



MEMORANDUM

To: SEMSWA Budget Committee
From: Angela Howard and Paul Danley
CC: John McCarty
Date: December 10, 2012
Re: System Development Fee (SDF) and Excess Capacity Fee (ECF) Review

Introduction

This memo presents the results of our review of existing System Development Fees (SDFs) and Excess Capacity Fees (ECFs) that SEMSWA collects. It is our intention to update the SDFs and ECFs to reflect costs from recently approved and updated basin master planning documents using the methodology used when the fees were calculated for the Lone Tree Creek, Windmill Creek and Dove Creek basins in 2010. In this analysis, construction costs have been adjusted for inflation using the Denver/Boulder/Greeley Consumer Price Index.

Developers in SEMSWA's service area are charged SDFs based on the amount of impervious area that they add to their property. The purpose of the SDF is to fund the improvements necessary to manage the increased runoff caused by added impervious area. In most cases, the improvements are identified in the master plans by basin. The SEMSWA Board of Directors adopted the System Development Fee Policy and Fee Schedule on June 24, 2009.

ECFs are also charged to developers based on the amount of impervious area that they add to their property. The purpose of the ECF is to reimburse SEMSWA for the construction costs of existing regional detention and water quality facilities. This includes the reimbursement agreements that SEMSWA assumed from the Arapahoe County Water & Wastewater Authority (ACWWA). ECFs are only currently applicable in the Lone Tree Creek, Windmill Creek and Dove Creek basins.

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System Development Fees

This memo evaluates the SDF using the same methodology that was used to update SDFs in Lone Tree, Windmill and Dove Creek watersheds in 2010. In summary, the SDF is calculated for a basin by dividing the projected Capital Improvement Projects (CIP) costs by the total projected future impervious area (existing and estimated future) in each basin. Costs and Total Impervious Area are only those within SEMSWA's service area boundary. SDF calculations are shown in Table 1 below and discussed in more detail after the table.

Table 1. Summary of updated SDFs by basin.

	1	4	5	6	7	9	10	
Basin Group	Basin	Total Area (Ac)	Total Future Impervious Area (in SEMSWA) (Ac)	Existing Impervious Area (in SEMSWA) (Ac)	Un-developed Impervious Area (in SEMSWA) (Ac)	Remaining CIP Costs from Master Plans (2012 \$)	SDF (\$/Imp. Ac)	Current SDF \$
1	Bear Creek*						\$9,360	\$3,533
1	Big Dry Creek & Tributaries	3052	1245	1154	91	\$13,703,101	\$11,006	\$6,217
1	Coon Creek - Phase B*	11	4	4	0	\$0	\$9,360	\$3,533
1	Dutch Creek - Phase B	246	60	60	0	\$583,803	\$9,791	\$3,198
1	Greenwood Gulch	287	129	129	0	\$1,469,877	\$11,430	\$2,434
1	Lee Gulch	599	309	309	0	\$429,498	\$1,389	\$19,250
1	Little Dry Creek	1145	570	570	0	\$6,645,186	\$11,656	\$1,450
1	Little's Creek	791	320	284	37	\$3,486,971	\$10,886	\$3,826
1	SJCD(N)*						\$9,360	\$3,533
1	SJCD(S)*						\$9,360	\$3,533
1	UDFCD ID 66*						\$9,360	\$3,533
1	UDFCD ID 67*						\$9,360	\$3,533
1	Upper Slaughterhouse Gulch	773	328	313	16	\$5,400,466	\$16,441	\$3,533
1	Willow Creek	2240	1178	1178	0	\$6,268,413	\$5,321	\$1,654
3	East Toll Gate Creek	1136	359	197	162	\$10,237,185	\$28,521	\$930
3	Unnamed Tributary to West Toll Gate Creek	2125	1090	454	636	\$21,448,043	\$19,680	\$3,274
3	Upper Toll Gate Creek*				0	\$31,038,330	\$24,100	\$930/ \$1,637
4	Coal Creek*						\$7,169	\$1,183
4	Lower Senac Creek*						\$7,169	\$7,164

