



Public Facilities Needs Assessment

For Improvements to Stormwater Management

Facilities and Public Sanitary Sewer System

In the Door Creek North, Phase II Project

Introduction

The City of Madison has prepared this public facilities needs assessment. Improvements to stormwater management practices and the public sanitary sewer system are required to facilitate well-planned development in a portion of the Sprecher Neighborhood. This work is referred to as the Door Creek North, Phase II project.

The Sprecher Neighborhood Development Plan was adopted in 1998 by The City of Madison to guide development in the area bordered to the north by Interstate Highway 94, to the west by Interstate Highway 90, to the south by Cottage Grove Road, and to the east by the eastern section line of Section 1, Township 07 North, Range 10 East (Refer to the map in *Exhibit B*). The plan includes recommendations for lands to be reserved for parks, open space, and drainage based on existing topography and natural features.

The headwaters of Door Creek traverse through the eastern half of the planning area. An unnamed tributary of Door Creek extends west to Sprecher Road just south of Milwaukee Street and continues west through existing Town of Blooming Grove lands. A drainage corridor is preserved for the land surrounding this tributary.

Lands upstream of this corridor are currently developing. As lands develop, the increase in impervious area will result in an increase in the peak flow, the time of concentration and the volume of storm water runoff. Therefore, downstream drainage facilities need to be improved to control the peak runoff rates and increase the conveyance capacities to protect the existing adjacent properties from potential flooding and/or erosion.

The developing lands also require connection to the public sewerage system. Where possible, these facilities are designed to function by gravity. To serve the lands currently developing, the sanitary sewer system needs to be extended from South Sprecher Road at Broad Creek Boulevard to the west approximately 2,200 feet and to the north approximately 600 feet.

Existing Public Facilities

Currently, the storm water drainage system consists of unimproved drainage courses. There is a primary drainage branch extending from the box culverts under Sprecher Road at Broad Creek Boulevard to the west to culverts under Rustic Drive and then beyond. A secondary drainage branch joins the primary branch approximately 800 feet upstream of the Sprecher box culverts then extends due north to Milwaukee Street, also serving land north of Interstate Highway 94.

Currently, a sanitary sewer interceptor exists in Sprecher Road at Broad Creek Boulevard with capacity to accept the additional projected service area.

New Public Facilities

The improvements to the public storm water drainage system consist of a regional retention facility designed to control the peak runoff rates and a stormwater conveyance system to carry the increased volume of storm water runoff. Additionally, the retention facility shall provide water quality benefits including sediment trapping.

The improvements to the public sanitary sewer system consist of extending approximately 2200 linear feet of 12" sanitary sewer interceptor main and structures.

Impact Fees

In order to finance the improvements, the City, pursuant to Wis. Stats. § 66.0617(2), has passed an Impact Fee Ordinance (Chapter 20 of Madison Code of Ordinances) that can require fees to be paid by developers to compensate for the capital costs necessary to accommodate land development in unplatted areas. In areas already platted, Special Assessments will be used to finance a proportionate share of the costs of this project. For the Door Creek North, Phase II project, three separate fees have been established to recover the costs for the (1) sanitary sewer interceptor, (2) storm water conveyance facilities, and (3) storm water retention facilities. There is no fee rate difference between platted and unplatted areas.

The Impact/ Assessment Fee area has been divided into sections (*See Exhibit C*) based on the total amount of fees and the method by which the fees will be procured (Impact Fee or Special Assessment). There are nine total sections and they have been divided as follows:

Table A: Impact/Assessment Fee Rates* in each Section

Section Number**	Sanitary Sewer Fee	Storm Water Conveyance Fee	Storm Water Retention Fee		Impact Fee or Special Assessment	Total Fees
			Storage	Outlet		
1	\$46.76	\$53.91	\$96.76	\$3.21	Impact	\$200.64
2	\$46.76	\$53.91	-	\$3.78	Impact	\$104.45
3	-	\$53.91	-	-	Impact	\$53.91
3a	-	\$53.91	-	-	Assessment	\$53.91
4	\$46.76	\$53.91	-	\$4.15	Impact	\$104.82
5	\$46.76	\$53.91	-	-	Impact	\$100.67
6	-	\$53.91	-	-	Impact	\$53.91
7	\$46.76	\$53.91	\$90.18	\$2.99	Assessment	\$193.84
8	-	\$53.91	\$90.18	\$2.99	Assessment	\$147.08

*Fees in Table are per 1000 Square Feet

**Refer to map in Exhibit C for location of each Section

The rates for each area range from \$2,348.32/acre in Sections 3, 3a, and 6 to \$8,739.88/acre in Section 1.

