City of Fulton
Stormwater Management Plan and Stinson Creek TMDL Assumptions and Requirements Attainment Plan

2017 - 2021

Draft

September 30, 2019
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1. Stormwater Management Program Requirements

On October 1, 2016, the Missouri Department of Natural Resources (MDNR) issued the City of Fulton (City) a new General State Operating Permit (MO-R040005) which regulates discharges from the City’s municipal separate storm sewer system (MS4) in accordance with 10 CSR 20-6.200. The MS4 permit requires the City to implement best management practices (BMPs) via an iterative process to reduce the discharge of pollutants to the maximum extent practicable (MEP).

BMPs must be implemented to address the following six minimum control measures (MCM):

1. Public education and outreach of storm water impacts
2. Public involvement/participation
3. Illicit discharge detection and elimination
4. Construction site storm water runoff control
5. Post-construction storm water management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations

The MS4 permit requires that the City develop and implement a stormwater management program and plan (SWMP) that identifies actions the City will pursue to comply with the six MCMs over the permit period. According to the permit, the SWMP must include the following information:

- BMPs developed or designed with a purpose of reducing stormwater pollution. BMPs must include a description, purpose, and expected result.
- Measureable goals that will be used to measure BMP progress, where quantifiable.
- The person(s) responsible for implementing the SWMP.
- An iterative process that identifies how each BMP is evaluated and subject to replacement or modification.

The 2016 permit also includes additional special conditions for MS4 areas identified in total maximum daily loads (TMDL) studies with an applicable wasteload allocation (WLA). In particular, the permittee must develop an Assumptions and Requirements Attainment Plan (ARAP) to address the TMDL requirements, where applicable. The ARAP must include many of the same BMP requirements as the overarching SWMP (i.e., measureable goals, iterative review, define the expected result, etc.), but should specify BMPs developed or designed with the purpose of reducing pollutants identified in the TMDL.

The City developed a SWMP document in 2007 to address requirements of the prior MS4 permit. It was subsequently revised in 2014. In 2015, the Missouri Department of Natural Resources (MDNR) conducted a compliance inspection and found that the City’s program lacked a number of elements required by the permit. In particular, the City is required to develop a number of ordinances, operating procedures, and guidance manuals to better comply with MCM requirements. In 2010, MDNR developed a TMDL for Stinson Creek which includes requirements for the MS4 system.
This revised SWMP outlines the City’s plan to comply with the new 2016 permit requirements and supersedes the 2007 document. It also is intended to serve as the ARAP to implement the Stinson Creek TMDL.

1.1 Program Overview and Implementation

The City’s SWMP is set up to be flexible enough for unforeseen future challenges. The program addresses each of the six MCMs with BMPs and measurable goals to improve storm water quality while gauging the effectiveness of the program. The BMPs and measurable goals will each be reviewed and evaluated for effectiveness at the beginning of each permit cycle to determine if they should be continued, replaced, or otherwise modified. The City’s plan for addressing each MCM during the current permit cycle is outlined in a more detailed manner throughout the remainder of this report and accompanying attachments.

Because this SWMP was developed halfway through the new permit cycle, it only addresses the actions and BMPs that will be implemented during the remaining three years of the permit (2019, 2020, and 2021). Many of the anticipated actions (Table 1) are focused on developing the necessary ordinances, operating procedures, and guidance manuals that will be used to comply with existing MCMs and guide development of new or revised BMPs in future permit cycles.

### Table 1. Procedures that will be developed to comply with the 2016 permit.

<table>
<thead>
<tr>
<th>Anticipated Implementation Year*</th>
<th>Permit Citation</th>
<th>MCM</th>
<th>Permit Requirement</th>
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<tbody>
<tr>
<td>2019</td>
<td>4.2.3.1.2 and 4.2.3.1.8</td>
<td>3</td>
<td>Ordinance to prohibit illicit discharges and enact penalties</td>
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<tr>
<td></td>
<td>4.2.3.1.4</td>
<td>3</td>
<td>Procedure for field screening and testing</td>
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<td></td>
<td>4.2.3.1.6</td>
<td>3</td>
<td>Procedure for tracing the source of the discharge</td>
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<tr>
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<td>4.2.3.1.7</td>
<td>3</td>
<td>Procedure for eliminating the discharge</td>
</tr>
<tr>
<td></td>
<td>4.2.4.1.1</td>
<td>4</td>
<td>Ordinance requiring erosion and sediment BMPs</td>
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<tr>
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<td>4.2.4.1.6</td>
<td>4</td>
<td>Ordinance or regulatory mechanism to ensure compliance and issue sanctions</td>
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<tr>
<td></td>
<td>4.2.5.1.1</td>
<td>5</td>
<td>Ordinance to address post-construction runoff</td>
</tr>
<tr>
<td></td>
<td>4.2.5.1.5</td>
<td>5</td>
<td>Ordinance or regulatory mechanism to require inspections</td>
</tr>
<tr>
<td>2020</td>
<td>4.2.4.1.2</td>
<td>4</td>
<td>Requirements to control construction site waste</td>
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<td></td>
<td>4.2.4.1.3</td>
<td>4</td>
<td>Procedure to consider and review all pre-construction plans</td>
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<td>4</td>
<td>Procedures for the receiving and considering information submitted by the public</td>
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<td>4</td>
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<tr>
<td>2021</td>
<td>4.2.5.1.2</td>
<td>5</td>
<td>Plan or procedures to ensure adequate long-term maintenance</td>
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<td>4.2.5.1.3</td>
<td>5</td>
<td>Strategies to minimize water quality impacts</td>
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<tr>
<td></td>
<td>4.2.5.1.4</td>
<td>5</td>
<td>Inspection plan with implementation schedules</td>
</tr>
<tr>
<td></td>
<td>4.2.6.1.3</td>
<td>6</td>
<td>Procedures to guide implementation of maintenance BMPs and long-term inspections</td>
</tr>
</tbody>
</table>

*This column indicates the year the City intends to begin taking action on the requirements listed. Given the time and resources necessary to research, develop, and in some cases gain approval from the City Council, the City recognizes that completing some activities may take multiple permit years. The City will report their progress on these activities in each annual report.

