

## **AGENDA**

### **TOWN OF FLOWER MOUND ENVIRONMENTAL CONSERVATION COMMISSION**

#### **REGULAR MEETING**

**September 6, 2022**

**FLOWER MOUND TOWN HALL  
2121 CROSS TIMBERS ROAD  
FLOWER MOUND, TEXAS**

**6:30 P.M.**

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**AN AGENDA INFORMATION PACKET IS AVAILABLE ONLINE AT**  
<https://www.flower-mound.com/agendacenter>  
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Comments regarding any item on this agenda can be sent to the Commission Members by  
Emailing: [ECC@flower-mound.com](mailto:ECC@flower-mound.com) or Calling: 972.874.6340

#### **A. CALL REGULAR MEETING TO ORDER – 6:30 PM**

#### **B. INVOCATION AND PLEDGE OF ALLEGIANCE**

#### **C. PUBLIC COMMENT**

The purpose of this item is to allow the public an opportunity to address the ECC on issues that are not indicated as a "Public Hearing" on this agenda. Issues regarding daily operational or administrative matters should first be dealt with by calling Environmental Services at 972-874-6340 during business hours.

#### **D. STAFF REPORT**

Update and status report related to environmental issues and events, regulatory activities, and projects.

#### **E. CONSENT AGENDA - CONSENT ITEMS**

This agenda consists of non-controversial or "housekeeping" items and may be approved with a single motion. A member of the Environmental Conservation Commission may request an item(s) be withdrawn from the consent agenda and moved to the regular agenda for discussion by making such a request prior to a motion and vote on the Consent Agenda.

## Environmental Conservation Commission Meeting Agenda

September 6, 2022

Page 2

1. Consider approval of minutes from the regular meeting of the Environmental Conservation Commission held on July 5, 2022.

### **F. REGULAR ITEM**

2. Consider a Land Development Regulation (LDR22-0001) to consider various amendments to Chapter 94, Trees, of the Town's Code of Ordinances related to tree and landscaping requirements.

### **G. ADJOURNMENT- REGULAR SESSION**

### **H. CALL WORK SESSION TO ORDER**

### **I. WORK SESSION ITEM**

1. Review the Town of Flower Mound's Stormwater Management Program.

### **J. SUBCOMMITTEE REPORT**

Receive updates and status reports related to subcommittee tasks, activities, and projects.

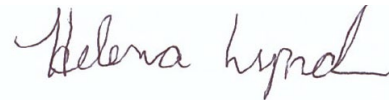
### **K. COORDINATION OF FUTURE AGENDAS/MEETINGS**

### **L. ADJOURNMENT- WORK SESSION**



**Matthew Woods**  
Director of Environmental Services

I do hereby certify that the Notice of Meeting was posted on the bulletin board in Town Hall of the Town of Flower Mound, Texas, a place convenient and readily accessible to the general public at all times and said Notice was posted on the following date and time: September 1, 2022, by 5:00 p.m., at least 72 hours prior to the scheduled time of the said meeting.



**Helena Lynch**  
Administrative Assistant



## ENVIRONMENTAL CONSERVATION COMMISSION AGENDA ITEM NO. 1

### CONSENT ITEM

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**DATE:** September 6, 2022

**FROM:** Helena Lynch, Administrative Assistant

**ITEM:** Consider approval of minutes from the regular meeting of the Environmental Conservation Commission held on July 5, 2022.

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**BACKGROUND INFORMATION:** This agenda item is to consider approval of the minutes from the July 5, 2022, regular meeting of the Environmental Conservation Commission.

**CITIZEN FEEDBACK:** N/A

**ALTERNATIVES/OPTIONS:** N/A

**FISCAL IMPACT:** N/A

**LEGAL REVIEW:** N/A

**ATTACHMENTS:**

1. A copy of the draft minutes from the July 5, 2022, regular meeting of the Environmental Conservation Commission.

**RECOMMENDATION:** Move to approve the minutes from the July 5, 2022, regular meeting of the Environmental Conservation Commission.

## FLOWER MOUND ENVIRONMENTAL CONSERVATION COMMISSION MEETING OF JULY 5, 2022

**THE FLOWER MOUND ENVIRONMENTAL CONSERVATION COMMISSION MEETING HELD ON THE 5TH DAY OF JULY 2022, IN THE FLOWER MOUND TOWN HALL, LOCATED AT 2121 CROSS TIMBERS ROAD IN THE TOWN OF FLOWER MOUND, COUNTY OF DENTON, TEXAS, AT 6:30 PM.**

The Environmental Conservation Commission met in regular session, with the following members present constituting a quorum:

|                |                             |
|----------------|-----------------------------|
| Marilyn Lawson | Vice Chair                  |
| KC Walsh       | Commission Member, Place 3  |
| Alton Bowman   | Commission Member, Place 5  |
| Deanna Soper   | Commission Member, Place 7  |
| Rich Murchek   | Commission Member, Place 8  |
| Anna Athappan  | Commission Member, Place 9  |
| Ashish Sharma  | Commission Member, Place 10 |

*Places 8, 9, and 10 of the Commission do not vote on items unless they sit in place of one of the regular members, Places 1-7.)*

Constituting a quorum with the following members absent:

|                 |                            |
|-----------------|----------------------------|
| James Seastrom  | Chair                      |
| Sandy Fambrough | Commission Member, Place 1 |
| Elaine Takacs   | Commission Member, Place 6 |

And the following members of Town staff present:

|               |                                    |
|---------------|------------------------------------|
| Matthew Woods | Director of Environmental Services |
| Helena Lynch  | Administrative Assistant           |
| Jimmy Hoefert | Environmental Review Analyst       |

**A. CALL TO ORDER - REGULAR SESSION: 6:33 PM**

**B. INVOCATION AND PLEDGE OF ALLEGIANCE**

**C. PUBLIC COMMENT**

None.

**D. STAFF REPORT**

**Update and status report related to environmental issues and events, regulatory activities, and projects.**

**E. CONSENT AGENDA**

- 1. Consider approval of minutes from the regular meeting of the Environmental Conservation Commission held on June 7, 2022.**

FLOWER MOUND ENVIRONMENTAL CONSERVATION COMMISSION MEETING OF JULY 5, 2022

**Commission Deliberation**

Commission Member Walsh made a motion to approve the June 7, 2022, minutes as presented. Commission Member Bowman seconded the motion.

**VOTE ON THE MOTION**

**YES:** Walsh, Bowman, Lawson, Soper, Athappan, Murchek  
**NAYS:** None  
**ABSTAIN:** None

The motion passed with a vote of 6-0-0

**F. REGULAR ITEM**

2. Consider an application for a tree removal permit (TRP22-0010) for five (5) specimen trees on property proposed for development as McIver Flower Mound. The property is generally located south of Lakeside Parkway and west of Enterprise Road.

**Staff Presenter**

Jimmy Hoefert, Environmental Services Review Analyst, gave a presentation with the following items and answered questions:

- Project Information
- General Location
- Detailed Location
- Tree Survey
- Specimen Trees Requested for Removal – 3 slides
- Landscape Plan
- Motion/Recommendation

**Applicant Presenter**

Clay Christy, Claymoore, 1903 Central Dr, Bedford, TX, 76021 gave a presentation with the following items and answered questions:

- McIver Flower Mound Tree Removal – Site Plan

**Commission Deliberation**

Commission Member Soper made a motion to recommend approval of the requested permit for the removal of four (4) out of the five (5) specimen trees with the exception of tree # 188 on property proposed for development as McIver Flower Mound. The property is generally located south of Lakeside Parkway and west of Enterprise Road. Motion seconded by Commission Member Walsh.

FLOWER MOUND ENVIRONMENTAL CONSERVATION COMMISSION MEETING OF JULY 5, 2022

**VOTE ON THE MOTION**

**AYES:** Murchek, Soper, Lawson, Walsh  
**NAYS:** Athappan, Bowman  
**ABSTAIN:** None

The motion passed with a vote of 4-2-0

**G. ADJOURNMENT- REGULAR SESSION 7:39 pm**

**H. CALL WORK SESSION TO ORDER 7:39 pm**

**I. WORK SESSION ITEM**

1. Discuss potential updates to Chapter 94 – Trees, of the Town’s Code of Ordinances.

**Staff Presenter**

John Chapman, Planner, gave a presentation with the following items and answered questions:

- Overview
- Street Buffer Trees
- Overhead Utilities
- Parking Area Trees
- Large Vehicle Parking Area
- Approved Tree Planting List
- Detention and Retention Areas (2 slides)

**J. SUBCOMMITTEE REPORT**

**K. COORDINATION OF FUTURE AGENDAS/MEETINGS**

**L. ADJOURNMENT - REGULAR SESSION 8:16 pm**

**TOWN OF FLOWER MOUND, TEXAS**

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**MARILYN LAWSON, VICE CHAIR**

**ATTEST:**

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**HELENA LYNCH, ADMINISTRATIVE ASSISTANT**



## ENVIRONMENTAL CONSERVATION COMMISSION AGENDA ITEM NO. 2

### REGULAR ITEM

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**DATE:** September 6, 2022

**FROM:** John Chapman, Planner

**ITEM:** Consider a Land Development Regulation (LDR22-0001) to consider various amendments to Chapter 94, Trees, of the Town's Code of Ordinances related to tree and landscaping requirements.

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**BACKGROUND INFORMATION:** This item provides ECC the opportunity to discuss updates to Chapter 94, Trees, of the Town's Land Development Regulations and to provide a recommendation.

Town staff will provide a presentation to discuss retention/detention pond tree requirements, large parking area tree requirements, and updates for the following sections contained in Chapter 94 – Trees.

**Section 94-61. Street yard trees.**

- Codify how the number of trees are determined in the event of a fraction.

**Section 94-62. Street buffer trees.**

- Codify Master Plan recommendations for street buffer trees within the Cross Timbers Conservation Development District (CTCDD).
- Recommend a minimum tree spacing requirement.
- Recommend alternative landscaping options for street buffer areas containing utility easements
- Codify how the number of trees are determined in the event of a fraction.

**Section 94-63. Parking area trees.**

- Recommend an exception to parking area trees for Campus Commercial, Campus Industrial, Industrial-1, Industrial-2 for the sole purpose of redevelopment scenarios involving restriping of existing pavement from a large vehicle parking area to employee/customer parking.
  - Recommend mitigation is satisfied by increasing landscaping on the site comparable to the amount of trees required for new parking spaces.
- Recommend a minimum landscape island area equivalent to a parking space (9' by 18'), minimum tree spacing, and minimum uncompacted soil radius.

**Section 94-66. Approved tree planting lists.**

- Recommend denoting several tree species that are appropriate within the CTCDD.
- Recommend expanding the approved median and right-of-way tree planting list to include: Eve's Necklace, Yaupon Holly, Carolina Buckthorn, Possum Haw, Plum, and Redbuds/Whitebuds.
- Recommend removing Chinese Pistache from the approved median and right-of-way tree planting list.

**ALTERNATIVES/OPTIONS:**

N/A

**ATTACHMENTS:**

1. Draft Ordinance

**RECOMMENDATION:** Move to recommend approval or denial of the requested Land Development Regulation for various amendments to section contained in Chapter 94, Trees, of the Town's Code of Ordinances.



# DRAFT LDR: Landscaping, Trees, Screening, and Definitions

## SUBPART B – LAND DEVELOPMENT REGULATIONS

### CHAPTER 94 – TREES

#### ARTICLE II. MEASUREMENT

##### Sec. 94-13. Landscape nursery, or replacement trees.

Unless specified otherwise, tree caliper (diameter) or circumference shall be measured at a height of ~~12-six~~ inches above ground level. The caliper of multi-trunk trees shall be measured by determining the diameter or circumference of the largest trunk at full caliper added to one-half of the diameter or circumference of each remaining trunk, measured at a height of ~~12-six~~ inches above ground level.

#### ARTICLE VI. TREE PLANTING REQUIREMENTS AND PLANTING LISTS

##### Sec. 94-61. Street yard trees.

Trees shall be planted or existing trees preserved within the street yard of a nonresidential lot or building tract according to the following provisions:

\*\*\*

(6) When calculating the number of required street yard trees results in fractions, any fraction less than one-half shall be disregarded and any fraction of one-half or more shall be rounded upward to the next highest full number.

##### Sec. 94-62. Street buffer trees.

Trees shall be planted or existing trees preserved within the street buffer landscaping area required by section 82-242 of this Code, street buffer landscaping, according to the following provisions:

(1) Generally. Street buffer trees shall be provided ~~at~~<sup>in</sup> a ratio of one tree for every 30 feet of ~~linear~~<sup>linear</sup> frontage excluding any necessary driveways, unless otherwise provided.

(2) Cross Timbers Conservation Development District.

a. Cross Timbers Road (FM 1171). Street buffer trees shall be provided ~~in~~<sup>except that</sup> a ratio of one tree for every ~~25-25~~ feet of ~~linear~~<sup>linear</sup> frontage and contain native species only ~~shall be provided along scenic roadways.~~

i. Spacing. ~~Native tree plantings are to be randomly spaced every 15 to 35 feet max.~~

ii. Groves or drifts. Random groves, which is a grouping of trees comprised of the same species, or drifts, which is a grouping of trees consisting of several species, of not less than three trees should be spaced every 100 to 350 feet.

iii. Ornamental trees. Trees from subsection 94-68(2) may make up thirty percent of the required trees and be incorporated within the groves or drifts.

b. Rural Collectors. Street buffer trees shall be provided in a ratio of one tree for every 30 feet of linear frontage and must contain native species only. Trees are to be randomly spaced in odd numbered groves or drifts of no less than three trees every 100 to 150 feet.

(3) All ~~S~~street buffer trees shall be a minimum of three-inch caliper at the time of installation.

(4) All street buffer trees shall have a minimum spacing of 20 feet on center.

(5) Utility easements and overhead utilities.

a. Generally. Trees planted in utility easements, where required, must use trees from section 94-68(4) and be planted at a ratio of three ornamental trees for each tree required.

b. If the site's street buffer contains an overhead utility easement, trees from section 94-68(4) may be planted at a ratio of one ornamental tree for each tree otherwise required within the easement; with one additional tree from section 94-68(1) planted elsewhere on the site. A mixture of groundcover, grasses, and shrubs incorporated into a curvilinear design must be included spanning the length of the utility easement within the street buffer.

(6) When calculating the number of required street buffer trees results in fractions, any fraction less than one-half shall be disregarded and any fraction of one-half or more shall be rounded upward to the next highest full number.

#### **Sec. 94-63. Parking area trees.**

Trees ~~shall~~must be planted or existing trees preserved within off-street parking areas according to the following provisions:

(1) One tree shall be provided for each ten parking spaces ~~provided~~ on the site; provided, however, that ~~churches religious institutions~~ and ~~de~~or schools shall be required to provide one tree for each 20 parking spaces ~~provided~~ on the site, at a minimum.

(2) Parking area trees ~~shall~~must be a minimum of three-inch caliper, except as provided in subsection ~~4(4)~~of this section, when planted.

