

The City of Durant encourages participation from all its citizens. If participation at any public meeting is not possible due to a disability, notification to the City Clerk at least 48 hours prior to the scheduled meeting is encouraged in order to make the necessary accommodations. The City of Durant may waive the 48-hour rule if interpreters for the deaf (signing) or translation services for limited English proficient (LEP) individuals are not the necessary accommodation.

REGIONAL PLANNING COMMISSION

6:00 PM

**Roscoe J. Hatfield
Council Chambers,
300 West Evergreen,
Durant, Oklahoma
AGENDA**

July 6, 2021

This meeting can be watched at durant.org/live

CALL TO ORDER

INVOCATION/FLAG SALUTE

ROLL CALL

ORDER OF BUSINESS

1. Consent Items

To help streamline meetings and allow the focus to be on other items requiring strategic thought, the "Consent Items" portion of the agenda groups the routine, procedural, and self-explanatory non-controversial items together. These items are voted on in a single motion (one vote). However, any Council member requesting further information on a specific item thus removes it from the "Consent Items" section for individual attention and separate vote.

- a. CONSIDER APPROVAL OF REGULAR MEETING MINUTES of June 1, 2021
- b. DISCUSSION, CONSIDERATION AND POSSIBLE ACTION ON AMENDING THE 2021 CALENDAR

2. Consider Items Removed from Consent

3. Administration

- a. DISCUSSION, CONSIDERATION AND POSSIBLE ACTION on proposed Regional Planning Commission Ordinance

4. New Business

ADJOURNMENT

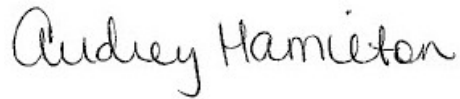
CERTIFICATE

This is to certify that in conformity with the Oklahoma Open Meeting Act, public notice of the date, time and place of this meeting was filed with the City Clerk of Durant on the 28th day of April, 2021 and that an agenda of said meeting was posted at the place of such meeting at 11:30 a.m. on the 1st day of July, 2021.

Audrey Hamilton

Audrey Hamilton, City of Durant

This is to certify that in conformity with the Oklahoma Open Meeting Act, public notice of the date, time and place of this meeting was filed with the City Clerk of Durant on the 28th day of April, 2021 and that an agenda of said meeting was posted at the place of such meeting at 09:00 a.m. on the 28th day of May, 2021.



Audrey Hamilton, City of Durant

MINUTES OF THE MEETING OF REGIONAL PLANNING COMMISSION
June 1, 2021 AT 6:00 PM, Roscoe J. Hatfield
Council Chambers,
300 West Evergreen,
Durant, Oklahoma

CALL TO ORDER

Planning Commission Chair Kevin Keener called the meeting to order at 6:40 p.m.

Motion was made by Commission Member Jackson and seconded by Commission Member Knight to move to Roll Call on agenda.

Motion Passed with the following vote:

Ayes: Keener, Jackson, Knight, Kerr, Grube, Boyer

Nays: None

Abstain: None

INVOCATION/FLAG SALUTE

ROLL CALL

Present:

Mayor Oden Grube

Planning Commission Chairman Kevin Keener

Planning Commission Vice Chairman Drew Jackson

Planning Commissioner Shane Knight

County Commission Chairman Ron Boyer

Absent:

Planning Commissioner Clent Horner

Planning Commissioner Whitney Kerr

Engineer Brandon Wall

Motion was made by Commission Member Jackson and seconded by County Commission Chairman Boyer to move entire agenda to next meeting and adjourn meeting at 6:45 p.m.

Motion Passed with the following vote:

Ayes: Keener, Jackson, Knight, Boyer, Grube

Nays: None

Abstain: None

ORDER OF BUSINESS

1. Consent Items

To help streamline meetings and allow the focus to be on other items requiring strategic thought, the "Consent Items" portion of the agenda groups the routine, procedural, and self-explanatory non-controversial items together. These items are voted on in a single motion (one vote). However, any Council member requesting further information on a specific item thus removes it from the "Consent Items" section for individual attention and separate vote.

a. CONSIDER APPROVAL OF REGULAR MEETING MINUTES April 20, 2021

2. Consider Items Removed from Consent

3. Information Items

4. Administration

a. DISCUSSION ON REGIONAL PLANNING COMMISSION ORDINANCE

5. Public Hearings

6. New Business

ADJOURNMENT



THE CITY OF DURANT

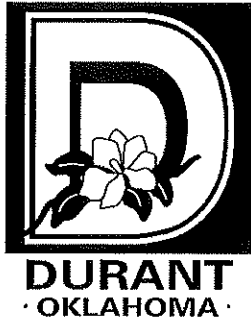
Office of Community Development

Date: 06/30/2021
To: Planning Commission
From: Danielle O'Neal, Community Development Director
Re: 2021 Calendar for Regional Planning Commission Meetings

Request: Discuss and possibly amend the 2021 Calendar for Planning Commission Meetings as in pertains to the start time of the meetings.