4	Upper Senac Creek*						\$7,169	\$1,277
4	First Creek (Upstream of Buckley Rd)*	2472	816	70	747	\$5,851,847	\$7,169	\$1,277
4	Murphy Creek*	3394	375	182	193	\$22,766,214	\$7,169	\$4,621
4	Upper Sand Creek Basin*				0	\$41,803,202	\$7,169	\$1,277
2a	Cherry Creek Corridor	3034	1284	646	638	\$6,253,424	\$4,872	\$8,825
2a	Happy Canyon Creek	420	252	8	244	\$1,849,511	\$7,337	\$7,447
2a	Lower Cottonwood Creek	2926	1798	1353	445	\$7,868,505	\$4,377	\$5,510
2a	Piney Creek & Antelope Creek (Saddle Rock Ranches, Sampson Gulch)	4608	1439	1367	72	\$12,083,232	\$8,398	\$5,454/ \$6,431
2a	Upper Goldsmith Gulch	295	166	166	0	\$1,464,586	\$8,833	\$8,028
2a	UDFCD ID 4406*						\$6,763	\$6,431
2b	Dove Creek	609	494	134	360	\$757,301	\$1,534	\$5,882
2b	Lone Tree Creek	952	718	439	278	\$1,045,168	\$1,457	\$2,941
2b	Windmill Creek	1724	1300	544	755	\$1,322,598	\$1,018	\$3,445

*SDF is average of SDF for basin group

In the table above, columns 4, 5 and 6 are based on the most recent adopted master plan for the basin. See the full table in Appendix A to see the master plan type and year adopted. The areas have been modified from the master plans when applicable to reflect only the amount of area in SEMSWA's service area. The Total Future Impervious Area (column 5) is the only column of these that is directly used to calculate the SDF.

The Undeveloped Impervious Area (column 7) is calculated as the difference between Total Future Impervious Area (column 5) and Existing Impervious Area (column 6). The Undeveloped Impervious Area (column 7) is not used to calculate the SDF but may be used to project the total amount of SDFs that may be collected.

The Remaining CIP Costs from master plans (column 9) are based on the basin master plans but were updated to 2012 dollars in the July 2012 Asset Management Report. Some basin costs have been updated from the July 2012 Asset Management Report based on newly adopted master plans, newly completed construction costs, or other revisions for consistency.

The resulting SDF (column 10) is the Remaining CIP Costs from master plans (column 9) divided by Total Future Impervious Area (column 5). By dividing the CIP costs by the Total Future Impervious Area, rather than the Undeveloped Impervious Area, financial responsibility for the improvements are shared by all property owners in the basin. Some of the CIP projects identified in the basin master plans are required regardless of future development, so it is appropriate that all property owners share in the improvement costs.

Basins that don't have current master plans to calculate an SDF are determined by the average of the SDFs of the other basins in the basin group, as recommended in the Development, Permit and Review Fees: Option Analysis for System Development Fees Technical Memorandum prepared by AMEC dated May 5, 2008. The basins in SEMSWA's service area were divided into basin groups in that Technical Memorandum by several characteristics including basins which are part of the same watershed, similar development percentage, and similar age of development. The basin groups have not been changed in this analysis.

Excess Capacity Fees

Excess Capacity Fees (ECFs) were evaluated using the same methodology that was used to develop the ECF in Lone Tree Creek, Windmill Creek and Dove Creek basins in 2010. In summary, the Excess Capacity Fees are the cost of regional improvements built by SEMSWA or the Arapahoe County Water & Wastewater Authority (ACWWA) divided by the Undeveloped Impervious Area in the basin. The ACWWA costs are those that have been assumed by SEMSWA through reimbursement agreements. ECF calculations are shown in Table 2 below and discussed in more detail after the table.

Table 2. Summary of updated ECFs by basin.