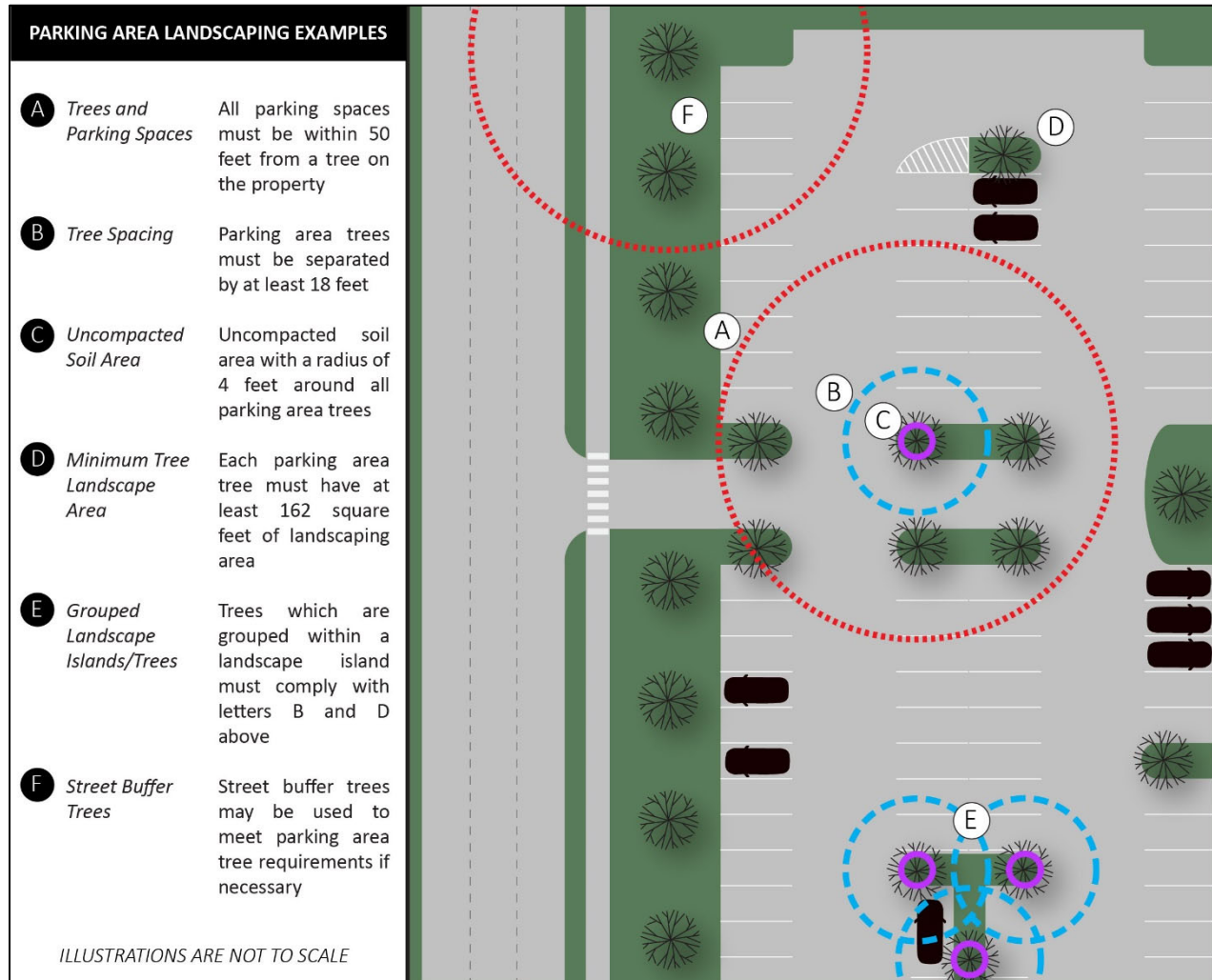
(3) All parking spaces ~~shall~~must be located within 50 feet of a tree ~~that is located within the same parking area on the site~~, measured from the trunk of the tree; provided, however, ~~that for churches all parking spaces for religious institutions and/or schools, all parking spaces shall must~~ be located within 100 feet of a tree ~~that is located within the same parking area on the site~~, measured from the trunk of the tree.

(a) Exception. An exception to this requirement may be approved by the town council for any redevelopment or restriping of parking lots located within the campus commercial, campus industrial, industrial district-1, or industrial district-2 zoning district. Requests for an exception must be mitigated by increasing landscaping comparable to the new parking area tree requirement.

i. Fees in lieu. In the event an applicant can demonstrate there is inadequate space to allow for planting of a comparable number of trees, fees in lieu of planting must be paid to the town's tree preservation fund.

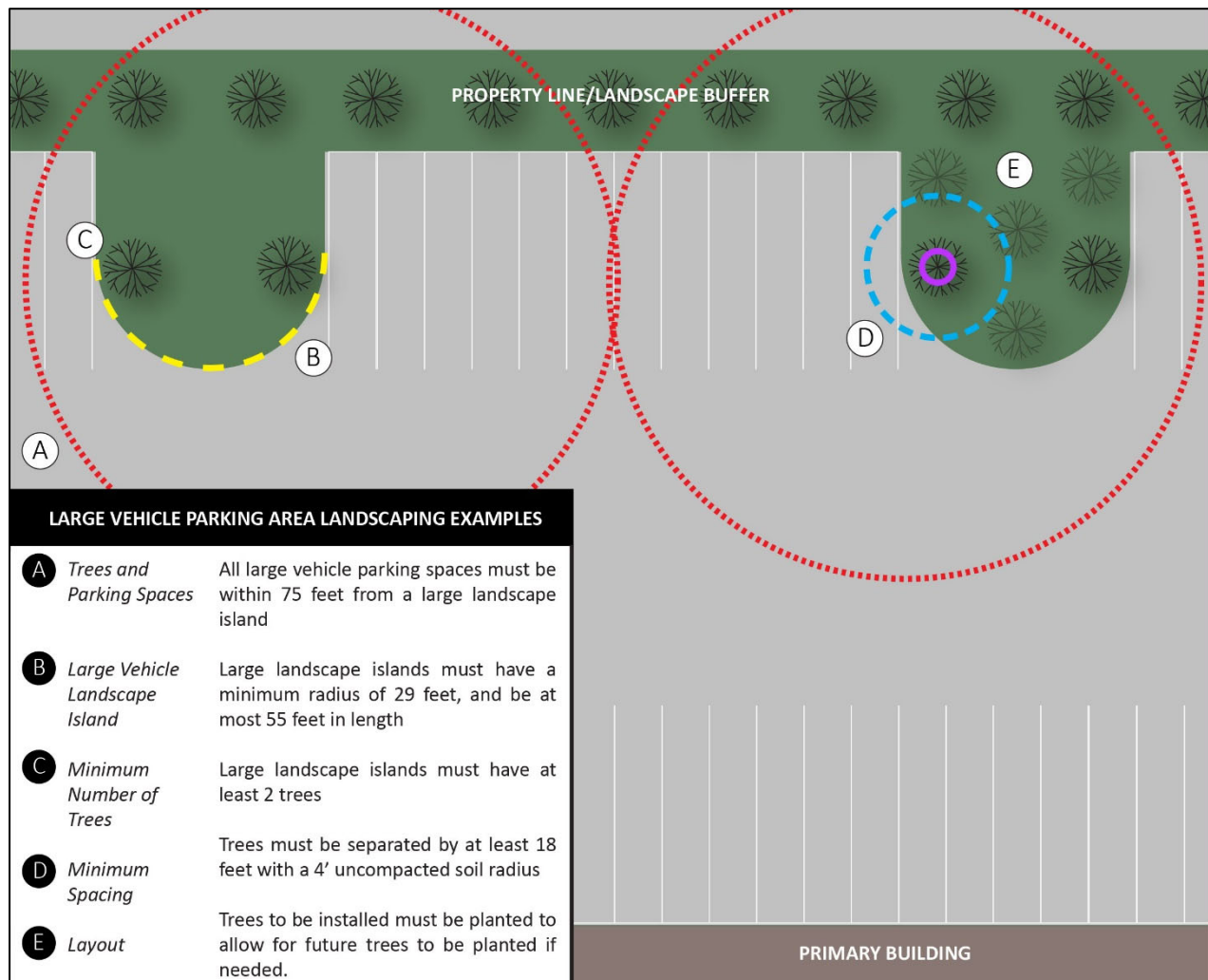
(4) A maximum of 30 percent of the trees used to satisfy the requirements of this section may come from subsection 94-66(~~2b~~), approved median and right-of-way planting list.

(5) A landscaped area not less than 162 square feet must be provided for each parking area tree and be surrounded by uncompacted soil with a radius not less than four feet on center, measured from the trunk of the tree. In instances where a contiguous landscape island is used, trees shall be spaced eighteen feet on center.

(6) Illustration.**Sec. 94-64. Large vehicle parking area trees.**

Trees must be planted or existing trees preserved according to the following provisions:

- (1) *Trees.* Two trees must be provided within the landscape island from section 94-68. Trees must have an uncompacted soil radius of 4 feet and be spaced 18 feet on center from other trees.
- (2) *Layout.* New trees must be installed in such a way to allow for future trees to be planted within the landscape island if desired.
- (3) *Illustration.*



**Secs. 94-658. Detention, retention, and water impoundment areas.**

All detention and retention areas must comply with the following landscaping requirements.

1. Purpose. The purpose of this section is to beautify detention and retention ponds, and water impoundments. Required landscaping is intended to provide an amenity to ponds and is not intended to screen from public view.
2. Placement. Trees should be placed to provide a natural design and provide access for necessary maintenance equipment.
3. Perimeter trees. Perimeter trees must be provided based on the following surface areas:
  - a. Surface area. For the purpose of this section, "surface area" shall be defined as the 100-year flood event capacity of the retention or detention pond, or water impoundment.
  - b. For retention or detention surface areas less than 10,000 square feet, one tree shall be provided for each 500 square feet of surface area, or fraction thereof, with a minimum of one tree.
  - c. For retention or detention surface areas between 10,000 and less than 20,000 square feet, 20 trees must be provided for the first 10,000 square feet, plus one additional tree for each 700 square feet of remaining retention or detention surface area, or fraction thereof.
  - d. For retention or detention surface areas between 20,000 and less than 35,000 square feet, 34 trees must be provided for the first 20,000 square feet, plus one additional tree for each 1,000 square feet of remaining retention or detention surface area, or fraction thereof.

e. For retention or detention surface areas greater than 35,000 square feet, 49 trees must be provided for the first 35,000 square feet, plus one additional tree for each 1,400 square feet of remaining retention or detention surface area, or fraction thereof.

4. Alternative trees. Trees from section 94-66(4) may be used and must not account for more than 15 percent of the required trees.

5. Location. All required perimeter trees must be located within 50 feet of the detention or retention pond surface area.

6. Trees required to satisfy other provisions of this article and lying within 50 feet of the detention or retention pond's surface area, may be used to satisfy the requirements of this section.

7. When calculating the number of required street buffer trees results in fractions, any fraction less than one-half shall be disregarded and any fraction of one-half or more shall be rounded upward to the next highest full number.

#### **Sec. 94-6~~6~~4. Median and right-of-way trees.**

Trees may be planted in medians and rights-of-way only with the approval of the town, provided that such trees are selected from subsection 94-~~66~~68(2~~b~~), approved median and right-of-way planting list.

#### **Sec. 94-6~~7~~5. Residential lots.**

The following tree planting requirements shall be satisfied prior to the issuance of a certificate of occupancy for a single-family, ~~duplex~~duplex, or multi-family use:

- (1) A minimum of three trees, with a minimum caliper width of two and one-half inches to three inches, and at least ~~six~~eight feet in height, shall be provided on each 10,000 square foot and greater single-family and duplex lot prior to the issuance of a certificate of occupancy. A minimum of two trees, with a minimum caliper width of two and one-half inches to three inches, and at least eight ~~six~~ feet in height, shall be provided on each single-family and duplex lot between 5,000 and 10,000 square feet prior to the issuance of a certificate of occupancy. At least one of the required trees shall be located within the front yard area of the lot.

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#### **Sec. 94-6~~8~~6. Approved tree planting lists.**

Unless otherwise specified in this chapter, only those tree species included in this section shall satisfy the tree planting requirements of this article.

*Generally.* The tree species lists contained in this section have been developed and will be periodically updated by the town's environmental conservation commission and shall be maintained and distributed to the public by the tree preservation and enforcement officer or authorized designee as guides for the identification and selection of tree species that meet the various standards and requirements of this article. Trees included on these tree species lists were selected on the basis of one or more of the following criteria or factors: hardiness, resistance to disease, suitability relative to local climate and soil conditions, adaptability for transplantation, longevity, adaptability to various landscape conditions, resistance to drought, aesthetic qualities, shade provision, windbreak provision, and screening qualities. To promote biodiversity, there shall be no more than 20 percent of a tree species, and no more than 50 percent of any tree genus permitted to satisfy the planting requirements on all new developments.

- (1) *Approved tree planting list.* Only those tree species found on the following approved tree planting list shall satisfy the tree planting standards and requirements of this article.

##### *Approved Tree Planting List*

| Common Name       | Scientific Name      |
|-------------------|----------------------|
| Southern live oak | (Quercus virginiana) |

|                      |                            |
|----------------------|----------------------------|
| Escarpment live oak  | (Quercus fusiformis)       |
| Shumard oak          | (Quercus shumardi)         |
| Chinkapin oak        | (Quercus muehlenbergii)    |
| Monterrey oak        | (Quercus polymorpha)       |
| Bur oak              | (Quercus macrocarpa)       |
| Texas red oak        | (Quercus texana)           |
| Water oak            | (Quercus nigra)            |
| American elm         | (Ulmus americana)          |
| Cedar elm            | (Ulmus crassifolia)        |
| Winged elm           | (Ulmus alata)              |
| Lacebark elm         | (Ulmus parvifolia)         |
| Bald cypress         | (Taxodium distichum)       |
| Pecans and hickories | (Carya species)            |
| Juniper tree         | (Juniperus species)        |
| White ash            | (Fraxinus americana)       |
| Green ash            | (Fraxinus pennsylvanica)   |
| Texas ash            | (Fraxinus texensis)        |
| Western soapberry    | (Sapindus drummondii)      |
| Sweet gum            | (Liquidambar styraciflua)  |
| Eastern red cedar    | (Juniperus virginiana)     |
| Pines                | (Pinus species)            |
| Leyland cypress      | (Cypressocyparis leylandi) |
| Black walnut         | (Juglans nigra)            |
| Magnolia             | (Magnolia grandiflora)     |

(4) (2) *Approved median and right-of-way tree planting list.* The following tree species shall be allowed to be planted in medians and rights-of-way when approved by the town. Additional tree species with non-aggressive root systems/deep root systems maybe authorized for planting in such areas by the ~~director of recreational services~~ town manager or their designee.

a. \* Denotes trees appropriate within the CTCDD.

*Approved Median and ROW Tree  
Planting List*

| Common Name          | Scientific Name                    |
|----------------------|------------------------------------|
| Sweet gum            | (Liquidambar styraciflua)          |
| Crepe myrtle         | (Lagerstroemia indica)             |
| Wax myrtle           | (Myrica cerifera)                  |
| Plum*                | (Prunus species)                   |
| Holly                | (Ilex species)                     |
| Possum haw*          | (Ilex decidua)                     |
| Native pecan         | (Carya species)                    |
| Redbuds/whitebuds*   | (Cercis species)                   |
| Fruitless crabapples | (Malus species)                    |
| Southern live oak    | (Quercus virginiana)               |
| Escarpment live oak  | (Quercus fusiformis)               |
| Texas red oak        | (Quercus texana)                   |
| Shumard oak          | (Quercus shumardi)                 |
| Chinkapin oak        | (Quercus muehlenbergii)            |
| Bur oak              | (Quercus macrocarpa)               |
| Water oak            | (Quercus nigra)                    |
| Winged elm           | (Ulmus alata)                      |
| Cedar elm            | (Ulmus crassifolia)                |
| Lacebark elm         | (Ulmus parvifolia)                 |
| Slippery elm         | (Ulmus rubra)                      |
| Bald cypress         | (Taxodium distichum)               |
| Hickories            | (Carya species)                    |
| Pines                | (Pinus species)                    |
| Chinese pistache     | ( <del>Pistachia chinensis</del> ) |
| Juniper tree         | (Juniperus species)                |
| Texas buckeye        | (Aesculus glabra variety arguta)   |
| Common persimmon     | (Diospyros virginiana)             |
| Texas ash            | (Fraxinus texensis)                |
| White ash            | (Fraxinus Americana)               |

|                        |                                         |
|------------------------|-----------------------------------------|
| Green ash              | (Fraxinus pennsylvanica)                |
| Western soapberry      | (Sapindus drummondii)                   |
| Black walnut           | (Juglans nigra)                         |
| Magnolia               | (Magnolia grandiflora)                  |
| Yaupon holly *         | (Ilex vomitoria)                        |
| Carolina buckthorn *   | (Rhamnus caroliniana)                   |
| Thornless honey locust | (Gleditsia triacanthos variety inermis) |
| <u>Eve's Necklace*</u> | <u>(Styphnolobium affine)</u>           |

- (3) *Approved mitigation and replacement tree planting list.* The following list of tree species shall be allowed to be planted to satisfy mitigation and replacement standards for trees removed from the buildable area on sites, trees removed with approved tree removal permits, and/or trees removed without authorization.