Information: At the last meeting the Planning Commissioners requested there to be an item on the July agenda to discuss switching meeting start times with the Regional Planning Commission. The thought behind the request was so that there wouldn't be an interruption during the public hearing section of the Planning Commission. Currently the Municipal Planning Commission starts at 5:30 pm and the Regional Planning Commission starts at 6:00 pm. Should this switch be approved it would move the Municipal Planning Commission to 6:00 pm and the Regional Planning Commission to 5:30 pm.

Required Action: Discuss, consider and take possible action to amend the 2021 Calendar for Planning Commission meetings.



THE CITY OF DURANT

Office of Community Development

Date: 6/30/2021
To: Regional Planning Commission
From: Danielle O'Neal, Community Development Director
Re: RPC Ordinance

For the upcoming meeting we will revisit an ordinance draft created for this Commission. Since the last meeting staff made changes as requested from the Commission. This included adding in information regarding street and drainage regulations that matched the municipal ordinance. At the time of this report, the City Attorney is reviewing this ordinance, but staff wanted to continue the discussion with the changes that were made since the last meeting. This ordinance would be what guides and directs the Regional Planning Commission. The goal is to discuss any further changes, questions or concerns that there may be with this ordinance.

Section 1-1. ~~Creation, Jurisdiction, Regional Planning Commission Created.~~

~~1. There is hereby created a Regional Planning Commission of the City of Durant, Oklahoma, as authorized in title 11, Sections 46-101 through 46-105, Oklahoma Statute 1978, et. seq.~~

~~2. Said commission shall be composed of five members of the Durant Planning Commission. The Mayor and municipal engineer of the City of Durant, Chairman of the Board of County Commissioners of Bryan County, Oklahoma, and the County Engineer shall be ex-officio voting members of the Regional Planning Commission but shall not be counted for purpose of a quorum. Members of the Regional Planning Commission shall serve without pay.~~

~~3. The qualifications, appointment and removal and terms, rules and regulations of the City of Durant Regional Planning commission shall be the same as those established for the City of Durant Planning Commission.~~

~~3. The Regional Planning Commission shall have jurisdiction over a regional district which shall be construed to mean any land outside the incorporated city limits of the City of Durant, Oklahoma, within an area whose any one boundary, at any point, shall be a distance of three (3) miles from the incorporated limits of the City of Durant.~~

~~Section 1-2. Jurisdiction~~

~~In addition to the jurisdiction of the City of Durant Planning Commission, the Regional Planning Commission shall have jurisdiction over a regional district which shall be construed to mean any land outside the incorporated city limits of the City of Durant, Oklahoma, within an area whose any one boundary, at any point, shall be a distance of three (3) miles from the incorporated limits of the City of Durant.~~

Section 1-3. Duties and Powers

1. The City of Durant Regional Planning Commission shall prepare from time to time plans for the systematic development and betterment of the regional district for residence, business, manufacturing, or general industrial purposes. It may consider and investigate any subject matter tending to the development and betterment of such regional district, and make recommendations as it may deem advisable concerning the adoption thereof any department of the City or County Government.

~~2. The City of Durant Regional Planning Commission shall have the power to review and make recommendations, in accordance with its adopted regulations.~~

~~3. Before final action shall be taken by the City or County Government or department thereof on the location and design of any public buildings, statue, memorial, park, parkway, boulevard, playground, public grounds, or bridge within such regional district, the question shall be submitted to the Regional Planning Commission for investigation and report.~~

~~34. All plans, plats, re-plats of land laid out in lots or blocks, and the streets, alleys, or other portions of the same intended to be dedicated to public or private use within such regional district, shall first be submitted to Durant Regional Planning Commission and approved by it before it shall be entitled to record in the office of the County Clerk. It shall be unlawful to receive or record any such plat, plan or re-~~

plat in any public office unless the same shall bear thereon, by endorsement or otherwise, the approval of the Durant Regional Planning Commission. The disapproval of any such plan, plat or re-plat by the Durant Regional Planning Commission shall be deemed a refusal of the proposed dedication shown thereon.

