

FDDP Workshop

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7/25/2022

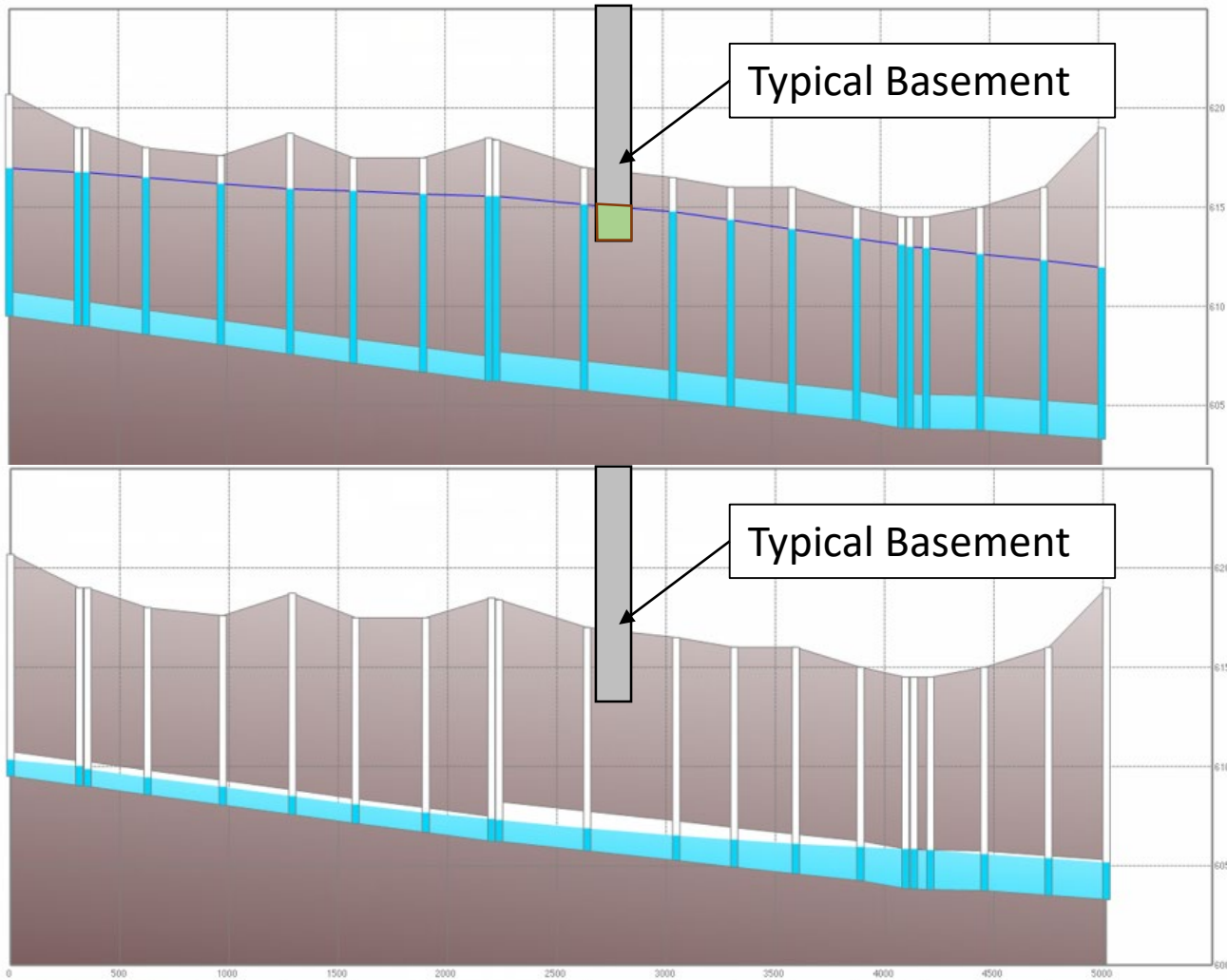


FDDP

- **FDDP Ordinance Amendment**
 - Public feedback
- **Meetings with residents/consultants**
 - Whitewood plan modifications
- **Survey**
- **Surcharge Alternative**
 - Non-Participation Agreement