*Approved Mitigation and Replacement  
Tree Planting List*

| Common Name   | Scientific Name      |
|---------------|----------------------|
| Native pecan  | (Carya species)      |
| Texas red oak | (Quercus texana)     |
| Shumard oak   | (Quercus shumardi)   |
| Bur oak       | (Quercus macrocarpa) |
| Water oak     | (Quercus nigra)      |
| Winged elm    | (Ulmus alata)        |
| Slippery elm  | (Ulmus rubra)        |
| Post oak      | (Quercus stellata)   |
| Cedar elm     | (Ulmus crassifolia)  |

- (4) *Approved overhead utility easement tree planting list.* The following list of tree species shall be allowed to be planted in overhead utility easements where required. These species were selected due to their relatively small mature size and growth characteristics. ~~Trees planted in these areas shall be planted at a ratio of three trees for every one tree required.~~

| Common Name        | Scientific Name       |
|--------------------|-----------------------|
| Yaupon holly       | (Ilex vomitoria)      |
| Carolina buckthorn | (Rhamnus caroliniana) |
| Possum haw         | (Ilex decidua)        |

|                   |                        |
|-------------------|------------------------|
| Plum              | (Prunus species)       |
| Redbuds/whitebuds | (Cercis species)       |
| Wax myrtle        | (Myrica cerifera)      |
| Crepe myrtle      | (Lagerstroemia indica) |

**Sec. 94-697. Limits on credit for preservation of existing or established trees.**

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**Secs. 94-70—94-80. Reserved.**

## **ARTICLE VII. MISCELLANEOUS**

**Sec. 94-83. – Informational assistance.**

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- (c) A current edition of the ~~Texas Association of Nurserymen Grades and Standards~~American Standard for Nursery Stock for Type 1 and Type 2 trees, as applicable to the tree species on the town's protected tree list and approved tree planting and replacement list, shall be maintained by the ~~tree preservation and enforcement officer or his authorized~~town manager or their designee and made available to applicants for building permits, tree removal permits or tree replanting permits and to the general public, as only those trees meeting and planted or replanted in accordance with the applicable ~~Texas Association of Nurserymen Grades and Standards~~American Standard for Nursery Stock for Type 1 and Type 2 trees shall satisfy the tree planting, replanting and/or replacement standards and requirements contained in this chapter.

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## ENVIRONMENTAL CONSERVATION COMMISSION AGENDA ITEM NO. 1

### WORK SESSION ITEM

---

**DATE:** September 6, 2022

**FROM:** Joseph Whiteley, Environmental Review Analyst

**ITEM:** Review the Town of Flower Mound's Stormwater Management Program.

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**BACKGROUND INFORMATION:** This work session item provides ECC the opportunity to discuss the Town's stormwater program and receive an update on data submitted to the Texas Commission on Environmental Quality (TCEQ) per the permit requirements.

The Town is covered by the Texas Pollutant Discharge Elimination System (TPDES) MS4 General Permit which covers all large and small municipal separate storm sewer systems (MS4). The permit provides guidelines to MS4s on how to properly regulate and control stormwater runoff for municipal construction activities and also provides a framework for the Town's Stormwater Management Program.

#### **ALTERNATIVES/OPTIONS:**

N/A

#### **ATTACHMENTS:**

1. 2021 MS4 Annual Report
2. 2020 Town of Flower Mound Stormwater Management Program

**RECOMMENDATION:** This item is for discussion purposes; therefore, no formal action is required.

**Phase II (Small) MS4 Annual Report Form****TPDES General Permit Number TXR040000****A. General Information**

Authorization Number: TXR040542

Reporting Year (year will be either 1, 2, 3, 4, or 5): 8 (permit renewed but renewal process not yet completed)

Annual Reporting Year Option Selected by MS4:

Calendar Year 2021Permit Year 2021

Fiscal Year: \_\_\_\_\_ Last day of fiscal year: (\_\_\_\_\_)

Reporting period beginning date: (month/date/year) 1/1/2021Reporting period end date (month/date/year) 12/31/2021MS4 Operator Level: 3 Name of MS4: Town of Flower MoundContact Name: Joseph Whiteley Telephone Number: 972-874-6354

Mailing Address: 2121 Cross Timbers Road Flower Mound, TX 75028 \_\_\_\_\_

E-mail Address: joseph.whiteley@flower-mound.comA copy of the annual report was submitted to the TCEQ Region YES X NO \_\_\_\_\_  
Region the annual report was submitted. TCEQ Region 4**B. Status of Compliance with the MS4 GP and SWMP**

1. Provide information on the status of complying with permit conditions:  
(TXR040000 Part IV Section B.2.):

|                                                                                                                                             | Yes | No | Explain                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----|----|----------------------------------------------------------------------------------------------------------|
| Permittee is currently in compliance with the SWMP as submitted to and approved by the TCEQ.                                                | X   |    | Operating under SWMP technically approved in 2020. Still awaiting TCEQ draft public notice for approval. |
| Permittee is currently in compliance with recordkeeping and reporting requirements.                                                         | X   |    | Town staff maintains records for all datasets referenced within the annual report                        |
| Permittee meets the eligibility requirements of the permit (e.g., TMDL requirements, Edwards Aquifer limitations, compliance history, etc.) | X   |    | The Town has met all eligibility requirements                                                            |

2. Provide a general assessment of the appropriateness of the selected BMPs. You may use the table below (**See Example 1 in instructions**):

| MCM(s)                                        | BMP                               | BMP is appropriate for reducing the discharge of pollutants in stormwater (Answer Yes or No and explain.)                                                                                                                                |
|-----------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1: Public Education, Outreach and Involvement | Stormwater Media Outreach         | Yes, we have added some new PSAs and the feedback we receive from residents indicates that the FMTV municipal channel, utility bill inserts, and social media posts are still effective education and outreach tools.                    |
| 1: Public Education, Outreach and Involvement | Municipal Website Stormwater Page | Yes, the feedback we receive from residents indicates the BMP is still effective.                                                                                                                                                        |
| 1: Public Education, Outreach and Involvement | Watershed Address Program         | Yes, areas where watershed signs are located are near water bodies and are effective at informing the public about the different parts of their watershed and how illegal dumping and illicit discharges negatively impact the watershed |

|                                                |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                               |
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| 1: Public Education, Outreach and Involvement  | Environmental Conservation Commission              | Yes, the Environmental Conservation Commission meets monthly to provide input to Town staff regarding environmental concerns within the Town, including stormwater.                                                                                                                                                                                                                                           |
| 1: Public Education, Outreach and Involvement  | Community Source Water Protection Program          | Yes, the BMP provides valuable and quantifiable water quality data. This data is a tool used by Texas State University and the Town to evaluate the overall health of the surface water in the state of Texas. Staff continues to run the program for sampling locations within the Town. Additionally, clean-up events help to reduce the amount of floatable trash and litter that can contaminate the MS4. |
| 1: Public Education, Outreach and Involvement  | Water Quality Education Events                     | Yes, stormwater quality education events teach the public the importance of reducing stormwater pollution and promote community involvement.                                                                                                                                                                                                                                                                  |
| 1: Public Education, Outreach and Involvement  | Storm Drain Labeling                               | Yes, the BMP serves as an effective public education tool by informing residents and contractors that the inlets are not part of the sanitary sewer system. New storm drain labels are added as new inlets are constructed and when inlets are discovered that have a missing label.                                                                                                                          |
| 2: Illicit Discharge Detection and Elimination | Storm Sewer System Map                             | Yes, the map continues to be updated as new outfalls and inlets are built. It is a useful tool to identify and eliminate illicit discharges.                                                                                                                                                                                                                                                                  |
| 2: Illicit Discharge Detection and Elimination | On-Site Sewage Disposal System Discharges          | Yes, Town requirements for maintenance contracts and immediate investigation of reported discharges ensure that OSS systems are not discharging harmful contaminants into the MS4.                                                                                                                                                                                                                            |
| 2: Illicit Discharge Detection and Elimination | Illicit Discharge Reporting System                 | Yes, reports of illicit discharges and other stormwater related violations are tracked and documented through our internal TRAKiT database allowing staff to investigate and enforce Town Ordinance.                                                                                                                                                                                                          |
| 2: Illicit Discharge Detection and Elimination | Illicit Discharge Detection & Elimination Training | Yes, field staff that are properly trained can effectively identify and report potential illicit discharges.                                                                                                                                                                                                                                                                                                  |

|                                                                                 |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3: Construction Site Stormwater Runoff Control                                  | Construction Site Compliance and Enforcement | Yes, our process has allowed for the evaluation of procedures and provides staff with the regulatory authority to enforce stormwater ordinances. The Town has divided stormwater oversight between our Environmental Services, Construction/Building Inspections, and Public Works Departments. Environmental Services and Construction/Building Inspections oversee new private development and Public Works is responsible for the oversight of Capital Improvement Projects (CIP). |
| 3: Construction Site Stormwater Runoff Control                                  | Construction Site Discharge Reporting System | Yes, reports of illicit discharges and other stormwater related violations are tracked and documented through our internal TRAKiT database allowing staff to investigate and enforce Town Ordinance at construction sites.                                                                                                                                                                                                                                                            |
| 3: Construction Site Stormwater Runoff Control                                  | Construction Site Inventory                  | Yes, Town staff currently has a construction site inventory document that is updated as developments are permitted and/or completed. Our TRAKiT database has had a custom report created that will automatically compile all ground disturbing activity within the Town.                                                                                                                                                                                                              |
| 3: Construction Site Stormwater Runoff Control                                  | Stormwater Pollution Prevention Plan Review  | Yes, reviewing all SWPPPs submitted for private development projects allows staff to identify potential stormwater concerns before construction begins. This BMP also aids the Town in educating operators about their responsibilities under TCEQ permits.                                                                                                                                                                                                                           |
| 3: Construction Site Stormwater Runoff Control                                  | Staff Training Program                       | Yes, training staff responsible for construction inspections in stormwater runoff control allows more eyes in more places. This results in better protection of the MS4.                                                                                                                                                                                                                                                                                                              |
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Comprehensive Stormwater Ordinance           | Yes, since the adoption of the Stormwater Ordinance staff has used it to enforce stormwater violations through notices and citations. Cases are created and filed using our TRAKiT system.                                                                                                                                                                                                                                                                                            |
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Stormwater Structural Control Program        | Yes, an inventory and map layer of stormwater ponds within the Town allows for effective tracking and inspection should any water quality issues be reported.                                                                                                                                                                                                                                                                                                                         |

|                                                                                 |                                                           |                                                                                                                                                                                                              |
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| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Engineering Design Standards                              | Yes, reviews by the engineering department prior to construction ensure that stormwater controls are built to a defined standard and are effective.                                                          |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | Facility Specific Standard Operating Procedures (SOPs)    | Currently, we have SOPs created for Town facilities. Standard operating procedures are created for new facilities as they are constructed throughout the Town.                                               |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Facility and Stormwater Controls Inventory            | Yes, the Town currently has a layer in ArcGIS dedicated to Town facilities and their associated stormwater controls. The previously mentioned map is updated as new facilities and controls are constructed. |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Facility Assessment                                   | Yes, having an inspection checklist and schedule allows for facilities to identify potential issues and update structural and behavioral SOPs.                                                               |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Storm Sewer System Inspection and Maintenance Program | Yes, this allows the Public Works department to ensure all Town owned stormwater controls are maintained on a regular basis.                                                                                 |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Operations and Maintenance Training                   | Yes, training employees whose work regularly involves activities that could be potentially damaging to water quality is necessary to protect the MS4.                                                        |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | Street Cleaning Program                                   | Yes, conducting periodic street sweeping events lowers the amount of sediment in the roadway that may eventually enter the MS4.                                                                              |
| 7: Authorization for Municipal Construction Activities                          | Erosion Control Plan Review                               | Yes, review of erosion control plans for CIP projects ensures that construction of any size has adequately implemented and considered proper stormwater BMPs.                                                |
| 7: Authorization for Municipal Construction Activities                          | Municipal Construction Site Inspections                   | Yes, conducting inspections of all municipal construction sites ensures that the Town is holding itself to the same standards it holds private developers.                                                   |

|                                                        |                                             |                                                                                                                                          |
|--------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 7: Authorization for Municipal Construction Activities | Stormwater Pollution Prevention Plan Review | Yes, reviewing SWPPPs for applicable CIP projects allows Town staff to identify potential threats to the MS4 before construction begins. |
|--------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|

3. Describe progress towards reducing the discharge of pollutants to the maximum extent practicable. Summarize any information used (such as visual observation, amount of materials removed or prevented from entering the MS4, or if required monitoring data, etc.) to evaluate reductions in the discharge of pollutants. You may use the table (**See Example 2 in instructions**):

| <b>MCM</b>                                    | <b>BMP</b>                | <b>Information Used</b>                                                                                    | <b>Quantity</b>                                                                                                                                                                     | <b>Units</b>                   | <b>Does the BMP Demonstrate a Direct Reduction in Pollutants? (Answer Yes or No and explain.)</b>                  |
|-----------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 1: Public Education, Outreach and Involvement | Stormwater Media Outreach | Records of messages posted to social media, the Town television station, and through utility bill inserts. | There were eight (8) stormwater related messages distributed in 2021. Four (4) YouTube, two (2) Facebook, one (1) utility bill insert, and one (1) newsletter messages were posted. | Number of messages distributed | Yes, social media and FMTV allows residents to educate themselves about stormwater quality and water conservation. |

|                                               |                                           |                                                               |                                                                                                                   |                                                   |                                                                                                                                                                   |
|-----------------------------------------------|-------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1: Public Education, Outreach and Involvement | Municipal Website Stormwater Page         | Municipal Website (www.flower-mound.com)                      | Yes, the SWMP and annual report were added to the website.                                                        | Annual Report and SWMP reviewed and posted? (Y/N) | No, this BMP is in place to promote transparency with the community.                                                                                              |
| 1: Public Education, Outreach and Involvement | Watershed Address Program                 | Public Works' records system                                  | All signs have been installed. Maintenance schedule is ongoing.                                                   | Number of signs added.                            | Yes, signs help make public cognizant of local watersheds.                                                                                                        |
| 1: Public Education, Outreach and Involvement | Environmental Conservation Commission     | Town Records                                                  | ECC met nine (9) times in 2021.                                                                                   | Number of Meetings                                | Yes, ECC provides citizen input on environmental concerns.                                                                                                        |
| 1: Public Education, Outreach and Involvement | Community Source Water Protection Program | Texas Stream Team Records, volunteer correspondence, outreach | Six (6) active volunteers monitored stream segments and eighty-four (84) cleanup locations were assigned in 2021. | Number of sites cleaned up or monitored           | Yes, monitoring stream segments provides baseline water quality information to state agencies and cleanup events directly reduce contaminants present in the MS4. |

|                                                |                                |                                                                                                                      |                                                                                                                                                                                                  |                                                 |                                                                                                                                          |
|------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1: Public Education, Outreach and Involvement  | Water Quality Education Events | Outreach records and correspondence with local schools                                                               | Water quality education was conducted at six (6) elementary schools and three (3) middle schools reaching 1172 students. One (1) additional educational event provided at an environmental fair. | Number of education events conducted            | Yes, educating the public and students is a behavioral BMP that promotes awareness and encourages environmentally sustainable practices. |
| 1: Public Education, Outreach and Involvement  | Storm Drain Labeling           | Public Works' records system                                                                                         | Sixty-six (66) storm drain labels added.                                                                                                                                                         | Number of storm drain labels installed          | Yes, storm drain labels discourage illegal discharges.                                                                                   |
| 2: Illicit Discharge Detection and Elimination | Storm Sewer System Map         | GIS department recordkeeping. *<br><br>*Numbers as of most recent reporting. Estimated yearly totals in parenthesis. | In 2021, 13,860 (27,720) feet of gravity main, 16 (28) manholes and 92 (164) storm inlets were added to the database                                                                             | Feet of gravity main, manholes, inlets, added   | Yes, this allows staff to recognize potential areas for illegal dumping and illicit discharges.                                          |
| 2: Illicit Discharge Detection and Elimination | On-Site Sewage Disposal System | Town's TRAKiT database                                                                                               | All eleven (11) reported discharges were investigated                                                                                                                                            | Number of OSSF discharges reported/investigated | Yes, reporting and investigation of septic discharges directly affects the health of the MS4.                                            |

|                                                |                                                      |                                |                                                                                                                                               |                                                        |                                                                                                                                                              |
|------------------------------------------------|------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2: Illicit Discharge Detection and Elimination | Illicit Discharge Reporting System                   | Town's TRAKiT database         | Twenty-six (26) cases related to Stormwater – Illicit Discharges. Seven (7) were residential/ commercial and nineteen (19) were construction. | Number of cases                                        | Yes, this document allows staff to track illicit discharges.                                                                                                 |
| 2: Illicit Discharge Detection and Elimination | Illicit Discharge Detection and Elimination Training | Public Works' training records | 100% of field departments were reached with training. 90% of all employees in those departments completed training. (197/218 employees)       | Percentage of field departments trained                | Yes, a well-trained trained staff can better identify and report issues in the field. *<br><br>*Training was conducted remotely due to COVID-19 precautions. |
| 3: Construction Site Stormwater Runoff Control | Construction Site Compliance and Enforcement         | Town's TRAKiT database         | No updates made to stormwater ordinance. Twenty-six (26) NOVs and two (2) citations written.                                                  | Enforcement related updates made during reporting year | Yes, enforcing the ordinance reduces the number of contaminates entering the MS4.                                                                            |
| 3: Construction Site Stormwater Runoff Control | Construction Site Discharge Reporting System         | Town's TRAKiT database         | Forty-one (41) stormwater cases created in 2021.                                                                                              | Number of discharges reported/investigated             | Yes, staff continues to use the hotline and online reporting to monitor illegal dumping/illicit discharge calls.                                             |