45. For ~~large~~-areas of rural land 10 acres or larger not served by water and sewer facilities by any governmental entityies, the use of private roadways in either platted or unplatted areas shall be recognized and authorized and building permits to property owners abutting upon the private roadways shall be issued without complying with standards as provided for dedicated streets under the following conditions:

- a. The private roadway easement shall be at least fifty (650) feet in width;
- b. The property abutting the private roadway shall contain not less than two (2) acres;
- c. The property shall be more than one-fourth (1/4) mile from sewer and water facilities furnished by the City of Durant or appropriate authority;
- d. The private roadway shall not be dedicated to the public but reserved for future dedication and, until such future dedication, be the private roadway of the abutting property owners;
- e. The owners of the property within the subdivision shall maintain the private roadway. The City of Durant nor the County shall have responsibility for maintenance and repair of the private roadway;
- f. If the property is platted, there shall be emblemized on the face of the plat, clearly conspicuous, a notice that the streets and drives have not been dedicated to the public, and that the streets shall be maintained by the private property owners within the subdivision, but that streets shall always be open to police, fire, and other official vehicles of all state, federal, county and municipal agencies;
- g. Every deed shall clearly acknowledge that the roadway is private and not maintained by any municipality or county;
- h. Prior to the sale of any parcel in the subdivision, a conspicuous sign shall be posted at the entrance of the subdivision: "Private roadway not maintained by the City of Durant or Bryan County";
- i. At any time after use of such private roadway is recognized and authorized pursuant law, a petition of at least sixty percent (60%) of the owners, in area, to improve and dedicate the street shall bind all of the owners thereby to permanently improve the street or roadway in compliance with the applicable requirements of the City of Durant or the County. All other ordinances and Regional Planning Commission regulations pursuant to the provisions of this article relating to subdivisions not in conflict herewith shall be applicable in such cases;
- j. The Regional Planning Commission may require the developer of such property to reserve appropriate utility easements for water, sewer, and any other utility installations as may be required for present and future development.

6. Where there are three (3) or more houses / addresses the roadway shall be required to be a public road and follow the public road standards.

Section 1-4. Public Road Standards

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The arrangement, character, extent, width, grade and location of all streets shall conform to all of the elements of the general plan and shall be designed in accordance with the following provisions:

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1. Whenever a subdivision abuts or contains an existing or proposed major street, the Regional Planning Commission may require service streets, reverse frontage with screen planting contained in a no access reservation along the rear property line, deep lots or such other treatment as may be necessary for adequate protection of residential properties and to afford separation from traffic;

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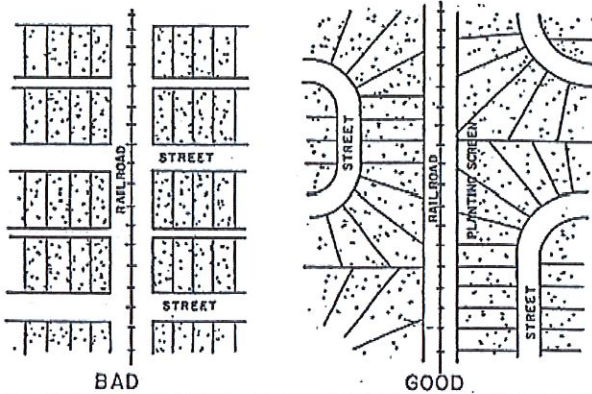
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2. Where a subdivision borders on or contains a railroad right-of-way of limited access highway right-of-way, the Regional Planning Commission may require a street approximately parallel to and on each side of such right-of-way at a distance suitable for the appropriate use of the intervening land. The following sketch illustrates both suitable and unsuitable ways of laying out developments bordering major right-of-way.

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STREET LAYOUT ADJOINING LIMITED ACCESS RIGHT-OF-WAY FACILITIES



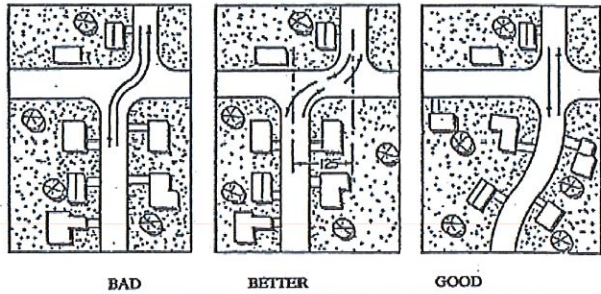
3. Reserve strips controlling access to streets shall be prohibited except where their control is placed in the buffer region under conditions approved by the Regional Planning Commission and acceptable to the subdivider;