	1	2	3	4	5	6			
Basin	Total Area (Ac)	Undeveloped Impervious Area (in SEMSWA) (Ac)	ACWWA Reimb. Agreements \$	SEMSWA Facility Costs 2012 \$	Total Excess Capacity Costs \$	ECF (\$/Imp Ac)	Current ECF \$	Total of current SDF & ECF \$	Total of proposed SDF & ECF \$
Dove Creek	609	360	\$28,166	\$1,689,085	\$1,717,251	\$4,770	\$1,990	\$7,872	\$6,305
Lone Tree Creek	952	278	\$504,407	\$1,141,607	\$1,646,014	\$5,915	\$2,827	\$5,768	\$7,372
Lone Tree Creek*	952	278	\$780,000	\$1,141,607	\$1,921,607	\$6,906	\$2,827	\$5,768	\$8,362
Windmill Creek	1724	755	\$1,513,140	\$2,752,084	\$4,265,224	\$5,646	\$4,687	\$8,132	\$6,664

*If SEMSWA Board approves Resolution to increase reimbursement to Sunborne development

In the table above, column 1 is based on the most recent adopted master plan for the basin. See the full table in Appendix A to see the master plan type and year adopted. The areas have been modified from the master plans when applicable to reflect only the amount of area within SEMSWA's service area.

The Undeveloped Impervious Area (column 2) is the difference between Total Future Impervious Area and Existing Impervious Area in the basin as calculated for the SDF calculations. The Undeveloped Impervious Area (column 2) is the area used to calculate the ECF.

The amount of the ACWWA Reimbursement Agreements (column 3) is the balance that SEMSWA assumed from ACWWA when SEMSWA assumed ACWWA's MS4 permit in 2010. These agreements reimburse developers who built regional improvements which benefit developments beyond their own. SEMSWA is in the process of paying off these agreements but the original balance of the reimbursement agreements is used in this calculation so that all developers pay the same portion of the regional improvement costs.

The SEMSWA Facility Costs (column 4) are the actual construction costs that SEMSWA paid for regional improvements in the above basins that were updated to 2012 dollars using the Denver/Boulder/Greeley Consumer Price Index. For the basins that have ECFs, the cost of new facilities may be added to this total when they are completed, provided that the estimated costs from the basin master plan are removed from the CIP costs used to calculate the SDF. This is so that developers do not pay estimated and actual construction costs for the same projects. It is appropriate that actual construction costs for master plan projects be added to the ECF and the associated estimated costs be removed from the SDF so that developers are reimbursing SEMSWA for the actual cost expenditures associated with constructing regional improvements that benefit their property.

The Total Excess Capacity Costs (column 5) is the sum of the ACWWA Reimbursement Agreements (column 3) and SEMSWA Facility Costs (column 4). The ECF resulting from this analysis (column 6) is the Total Excess Capacity Costs (column 5) divided by Undeveloped Impervious Area (column 2). By dividing the costs of constructed regional improvements by the Undeveloped Impervious Area, financial responsibility for the constructed regional improvements are shared by developers in the basin. Existing property owners in the basin paid SDFs and ECFs if they developed in 2010 or later to reimburse SEMSWA for the regional improvements that benefit their property. If their property was developed prior to 2010, they pay annual fees to SEMSWA for the benefits they receive from the regional improvements that are constructed.

Updating System Development Fees & Excess Capacity Fees

When the SEMSWA Board of Directors approved SDFs in 2009, the SDF policy that was adopted allows SEMSWA to adjust SDFs to "more equitably assess these fees." It is recommended that SDFs and ECFs be updated annually.

As discussed in the previous section, costs for improvements are shared by all property owners in the basin. In order to ensure all property owners pay for all improvements, the CIP Costs from master plans that determine the SDFs should not be updated, with the exception of updating construction costs based on inflation, or when a new master plan is adopted for the basin. The only exception to this principle is for basins that have ECFs.

For basins that have an ECF, when construction of regional improvements has been completed since the last SDF and ECF update, the estimated cost of the project from the basin master plan should be removed from the CIP costs used to calculate the SDF and actual construction costs of the project be added to the SEMSWA Facility costs used to calculate the ECF. By doing this, developers will not pay twice for the same projects. It is appropriate that actual construction costs for master plan projects be added to the ECF so that developers are reimbursing SEMSWA for the actual costs associated with constructing regional improvements that benefit their property. SDFs and ECFs are assessed to the developer at the time of development project approval.