The three impact fee rates were calculated as a rate for the Cost per Net Developed Area as defined in Section 20.04 of the Madison General Ordinances. The Net Developed Area has been estimated as 67% of the gross area. The land costs and construction costs have been estimated for the Cost of the improvements.

Land costs with real estate fees are assumed to be \$525,000.00. Refer to *Table 1* in *Exhibit A* for a complete breakdown of land costs associated with each treatment.

Construction cost estimates includes 10% for engineering and 15% contingency. Final costs shall include 10% engineering. Construction costs shall be broken down as follows:

- **Sanitary Sewer Interceptor:** sanitary pipe, backfill, structures, and trench patches
- **Storm Water Conveyance:** erosion control measures, greenway grading, restoration, culverts, septic system abandonment, and private sanitary lateral
- **Storm Water Retention:** basin grading, restoration, and outlet structure

A regional retention basin has been designed for the area. Only a portion of the basin to serve the immediate Development (Phase 1 Storage) will be constructed with the Door Creek North, Phase II project. The remainder of the storage (Phase 2 Storage) will be constructed with a future project. The outlet structure to serve the ultimate regional retention basin (Phase 1 and Phase 2 Storage) will be constructed with the Door Creek North, Phase II project.

The design of the regional retention basin is included in the “Hydrology & Hydraulics Report for Door Creek North, Phase II Detention Basin and Drainage Way – October 2002” on file in City of Madison Engineering. The design includes a breakdown of storage required for Areas 1 thru 4. Phase 1 Storage serves Areas 1 & 2 and Phase 2 Storage serves Areas 3 & 4. The breakdown of the percentage of costs to each area is as follows:

Phase 1 Storage: Area 1 = 79.57%; Area 2 = 20.43%

Phase 2 Storage: Area 3 = 56.25%; Area 4 = 43.75%

Outlet Structure: Area 1 = 52.48%; Area 2 = 13.48%; Area 3 = 19.15%; Area 4 = 14.89%

The storage costs (grading, restoration) associated with the Storm Water Retention treatment for the Door Creek North, Phase II project are only calculated for Phase 1 Storage, incorporating Area 1 and Area 2. Outlet structure costs have been calculated for Phase 1 and 2 Storage, incorporating all four Areas. Refer to *Tables 2,3, and 4* in *Exhibit A* for detailed construction costs for each treatment, and the map in *Exhibit C*.

Adjustments to Impact Fee

The impact fee shall be adjusted annually for inflation, based on the Construction Cost Index as published in the *Engineering News Record* (<http://enr.construction.com/>). The base month/year for calculating such adjustment shall be the month/year of final Common Council adoption of this Impact Fee Ordinance.

Location Description of Impact Fee District

Any and all parcels (platted and/or metes and bounds), or portions thereof, that reside within, or is altered to discharge within the service areas defined in *Exhibit C*. These lands are located within the City of Madison and Town of Blooming Grove as follows:

Parts of Section 1, Section 2 and Northwest ¼ Section 11, and Northeast ¼ Section 11 of Township 7 North, Range 10 East.

Effect of impact fees on housing costs

Impact fee rates will vary within eight (8) different sections in the Sprecher Neighborhood area. The costs were calculated based on minimum City of Madison zoning standards for lot sizes in each of the zones within each section. The map in *Exhibit B* shows the zone boundaries. The map in *Exhibit C* shows each of the sections divided by impact fee rates. Refer to *Table 6* in *Exhibit A* for a detailed summary of the additional costs for housing associated with the proposed impact fees.

Table 1 Land Costs for Impact Fee District

TREATMENT		PERCENT OF FEE AREA	PERCENT OF TLE AREA	NET AREA (ACRES)	TOTAL LAND COSTS			
					Fee Area	TLE Area	Total	
Sanitary Storm Interceptor		10.00%	12.50%	168.30	\$51,676.26	\$1,029.67	\$52,705.93	
Storm Water Conveyance		42.5%	63.75%	289.72	\$219,624.12	\$5,251.33	\$227,159.68*	
Storm Water Retention	Phase 1	Area 1	47.5%	23.75%	100.83	\$245,462.25	\$1,956.38	\$247,418.62
		Area 2						
	Phase 2	Area 3	0%	0%	29.06	NO LAND COSTS		
		Area 4			20.57			

* Fee + TLE does not equal total because total includes connection charges for 4565 Sprecher Rd.