4. Where the plat to be submitted includes the only part of the tract owned or intended for development by the subdivider, a tentative plan of a proposed future street system for the unsubdivided portion may be required by the Regional Planning Commission;

5. Where a tract is subdivided into larger than normal building lots or parcels, such lots or parcels shall be arranged to permit the logical location and opening of future streets and appropriate resubdivision with provision for adequate utility easements; and

6. Street jogs with centerline offsets of less than 125 feet shall be avoided.

STREET JOGS LESS THAN 125 FEET SHALL BE AVOIDED



7. Street right-of-way widths shall follow the Oklahoma Department of Transportation standards and shall be not less than the following:

<u>Street Type</u>	<u>R.O.W. Width</u>
<u>Arterial streets</u>	<u>85 feet</u>
<u>Secondary thoroughfares</u>	<u>80 feet</u>
<u>Commercial streets</u>	<u>80 feet</u>
<u>Collector streets</u>	<u>60 feet</u>
<u>Residential streets</u>	<u>60 feet</u>

8. The paved width of all streets shall be adequate to serve the existing and future estimated traffic load for the facility. Lane width for all streets shall be as follows:

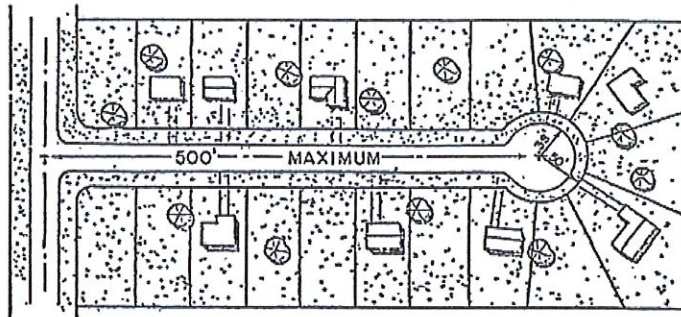
a. All major streets shall have lanes for traffic movement of not less than 11 feet or more than 12 feet in width, and lanes for parallel parking or emergency stopping of not less than 10 feet in width; and

b. All minor streets shall have lanes for traffic movement of not less than 9 feet or more than 12 feet in width and lanes for parallel parking of not less than 8 feet in width. Streets should be developed in accordance with the general standards given in the code of the city.

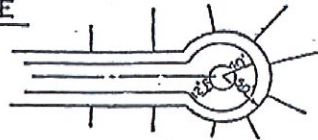
9. CUL-DE-SAC

a. A cul-de-sac should not exceed 500 feet in length, measured from the entrance to the center of the turnaround unless a dedicated secondary emergency sealed-surface accessible ingress and egress is provided to the primary roadway to a point within 500 feet of the center of the turnaround radius. The ingress and egress shall be, at a minimum, in the form of a 20-foot wide dedicated public easement that is graded, compacted, sealed-surface, and otherwise constructed to the city's specifications.

b. If the cul-de-sac is longer than 150 feet then a turnaround radius of not less than 65 feet at the property line and 50 feet at the curb line shall be provided. If there is provided in the center of the turnaround an unpaved island, it shall be improved with landscaping that will not interfere with sight distance. The unpaved island shall have a radius of not less than 6 feet and the radius from the curb line of the island to the turnaround outside curb shall be 30 feet with the easement extending an additional 15 feet beyond the outer curb line.



ALTERNATE

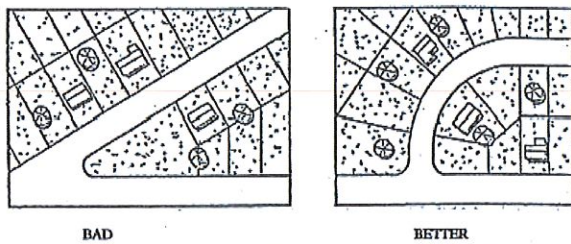


10. Half streets shall be prohibited except where essential to the reasonable development of the subdivision in conformity with the other requirements of these regulations, provided that the Regional Planning Commission finds it will be practical to obtain the dedication of the other half of the street easement when the adjoining property is subdivided. Wherever a half street is adjacent to the tract to be subdivided, the other half of the street shall be platted within the tract being subdivided;

