

Lucas County Storm Water Management 6117 District

Financial Business Plan
SWAC Meeting 5
June 23, 2010



Meeting Agenda

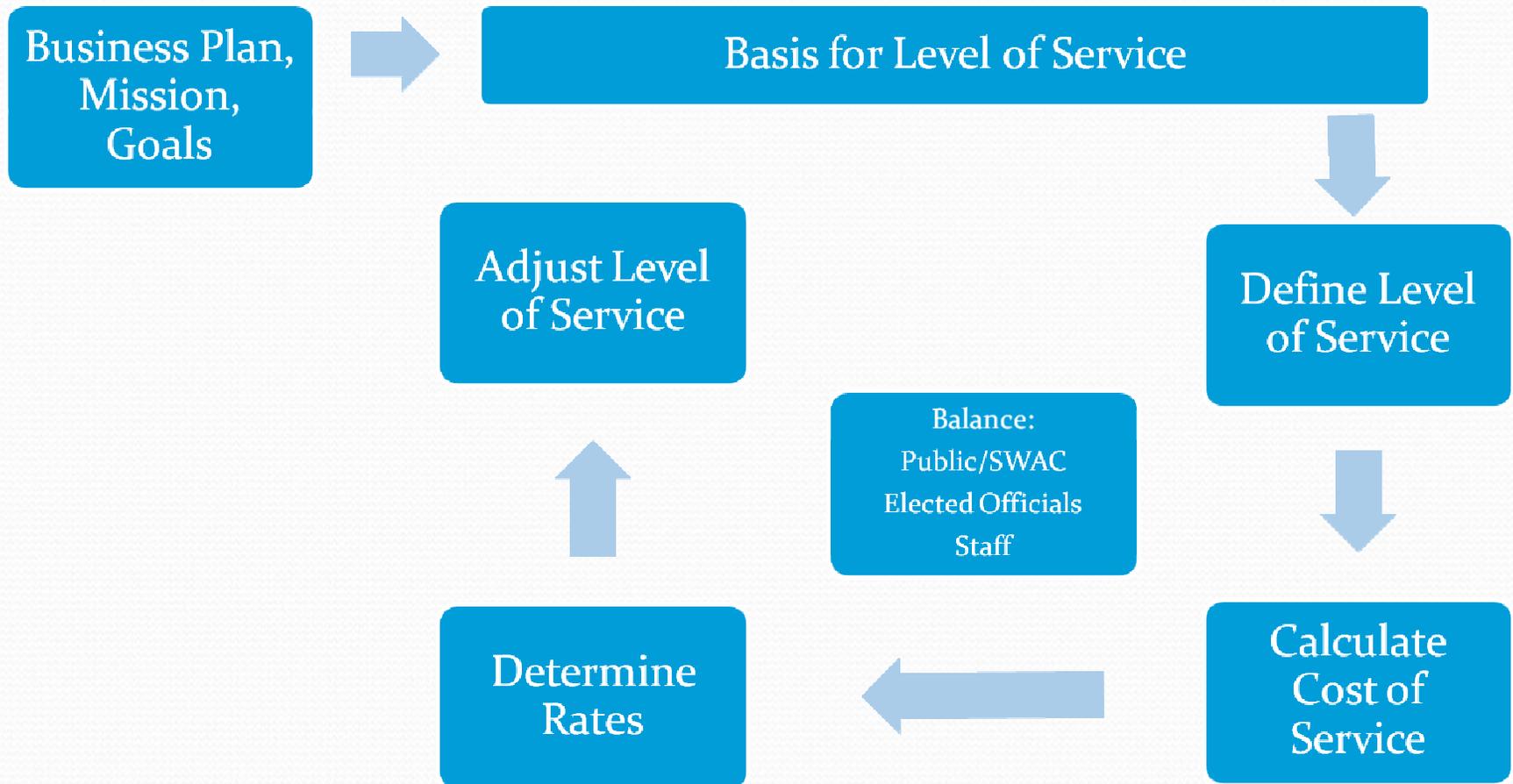
- Quick Overview of Previous 4 SWAC Meetings
- Review SWAC comments from SWAC Meeting 4
- Review Rates and Revenues from SWAC meeting 4
- Impervious Area Examples
- Credit Examples

SWAC Meeting 1

- Review of previous work
- Feasibility study
- Public opinion research
- 21 County departments/agencies currently have storm water responsibilities or perform storm water activities
- Provided Overview of Water Quality and Water Quantity requirements

SWAC Meeting 2

Business Plan Process



SWAC Meeting 3

- Fee will be countywide including all Townships, Holland and Waterville.
- Holland and Waterville will need legal action to join.
- Charge will be assessed countywide.
- Overview of costs and rates
- Capital Improvement (CIP) needs
- Maps of flooding and drainage problems countywide

SWAC Meeting 4

- Rate recommendation
- Water Quality CIP
- Water Quantity CIP
- Fee will be countywide including all Townships, Holland and Waterville.
- Holland and Waterville will need legal action to join.
- Charge will be assessed countywide.

SWAC comments/concerns

- Impact of measuring agricultural
- Board is the ultimate mediator for credits
- Gravel option added to credits for 1/3 credit
- School example curriculum (better to meet with schools based on Lucas program)
- Businesses can receive Public Education credit but will need to pay for “water quality day”
- Layman's explanation of credits
- Delay program 6 month until July 2010

5 Year Rate Recommendation

5 Year Rate Recommendation	Year 1	Year 2	Year 3	Year 4	Year 5
Water Quality / NPDES RATE	\$4.06	\$ 4.97	\$ 5.77	\$ 6.31	\$ 6.80
Drainage / Flooding RATE	\$ 0.82	\$ 0.85	\$ 0.87	\$ 0.91	\$ 0.94
Total Combined RATE	\$ 4.88	\$ 5.81	\$ 6.64	\$ 7.22	\$ 7.74

Range of Revenues with Increased Rate

(approximate estimates & rounded issues)

- \$0.06 = \$35,000
- \$0.10 = \$58,900
- \$0.20 = \$117,000
- \$0.26 = \$153,000
- \$0.30 = \$176,000
- \$0.34 = \$200,000
- \$0.40 = \$235,000
- \$0.51 = \$300,000
- \$0.68 = \$400,000
- \$0.85 = \$500,000
- \$1.02 = \$600,000
- \$1.70 = \$1,000,000
- \$1.90 = \$1,117,000
- \$2.00 = \$1,176,000

\$4.06 to \$6.80 (Water Quality Program)

Level of Service Activities included

- Water Quality NPDES Storm Water Permit
- Water Quality Maintenance
- Water Quality Engineering
- Water Quality Administration
- Water Quality Capital (CIP)



Water Quality CIP (recommended)

- Year 1 = \$450,000
- Year 2 = \$550,000
- Year 3 = \$770,000
- Year 4 = \$1,000,000
- Year 5 = \$1,200,000



Water Quality CIP (adding \$1.02 for CIP)

- Year 1 = \$ 1,050,000
- Year 2 = \$1,150,000
- Year 3 = \$1,370,000
- Year 4 = \$1,600,000
- Year 5 = \$1,800,000



Water Quality CIP

Quality Projects	Type	Location	Length	Year 1	Year 2	Year 3	Year 4	Year 5	
Ten Mile Creek	Study	H&H Modeling & Environmental	15,000	\$150,000					
Prairie Creek	Study	H&H Modeling & Environmental	15,000	\$75,000					
Swan Creek	Study	H&H Modeling & Environmental			\$100,000				
Shantee Creek	Study	H&H Modeling & Environmental				\$50,000			
Ten Mile Ck	Improve	Herr to Brint	15,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
Prairie	Improve	Bancroft to Ten Mile Ck	15,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	
Swan Ck	Improve				\$125,000	\$125,000	\$125,000	\$125,000	
Shantee Creek	Improve	I-475 to State Line	5,000			\$50,000	\$100,000	\$100,000	
Hill	Pond	Elmer at I-475	5 Ac	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	
Heldman	Pond	Hill at I-475	15 Ac	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	
Eisenbraum	Pond	Flanders at Alexis	5 Ac	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	
Mayer	Pond	Nebraska at I-475	5 Ac	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	
Prairie	Pond	Secor Park	40 Ac	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
Swan Ck	Pond	Keener at Lose Rd	40 Ac	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
				Total	\$1,225,000	\$1,225,000	\$1,225,000	\$1,225,000	\$1,225,000

Scenario # 1 Included in Recommendation

CIP Budget \$450,000 \$550,000 \$770,000 \$1,000,000 \$1,200,000

(Increased

Scenario # 2 (\$1.02 = \$600,000)

CIP)

\$1,050,000 \$1,150,000 \$1,370,000 \$1,600,000 \$1,800,000

Water Quantity (drainage and flooding) Project List

Drainage Projects	Type	Location	Length	Year 1	Year 2	Year 3	Year 4	Year 5
Drainage	St Sewers	Sylvania-Metamora Rd	4,800	\$382,500	\$382,500			
Drainage	St Sewers	Archbold-Whitehouse	1,200			\$130,000		
Drainage	St Sewers	TBD				\$220,000		
Drainage	St Sewers	TBD					\$350,000	
Drainage	St Sewers	TBD						\$350,000
Total				\$382,500	\$382,500	\$350,000	\$350,000	\$350,000

County Engineer Funded Drainage / Flooding Annual Project Budget

II. Drainage / Flooding Activities	Year 1	Year 2	Year 3	Year 4	Year 5
Drainage Complaints	X	X	X	X	X
Drainage Studies	X	X	X	X	X
Capital Improvements Projects (CIP) ***	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000

