

EXECUTIVE SUMMARY

This report presents the rationale and methods that will guide the creation of the South Washington Watershed District (SWWD) Storm Water Utility. A storm water utility provides a means for funding surface water management activities of the SWWD in a fair and equitable manner. It charges users according to their use of the system; i.e., based on how much surface water runoff they generate.

The report includes a methods discussion for defining the "Residential Equivalency Factor" (REF), which is the basic unit for the fee structure. One REF represents the runoff volume generated by a typical single family residence. The utility assigns REFs to other properties based on their size and percentage of impervious surface. Since the volume of runoff varies according to rainfall amounts, one primary consideration is the "design storm" used for creating the storm water utility rate schedule. For the SWWD Storm Water Utility, a 24-hour, 3.6-inch design storm was used.

The storm water utility bases all individual charges on the number of REFs assigned to a particular property. The current estimated number of total REFs in the watershed is included in Table 1. The potential revenue generated by the storm water utility for various monthly charges is presented in Table 2. A sample brochure for public informational purposes is included in Appendix A.

INTRODUCTION

Storm water utilities have been in existence for a number of years under Minnesota Statutes, Chapter 444 as a means for municipalities in Minnesota to provide funding for surface water system planning, construction, and maintenance. Recently, legislation was passed to include watershed districts to M.S. 444, thus enabling watershed districts to implement storm water utilities as well.

Essentially, a storm water utility is similar to a water or sanitary sewer utility, in which the utility's users finance the utility's infrastructure costs. The SWWD's storm water utility defines a "user" as any developed property that contributes storm water runoff to the surface water system. Undeveloped privately owned land does not fund the utility.

Typically, the SWWD charges the storm water utility fee to all users within the watershed. Differing rates may be charged to users within defined subwatersheds, at the discretion of the SWWD. The utility bases the fee on the amount of runoff that each property generates and conveys into the surface water system. As a rule, the runoff generated relates directly to the amount of hard surface, or impervious area, found on the property. Hard surfaces such as rooftops, driveways, and parking lots prevent rainfall from infiltrating into the ground and thus increase the amount of runoff that a property generates. Consequently, a property with more impervious area uses the system to a greater extent than a property with less hard surface.

A storm water utility is an equitable funding method because it charges users according to

their use of the system, similar to what is done under the water and sanitary sewer utilities.

The user charge is not associated in any way with property value, property taxes, or the owner's income.

A sample informational brochure presented in Appendix A explains the purpose and application of a storm water utility and summarizes the type of information provided above.

This type of brochure is a central item of the public information campaign for a storm water utility. Such a brochure should be prepared for the SWWD Storm Water Utility and be sent to all billing addresses.

ACTIVITIES TO BE FUNDED BY THE STORM WATER UTILITY

The SWWD can group its management activities into three broad categories:

1. Operations and Administration
2. Watershed Programs
3. Watershed Projects

Operations and Administration will generally be funded through ad valorem taxes across the entire watershed. Likewise, **Watershed Programs** will be funded by a District-wide ad valorem tax levy.

For funding purposes, Watershed Projects are divided into three categories:

1. Non-capital Projects
2. Small Capital Projects
3. Large Capital Projects

Non-capital Projects, which are typically studies or plans, do not include construction of large capital-intensive facilities. **Small Capital Projects** are typically structural projects with a cost of less than \$500,000 to \$1,000,000. For these projects, an ad valorem tax will be used for funding.

Large Capital Projects are typically structural projects with a cost of \$500,000 to \$1,000,000 or greater. These projects will be funded using a storm water utility approach, rather than ad valorem taxes. A combination of funds from the watershed as a whole along with one or more defined project subwatersheds may be used.