11. The arrangement of streets shall be such as to cause no hardship in the subdividing of adjacent properties. The Regional Planning Commission may require the dedication of street rights-of-way to facilitate the development of adjoining properties;

12. No street names shall be used which will duplicate or be confused with the names of existing streets. Street names shall be subject to the approval of the Planning Commission;

13. Minor streets shall be laid out so that their use by arterial traffic will be discouraged;



14. Streets shall intersect at approximately right angles;

15. Street grades shall be as follows:

a. The minimum grade of all streets shall be 0.4%;

b. Except where unusual topo-graphic conditions justify it, the maximum grade of all streets shall not be greater than the following:

<u>Street Type</u>	<u>Grade</u>
<u>Major</u>	<u>5%</u>
<u>Collector</u>	<u>7%</u>
<u>Residential streets</u>	<u>10%</u>

16. Street corners shall be as follows:

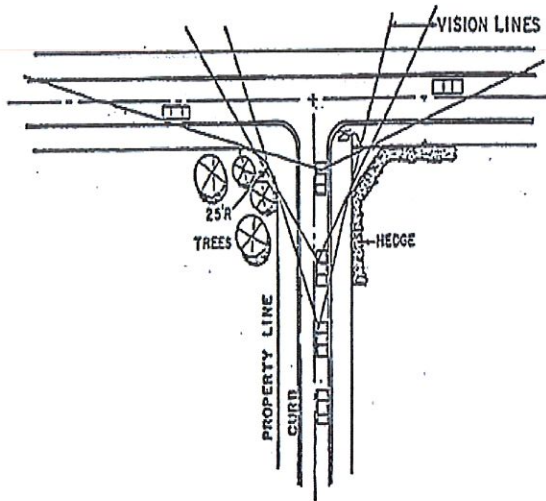
a. Street corners on local residential streets shall have a minimum radius of 20 feet at curb line or its equivalent;

b. Street corners on collector streets shall have a minimum radius of 25 feet at the curb line or its equivalent;

c. Street intersections involving major thoroughfares shall have a minimum street corner radius of 30 feet at the curb line or its equivalent;

d. In order to provide for traffic safety, there shall be platted on each corner of each intersection of two streets a sight triangle which shall be described as a triangle having 25-foot sides on each of the street rights-of-way or a radius of 25 feet. The plat or the covenants of the addition shall clearly prohibit any construction or planting of landscaping materials that reach greater than 2 feet in height in this right-of-way.

HORIZONTAL SIGHT DISTANCES



17. Alleys

a. Alleys shall be as follows:

b. Alleys shall be provided in commercial and industrial areas, except that the Regional Planning Commission may waive this requirement where other definite and assured provision is made for service access, such as off-street loading, unloading and parking consistent with and adequate for the uses proposed;

c. Alleys serving commercial and industrial areas shall be not less than 30 feet in width;

d. Alleys are not required for residential areas, but when provided shall be not less than 20 feet in width;

e. Alley intersections and sharp changes in alignment should be avoided, but where necessary, corners shall be cut off sufficiently to permit safe vehicular movement;

f. Dead-end alleys should be avoided, but if necessary, shall be provided with adequate turn around facilities at the dead end, as determined by the Regional Planning Commission; and

g. Alleys shall be finished with a sealed surface and otherwise constructed to other official specifications.

Section 1.5 Onsite Stormwater Management

1. No plat shall be approved unless a stormwater management plan has been approved by the Floodplain Administrator.

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2. A stormwater management plan is not required when one of the following conditions are met:

a. The subdivision or parcel of land already has a stormwater management system constructed in accordance with stormwater management regulations.

3. Stormwater management plans must meet the following 100-year or 1% annual chance:

a. Post-development run-off cannot be greater than pre-development run-off;

b. Post-development stormwater shall not be discharged in a greater volume or velocity at any particular point than would otherwise occur in its pre-development state;

c. The sanitary sewer system must be protected from intrusion from stormwater runoff;

d. Parking lots shall not retain or detain more than 6 inches of water;

e. The Floodplain Administrator or Floodplain Manager may require a licensed engineer stamped set of plans on larger parcels or parcels with maximum sealed surface or parcels in high risk or flash flood areas. Generally engineered plans will be properties of greater than one acre.