Updated System Development Fees

As shown in Table 1, the resulting System Development Fees (SDFs) are generally higher than the existing SDF for the same basin. It was expected that SDFs would increase because of the significant costs of regional drainageway improvements included in new or recently updated basin master plans. Another reason that SDFs were expected to increase was because the methodology that was used to calculate the SDF for Lone Tree, Windmill and Dove Creek basins in 2010 was updated from the methodology that AMEC used in 2009 because the previous methodology resulted in proposed development paying less of the CIP costs than they were responsible for based on the proportion of impervious area. By equitably dividing the cost between existing and proposed developments based on the amount of impervious area each contributes to the basin, the amount that proposed developments pay increased. The increase can also be attributed to CIP construction costs in older master plans being increased to account for inflation.

The new methodology for calculating SDFs results in the most accurate and equitable fees for each basin but does result in some very high SDFs. Of all 40 basins in SEMSWA's service area, 4 basins would have SDFs over \$12,000 based on the new methodology. While \$12,000 per impervious acre appears high, it is actually similar to the fees that developers paid prior to SEMSWA's formation.

Table 3 below is taken from the Development, Permit and Review Fees: Option Analysis for System Development Fees Technical Memorandum prepared by AMEC dated May 5, 2008 and shows the drainage fees per impervious acre that Arapahoe County, ACWWA and Inverness Water and Sanitation District charged developers at that time.

Table 3. Existing Developer Fees (Table E7) from AMEC Development, Permit and Review Fees: Option Analysis for System Development Fees Technical Memorandum (May 5, 2008)

Four Square Mile Sub-Basins	
Sub-basin	Fee/ Impervious Acre
1 Westerly Creek	\$11,477
2 Cherry Creek	\$9,439
3 Cherry Creek	\$4,289
5 Cherry Creek	\$23,611
6 Cherry Creek	\$8,313
7 Cherry Creek	\$4,827
12 Cherry Creek	\$5,635
13 Cherry Creek	\$9,270
14 Cherry Creek	\$9,735
15 Cherry Creek	\$14,184
Four Square Mile Average	\$10,078

Other Basins	
Basin	Fee/ Impervious Acre
Slaughterhouse Gulch	\$13,316
Cottonwood Creek basin	\$4,349
Box Elder Creek Basin	\$8,616
Average	\$8,760

Overall Drainage Fee Average	\$9,774
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ACWWA	\$14,540
All Basins	

IWS	\$8,325
	per impervious acre

To provide perspective, a hypothetical SDF of \$12,000 per impervious acre is assumed in Table 4 below. This table presents examples of the SDF a developer would pay for a 1-acre single family residential, multi-family residential or commercial/industrial project.

Table 4. Example SDFs for 1-acre development assuming \$12,000 per impervious acre.

	Single Family Residential	Multi-Family Residential	Commercial/Industrial
Density	4 Units Per Acre	12 Units Per Acre	1 Acre Parcel
Imperviousness	50%	80%	85%
SDF Due (Assumes \$12,000/Impervious Acre)	\$6,000	\$9,600	\$10,200
Total SDF Due Per Unit	\$1,500/unit	\$800/unit	\$10,200
Source	Average of UDFCD Vol. 3 Figures RO-3, RO-4, RO-5	City of Centennial requires 20% open space in RA multi-family zoning district	City of Centennial requires 15% open space in CG/I zoning districts

If SEMSWA were to artificially cap SDFs, reducing them from what is calculated, developers in capped basins would be paying less than the estimated developer share of regional improvements. The balance of the regional improvements outlined in master plans would require funding from other sources, including annual fees from SEMSWA ratepayers.