PROPOSED STORM WATER UTILITY FEES

Storm water utility fees are based on the user's share of the costs of the watershed activities to be funded with the utility. This is the most equitable and practical means of financing these activities. The basic equation for the utility charge is:

$$(\text{Total annual revenue need}) / (\text{Total runoff from design storm}) = \text{Annual fee unit rate}$$

The following criteria determine the total runoff and fee structure:

- Design Storm: 5-year frequency, 3.6" of rainfall in 24 hours.
- Typical Single Family Residential Unit: 0.38 Acres, 27.5% Impervious Surface.

Approximately 100 single-family residential properties were analyzed to develop the typical single family residential profile given above. The profile does not represent a particular lot or lot type, but represents a hypothetical average lot. Individual properties show some variation as to size and percent of impervious surface. As a practical matter, all single family residential properties will be charged the same rate, with that rate based on the profile given above.

The typical single family residential lot runoff defines the fee structure's basic unit, the "Residential Equivalency Factor" (REF). All other parcels will be assigned REF values based on the amount of runoff generated by these parcels versus the amount generated by the typical single family residential lot. Many large sites contain gravel lots or roads which

are included by assigning a 65% impervious value to the gravel surfaces prior to calculating the REFs. A summary of the Residential Equivalency Factor inventory of the Watershed, as of spring of 1997 (the date of the most recent digital aerial photographs), is presented in Table 1. An REF vs. Percentage Impervious calculation chart is presented in Appendix B.

TABLE 1
RESIDENTIAL EQUIVALENCY FACTOR SUMMARY

Land Use	Total REFs
Single Family Residential	17,377
Commercial, Industrial, Public, Institutional	10,213
Vacant and Agricultural (no structure on property)	0
Total	27,590

SFR
Med-High Density Res
C/I
Parks
Undeveloped

As can be seen in Table 1, vacant land and agricultural land not containing a residential structure were not assigned any REFs. If agricultural land contained a residential structure, it was assigned one REF and grouped in the Single Family Residential category. It should also be noted that public lands, schools, and churches were assigned REFs based on their area and impervious cover.

The following equation shows how the charge per Residential Equivalency Factor is determined:

$$(\text{Total annual revenue need}) / (\text{Total number of REFs}) = \text{Fee per REF per year}$$

The total revenue collected each year is directly proportional to the monthly utility charge per REF. A summary of revenue generated from several potential monthly billing rates is presented in Table 2. It should be noted that the revenue is based on the latest available land use in the watershed and will increase over time as the watershed continues to develop.

TABLE 2
POTENTIAL STORM WATER UTILITY REVENUE

Charge/REF/Month	Revenue/Month	Revenue/Year
1.00	\$27,600	\$331,000
2.00	55,200	662,000
3.00	82,800	993,000
4.00	110,400	1,324,000
5.00	138,000	1,655,000

No credits or exemptions have been built into the REFs and revenues presented above. Credits could be given to properties implementing specific storm water practices such as infiltration. In this way, the credits could be used as an incentive to promote such practices. These credits should be reviewed by the SWWD on a case-by-case basis.

RECOMMENDATIONS

The creation of a SWWD Storm Water Utility provides an equitable and practical means to finance elements of the District's surface water management system. The recommended actions necessary to proceed with the implementation of the storm water utility are:

1. Amend the watershed management plan to create a water management district.
2. Finalize the utility rate structure and costs to be collected and set storm water utility fees for all properties within the District.
3. Develop a collection mechanism. Options include:
 - Request Washington County to collect the fees.
 - Contract with a private vendor.
 - The SWWD perform the billing and collection.
4. Mail out the informational brochure.
5. Hold a public hearing, establish the water management district, and initiate billing and collection of fees.

In addition, in order to obtain public support for the storm water utility, it is recommended that an aggressive informational campaign be undertaken, to educate local municipalities, residents, businesses, and other affected property owners about the purpose, rationale, and details of the utility.