The City intends to develop and enforce all necessary procedures by the end of the permit period in 2021, but has prioritized their development in an attempt to most efficiently use existing resources and protect water quality. In particular, the City has chosen to prioritize activities that are expected to have the greatest impact on improving the potential for reducing pollutants identified in the Stinson Creek
TMDL. For 2019, the City will focus on developing ordinances and procedures to eliminate illicit discharges, reduce construction site runoff, and address post-construction BMPs. These activities are prioritized early to provide the City with the regulatory authority and tools necessary to address potential sources of organic waste and sediment, which likely contain high levels of nutrients. In 2020 and 2021, the City will more fully develop plan review, inspection, and maintenance procedures to further improve water quality and meet permit requirements.

The City has identified anticipated implementation years for each of the planned actions in Table 1. The City will make every effort to complete the activities during the years listed, but recognize that multiple permit years will likely be needed because some activities may take more time and resources to complete than others. For example, ordinances and regulatory mechanisms that are developed during 2019 will need to be reviewed and approved by the City Council before they are enacted. Because City staff do not control the Council’s agenda, the approval of these ordinances may occur in 2020. Therefore, the City is committing to begin implementing each of the actions in Table 1 during the year listed and will report on progress towards completion in each annual report.

1.2 2010 Stinson Creek TMDL and ARAP

In 2010, MDNR issued a TMDL to address dissolved oxygen (DO) impairments in Stinson Creek. According to the TMDL, low DO conditions were attributed to organic sediment, carbonaceous biochemical oxygen demand (CBOD), total nitrogen (TN), and total phosphorus (TP) levels in the stream. The City’s wastewater treatment plant (WWTP) and MS4 system were identified as the largest point sources that contributed to the impairment and were assigned a WLA. A number of smaller point source discharges, as well as nonpoint sources, were also considered.

The final WLAs applied to the City’s WWTP and MS4 system through the TMDL are extremely stringent (Table 2) and are below levels that can be consistently achieved with current technology. In 2013, the City and MDNR entered into a Memorandum of Understanding to facilitate implementation of the TMDL. The City and MDNR have agreed to use an adaptive management approach for implementing the TMDL, whereby the City will make incremental upgrades at their WWTF and MDNR will conduct follow up water quality and biological studies to measure improvements in Stinson Creek. This adaptive management approach outlined for the WWTP compliments the iterative and adaptive implementation process required by the 2016 MS4 permit to reduce the discharge of pollutants to the MEP.

Table 2. Concentration-based wasteload allocations assigned in the Stinson Creek TMDL.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Equivalent Concentration</th>
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<tbody>
<tr>
<td>Total Nitrogen</td>
<td>0.855 mg/L</td>
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<tr>
<td>Total Phosphorus</td>
<td>0.092 mg/L</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>5 mg/L</td>
</tr>
<tr>
<td>Carbonaceous Biochemical Oxygen Demand</td>
<td>9 mg/L</td>
</tr>
</tbody>
</table>
In accordance with the ARAP requirements in Section 3 of the current MS4 permit, the City has identified BMPs for each MCM that are intended to reduce pollutants identified in the TMDL. In particular, the City has identified those practices and actions that are expected to reduce stormwater contributions of TN and TP to Stinson Creek. The City will evaluate progress towards attaining the TMDL through an assessment of measureable goals which have been identified for each of the BMPs. Although the follow up water quality and biological monitoring described above are primarily intended to evaluate stream conditions with respect to the WWTP upgrades, the results of these periodic evaluations will also be useful for characterizing watershed-scale improvements over time. Specific BMPs that address the TMDL pollutants are outlined in a more detail throughout the remainder of this report and accompanying attachments.

1.3  Applicability and Geographical Extent
Regulated MS4 communities include those which serve a population of one thousand (1,000) or more within an urbanized area, or any MS4 located outside of an urbanized area serving a jurisdiction with a population of at least ten thousand (10,000) and a population density of one thousand (1,000) people per square mile or greater (10 CSR 20-6.200(1)(D)(24)). The City is considered to be a regulated small MS4, and as such is subject to federal (40 CFR 122.34) and state (10 CSR 20-6.200) stormwater regulations. The City’s urbanized area is presented in Figure 1.

1.4  SWMP Responsibility
The person primarily responsible for implementing the SWMP is listed below:

City of Fulton Public Works Department
Engineering Division
Kyle Bruemmer, PE
18 East 4th Street
Fulton, MO 65251
P – 573-592-3160
Figure 1. Map of the Fulton Urbanized Area, City Limits, and Area Classified Streams.
2. Minimum Control Measure #1 – Public Education and Outreach of Stormwater Impacts

Section 4.2.1.1 of the 2016 permit requires the City to implement a public education program to distribute educational material to the community or conduct equivalent outreach activities about the impact of stormwater discharges on waterbodies and steps the public can take to reduce pollutants in stormwater runoff. As part of the SWMP, the Public Education and Outreach Program shall include the following information at a minimum:

- Section 4.2.1.1.1 – A plan on how target audiences are identified for the public education program who are likely to have significant stormwater impacts (including commercial and industrial entities);
- Section 4.2.1.1.2 – A plan to inform individuals and households about steps they can take to reduce stormwater pollution;
- Section 4.2.1.1.3 – A plan to inform individuals and groups on how to become involved in the SWMP (with activities such as local stream and lake restoration activities);
- Section 4.2.1.1.4 – The outreach strategy, including the mechanisms (e.g., printed brochures, newspapers, media, workshops, etc...) to reach target audiences; and
- Section 4.2.1.1.5 – The pollutant(s) sources that the City’s education program is designed to address.

Specific BMPs to address MCMs are included in Attachment 1. Targeted pollutant sources (4.2.1.1.5) are addressed below.