Recap on FDDP



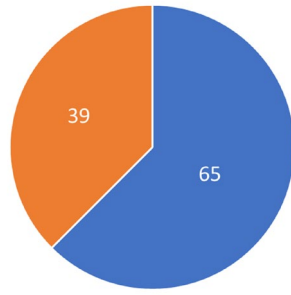
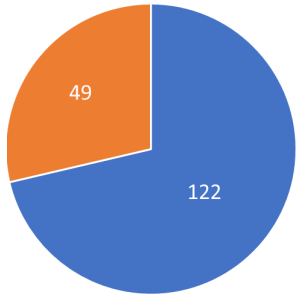
Existing Conditions

Concept 5 Conditions

Recap on FDDP

Moorland Dry Weather Flows

Whitewood Dry Weather Flows

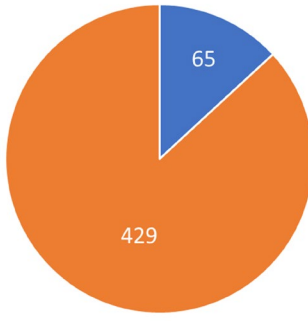
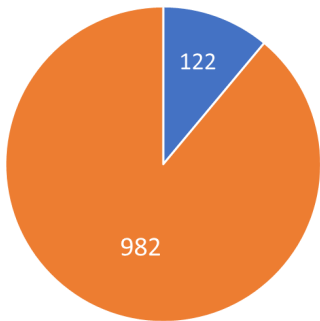


■ Base Flow (GPM) ■ I&I (GPM)

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Moorland Wet Weather Flows

Whitewood Wet Weather Flows

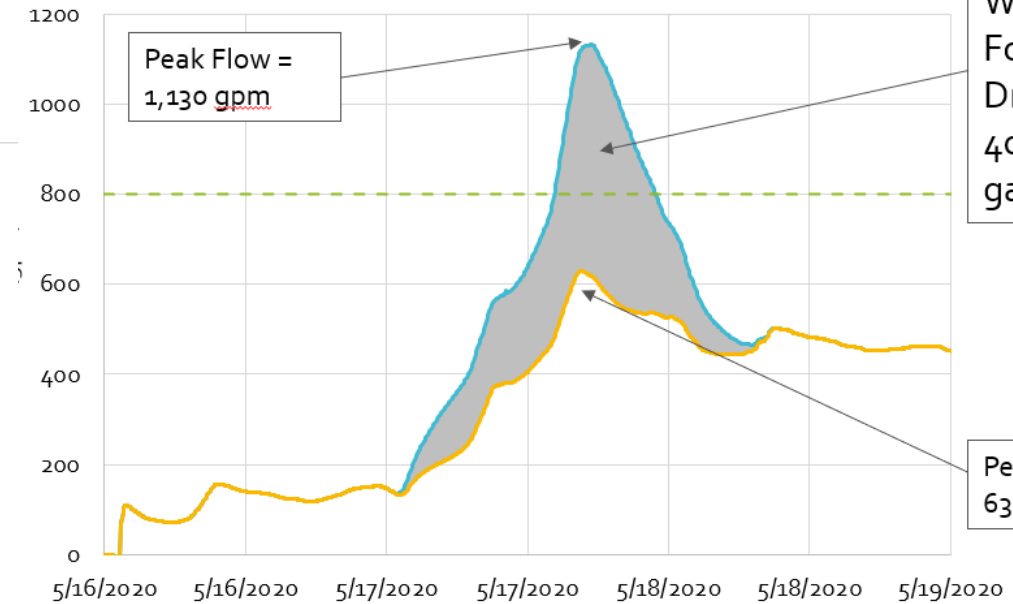


■ Base Flow (GPM) ■ I&I (GPM)

■ Base Flow (GPM) ■ I&I (GPM)

25-Year, 24-Hour Event Flow at Moorland LS

— w/o FDD — with FDD - - - Existing Firm Capacity



Recap on FDDP

EGLE's maximum Infiltration and Inflow (I&I) threshold is 275 gallons per capita per day (GPCD) during a design storm.

