

**PUBLIC WORKS STANDARD OPERATING PROCEDURE
FOR
PRIORITIZATION OF STORM DRAINAGE IMPROVEMENTS
September 26, 2011**

References: Governing Body Resolution No. 3900

Definitions: The following definitions apply to this Standard Operating Procedure:

1. **Benefitted Property Owners** as referenced herein shall mean those property owners subject to frequent flooding, as well as those property owners on, abutting or near an Existing Storm Sewer System or Unimproved Storm Drainage System such that they will be benefitted by the Storm Drainage Improvement Project
2. **Existing Storm Sewer Systems** as referenced herein shall mean those constructed storm drainage conveyance systems composed of inlets, pipes or concrete-lined ditches installed in accordance with City standards at the time of construction and accepted for City maintenance or installed prior to the adoption of the City standards but subsequently accepted for City maintenance.
3. **Unimproved Storm Drainage Systems** as referenced herein shall include natural streams, earthen ditches or ditches with improvements.
4. **Storm Drainage Improvement Projects** as referenced herein shall mean improvements to the capacity and function of Existing Storm Sewer Systems and Unimproved Storm Drainage Systems not to present City standards. For purposes of this Standard Operating Procedure, the definition of Storm Drainage Improvement Projects does not include the removal of habitable structure.

Applicability: This Standard Operating Procedure applies to all proposals for Storm Drainage Improvement Projects in the City.

Policy: It is the policy of the City when appropriate, when funds are available and when consistent with Resolution No. 3900 to address stormwater issues in the City.

Procedures:

1. Benefitted property owners desiring consideration of a Storm Drainage Improvement Project shall make a written request to the City that outlines the nature and history of the problem and indicates their support for the improvements.
2. Staff completes a preliminary evaluation to include problem description; conceptual improvements and a preliminary cost estimate for all potential Storm Drainage Improvement Projects.
3. Staff completes the current Johnson County Stormwater Management Advisory Council (SMAC) Rating Table. If a potential project meets the minimum benefit rating (100 points) for

SMAC funding eligibility, staff submits a request for completion of a Preliminary Engineering Study (PES) to SMAC. The PES is required for projects to be considered for up to 75% SMAC funding.

4. Staff determines neighborhood support for the project through the circulation of an informal petition which includes a declaration of intent to donate easements at no cost to the City. Guidelines established for the acquisition of temporary and permanent easements for Storm Drainage Improvement Projects are as follows:

a. Generally, projects where neighborhood support by affected property owners is determined to be less than 50% shall not be recommended for addition to the Capital Improvement Program (CIP).

b. For projects where more than 50% of affected property owners have signed an informal petition which includes an expression of intent to donate easements, staff shall acquire easements from those property owners at no cost to the City. Staff shall make reasonable efforts to acquire remaining easements at no cost to the City from property owners who are not signatories to the petition. When staff is unable to acquire the remaining easements at no cost to the City, necessary easements shall be acquired by eminent domain subject to subsection d, below.

c. All easement acquisition shall be carried out in accordance with applicable law. For projects where federal funds are used, the acquisition of easements shall follow the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended.

5. Staff computes a project score for the potential project in accordance with the City's Rating System for Storm Drainage Improvement Projects (refer to Appendix A). The project score evaluates potential projects based on benefit rating; funding potential; neighborhood support; system condition; and project feasibility.

6. Staff maintains a Priorities List of all potential Storm Drainage Improvement Projects under consideration for addition to the CIP. This list ranks potential projects from highest to lowest project score and includes all relevant information on the evaluation of each. The Priorities List is available for public review and updates to the Governing Body as needed.

7. Staff presents recommendations to the City Engineer for the selection of Storm Drainage Improvement Projects to be included in the annual CIP. Upon approval by the City Engineer, the selected Storm Drainage Improvement Projects are presented to the Governing Body on a periodic basis for consideration and approval.

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APPENDIX A
RATING SYSTEM FOR
STORM DRAINAGE IMPROVEMENT PROJECTS

The rating system for Storm Drainage Improvement Projects evaluates potential projects based on benefit rating; funding potential; neighborhood support; system condition; and project feasibility to generate an overall project score that is utilized to rank projects.

Initially, a weighted score is determined for each potential project based on the following factors:

1. Benefit rating based on risk type, frequency, and severity of structure flooding, street flooding and erosion. The assignment of points for this ranking factor is consistent with the SMAC Rating Table (refer to Table A).
2. Project's funding potential based on the likelihood of SMAC funding. Points are assigned based on the percent of actual and likely funding offered.
3. Neighborhood support manifested by indirect financial participation through the donation of easements by affected property owners.

The weighted score is calculated as follows:

$$\text{Weighted Score} = [\text{Structure Flooding}_{\text{Points}} \times 0.35] + [\text{Street Flooding}_{\text{Points}} \times 0.10] + [\text{Erosion}_{\text{Points}} \times 0.05] + [\text{Funding Potential}_{\text{Points}} \times 0.30] + [\text{Neighborhood Support}_{\text{Points}} \times 0.20]$$

The weighted score may then be adjusted by a factor of 610 points based on the following conditions:

1. Existing stormwater infrastructure condition and the timeframe of required replacement.
2. Relationship of potential projects to each other, specifically, whether upstream or downstream potential improvements are dependent on or necessary for the project to proceed.

