



## Storm Water Utility

City of Medina, MN

April 2008

Project Number: 190-07-022





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## Executive Summary

This report presents the rationale and methods that guided the creation of the Medina Storm Water Utility (SWU). The benefits of this utility are also discussed. Implementing a storm water utility creates a dedicated funding source for storm drainage improvements and maintenance. The City of Medina realizes the following potential benefits from a well-funded improvement and maintenance program:

- Flood control and drainage
- Enhanced water quality in area rivers and lakes
- Improved maintenance of existing infrastructure
- Erosion and sediment control
- An enhanced storm water conveyance system

This 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, the creation of the storm water utility rate schedule is based on a design storm defined as the 5-year, 24-hour, 3.6-inch storm event.

The storm water utility bases all individual charges on the number of REFs assigned to a particular parcel. This report includes a summary of the SWU charges and the storm water improvements and maintenance items the SWU charges intend to fund. This report also includes a list of implementation items to be funded by this SWU over the next 10+ years. These budget items are intended to encompass the City's storm water improvements and maintenance items. In addition, the SWU includes a budget for the implementation of programs and projects to address the pollutant load allocations of existing and future Total Maximum Daily Load (TMDL) studies.

# 1. Introduction

## 1.1 CURRENT AVAILABLE FUNDING SOURCES

In the past, the City of Medina has typically used general tax revenue to finance most non-development driven storm water infrastructure expenditures. As with many other municipalities, these financing methods have not been uniformly successful in providing sufficient and consistent revenue to finance these expenditures.

Applying assessments requires that benefit to the properties being assessed be proven. Recently, assessments have been successfully challenged in the courts, since it has become increasingly difficult to prove benefit against assessed properties, particularly in matters involving storm water infrastructure improvements.

Most commonly, Cities draw from the general fund to finance municipal storm water improvement projects. With its prospective levy limits for municipalities, the State Legislature curtails a City's ability to fund projects in this manner. As a result, these projects are not completed and problems continue to increase in severity.

A stormwater utility is generally considered a more equitable mechanism for funding storm water improvement projects because the charge is based upon the amount of runoff generated from a property. Storm water utility charges are also applied to tax exempt properties like churches, schools, and government – all of whom use the municipal storm water system.

## 1.2 PURPOSE OF A STORM WATER UTILITY

Municipalities create storm water utilities so that dedicated funds are available to operate, maintain, manage, construct or reconstruct their municipal storm water drainage systems. A storm water utility is a dedicated revenue source intended to alleviate the burden on general funds. Essentially, the storm water utility is identical to a water or sanitary sewer utility, in which the utility's users finance the utility's infrastructure costs. The storm water utility charge is not associated in any way with property value, property taxes, or the owner's income.