1) Pet Waste - Pet waste left on the ground can be a source of bacteria, ammonia, BOD, and nutrients. Reducing pet waste will also help to address requirements in the Stinson Creek TMDL.
2) Yard Management - Yard waste, fertilizers, and pesticides that are transported to streams can contribute to low dissolved oxygen, increased nutrient levels, elevated suspended solids, or toxicity to aquatic life. Addressing yard waste will also help to address requirements in the Stinson Creek TMDL.
3) Household Trash and Hazardous Waste – If improperly disposed of, chemicals contained in many household products may contaminate and streams.
4) Land Disturbance - Land disturbance is dredging, clearing, grading, excavating, transporting or filling from construction activities. Sediment and nutrients (particularly phosphorus) are the primary pollutants that can result from land disturbance activities. Addressing land disturbance activities will also help to address requirements in the Stinson Creek TMDL.
3. Minimum Control Measure #2 – Public Involvement and Participation

Section 4.2.2.1 of the 2016 Permit requires the City to implement a public involvement/participation program that provides opportunities for public involvement in the development and oversight of the SWMP, and provides opportunities for public involvement of the City’s permit renewal application. The public involvement/participation program shall, at a minimum, include the following:

- Section 4.2.2.1.1 – A public notice period to allow the public to review the SWMP and renewal application prior to the submission of the SWMP and renewal application to the Department. It is recommended that the public review period is at least 10 (ten) business days;
- Section 4.2.2.1.2 – A notice of public meeting, if needed, regarding the SWMP and renewal application. It is recommended that the notice should be at least 72 hours prior to the meeting;
- Section 4.2.2.1.3 – A plan to target all potentially affected stakeholder groups, including but not limited to, commercial and industrial businesses, trade associations, environmental groups, homeowner associations and educational organizations;
- Section 4.2.2.1.4 – If the permittee utilizes a stormwater management panel/committee, then the permittee shall provide opportunities for citizen representatives on the panel/committee;
- Section 4.2.2.1.5 – If appropriate, volunteer monitoring or stream/lake clean-up activities; and
- Section 4.2.2.1.6 – Provide opportunities and work with citizen volunteers willing to educate others about the permittee’s SWMP.

Specific BMPs to address MCM #2 are included in Attachment 2.
4. Minimum Control Measure #3 – Illicit Discharge Detection and Elimination

Section 4.2.3.1 of the 2016 Permit requires the City to develop, implement, and enforce a program to detect and eliminate illicit discharges, as defined in 10 CSR 20-6.200 and 40 CFR 122.34(b)(3), into the MS4. As part of the SWMP document, the permit requires that the illicit discharge detection and elimination program include the development and implementation of, at a minimum:

- Section 4.2.3.1.1 – A storm sewer map showing the location of all constructed outfalls and the names and locations of all receiving waters of the state that receive discharges from those outfalls. The permittee shall describe the sources of information used for the map(s), and how the permittee plans to verify the outfall locations with field surveys. If already completed, the permittee shall describe how the map was developed and how the map will be regularly updated. The permittee shall make the map information available to the Department upon request;
- Section 4.2.3.1.2 – To the extent allowable under state or local law an effective prohibition, through ordinance or other regulatory mechanism, of non-stormwater discharges into the permittee’s storm sewer system and implementation of appropriate enforcement procedures and actions. The permittee shall identify the mechanism (ordinance or other regulatory mechanism) the permittee will use to effectively prohibit illicit discharges into the Small MS4. If the permittee needs to develop this mechanism, describe the permittee’s plan and implementation schedule. If the permittee’s ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with the permittee’s SWMP;
- Section 4.2.3.1.3 – A plan and implementation schedule to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the permittee’s system;
- Section 4.2.3.1.4 – A dry weather field screening plan for non-stormwater flows and field tests of selected chemical parameters as indicators of discharge sources. The plan shall also address on-site sewage disposal systems that flow into the permittee’s storm drainage system;
- Section 4.2.3.1.5 – Procedures for locating priority areas which include areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines) or ambient sampling to locate impacted reaches;
- Section 4.2.3.1.6 – Procedures for tracing the source of an illicit discharge, including the specific techniques the permittee will use to detect the location of the source;
- Section 4.2.3.1.7 – Procedure for eliminating the illicit discharge;
- Section 4.2.3.1.8 – A plan to ensure through appropriate enforcement procedures, including fines, and actions that the permittee’s illicit discharge ordinance (or other regulatory mechanism) is implemented;
- Section 4.2.3.1.9 – A plan to inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste. The permittee shall describe how this plan will coordinate with all other minimum control measures, monitoring, and TMDL implementation (if applicable);
• Section 4.2.3.1.10 – A plan to address non-stormwater discharges or flows (i.e., illicit discharges) the permittee identifies as significant contributors of pollutants to the regulated Small MS4 including authorized non-stormwater discharges contained in Section 1.2.2.2 of the permit.

Specific BMPs to address MCM #3 are included in Attachment 3. For this MCM, the permit requires that the City develop new policies and procedures to guide implementation and enforcement activities. The presence of illicit discharges into the City’s MS4 system would have significant negative impacts on water quality conditions in area receiving streams. Therefore, the City intends to prioritize development of the required policies during 2019. Because illicit discharges would also likely contain high levels of BOD, ammonia, and nutrients, implementing illicit discharge requirements early in the SWMP will also help to achieve progress towards meeting requirements of the Stinson Creek TMDL.

The City anticipates developing the policies and procedures listed below in accordance with this MCM. Procedures outlined below may be maintained individually or may be combined into a single operating procedure document.

• Ordinance to prohibit illicit discharges and enact penalties (4.2.3.1.2 and 4.2.3.1.8)
• Procedure for field screening and testing (4.2.3.1.4)
• Procedure for tracing the source of the discharge (4.2.3.1.6)
• Procedure for eliminating the discharge (4.2.3.1.7)
5. Minimum Control Measure #4 – Construction Site Stormwater Runoff Control

Section 4.2.4.1 of the 2016 Permit requires the permittee to develop, implement and enforce a program to reduce pollutants in any stormwater runoff to their regulated Small MS4 from construction activities that result in land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre shall be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. As part of the SWMP, the permittee’s construction site stormwater runoff control program shall include the development and implementation of, at a minimum:

- 4.2.4.1.1 An ordinance or other regulatory mechanism to require operators to implement erosion and sediment control BMPs at construction sites; to include sanctions designed to ensure compliance, to the extent allowable under state or local law; and
  - 4.2.4.1.1.1 If the permittee needs to develop this mechanism, the permittee shall describe the plan and scheduled implementation. If the permittee’s ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the permittee’s SWMP.

- 4.2.4.1.2 Requirements for construction site operators to control construction-site waste that may cause adverse impacts to water quality, such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste;

- 4.2.4.1.3 Procedures for the permittee to consider and review all pre- construction site plans for potential water quality impacts;

- 4.2.4.1.4 Procedures for the permittee to receive and consider information submitted by the public, including coordination with the permittee’s public education and involvement programs;

- 4.2.4.1.5 Procedures for the permittee to inspect sites and enforce control measures, including prioritization of site inspection; and

- 4.2.4.1.5.1 The permittee shall inspect (or require inspection of) any structure that functions to prevent pollution of stormwater or to remove pollutants from stormwater and ensure that all BMPs are implemented and effective; and a monitoring plan with implementation schedules shall be referenced in the SWMP document.

