





City of Plymouth

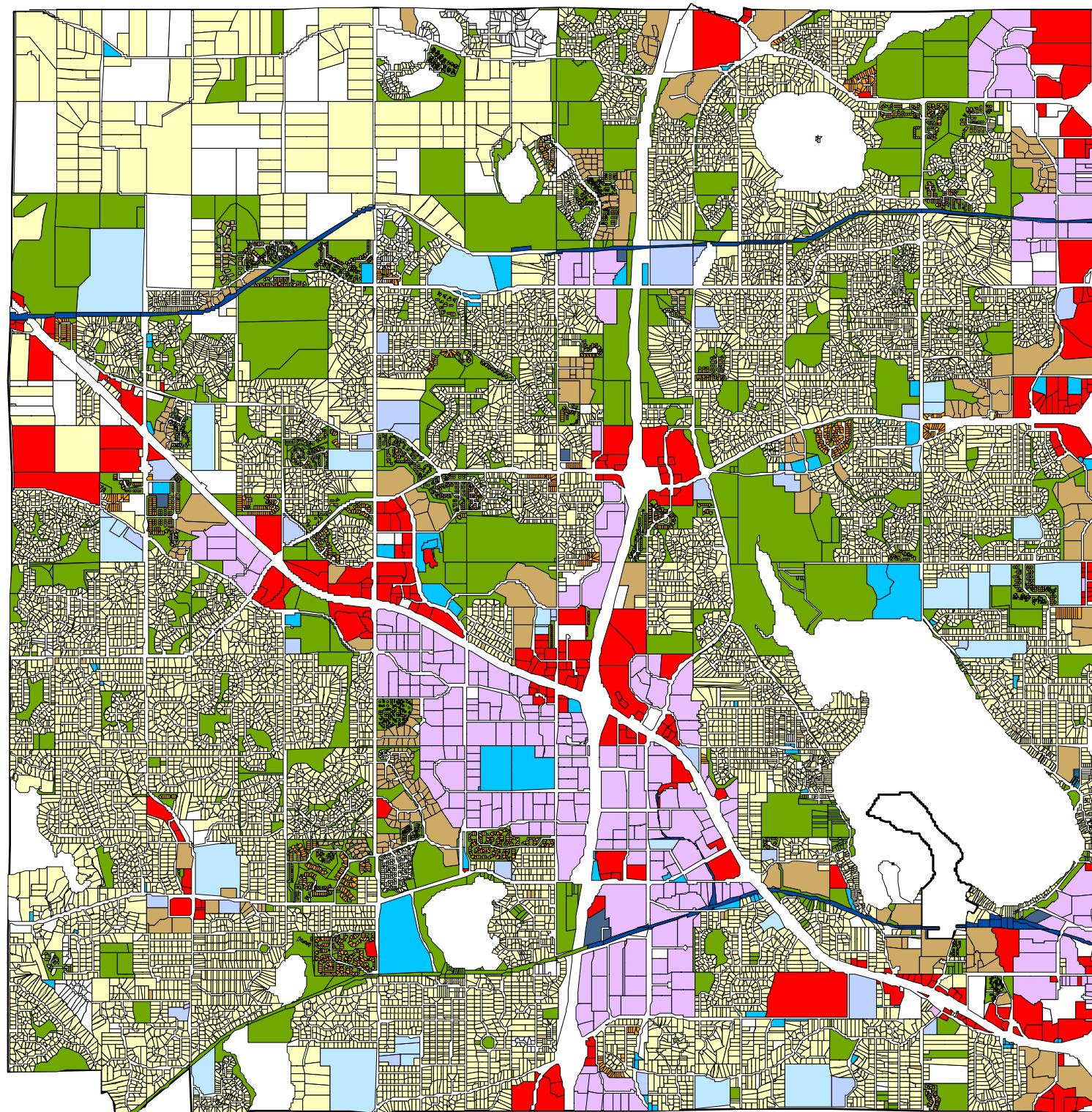
***Surface Water
Management Plan***



NW Metro Watersheds

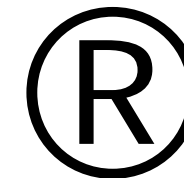
-  BASSETT CREEK
-  ELM CREEK
-  MINNEHAHA CREEK
-  SHINGLE CREEK

***Figure 1
Watersheds***



City of Plymouth