*** Funded By County Engineer

Increased Water Quantity (drainage and flooding)

Ten Mile (Quantity)	Type	Location	Length	Year 1	Year 2	Year 3	Year 4	Year 5	
Ten Mile Ck	Log Jams	Watershed		\$85,000	\$35,000	\$35,000	\$35,000	\$35,000	
Kitzman/Harvest	Enclose	McCord to Shrewsbury	1,900	\$360,000					
Butler	Clean	Kilburn to Ten Mile	2,500		\$30,000				
Peter May	Clean	King to Hill	6,400		\$70,000				
Hike/Bike Trail	Clean	Regency to King	15,000				\$50,000	\$50,000	
Hill/Donelson	Clean	Hunting Ck to Elmer	1,200		\$45,000				
Potter	Clean	Sandbury to McCord	2,600			\$40,000			
Brick	Clean	Schwamberger to Prairie	4,100			\$60,000			
Boggs	Clean	North of Bancroft	800		\$15,000				
Newton	Clean	Oak Park to King	2,300			\$35,000			
Schlicker	Clean	Holland-Sylvania to Railroad	2,000				\$30,000		
Schmitz	Clean	Fulton-Lucas to Ten Mile Ck	19,000				\$145,000	\$145,000	
Gowman	Clean	Richfield Center to Central	6,200				\$95,000		
Geiser	Clean	W of Centennial, 1000' W of Bancroft	1,400			\$25,000			
Haefner	Clean	King to McCord	5,200					\$80,000	
				Ten Mile	\$445,000	\$195,000	\$195,000	\$355,000	\$310,000

Increased Water Quantity (drainage and flooding)

Lake Erie (Quantity)	Type	Location	Length	Year 1	Year 2	Year 3	Year 4	Year 5
Jerusalem	Log Jams	Watershed		\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Wilhelm	Clean	Arquette & Decant to Yondota	5,200	\$130,000				
Teachout	Clean	Teachout to Reno Sidecut	1,800		\$20,000			
Sacks	Clean	Teachout to Reno Sidecut	1,300		\$20,000			
Railto to Curtice	Clean	Rachel to Curtice	600			\$10,000		
Sautters	Clean	Cedar Point to Lake Erie	4,400			\$40,000		
Curtice	Clean	Howard to Vandyke	7,500				\$80,000	
Sec 27	Clean	Cedar Point to Lake Erie	2,800					\$60,000
			Lake Erie	\$135,000	\$45,000	\$55,000	\$85,000	\$65,000

Increased Water Quantity (drainage and flooding)

Ottawa River (Quantity)	Type	Location	Length	Year 1	Year 2	Year 3	Year 4	Year 5
Washington	Log Jams	Watershed		\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Shantee Creek	Clean	I-475 to State Line	6,500			\$130,000		
			Ottawa River	\$5,000	\$5,000	\$135,000	\$5,000	\$5,000

Increased Water Quantity (drainage and flooding)

Swan Creek									
(Quantity)	Type	Location	Length	Year 1	Year 2	Year 3	Year 4	Year 5	
Swan Ck	Log Jams	Watershed		\$170,000	\$50,000	\$50,000	\$50,000	\$50,000	
Stone	Clean	Weckerly 1000', E, Laplante 1000' NE	2,000	\$40,000					
Butler	Clean	Meilke 1000' E & W	2,000	\$40,000					
Osborne	Clean	Whitehouse Spencer 800' East	10,000	\$10,000					
Morrison	Clean	Weckerly 1000' East & West	2,000	\$40,000					
Meyer	Clean	Reed to SR 64	4,000	\$80,000					
CW Richardson	Clean	Fulton-Lucas to Waterville-Swanton	2,000			\$40,000			
Baum	Clean	Fulton-Lucas to PNS	2,500			\$50,000			
Hike/Bike Trail	Clean	North Fork	5,000				\$50,000	\$50,000	
Hike/Bike Trail	Clean	South Fork	5,000				\$50,000	\$50,000	
Butler	Clean	Airport to Old State Line	5,000		\$100,000				
Holloway	Clean	SR 20A to Butz	1,000		\$20,000				
Wolf	Clean	Albon to Rancamp to Airport	5,000		\$100,000				
Blue Ck	Clean	N of Neapolis W of Yawberg	1,000		\$20,000				
Blystone	Clean	Stitt Rd South 1000'	1,000		\$20,000				
Greunke	Clean	Raymill to Wolf Ck	4,200		\$80,000				
Zaleski	Clean	Whitehouse-Spencer to SR 20A	2,200			\$40,000			
Blystone	Clean	Monclova Rd to Swan Ck	2,700			\$50,000			
Cairl	Clean	Garden to Albon	500			\$10,000			
Everrett	Clean	W of Crissey, 1000' N of Geiser	700			\$10,000			
Prairie	Clean	Wilkins Rd to Turnpike	4,600			\$80,000			
Cutshall	Clean	295 to Whitehouse Spencer	5,100					\$100,000	
Harris	Clean	Fulton-Lucas to Neowash	9,500				\$200,000		
Van Fleet	Clean	Whitehouse-Spencer to Wabash Tr	2,700					\$50,000	
Rhuland	Clean	Wilkins to RR Tracks	2,000					\$40,000	
Mollenkopf	Clean	Albon to Swan Creek	5,800					\$10,000	
Jeffers	Clean	Jeffers Rd to Railroad Tracks	2,000					\$40,000	
Emerick	Clean	Jeffers Rd to Hike/Bike Tr	3,800					\$60,000	
Trumbell	Clean	Keswetter to RR Tracks	1,300					\$15,000	
				Swan Creek	\$380,000	\$390,000	\$330,000	\$350,000	\$465,000

SWAC requested Impervious Examples

- 10,000 ft Office (Example 1)
- Meijer (or Kroger) Store (Example 2)
- School building (Waterville School Examples 3 and 4)
- 50,000 ft Warehouse (Examples 5)
- Johns Manville (Example 6)
- Apartment Complex (Example 7)

Non-Residential Impervious Area

Property Example # 1 (10,000 sq ft building)

ParcelID: 6536214

AssessorNo: 28032048

Owner: Adams Family
Investments LLC

Address: 10060 Old Airport Hwy,
Holland, OH, 43528

Area: **10,743.78 sq. feet**

ERU = $10,743.78 \div 5500 = 2$

ERUs

Rate = **\$4.06**

Bill = $\$4.06 \times 2$

= **\$8.12 per month**

= **\$97.44 per year**



Non-Residential Impervious Area Property Example # 2 (Meijer Store)

ParcelID: 7833458

AssessorNo: 30016092

Owner: Meijer Stores Limited

Address: 7240 W Central Avenue,
Toledo, OH 43617

Area: **956,439 sq. feet**

ERU = $956,439 \div 5,500 = 174$

ERUs

Rate = **\$4.06**

Bill = $\$4.06 \times 174$ ERU

= **\$706.44 per month**

= **\$8,477.28 per year**



Non-Residential Impervious Area Property Example # 3 (Waterville School)

ParcelID: 3805371

AssessorNo: 23016016

Owner: Monclova School
District Board of Education

Address: 8025 Monclova
Road, Monclova, OH 43542

Area: **231,088.94 sq. feet**

ERU = $231,088.94 \div 5500 =$
42 ERUs

Rate = **\$4.06**

Bill = 4.06×42

= **\$170.52 per month**

= **\$2,046.24 per year**



Non-Residential Impervious Area Property Examples # 4 (Waterville School)

ParcelID: 9603501

AssessorNo: 46044042

Owner: Anthony Wayne
Schools

Address: 457 Sycamore
Road, Waterville, OH 43566

Area: **250,534.97 sq. feet**

ERU = $250,534.97 \div 5500 =$
46

Rate = **\$4.06**

Bill = 4.06×46

= **\$186.76 per month**

= **\$2,241.12 per year**



Non-Residential Impervious Area

Property Examples # 5 (50,000 sq ft building)