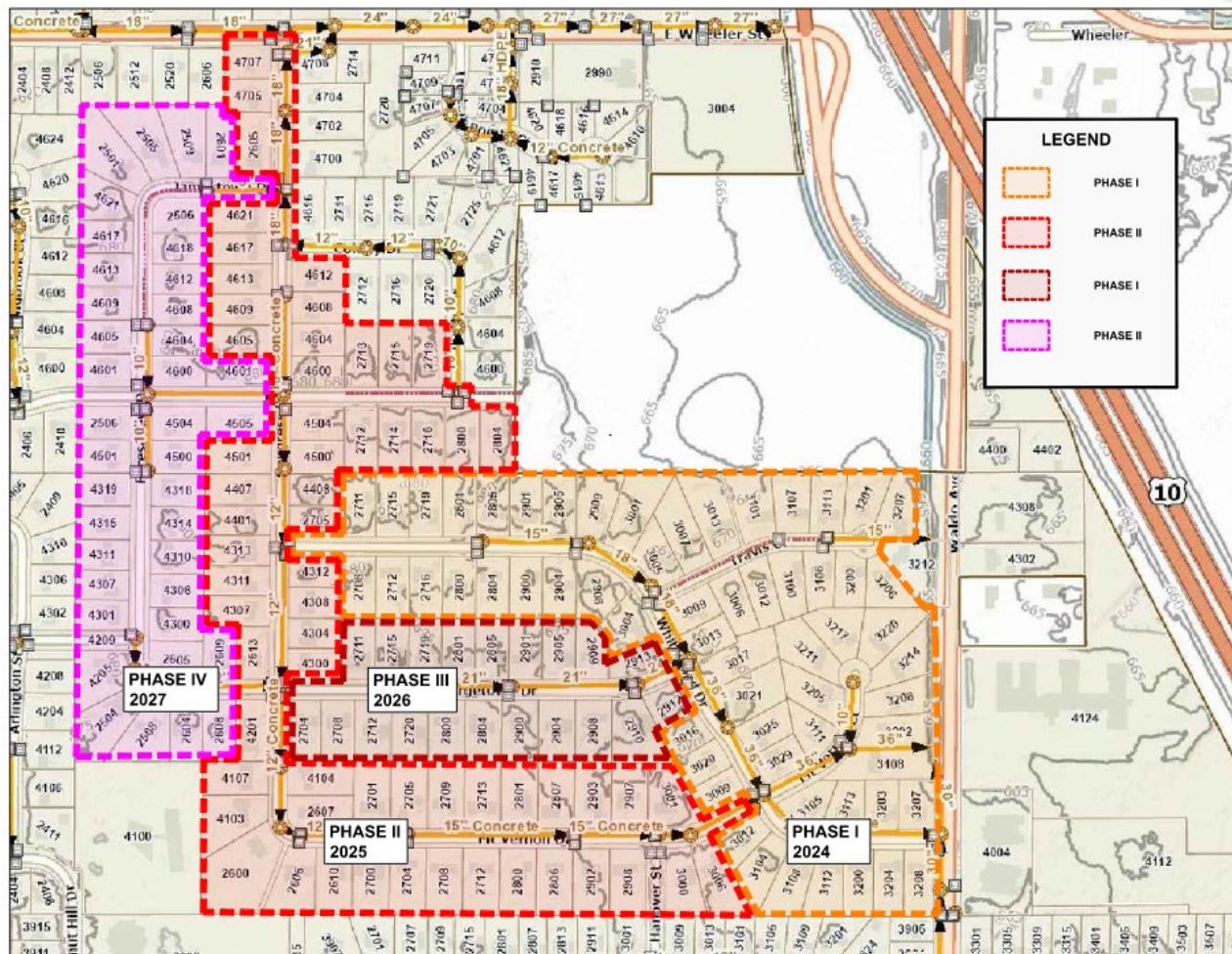
Wet weather Flow Contributions are as follows:

- Existing Conditions
 - Moorland – **822** GPCD
 - Whitewood – **690** GPCD
- Proposed Conditions
 - Moorland – **165** GPCD
 - Whitewood – **100** GPCD



Whitewood Revised Phasing

- Phasing based on ground elevation
- Added flow meters to narrow down contribution



Survey

#3 Would you be willing to participate in a footing drain disconnection program to eliminate sanitary sewer back-ups from homes in your neighborhood? (Please circle one.)

- Yes
- Maybe
- Unsure at this time
- No



Survey

#5 Would you be willing to participate in a footing drain disconnection program to avoid paying a \$95/month surcharge on your water/sewer bill? (Please circle one.)

- Yes
- Maybe
- Unsure at this time
- No



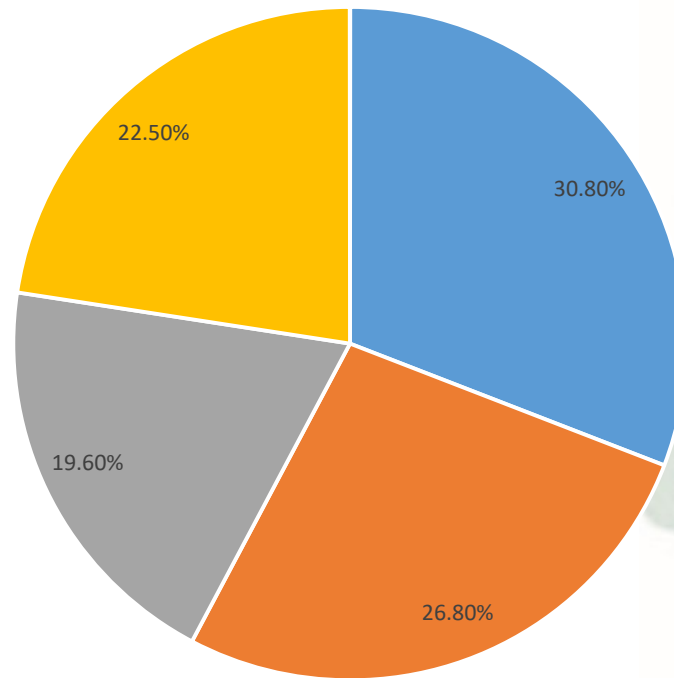
Survey Response

- **207 Total Responses**
 - Whitewood: 103, Moorland: 104

Moorland	
#3	#5
Yes: 32	Yes: 31
No: 30	No: 27
Maybe: 20	Maybe: 17
Unsure: 22	Unsure: 27

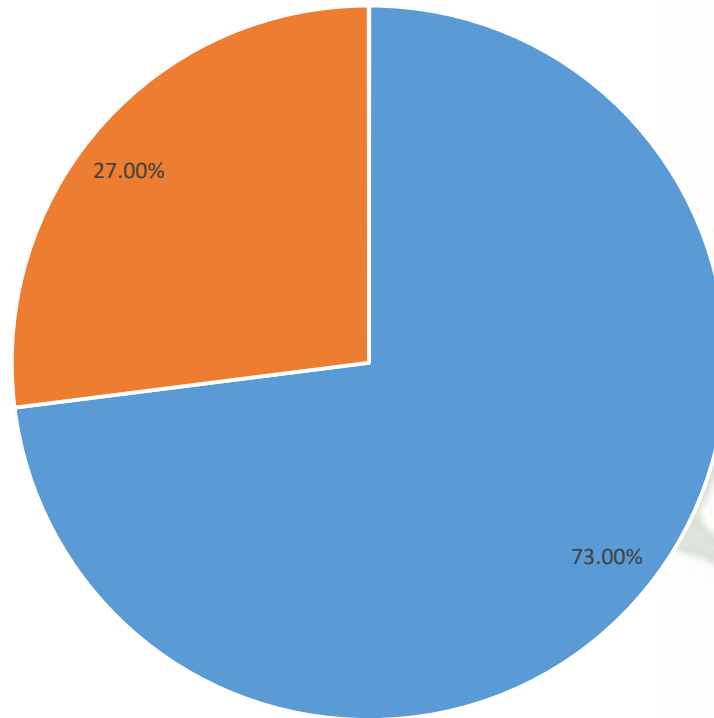
Whitewood	
#3	#5
Yes: 31	Yes: 38
No: 25	No: 22
Maybe: 20	Maybe: 12
Unsure: 24	Unsure: 27