- 4.2.4.1.6 A plan designed to ensure compliance with the permittee’s erosion and sediment control regulatory mechanism, including the sanctions and enforcement mechanisms the permittee will use to ensure compliance and procedures for when certain sanctions will be used. Possible sanctions include non-monetary penalties (such as stop work orders), fines, bonding requirements, and/or permit denials for non-compliance.

Specific BMPs to address MCM #4 are included in Attachment 4. For this MCM, the permit requires that the City develop new policies and procedures to guide implementation and enforcement activities. Given the time and resources needed to develop the illicit discharge procedures in 2019, the City expects that most construction site runoff procedures will be developed through the year 2020. However, the City does intend to enact ordinances to require and enforce implementation of erosion
and sediment control BMPs by the end of 2019. Enacting these ordinances will also help to make progress towards attaining the Stinson Creek TMDL because erosion and sediment runoff likely contribute phosphorus and organic matter to the stream during runoff events.

The City anticipates developing the policies and procedures listed below in accordance with this MCM. Procedures outlined below may be maintained individually or may be combined into a single operating procedure document.

Permit Year 2019

- Begin process to enact ordinance requiring erosion and sediment BMPs (4.2.4.1.1)
- Begin process to enact ordinance or regulatory mechanism to ensure compliance and issue sanctions (4.2.4.1.6)

Permit Year 2020

- Requirements to control construction site waste (4.2.4.1.2)
- Procedure to consider and review all pre-construction plans (4.2.4.1.3)
  - The City currently requires that a stormwater management plan be submitted for review prior to the initiation of construction projects. The City will develop more formal procedures to document this process that align with the ordinances listed above.
- Procedures for the receiving and considering information submitted by the public (4.2.4.1.4)
- Procedures to inspect sites and enforce control measures (4.2.4.1.5)
  - The City currently inspects construction sites once per week and after every rain event. The City will develop formal procedures to document this process.
6. **Minimum Control Measure #5 – Post-Construction Stormwater Management in New Development and Redevelopment**

Section 4.2.5.1 of the 2016 Permit requires the City to develop, implement and enforce a program to address the quality of long-term stormwater runoff from new development and redevelopment projects that disturb equal to and greater than one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the City’s regulated Small MS4. The City’s program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts.

As part of the SWMP document, the post-construction runoff control program shall include the following information, at a minimum:

- **Section 4.2.5.1.1** – An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under state or local law. If the permittee needs to develop a mechanism, the permittee shall describe the plan and a schedule for implementation. If the permittee’s ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the SWMP document;

- **Section 4.2.5.1.2** – A plan to ensure adequate long-term operation and maintenance of selected BMPs, including, as appropriate, types of agreements between the permittee and other parties such as post-development landowners or regional authorities;

- **Section 4.2.5.1.3** – Strategies to minimize water quality impacts, which include a combination of structural and/or non-structural BMPs appropriate for the permittee’s community, including but not limited to the assessment of site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance. The goal of this approach is to arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, and utilize BMPs that effectively remove stormwater pollution. This can be achieved by reasonably mimicking pre-construction runoff conditions on all affected new development projects, or the permittee may achieve this goal through a method more appropriate for its community;

- **Section 4.2.5.1.4** – An inspection plan with implementation schedules for post-construction BMPs;

- **Section 4.2.5.1.5** – The permittee shall inspect or require the inspection of post-construction stormwater BMPs to ensure that all BMPs are implemented and effective.

The City’s current stormwater runoff requirements are outlined in Article III of the City code (Attachment 7). The current ordinance includes plan submittal requirements, as well as design criteria and performance standards that are primarily focused on reducing flooding from new development. The City will continue to review and revise the current ordinances to better align with the permit requirements above and address water quality. The City will also work to formalize implementation and
enforcement procedures that they currently implement into formal procedure documents. The City intends to begin developing and revising the required ordinances in 2019. Given the time and resources that will be needed to more fully research the appropriate policies for the community, most will be developed by the year 2021. Specific BMPs to address MCM #5 are included in Attachment 5.
7. **Minimum Control Measure #6 – Pollution Prevention and Good Housekeeping for Municipal Operations**

Section 4.2.6.1 of the small MS4 general permit requires the permittee to develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. As part of the SWMP, the pollution prevention/good housekeeping program shall include the following information, at a minimum:

- **Section 4.2.6.1.1** – A government employee training program to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. The permittee shall describe any existing, available material the permittee plans to use such as those available from EPA, the state, or other organizations. The permittee shall describe how this plan will coordinate with all other minimum control measures, monitoring and TMDL implementations where applicable;

- **Section 4.2.6.1.2** – A list of all municipal operations that are impacted by this operation and maintenance program. The permittee shall also include a list of industrial facilities that the permittee owns or operates that are subject to NDPES permits for discharges of stormwater associated with industrial activity that ultimately discharge to the permittee’s MS4. The permittee shall include the permit number or a copy of the No Exposure Exemption Certification (if applicable) for each facility. NPDES permitted facilities not owned or operated by the permittee are not required to be part of the list;

- **Section 4.2.6.1.3** – Maintenance BMPs, maintenance schedules, and long-term inspection procedures for controls to reduce floatable and other pollutants to the permittee’s regulated Small MS4;

- **Section 4.2.6.1.4** – Controls for reducing or eliminating the discharge of pollutants from street, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer station, fleet or maintenance shops with outdoor storage areas, and salt/sand

Specific BMPs to address MCM #6 are included in Attachment 6. For this MCM, Section 4.2.6.1.3 requires the City develop to develop new procedures to guide implementation of maintenance BMPs, schedules, and long-term inspections of structural and non-structural BMPs. The City intends to begin developing these procedures in the year 2021.
## Attachment 1.
### Minimum Control Measure #1 – Public Education and Outreach of Stormwater Impacts