ParcelID: 7833030

AssessorNo: 30016057

Owner: National Industries
Investors Ltd

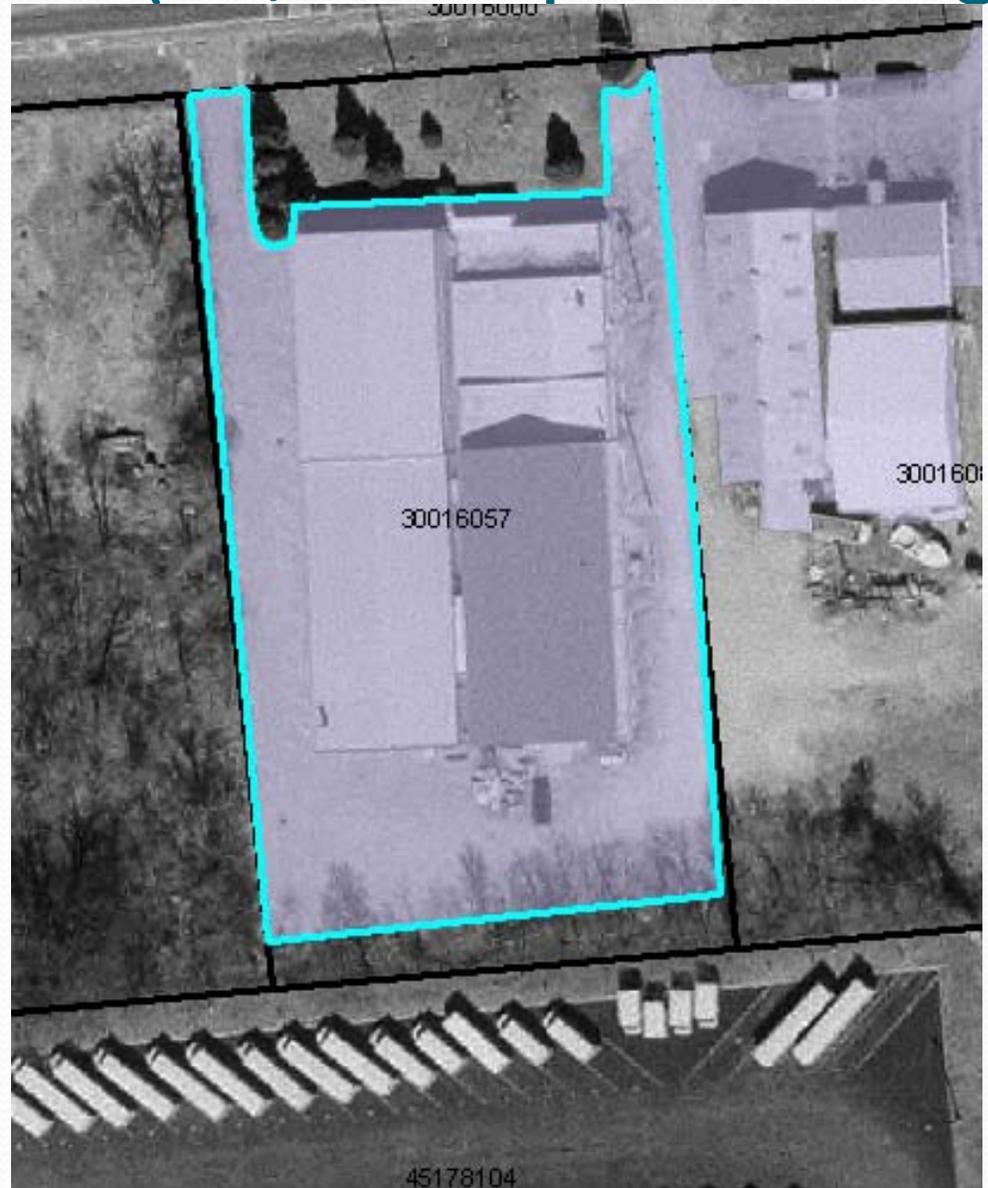
Address: 7345 W Sylvania Ave,
Sylvania, OH 43560

Area: **50,452.09 sq. feet**

ERU = $50,452.09 \div 5500 = 9$

Rate = **\$4.06**

Bill = $4.06 \times 9 = \mathbf{\$36.54}$ per month
= **\$438.48** per year



Non-Residential Impervious Area Property Examples # 6 (Johns Manville)

ParcelID: 9100601, 9100551,
9100597, 9100547, 9100544

AssessorNo: 32001004, 32001026,
32001013, 32001025, 32001008

Owner: Manville Building

Address: 7504 Dutch Road,
Waterville,

OH 43655

Area: **1,032,400.45 sq. feet**

ERU = $1,032,400.45 \div 5500 = 188$

Rate = **\$4.06**

Bill = 4.06×188

= **\$763.28 per month**

= **\$9,159.36 per year**



Non-Residential Impervious Area

Property Examples # 7 (Apartment Complex)

ParcelID: 6500104

AssessorNo: 28012035

Owner: Oakwood Gardens
Apartments

Address: 235 N Mccord Rd,
Toledo,

OH 43615

Area: **327,260.03 sq. feet**

ERU = $327,260.03 \div 5500 =$
60

Rate = **\$4.06**

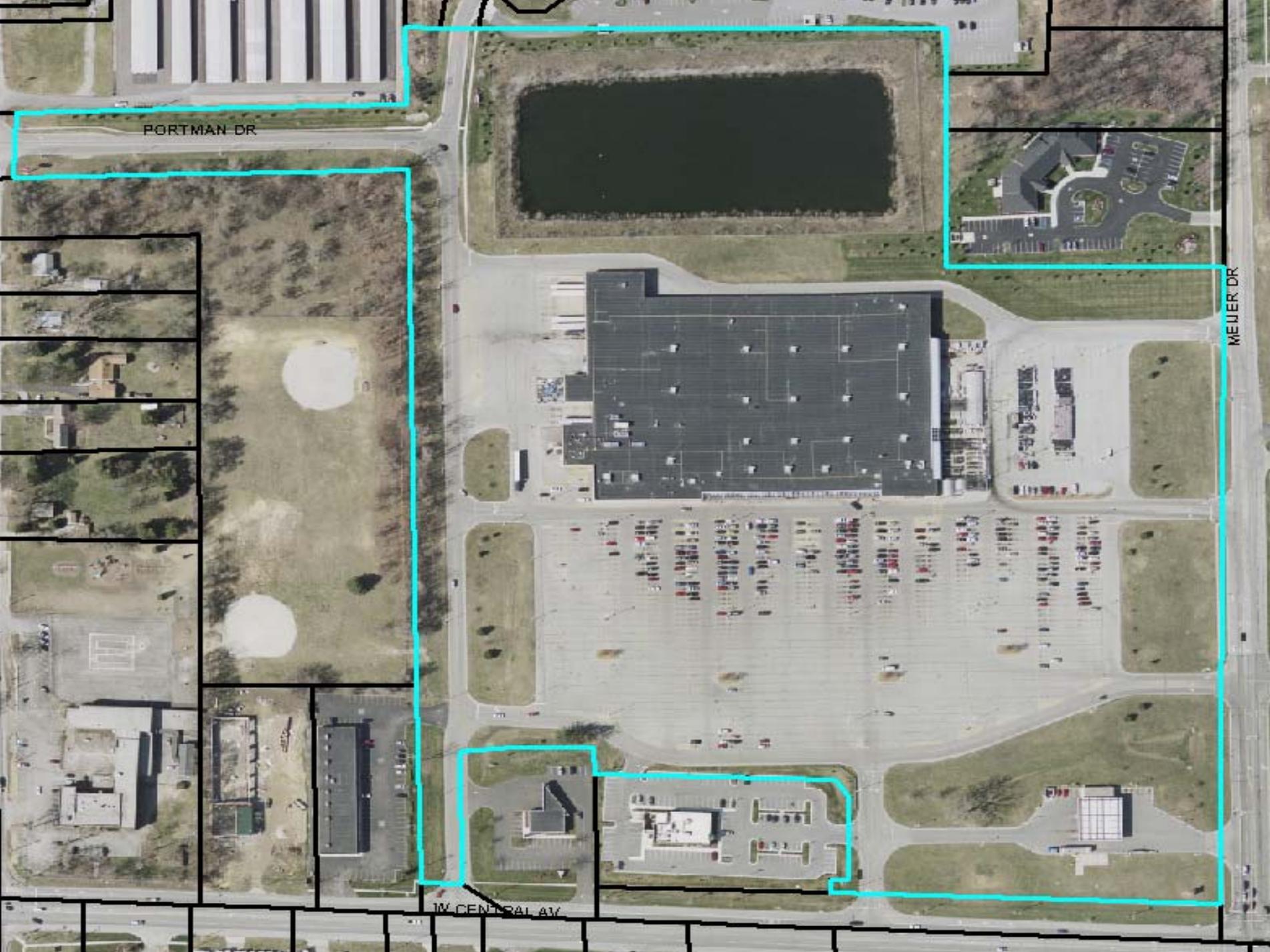
Bill = $4.06 \times 60 =$ **\$243.6 per
month**