Table 2 Construction Costs for Sanitary Sewer Interceptor

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
TRAFFIC CONTROL - SANITARY	1	LUMP SUM	\$2,000.00	\$2,000.00
MOBILIZATION - SANITARY	1	LUMP SUM	\$5,000.00	\$5,000.00
TRENCH RESTORATION	140	T.F.	\$15.00	\$2,100.00
12" PVC, SDR 35	832	L.F.	\$80.00	\$66,560.00
4' DIA. SAS WITH INTERNAL CHIMNEY SEAL	10	EACH	\$1,200.00	\$12,000.00
SELECT BACKFILL FOR SANITARY SEWER	109	T.F.	\$10.00	\$1,090.00
8" PVC, SDR 26	104	L.F.	\$35.00	\$3,640.00
12" PVC, SDR 26	1560	L.F.	\$80.00	\$124,800.00
8" PVC PIPE PLUG	2	EACH	\$50.00	\$100.00
ABANDON SANITARY MAIN	0.5	EACH	\$500.00	\$250.00
TEMPORARY CONCRETE TRENCH PATCH	3530	S.F.	\$2.00	\$7,060.00
ROCK EXCAVATION (UNDISTRIBUTED)	500	C.Y.	\$15.00	\$7,500.00
SUBTOTAL				\$232,100.00
ENGINEERING (10%)				\$23,210.00
CONTINGENCY (15%)				\$34,815.00
TOTAL CONSTRUCTION COSTS				\$290,125.00
TOTAL LAND COSTS (FROM TABLE 1)				\$52,705.93
TOTAL COSTS				\$342,830.93
RATE				\$46.76/1000 S.F.

Table 3 Construction Costs for Storm Water Conveyance

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
TRAFFIC CONTROL - STORM	0.5	LUMP SUM	\$2,000.00	\$1,000.00
EROSION MATTING, CLASS II, TYPE B	10,775	S.Y.	\$2.00	\$21,550.00
SILT FENCE (UNDIST)	100	L.F.	\$1.50	\$150.00
CLEAR STONE WEEPER	4	EACH	\$400.00	\$1,600.00
MOBILIZATION FOR STORM SEWER	0.5	LUMP SUM	\$5,000.00	\$2,500.00
EXCAVATION CUT	23,518	C.Y.	\$3.00	\$70,554.00
CLEAR STONE	130	TON	\$15.00	\$1,950.00
RIPRAP	60	TON	\$40.00	\$2,400.00
REMOVE SEWER ACCESS STRUCTURE	1	EACH	\$400.00	\$400.00
REMOVE PIPE	60	L.F.	\$30.00	\$1,800.00
CLEARING	612	I.D.	\$15.00	\$9,180.00
GRUBBING	612	I.D.	\$15.00	\$9,180.00
SEEDING WITH SOIL STABILIZERS	24,766	S.Y.	\$3.00	\$74,298.00
43"X68" HERCP, CLASS HE-III	120	L.F.	\$100.00	\$12,000.00
HERC APRON ENDWALL, 43"X68"	4	EACH	\$1,500.00	\$6,000.00
SELECT BACKFILL FOR STORM SEWER	212	T.F.	\$5.00	\$1,060.00
UTILITY TRENCH PATCH, TYPE III	3,530	S.F.	\$2.00	\$7,060.00
CONSTRUCTION ENTRANCE	3	EACH	\$500.00	\$1,500.00
SEDIMENT TRAP	1	EACH	\$400.00	\$400.00
RIPRAP FILTER FABRIC	150	S.Y.	\$2.00	\$300.00
EXCESS MATERIAL DISPOSAL	20,418	C.Y.	\$1.00	\$20,418.00
REINFORCED CONC BOX CULVERT, 5'X8'	91.5	L.F.	\$100.00	\$9,150.00
5'X8' BOX CULVERT WINGWALLS	1	LUMP SUM	\$10,000.00	\$10,000.00
5'X8' BOX CULVERT INLET GATE	2	EACH	\$5,000.00	\$10,000.00
5'X8' BOX CULVERT OUTLET GATE	3	EACH	\$5,000.00	\$15,000.00
DROP STRUCTURE	1	LUMP SUM	\$20,000.00	\$20,000.00
SALVAGED TOPSOIL GRADING	20,086	S.Y.	\$2.00	\$40,172.00
CONSTRUCTION FENCING	380	L.F.	\$2.00	\$760.00
PIPE PLUG	1	EACH	\$500.00	\$500.00
4" PVC, SDR 35 SANITARY LATERAL	86	L.F.	\$60.00	\$5,160.00
CLEANOUT	1	EACH	\$1,500.00	\$1,500.00
ABANDON SEPTIC SYSTEM	1	LUMP SUM	\$5,000.00	\$5,000.00
SUBTOTAL				\$362,542.00
ENGINEERING (10%)				\$36,254.20
CONTINGENCY (15%)				\$54,381.30
TOTAL CONSTRUCTION COSTS				\$453,177.50
TOTAL LAND COSTS (FROM TABLE 1)				\$227,159.68
TOTAL COSTS				\$680,337.18
RATE				\$53.91/ 1000 S.F.