<table>
<thead>
<tr>
<th>Permit Requirement</th>
<th>Description</th>
<th>Purpose</th>
<th>Measureable Goals, Milestones, and Dates</th>
<th>BMP Evaluation Process</th>
<th>Anticipated Progress Towards Attaining TMDL</th>
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<td>1</td>
<td>Insert a storm water pollution quiz on Stream Team Facebook page</td>
<td>Characterize baseline understanding of stormwater management</td>
<td>Identify potential audiences for future outreach</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>Identify active and interested groups, stakeholders, and individuals based on previous involvement with the stormwater program</td>
<td>Identify active groups and identify new target audiences</td>
<td>Up to date list of existing and potential audiences</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>Maintain stormwater pollution reporting form and telephone hotline</td>
<td>Identify stormwater pollution issues and target audiences</td>
<td>Correct potential pollution issues</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>Post flyers and other educational materials; make presentations to interested groups</td>
<td>Provide information on steps to prevent pollution and get involved</td>
<td>Increase awareness and positive behavior change</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>Include two stormwater-related articles per year in monthly newsletter that is distributed to all residential and commercial customers</td>
<td>Provide information, identify and target audiences</td>
<td>Increase awareness and positive behavior change</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>6</td>
<td>Maintain a link on Stream Team Facebook page concerning storm water pollution and prevention</td>
<td>Provide information on steps to prevent pollution</td>
<td>Increase awareness and positive behavior change</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7</td>
<td>Provide pet waste bags</td>
<td>Foster awareness</td>
<td>Increase awareness and positive behavior change</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
### Attachment 2.
#### Minimum Control Measure #2 – Public Involvement and Outreach

<table>
<thead>
<tr>
<th>Permit Requirement</th>
<th>Description</th>
<th>Purpose</th>
<th>Expected Result</th>
<th>Measureable Goals, Milestones, and Dates</th>
<th>Evaluation Process</th>
<th>Anticipated Progress Towards Attaining TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>BMP</td>
<td></td>
<td></td>
<td>Year 1 2017</td>
<td>Year 2 2018</td>
<td>Year 3 2019</td>
</tr>
<tr>
<td>4.2.2.1.1</td>
<td>8</td>
<td>Post SWMP and and solicit comments for 30 days</td>
<td>Provide opportunity for comment and input</td>
<td>Comply with permit requirement</td>
<td>Post SWMP for comment. Revise in response to comments, as necessary</td>
<td>None</td>
</tr>
<tr>
<td>4.2.2.1.2</td>
<td>9</td>
<td>Present and discuss SWMP at City Council meeting</td>
<td>Provide opportunity for comment and input</td>
<td>Comply with permit requirement</td>
<td>City Council meeting to present SWMP and obtain comments</td>
<td>None</td>
</tr>
<tr>
<td>4.2.2.1.3</td>
<td>10</td>
<td>Develop and maintain a list of organizations, outlets, and stakeholders to provide information.</td>
<td>Maintain contact with community, increase involvement, and conduct outreach</td>
<td>Provide education and participation opportunities to target audiences</td>
<td>Develop list of organizations, send letters or emails as necessary</td>
<td>Update list annually, send letters or emails as necessary</td>
</tr>
<tr>
<td>4.2.2.1.4</td>
<td>11</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>4.2.2.1.5</td>
<td>12</td>
<td>Participate in at least one Stream Team or trash pickup event annually</td>
<td>Foster pollution and water quality awareness</td>
<td>Improve stream quality and prevent future pollution</td>
<td>Participate in at least one event</td>
<td>Participate in at least one event</td>
</tr>
<tr>
<td>4.2.2.1.6</td>
<td>13</td>
<td>Coordinate with Stream Team to hold water quality education event with local schools or community groups</td>
<td>Foster pollution and water quality awareness</td>
<td>Improve stream quality and prevent future pollution</td>
<td>Coordinate one education event</td>
<td>Coordinate one education event</td>
</tr>
</tbody>
</table>
### Minimum Control Measure #3 – Illicit Discharge Detection and Elimination

<table>
<thead>
<tr>
<th>Permit Requirement</th>
<th>BMP</th>
<th>Measureable Goals, Milestones, and Dates</th>
<th>Evaluation Process</th>
<th>Anticipated Progress Towards Attaining TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>Description</td>
<td>Purpose</td>
<td>Expected Result</td>
<td>Year 1 2017</td>
</tr>
<tr>
<td>4.2.3.1.1</td>
<td>Maintain publicly available storm sewer map</td>
<td>Track outfalls and pipes</td>
<td>Comply with permit requirement</td>
<td>---</td>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>4.2.3.1.2</td>
<td>Enact and enforce ordinance to prohibit illicit discharges and enact penalties</td>
<td>Provides legal authority to eliminate illicit discharges</td>
<td>Comply with permit requirement</td>
<td>---</td>
</tr>
<tr>
<td>4.2.3.1.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.3.1.3</td>
<td>Survey all natural channels identified on stormwater map at least once every five years.</td>
<td>Detect and eliminate illicit discharges</td>
<td>Comply with permit requirement</td>
<td>---</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.2.3.1.4</td>
<td>Develop and maintain operating procedures for field screening and testing.</td>
<td>Timely and efficient identification of illicit discharges</td>
<td>Tools to identify and address illicit discharges</td>
<td>---</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.3.1.5</td>
<td>Maintain and review channel survey findings</td>
<td>Identify priority areas for potential monitoring and follow up</td>
<td>Address areas with high likelihood of illicit discharge</td>
<td>---</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.3.1.6</td>
<td>Develop and maintain operating procedures for tracing illicit discharges</td>
<td>Timely and efficient identification of illicit discharges</td>
<td>Have tools to identify and address illicit discharges</td>
<td>---</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.3.1.7</td>
<td>Maintain operating procedures for eliminating illicit discharges</td>
<td>Timely elimination of illicit discharges</td>
<td>Identify illicit discharges and take enforcement action as necessary</td>
<td>---</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permit Requirement</td>
<td>Description</td>
<td>Purpose</td>
<td>Expected Result</td>
<td>Evaluation Process</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------</td>
<td>---------</td>
<td>-----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>4.2.3.1.9 and 4.2.3.1.10</td>
<td>Address illicit discharges and authorized non-stormwater discharges</td>
<td>Foster awareness and change behavior</td>
<td>Provide education and increase awareness</td>
<td>Revise “City of Fulton Service and Dedication Guide” to include information about illegal discharges. Distribute guides</td>
</tr>
</tbody>
</table>
### Minimum Control Measure #4 – Construction Site Stormwater Runoff Control