Section 1.6 Drainage

1. These regulations and standards are designed, intended and should be administered in a manner to protect the various drainage areas in the 3-mile buffer from flooding; to provide clean and sanitary channels for runoff; to prevent pollution of watersheds, streams and natural drainage channels; to prevent the encroachment of buildings and improvements on natural drainage channels; to equitably apportion the cost of improvements; to protect natural scenic areas; and to provide for the conservation of the natural resources of the area and to fulfill the requirements of the flood insurance administration. The regulations and standards herein contained shall apply to areas within the 3-mile buffer outside of the corporate limits of the City of Durant. All subdivisions of land and all improvements of any character which affect drainage in any portion of the 3-mile buffer shall be subject to the provisions of these regulations and be subject to approval by the Regional Planning Commission or their designee. Development within the limits of the 100-year flood shall be designed in such a manner that all finished floor elevations shall be at least one foot above the 100-year floor level; provided, however, that all

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earth fills within the 100-year flood level shall be approved by the City Engineer; and provided, further, that development within the 100-year flood shall not in any case plan for structures in the floodway as shown on the official flood maps.

2. The two classes of drainage channels shall be:

- a. Primary drainage channels; and
- b. Secondary drainage channels.

c. In general, it is intended that channels which are designated as primary channels serve a drainage area of 1,000 acres or more. It is intended by these regulations that the improvement of primary drainage channels shall be primarily the responsibility of the community as a whole, since the whole community is materially benefitted. However, the developer of the land containing a primary channel is expected to layout, design and otherwise plan and carry out his or her improvements in a manner that will not interfere with or restrict the natural flow of water or materially change the condition of runoff. Increased runoff and changes in primary channels which are created by improvements of an individual subdivision shall be the responsibility of the developer of the subdivision and shall be made in accordance with the provisions of these regulations. It is intended by these regulations that the improvement of a secondary channel shall be the responsibility of the developer of the area served by the channel, since the primary benefit is to the area served by the secondary channel and not to the community as a whole.

3. The maximum condition of rainfall for a 100-year interval plus one-foot of freeboard shall be used for the purposes of determining all runoff for the sizing of drainage channels and structures for the 3-mile buffer, unless otherwise specified herein. Values used in formulas for runoff and size of drainage structures shall reflect the degree of urbanization set forth in the projected land use pattern contained in the comprehensive plan for the city. The following formulas and values shall be used for calculating all stream flow and runoff for the policies and regulations established herein:

a. Runoff from all drainage areas shall be determined by Rational Formula:

Q = AIR, in which

Q = Cubic feet per second

A = Area to be drained in acres, determined by field surveys for areas less than 1,000 acres and by latest government quadrangle maps for larger areas

I = Percent of imperviousness of the area may vary between 40% and 95%

R = Rate of rainfall over entire drainage area in inches per hour, based on time of concentration and latest government records for area (using 100-year storm plus one foot for primary and secondary channels).

b. The size of closed storm sewers, open channels, culverts and bridges shall be determined using the Manning Formula:

Q = 1,486A r^{2/3} s^{1/2}

n

Q = Discharge in cubic feet per second

- A = Cross-sectional area of water in conduit in square feet
- r = Hydraulic radius of water in conduit
- s = Mean slope of hydraulic gradient, in feet of vertical rise per foot of horizontal distance
- n = Roughness coefficient, based on condition and type of material of conduit lining, but not less than 0.013.

4. All primary drainage channels which are located within, or immediately adjacent to an improvement or a subdivision shall be protected and improved by the developer as follows:

a. All land having an elevation below the 50-year maximum flood elevation and not protected by levies or dikes shall be dedicated to the county for the purpose of providing drainage and for public park and utility easement use. The developer may retain unto himself or herself an easement for landscaping, for installation and maintenance of ornamental elements and for fencing. Access for proper maintenance to the area of the 100-year flood shall not be obstructed;

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b. The existing channel laying within or immediately adjacent to the subdivision shall be cleaned to provide for the free flow of water, and the channel shall be straightened, widened and improved to the extent required to prevent overflow beyond the limits of the dedicated drainage area;

c. Site improvement shall provide for the grading of all building sites and streets to an elevation where all lots, building areas and streets will not be subject to overflow and in a manner that will provide for the rapid runoff of all rainfall;

d. Whenever channel improvement is carried out, sodding, back-sloping, cribbing and other bank protection shall be designed and constructed to control erosion for all the anticipated conditions of flow for the segment of channel involved. Planting of appropriate species for landscape beauty is encouraged and;

e. Culverts, bridges and other drainage structures shall be constructed in accordance with the specifications of the Regional Planning Commission at all locations where drainage channels intersect with continuous streets or alleys.