APPENDIX A

Sample Brochure

(Sample brochure goes here)

APPENDIX B

REF vs. Percentage Impervious

% Impervious	Runoff (in)	REF/ 0.38 acre	REF/ acre
0	0.54	0.39	1.03
1	0.57	0.41	1.09
2	0.60	0.44	1.15
3	0.63	0.46	1.21
4	0.66	0.48	1.27
5	0.69	0.50	1.32
6	0.72	0.52	1.38
7	0.75	0.55	1.44
8	0.78	0.57	1.50
9	0.82	0.59	1.56
10	0.85	0.61	1.62
11	0.88	0.63	1.67
12	0.91	0.66	1.73
13	0.94	0.68	1.79
14	0.97	0.70	1.85
15	1.00	0.72	1.91
16	1.03	0.75	1.97
17	1.06	0.77	2.02
18	1.09	0.79	2.08
19	1.12	0.81	2.14
20	1.15	0.83	2.20
21	1.18	0.86	2.26
22	1.21	0.88	2.32
23	1.24	0.90	2.38
24	1.27	0.92	2.43
25	1.31	0.94	2.49
26	1.34	0.97	2.55
27	1.37	0.99	2.61
28	1.40	1.01	2.67
29	1.43	1.03	2.73
30	1.46	1.06	2.78
31	1.49	1.08	2.84
32	1.52	1.10	2.90
33	1.55	1.12	2.96
34	1.58	1.14	3.02
35	1.61	1.17	3.08
36	1.64	1.19	3.14
37	1.67	1.21	3.19
38	1.70	1.23	3.25
39	1.73	1.25	3.31
40	1.76	1.28	3.37

% Impervious	Runoff (in)	REF/ 0.379 acre	REF/ acre
41	1.79	1.30	3.43
42	1.83	1.32	3.49
43	1.86	1.34	3.54
44	1.89	1.37	3.60
45	1.92	1.39	3.66
46	1.95	1.41	3.72
47	1.98	1.43	3.78
48	2.01	1.45	3.84
49	2.04	1.48	3.90
50	2.07	1.50	3.95
51	2.10	1.52	4.01
52	2.13	1.54	4.07
53	2.16	1.56	4.13
54	2.19	1.59	4.19
55	2.22	1.61	4.25
56	2.25	1.63	4.30
57	2.28	1.65	4.36
58	2.31	1.68	4.42
59	2.35	1.70	4.48
60	2.38	1.72	4.54
61	2.41	1.74	4.60
62	2.44	1.76	4.65
63	2.47	1.79	4.71
64	2.50	1.81	4.77
65	2.53	1.83	4.83
66	2.56	1.85	4.89
67	2.59	1.87	4.95
68	2.62	1.90	5.01
69	2.65	1.92	5.06
70	2.68	1.94	5.12
71	2.71	1.96	5.18
72	2.74	1.99	5.24
73	2.77	2.01	5.30
74	2.80	2.03	5.36
75	2.84	2.05	5.41
76	2.87	2.07	5.47
77	2.90	2.10	5.53
78	2.93	2.12	5.59
79	2.96	2.14	5.65
80	2.99	2.16	5.71

% Impervious	Runoff (in)	REF/ 0.379 acre	REF/ acre
81	3.02	2.19	5.77
82	3.05	2.21	5.82
83	3.08	2.23	5.88
84	3.11	2.25	5.94
85	3.14	2.27	6.00
86	3.17	2.30	6.06
87	3.20	2.32	6.12
88	3.23	2.34	6.17
89	3.26	2.36	6.23
90	3.29	2.38	6.29
91	3.32	2.41	6.35
92	3.36	2.43	6.41
93	3.39	2.45	6.47
94	3.42	2.47	6.52
95	3.45	2.50	6.58
96	3.48	2.52	6.64
97	3.51	2.54	6.70
98	3.54	2.56	6.76
99	3.57	2.58	6.82
100	3.60	2.61	6.88

The table above assumes that pervious areas have a runoff coefficient of 0.15 for the 5-year, 3.6-inch rainfall. The typical single family residential lot is 0.38 acres in size, with a 27.5% impervious area.