<table>
<thead>
<tr>
<th>Permit Requirement</th>
<th>BMP</th>
<th>Measureable Goals, Milestones, and Dates</th>
<th>Evaluation Process</th>
<th>Anticipated Progress Towards Attaining TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2.4.1.1 And 4.2.4.1.6</td>
<td>23</td>
<td>Develop and enforce ordinance to implement erosion and sediment control BMPs</td>
<td>Decrease sediment loss</td>
<td>Begin process to enact ordinance</td>
</tr>
<tr>
<td>4.2.4.1.2</td>
<td>24</td>
<td>Develop and maintain written procedures and guidance materials for operators to follow</td>
<td>Increase waste capture</td>
<td>Develop procedures</td>
</tr>
<tr>
<td>4.2.4.1.3</td>
<td>25</td>
<td>Develop and maintain written procedures and guidance materials for operators to follow</td>
<td>Encourage use of appropriate BMPs</td>
<td>Develop procedures</td>
</tr>
<tr>
<td>4.2.4.1.4</td>
<td>26</td>
<td>Develop and maintain written procedures to receive and respond to public inquiries</td>
<td>Reduce pollution leaving site</td>
<td>Develop procedures</td>
</tr>
<tr>
<td>4.2.4.1.5</td>
<td>27</td>
<td>Develop and maintain written procedures to inspect sites</td>
<td>Enforce regulatory mechanism</td>
<td>Develop procedures to formalize inspection process</td>
</tr>
<tr>
<td>4.2.4.1.5</td>
<td>28</td>
<td>Regular inspection of BMPs at construction sites</td>
<td>Confirm functioning and appropriate BMPs</td>
<td>Inspect sites once per week and after every rain event</td>
</tr>
<tr>
<td>4.2.4.1.6</td>
<td>29</td>
<td>Develop and maintain written procedures and tools to enforce erosion and sediment control regulatory mechanism</td>
<td>Enforce regulatory mechanism</td>
<td>Begin process to enact ordinance</td>
</tr>
</tbody>
</table>
### Minimum Control Measure #5 – Stormwater Management in New Development

<table>
<thead>
<tr>
<th>Permit Requirement</th>
<th>BMP</th>
<th>Measureable Goals, Milestones, and Dates</th>
<th>Evaluation Process</th>
<th>Anticipated Progress Towards Attaining TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>Description</td>
<td>Purpose</td>
<td>Expected Result</td>
<td>Year 1</td>
</tr>
<tr>
<td>4.2.5.1.1</td>
<td>30 Develop and enforce ordinance to require post-construction runoff requirements</td>
<td>Require developers to implement appropriate strategies</td>
<td>New or redevelopment will implement BMPs as defined by ordinance</td>
<td>---</td>
</tr>
<tr>
<td>4.2.5.1.2</td>
<td>31 Develop plans or agreements to ensure long-term operation and maintenance of BMPs</td>
<td>Ensure long-term operation of BMPs</td>
<td>Functioning BMPs and improved water quality</td>
<td>---</td>
</tr>
<tr>
<td>4.2.5.1.3</td>
<td>32 Develop strategies to minimize water quality impacts through a combination of structural and non-structural BMPs</td>
<td>Reduce runoff and improve water quality</td>
<td>Implement BMPs to the MEP</td>
<td>---</td>
</tr>
<tr>
<td>4.2.5.1.4</td>
<td>33 Parking lot, park, and golf course landscaping program</td>
<td>Reduce runoff and improve water quality from parking lots</td>
<td>Implement BMPs to the MEP, community involvement</td>
<td>---</td>
</tr>
<tr>
<td>4.2.5.1.5</td>
<td>34 Develop an inspection plan for post-construction BMPs</td>
<td>Ensure long-term operation of BMPs</td>
<td>Functioning BMPs and improved water quality</td>
<td>---</td>
</tr>
<tr>
<td>4.2.5.1.6</td>
<td>35 Require inspection of post-construction BMPs</td>
<td>Ensure long-term operation of BMPs</td>
<td>Functioning BMPs and improved water quality</td>
<td>---</td>
</tr>
</tbody>
</table>
## Attachment 6.
### Minimum Control Measure #6 – Pollution Prevention and Good Housekeeping for Municipal Operations

<table>
<thead>
<tr>
<th>Permit Requirement</th>
<th>BMP</th>
<th>Measureable Goals, Milestones, and Dates</th>
<th>Evaluation Process</th>
<th>Anticipated Progress Towards Attaining TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>Description</td>
<td>Purpose</td>
<td>Expected Result</td>
</tr>
<tr>
<td>4.2.6.1.1</td>
<td>30</td>
<td>Training program to promote stormwater pollution reduction activities</td>
<td>Improve staff knowledge and awareness</td>
<td>Revised existing training program to include stormwater module</td>
</tr>
<tr>
<td>4.2.6.1.2</td>
<td>31</td>
<td>Develop list of municipal operations and municipal industrial facilities</td>
<td>Identify potential sources of stormwater pollution</td>
<td>List of areas to focus future efforts</td>
</tr>
<tr>
<td>4.2.6.1.3</td>
<td>32</td>
<td>Develop policies outlining maintenance BMPs, maintenance schedules, and long-term inspection procedures</td>
<td>Ensure BMPs are implemented and maintained</td>
<td>Written policies and procedures to guide operations</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>Routine street sweeping</td>
<td>Reduce trash, debris, and pollutants before they enter the stream</td>
<td>All lane miles swept twice per year</td>
</tr>
<tr>
<td>4.2.6.1.4</td>
<td>34</td>
<td>Clean stormwater inlets</td>
<td>Reduce trash, debris, and pollutants before they enter the stream</td>
<td>Inlets cleaned following each rain event</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>Support household hazardous waste dropoff</td>
<td>Reduce introduction of harmful chemicals and pollutants into streams</td>
<td>Increase awareness and participation in program</td>
</tr>
</tbody>
</table>
Attachment 7.
Current Stormwater Runoff Control Ordinance
Sec. 46-61. - Generally

(a) Definitions. The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

(1) Catchment means the subwatershed as identified in the city storm drain study.

(2) Detention facility means any structure which is designed to collect and store surface water for subsequent gradual discharge.

(3) Excess stormwater runoff means that portion of stormwater which exceeds:
   a. The safe storm drainage capacity of the downstream storm sewers within the catchment;
   b. The predevelopment runoff in the particular tract.

(4) Protected channel means a channel which receives stormwater discharge and which is paved, riprapped or otherwise improved by addition of manmade materials to reduce the potential for erosion.

(5) Safe storm drainage capacity means the quantity of stormwater runoff that can be transported by a channel or conduit without having the water surface rise above the top of the channel or conduit.

(6) Stormwater channel means a natural or manmade open watercourse with definite bed and banks which periodically or continuously contains moving water or which forms a connecting link between two bodies of water.