5. Surface drainage and all secondary channels within or adjacent to the addition shall meet the following conditions:

a. When a subdivision is traversed by a secondary drainage channel, watercourse or stream which drains 160 acres or more of land, there shall be provided a right-of-way for drainage and public parks and public utility purposes adequate to contain all of the floodway of a 100-year maximum flood. The right-of-way shall include all of the land within the subdivision that is within the floodway as established by the official flood maps;

b. Secondary drainage channels which have a primary function of collecting surface water from adjacent properties or intercepting and diverting side hill drainage shall be provided with an improved open channel;

c. Secondary drainage channels which have a primary function of transporting water through the block or collecting water from cross channels and which have a drainage area of less than 40 acres shall be improved with storm sewers of an improved open channel when approved by the City Engineer. Where the secondary drainage channel has a drainage area of greater than 40 acres, an improved open channel storm sewer shall be provided;

d. A drainage channel shall not be located in a street easement unless it is placed in an improved open improved storm sewer channel;

e. Site grading shall be carried out in such a manner that surface water from each lot will flow directly to a storm sewer, improved channel or paved street without crossing more than two adjacent lots;

f. Surface water collected on streets shall be diverted to storm drains at satisfactory intervals to prevent overflow of six-inch high curbs during a ten- year frequency rain for the area and grades involved. However, the minimum finished grade at the building line shall be such that it will not be affected by storms equivalent to a 100-year frequency plus one foot of freeboard;

g. Drainage area allowed for surface flow on streets at a point of diversion shall not exceed 20 acres, regardless of flow;

h. Drainage easements of satisfactory width to provide working room for construction and maintenance shall be provided for all storm sewers;

6. Channel improvements shall be as follows:

a. Open channels shall be improved by providing a paved section that will carry the runoff from a rain of 5-year frequency and a sodded section to carry the runoff from a rain of 10-year frequency. However, the minimum finished grade at the building line shall be such that it will not be affected by storms equivalent to a 100-year frequency plus one foot of freeboard. The design of the channel improvements shall be in accordance with the standards set forth on the three following figures. Where turbulence is sufficiently limited, where natural beauty is thereby preserved and where erosion will not result, the Regional Planning Commission may approve omitting the paved section; and

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b. Whenever an open improved channel is required or authorized for a secondary drainage channel under the provisions of these regulations and the channel crosses large residential lots (area of not less than 10,000 square feet) and the channel improvement is to be designed as an integral part of the landscaping of the area that will be maintained by the property owners of the area, then the Regional Planning Commission may modify the requirements of the first part of this provision to permit a channel improvement design in accordance with the third of the design alternatives shown.

7. Requirements relating to improvements:

a. Easements. All storm drainage features shall be placed in proper easements as set out in these regulations;

b. Bridges and culverts. Bridges and culverts shall be as follows:

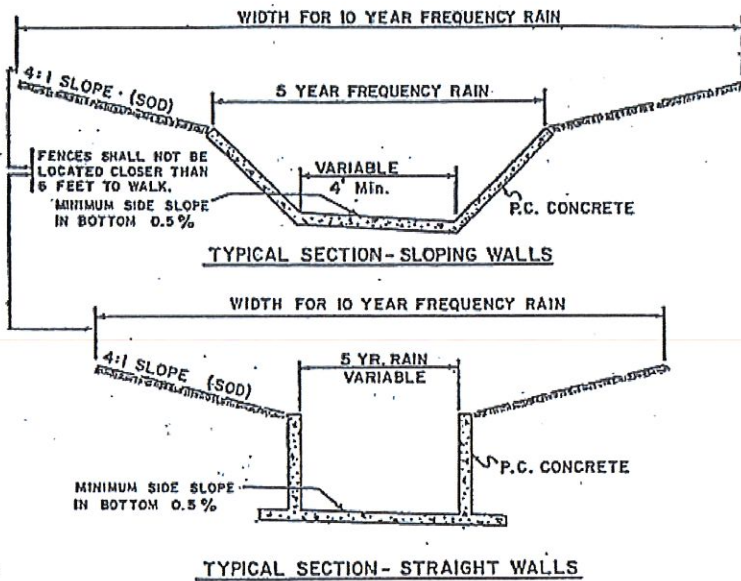
- i. All flow of water across continuous streets or alleys shall be through culverts or bridges;
- ii. Bridges and culverts on primary drainage channels shall be sized to accommodate a 100-year frequency rain, plus one foot of freeboard, based on the drainage area involved;
- iii. Bridges and culverts on secondary drainage channels which drain 160 acres or more of land shall be sized to accommodate a 100-year frequency rain, plus one foot of freeboard, based on the drainage area involved. However, a 50-year frequency may be used when overflow provisions are incorporated to accommodate a 100-year frequency rain;
- iv. Bridges and culverts on secondary drainage channels which drain less than 160 acres of land shall be sized to accommodate a 10-year frequency rain, based on the drainage area involved; provided, that all building elevations shall have one foot of freeboard above overflows of the 100-year storm;
- v. Design of bridges and culverts shall be submitted to and have the approval of the City Engineer;