= **\$2,923.20 per year**



Credits Program

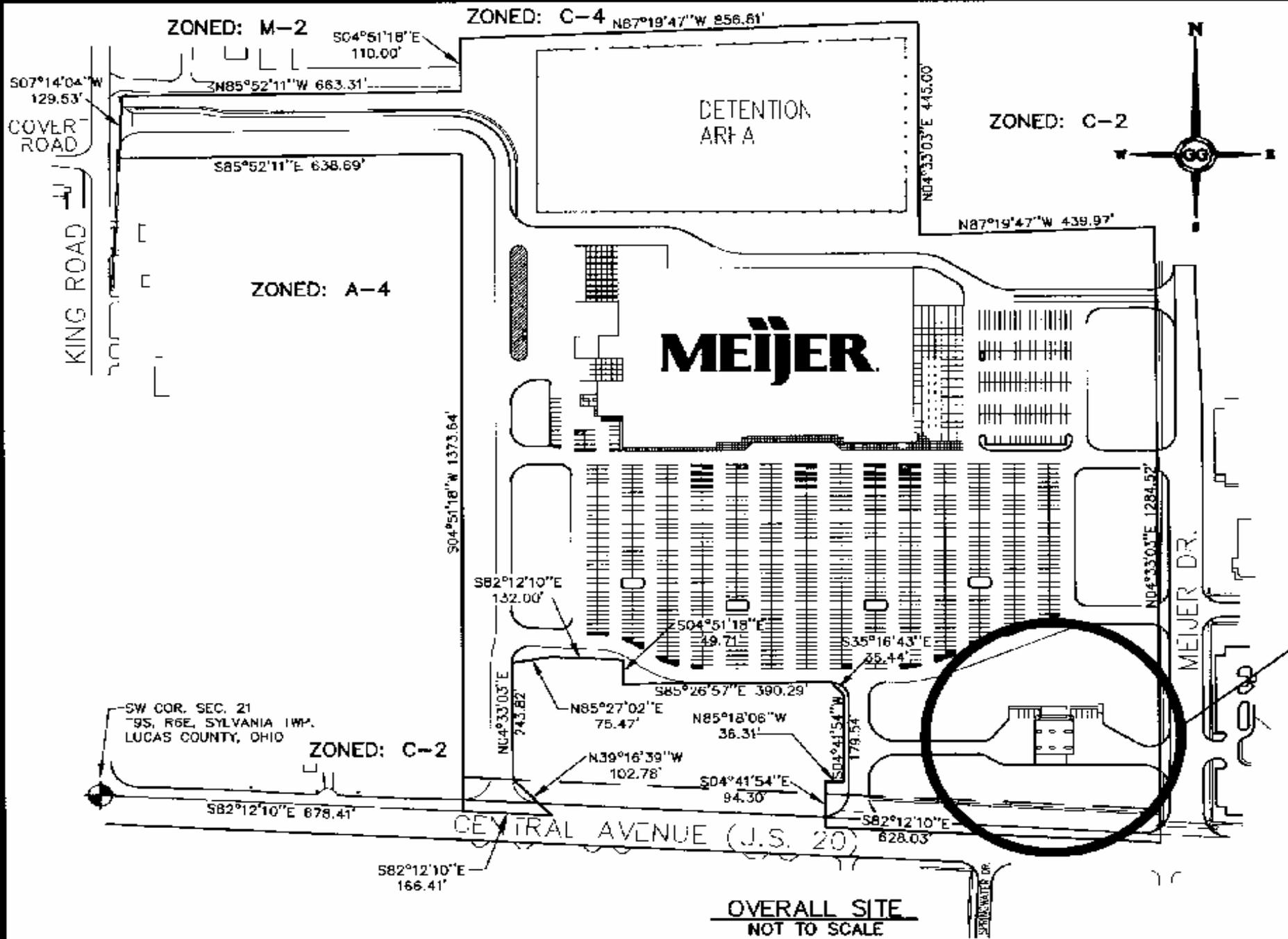
- Summary of changes to credit program
 - Added reference to the Ohio Land and Rainwater Development Manual
 - Combined all green infrastructure under water quality credits category
 - Under education category
 - Added more detailed school options
 - Detailed watershed stewardship category (i.e. business options)
- Need to Discuss:
 - Options for the \$250 one time fee
 - Dropping the 10% water quality credit as all new development would be required to meet minimum standard and be therefore eligible for the 30% credit



PORTMAN DR

MEUER DR

W CENTRAL AV



ZONED: M-2
S04°51'18"E
110.00'

ZONED: C-2
N67°19'47"W 439.97'

ZONED: C-2

S04°51'18"E 110.00'

S85°52'11"E 639.69'

ZONED: A-4

DETENTION
AREA

N67°19'47"W 439.97'

MEIJER

S04°51'18"E 110.00'

N04°35'04"E 284.5'

S82°12'10"E
32.00'

S04°51'18"E
110.00'

S65°16'43"E
39.44'

SW COR. SEC. 2,
T9S, R6E, SYLVAN TWP.,
UCAS COUNTY, OHIO

ZONED: C-2

N85°27'02"E
75.47'

N85°18'06"W
36.31'

N38°06'39"W
02.78'

S04°41'54"E
54.50'

S82°12'10"E 678.4'

CENTRAL AVENUE (U.S. 20)

S82°12'10"E
826.03'

MEIJER DR.



SCENARIO 1:

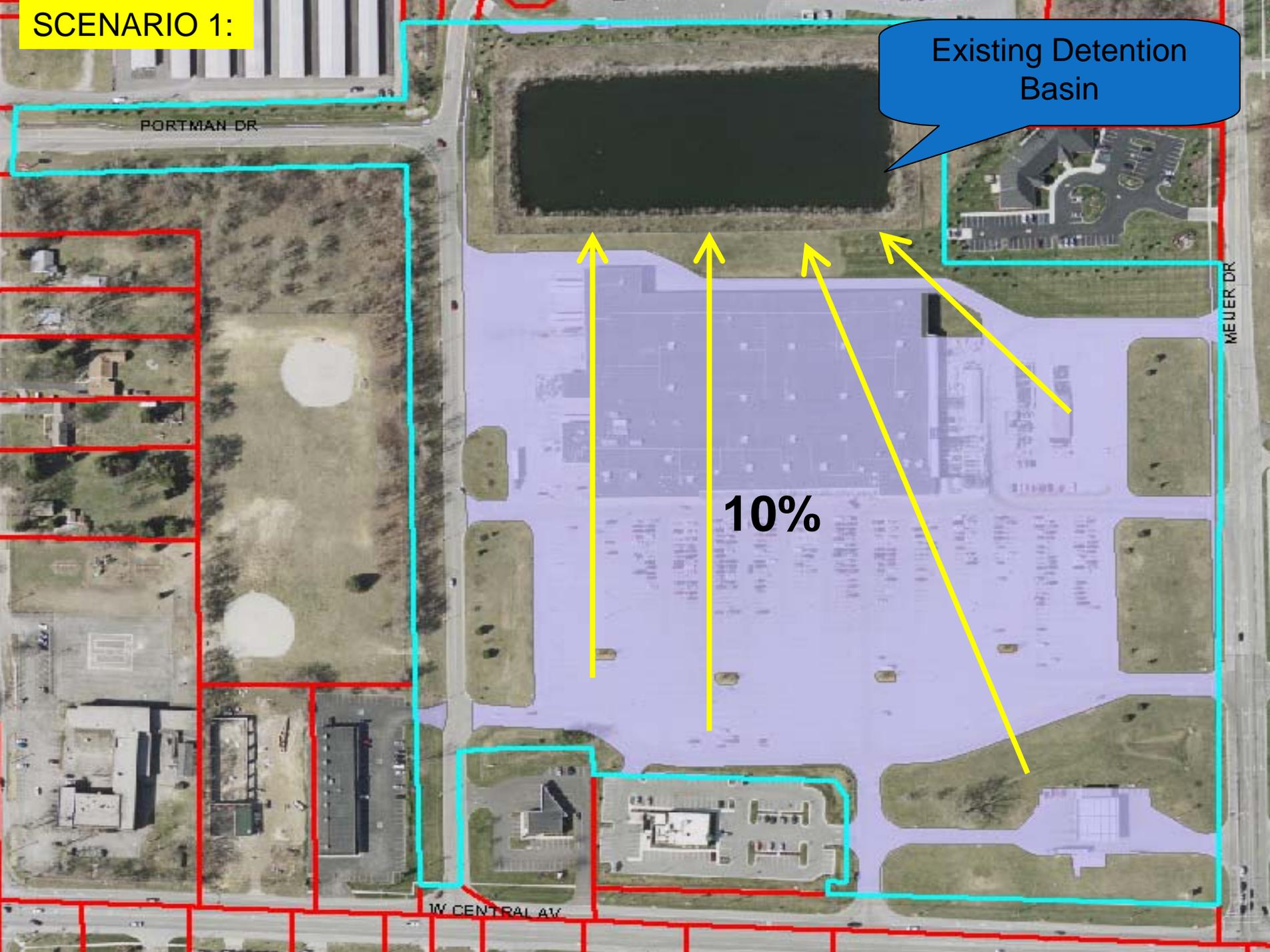
PORTMAN DR

Existing Detention Basin

MEIJER DR

10%

W CENTRAL AV



SCENARIO 1:

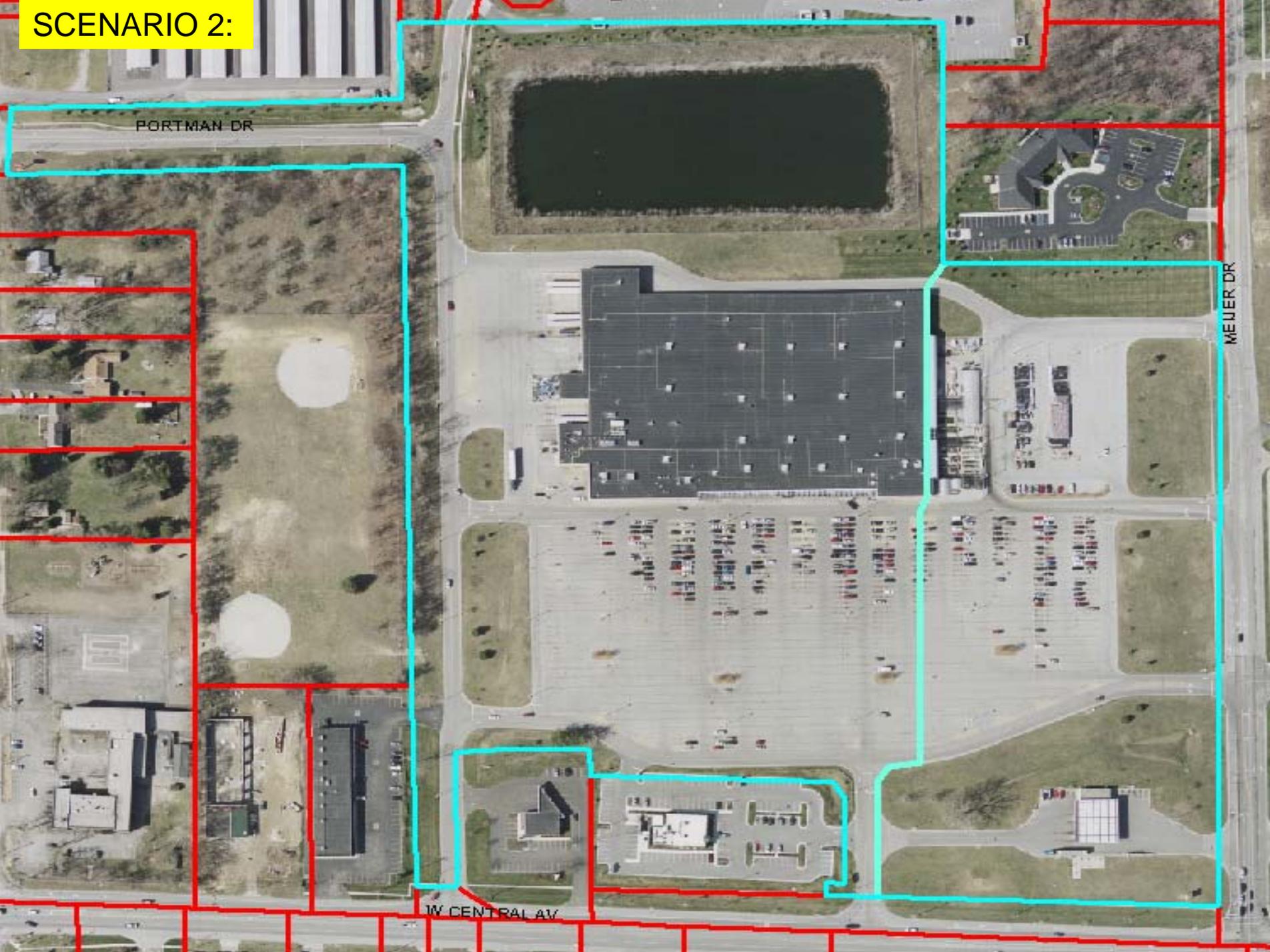
- Lot Area = **1,846,556.75** sq. feet (42 acres)
- Impervious Area = **956,439** sq. feet (22 acres)
- ERU = $956,439 \div 5,500 = 174$
- Rate = **\$4.06** per month
- Bill = $174 \times \$4.06 = \mathbf{\$706.44}$ per month