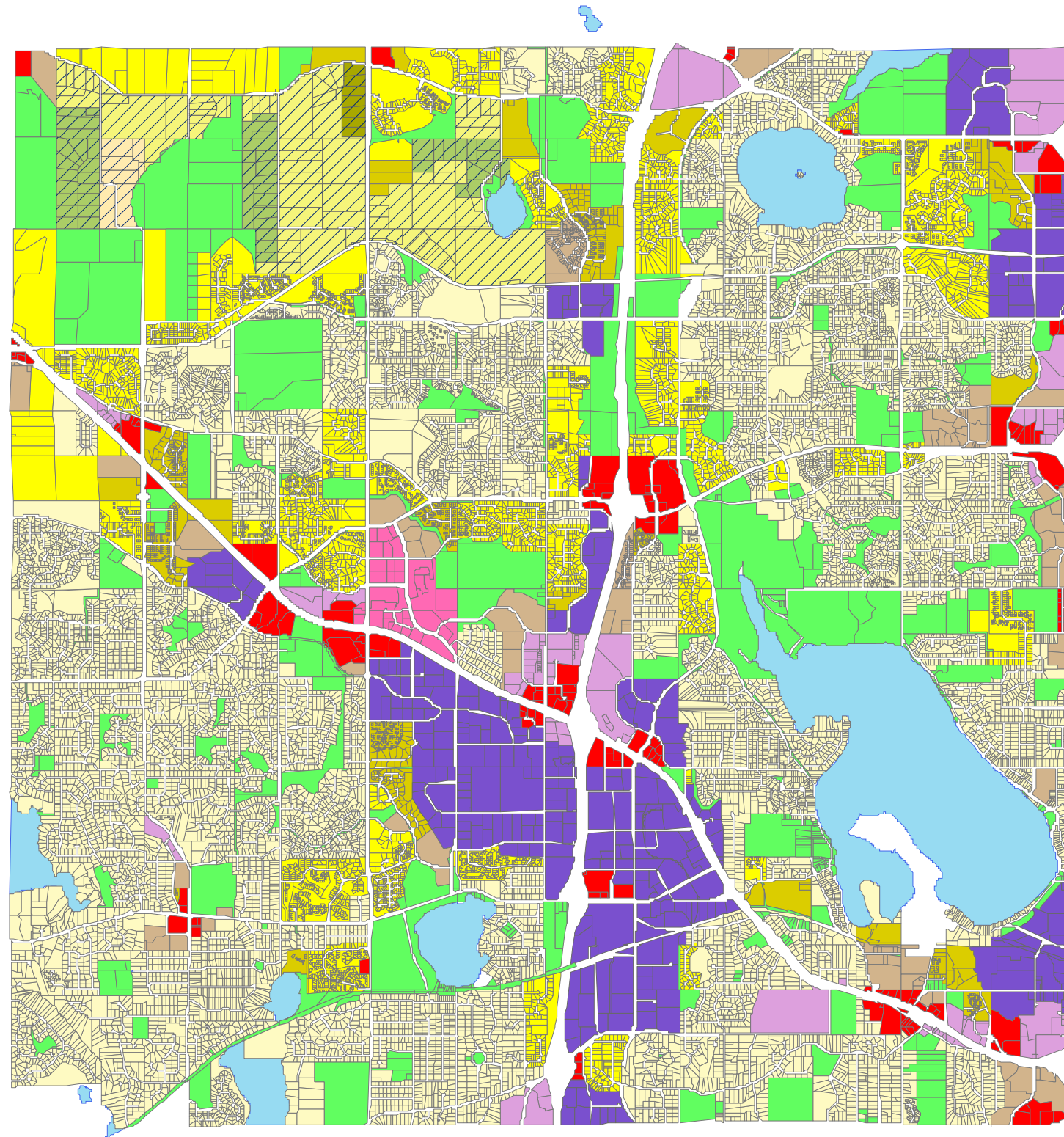
**Surface Water
Management Plan**



July 2007 Existing Land Use

- Church
- Commercial
- Industrial
- Multiple Family Residential
- Park/Open Space
- Public
- Railroad
- School
- Single Family Development
- Townhome
- Utility
- Vacant