Table 4 Construction Costs for Storm Water Retention: Storage

Item	Quantity	Unit	Unit Price	TOTAL COST
TRAFFIC CONTROL - STORM	0.5	LUMP SUM	\$2,000.00	\$1,000.00
EROSION MATTING, CLASS I, TYPE A	777	S.Y.	\$1.50	\$1,165.50
MOBILIZATION FOR STORM SEWER	0.5	LUMP SUM	\$5,000.00	\$2,500.00
EXCAVATION CUT	17,829	C.Y.	\$3.00	\$53,487.00
CLEARING	4.5	STA	\$2,000.00	\$9,000.00
GRUBBING	4.5	STA	\$2,000.00	\$9,000.00
SEEDING WITH SOIL STABILIZERS	19,869	S.Y.	\$3.00	\$59,607.00
EXCESS MATERIAL DISPOSAL	15,404	C.Y.	\$1.00	\$15,404.00
SALVAGED TOPSOIL GRADING	24,549	S.Y.	\$2.00	\$49,098.00
SUBTOTAL				\$200,261.50
ENGINEERING (10%)				\$20,026.15
CONTINGENCY (15%)				\$30,039.23
TOTAL CONSTRUCTION COSTS				\$250,326.88
TOTAL LAND COSTS (FROM TABLE 1)				\$247,418.62
TOTAL COSTS				\$497,745.50
AREA 1 (79.57%) RATE				\$90.18/1000 S.F.
AREA 1 (20.43%) RATE				\$96.76/1000 S.F.

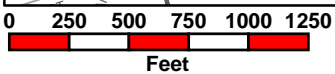
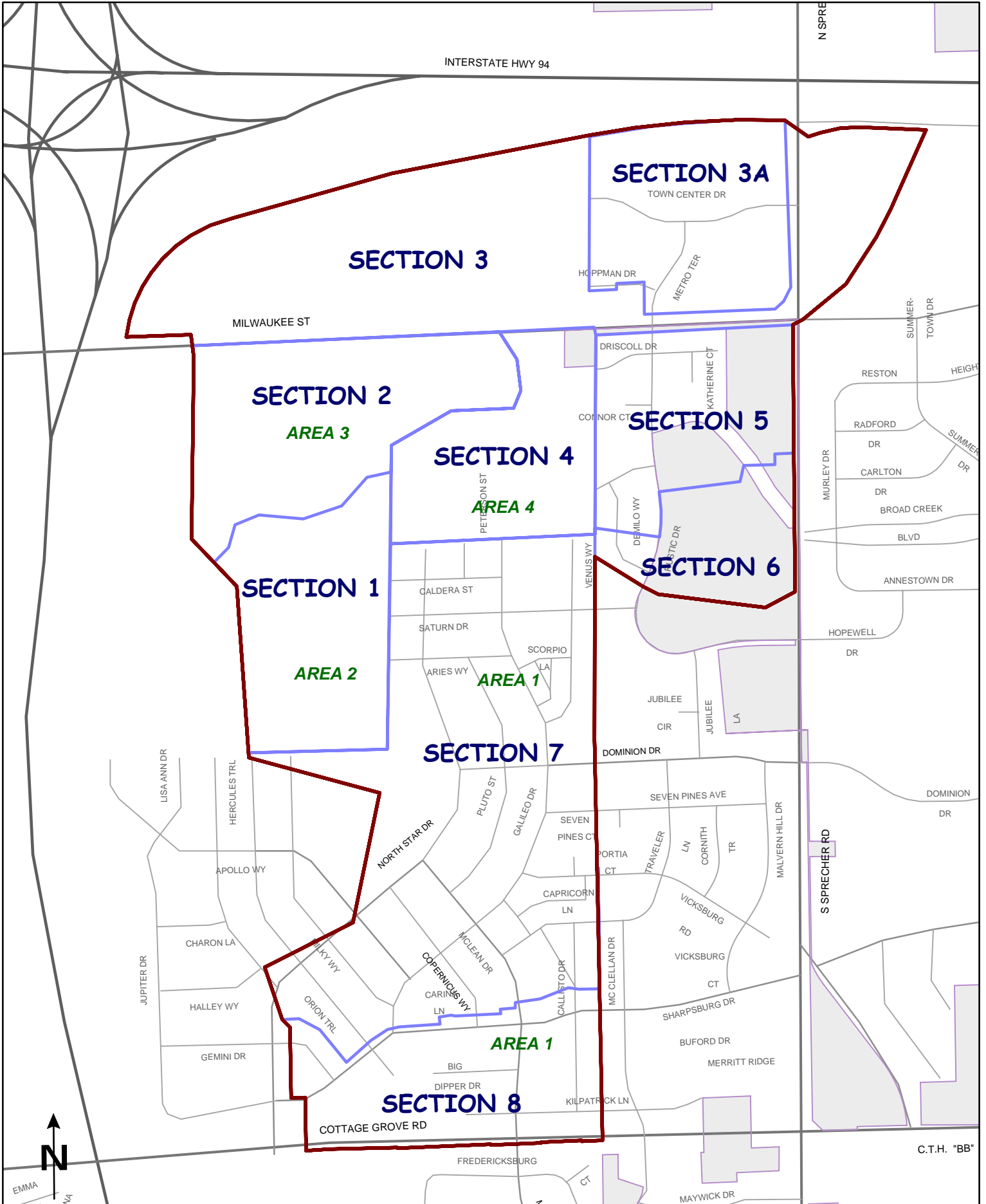
Table 5 Construction Costs for Storm Water Retention: Outlet Structure