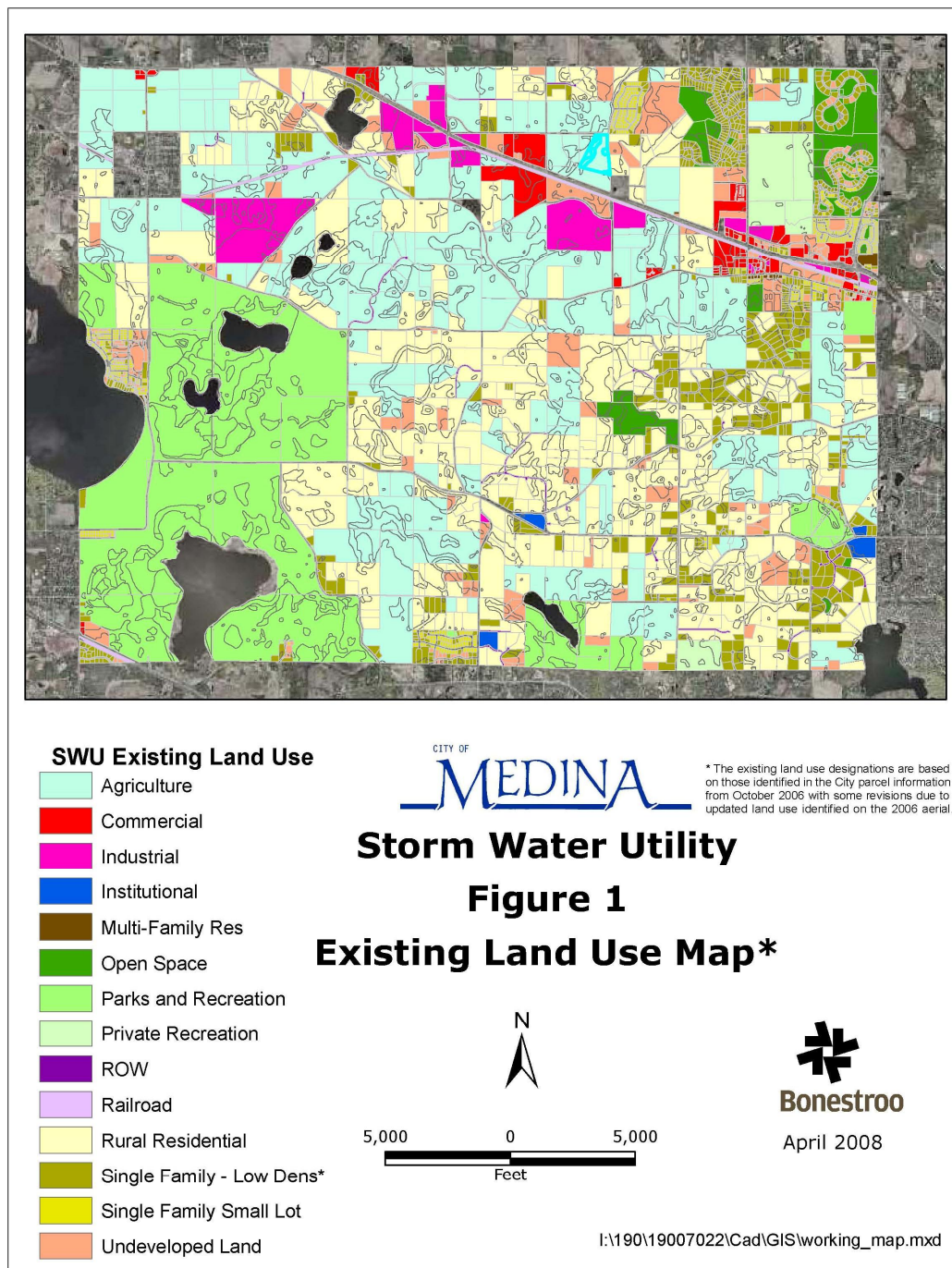
Medina's storm water utility defines a "user" as any property that contributes storm water runoff to the storm drainage system. The users include all existing land use categories, with the exception of the following:

- Public parks and recreation parcels
- Public open space parcels
- Public and private Right-of-Way parcels
- Wetland areas
- Single family residential or undeveloped parcels less than 0.08 acres in size

Typically, the City charges a stormwater utility fee to all "users" within the city based on the amount of runoff that each property generates and contributes to the stormwater 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, thus increasing 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. The existing land use and current parcel coverage within the City of Medina used for the generation of this SWU can be found on Figure 1.

Figure 1 – Existing Land Use Map



## 2. Storm Water Utility Activities and Benefits

### 2.1 STORM WATER UTILITY BENEFITS

Because of the increasing competition for funding among the City's various needs, certain stormwater system activities are left unfunded or underfunded. The purpose of creating and implementing a stormwater utility is to provide an equitable, dedicated funding source for additional or improved stormwater management services. Some benefits that can be realized by these services and potential activities that can help the City realize these benefits are:

- Water quality
  - Comprehensive water quality management plan
  - Monitoring
  - Wetland restoration
  - Water quality system improvements
  - Projects addressing TMDL pollutant load allocations
- NPDES Compliance
  - Public education and outreach
  - Public involvement and participation
  - Illicit discharge detection and elimination
  - Construction site runoff control
  - Post-construction runoff control
  - Pollution prevention/good housekeeping
- Erosion and sediment control
  - Street sweeping
  - Storm sewer pipe, catch basin, and pond inspection, maintenance, and improvements
- Enhanced storm water conveyance
  - Rehabilitation and replacement
  - Facility improvements
  - Operation and maintenance
- Flood control
  - Comprehensive storm water management plan
  - Storm sewer system improvements

More specifically, the City's Surface Water Management Plan includes an Implementation Program identifying seven water resources related activities that will be funded by the SWU. These seven items are identified in Table 2.1 below.