Appendix A

1	2	3	4	5	6	7	8	9	10			
Basin Group	Basin	Master Plan	Year Accepted/ Completed	Total Area (Ac)	Total Future Impervious Area (in SEMSWA) (Ac)	Existing Impervious Area (in SEMSWA) (Ac)	Undeveloped Impervious Area (in SEMSWA) (Ac)	% Developable	Remaining CIP Costs from Master Plans (2012 \$)	SDF (\$/Imp. Ac)	Current SDF \$	Notes
1	Bear Creek	Apply basin group average								\$9,360	\$3,533	
1	Big Dry Creek & Tributaries	Major Drainageway Plan	1998	3052	1245	1154	91	7.3%	\$13,703,101	\$11,006	\$6,217	
												Land use for the study area has generally reached a fully developed condition. Construction costs updated from 2012 Asset Management Report. No proposed improvements in SEMSWA service area. Apply basin group average.
1	Coon Creek - Phase B	Preliminary Design Report	2008	11	4	4	0	0.0%	\$0	\$9,360	\$3,533	
												Land use for the study area has generally reached a fully developed condition. Construction costs updated from 2012 Asset Management Report.
1	Dutch Creek - Phase B	Preliminary Design Report	2008	246	60	60	0	0.0%	\$583,803	\$9,791	\$3,198	
												Project sponsors determined flows from current & future states were close enough that no current hydrology was calculated.
1	Greenwood Gulch	Outfall Systems Planning Study	2010	287	129	129	0	0.0%	\$1,469,877	\$11,430	\$2,434	
												Land use for the study area has generally reached a fully developed condition. Not included in Asset Management Report.
1	Lee Gulch	Major Drainageway Plan	1978	599	309	309	0	0.0%	\$429,498	\$1,389	\$19,250	
												Land use for the study area has generally reached a fully developed condition. No master plan projects are recommended in SEMSWA service area. Apply basin group average.
1	Lilley Gulch - Phase B	Preliminary Design Report	2008	0	0	0	0		\$0	\$9,360	\$3,533	
												Project sponsors determined flows from current & future states were close enough that no current hydrology was calculated.
1	Little Dry Creek	Outfall Systems Planning Study	2010	1145	570	570	0	0.0%	\$6,645,186	\$11,656	\$1,450	
												Accepted August 2012. Not included in Asset Management Report.
1	Little's Creek	Major Drainageway Plan	2012	791	320	284	37	11.5%	\$3,486,971	\$10,886	\$3,826	
1	SICD(N)	Apply basin group average								\$9,360	\$3,533	Apply basin group average.
1	SICD(S)	Apply basin group average								\$9,360	\$3,533	Apply basin group average.
1	UDFCD ID 66	Apply basin group average								\$9,360	\$3,533	Apply basin group average.
1	UDFCD ID 67	Apply basin group average								\$9,360	\$3,533	Apply basin group average.
1	Upper Slaughterhouse Gulch	Major Drainageway Plan	1983	773	328	313	16	4.9%	\$5,400,466	\$16,441	\$3,533	
												Project sponsors determined flows from current & future states were close enough that no current hydrology was calculated.
1	Willow Creek	Outfall Systems Planning Study	2010	2240	1178	1178	0	0.0%	\$6,268,413	\$5,321	\$1,654	
3	East Toll Gate Creek	Major Drainageway Plan	2011	1136	359	197	162	45.1%	\$10,237,185	\$28,521	\$930	
3	Unnamed Tributary to West Toll Gate Creek	Outfall Systems Planning Study	2003	2125	1090	454	636	58.4%	\$21,448,043	\$19,680	\$3,274	Will be replaced by 2012 study.
3	Upper Toll Gate Creek	Outfall Systems Planning Study	1990				0		\$31,038,330	\$24,100	\$930/\$1637	Will be replaced by 2012 study
4	Coal Creek	Apply basin group average								\$7,169	\$1,183	No current study
4	Lower Senac Creek	Apply basin group average								\$7,169	\$7,164	Study will be completed in 2013
4	Upper Senac Creek	Apply basin group average								\$7,169	\$1,277	Study will be completed in 2013
4	First Creek (Upstream of Buckley Rd)	Major Drainageway Plan	2010	2472	816	70	747	91.5%	\$5,851,847	\$7,169	\$1,277	
												Apply basin group average. Not included in Asset Management Report.
4	Murphy Creek	Outfall Systems Planning Study	2007	3394	375	182	193	51.6%	\$22,766,214	\$7,169	\$4,621	
												Will be replaced with 2012/2013 study.
4	Upper Sand Creek Basin	Outfall Systems Planning Study	1990				0		\$41,803,202	\$7,169	\$1,277	Used SWMM diagram to use exclude basins in Piney Creek & Happy Canyon Creek.
2a	Cherry Creek Corridor	Major Drainageway Plan	2004	3034	1284	646	638	49.7%	\$6,253,424	\$4,872	\$8,825	
2a	Happy Canyon Creek	Outfall Systems Planning Study	1991	420	252	8	244	96.7%	\$1,849,511	\$7,337	\$7,447	MDP & FHAD underway.
2a	Lower Cottonwood Creek	OSP Conceptual Design Rept	2010	2926	1798	1353	445	24.7%	\$7,868,505	\$4,377	\$5,510	
2a	Piney Creek & Antelope Creek (Saddle Rock Ranch)	Major Drainageway Plan	2012	4608	1439	1367	72	5.0%	\$12,083,232	\$8,398	\$5454/\$6431	
												Land use for the study area has generally reached a fully developed condition.
2a	Upper Goldsmith Gulch	Outfall Systems Planning Study	2005	295	166	166	0	0.0%	\$1,464,586	\$8,833	\$8,028	
2a	UDFCD ID 4406	Apply basin group average								\$6,763	\$6,431	
												Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Ponds D1 & D2.
2b	Dove Creek	Major Drainageway Plan	2010	609	494	134	360	72.9%	\$757,301	\$1,534	\$5,882	
												Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Pond L2.
2b	Lone Tree Creek	Major Drainageway Plan	2010	952	718	439	278	38.8%	\$1,045,168	\$1,457	\$2,941	
												Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Pond W1/W2.
2b	Windmill Creek	Major Drainageway Plan	2010	1724	1300	544	755	58.1%	\$1,322,598	\$1,018	\$3,445	