|                                                                                 |                                             |                                                                             |                                                                                                                   |                                                  |                                                                                                 |
|---------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 3: Construction Site Stormwater Runoff Control                                  | Construction Site Inventory                 | Town's TRAKiT database                                                      | Four hundred and three (403) private and thirty-four (34) public construction projects added to database in 2021. | Number of active sites                           | Yes, this inventory allows for a more efficient inspection process.                             |
| 3: Construction Site Stormwater Runoff Control                                  | Stormwater Pollution Prevention Plan Review | Town's TRAKiT database                                                      | Forty-five (45) private development SWPPPs reviewed in 2021.                                                      | Number of SWPPPs reviewed.                       | Yes, reviewing SWPPPs for efficacy directly reduces the impact of construction site discharges. |
| 3: Construction Site Stormwater Runoff Control                                  | Staff Training Program                      | Public Works' training records                                              | 100% of applicable departments reached with training. 88% of employees (35/40) completed the training.            | Percentage of applicable departments trained.    | Yes, a well-trained staff can better identify and report issues in the field.                   |
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Comprehensive Stormwater Ordinance          | Continue enforcement of stormwater ordinance through notices and citations. | Twenty-six (26) NOVs and two (2) citations written.                                                               | Number of citations and notices of violation     | Yes, staff continued enforcement of the ordinance in 2021.                                      |
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Stormwater Structural Control Program       | Create an inventory of all stormwater ponds in the Town                     | Two (2) ponds were added to Town inventory in 2021.                                                               | Number of ponds added to Town inventory in 2021. | Yes, having an up-to-date inventory will aid in future inspection requirements.                 |

|                                                                                 |                                                        |                                                                                                     |                                                                                          |                                                                   |                                                                                                                             |
|---------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Engineering Design Standards                           | Standards posted on Town website and distributed/ discussed during review periods and construction. | 100% of private developments reviewed per Town SOP.                                      | Percentage of new developments reviewed                           | Yes, Town engineering standards ensure that developers are building and installing adequate stormwater protection features. |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | Facility Specific Standard Operating Procedures (SOPs) | Public Works' records system                                                                        | Twelve of twenty-two (54%) SOPs were reviewed by Town staff in 2021.                     | Percentage of SOP's reviewed.                                     | Yes, SOPs ensure that employees are aware of the proper way to handle spills and stormwater concerns.                       |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Facility and Stormwater Controls Inventory         | Town Network Map                                                                                    | Stormwater control inventory was added to map.                                           | Facilities and stormwater controls added to the map periodically. | Yes, adding stormwater control features to the map allows staff to locate and inspect them more efficiently.                |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Facility Assessment                                | Facility Inspections Checklist                                                                      | Checklist Completed. Twenty (20) facility inspections were conducted with the checklist. | Checklist completed? (Y/N)                                        | Yes, this helps staff identify issues at Town facilities to prevent stormwater pollution.                                   |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | Storm Sewer System Inspection and Maintenance Program  | Cityworks Database                                                                                  | Three hundred and eighty-six (386) stormwater controls inspected in 2021.                | Number of stormwater controls inspected                           | Yes, this ensures town controls are operating correctly.                                                                    |

|                                                                    |                                             |                                |                                                                                                                          |                                                            |                                                                                                            |
|--------------------------------------------------------------------|---------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations | MS4 Operations and Maintenance Training     | Public Works' training records | 98/99 O&M employees completed the annual training.                                                                       | Number of applicable employees trained                     | Yes, O&M employees handle materials and tasks that could be hazardous to the MS4.                          |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations | Street Cleaning Program                     | Public Works' records          | Four (4) street sweeping events completed in 2021.                                                                       | Number of streets sweeping events completed.               | Yes, this BMP keeps sediment from accumulating in the roadways and potentially migrating into the MS4.     |
| 7: Authorization for Municipal Construction Activities             | Erosion Control Plan Review                 | Public Works' records          | Eleven (11) erosion control plans were reviewed in 2021.                                                                 | Number of erosion control plans reviewed for CIP projects. | Yes, this BMP allows the town to make sure that CIP projects are implementing appropriate stormwater BMPs. |
| 7: Authorization for Municipal Construction Activities             | Municipal Construction Site Inspections     | Public Works' records          | Eighteen (18) initial BMP inspections were performed on CIP projects along with daily general inspections for each site. | Number of municipal construction site inspections.         | Yes, this BMP allows the town to make sure that CIP projects are implementing appropriate stormwater BMPs. |
| 7: Authorization for Municipal Construction Activities             | Stormwater Pollution Prevention Plan Review | Public Works' records          | Seven (7) Stormwater Pollution Prevention Plan Reviews occurred in 2021.                                                 | Number of SWPPPs reviewed for CIP projects.                | Yes, this BMP allows the town to make sure that CIP projects are implementing appropriate stormwater BMPs. |

4. Provide the measurable goals for each of the MCMs, and an evaluation of the success of the implementation of the measurable goals (**See Example 3 in instructions**):

| <b>MCM(s)</b> | <b>Measurable Goal(s)</b>                                                                                                                           | <b>Explain progress toward goal or how goal was achieved<br/>If goal was not accomplished, please explain</b>          |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1             | Post 3 stormwater quality messages.                                                                                                                 | Met goal- 8 stormwater quality messages were posted.                                                                   |
| 1             | Review the website and add annual report and SWMP each year                                                                                         | Met goal - The stormwater webpage was updated as needed.                                                               |
| 1             | Install 10 additional watershed signs in designated areas without signage                                                                           | Met goal- All signs have been installed and maintained per schedule.                                                   |
| 1             | Meet with the ECC at least quarterly                                                                                                                | Met goal- ECC held a total of nine (9) meetings in 2021.                                                               |
| 1             | Work with volunteers to monitor and/or clean up at least 10 locations annually                                                                      | Met goal- six (6) stream segments monitored and eighty-four (84) clean-up stations assigned.                           |
| 1             | Conduct 10 water quality education events annually                                                                                                  | Met goal – Conducted ten (10) water quality education events.                                                          |
| 1             | Storm Drain Labeling                                                                                                                                | Met goal - installed sixty-six (66) storm drain labels.                                                                |
| 2             | Add all new storm system features to the Storm Sewer System Map annually                                                                            | Met goal - Updates continue to be made.                                                                                |
| 2             | Investigate 100% of potential OSSF discharges to MS4 and send deficiency letters to 100% of properties that do not maintain a maintenance contract. | Met goal – Eleven (11) OSSF discharges reported and investigated. All new installations require maintenance contracts. |

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|---|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | Investigate 100% of reported illicit discharges.                                                           | Met goal- Forty-one (41) illicit discharges reported and investigated.                                                                                      |
| 2 | Train at least 75% of departments containing field staff annually.                                         | Met goal – 100% of field departments reached with training.                                                                                                 |
| 3 | Enforce and update the ordinance. Document enforcement actions taken during reporting year.                | Met goal - No updates made to ordinance. Ordinance enforced with notices of violation, citations, and permit holds.                                         |
| 3 | Investigate 100% of reported construction site discharges.                                                 | Met goal- All construction site violations reported investigated.                                                                                           |
| 3 | Maintain and updated database as new sites are added throughout the Town.                                  | Met goal- The Town's stormwater inventory database was updated throughout the year.                                                                         |
| 3 | Review and comment on all SWPPPs submitted to the Town for Review.                                         | Met goal – Forty-five (45) SWPPPs submitted and reviewed.                                                                                                   |
| 3 | Train 100% of departments which enforce construction site stormwater requirements annually.                | Met goal – 100% of applicable departments reached with training.                                                                                            |
| 4 | Enforce all provisions of the stormwater ordinance and document any violations and/or enforcement measures | Met goal - Ordinance is enforced through permit holds, NOVs, and citations as violations occur.                                                             |
| 4 | Update inventory of all stormwater ponds in the Town                                                       | Met goal- Two (2) ponds were added to the inventory this year. The process is being updated to capture relevant water features for future inspection needs. |

|   |                                                                                                                                                                |                                                                                                                                   |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 4 | Review engineering plans for all new development and redevelopment to ensure that they comply with Town's design standards for structural stormwater controls. | Met goal – The development consists of multiple engineering and environmental reviews to ensure standards are met.                |
| 5 | Review 50% of existing SOPs annually                                                                                                                           | Met goal – 12/22 (54%) SOPs from all departments were reviewed and updated in 2021                                                |
| 5 | Review the Facility Inventory and Facility Map annually                                                                                                        | Met goal- Updates are made when new controls are constructed within the Town                                                      |
| 5 | Finalize and complete the facility inspections checklist                                                                                                       | Met goal- Checklist developed and twenty (20) inspections conducted.                                                              |
| 5 | Inspect at least 100 stormwater controls annually                                                                                                              | Met goal- Town staff inspected 386 stormwater controls.                                                                           |
| 5 | Conduct Operations and Maintenance Program Training Annually                                                                                                   | Met goal – ninety-eight (98) employees trained.                                                                                   |
| 5 | Conduct two street sweeping events annually                                                                                                                    | Met goal – Four (4) street sweeping events conducted in 2021.                                                                     |
| 7 | Review all erosion control plans for municipal construction activities.                                                                                        | Met goal – Eleven (11) erosion control plans were reviewed for applicable municipal construction activities in 2021.              |
| 7 | Conduct stormwater inspections at all municipal construction activities                                                                                        | Met goal – Eighteen (18) initial inspections were conducted alongside daily checks for municipal construction activities in 2021. |
| 7 | Review all SWPPPs for municipal construction activities                                                                                                        | Met goal – All seven (7) municipal projects requiring a SWPPP were reviewed in 2021.                                              |

## C. Stormwater Data Summary

**Provide a summary of all information used including any lab results (if sampling was conducted) to assess the success of the SWMP at reducing the discharge of pollutants to the MEP. For example, did the MS4 conduct visual inspections, clean the inlets, look for illicit discharge, clean streets, look for flow during dry weather, etc.? (Refer to the MS4 General Permit TXR040000 Part IV Section B.2.(b))**

Sampling was conducted by the Town of Flower Mound in 2021 as part of the implementation of the dry weather screening program. In addition, Citizen Scientists from our Texas Stream Team program provide our Stormwater Department with water quality data.

During 2021 the Town inspected 386 stormwater controls (outfalls, inlets, and manholes). No items of concern were noted during infrastructure inspections. Staff also responded to several reports from citizens of illicit discharges in local waterways from residential and construction-related sources. Biological processes, such as a bio-sheens and algae growth, are often mistaken by our residents as water pollution.

## D. Impaired Waterbodies

- 1. If applicable, explain below any activities taken to address the discharge to impaired waterbodies, including any sampling results and a summary of the small MS4's BMPs used to address the pollutant of concern: (Refer to MS4 General Permit TXR040000 Part IV Section B.2.(c))**

In 2021 the Town continued its dry weather sampling program. Our dry weather sampling program consists of strategically chosen sampling locations throughout the Town that will monitor seven (7) water quality parameters. The dry weather sampling will allow us to determine baseline values for each location, as well as providing continuous monitoring of pH levels for streams which discharge into Grapevine Lake.

In addition, Citizen Scientists from our Texas Stream Team program provide our Stormwater Department with water quality data, including pH data.

- 2. Describe the implementation of targeted controls if the small MS4 discharges to an impaired water body with an approved TMDL (Refer to the MS4 General permit TXR040000; Part II Section D.4.(a)):**

Not applicable to the Town of Flower Mound

- 3. Report the benchmark identified by the MS4 and assessment activities (Refer to the MS4 General permit TXR040000; Part II Section D.4.(a)(6)):**

| <b>Benchmark Parameter</b><br><i>(Ex: Total Suspended Solids)</i> | <b>Benchmark Value</b> | <b>Description of additional sampling or other assessment activities</b>                                                                                                                                                                                                                                                                                                                                                             | <b>Year(s) conducted</b> |
|-------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| pH level                                                          | < 9                    | According to the 2018 Texas Integrated Report Index of Water Quality Impairments, Grapevine Lake has been listed as impaired due to the pH level since 2012. It is listed as 5c which means no TMDL has been created. Streams discharging into Grapevine Lake will continually be monitored at predetermined sampling sites under our Dry Weather Sampling Program to ensure that the Town is not contributing to the pH impairment. | 8                        |

**4. Provide an analysis of how the selected BMPs will be effective in contributing to achieving the benchmark (Refer to the MS4 General permit TXR040000; Part II Section D.4.(a)(4)):**

| <b>Benchmark Parameter</b> | <b>Selected BMP</b>                       | <b>Contribution to achieving Benchmark</b>                                                                                                                                                                                                                                                                        |
|----------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pH level                   | Sampling/monitoring and public education. | Water quality information will continue to be disseminated by multiple methods and will allow for the determination of baseline levels of pH in the streams discharging into Grapevine Lake. If any streams are found to have consistently high pH this will help us to determine potential sources of pollution. |

**5. If applicable, report on focused BMPs to address impairment for bacteria (Refer to the MS4 General Permit TXR040000; Part II Section D.4.(a)(5)):**

| <b>Description of bacteria-focused BMP</b> | <b>Comments/Discussion</b> |
|--------------------------------------------|----------------------------|
| N/A                                        | N/A                        |

**6. Assess the progress to determine BMP's effectiveness in achieving the benchmark (Refer to the MS4 General Permit TXR040000; Part II.D.4.(a)(6)):**

**For example, the MS4 may use the following benchmark indicators:**

- **number of sources identified or eliminated;**
- **decrease in number of illegal dumping;**
- **increase in illegal dumping reporting;**
- **number of educational opportunities conducted;**
- **reductions in sanitary sewer flows (SSOs)**
- **increase in illegal discharge detection through dry screening**

| <b>Benchmark Indicator</b>                        | <b>Description/Comments</b>                                                                                                                                   |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of educational opportunities conducted     | The Town conducted educational events at nine (9) elementary schools and three (3) middle schools reaching 1,172 students.                                    |
| Illegal discharge detection through dry screening | 386 stormwater controls were inspected. The Town's dry weather sampling program was conducted again in 2021 with thirty-eight (38) locations around the Town. |

## **E. Stormwater Activities**

Describe stormwater activities the MS4 operator plans to undertake during the next reporting year. You may use the table below (Refer to the MS4 General Permit TXR040000 Part IV Section B.2.(d)):

| <b>MCM(s)</b>                                  | <b>BMP</b>                                            | <b>Stormwater Activity</b>                                                     | <b>Description/Comments</b>                                                                                                               |
|------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1: Public Education, Outreach and Involvement  | Municipal Stormwater Quality Messages                 | Post 3 stormwater quality messages                                             | The Town plans to educate the public regarding stormwater quality and pollution prevention by posting to social media and Flower Mound TV |
| 1: Public Education, Outreach and Involvement  | Municipal Website with stormwater quality information | Review the website and add the annual report and SWMP each year.               | The Town plans to add the annual report and revised SWMP to the website each year and will update other stormwater pages as necessary.    |
| 1: Public Education, Outreach and Involvement  | Watershed Address Program                             | Continue inspection of signage per 10-year traffic sign replacement cycle.     | The Town is going to inspect watershed address signs and replace/repair as needed.                                                        |
| 1: Public Education, Outreach and Involvement  | Public Meetings                                       | Meet with the ECC at least quarterly                                           | Town staff will meet with the Environmental Conservation Commission to discuss environmental issues affecting the Town.                   |
| 1: Public Education, Outreach and Involvement  | Community Source Water Protection Program             | Work with volunteers to monitor and/or clean up at least 10 locations annually | Town staff will work with volunteers to monitor and/or clean 10 locations throughout the Town.                                            |
| 1: Public Education, Outreach and Involvement  | Water Quality Education Events                        | Conduct 10 water quality education events annually                             | Town staff will conduct at least 10 water quality education events.                                                                       |
| 1: Public Education, Outreach and Involvement  | Storm Drain Labeling                                  | Install at least 50 storm drain labels annually                                | Town staff will install at least 50 storm drain labels on new inlets and inlets where labels are missing or damaged.                      |
| 2: Illicit Discharge Detection and Elimination | Storm Sewer System Map                                | Add all new storm system features to the Storm Sewer System Map annually       | The Town plans to continue updating our storm sewer system map annually                                                                   |