Table 2.1 – Implementation Program

Activity #	Activity Description	Annual Budget Impact <sup>1</sup>			
		Current	2010	2015	2020
1	Annual NPDES Permit and SWPPP Updates	\$3,900	\$4,100	\$4,600	\$5,000
2	Updates and Modifications to Ordinance and Official Controls	\$7,400	\$1,000	\$1,000	\$1,000
3	Regular SWPPP Driven Maintenance and Inspection Activities	\$7,800	\$8,300	\$9,100	\$10,000
4	NPDES Permit Compliance (Special Maintenance and Capital Projects)	\$19,500	\$20,700	\$22,800	\$25,000
5	Special Studies or Support for Special Studies Conducted by Others. <i>Examples: Long Lake/ Painter Creek Local Subwatershed P-Reduction Plan, Local Flooding Issues, Local Sediment and Erosion Control Issues</i>	\$10,000	\$10,000	\$10,000	\$10,000
6a <sup>2</sup>	General Maintenance of Ponds, Storm Sewer, and Culverts (All Existing Development and Future Residential Development)	\$48,600	\$51,700	\$57,100	\$62,500
6b <sup>3</sup>	General Maintenance of Ponds, Storm Sewer, and Culverts (Future Commercial Development)	\$0	\$9,300	\$25,500	\$41,700
<b>TOTAL ANNUAL COST</b>		<b>\$97,200</b>	<b>\$105,100</b>	<b>\$130,100</b>	<b>\$155,200</b>
<b>% Increase Versus Previous Time Period</b>		<b>-</b>	<b>8%</b>	<b>24%</b>	<b>19%</b>
<sup>1</sup> Costs given in 2007 dollars; not adjusted for inflation. Current and projected costs for Items 1, 3, 4, and 6a are based on estimated household counts. Cost per household for each activity is based on guidance provided by EPA and other state and federal regulatory agencies. <sup>2</sup> Item 6a quantifies an estimate of existing obligations for current development plus increases due to future residential development. <sup>3</sup> Item 6b quantifies an estimate of future obligations due to future commercial development.					

In addition to the implementation activities presented in Table 2.1 above, the City is including an additional implementation item to address existing and future TMDL studies impacting Medina. While only one approved TMDL Implementation Plan (Lake Independence Excess Nutrients TMDL) impacting Medina exists at this time, future TMDL studies will be completed on all impaired waters, both in Medina and those receiving flows from Medina. Currently, the impaired waters without completed TMDLs identified in Medina are as follows:

- Elm Creek – Low Oxygen Impairment
- Lake Sarah – Excess Nutrients

The City estimates a current budget of \$60,000 for implementing projects to address the Lake Independence Excess Nutrients TMDL. The City will increase this budget as TMDL studies are completed on the impaired waters impacted by runoff from Medina.

An estimate of the total storm water utility budget to the year 2020 is presented in Table 2.2 below.

*Table 2.2 – Total Storm Water Utility Budget*

Activity	Current	2010	2015	2020
Items 1-6b (from Implementation Program)	\$97,200	\$105,100	\$130,100	\$155,200
TMDL Implementation	\$60,000	\$60,000	\$70,000	\$80,000
<b>Total</b>	<b>\$157,200</b>	<b>\$165,100</b>	<b>\$200,100</b>	<b>\$235,200</b>

The total amount to be initially funded by this storm water utility will be based on the current budget of \$157,200. The budget items presented in Table 2.2 should be used for reference purposes only. These budgeted costs, as well as the items identified as being funded by this SWU, should be reviewed and adjusted as necessary on an annual basis by the City Council.

## 3. Proposed Storm Water Utility Fees

### 3.1 PROPOSED FEES

Storm water utility fees are based on the user's share of the costs to be funded by the utility. This is the most equitable and practical means of financing these ongoing operations. Conceptually, users pay a storm water utility fee in proportion to the amount of storm water runoff generated by their property during a defined design storm. The following criteria were used to determine the total runoff and fee structure:

- Design storm: 5-year frequency, 3.6" of rainfall in 24 hours
- Hydrologic soil type B
- Typical residential lot: 0.33 acre single family lot, 30% impervious surface

The typical residential lot (0.33 acre single family lot, 30% impervious surface) identified above defines the SWU fee structure's basic unit, the "Residential Equivalency Factor" (REF). This typical residential lot is not representative of any particular residential lot and is used only as a means to calculate REFs per acre for properties with certain existing land use designations, as identified in Table 3.1. The REF per acre values are based on comparative amount of runoff generated by certain existing land use designations to the amount generated by the typical single family residential lot. Otherwise, all agricultural, rural residential, single family residential, and undeveloped properties are assigned 1 REF per 10 acres (rounded down to the nearest whole REF), with a minimum of 1 REF per parcel.