(7) Stormwater runoff means water that results from precipitation which is not absorbed by the soil or vegetation or evaporated and which flows over the ground surface or is collected in channels or conduits.

(8) Stormwater runoff release rate means the rate at which stormwater runoff is released from dominant to servient land.

(9) Twenty-five-year, 24-hour frequency rainfall means a precipitation event of 24 hours duration, having a 4.0 percent chance of occurring in any one year.

(b) Article supplemental to development ordinances. This article further supplements ordinances regulating the following:

(1) The subdivision, layout and improvement of lands, as provided in chapter 102 of this Code, located within the corporate limits of the city.
(2) The excavating, filling and grading of lots and other parcels or areas.

(3) The construction of buildings and the drainage of the sites on which those structures are located, to include parking and other paved areas.

(4) The design, construction and maintenance of stormwater drainage facilities and systems.

(c) **Other permits required.** Before starting any activities regulated by this article, an applicant shall comply with the requirements set forth in other applicable ordinances with respect to the submission and approval of preliminary and final subdivision plats, improvement plans, building and zoning permits, inspections, appeals and similar matters, along with those set forth in this article and as may be required by state statutes and the regulations of any department of the state.

(d) **Conflicting standards.** This article shall be deemed as additional to standards required by other ordinances of the city. In case of conflicting requirements, the most restrictive shall apply. All other ordinances or parts of ordinances in conflict with this article are repealed.

(e) **Reserved.**

(Ord. No. 1460-18, § 1, 5-22-18)

Sec. 46-62. - Administration and enforcement.

(a) **Responsibility.** The administration of this article shall be the responsibility of the office of the city engineer.

(b) **Variances.**

(1) **Standards.** Variations from this article may be granted when it is demonstrated to the satisfaction of the city council that, owing to special conditions, a strict adherence to this article will result in unnecessary hardship and that the spirit and intent of this article will not be observed.

(2) **Procedure.** A request for variation shall be filed by the owner seeking to develop or change the use of this property or his agent with the city engineer who shall refer it, together with his recommendation, to the city council for decision. The request for variation shall be written and shall state specifically what variation is sought and the public's interest in granting the variation.

(c) **Official maps and profiles.** Responsibility for all changes to official maps and profiles remains with the city council.
(d) **Interpretation.** In the interpretation and application of this article, the provisions expressed in this article shall be held to be the minimum requirements and shall be liberally construed in favor of the city and shall not be deemed a limitation or repeal of any other powers granted by state statutes.

(e) **Inspection.** The city engineer shall be responsible for determining whether the stormwater management plan is in conformance with division 3 of this article and whether development is proceeding in accordance with approved stormwater management plan. Periodic inspection of the development site shall be made by the city engineer to ensure the stormwater management plan is properly implemented. The city engineer and other duly authorized employees bearing proper credentials and identification shall be permitted to enter upon all properties for the purpose of inspection, observation and measurement in accordance with this article.

(f) **Enforcement.**

(1) **Work suspension.** If work performed does not conform to the provisions of the approved stormwater management plan and specifications, a written notice to comply shall be served upon the developer. Such notice shall set forth the nature of the correction required and the time within which corrections shall be made. Failure to comply with such notice shall result in the issuance of a stop work order applicable to all construction activity except that necessary for correction of the violation. Upon correction of the violation, the stop work order shall be voided and construction may resume.

(2) **Bond forfeiture.** For continued violation of the approved stormwater management plan, a public hearing on the matter shall be conducted by the city council. Written notice of such hearing shall be served upon the developer by registered mail and shall state the grounds for complaint and the time and place such hearing is to be held. Such notice shall be served at least 15 days prior to the date set for the hearing. At any such hearing, the developer shall be given an opportunity to be heard, and he may call witnesses and present evidence on his behalf. After such hearing, if the city council concludes that the issuance of additional correction notices would be futile, any bonds or cash deposits posted with the city shall be forfeited, whereupon such security shall be used for completion of the stormwater management plan as approved.
(g) *Penalties.* Any person who violates or fails to comply with this article shall be guilty of a misdemeanor and, upon conviction, shall be subject to a fine of not less than $25.00 or more than $200.00.

(h) *Reserved.*

(Ord. No. 1460-18, § 1, 5-22-18)

Sec. 46-63. - Design criteria and performance standards.

(a) *Applicability.*

(1) A stormwater management plan shall be submitted to the city engineer by the owner of any proposed residential, commercial or industrial development within the city, unless the city engineer waives such requirement for one of the following reasons:

a. *Offsite facility, two or more developments.* If two or more developments, including that of the applicant, have provided for a common system.

b. *Offsite facility by city.* If an offsite stormwater management system has been either constructed or programmed or identified for construction by the city and the applicant has agreed to contribute to or participate in the construction thereof.

c. *Contribution in lieu of facility construction.* If the applicant agrees to contribute to the city fund an amount based upon square footage of the hard surface. The fee schedule to be agreed upon by the council.

Any hard surface of 500 square feet or less can be waived by the city engineer and code enforcement officer.

Any surface area in excess of 75,000 square feet is not eligible. This development must have their own stormwater management system.

d. *Other management techniques.* Management techniques other than detention facilities may be utilized by the development, provided the techniques proposed meet the intent of this article and provide a benefit to the watershed that equals or exceeds the benefit that a detention facility would provide.

(2)
No final subdivision or development plat shall be approved and no building permits shall be issued until the stormwater management plan has either been waived or reviewed and approved by the city engineer.

(b) *Stormwater management plans.* The required stormwater management plan shall identify means for controlling the stormwater runoff release rate from the development and providing storage potential for the excess stormwater runoff. All computations, plans and specifications related to the implementation of this article must be prepared and sealed by a professional engineer registered in the state. The entire catchment shall be studied to determine the runoff impact within the subwatershed. The stormwater management plan shall contain but not be limited to the following information, unless specifically excluded by the city engineer:

1. A topographic map of the project site and adjacent areas, of suitable scale and contour interval, which shall define the location of streams, the extent of floodplains and calculated high-water elevations, the shoreline of lakes, ponds and detention basins, including their inflow and outflow structures, if any within the designated catchment.

2. The location and flow line elevation of all existing sanitary, storm or combined sewers and other waterways within the catchment.

3. Detailed determination of runoff anticipated for the entire project site following development indicating design volumes and rates of proposed runoff for each portion of the watershed tributary to the storm drainage system, the calculations used to determine such runoff volumes and rates and restatement of the criteria which have been used by the project engineer throughout his calculations.