|                                                |                                                      |                                                                                                                                                    |                                                                                                                                   |
|------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 2: Illicit Discharge Detection and Elimination | On-Site Sewage Disposal Systems                      | Investigate 100% of potential OSSF discharges to MS4 and send deficiency letters to 100% of properties that do not maintain a maintenance contract | Town staff will investigate all potential discharges and will monitor the registered OSSFs throughout the Town.                   |
| 2: Illicit Discharge Detection and Elimination | Illicit Discharge Reporting System                   | Investigate 100% of reported illicit discharges                                                                                                    | Town staff will investigate all reported illicit discharges to the MS4.                                                           |
| 2: Illicit Discharge Detection and Elimination | Illicit Discharge Detection and Elimination Training | Train at least 75% of departments containing field staff annually                                                                                  | Town staff will be trained regarding how to prevent and reduce stormwater pollution from illicit discharges                       |
| 3: Construction Site Stormwater Runoff Control | Comprehensive stormwater ordinance                   | Enforce and update the ordinance. Document enforcement actions taken during reporting year                                                         | Town staff will continue to enforce the stormwater ordinance at construction sites and will update the ordinance if necessary.    |
| 3: Construction Site Stormwater Runoff Control | Construction Site Discharge Reporting System         | Investigate 100% of reported construction site discharges                                                                                          | Town staff will investigate all reported construction site discharges                                                             |
| 3: Construction Site Stormwater Runoff Control | Maintain a Construction Site Inventory Database      | Maintain and update database as new sites are added throughout the Town                                                                            | Town staff will add any new construction sites that occur during the calendar year to the database                                |
| 3: Construction Site Stormwater Runoff Control | SWPPP Review                                         | Review and comment on all SWPPPs submitted to the Town for review                                                                                  | Town staff will review all SWPPPs developed for construction activities.                                                          |
| 3: Construction Site Stormwater Runoff Control | Staff Training Program                               | Train 100% of departments which enforce construction site stormwater requirements                                                                  | Town staff will conduct trainings for all departments which enforce the comprehensive stormwater ordinance at construction sites. |

|                                                                                 |                                                         |                                                                                                                                                                              |                                                                                                                                          |
|---------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Comprehensive Stormwater Ordinance                      | Enforce all provisions of the stormwater ordinance and document any violations and/or enforcement measures                                                                   | Town staff will continue to enforce the stormwater ordinance and maintain documentation for violations and enforcement measures.         |
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Evaluate and Enforce the Stormwater Inspections Program | Update inventory of all stormwater ponds in the Town                                                                                                                         | Town staff will create an inventory of all stormwater ponds located in the Town.                                                         |
| 4: Post-Construction Stormwater Management in New Development and Redevelopment | Engineering Design Standards                            | Review engineering plans for all new development and redevelopment to ensure that they are in compliance with the Town's design standards for structural stormwater controls | Town staff will review engineering plans for development projects to ensure that they are in compliance with the Town's design standards |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | Facility Specific Standard Operating Procedures         | Review 50% of existing SOP(s) annually                                                                                                                                       | Town staff will review the SOPs for Town facilities and update them as necessary                                                         |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations              | MS4 Facility and Stormwater Controls Inventory          | Review the Facility Inventory and Facility Map annually                                                                                                                      | Town staff will review the facility inventory and map and make any necessary changes                                                     |

|                                                                    |                                             |                                                                         |                                                                                                                             |
|--------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations | MS4 Facility Assessment                     | Develop a plan and checklist for facility inspections                   | Town staff will develop a facility assessment plan and checklist                                                            |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations | MS4 Inspection and Maintenance Program      | Inspect at least 100 stormwater controls annually                       | Town staff will inspect at least 100 stormwater controls                                                                    |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations | MS4 Operations and Maintenance Training     | Conduct operations and maintenance program training annually            | Town staff will conduct training for all operations and maintenance departments                                             |
| 5: Pollution Prevention/Good Housekeeping for Municipal Operations | Street Cleaning Plan                        | Conduct two (2) street sweeping events annually                         | Town staff will ensure that two (2) street sweeping events are conducted in compliance with the Town's street cleaning plan |
| 7: Authorization for Municipal Construction Activities             | Erosion Control Plan Review                 | Review all erosion control plans for municipal construction activities  | Town staff will review erosion control plans for all municipal construction activities                                      |
| 7: Authorization for Municipal Construction Activities             | Municipal Construction Site Inspections     | Conduct stormwater inspections at all municipal construction activities | Town staff will conduct stormwater inspections at all municipal construction activities                                     |
| 7: Authorization for Municipal Construction Activities             | Stormwater Pollution Prevention Plan Review | Review all SWPPPs for municipal construction activities                 | Town staff will review SWPPPs developed for municipal construction activities                                               |

## F. SWMP Modifications

1. Changes have been made or are proposed to the SWMP since the NOI or the last annual report, including changes in response to TCEQ's review.

\_\_\_Yes\_X No\*

\*STILL AWAITING ISSUANCE OF PUBLIC NOTICE FOR PROPOSED CHANGES

If 'Yes', report on changes made to measurable goals and BMPs (Refer to the MS4 General Permit TXR040000 Part IV Section B.2.(e)):

| MCM(s) | Measurable Goal(s) or BMP(s) | Implemented or Proposed Changes (Submit NOC as needed) |
|--------|------------------------------|--------------------------------------------------------|
| N/A    | N/A                          | N/A                                                    |

**Note:** If changes include additions or substitutions of BMPs, include a written analysis explaining why the original BMP is ineffective or not feasible and why the replacement BMP is expected to achieve the goals of the original BMP.

2. **Explain additional changes or proposed changes not previously mentioned (i.e., dates, contacts, procedures, annexation of land etc.):**

Not applicable

## G. Additional BMPs for TMDLs and I-Plans

Provide a description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable TMDLs and implementation plans (Refer to the MS4 General permit TXR040000 Part IV Section B.2.(f)).

| BMP | Description | Implementation Schedule (Start Date etc.) | Status / Completion Date (completed, in progress, not started) |
|-----|-------------|-------------------------------------------|----------------------------------------------------------------|
| N/A | N/A         | N/A                                       | N/A                                                            |

## H. Additional Information

1. Is the permittee relying on another entity to satisfy some of its permit obligations? (refer to the MS4 General Permit TXR040000 Part IV Section B.2.(g))

☐ Yes ☒ No

If 'Yes,' provide the name(s) of other entities and an explanation of their responsibilities (add more spaces or pages if needed):

Name and Explanation:

- 2.a. Is the permittee part of a group sharing a SWMP with other entities?

☐ Yes ☒ No

- 2.b. If 'yes,' is this a system-wide annual report including information for all permittees?

☐ Yes ☐ No

If 'Yes,' list all associated authorization numbers, permittee names, and SWMP responsibilities of each member. (add additional spaces or pages if needed):

Authorization Number: \_\_\_\_\_ Permittee: \_\_\_\_\_

## I. Construction Activities

1. The number of construction activities that occurred in the jurisdictional area of the MS4 (Notices of intent and site notices received; Refer to the MS4 General Permit TXR040000 Part IV Section B.2.(h)) 403 (includes single family dwellings)

- 2a. Does the permittee utilize the optional 7<sup>th</sup> MCM related to construction?

☒ Yes ☐ No

- 2b. If 'yes,' then provide the following information for this permit year (refer to the MS4 General Permit TXR040000 Part IV Section B.2.(i)):

|                                                                                      |    |
|--------------------------------------------------------------------------------------|----|
| The number of municipal construction activities authorized under this general permit | 18 |
|--------------------------------------------------------------------------------------|----|

|                                                                         |                                                                                     |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| The total number of acres disturbed for municipal construction projects | Municipal projects covered under this MCM disturbed a total of 29.82 acres in 2021. |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

**Note:** Though the seventh MCM is optional, implementation must be requested on the NOI or on a NOC and approved by the TCEQ.

## J. Certification

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Name (printed): JOSEPH WHITELEY Title: ENV. REVIEW ANALYST

Signature:  Date: March 14, 2022

Name of MS4 TOWN OF FLOWER MOUND

Name (printed): Matthew Woods Title: Director of Environmental Services

Signature:  Date: 3/23/2022

Name of MS4

Name (printed): Tommy Dalton Title: Assistant Town Manager

Signature:  Date: 3/23/2022

Name of MS4

Name (printed): James Childers Title: Town Manager

Signature:  Date: 3/23/2022

Name of MS4

Name (printed): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name of MS4

**Note:** If this is this a system-wide annual report including information for all permittees, each permittee shall sign and certify the annual report in accordance with 30 TAC §305.128 (relating to Signatories to Reports).



**Town of Flower Mound**  
**Stormwater Management Program**

AS REQUIRED PURSUANT TO:

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT FOR STORMWATER FROM  
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) [TXR040000]

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DRAFT

# **PART I    PREFACE**

## **Stormwater Management Plan Overview**

### **Regulatory Requirement**

Phase I of the U.S. Environmental Protection Agency's (EPA) Stormwater program was promulgated in 1990 under the Clean Water Act (CWA). Phase I relies on National Pollutant Discharge Elimination System (NPDES) permit coverage to address Stormwater runoff from: (1) "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, (2) construction activity disturbing 5 acres of land or greater, and (3) ten categories of industrial activity.

The Stormwater Phase II Final Rule is the next step in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted Stormwater runoff. The Phase II program expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted Stormwater runoff.

Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of Stormwater discharges that have the greatest likelihood of causing continued environmental degradation.

On September 14, 1998, EPA authorized Texas to develop and implement the Texas Pollutant Discharge Elimination System (TPDES) permit. Under the terms of this authority, the Texas Commission on Environmental Quality (TCEQ) assumes the role of Stormwater permitting authority for industrial activities, small and large construction activities, and all regulated MS4s.

On January 16, 2019, the TCEQ issued the new TPDES General Permit TXR040000 authorizing the discharge of Stormwater to surface water in the state from small municipal separate storm sewer systems (MS4s). Small MS4 operators that are required to obtain authorization under this general permit must submit a Stormwater management program (SWMP) and a completed notice of intent (NOI) form to the TCEQ by July 23, 2019.

### **Minimum Control Measures**

To meet the requirements for the TPDES general permit, the Town's Stormwater Management Program (SWMP) must provide minimum control measures (MCMs) for the following subject areas:

- Public Education, Outreach and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management in New Development and Redevelopment
- Pollution Prevention and Good Housekeeping for Municipal Operations

In addition to the required MCMs, the Town is also electing to utilize the optional seventh MCM, Authorization for Construction Activities where the Small MS4 is the Site Operator. After extensive research and review, Town staff has selected the following specific BMPs for implementation during the five (5) year permit period:

| <b>Stormwater Program Best Management Practices</b> |                                                                  |
|-----------------------------------------------------|------------------------------------------------------------------|
| <b>1.1</b>                                          | <b>Stormwater Media Outreach</b>                                 |
| <b>1.2</b>                                          | <b>Municipal Website Stormwater Page</b>                         |
| <b>1.3</b>                                          | <b>Watershed Address Program</b>                                 |
| <b>1.4</b>                                          | <b>Environmental Conservation Commission</b>                     |
| <b>1.5</b>                                          | <b>Community Source Water Protection Program</b>                 |
| <b>1.6</b>                                          | <b>Water Quality Education Events</b>                            |
| <b>1.7</b>                                          | <b>Storm Drain Labeling</b>                                      |
| <b>2.1</b>                                          | <b>Storm Sewer System Map</b>                                    |
| <b>2.2</b>                                          | <b>On-Site Sewage Disposal System Discharges</b>                 |
| <b>2.3</b>                                          | <b>Illicit Discharge Reporting System</b>                        |
| <b>2.4</b>                                          | <b>Illicit Discharge Detection &amp; Elimination Training</b>    |
| <b>3.1</b>                                          | <b>Construction Site Compliance and Enforcement</b>              |
| <b>3.2</b>                                          | <b>Construction Site Discharge Reporting System</b>              |
| <b>3.3</b>                                          | <b>Construction Site Inventory</b>                               |
| <b>3.4</b>                                          | <b>Stormwater Pollution Prevention Plan Review</b>               |
| <b>3.5</b>                                          | <b>Staff Training Program</b>                                    |
| <b>4.1</b>                                          | <b>Comprehensive Stormwater Ordinance</b>                        |
| <b>4.2</b>                                          | <b>Stormwater Structural Control Program</b>                     |
| <b>4.3</b>                                          | <b>Engineering Design Standards</b>                              |
| <b>5.1</b>                                          | <b>Facility Specific Standard Operating Procedures</b>           |
| <b>5.2</b>                                          | <b>MS4 Facility and Stormwater Controls Inventory</b>            |
| <b>5.3</b>                                          | <b>MS4 Facility Assessment</b>                                   |
| <b>5.4</b>                                          | <b>MS4 Storm Sewer System Inspection and Maintenance Program</b> |
| <b>5.5</b>                                          | <b>MS4 Operations and Maintenance Training</b>                   |
| <b>5.6</b>                                          | <b>Street Cleaning Program</b>                                   |
| <b>7.1</b>                                          | <b>Erosion Control Plan Review</b>                               |
| <b>7.2</b>                                          | <b>Municipal Construction Site Inspections</b>                   |
| <b>7.3</b>                                          | <b>Stormwater Pollution Prevention Plan Review</b>               |

### **Recordkeeping and Reporting Requirements**

A primary component of the MS4 general permit is recordkeeping that allows for periodic evaluation of the management plan and for annual reporting to the TCEQ on the status of the plan. Specifically, Phase II MS4s are required to:

- Retain all records, a copy of the TCEQ general permit, and records of all data used to complete the NOI for a period of three years or for the term of the TCEQ permit, whichever is longer.
- Retain a copy of the SWMP at a location accessible to the TCEQ.
- Make the records, including the NOI and SWMP, available to the public if requested to do so, in writing. The SWMP must be made available within ten (10) working days from the receipt of a written request. Other records must be provided in accordance with the Texas Public Information Act. Reasonable charges, in accordance with Texas law, may be levied by the permittee for researching and preparing any requested materials.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

The general reporting requirements for MS4s include:

**Noncompliance Notification** – Any noncompliance which may endanger human health or safety, or the environment, in accordance with 30 TAC Chapter 305.125(9), must be reported by the MS4 to the TCEQ. Oral and/or facsimile notification of the noncompliance will be made immediately upon becoming aware of the issue. A written report must be provided to the TCEQ within five (5) working days. Additionally, the MS4 must promptly submit to TCEQ any facts or information relevant to an NOI, Notice of Termination (NOT), Notice of Change (NOC), or any other report.

**Annual Report** – MS4s must submit a concise annual report to the TCEQ Executive Director within 90 days of the end of the reporting period. **The Town of Flower Mound has chosen to submit annual reports on the calendar-year schedule.** Each reporting period will end on December 31<sup>st</sup>, and an annual report will be submitted 90 days thereafter. A copy of the annual report must be readily available for review by authorized TCEQ personnel. The report generally includes the status of compliance with permit conditions, assessment of the BMPs defined in the SWMP and their relative effectiveness, progress towards reducing the discharge of pollutants into the MS4, and an evaluation of the success of the implementation of the measurable goals for each of the MCMs. The annual report should also include a summary of proposed changes to the SWMP planned for the next reporting cycle.

A copy of the TPDES General Permit No. TXR040000 is included in Appendix A of this document.

## **Definitions**

**Arid Areas** - Areas with an average annual rainfall of less than ten (10) inches.

**Best Management Practices (BMPs)** - Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

**Classified Segment** - refers to a water body that is listed and described in Appendix A or Appendix C of the Texas Surface Water Quality Standards, at 30 TAC § 307.10.

**Clean Water Act (CWA)** - The Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972, Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.

**Common Plan of Development or Sale** - A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development or sale is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities.

**Construction Site Operator** - The person or persons associated with a small or large construction project that meets either of the following two criteria:

- (a) The person or persons that have operational control over construction plans and specifications (including approval of revisions) to the extent necessary to meet the requirements and conditions of this general permit; or
- (b) The person or persons that have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a Stormwater pollution prevention plan for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the Stormwater Pollution Prevention Plan or comply with other permit conditions).

**Control Measure** - Any BMP or other method used to prevent or reduce the discharge of pollutants to water in the state.

**Conveyance** - Curbs, gutters, man-made channels and ditches, drains, pipes, and other constructed features designed or used for flood control or to otherwise transport Stormwater runoff.

**Daily Maximum** - For the purposes of compliance with the numeric effluent limitations contained in this permit, this is the maximum concentration measured on a single day, by grab sample, within a period of one calendar year.

**Discharge** - When used without a qualifier, refers to the discharge of Stormwater runoff or certain non-Stormwater discharges as allowed under the authorization of this general permit.

**Final Stabilization** - A construction site where either of the following conditions are met:

- (a) All soil disturbing activities at the site have been completed and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

- (b) For individual lots in a residential construction site by either:
  - (1) The homebuilder completing final stabilization as specified in condition (a) above;
  - or
  - (2) The homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.
- (c) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to a surface water and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.
- (d) In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:
  - (1) Temporary erosion control measures (e.g., degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and
  - (2) The temporary erosion control measures are selected, designed, and installed to achieve 70 percent vegetative coverage within three years.

**Ground Water Infiltration** - For the purposes of this permit, groundwater that enters a municipal separate storm sewer system (including sewer service connections and foundation drains) through such means as defective pipes, pipe joints, connections, or manholes.