The REF calculations are based on the Existing Land Use (ELU) designation. For the purposes of this analysis, 14 different ELU designations are defined to characterize all parcels within the City. These ELU designations are as follows:

- Agriculture
- Commercial
- Industrial
- Institutional
- Multi-Family Residential
- Open Space
- Parks and Recreation
- Private Recreation
- Railroad
- ROW
- Rural Residential – Single family residential parcels < 5 acres in size
- Single Family – Low Density – Single family residential parcels between 0.5 and 5 acres in size
- Single Family Small Lot – Single family residential parcels > 0.5 acres in size
- Undeveloped Land

A summary of the typical percent impervious values and REFs assigned for each existing land use, and an inventory of the current total number of REFs per existing land use category in the City is presented in Table 3.1.

*Table 3.1 – Residential Equivalency Factor Summary*

Existing Land Use	Typical Curve Number Value	Typical % Impervious	REFs/parcel <sup>3</sup>	REFs/acre <sup>3</sup>	Total REFs
Agriculture	64	0%	1.0 <sup>4</sup>	--	318
Commercial	90	78%	--	6.4	1,198
Industrial	90	78%	--	6.4	2,138
Institutional	80	38%	--	4.3	177
Multi-Family Residential	85	65%	--	5.3	88
Open Space <sup>1</sup>	50	0%	1.0	--	40
Parks and Recreation <sup>1</sup>	50	0%	1.0	--	8
Private Recreation	65	12%	--	2.0	511
Railroad	80	52%	--	4.3 <sup>5</sup>	67
ROW <sup>2</sup>	80	52%	--	--	0
Rural Residential	65	12%	1.0 <sup>4</sup>	--	412
Single Family - Low Density	72	30%	1.0	--	693
Single Family Small Lot	72	30%	1.0	--	593
Undeveloped Land	61	0%	1.0 <sup>4</sup>	--	253
<b>Total</b>					<b>6,495</b>

<sup>1</sup>Publicly owned parcels with this existing land use designation do not fund the storm water utility

<sup>2</sup>Parcels with this existing land use do not fund the storm water utility

<sup>3</sup>SWU parcel acreage = parcel area minus wetland area

<sup>4</sup>SWU parcels are billed at 1 REF/10 acres, rounding down to the nearest whole REF with a minimum of 1 REF per parcel

<sup>5</sup>SWU parcels < 10 ac are assigned 1 REF, while parcels > 10 ac are charged 1 REF for the first 10 ac, then REFs/acre for acreage above 10 ac

For parcels that do not appear to fit one of the existing land use categories identified above, a table identifying REF/acre values based on percent impervious coverage can be found in Appendix B.

The total estimated revenue collected each year is directly proportional to the utility charge per REF. At this time the City estimates that for 2008 it will need \$157,200 funded by the storm water utility, as discussed in Section 2. The following equation shows how the charge per Residential Equivalency Factor is determined:

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

This results in a storm water utility fee of \$24.20 per year per REF, or \$6.05 per quarter per REF.

### 3.2 REQUIREMENTS TO IMPLEMENT

To implement the Medina storm water utility, the City will need to adopt an ordinance outlining the specifics of the storm water utility. A storm water utility ordinance establishes the user fee system as the principal funding mechanism for the city's storm water management program. It is recommended that the following topics be covered by the storm water utility ordinance:

- Methodology for computing the storm water utility fees for each existing land use category
- Existing land use categories considered exempt from the storm water utility fees
- Non payment penalties and process for collecting unpaid fees
- Storm water utility fee appeals process

In addition, it is recommended that the storm water utility fee would be added to the existing sewer and water utility bill as an additional item on the bill. A separate storm water utility fee account should be created to capture the income and expenditures.