c. Closed storm sewers. Closed storm sewers shall be constructed of pre-cast or pre-fabricated pipe or built in place of closed box design to serve a ten-year frequency rain for the drainage area involved; and

d. Open paved storm drainage. Open paved storm drainage channels shall be approved in accordance with specifications approved by the City Engineer. Side slopes above the paved section shall be shaped and sodded on a slope of four horizontal to one vertical or flatter. Fences capable of limiting water flow or which would prevent proper maintenance and care of the drainage facility shall not be erected below the shoulder of the sodded section. Retaining walls or other decorative elements which do not prevent necessary access for maintenance may be erected.

e. The Regional Planning Commission reserves the right to require improvements, provisions of drainage easements and for provisions of agreements beyond the boundaries of the addition to facilitate flow of water through the addition and to provide continuous improvement of the overall storm sewer system.

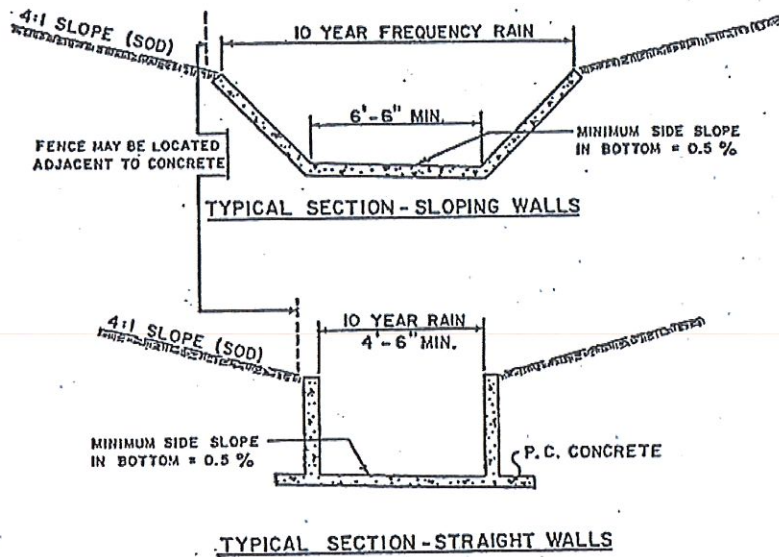
IMPROVED DRAINAGE CHANNEL



General Specifications

1. Use of sloping walls or straight walls is optional.
2. Construction of concrete lining shall conform to city specifications.
3. Straight walls shall be designed to withstand earth pressures.
4. Sloping walls shall have slope ratio of 1 horizontal to 1 vertical, or flatter.
5. Sodded slope ratio shall be 4 horizontal to 1 vertical, or flatter.
6. Concrete liners shall be structurally designed for calculated hydraulic load to be minimum 4 inches - maximum 6 inches of 3,500 lb. concrete.

IMPROVED DRAINAGE CHANNEL



General Specifications

1. Use of sloping walls or straight walls is optional.
2. Construction of concrete lining shall conform to city specifications.
3. Straight walls shall be designed to withstand earth pressures.
4. Sloping walls shall have slope ratio of 1 horizontal to 1 vertical, or flatter.
5. Sodded slope ratio shall be 4 horizontal to 1 vertical, or flatter.
6. Concrete liners shall be structurally designed for calculated hydraulic load to be minimum 4 inches - maximum 6 inches of 3,500 lb. concrete.

IMPROVED DRAINAGE CHANNEL

General Specifications

1. Slopes back of curb shall have a ratio of 4 horizontal to 1 vertical, or flatter.
2. Slopes shall be sodded uniformly to permit mowing.

3. Concrete construction shall conform to city specifications.

4. This section shall be constructed only in those locations outlined in general policies and requirements.

5. Concrete liners shall be structurally designed for calculated hydraulic load to be minimum 4 inches - maximum 6 inches of 3,500 lb. concrete.

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~~Section 1-1 through 1-8. (Reserved for future use.)~~