Survey



■ Yes ■ No ■ Maybe ■ Unsure

Survey



■ Yes/Maybe/Unsure ■ No

Survey Comments/Feedback (unsure/no)

- **Concerns over sump pump failure, backup-power supply**
- **\$7500 won't cover costs**
- **Never had sewer backup (finished basements)**
- **Won't solve overland flooding (Inman/State Drain)**
- **Several "No's" are already disconnected from sanitary sewer.**

Surcharge Calculation

- **Analyzed City of Grand Rapids' version**
 - 5 categories
 - Avoided claims for backups
 - Avoided treatment costs
 - EGLE penalties for SSOs
 - Avoided Transport & Future Projects
 - Avoided Administrative Costs

Surcharge Calculation

- **Simplified Version for City of Midland**
 - 2 categories
 - **Avoided Treatment Costs**
 - Costs associated with conveying and treating the additional water (electricity, chemicals etc.)
 - **Avoided Future Project Costs**
 - Net additional costs associated with up-sizing piping and adding off-line storage to have an equal level of service with the proposed FDDP

Surcharge Explanation

Surcharge Costs were simplified into in 2 parts (numbers 2 and 4 from GR example):

1. Costs to convey and treat the additional sewage
2. Additional capital costs to convey and store the additional sewage at the level of safety that concept 5 provides

1. Avoided Costs to treat the additional flow generated by footing drains

Flow Estimate

DWF	44310 gal/year
WWF	9052 gal/year
Total	53362 gal/year

Average generation rate per house
 Average generation rate per house
 Average per house

Unit Conveyance & Treatment Costs

Annual Average FD flows for pilot area 0.0534 MG/yr/house

Average per house
 Unit conveyance cost

1A. Conveyance \$ 188.28 per MG

1B. Treatment \$ 1,900.00 per MG

Unit treatment cost (per WWTP budget 2021)

Conveyance & Treatment \$ 2,088.28 per MG

Annual Cost \$ 111.43 per yr/customer

Annual cost for a connected FD

Moorland FDD homes connected	201 homes
Total Moorland DWF from FDDs	9 gpm
Total Moorland WWF from FDDs	130 gpm
Wet weather days per year	5 days
Dry weather days per year	360 days

homes built pre-1987
 From sewer modeling
 Assumption from sewer modeling - average rain event
 assumption from rain data

Whitewood FDD homes connected	172 homes
Total Whitewood DWF from FDDs	7 gpm
Total Whitewood WWF from FDDs	105 gpm
Wet weather days per year	5 days
Dry weather days per year	360 days

homes built pre-1987
 From sewer modeling
 Assumption from sewer modeling - average rain event
 assumption from rain data

Surcharge Explanation

- Additional information for part 1 calculations

1A. Unit Conveyance Cost Calculations					
	estimate	per year - from midland			
	gpm	kWh	Total cost	Annual MG	cost/MG
moorland	100	23892	\$ 4,436.00	52.56	\$ 84.40
valley	2200	300000	\$ 36,919.00	1156.32	\$ 31.93
				total	\$ 116.33

	estimate	per year - from midland			
	gpm	kWh	Total cost	Annual MG	cost/MG
ashman	275	73896	\$ 10,400.00	144.54	\$ 71.95
				total	\$ 71.95