## 4. Recommendations

The recommended actions necessary to proceed with the implementation and integration of the storm water utility fee are as follows:

1. Mail a brochure explaining the storm water utility to all property owners in Medina – done
2. Hold an open house to present the storm water utility – scheduled for May 1, 2008
3. Adoption of an ordinance establishing the user fee system – to be considered at the May 20, 2008 Council meeting
4. Establish procedures to bill and collect the user fee revenues
5. Integration of the new storm water funding mechanism into the existing city systems by July 1, 2008

The recommended actions necessary to maintain the storm water utility are:

1. Add new parcels to system as development projects are closed out.
2. Review and update these existing land use designations as necessary as development proceeds
3. Annually review the charge rate
4. Annually update the storm water Capital Improvement Plan and annual cost to be funded by the SWU
5. Periodically review the billing list

## Appendix A – Informational Brochure





## Questions

If you want more information or have questions concerning the creation of this storm water utility, you may contact:

Chad Adams  
City Administrator  
Medina City Hall  
763-473-4643  
Website: [www.ci.medina.mn.us](http://www.ci.medina.mn.us)

Or, you may attend an Open House at the Hamel Community Building, 3000 Mill Dr., on May 1, 2008 from 5:00 pm to 7:00 pm, at which time City staff will be available to address your questions.

The City Council will discuss a proposed ordinance to establish the storm water utility at its May 20, 2008 Council meeting. You may provide comments to the City Council at that time.

## Medina City Council

Mayor: Tom Crosby

Council Members:

Carolyn Smith	Dan Johnson
Elizabeth Weir	Joe Cavanaugh

City of Medina  
2052 County Road 24  
Medina, MN 55340

# Get The Facts On...

# Medina's Storm Water Utility

## Open House

May 1, 2008 Time: 5:00 pm to 7:00 pm

- Brief presentation at 5:15 pm and 6:15 pm

May 20, 2008 Time: 7:00 pm

- Council consideration of the Storm Water Utility Ordinance

This leaflet was prepared to introduce you to Medina's new Storm Water Utility and answer your questions.



## Storm Water Utility Appeal Process

A property owner may appeal the storm water utility fee for any of the following conditions:

Condition of Appeal	Documentation for Appeal	Parcel description matching proper City existing land use designation	Official parcel or survey information identifying parcel area	More accurate parcel area	More accurate site information delineating the existing site	More accurate wetland boundary from a wetland delineation report
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A storm water utility appeal fee will be established by the City to cover the cost of the review. Determination of the appeal, along with a written notice of appeal, should be submitted at City Hall to begin the appeal investigation.



2052 County Road 24  
Medina, MN 55340  
Tel. (763) 473-4643  
Fax: (763) 473-9359



## How Are Fees Determined?

All parcels have been assigned a certain number of Residential Equivalency Factors (REFs). One REF represents the amount of runoff from a typical single-family residential parcel. The assignment of REFs for some existing land use types is as follows:

- Agriculture - 1 REF/10 acre<sup>1</sup>, round down to whole REF<sup>2</sup>
- Commercial - 6.4 REFs/acre<sup>1</sup>
- Industrial - 6.4 REFs/acre<sup>1</sup>
- Multi-Family Residential - 5.3 REFs/acre<sup>1</sup>
- Rural Residential - 1 REF/10 acre<sup>1</sup>, round down to whole REF<sup>2</sup>
- Single-Family Residential - 1 REF per parcel
- Undeveloped Land - 1 REF/10 acre<sup>1</sup>, round down to whole REF<sup>2</sup>

<sup>1</sup>Billable acreage = parcel area minus wetland area

<sup>2</sup>Minimum of 1 REF per parcel

## What is My Share of the Cost?

Total Number of REFs City-wide = 6,495

Estimated Storm Water Utility Budget = \$ 157,200

Annual Cost per REF = \$24.20

Quarterly Cost per REF = \$6.05

Note: Your storm water utility fee would be included as an itemized charge on your quarterly sewer and water bill. If you don't currently receive a sewer and water bill, you will be billed separately on an annual basis.