Column Note
4 From Master Plan Document
5 From Master Plan Document
6 From Master Plan Document
7 =(5)-(6)
8 =(7)/(5)
9 From 2012 Asset Management Report
10 =(9)\(5)

				1	2	3	4	5	6				
Basin Group	Basin	Master Plan	Year Accepted/ Completed	Total Area (Ac)	Undeveloped Impervious Area (in SEMSWA) (Ac)	ACWWA Reimb. Agreements \$	SEMSWA Facility Costs 2012 \$	Total Excess Capacity Costs \$	ECF (\$/Imp. Ac)	Current ECF \$	Total of current SDF & ECFs \$	Total of proposed SDF & ECFs \$	Notes
2b	Dove Creek	Major Drainageway Plan	2010	609	360	\$28,166	\$1,689,085	\$1,717,251	\$4,770	\$1,990	\$7,872	\$6,305	Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Ponds D1 & D2.
2b	Lone Tree Creek	Major Drainageway Plan	2010	952	278	\$504,407	\$1,141,607	\$1,646,014	\$5,915	\$2,827	\$5,768	\$7,372	Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Pond L2.
2b	Lone Tree Creek*	Major Drainageway Plan	2010	952	278	\$780,000	\$1,141,607	\$1,921,607	\$6,906	\$2,827	\$5,768	\$8,362	Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Pond L2.
2b	Windmill Creek	Major Drainageway Plan	2010	1724	755	\$1,513,140	\$2,752,084	\$4,265,224	\$5,646	\$4,687	\$8,132	\$6,664	Includes revisions from 2011 Addenda. Projects from 2012 Asset Mgmt rept except Pond W1/W2.

*If SEMSWA Board approves Resolution to increase reimbursement to Sunborne development

Column Note

- 1 From Master Plan Document
- 2 From SDF Summary (based on Master Plan Document)
- 3 Repayment of ACWWA's investment in Regional Facilities was assumed by SEMSWA with MS4 transfer. 2010 balances used so all developers pay equal share of ACWWA reimbursements.
- 4 Recent SEMSWA expenditures for Regional Facilities. In 2012 dollars - Inflation from Denver/Boulder/Greeley CPI.
- 5 =(3) + (4)
- 6 =(5)/(2)