Surcharge Explanation

- Part 2 Calculations

2. Avoided Capital Costs to Upgrade System to Equal Level of Service as FDDP

Pipe Up-sizing & Lift Station Upgrades

Capital costs to up-size pipe / off-line storage \$ 7,490,275.00

Costs Avoided for FDDP \$ 2,797,500.00

2. Net Additional Costs to Provide the Same Level of Service \$ 4,692,775.00

Annualized cost \$ 384,482.91

Annualized cost per home \$ 1,030.79 per year/FDD customer Annualized Cost per home

Assumed interest rate 2.5%

Loan period 20

2. Capital Cost to retain additional flows				
Item	Quantity	Unit	Unit Price	Total
Moorland Retention Basin	1	lsum	\$ 1,807,000.00	\$ 1,807,000.00
Pipe Up-sizing through Moorland*	5500	ft	\$ 275.00	\$ 1,512,500.00
Whitewood Retention Basin	1	lsum	\$ 1,466,000.00	\$ 1,466,000.00
Pipe Up-sizing through Whitewood*	3550	ft	\$ 275.00	\$ 976,250.00
			<i>Sub-total</i>	\$ 5,761,750.00
*Includes backfill, gravel, asphalt, restoration				
Design/Construction Engineering	15%			\$ 864,262.50
Contingency	15%			\$ 864,262.50
			Grand Total	\$ 7,490,275.00

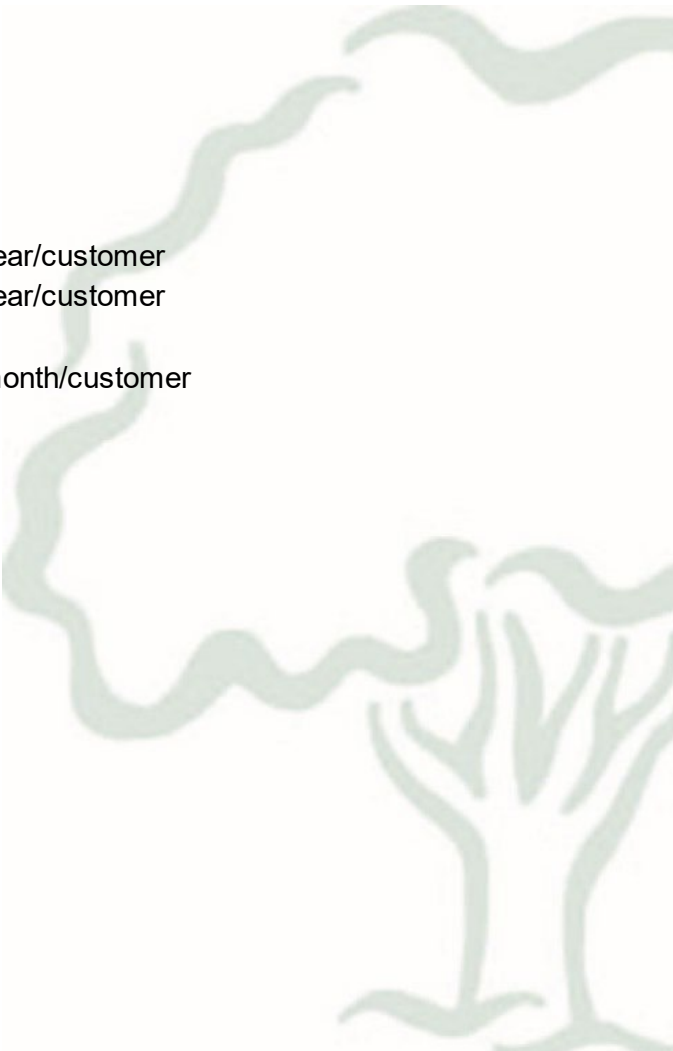
Surcharge Explanation

- **Summary**

Annual Cost Summary

- 1. Avoided Treatment \$ 111.43 per year/customer
- 2. Avoided Future Projects \$ 1,030.79 per year/customer

Total Monthly Surcharge Cost \$ **95.18** per month/customer



Questions?

