by-step through the various stages of the process and resulting conclusions and recommendations.
3. The recommendations shall specify the time period within which the improvements should be made (particularly if the improvements are associated with various phases of the development construction) and any monitoring of operating conditions and improvements that may be required.
4. Data shall be presented in tables, graphs, maps and diagrams wherever possible for clarity and ease of review.
5. To facilitate examination by the Planning Commission, an executive summary of one or two pages shall be provided, concisely summarizing the purpose, conclusions and recommendations.
6. The report documentation outlined above provides a framework for site traffic access/impact study reports. Some studies will be easily documented using this outline. However, the specific issues to be addressed, local study requirements and the study results may warrant additional sections.

Section 7.03 Improvements.

- (a) Responsibility for Improvements. The applicant shall be responsible for the improvements required to provide safe and convenient ingress and egress to the development site.

Article VIII. Manufactured Housing

Section 8.01 General.

- (a) Subdivisions of land for the purpose of mobile home parks and sites for the placement of manufactured housing are governed as subdivisions, subject to the procedures and standards specified by this Ordinance.