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
OUTLET STRUCTURE	1	LUMP SUM	\$20,000.00	\$20,000.00
SUBTOTAL				\$20,000.00
ENGINEERING (10%)				\$2,000.00
CONTINGENCY (15%)				\$3,000.00
TOTAL CONSTRUCTION COSTS				\$25,000.00
				RATE
AREA 1 (52.48%)			\$13,120.00	\$2.99/1000 S.F.
AREA 2 (13.48%)			\$3,370.00	\$3.21/1000 S.F.
AREA 3 (19.15%)			\$4,787.50	\$3.78/1000 S.F.
AREA 4 (14.89%)			\$3,722.50	\$4.15/1000 S.F.

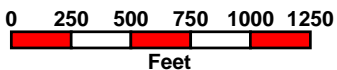
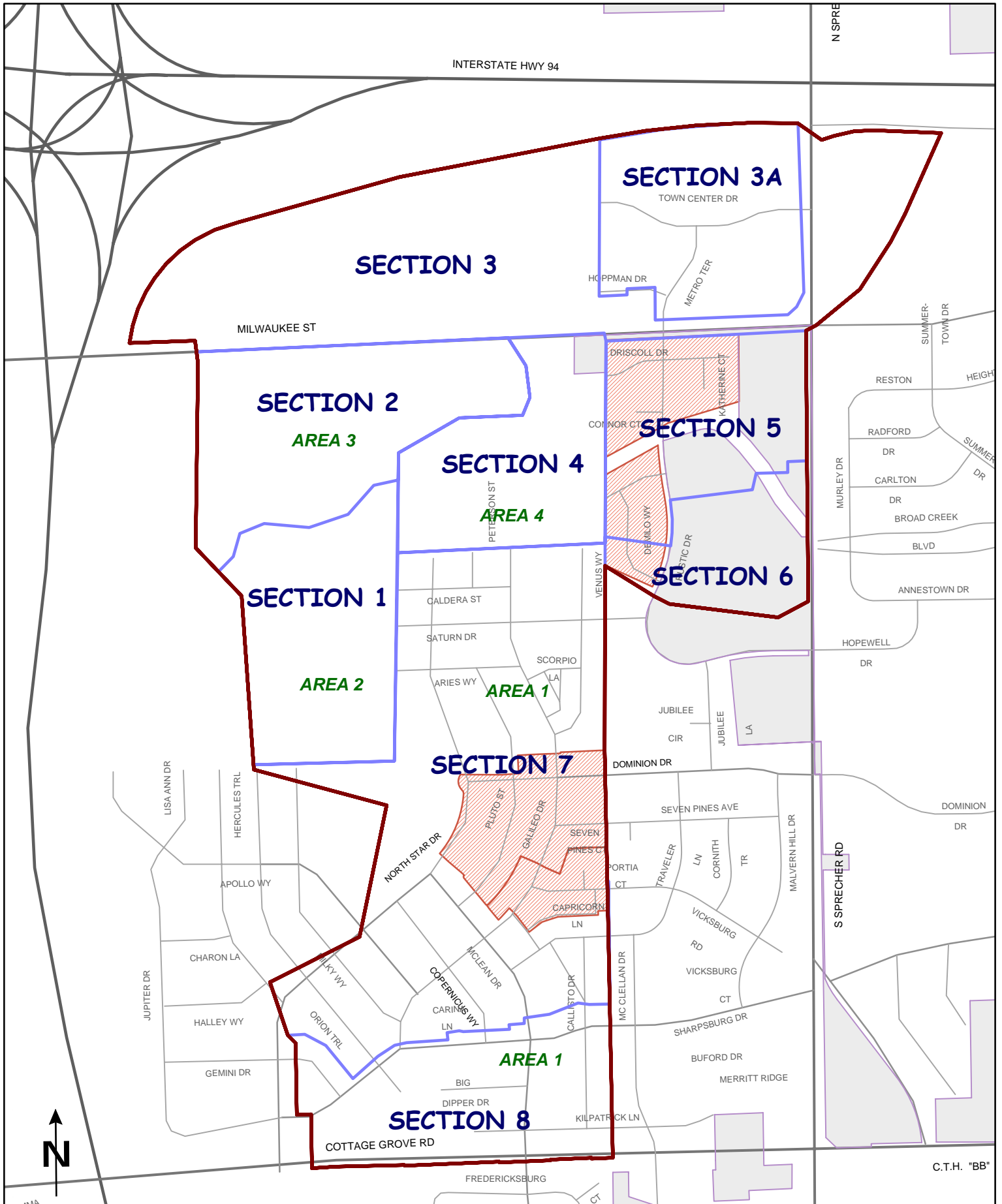
Table 6 Effect of Impact Fees on Housing Costs

ZONE		MINIMUM LOT SIZE FOR ZONE (S. F.)	AVERAGE LOT SIZE	COST/ 1000 S.F.	MINIMUM ADDITIONAL COST/ UNIT	ADD'L COST FOR 10,000 S.F. LOT	
SECTION 1	LOW	R-1	8,000	10,000	\$200.64	\$1,605.12	\$2,006.40
		R-2	6,000			\$1,203.84	
	LM	R-3	4,000			\$802.56	
		R-4	2,000			\$401.28	
SECTION 2	LOW	R-1	8,000	10,000	\$104.45	\$835.60	\$1,044.50
		R-2	6,000			\$626.70	
	LM	R-3	4,000			\$417.80	
		R-4	2,000			\$208.90	