**Illicit Connection** - Any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

**Illicit Discharge** - Any discharge to a municipal separate storm sewer that is not entirely composed of Stormwater, except discharges authorized under this general permit or a separate authorization and discharges resulting from firefighting activities.

**Indian Country** - Defined in 18 USC Section 1151, means (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation; (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. This definition includes all land held in trust for an Indian tribe.

**Industrial Activities** - Manufacturing, processing, material storage, and waste material disposal areas (and similar areas where Stormwater can contact industrial pollutants related to the industrial activity) at an industrial facility described by the TPDES Multi Sector General Permit, TXR050000, or by another TCEQ or TPDES permit.

**Large Construction Activity** - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine

maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar Stormwater conveyance. Large construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

**Maximum Extent Practicable (MEP)** - The technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in Stormwater discharges that was established by CWA §402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR 122.34.

**MS4 Operator** - For the purpose of this permit, the public entity, and/ or the entity contracted by the public entity, responsible for management and operation of the small municipal separate storm sewer system that is subject to the terms of this general permit.

**Municipal Separate Storm Sewer System (MS4)** - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (a) Owned or operated by the U.S., a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under the CWA §208 that discharges to the surface water in the state;
- (b) That is designed or used for collecting or conveying stormwater;
- (c) That is not a combined sewer; and
- (d) That is not part of a publicly owned treatment works (POTW) as defined in 40 CFR §122.2.

**Notice of Change (NOC)** - Written notification from the permittee to the executive director providing changes to information that was previously provided to the agency in a notice of intent.

**Notice of Intent (NOI)** - A written submission to the executive director from an applicant requesting coverage under this general permit.

**Notice of Termination (NOT)** - A written submission to the executive director from a permittee authorized under a general permit requesting termination of coverage under this general permit.

**Outfall** - For the purpose of this permit, a point source at the point where a municipal separate storm sewer discharges to waters of the United States (U.S.) and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S.

**Permittee** - The MS4 operator authorized under this general permit.

**Permitting Authority** - For the purposes of this general permit, the TCEQ.

**Point Source** - (from 40 CFR § 122.22) Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural Stormwater runoff.

**Pollutant(s) of Concern** - Include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from an MS4. (Definition from 40 CFR Section 122.32(e)(3)).

**Redevelopment** - alterations of a property that changes the “footprint” of a site or building in such a way that there is a disturbance of equal to or greater than 1 acre of land. This term does not include such activities as exterior remodeling.

**Semiarid Areas** - Areas with an average annual rainfall of at least ten (10) inches, but less than 20 inches.

**Small Construction Activity** - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar Stormwater conveyance. Small construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

**Small Municipal Separate Storm Sewer System (MS4)** - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (a) Owned or operated by the United States, a state, city, town, borough, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, Stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under § 208 of the CWA;
- (b) Designed or used for collecting or conveying Stormwater;
- (c) Which is not a combined sewer;
- (d) Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR § 122.2; and
- (e) Which was not previously authorized under a NPDES or TPDES individual permit as a medium or large municipal separate storm sewer system, as defined at 40 CFR §122.26(b)(4) and (b)(7).

This term includes systems similar to separate storm sewer systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. This term does not include separate storm sewers in very discrete areas, such as individual buildings. For the purpose of this permit, a very discrete system also includes storm drains associated with certain municipal offices and education facilities serving a nonresidential population, where those storm drains do not function as a system, and where the buildings are not physically interconnected to an MS4 that is also operated by that public entity.

**Stormwater and Stormwater Runoff** - Rainfall runoff, snow melt runoff, and surface runoff and drainage.

**Stormwater Associated with Construction Activity** - Stormwater runoff from an area where there is either a large construction activity or a small construction activity.

**Stormwater Management Program (SWMP)** - A comprehensive program to manage the quality of Stormwater discharged from the municipal separate storm sewer system.

**Structural Control (or Practice)** - A pollution prevention practice that requires the construction of a device, or the use of a device, to capture or prevent pollution in Stormwater runoff. Structural controls and practices may include but are not limited to: wet ponds, bioretention, infiltration basins, Stormwater wetlands, silt fences, earthen dikes, drainage swales, vegetative lined ditches, vegetative filter strips, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

**Surface Water in the State** - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark (MHW) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

**Total Maximum Daily Load (TMDL)** - The total amount of a substance that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

**Traditional Small MS4** - A small MS4 that can pass ordinances and have the enforcement authority to enforce the stormwater management program. An example of traditional MS4s includes cities.

**Urbanized Area (UA)** - An area of high population density that may include multiple MS4s as defined and used by the U.S. Census Bureau in the 2000 decennial census.

**Waters of the United States** - (from 40 CFR Section 122.2) Waters of the United States or waters of the U.S. means:

- (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (b) All interstate waters, including interstate wetlands;
- (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  - (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
  - (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - (3) Which are used or could be used for industrial purposes by industries in interstate commerce;

- (d) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
- (f) The territorial sea; and
- (g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.
- (h) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

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### **Commonly Used Acronyms**

|       |                                                                      |
|-------|----------------------------------------------------------------------|
| BMP   | Best Management Practice                                             |
| CFR   | Code of Federal Regulations                                          |
| CGP   | Construction General Permit, TXR150000                               |
| CWA   | Clean Water Act                                                      |
| DMR   | Discharge Monitoring Report                                          |
| EPA   | Environmental Protection Agency                                      |
| FR    | Federal Register                                                     |
| IP    | Implementation Procedures                                            |
| MCM   | Minimum Control Measure                                              |
| MSGP  | Multi-Sector General Permit, TXR050000                               |
| MS4   | Municipal Separate Storm Sewer System                                |
| NOC   | Notice of Change                                                     |
| NOD   | Notice of Deficiency                                                 |
| NOI   | Notice of Intent                                                     |
| NOT   | Notice of Termination (to terminate coverage under a general permit) |
| NPDES | National Pollutant Discharge Elimination System                      |
| SWMP  | Stormwater Management Program                                        |
| SWP3, | Stormwater Pollution Prevention Plan                                 |
| SWPPP |                                                                      |
| TAC   | Texas Administrative Code                                            |
| TCEQ  | Texas Commission on Environmental Quality                            |
| TPDES | Texas Pollutant Discharge Elimination System                         |
| TWC   | Texas Water Code                                                     |

### **Allowable Non-Stormwater Discharges**

The following non-Stormwater sources may be discharged from the small MS4 and are not required to be addressed in the small MS4's Illicit Discharge and Detection or other minimum control measures, unless they are determined by the permittee or the TCEQ to be significant contributors of pollutants to the small MS4:

- a) Water line flushing (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life);
- b) Runoff or return flow from landscape irrigation, lawn irrigation, and other irrigation utilizing potable water, groundwater, or surface water sources;
- c) Discharges from potable water sources;
- d) Diverted stream flows;
- e) Rising ground waters and springs;
- f) Uncontaminated ground water infiltration;
- g) Uncontaminated pumped ground water;
- h) Foundation and footing drains;

- i) Air conditioning condensation;
- j) Water from crawl space pumps;
- k) Individual residential vehicle washing;
- l) Flows from wetlands and riparian habitats;
- m) Dechlorinated swimming pool discharges;
- n) Street wash water;
- o) Discharges or flows from firefighting activities (firefighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, and similar activities);
- p) Other allowable non-Stormwater discharges listed in 40 CFR § 122.26(d)(2)(iv)(B)(1);
- q) Non-Stormwater discharges that are specifically listed in the TPDES Multi Sector General Permit (MSGP) or the TPDES Construction General permit (CGP); and
- (r) Other similar occasional incidental non-Stormwater discharges, unless the TCEQ develops permits or regulations addressing these discharges.

### **Document Organization**

The Town of Flower Mound's Stormwater Management Program is organized to aid development and implementation of the programs required by the TPDES MS4 Phase II general permit, and to aid in completion of permit notification documents (NOI) and tracking progress for annual reports.

Part II of the SWMP addresses the six (6) minimum control measures required under the TPDES permit. For each minimum control measures, the following are discussed:

- **Current Programming**

A description of current programming, regulations, procedures, and/or documents that already meet the minimum control measure requirements is provided.

- **Selected BMPs**

A description of the best management practices the Town will implement to address the regulatory requirement.

- **Measurable Goal(s)**

The Town must designate measurable goal(s) for each BMP.

- **Schedule**

The implementation schedule for each BMP is described.

- **Responsible Divisions**

The division(s) responsible for implementation of each BMP is provided.

The appendices provide additional information and copies of documents, regulations, procedures, training materials, and samples of public education/outreach communication items.

## **PART II MINIMUM CONTROL MEASURES**

### **1. Public Education, Outreach and Involvement**

#### ***Public Education, Outreach and Involvement***

##### ***Current Programs***

The Town of Flower Mound provides general public education, outreach and involvement by several means of communication through the Town's Community Affairs, Keep Flower Mound Beautiful, Public Works, and Environmental Services divisions. Specifically, the Town has and will continue to provide education to the public about the impacts of stormwater run-off on water quality, proper disposal of waste, and changes they can implement to reduce pollutants in stormwater runoff. This education is offered through the following programs:

- Spring and Fall Waterway Cleanup Events
- Bi-annual Environmental Fair
- Earth Day Event
- Social media outreach
- Household Hazardous Waste Curbside pickup
- Second Grade and Seventh Grade Education Events
- Arbor Day Event
- Implementation of a Water Conservation and Education Program
- Utility Billing Inserts
- Encouragement of Conservation Developments
- Operation of the Town's Tree Farm and Outdoor Learning Area

The Town of Flower Mound has a public Environmental Conservation Commission, which, in part, receives periodic updates on various environmental and stormwater quality related activities conducted by Town staff. This process provides all members of the public an initial opportunity to participate in the SWMP development through public comment. Public involvement/participation opportunities are also associated with the following current Town sponsored programs:

- Neighborhood Cleanup Events
- Adopt-a-Spot/Stream Team Program

#### **Selected BMPs for Public Education, Outreach and Involvement**

##### **1.1 Stormwater Media Outreach**

The Town of Flower Mound will use the municipal television channel and other communication services to post messages about the stormwater management program that are of interest to all stakeholders within the Town's jurisdictional authority. The Town will relay important information related to stormwater quality and upcoming events, training seminars, and other resources related to the Town's SWMP.

### ***Measurable Goals***

The measurable goal for implementation of this BMP is to post three (3) stormwater quality related messages per year during the permit term. Description of each stormwater quality message will be provided in the annual report. The number of inquiries related to the educational or event information provided through the municipal channel will be documented and provided in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>                     | <b><i>ACTIVITY</i></b>              | <b><i>DATE DUE</i></b> |
|--------------------------------------------|---------------------------------------|-------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Municipal Stormwater Quality Messages | Post 3 stormwater quality messages. | December 2020-2024     |

### ***Responsible Division(s)***

The Community Affairs and Environmental Services Divisions have responsibility for implementation of this BMP to meet Measurable Goal 1.1.

### ***1.2 Municipal Website Stormwater Page***

The Town of Flower Mound will use the municipal website (www.flower-mound.com) to inform the public and other interested stakeholders about the SWMP and the annual report. It will include general stormwater quality information as well as topics of interest to the general public such as litter control, pet waste management, water conservation, and proper management of pesticides, fertilizer, used oil and household hazardous waste. Information will also be included to educate businesses and construction site personnel about the impacts of stormwater run-off on water quality and steps they can use to reduce their contribution to stormwater pollution.

### ***Measurable Goals***

The measurable goal for implementation of this BMP is to provide continuous updates as needed throughout the duration of the permit and to add the annual report to the website annually. Description of updates to the website will be provided in the annual report. The number of inquiries related to the educational information provided through the municipal website will be documented and provided in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>                                     | <b><i>ACTIVITY</i></b>                                           | <b><i>DATE DUE</i></b> |
|--------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Municipal website with stormwater quality information | Review the website and add the annual report and SWMP each year. | March 2021-2024        |

***Responsible Division(s)***

The Environmental Services, Public Works, and Community Affairs Divisions have responsibility for implementation of this BMP to meet Measurable Goal 1.2.

**1.3 Watershed Address Program**

The Town of Flower Mound has delineated all sub-watershed basins within the Town's jurisdictional authority and, to the maximum extent practical, will place "watershed address" signs within public road and street right-of-ways. The signs will include identification of a watershed as well as a short water quality related social marketing message that is directed to the general public. Additional watershed address signs will be added to any areas in the Town's watershed where it is determined that signage would be beneficial.

***Measurable Goal***

The Town's Traffic Department will install watershed address signs in the remaining areas that do not yet have signage by December 2020. After all of the sub-watershed areas have had signage installed, the signage will be inspected as part of the Town's 10 year traffic sign replacement cycle and any damaged signs will be replaced.

***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>         | <b><i>ACTIVITY</i></b>                                                             | <b><i>DATE DUE</i></b> |
|--------------------------------------------|---------------------------|------------------------------------------------------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Watershed Address Program | Install 10 additional watershed signs in designated areas that are without signage | December 2020          |

***Responsible Division(s)***

The Environmental Services, Public Works, and Streets Divisions are responsible for developing and implementing this BMP to meet Measurable Goal 1.3.

**1.4 Environmental Conservation Commission**

The Town of Flower Mound has an Environmental Conservation Commission (ECC) which meets to discuss environmental issues throughout the Town, including water quality and conservation. ECC advises the Town Council regarding water conservation and the future character and health of the Town's bodies of water, stormwater, groundwater, and surface water

***Measurable Goals***

The measurable goal for implementation of this BMP is for the Town to meet with the ECC at least quarterly to discuss Town environmental issues.

### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b> | <b><i>ACTIVITY</i></b>               | <b><i>DATE DUE</i></b> |
|--------------------------------------------|-------------------|--------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Public Meetings   | Meet with the ECC at least quarterly | December 2020-2024     |

### ***Responsible Division(s)***

The Community Affairs and Environmental Services Divisions have responsibility for this BMP to meet Measurable Goal 1.4.

### **1.5 Community Source Water Protection Program**

The Town of Flower Mound has initiated a community-wide water quality public education and participation program designed to involve local residents, businesses, neighborhood associations, and students in the implementation of the Town's SWMP. Utilizing the Texas Stream Team program, the Town will continue to develop, train, and manage a network of volunteer water quality monitors, who will take water quality samples at designated monitoring stations. The data will be submitted online by Town staff and collected in the Texas Stream Team Data Viewer database. The Town currently utilizes an Adopt-a-Spot program which volunteers visit at least quarterly to pick up litter. The Town will also work with local volunteers to host cleanup events aimed at preventing pollution from entering the Town's waterways.

### ***Measurable Goals***

The Town will work with volunteers to monitor and/or clean up at least 10 locations per year. The number of volunteers participating will also be documented and provided in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>                         | <b><i>ACTIVITY</i></b>                                                         | <b><i>DATE DUE</i></b> |
|--------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Community Source Water Protection Program | Work with volunteers to monitor and/or clean up at least 10 locations annually | December 2020-2024     |

### ***Responsible Division(s)***

The Environmental Services Division is responsible for developing and implementing this BMP to meet Measurable Goal 1.5.

### **1.6 Water Quality Education Events**

The Town of Flower Mound provides information regarding watersheds, stormwater, and water quality to students in Lewisville ISD to 2<sup>nd</sup> and 7<sup>th</sup> grade classes on an annual basis. The

Town also routinely visits with groups of Boy and/or Girl Scouts regarding water quality and provides water quality education at other events as requested.

#### ***Measurable Goals***

The number of events that the Town participates in will be documented and provided in the annual report.

#### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>              | <b><i>ACTIVITY</i></b>                             | <b><i>DATE DUE</i></b> |
|--------------------------------------------|--------------------------------|----------------------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Water Quality Education Events | Conduct 10 water quality education events annually | December 2020-2024     |

#### ***Responsible Division(s)***

The Environmental Services and Public Works Division is responsible for developing and implementing this BMP to meet Measurable Goal 1.6.

#### **1.7 Storm Drain Labeling**

The Town of Flower Mound will continue installing storm drain labels for all new residential and commercial developments to make the public aware of where stormwater inlets lead and the importance of preventing pollution from entering the inlets to keep our waterways clean.

#### ***Measurable Goals***

The Town will label at least 50 storm sewer inlets during permit years one through five to promote the proper disposal of waste. Labels will identify the local waterway that each inlet leads to and the number of labels installed will be documented in the annual report.

#### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>    | <b><i>ACTIVITY</i></b>                          | <b><i>DATE DUE</i></b> |
|--------------------------------------------|----------------------|-------------------------------------------------|------------------------|
| Public Education, Outreach and Involvement | Storm Drain Labeling | Install at least 50 storm drain labels annually | December 2020-2024     |

#### ***Responsible Division(s)***

The Public Works Division is responsible for developing and implementing this BMP to meet Measurable Goal 1.7.

