M E M O R A N D U M

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SUBJECT: Refinement of Payment Rate Structure for Regional Stormwater Management Program – Residential Development

The proposed rate structure for the Regional Stormwater Management Program (RSMP) payment calculation combines data for commercial/multi-family residential/mixed-use developments and single-family residential developments to produce a single combined cost curve that defines the construction component rate structure. The proposed rate structure correlates well with construction costs for most development types, however, it does not scale well to small residential developments. Cost data available for these small developments is very limited, but what is available supports a somewhat lower construction cost for these cases. Based on this finding, the Watershed Protection Department has adjusted the Proposed Combined rate structure from the study report for single family residential development. The purpose of this memorandum is to explain the refinement of the cost curves produced for the rate structure for the Construction Cost Component (CCC) of the payment calculation from the 2019 Payment Rate Structure Study Update for the Regional Stormwater Management Program and Urban Watersheds Structural Control Fund ("Regional Stormwater Management Program Participation Payment and Urban Watersheds Structural Control Fund Payment Methodology Modifications" 2019, CH2M Hill Engineers, Inc. report).

The refined Single-Family Residential Development construction cost rate structure adjusts the cost for the first acre of impervious cover and retains the combined costs for the larger areas. The rate for the first acre was adjusted based on the established cost curve shifting the value for the first acre from the midpoint of the 0 to 1-acre area range to the 75% point in this range. The adjustment to the cost for the first acre results in a lower payment amount than commercial/multi-family residential/mixed-use developments of the same size. The proposed Single-Family Residential Development rate structure for the CCC continues up to over 100 acres with the same $/acre rates as the Proposed Combined rate structure from the study report.

The following table compares the current Commercial and Residential rates for increasing impervious coverage from the 2002 Study, the current adjusted construction cost rates, and the

proposed construction cost rates. "Current Commercial (Adjusted)" and "Current Residential (Adjusted)" use the Engineering New Record – Construction Cost Index Adjustment Factor (ENR CCI AF) of 1.6998 to adjust the current rates from 2002 to 2018 dollars. These adjusted amounts reflect the current rates for the RSMP program. The last two columns are the Proposed Commercial and Residential rate structures, which are identical except for the first acre rate for residential development. The proposed per acre costs will be adjusted annually based on the September ENR CCI AF divided by the September 2018 index value of 11170.28. This matches the current cost adjustment procedure with a reset of the index value.

Impervious Acres			**Cost per impervious acre**					
	From	To	2002 Commercial	2002 Residential	Current Commercial (Adjusted)	Current Residential (Adjusted)	Proposed Commercial	Proposed Residential
A1	0	1	$60,000	$35,000	$101,991	$59,495	$129,000	$103,000
A2	1.01	2	$18,000	$15,000	$30,597	$25,498	$70,000	$70,000
A3	2.01	5	$8,000	$10,000	$13,599	$16,998	$44,000	$44,000
A4	5.01	10	$6,000	$7,000	$10,199	$11,899	$29,000	$29,000
A5	10.01	20	$5,000	$5,000	$8,499	$8,499	$20,000	$20,000
A6	20.01	50	$4,000	$3,000	$6,799	$5,100	$12,000	$12,000
A7	50.01	100	$2,500	$2,000	$4,250	$3,400	$8,000	$8,000
A8	100.01	>	$2,500	$1,500	$4,250	$2,550	$4,000	$4,000

This proposed change to the rate structure means that a small single-family residential development (0.5 acres increasing impervious cover from 0% to 45%) would see a change from $13,386.28 to $23,175. A small multi-family and/or mixed-use development (0.7 acres increasing from 0% to 100%) would see a change from $81,592.56 to $103,200 for the Construction Cost Component. A large single-family residential development (60 acres increasing impervious cover from 0% to 50%) would see the Construction Cost Component change from $331,469.77 to $770,000. Refer to the example calculations presented below for details of these calculations.

The proposed changes to the Land Cost Component, which is the second half of the RSMP payment calculation, are documented in the full 2019 report. In brief, the static land value caps of $40,000/acre for single-family residential and $120,000/acre for commercial/multi-family residential/mixed-use will be removed and the calculation will be based on 80% of the appraised land value from either the appropriate appraisal district or a certified appraisal provided by the applicant. The assumption of 5% of a site being used for on-site detention was validated with this study and so will remain. An adjustment factor for impervious cover, which is identical to the one used for the Drainage Utility Fee (DUF), will be used to adjust the Land Cost Component based on the proposed impervious cover relative to the weighted City average. This provides additional relief primarily for small, lower density single family subdivision developments by adjusting the Land Cost Component downward.