SECTION 3	LOW	R-1	8,000	10,000	\$53.91	\$431.28	\$539.10
		R-2	6,000			\$323.46	
	LM	R-3	4,000			\$215.64	
		R-4	2,000			\$107.82	
	MEDIUM	R-5	1,300			\$70.08	
			1,000			\$53.91	
			700			\$37.73	
SECTION 4	LOW	R-1	8,000	10,000	\$104.82	\$838.56	\$1,048.20
		R-2	6,000			\$628.92	
SECTION 5	LOW	R-1	8,000	10,000	\$103.67	\$829.36	\$1,036.70
		R-2	6,000			\$622.02	
SECTION 6	LOW	R-1	8,000	10,000	\$53.91	\$431.28	\$539.10
		R-2	6,000			\$323.46	
SECTION 7	LOW	R-1	8,000	10,000	\$193.84	\$1,550.72	\$1,938.4
		R-2	6,000			\$1,163.04	
	LM	R-3	4,000			\$775.36	
		R-4	2,000			\$387.68	
	MEDIUM	R-5	1,300			\$251.99	
			1,000			\$193.84	
			700			\$135.69	
SECTION 8	LOW	R-1	8,000	10,000	\$147.08	\$1,176.64	\$1,470.80
		R-2	6,000			\$882.48	
	LM	R-3	4,000			\$588.32	
		R-4	2,000			\$294.16	
	MEDIUM	R-5	1,300			\$191.20	
			1,000			\$147.08	
			700			\$102.96	


Door Creek North, Phase 2 Impact Fee District



Door Creek North, Phase 2 Impact Fee District



Legend

 Impact Fee Paid