4. A layout of the proposed stormwater management system, including the location and size of all drainage structures, storm sewers, channels and channel sections, detention basins, and analyses regarding the effect the improvements will have upon the receiving channel and its high-water elevation.

5. For all detention basins, a plot or tabulation of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.

6. **about:blank**
For all detention basins, design hydrographs of inflow and outflow for both the 25-year, 24-hour, and 50-year, 24-hour, design runoff events for the site under predeveloped conditions and the calculated 25-year, 24-hour, and 50-year, 24-hour, peak flows from the site under predeveloped conditions.

(7) A profile and one or more cross sections of all existing and proposed channels or other open drainage facilities, showing existing conditions, and the proposed changes thereto, together with the high-water elevations expected from stormwater runoff under the controlled conditions called for by this article and the relationship of structures, streets and other utilities to such channels.

(c) Design criteria. The following shall govern the design of improvements with respect to managing stormwater runoff:

(1) Methods of determining stormwater runoff rate and volume. Drainage and storage facilities shall be designed using the soil conservation service urban hydrology, TR-55, method of calculating runoff discharge rate and the total volume.

(2) Release rate. The controlled release rate of stormwater runoff from all developments described in section 46-91 shall not exceed the predevelopment rate. The rate at which stormwater runoff is delivered to a designated stormwater storage area shall be unrestricted. If the natural downstream channel or storm sewer system is inadequate to accommodate the release rate provided in this subsection, the allowable release rate shall be reduced to that rate permitted by the capacity of the downstream channel or storm sewer system.

(3) Development design. Streets, blocks, lots, parks and other public grounds shall be located and laid out in such a manner as to minimize the velocity of overland flow and allow maximum opportunity for infiltration of stormwater into the ground and to preserve and utilize existing and planned streams, channels and detention basins and include, whenever possible, streams and floodplains within parks and other public grounds.

(4) Detention. The increased stormwater runoff resulting from the proposed development may be accommodated by providing appropriate detention facilities, including wet or dry bottom reservoirs, flat roofs, parking lots or streets. The following shall govern the design of detention facilities:
a. **Storage volume.** The volume of storage potential provided in detention facilities shall be sufficient to control the excess stormwater runoff, as determined to be the difference between the stormwater quantity from the site in its developed state for a 50-year, 24-hour frequency rainfall as published by the U.S. weather bureau, less the allowable release rate as set forth in subsection (2) of this section. The allowable stormwater release rate shall not be exceeded, regardless of the depth of stormwater contained in the required stormwater detention facility.

b. **Release rate.** At no time during the design storm shall the stormwater runoff release rate exceed the allowable release rate as set forth in subsection (2) of this section.

c. **Release velocity.** Detention facilities shall release stormwater at a nonerosive velocity. Protected channels receiving detention discharge shall incorporate features to reduce velocity to nonerosive levels at the point where such discharge enters the unprotected channel. If release is into a subsurface conduit, the energy gradient in the receiving facility shall not be increased beyond the slope of the conduit.

d. **Spillway.** Emergency spillways shall be provided to permit the safe passage of runoff generated from a 100-year, 24-hour storm, or greater, if required by regulations of the state department of natural resources.

e. **Freeboard.** Detention facilities shall have adequate capacity to contain the storage volume of tributary stormwater runoff with at least one foot of freeboard above the water surface of flow in the emergency spillway in a 100-year, 24-hour storm.

(d) **Performance standards.**

(1) **Stormwater channel location.** Generally acceptable locations of stormwater channels in the design of a subdivision may include but are not limited to the following:

a. Adjacent to roadways.

b. In a depressed median of a double roadway, street or parkway, provided the median is wide enough to permit slopes of one foot drop in six feet horizontal or flatter.

c. Centered on lot lines or entirely within the rear yards of a single row of
lots or parcels.

d. In each of the cases in subsections (a)(1) through (3) of this section, a drainage easement with sufficient width to facilitate maintenance and design flow shall be provided and shown on the plat.

(2) *Storm sewer outfall.* The storm sewer outfall shall be designed to provide adequate protection against downstream erosion and scouring.

(3) *Lot lines.* Whenever the plans call for the passage or storage of stormwater runoff along lot lines, the grading of all such lots shall be prescribed and established for the passage or storage of waters, and no structure or vegetation which would obstruct the flow of stormwater shall be allowed nor shall any change be made to prescribed grades and contours of the specified stormwater channels.

(4) *Manholes.* All utility sewer manholes constructed in an area designed for the storage or passage of stormwater shall be provided with either a watertight manhole cover or be constructed with a rim elevation of a minimum of one foot above the high-water elevation of the design storm.

(5) *Easements.* Permanent easements for the detention and conveyance of stormwater, including easements of access to structures and facilities, shall be dedicated to the city.

(6) *Obstruction of drainage.* The keeping or disposal of grass clippings, trash, debris, obstructions or unwanted materials into the storm sewers or within or along stormwater channels or in adjacent floodplain areas which may wash into sewers and channels is prohibited.

(7) *Maintenance.* Provisions acceptable to the city for perpetual maintenance of detention facilities, outlet works, and appurtenances shall be made, as provided in section 46-107.

(e) *Reserved.*

(Ord. No. 1460-18, § 1, 5-22-18)

Sec. 46-64. - Bonds, maintenance assurance and fees.

(a) *Performance bonds and other assurances for completion and operation of improvements.* Upon approval of the stormwater management plan, but before the issuance of a building permit or subdivision plat approval, the city engineer
shall require the applicant to post a performance bond, cash escrow, certified
check, or other acceptable form of performance security in an amount sufficient to
ensure the execution of the plan. After determination by the city engineer that all
facilities are constructed in compliance with the approved plan, the performance
bond or other securities shall be released.

(b) **Maintenance agreement.** A maintenance agreement approved by the city council
ensuring perpetual maintenance of stormwater management improvements shall
be executed by the city and the applicant.

(c) **Fees.** A fee per lot, as established by the city council from time to time, shall
accompany the submittal of each stormwater management plan for review.

(Ord. No. 1460-18, § 1, 5-22-18)

Sec. 46-65. - Miscellaneous.

This chapter shall be in full force and effect from and after its passage and approval, and shall
supersede any prior ordinances to the extent such ordinances are inconsistent herewith.

(Ord. No. 1460-18, § 1, 5-22-18)