## **2. Illicit Discharge Detection and Elimination**

### ***Current Programs***

Currently, the Town of Flower Mound utilizes a GIS database system to track the Town's MS4 infrastructure and jurisdictional waters. Mapping of future additions to the infrastructure, which includes the stormwater drainage system, will be included in this project. The Town's Environmental Services Division, Public Works Division, and Fire Chief's Office investigate reported or discovered illicit discharges and spills and work with the responsible party to resolve all situations. All responsible divisions have the authority to investigate and enforce against any hazardous and non-hazardous illegal dumping activities. Additional programs currently implemented that are related to illicit discharge detection and elimination include:

- Neighborhood Cleanup Events in conjunction with the bi-annual Environmental Fair
- Household Hazardous Waste Curbside Pickup
- All commercial grease traps are inspected by the Environmental Services Department periodically to ensure that they are properly maintained
- Town Code of Ordinances provisions:
  - Authority to control and regulate waste discharge and require pretreatment
  - Enforcement by authority to disconnect service or access penalties for violations
  - Reporting requirements by industrial waste pretreatment permittees
  - Prohibit persons to dump, or permit to be dumped, knowingly or intentionally, upon any sidewalk, alley, street, into or adjacent to water, or any other public or private property, any unwholesome water, refuse, rubbish, trash, debris, filth, carrion, junk, garbage, impure or unwholesome matter of any kind or other objectionable or unsightly matter of whatever kind
  - Enforcement by accessing penalties for illegal dumping violations

## **Selected BMPs for Illicit Discharge Detection and Elimination**

### **2.1 Storm Sewer System Map**

The Town of Flower Mound has developed a GIS-based storm sewer system map, showing the location of all outfalls and the names and locations of all water of the U.S. that receive discharges from those outfalls. Additionally, the storm sewer map identifies the location of storm sewer pipes, ditches, and other conveyances owned by the Town.

#### ***Measurable Goals***

The measurable goal for implementation of this BMP is to update the map annually throughout the remainder of the permit. Description of the annual updates to the Storm Sewer System Map will be provided in the annual report.

### **Schedule**

| <b>PROGRAM</b>                              | <b>BMP</b>             | <b>ACTIVITY</b>                                                           | <b>DATE DUE</b>    |
|---------------------------------------------|------------------------|---------------------------------------------------------------------------|--------------------|
| Illicit Discharge Detection and Elimination | Storm Sewer System Map | Add all new storm system features to the Storm Sewer System Map annually. | December 2020-2024 |

### **Responsible Division(s)**

Public Works, Environmental Services, and Information Technology Divisions are responsible for implementation of the storm sewer system map to meet Measurable Goal 2.1.

### **2.2 On-Site Sewage Disposal Systems**

The Town of Flower Mound currently utilizes local ordinance and state regulations to prevent and correct leaking on-site sewage disposal systems.

Upon being notified that a potential illicit discharge has occurred from an On-Site Sewage Facility (OSSF), Town staff will conduct an investigation and take water samples. If the samples come back positive for an OSSF-related discharge then homeowners will be instructed to service their system to eliminate the discharge. Upon being notified that the discharge has been eliminated, Town staff will conduct a follow-up investigation or field screening to verify that the discharge has been eliminated.

The Town also requires that all homeowners who have an aerobic system use a TCEQ licensed maintenance provider to inspect their systems throughout the year and send in the inspections for review by Town Staff. Any property which does not keep a current maintenance contract with a TCEQ licensed maintenance provider is notified by mail to sign up for a maintenance contract.

### **Measurable Goals**

There are two measureable goals for this BMP. The first measurable goal is to investigate 100% of potential On-Site Sewage Facility discharges and have any confirmed discharges eliminated. The second measureable goal is to send deficiency letters to 100% of properties that do not maintain a maintenance contract with a licensed contractor.

### **Schedule**

| <b>PROGRAM</b>                                      | <b>BMP</b>                      | <b>ACTIVITY</b>                                                                                                                                     | <b>DATE DUE</b>    |
|-----------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Illicit Discharge Detection and Elimination Program | On-Site Sewage Disposal Systems | Investigate 100% of potential OSSF discharges to MS4 and send deficiency letters to 100% of properties that do not maintain a maintenance contract. | December 2020-2024 |

### **Responsible Division(s)**

The Environmental Services Division is responsible for developing and maintaining this BMP to meet Measurable Goal 2.2.

### **2.3 Illicit Discharge Reporting System**

The Town of Flower Mound maintains an illicit discharge reporting hotline and online reporting system for the public to report potential illicit discharges. This facilitates the ability for the public to provide information that will assist in detection and elimination of potential illicit discharges. The Town of Flower Mound currently utilizes a database to track all reported illicit discharges and associated investigations. Upon being notified that the discharge has been eliminated, Town staff will conduct and document a follow-up investigation to confirm that the discharge has been eliminated.

### **Measurable Goals**

The measurable goal will be to investigate all potential illicit discharges and make the results of the investigation available online. The number of reports to the hotline and online system will be included in the annual report.

### **Schedule**

| <b>PROGRAM</b>                              | <b>BMP</b>                         | <b>ACTIVITY</b>                                  | <b>DATE DUE</b>    |
|---------------------------------------------|------------------------------------|--------------------------------------------------|--------------------|
| Illicit Discharge Detection and Elimination | Illicit Discharge Reporting System | Investigate 100% of reported illicit discharges. | December 2020-2024 |

### **Responsible Division(s)**

The Environmental Services and Public Works Divisions are responsible for implementation of this BMP to meet Measurable Goal 2.2.

### **2.4 Illicit Discharge Detection and Elimination Training**

The Town of Flower Mound has developed a training program for all field staff responsible for Illicit Discharge Detection and Elimination. The training program includes training materials directed at preventing and reducing stormwater pollution from illicit discharges. A list of trainings completed by Town staff will be provided in the annual report.

### **Measurable Goals**

The measurable goal for this BMP will be to train at least 75% of departments containing field staff annually. The total number of employees trained per year will also be documented and provided in the annual reports.

***Schedule***

| <b><i>PROGRAM</i></b>                       | <b><i>BMP</i></b>                                    | <b><i>ACTIVITY</i></b>                                             | <b><i>DATE DUE</i></b> |
|---------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------|------------------------|
| Illicit Discharge Detection and Elimination | Illicit Discharge Detection and Elimination Training | Train at least 75% of departments containing field staff annually. | December 2020-2024     |

***Responsible Division(s)***

All applicable divisions are responsible for implementing the training program to meet Measurable Goal 2.4.

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### **3. Construction Site Stormwater Runoff Control**

#### ***Current Programs***

Currently, the Town of Flower Mound requires that construction sites comply with all federal and/or state stormwater permits. Additionally, the Town currently has existing rules and regulations related to erosion control and stormwater quality requirements related to new residential and/or commercial developments. Stormwater and erosion controls are included in Town ordinances, engineering standards, and enforced through inspections by various departments during all phases of construction related activities. The Town currently requires that all construction sites over an acre submit a SWPPP for review by Town staff.

The Town's comprehensive stormwater ordinance prohibits the following illicit discharges associated with construction:

- Wastewater from washout of concrete and wastewater from water well drilling operations, unless managed by an appropriate control;
- Wastewater from washout and cleanout of stucco, paint, from release oils, and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- Soaps or solvents used in vehicle and equipment washing; and
- Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed by appropriate BMPs.

Noncompliance can be grounds for the Town to stop inspections and issue citations.

The Town also has staff and procedures for site plan review that incorporates consideration of potential water quality impacts as well as procedures to receive and consider information submitted by the public during the development review process.

### **Selected BMPs for Construction Site Stormwater Runoff Controls**

#### **3.1 Construction Site Compliance and Enforcement**

The Town of Flower Mound has a comprehensive stormwater ordinance which has requirements for erosion and sediment controls and proper waste management at construction sites, and enforcement measures to ensure compliance with the requirements. If necessary, additional ordinances or other regulatory mechanisms will be updated to ensure that construction sites are in compliance with state requirements.

#### ***Measurable Goals***

The measurable goal for implementation of this BMP is continued enforcement of erosion and sediment control procedures and compliance for construction sites for years one through five. Updates to ordinances will be made, if necessary and included in the annual report. The number of violations and enforcement actions taken per year will also be included in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>                 | <b><i>BMP</i></b>                  | <b><i>ACTIVITY</i></b>                                                                      | <b><i>DATE DUE</i></b> |
|---------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------|------------------------|
| Construction Site Stormwater Controls | Comprehensive Stormwater Ordinance | Enforce and update the ordinance. Document enforcement actions taken during reporting year. | December 2020-2024     |

### ***Responsible Division(s)***

The Environmental Services, Public Works, Building Inspections and Engineering Services Divisions are responsible for developing and implementing this BMP to meet Measurable Goal 3.1.

### **3.2 Construction Site Discharge Reporting System**

The Town of Flower Mound maintains a construction site discharge reporting hotline and online violation reporting system for the public to report construction site problems and/or potential violations. This hotline and online system are utilized along with a general illegal dumping and environmental crimes hotline and online system managed by members of the Town's Environmental Services department. This will facilitate the ability of the public to provide information that will assist in detection of problem discharges.

### ***Measurable Goals***

The measurable goal will be to investigate all potential construction site discharges and potential violations which are reported through the hotline and/or the online reporting system. The number of calls to the hotline and/or submitted online will be included in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>                       | <b><i>BMP</i></b>                            | <b><i>ACTIVITY</i></b>                                    | <b><i>DATE DUE</i></b> |
|---------------------------------------------|----------------------------------------------|-----------------------------------------------------------|------------------------|
| Construction Site Stormwater Runoff Control | Construction Site Discharge Reporting System | Investigate 100% of reported construction site discharges | December 2020-2024     |

### ***Responsible Division(s)***

The Environmental Services Division is responsible for implementation of this BMP to meet Measurable Goal 3.2.

### **3.3 Construction Site Inventory**

Town staff maintains a database of all permitted active public and private construction sites. The database includes an individual permit number, general permit authorization number (if applicable), project identification, acceptance date, acreage disturbed, and records of inspection and enforcement (if applicable).

### **Measurable Goals**

The measurable goal for this BMP is to maintain a construction site database and add all new development and capital improvement projects to the database as they are initiated. As projects are finished they remain in the database with an updated status reflecting that they are complete. . The total number of construction sites added to the database each year will be reported in the annual report.

### **Schedule**

| <b>PROGRAM</b>                              | <b>BMP</b>                                      | <b>ACTIVITY</b>                                                         | <b>DATE DUE</b>    |
|---------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------|--------------------|
| Construction Site Stormwater Runoff Control | Maintain a Construction Site Inventory Database | Maintain and update database as new sites are added throughout the Town | December 2020-2024 |

### **Responsible Division(s)**

The Environmental Services, Engineering Services and Public Works Divisions are responsible for developing and maintaining this BMP to meet Measurable Goal 3.3.

### **3.4 Stormwater Pollution Prevention Plan Review**

Town staff requires Stormwater Pollution Prevention Plans (SWPPPs) to be developed for all construction activities that disturb one acre of land area or more. Prior to construction projects beginning, the SWPPP is reviewed by Town staff, and comments may be made to address any deficiencies. After project approval, SWPPPs may be reviewed by Town inspectors at any time to ensure that they have been updated as needed and site conditions are reflected appropriately. Signed copies of the Contractor's NOI, or other evidence of State authorization for the Contractor for the appropriate project, will be included with the SWPPP for Town review. Approval of the SWPPP is required prior to start of construction.

### **Measurable Goals**

The Town will review all SWPPPs that are submitted for construction sites which disturb one acre of land or more and will document the number of approved SWPPPs for each year in the annual report.

### **Schedule**

| <b>PROGRAM</b>                              | <b>BMP</b>   | <b>ACTIVITY</b>                                                    | <b>DATE DUE</b>    |
|---------------------------------------------|--------------|--------------------------------------------------------------------|--------------------|
| Construction Site Stormwater Runoff Control | SWPPP Review | Review and comment on all SWPPPs submitted to the Town for review. | December 2020-2024 |

**Responsible Division(s)**

The Environmental Services, Public Works, and Engineering Services Divisions are responsible for implementing the program to meet Measurable Goal 3.4.

**3.5 Staff Training Program**

The Town of Flower Mound has developed a training program for all field staff responsible for enforcing erosion and sediment control requirements at construction sites. The training program includes training materials directed at preventing and reducing stormwater pollution from illicit discharges. A list of trainings completed by Town staff will be provided in the annual report.

**Measurable Goals**

The measurable goal for this BMP will be to train 100% of departments containing field staff who enforce construction site stormwater requirements annually. The total number of employees trained per year will also be documented and provided in the annual reports.

**Schedule**

| <b>PROGRAM</b>                              | <b>BMP</b>             | <b>ACTIVITY</b>                                                                             | <b>DATE DUE</b>    |
|---------------------------------------------|------------------------|---------------------------------------------------------------------------------------------|--------------------|
| Construction Site Stormwater Runoff Control | Staff Training Program | Train 100% of departments which enforce construction site stormwater requirements annually. | December 2020-2024 |

**Responsible Division(s)**

All applicable divisions are responsible for implementing the training program to meet Measurable Goal 3.5.

## **4. Post-Construction Stormwater Management in New Development and Redevelopment**

### ***Current Programs***

Currently, the Town of Flower Mound has several ordinances and regulatory requirements to protect water quality by requiring the use of best management practices on all new residential and commercial development projects. Under the Town's SMARTGrowth Program, all new developments are required to address water quality protection measures using structural and/or non-structural BMPs. Additional guidance and ordinances currently implemented that are related to post-construction stormwater management in new development and redevelopments include:

- Adoption of the Town's SMARTGrowth Management Plan that includes an environmental quality category related to the: "preservation of open space, farmland, natural beauty, and sensitive environmental areas is achieved by criteria pertaining to watershed protection, wetlands, water body protection, topographical slope protection, environmental surveys, environmental protection plans, conservation development, rural development, visual impact, and agricultural resource protection easements."
- Town of Flower Mound Engineering Services Design Criteria and Construction Standards manual, which provides a list of potential BMPs for watershed protection.
- As a part of routine Code Enforcement inspections, the Town's Code Enforcement personnel visually inspect private facilities within the Town. If the Town personnel discover malfunctioning or improperly maintained stormwater facilities the owner of the property will receive a notice detailing the violation and the Town will ensure that the issues are resolved.

## **Selected BMPs for Post-Construction Stormwater Management for New Developments and Redevelopment**

### **4.1 Comprehensive Stormwater Ordinance**

The Town enforces the existing Stormwater Ordinance by requiring all new residential and commercial developments to utilize BMPs to ensure proper long-term operation and maintenance of structures and activities to protect stormwater quality.

The Town will document and maintain records of enforcement of the ordinance utilizing our TRAKiT database system. Reports referencing all records of enforcement will be made to evaluate effectiveness and efficiency.

### ***Measurable Goals***

The measurable goal for this BMP is to enforce all provisions of the ordinance. Cases created resulting from possible violations of the Stormwater Ordinance will be documented in our TRAKiT database system and included in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>                                            | <b><i>BMP</i></b>                  | <b><i>ACTIVITY</i></b>                                                                                      | <b><i>DATE DUE</i></b> |
|------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------|
| Post-Construction Controls for New Development and Redevelopment | Comprehensive Stormwater Ordinance | Enforce all provisions of the Stormwater ordinance and document any violations and/or enforcement measures. | December 2020-2024     |

### ***Responsible Division(s)***

The Environmental Services, Public Works, Engineering Services, and Building Inspections Divisions are responsible for implementing this BMP to meet Measurable Goal 4.1.

### **4.2 Stormwater Structural Control Program**

The Town of Flower Mound currently integrate inspections of post-construction stormwater quality controls into existing inspections conducted by Town staff. Town staff will require private developments to maintain and/or repair their stormwater control measures, when necessary. Town staff is responsible for inspection and maintenance of municipally owned stormwater control measures.

The Town of Flower Mound will create an inventory of public and private stormwater ponds utilized in developments throughout the Town for the purpose of post-construction stormwater management. The Town will then create a map layer showing the locations and attributes of all of the stormwater ponds throughout the Town.

### ***Measurable Goals***

The measurable goal for implementation of this BMP is to create an inventory of all of the stormwater ponds throughout the Town and create a map layer showing the locations and attributes of these ponds

### ***Schedule***

| <b><i>PROGRAM</i></b>                                            | <b><i>BMP</i></b>                                       | <b><i>ACTIVITY</i></b>                                                                  | <b><i>DATE DUE</i></b> |
|------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------|
| Post-Construction Controls for New Development and Redevelopment | Evaluate and Enforce the Stormwater Inspections Program | Create an inventory of all stormwater ponds in the Town                                 | December 2021          |
|                                                                  |                                                         | Create a map layer showing locations and attributes of the stormwater ponds in the Town | December 2022          |

|  |  |                                                                                                             |               |
|--|--|-------------------------------------------------------------------------------------------------------------|---------------|
|  |  | Coordinate with other departments to develop a specific inspection/maintenance program for stormwater ponds | December 2024 |
|--|--|-------------------------------------------------------------------------------------------------------------|---------------|

***Responsible Division(s)***

The Environmental Services, Public Works, and GIS Departments are responsible for implementing this BMP to meet measurable goal 4.3.