Credit:

- Existing Detention Basin credit = **10%**
- MIA = $956,439 \times 100\% \times 10\% = \mathbf{95,643.9}$ sq. feet
- ERU = $95,643.9 \div 5,500 = \mathbf{17}$
- Reduction = ERU x %Credit x \$4.06
$$= 17 \times \$4.06 = \mathbf{\$69.02}$$
- Total Bill = $\$706.44 - \$69.02 = \mathbf{\$637.41}$ per month

	Per month	Per 6mo.	Per year
Bill (no credits applied)	\$706.44	\$4,238.64	\$8,477.28
Credit	\$69.02	\$414.12	\$828.24
Final Bill	\$637.41	\$3,824.52	\$7,649.04

SCENARIO 2:

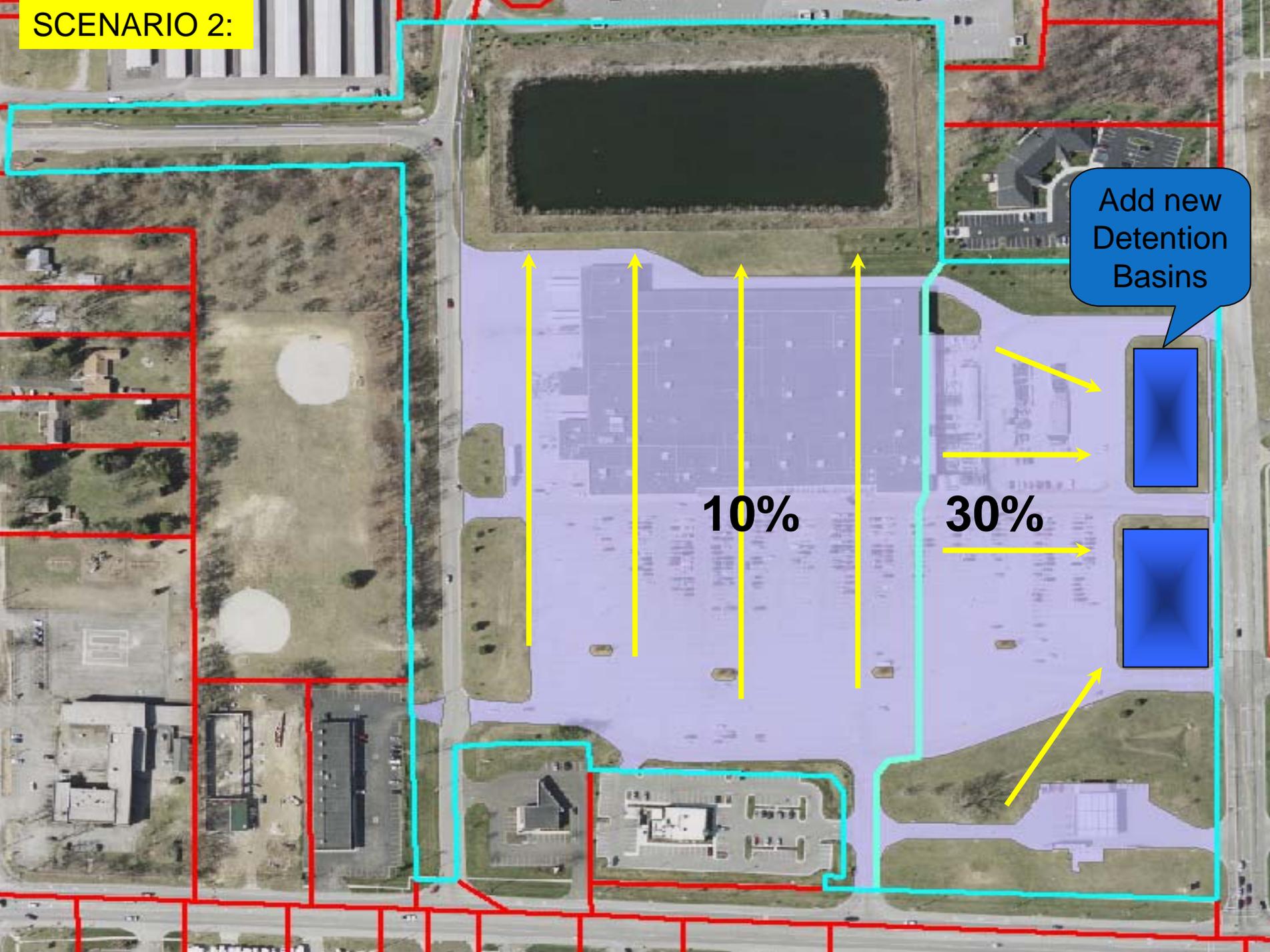


PORTMAN DR

MEIJER DR

W CENTRAL AV

SCENARIO 2:

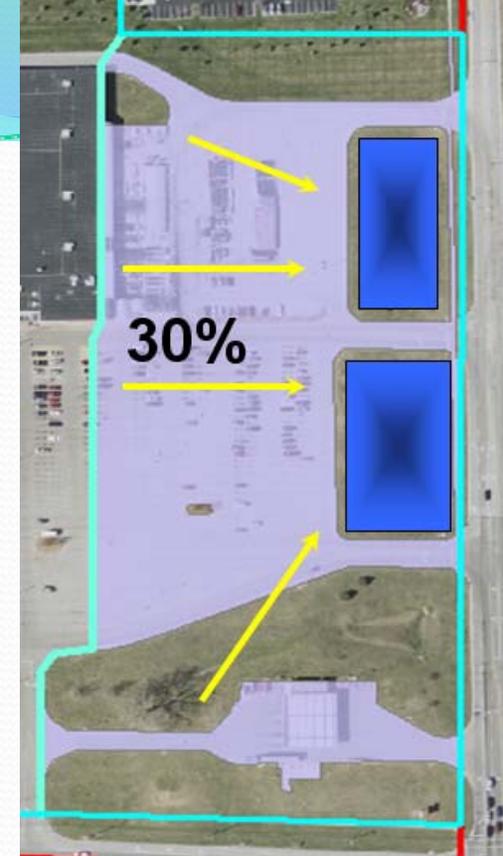


SCENARIO 2:

- Lot Area = **578,646.785** sq. feet
- Impervious Area = **314,537** sq. feet
- ERU = $314,537 \div 5,500 = 57$
- Rate = **\$4.06** per month
- Bill = $57 \times \$4.06 = \mathbf{\$231.42}$ per month

Credit 1:

- **New Detention Basin credit = 30%**
- MIA = $314,537 \times 100\% \times 30\% = \mathbf{94361.1}$ sq. feet
- ERU = $94361.1 \div 5,500 = \mathbf{17}$
- Reduction = ERU x %Credit x \$4.06
= $17 \times \$4.06 = \mathbf{\$69.02}$
- Bill = $\$231.42 - \$69.02 = \mathbf{\$162.40}$ per month

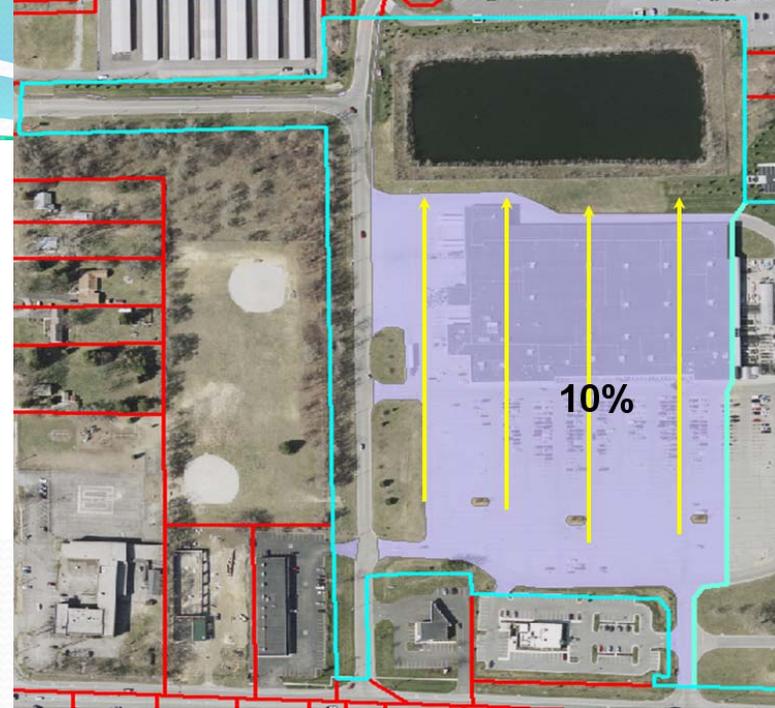


SCENARIO 2:

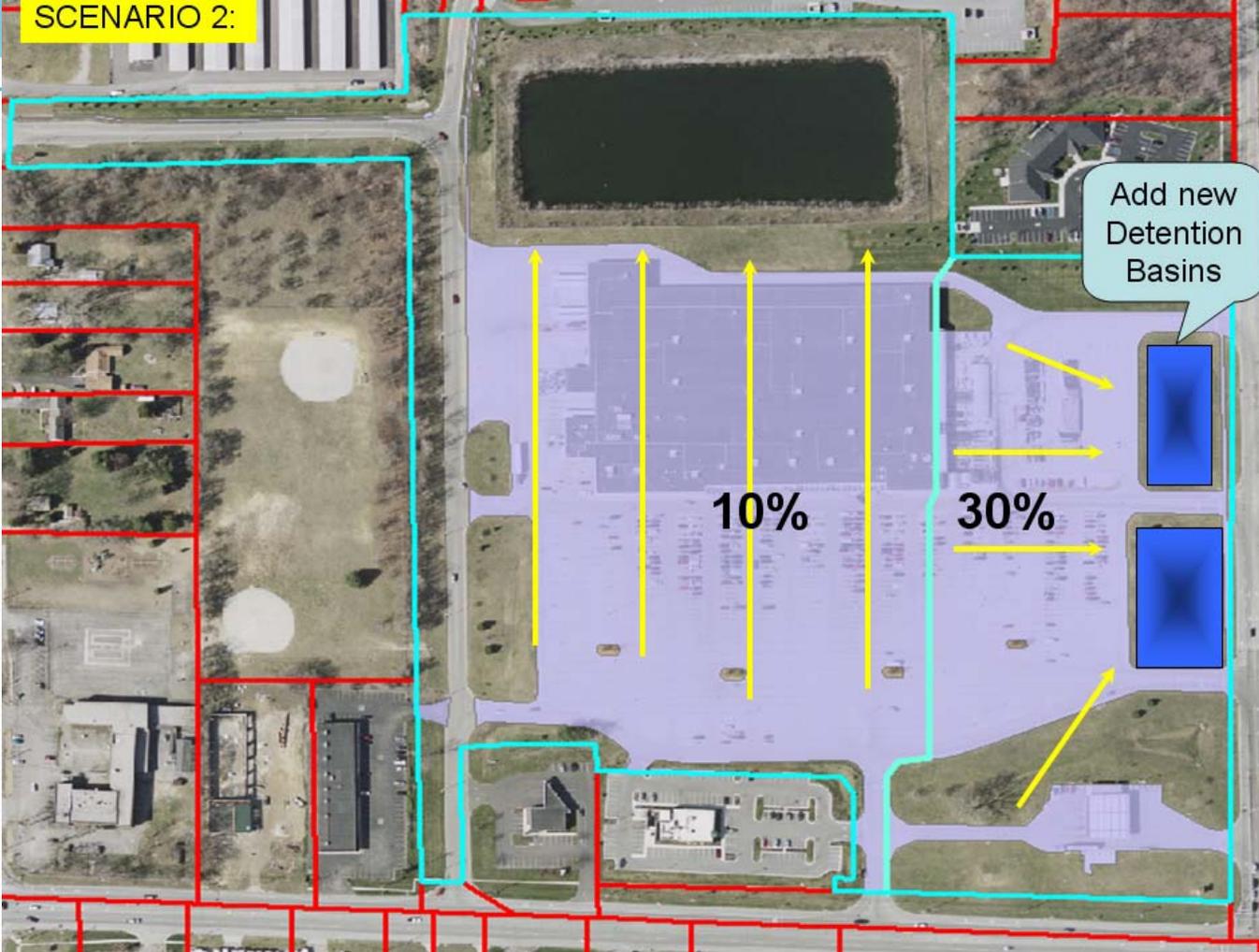
- Lot Area = **1,267,909.96** sq. feet
- Impervious Area = **641,902** sq. feet
- ERU = $641,902 \div 5,500 = 117$
- Rate = **\$4.06**
- Bill = $17 \times \$4.06 = \mathbf{\$475.02}$ per month

Credit 2:

- Existing Detention Basin credit = **10%**
- MIA = $641,902 \times 100\% \times 10\% = 64190.2$ sq. feet
- ERU = $64190.2 \div 5,500 = 12$
- Reduction = ERU x %Credit x \$4.06
= $12 \times \$4.06 = \mathbf{\$48.72}$
- Bill = $\$475.02 - \$48.72 = \mathbf{\$426.30}$ per month



Total Bill = $\$162.40 + \$426.30 = \mathbf{\$588.70}$ per month



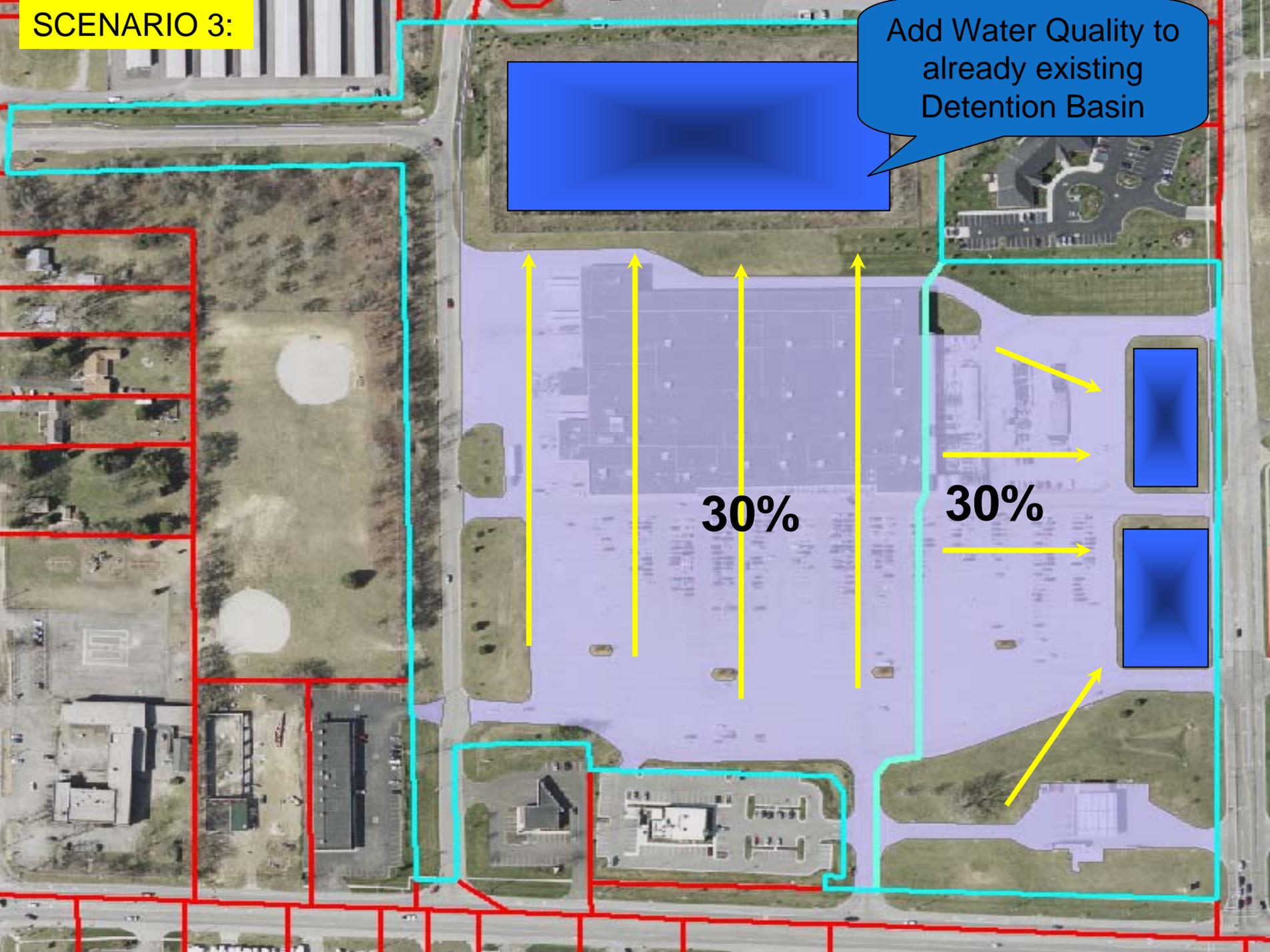
Total Bill = **\$162.40** + **\$426.30** = **\$588.70** per month

Total Bill = **\$974.40** + **\$2557.80** = **\$3532.20** per 6 months

Total Bill = **\$1948.80** + **\$5115.60** = **\$7064.40** per year

SCENARIO 3:

Add Water Quality to already existing Detention Basin



30%

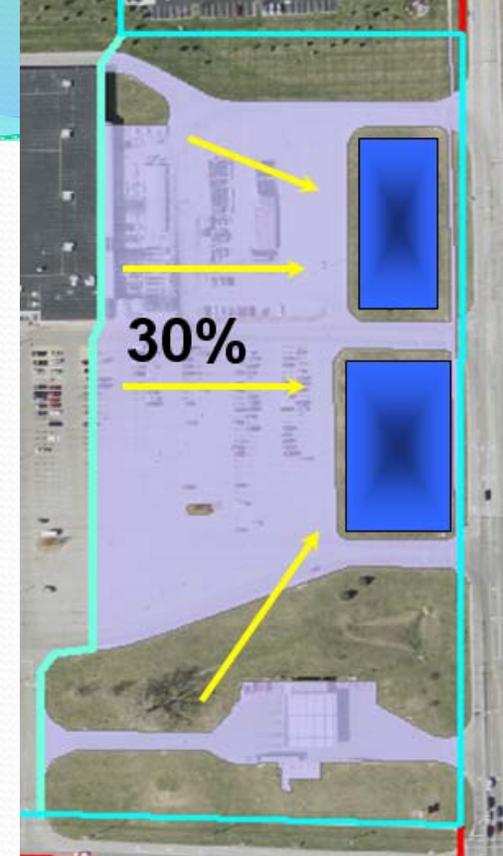
30%

SCENARIO 3:

- Lot Area = **578,646.785** sq. feet
- Impervious Area = **314,537** sq. feet
- ERU = $314,537 \div 5,500 = 57$
- Rate = **\$4.06** per month
- Bill = $57 \times \$4.06 = \mathbf{\$231.42}$ per month

Credit 1:

- Detention Basin credit = **30%**
- MIA = $314,537 \times 100\% \times 30\% = \mathbf{94361.1}$ sq. feet
- ERU = $94361.1 \div 5,500 = \mathbf{17}$
- Reduction = ERU x %Credit x \$4.06
= $17 \times \$4.06 = \mathbf{\$69.02}$
- Bill = $\$231.42 - \$69.02 = \mathbf{\$162.40}$ per month

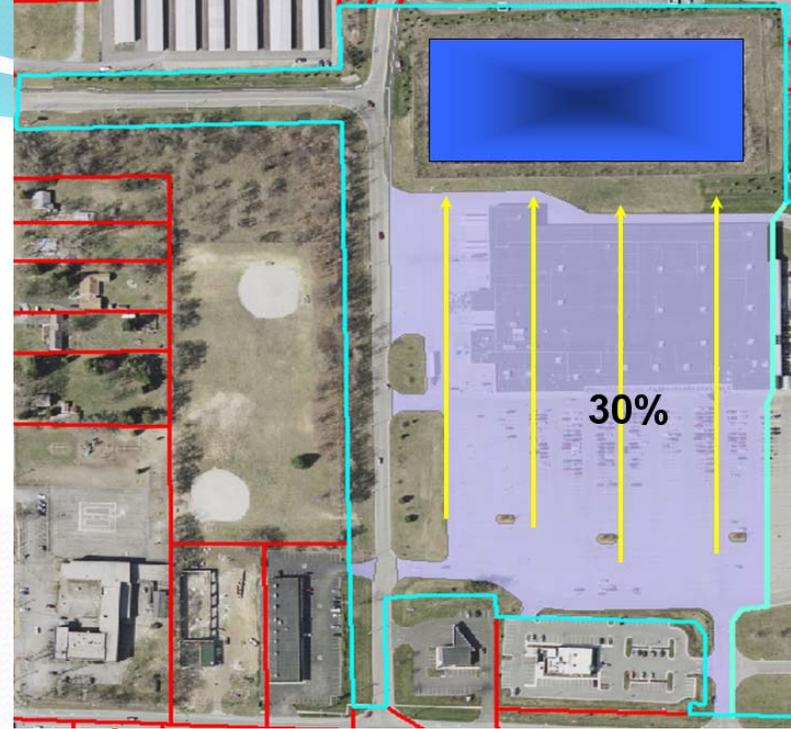


SCENARIO 3:

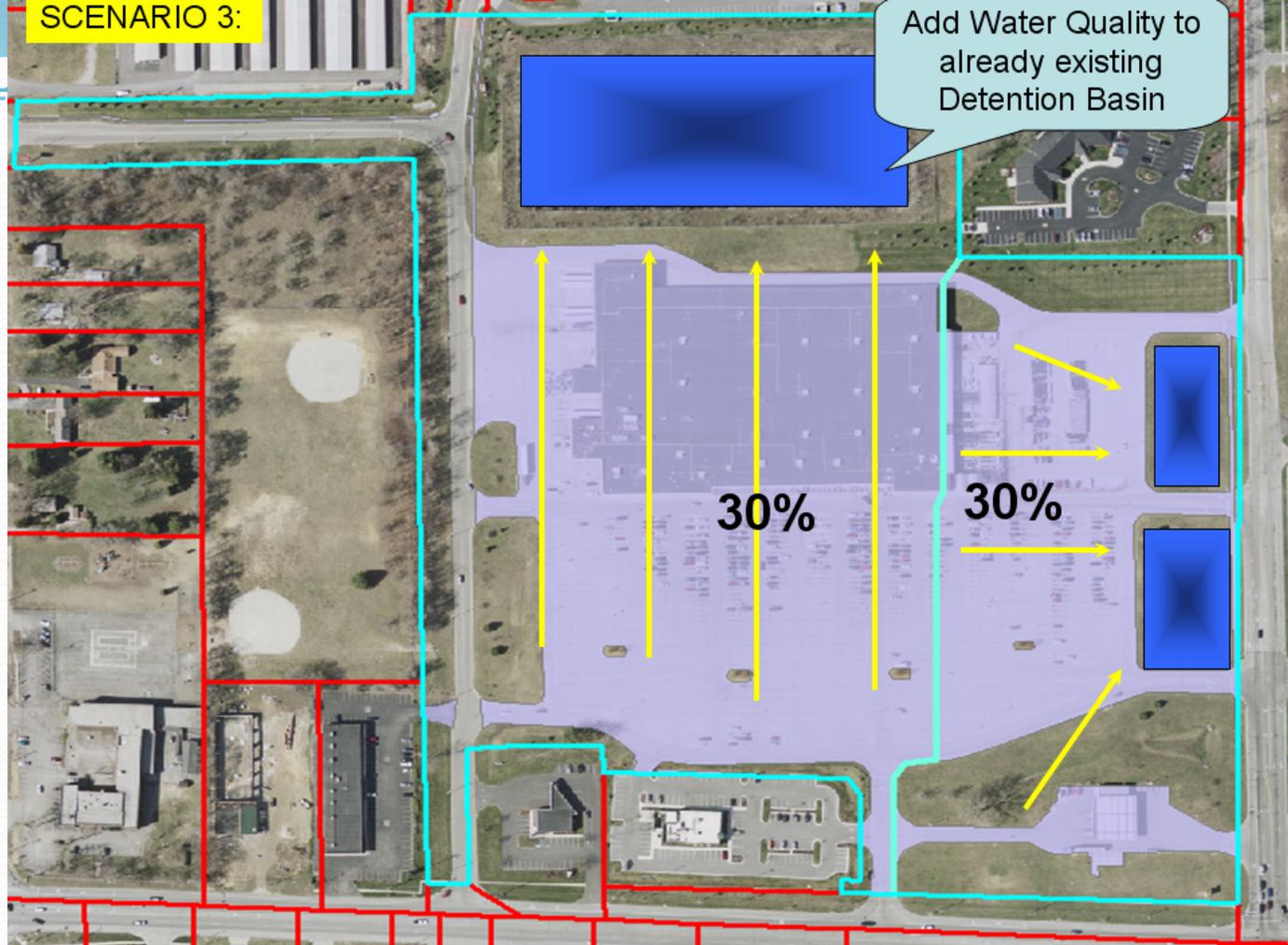
- Lot Area Drained = **1,267,909.96** sq. feet
- Impervious Area = **641,902** sq. feet
- ERU = $641,902 \div 5,500 = 117$
- Rate = **\$4.06**
- Bill = $17 \times \$4.06 = \mathbf{\$475.02}$ per month

Credit 2:

- **New Water Quality + Detention Basin credit = 30%**
- MIA = $641,902 \times 100\% \times 30\% = 192,570.6$ sq. feet
- ERU = $192,570.6 \div 5,500 = 35$
- Reduction = ERU x %Credit x \$4.06
= $35 \times \$4.06 = \mathbf{\$142.10}$
- Bill = $\$475.02 - \$142.10 = \mathbf{\$332.92}$ per month



Total Bill = $\$162.40 + \$332.92 = \mathbf{\$495.32}$ per month



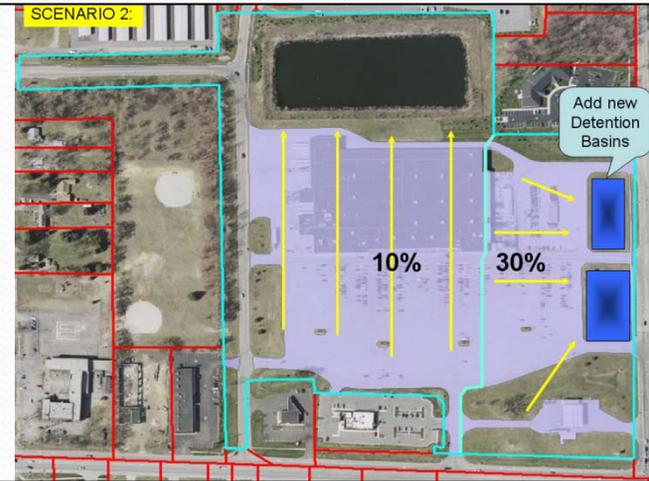
Total Bill = **\$162.40 + \$332.92 = \$495.32** per month