As explained in this memorandum, the refined Proposed Combined CCC rate structure is recommended for the Proposed Residential CCC rate structure and the Proposed Combined CCC rate structure from the report is recommended for the Proposed Commercial CCC rate structure.

Examples Based on Refined Methodology for Single Family Subdivisions

Single-Family Residential Development Examples (Subdivision Cases Only)

Note: The examples presented are calculated based on fiscal year 2018 values. The ENR adjustment factor will change for subsequent years.

Single-Family Example (large development)		
Total Site Area (acres)	*60.0*	
	Existing	Proposed
Impervious Cover (%)	0%	50%
Impervious Cover (acres)	*0*	*30*
Land Appraisal ($/acre)	*$150,000.00*	
2018 ENR CCI AF (CCC)	1.6998	1.0000
I.C. AF (LCC)	n/a	0.9646
	Current Payment	**Proposed Payment**
Land Value ($/acre)	$40,000.00	$120,000.00
Construction Cost Component	$331,469.77	$770,000.00
Land Cost Component	$120,000.00	$347,238.00
Total	$451,469.77	$1,117,238.00

Single-Family Example (small resubdivision)		
Total Site Area (acres)	*0.5*	
	Existing	Proposed
Impervious Cover (%)	0%	45%
Impervious Cover (acres)	*0*	*0.225*
Land Appraisal ($/acre)	*$500,000.00*	
2018 ENR CCI AF (CCC)	1.6998	1.0000
I.C. AF (LCC)	n/a	0.8874
	Current Payment	**Proposed Payment**
Land Value ($/acre)	$40,000.00	$400,000.00
Construction Cost Component	$13,386.28	$23,175.00
Land Cost Component	$1,000.00	$8,874.25
Total	$14,386.28	$32,049.25

Single-Family Example (small resubdivision)		
Total Site Area (acres)	*0.5*	
	Existing	Proposed
Impervious Cover (%)	15%	45%
Impervious Cover (acres)	*0.075*	*0.225*
Land Appraisal ($/acre)	*$500,000.00*	
2018 ENR CCI AF (CCC)	1.6998	1.0000
I.C. AF (LCC)	n/a	0.8874
	Current Payment	**Proposed Payment**
Land Value ($/acre)	$40,000.00	$400,000.00
Construction Cost Component	$8,923.95	$15,450.00
Land Cost Component	$1,000.00	$8,874.25
Total	$9,923.95	$24,324.25

Examples using Combined Recommended Rate Structure without adjustment

Single-Family Example (large development)		
Total Site Area (acres)	*60.0*	
	Existing	Proposed
Impervious Cover (%)	0%	50%
Impervious Cover (acres)	*0*	*30*
Land Appraisal ($/acre)	*$150,000.00*	
2018 ENR CCI AF (CCC)	1.6998	1.0000
I.C. AF (LCC)	n/a	0.9646
	Current Payment Calculation	**Proposed Residential**
Land Value ($/acre)	$40,000.00	$120,000.00
Construction Cost Component	$331,461.00	$796,000.00
Land Cost Component	$120,000.00	$347,238.00
Total	$451,461.00	$1,143,238.00

Single-Family Example (small resubdivision)		
Total Site Area (acres)	*0.5*	
	Existing	Proposed
Impervious Cover (%)	0%	45%
Impervious Cover (acres)	*0*	*0.225*
Land Appraisal ($/acre)	*$500,000.00*	
2018 ENR CCI AF (CCC)	1.6998	1.0000
I.C. AF (LCC)	n/a	0.8874
	Current Payment Calculation	**Proposed Residential**
Land Value ($/acre)	$40,000.00	$400,000.00
Construction Cost Component	$13,385.93	$29,025.00
Land Cost Component	$1,000.00	$8,874.25
Total	$14,385.93	$37,899.25

Single-Family Example (small resubdivision)		
Total Site Area (acres)	*0.5*	
	Existing	Proposed
Impervious Cover (%)	15%	45%
Impervious Cover (acres)	*0.075*	*0.225*
Land Appraisal ($/acre)	*$500,000.00*	
2018 ENR CCI AF (CCC)	1.6998	1.0000
I.C. AF (LCC)	n/a	0.8874
	Current Payment Calculation	**Proposed Residential**
Land Value ($/acre)	$40,000.00	$400,000.00
Construction Cost Component	$8,923.95	$19,350.00
Land Cost Component	$1,000.00	$8,874.25
Total	$9,923.95	$28,224.25