**4.3 Engineering Design Standards**

The Town of Flower Mound has developed design criteria and constructions standards documents which address drainage at new developments and redevelopments throughout the Town. The Engineering Services Division reviews all site plans as part of the Town's development process to ensure that appropriate controls are included in all site development. An Environmental Services or Public Works Division representative attends preconstruction meetings and gathers information about construction and post-construction BMPs.

***Measurable Goals***

The Environmental Services and Public Works Division will work with the Engineering Services Division to ensure that the proper BMPs are put in place at all developments to ensure that stormwater quality throughout the Town is not negatively impacted. The Town will measure this goal by documenting the number of projects reviewed for post-construction control measures.

***Schedule***

| <b><i>PROGRAM</i></b>                                            | <b><i>BMP</i></b>            | <b><i>ACTIVITY</i></b>                                                                                                                                                       | <b><i>DATE DUE</i></b> |
|------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Post-Construction Controls for New Development and Redevelopment | Engineering Design Standards | Review engineering plans for all new development and redevelopment to ensure that they are in compliance with the Town's design standards for structural stormwater controls | December 2020-2024     |

***Responsible Division(s)***

The Environmental Services, Public Works, Building Inspections and Engineering Services Divisions are responsible for implementing this BMP to meet measurable goal 4.3.

## **5. Pollution Prevention/Good Housekeeping for Municipal Operations**

### ***Current Programs***

Currently the Town of Flower Mound's individual divisions ensure that applicable pollution prevention controls are in place and effectively maintained. The Environmental Services Division provides technical services to other divisions, as needed. Current pollution prevention/good housekeeping programs include:

- Fleet vehicle maintenance/washing
- Parking lot and street cleaning
- Storm drain system cleaning/maintenance
- Water materials management
- Road salt/sand application and storage practices
- Used oil recycling
- Best management practices
- Roadway and bridge maintenance policies
- Park maintenance provisions

### **Selected BMPs for Pollution Prevention/Good Housekeeping for Municipal Operations**

#### **5.1 Facility Specific Standard Operating Procedures (SOPs)**

The Town of Flower Mound will maintain internal standard operating procedures (SOPs) for each Town facility, which will identify potential stormwater quality impairments resulting from municipal operations and activities. The internal SOPs will function similar to an Environmental Management System and will provide structural and non-structural pollution prevention options through a series of best management practices that are specific to each Town facility.

### ***Measurable Goals***

The measurable goal for implementation of the SOPs will be to review 50% of SOPs for designated Town facilities annually. Any necessary updates will be made to the SOPs and documented in subsequent annual reports.

### ***Schedule***

| <b><i>PROGRAM</i></b>                  | <b><i>BMP</i></b>                               | <b><i>ACTIVITY</i></b>                  | <b><i>DATE DUE</i></b> |
|----------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------|
| Pollution Prevention/Good Housekeeping | Facility Specific Standard Operating Procedures | Review 50% of existing SOP(s) annually. | December 2020-2024     |

### ***Responsible Division(s)***

All applicable divisions are responsible for implementing the SOP program to meet Measurable Goal 5.1.

### **5.2 MS4 Facility and Stormwater Controls Inventory**

The Town of Flower Mound will maintain an inventory of facilities and stormwater controls that it owns and operates within the regulated area of the MS4. If feasible, the inventory may include all applicable permit numbers, registration numbers, and authorizations for each facility or controls.

### ***Measurable Goals***

The measurable goal for this BMP will be to review the inventory of facilities and stormwater controls annually and update the Facility map and inventory as necessary. Details of the map and updates will be provided in the annual reports.

### ***Schedule***

| <b><i>PROGRAM</i></b>                  | <b><i>BMP</i></b>                              | <b><i>ACTIVITY</i></b>                                  | <b><i>DATE DUE</i></b> |
|----------------------------------------|------------------------------------------------|---------------------------------------------------------|------------------------|
| Pollution Prevention/Good Housekeeping | MS4 Facility and Stormwater Controls Inventory | Review the Facility Inventory and Facility Map annually | December 2020-2024     |

### ***Responsible Division(s)***

All applicable divisions are responsible for implementing and maintaining the Town's inventory of facilities and stormwater controls to meet Measurable Goal 5.2.

### **5.3 MS4 Facility Assessment**

In the previous permit term, the Town of Flower Mound developed a MS4 Facility and Stormwater Controls map that identified areas of municipal operations that may be contributing to stormwater runoff to the MS4. This permit term, the Town will use the map to identify high priority areas by establishing a facility inspection program.

### ***Measurable Goals***

The measurable goal for this BMP will be to collect the necessary data and begin to develop the framework and a checklist for facility inspection for permit year one. In permit year two, the goal will be to finalize and complete the facility inspection checklist. Permit years three through five will be used to conduct facility inspections and identify high priority areas within MS4 facility.

#### ***Schedule***

| <b><i>PROGRAM</i></b>                  | <b><i>BMP</i></b>       | <b><i>ACTIVITY</i></b>                                                           | <b><i>DATE DUE</i></b> |
|----------------------------------------|-------------------------|----------------------------------------------------------------------------------|------------------------|
| Pollution Prevention/Good Housekeeping | MS4 Facility Assessment | Develop a plan and checklist for facility inspections                            | December 2020          |
|                                        |                         | Finalize and complete the facility inspections checklist                         | December 2021          |
|                                        |                         | Conduct facility inspections and use the result to identify high priority areas. | December 2022-2024     |

#### ***Responsible Division(s)***

The Environmental Services, Public Works, Engineering and GIS divisions are responsible for developing and maintaining this BMP to meet Measurable Goal 5.3.

#### **5.4 MS4 Storm Sewer System Inspection and Maintenance Program**

As previously mentioned, The Town of Flower Mound maintains a stormwater controls inventory. The Town inspects and maintains the controls that are part of the municipally owned storm sewer system throughout the extent of the Town's MS4.

#### ***Measurable Goals***

The measurable goal for this BMP is to inspect at least 100 stormwater controls annually. This program will help identify controls which are in need of maintenance in order to reduce to the maximum extent practicable the collection of pollutants in catch basins and other surface drainage structures. During the course of the inspection program any areas where illegal dumping is observed will be added to a list of potential problem areas.

### ***Schedule***

| <b><i>PROGRAM</i></b>                  | <b><i>BMP</i></b>                                         | <b><i>ACTIVITY</i></b>                            | <b><i>DATE DUE</i></b> |
|----------------------------------------|-----------------------------------------------------------|---------------------------------------------------|------------------------|
| Pollution Prevention/Good Housekeeping | MS4 Storm Sewer System Inspection and Maintenance Program | Inspect at least 100 stormwater controls annually | December 2020-2024     |

### ***Responsible Division(s)***

The Public Works Division are responsible for developing and maintaining this BMP to meet Measurable Goal 5.3.

### **5.5 MS4 Operations and Maintenance Training**

The Town of Flower Mound has developed a training program for all employees responsible for municipal operations that potentially pose an impact to stormwater quality, including discharges into the MS4. The training program includes training materials directed at preventing and reducing stormwater pollution from municipal operations. A list of training completed by Town staff will be provided in the annual report.

The O&M Program will contain at a minimum the following procedures:

- Evaluation of potential stormwater impacts from O&M activities
- Identification of pollutants of concern that may be discharged from O&M activities
- Development and implantation of pollution prevention measures that will reduce discharge of pollutants from O&M activities
- Development of a list of potential problem areas for increased inspection frequency

### ***Measurable Goals***

The measurable goal for this BMP will be to conduct annual training for all operations and maintenance departments. All designated employees will undergo annual training throughout the permit term. The total number of employees trained per year will be documented and provided in the annual reports.

### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>                       | <b><i>ACTIVITY</i></b>                                        | <b><i>DATE DUE</i></b> |
|--------------------------------------------|-----------------------------------------|---------------------------------------------------------------|------------------------|
| Pollution Prevention/<br>Good Housekeeping | MS4 Operations and Maintenance Training | Conduct Operations and Maintenance Program training annually. | December 2020-2024     |

### ***Responsible Division(s)***

All applicable divisions are responsible for implementing the training program to meet Measurable Goal 5.4.

### **5.6 Street Cleaning Program**

The Town of Flower Mound currently accomplishes street cleaning through the implementation of an annual street sweeping agreement which consists of periodic sweeping of previously identified streets within the town limits. Per the street sweeping services agreement, it is the responsibility of the contractor to transport and properly dispose of all sweeping in accordance with local, state, and federal requirements. The Town prohibits storage or disposal of sweeping at temporary storage sites. The contractor is required to notify Town staff regarding which disposal site(s) are used.

### ***Measurable Goals***

The measurable goal for this BMP is to conduct at least two (2) street sweeping events per year in compliance with the Town's Street Cleaning Plan.

### ***Schedule***

| <b><i>PROGRAM</i></b>                      | <b><i>BMP</i></b>    | <b><i>ACTIVITY</i></b>                          | <b><i>DATE DUE</i></b> |
|--------------------------------------------|----------------------|-------------------------------------------------|------------------------|
| Pollution Prevention/<br>Good Housekeeping | Street Cleaning Plan | Conduct two (2) street sweeping events annually | December 2020-2024     |

### ***Responsible Division(s)***

All applicable divisions are responsible for implementing the training program to meet Measurable Goal 5.6.

## **7. Authorization for Municipal Construction Activities**

The development of this MCM for construction activities, where the small MS4 is the site operator, is optional and provides an alternative to the MS4 operator seeking coverage under TPDES CGP, TXR150000 for each construction activity. Permittees that choose to develop this measure will be authorized to discharge stormwater and certain non-stormwater from construction activities where the MS4 operator meets the definition of a construction site operator in Part I of this general permit.

When developing this measure, permittees are required to meet all requirements of, and be consistent with, applicable effluent limitation guidelines for the Construction and Development industry (40 CFR Part 450), TPDES CGP TXR150000, and Part III.B.3 of this permit.

Utilization of this MCM does not preclude a small MS4 from obtaining coverage under the TPDES CGP, TXR150000, or under an individual TPDES permit. This MCM is only available for projects where the small MS4 is a construction site operator or owner, and the MCM does not provide any authorization for other construction site operators at a municipal project.

Controls required under this MCM must be implemented prior to discharge from a municipal construction site into surface water in the state.

The Town of Flower Mound will be incorporating this optional MCM into its SWMP starting this permit term.

### ***Current Programs***

The overall goal of the Municipal Construction Activities program for the Town of Flower Mound is to reduce water pollution from municipal construction projects by utilizing proper erosion and sediment controls, reviewing erosion control plans, and developing contractual controls for work performed by outside parties. The Town requires all construction projects, including Town facility and capital improvement projects, to submit an erosion control plan for review by Town staff. The Town plans to implement MCM 7 for all municipal construction activities throughout the Town.

## **Selected BMPs for Pollution Prevention/Good Housekeeping for Municipal Operations**

### **7.1 Erosion Control Plan Review**

Town staff requires erosion control plans to be submitted for all capital improvement and other Town construction projects. These plans are reviewed by staff knowledgeable about erosion and sediment control devices. Site topography, storm sewer system layout, adjacent open water bodies, and other pertinent site information is taken into consideration in the review process. The erosion control plan generally becomes the site map used by outside parties in the SWPPP. It is the responsibility of the project manager to make the plans available for review. The Town only reviews the plans as submitted by the Town's contractor for the project. It is the contractor's responsibility to prepare the plans.

### ***Measurable Goals***

The Town will review all erosion control plans for municipal construction activities and will include the number of plans reviewed in the annual report.

### ***Schedule***

| <b><i>PROGRAM</i></b>             | <b><i>BMP</i></b>           | <b><i>ACTIVITY</i></b>                                                 | <b><i>DATE DUE</i></b> |
|-----------------------------------|-----------------------------|------------------------------------------------------------------------|------------------------|
| Municipal Construction Activities | Erosion Control Plan Review | Review all erosion control plans for municipal construction activities | December 2020-2024     |

### ***Responsible Division(s)***

The Public Works and Engineering Services divisions are responsible for implementing the program to meet Measurable Goal 7.1.

### **7.2 Municipal Construction Site Inspections**

Town staff will inspect stormwater BMPs utilized at municipal construction projects

### ***Measurable Goals***

The Town will inspect all municipal construct projects and report the number of inspections performed at municipal construction activities.

### ***Schedule***

| <b><i>PROGRAM</i></b>             | <b><i>BMP</i></b>                       | <b><i>ACTIVITY</i></b>                                                  | <b><i>DATE DUE</i></b> |
|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------------|------------------------|
| Municipal Construction Activities | Municipal Construction Site Inspections | Conduct stormwater inspections at all municipal construction activities | December 2020-2024     |

### ***Responsible Division(s)***

The Environmental Services, Public Works, and Engineering Services divisions are responsible for developing and maintaining the program to meet Measurable Goal 7.2.

### **7.3 Stormwater Pollution Prevention Plan Review**

Town staff requires SWPPPs to be developed for all municipal construction activities that disturb one acre of land area or more. Prior to construction projects beginning, the SWPPP is reviewed for completeness by Town staff, and comments may be made to address any identified deficiencies. After project approval, SWPPPs may be reviewed by Town staff to ensure that they have been updated as needed and site conditions are reflected appropriately. Generally, the Town is not the operator with day to day operational control of municipal construction activities, and certification statements to that effect are included in the SWPPP which is signed and dated by representatives for both the Town and the Contractor. The Town relies heavily upon its selected contractor to perform inspections and update the SWPPP. Signed copies of the Contractor's NOI, and any other evidence of State authorization for the Contractor for the appropriate project, will be included with the SWPPP for Town review. Approval of the SWPPP is required prior to start of construction.

**Measurable Goals**

The Town will review all SWPPPs for municipal construction activities and document the number of approved SWPPPs for each year in the annual report.

**Schedule**

| <b>PROGRAM</b>                    | <b>BMP</b>                                  | <b>ACTIVITY</b>                                         | <b>DATE DUE</b>    |
|-----------------------------------|---------------------------------------------|---------------------------------------------------------|--------------------|
| Municipal Construction Activities | Stormwater Pollution Prevention Plan Review | Review all SWPPPs for municipal construction activities | December 2020-2024 |

**Responsible Division(s)**

The Environmental Services, Public Works, and Engineering Services Divisions are responsible for implementing the program to meet Measurable Goal 7.3.

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## **PART III IMPAIRED WATER BODIES AND TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS**

### **Impaired Water Body Mitigation Requirements**

The Town of Flower Mound directly discharges into an impaired segment known as 0826 – Grapevine Lake. The Pollutant of Concern (POC) for the impaired segment is identified in the *2014 Texas Integrated Report Index of Water Quality Impairments* as pH. The pH level for this segment has been consistently high. The Town of Flower Mound investigated the impaired water body segment during the previous permit term to determine what, if any, contribution the Town was adding to the segment and it does not appear that the Town is contributing to the impairment. If at any point during the current permit term it is determined that the Town is a source of the POC, appropriate BMPs will be evaluated and implemented.

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## STORMWATER CONTACTS

**Mailing Address:**

2121 Cross Timbers Road  
Flower Mound, TX 75028

**Matthew Woods**

Director of Environmental Services  
Environmental Services Division  
972-874-6348  
matthew.woods@flower-mound.com

**Clay Riggs**

Assistant Director of Public Works  
Public Works Division  
972-874-6411  
clayton.riggs@flower-mound.com

**Joseph Whiteley**

Environmental Review Analyst  
Environmental Services Division  
972-874-6354  
matthew.green@flower-mound.com

**Jeleeza Clark**

Stormwater Analyst  
Public Works Division  
972-874-6420  
subha.pandey@flower-mound.com

**Robert Pegg**

Engineering Manager – Development Services  
Engineering Services Division  
972-874-6312  
robert.pegg@flower-mound.com

**Brian Waltenburg**

Engineering Manager  
CIP/Construction Plan Management Division  
972-874-6306  
brian.waltenburg@flower-mound.com

**Jeff Garner**

Director of Facilities Management  
Facilities Management Division  
972-874-6064  
jeff.garner@flower-mound.com

**Joelle Hainley**

Building Official  
Development Services Division  
972-874-6369  
joelle.hainley@flower-mound.com

## **Appendix A**

**TPDES General Permit No. TXR040000**

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## **Appendix B**

### **Annual Reports**

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