Total Bill = **\$974.40 + \$1997.52 = \$2971.92** per 6 months

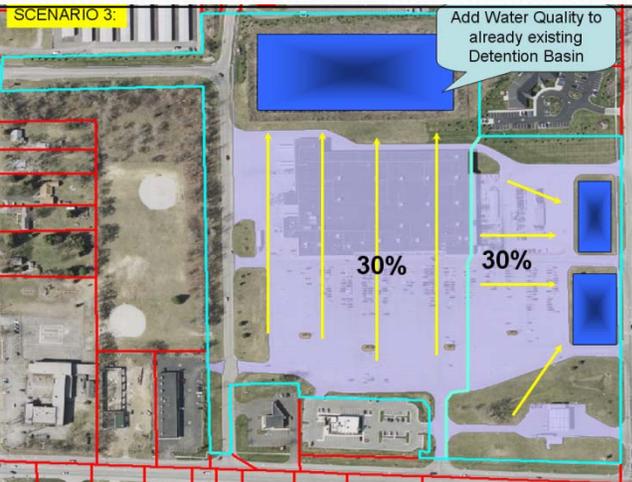
Total Bill = **\$1948.80 + \$3995.04 = \$5943.84** per year



\$637.42 per month
\$3824.52 per 6 months
\$7649.04 per year



\$588.70 per month
\$3532.20 per 6 months
\$7064.40 per year



\$495.32 per month
\$2971.92 per 6 months
\$5943.84 per year

SUMMARY

	Bill per month	Bill per 6 mo.	Bill per year
Without Credit	\$706.44	\$4238.64	\$8477.28
10% Credit (current)	\$637.42	\$3824.52	\$7649.04
30% Credit + 10% Credit	\$588.70	\$3532.20	\$7064.40
30% Credit + 30% Credit	\$495.32	\$2971.92	\$5943.42

* 50% cap on credits for all properties



10% Credit for total site impervious area drained to detention pond (current)

Resulting stormwater bill

\$637.42 per month

\$3824.52 per 6 months

\$7649.04 per year

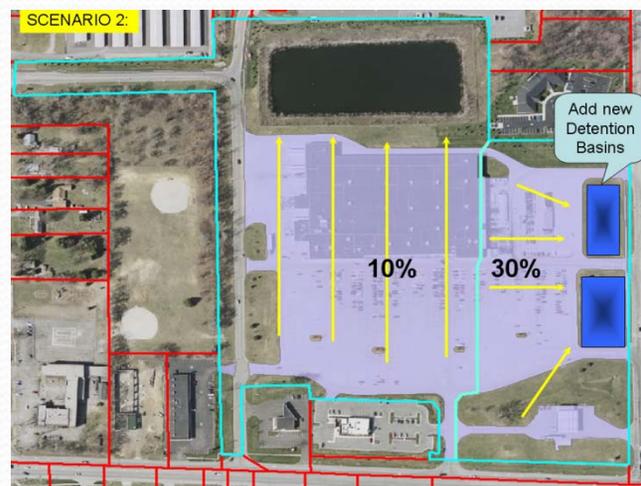
30% Credit for portion of the site's impervious area draining to new bioretention areas + 10% credit for remaining impervious areas draining to existing detention pond

Resulting stormwater bill

\$588.70 per month

\$3532.20 per 6 months

\$7064.40 per year



30% Credit for portion of the site's impervious area draining to new bioretention areas + 30% Credit for the remaining impervious areas draining to the newly retrofitted water quality pond

Resulting stormwater bill

\$495.32 per month

\$2971.92 per 6 months

\$5943.84 per year

SUMMARY

	Bill per month	Bill per 6 mo.	Bill per year
Without Credit	\$706.44	\$4238.64	\$8477.28
Scenario 1: 10% Effective Credit	\$637.42	\$3824.52	\$7649.04
Scenario 2; 17% Effective Credit	\$588.70	\$3532.20	\$7064.40
Scenario 3: 30% Effective Credit	\$495.32	\$2971.92	\$5943.42



Examples of Potential Credits (BMP's)

Water Quantity

- Water quality ponds
 - Treat runoff for pollutants
 - Control stream discharge
 - Reduce sediment transport
 - May be dry between events or have a permanent pool or wetland features



Regional Residential Credit

- Water quality ponds maintained by homeowners association instead of the County
 - Dry pond design or wet as shown on previous slide

Water Quality

- Percolation/Infiltration Trench
 - Rock filled trench with no outlet
 - Stormwater is typically directed through a swale or basin and then into the trench
- Vegetated Swales/Grass Filter Strips
 - Vegetated surfaces designed to treat water runoff from large impervious areas such as parking lots
 - Filter out sediment and pollutants
 - Provide limited infiltration



Water Quality

- Porous pavement
 - Cement paving material with little or no sand in mixture
 - Creates interconnected voids which allow water to drain through the material and into the ground
- Green Roof
 - Roofs covered with vegetation to absorb and collect rainfall
 - Commonly applied in modular units, which are a series of trays in which plants can be grown
 - Reduce stormwater runoff, absorb and filter pollutants from rainwater, and lower heating and cooling building costs



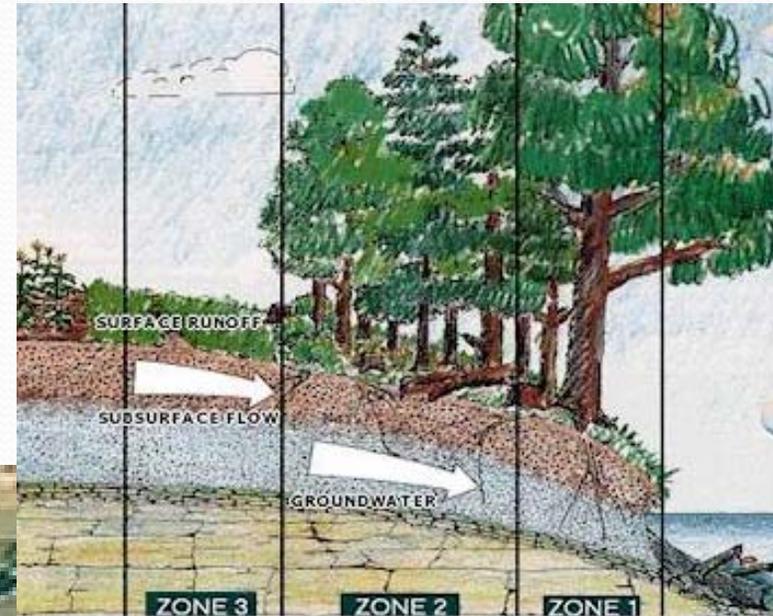
Water Quality (cont)

- Dry Swales
 - Vegetated open channel maintenance practice to treat a specific water quality volume
- Constructed Wetland
 - Temporarily store stormwater runoff in shallow pools
 - Incorporate wetland plants into pond-like design
 - Plants remove pollutants through filtration



Water Quality (cont)

- Riparian buffers
 - Area along a shoreline, wetland or stream where development and/or use is prohibited
 - Buffer strip allows pollutants to be filtered from runoff before entering stream



Water Quality (cont)

- Rain Garden
 - Planted depression that allows rainwater runoff from impervious areas like roofs, driveways, walkways, and compacted lawn areas the opportunity to be absorbed
 - Reduces rain runoff by allowing stormwater to soak into the ground
 - Reduces pollutants and sediment through filtration



Educational

- Schools
 - Structured education program
 - Meets school curriculum
 - Addresses Education and Outreach Requirements for the NPDES Phase II requirements



- Business property owners
 - Stormwater education day
 - Public service announcements
 - Litter collection days
 - County staff presentations

Storm Water Utility Rates

○ Ironton, OH	\$14.55
○ Bellevue, WA	\$12.77
○ Gwinnett County, GA	\$8.64
○ Newark, OH	\$6.50
○ Louisville, KY	\$6.34
○ Lancaster, OH	\$6.00 to \$7.64 (2012)
○ Milford, OH	\$5.50
○ Rock Island, IL	\$5.49
○ Moline, IL	\$5.27
○ Trenton, OH	\$5.00
○ Barberton, OH	\$5.00
○ Sheffield Lake, OH	\$4.85
○ Wooster, OH	\$4.80
○ Wadsworth, OH	\$4.50
○ Northern KY (SD1)	\$4.30
○ Dayton, OH	\$4.28
○ Marion, OH	\$4.16



Storm Water Utility Rates

Continued

○ Loveland, OH	\$4.00
○ Canton, OH	\$4.00
○ Gambier, OH	\$4.00
○ New London, OH	\$4.00
○ Columbus, OH	\$3.78*
○ Trotwood, OH	\$3.75
○ Hamilton, OH	\$3.60
○ Franklin, OH	\$3.50
○ Ashland, OH	\$3.50
○ Lebanon, OH	\$3.50
○ Middletown, OH	\$3.25
○ Toledo, OH	\$3.16
○ Xenia, OH	\$3.01
○ Forest Park, OH	\$3.00
○ Mason, OH	\$3.00
○ Springboro, OH	\$3.00
○ Greenville, OH	\$2.95



* CIP Funded With Other
Funding Sources

Approximately 75 programs
in the State of Ohio

Question and Answer