The result is the generation of a project score as follows:

$$\text{Project Score} = [\text{Weighted Score}] + [\text{Score Adjustment Factor}]$$

Point assignments, factor weights and score adjustment factors utilized in the score calculations are detailed in Table 2. Once a project score is established, potential projects are ranked from highest to lowest score to develop an initial list of priorities for the CIP. Storm Drainage Improvement Projects are recommended for addition to the annual CIP based on project ranking; project costs; availability of SWU funds to pay the City's portion of the project cost; and timing considerations with other City projects or other funding sources.

Table 1
JOHNSON COUNTY STORMWATER ADVISORY COUNCIL
RATING TABLE

Location:

Description of Problem:

Flood Problem Rating

Factor #	Factor Description	Eliminates Factor	Rating Points	Frequency Multiplier	Severity Multiplier	Total Points
1	Loss of Life		40			
2	Flooding of habitable building	3	40			
3	Flooding of garages and outbuildings	2	20			
4	Flooding of arterial street of more than 7 inches	5,6,7	30			
5	Flooding of collector street of more than 7 inches	4,6,7	25			
6	Flooding of residential street of more than 7 inches	4,5,7	20			
7	Widespread or long-term ponding in streets	4,5,6,	20			
8	Erosion threatens habitable buildings, utilities, streets, bridges	9	30			
9	Erosion significant in unmaintained areas	8	10			
10	Erosion causes imminent drainage structure collapse	11,12	30			
11	Erosion causes marginal drainage structural collapse	10,12	15			
12	Erosion causes failure of drainage structure	10,11	10			
13	Other cities receiving benefits		20			
14	Other cities contributing to flooding problem		10			
Project Total Points						
Estimated Total Project Cost						
Priority Rating = Total Project Cost/Total Points						

Applies to #	Frequency Multiplier	Multiplier Value
2-7	One time in ten years or by 6 to 10- to 100-year design storm	1
2-7	Two times in ten years or by 5- to 10-year design storm	2
2-7	Three or more times in 10 years or less than under 5-year design	3
13,14	One city receiving benefit	1
13,14	Two cities receiving benefit	2
13,14	Three or more cities receiving benefit	3

Applies to #	Severity Description	Multiplier Value
1	Number of known deaths *=1 for each death	*
2,3	1-5 buildings flooded historically or by 100-year design storm	1
2,3	6-9 buildings flooded historically or by 100-year design storm	2
2,3	10 or more buildings flooded historically or by 100-year design storm	3
4,5,6	Restricts emergency vehicles	1.5
8	Nuisance erosion creates maintenance problems	1
8	Moderate erosion, failure of structure or facility within next 5 years possible	2
8	Severe erosion, failure of structure or facility imminent	3
10-12	Collapse causes flooding of land by 100-year design storm	1
10-12	Collapse causes flooding of garages/outbuildings by 100-year design storm	1.5
10-12	Collapse causes 1-3 habitable buildings to be flooded	2
10-12	Collapse causes 4-6 habitable buildings to be flooded	3
10-12	Collapse causes more than 6 habitable buildings to be flooded	4

TABLE 2

**STORM DRAINAGE IMPROVEMENTS
RATING SYSTEM**

BENEFIT RATING¹	
Structure Flooding (35%)	Points
High (SMAC points 360)	100
Moderately High (SMAC points 240)	67
Moderate (SMAC points 160)	44
Moderately Low (SMAC points 120)	33
Low (SMAC points 80)	22
No Structure Flooding	0
Street Flooding (10%)	
Arterial Street	
High (SMAC Points 135)	100
Moderate (SMAC Points 90)	67
Low (SMAC Points 45)	33
Collector Street	
High (SMAC Points 112.5)	83
Moderate (SMAC Points 75)	55
Low (SMAC Points 37.5)	28
Residential Street	
High (SMAC Points 90)	67
Moderate (SMAC Points 60)	45
Low (SMAC Points 30)	22
Widespread/Extended Ponding	
High (SMAC Points 60)	45
Moderate (SMAC Points 40)	30
Low (SMAC Points 20)	15
No Street Flooding or Ponding	0

Erosion (5%)	
High (SMAC Points 90)	100
Moderate (SMAC Points 60)	67
Low (SMAC Points 30)	33
No Erosion	0

NEIGHBORHOOD SUPPORT	
Donation of Easements (20%)	
100% Donation of Easements	100
Greater than 50% Donation of Easements	50
Less than 50% Donation of Easements	0

FUNDING POTENTIAL	
SMAC Funding (30%)	
75% funding offered	100
75% < X < 50% funding offered	85
Less than 50% funding offered	70
75% funding likely in 1-year	80
75% < X < 50% funding likely in 1-year	65
Less than 50% funding likely in 1-year	50
Funding unlikely due to Low Ranking ²	20
Not SMAC Eligible	0

SCORE ADJUSTMENT FACTORS (610 Points)	
- A higher ranked upstream project is contingent on the completion of the project.	+10
- The project is contingent on the completion of a lower ranked downstream project.	-10
- Infrastructure Condition is Critical - replacement required within 5 years.	+10
- Infrastructure Condition is Fair - replacement required in 5 to 10 years.	+5

¹ Maximum allowable points based on type, severity and frequency of flooding and erosion as defined by SMAC Rating System.

² Project ranked on bottom 50% of SMAC's Projects Eligible for Funding (PEFF) List.