## Why Must We Manage Storm Water?

The City of Medina administers, operates, and maintains a storm water management program meant to:

- Preserve valuable natural resources
- Protect people and property
- Reduce nuisance flooding
- Improve water quality

## What is a Storm Water Utility?

- A method of financing Medina's storm water management program
- Funded by a service charge or utility fee
- Augments existing funding sources
- An equitable distribution of storm water management system costs, based on the premise of "contributors pay"
- Fee varies by the amount of storm water runoff generated by a particular parcel

## Why is a Storm Water Utility Needed?

Increased competition for City funding necessitates the need for a storm water utility to provide an equitable, dedicated funding source for storm water management services. This includes:

- State storm water permit compliance
- Implementation activities to address impairments of waters in and around Medina
- Water quality improvements
- Storm water system upgrades
- General storm water system maintenance



## Appendix B – Impervious Percentage and REF per Acre Calculation



## Impervious Percentage and REF per Acre Calculation

Impervious Coverage	Equivalent Composite CN value	5-yr Runoff Depth	Equivalent REF/ac
0%	61	0.62	1.6
1%	61	0.64	1.6
2%	62	0.66	1.7
3%	62	0.67	1.7
4%	62	0.69	1.7
5%	63	0.71	1.8
6%	63	0.72	1.8
7%	64	0.74	1.9
8%	64	0.76	1.9
9%	64	0.77	2.0
10%	65	0.79	2.0
11%	65	0.81	2.0
12%	65	0.83	2.1
13%	66	0.85	2.1
14%	66	0.87	2.2
15%	67	0.88	2.2
16%	67	0.90	2.3
17%	67	0.92	2.3
18%	68	0.94	2.4
19%	68	0.96	2.4
20%	68	0.98	2.5
21%	69	1.00	2.5
22%	69	1.02	2.6
23%	70	1.04	2.6
24%	70	1.06	2.7
25%	70	1.08	2.7
26%	71	1.11	2.8
27%	71	1.13	2.8
28%	71	1.15	2.9
29%	72	1.17	3.0
30%	72	1.19	3.0
31%	72	1.22	3.1
32%	73	1.24	3.1
33%	73	1.26	3.2
34%	74	1.28	3.2
35%	74	1.31	3.3
36%	74	1.33	3.4
37%	75	1.35	3.4
38%	75	1.38	3.5
39%	75	1.40	3.5
40%	76	1.43	3.6
41%	76	1.45	3.7
42%	77	1.48	3.7
43%	77	1.50	3.8
44%	77	1.53	3.9

Impervious Coverage	Equivalent Composite CN value	5-yr Runoff Depth	Equivalent REF/ac
45%	78	1.55	3.9
46%	78	1.58	4.0
47%	78	1.60	4.1
48%	79	1.63	4.1
49%	79	1.66	4.2
50%	80	1.68	4.3
51%	80	1.71	4.3
52%	80	1.74	4.4
53%	81	1.77	4.5
54%	81	1.79	4.5
55%	81	1.82	4.6
56%	82	1.85	4.7
57%	82	1.88	4.8
58%	82	1.91	4.8
59%	83	1.94	4.9
60%	83	1.97	5.0
61%	84	2.00	5.0
62%	84	2.03	5.1
63%	84	2.06	5.2
64%	85	2.09	5.3
65%	85	2.12	5.4
66%	85	2.15	5.4
67%	86	2.18	5.5
68%	86	2.21	5.6
69%	87	2.24	5.7
70%	87	2.27	5.7
71%	87	2.31	5.8
72%	88	2.34	5.9
73%	88	2.37	6.0
74%	88	2.41	6.1
75%	89	2.44	6.2
76%	89	2.47	6.2
77%	89	2.51	6.3
78%	90	2.54	6.4
79%	90	2.57	6.5
80%	91	2.61	6.6
81%	91	2.64	6.7
82%	91	2.68	6.8
83%	92	2.71	6.9
84%	92	2.75	7.0
85%	92	2.79	7.0
86%	93	2.82	7.1
87%	93	2.86	7.2
88%	94	2.90	7.3
89%	94	2.93	7.4
90%	94	2.97	7.5

Impervious Coverage	Equivalent Composite CN value	2-yr Runoff Depth	Equivalent REF/ac
91%	95	3.01	7.6
92%	95	3.05	7.7
93%	95	3.08	7.8
94%	96	3.12	7.9
95%	96	3.16	8.0
96%	97	3.20	8.1
97%	97	3.24	8.2
98%	97	3.28	8.3
99%	98	3.32	8.4
100%	98	3.36	8.5