**Figure 2
Existing Landuse**



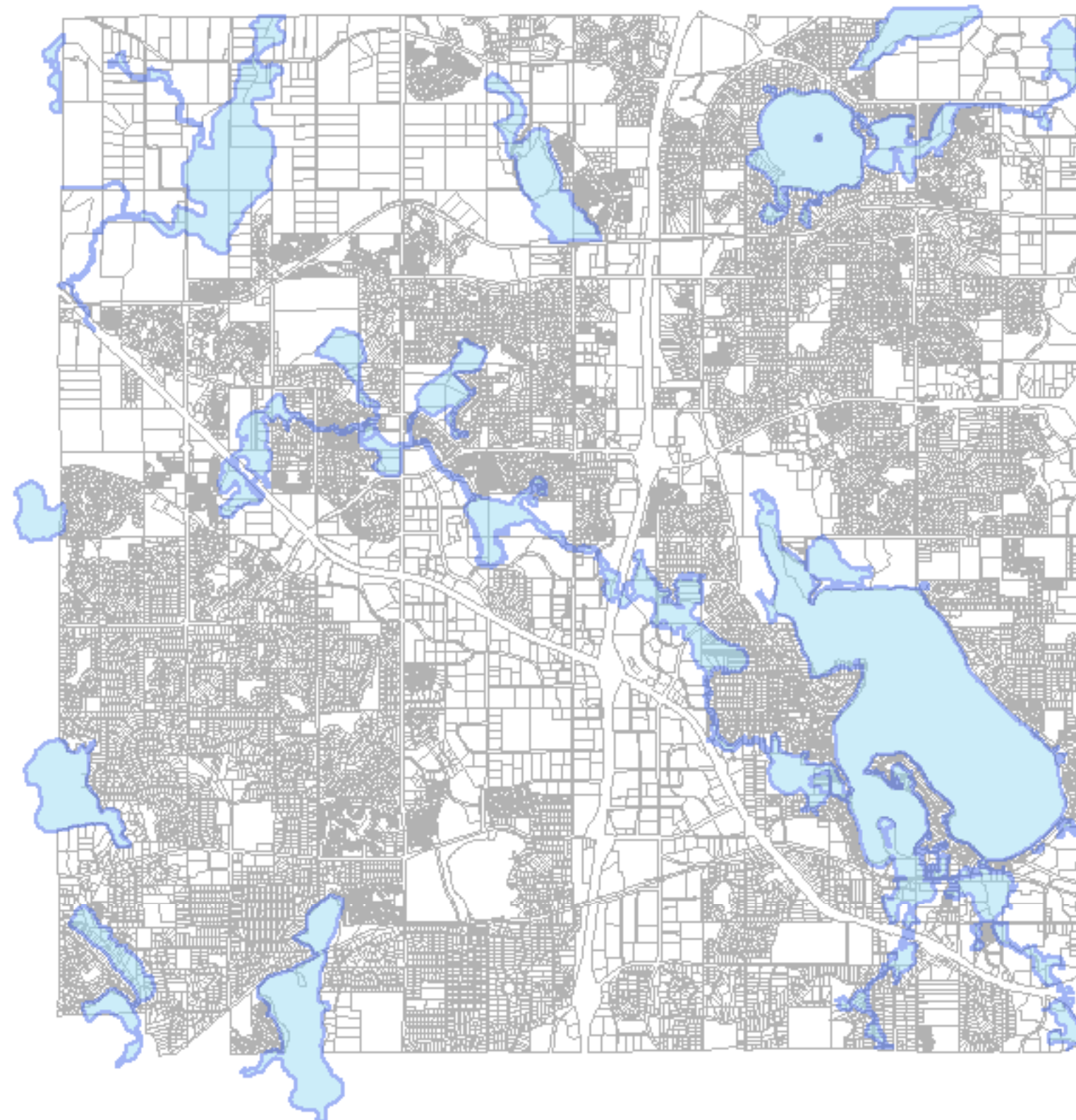
City of Plymouth

Surface Water Management Plan



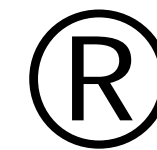
- Commercial, C
- Living Area Rural Transition, LA-RT(UP TO 1)
- Living Area Rural 1, LA-R1 (1-2)
- Living Area Rural 2, LA-R2 (2-4)
- Living Area Rural 3, LA-R3 (4-6)
- Living Area 1, LA-1 (2-3)
- Living Area 2, LA-2 (3-6)
- Living Area 3, LA-3 (6-12)
- Living Area 4, LA-4 (12-20)
- Public/Semi-Public/Institutional, P-I
- Commercial Office, CO
- City Center, CC
- Planned Industrial, IP
- Commercial, C
- Living Area Rural Transition, LA-RT(UP TO 1)
- Living Area Rural 1, LA-R1 (1-2)
- Living Area Rural 2, LA-R2 (2-4)
- Living Area Rural 3, LA-R3 (4-6)
- Living Area 1, LA-1 (2-3)
- Living Area 2, LA-2 (3-6)
- Living Area 3, LA-3 (6-12)
- Living Area 4, LA-4 (12-20)
- Public/Semi-Public/Institutional, P-I
- Commercial Office, CO
- City Center, CC
- Planned Industrial, IP

**Figure 3
2030 Landuse**



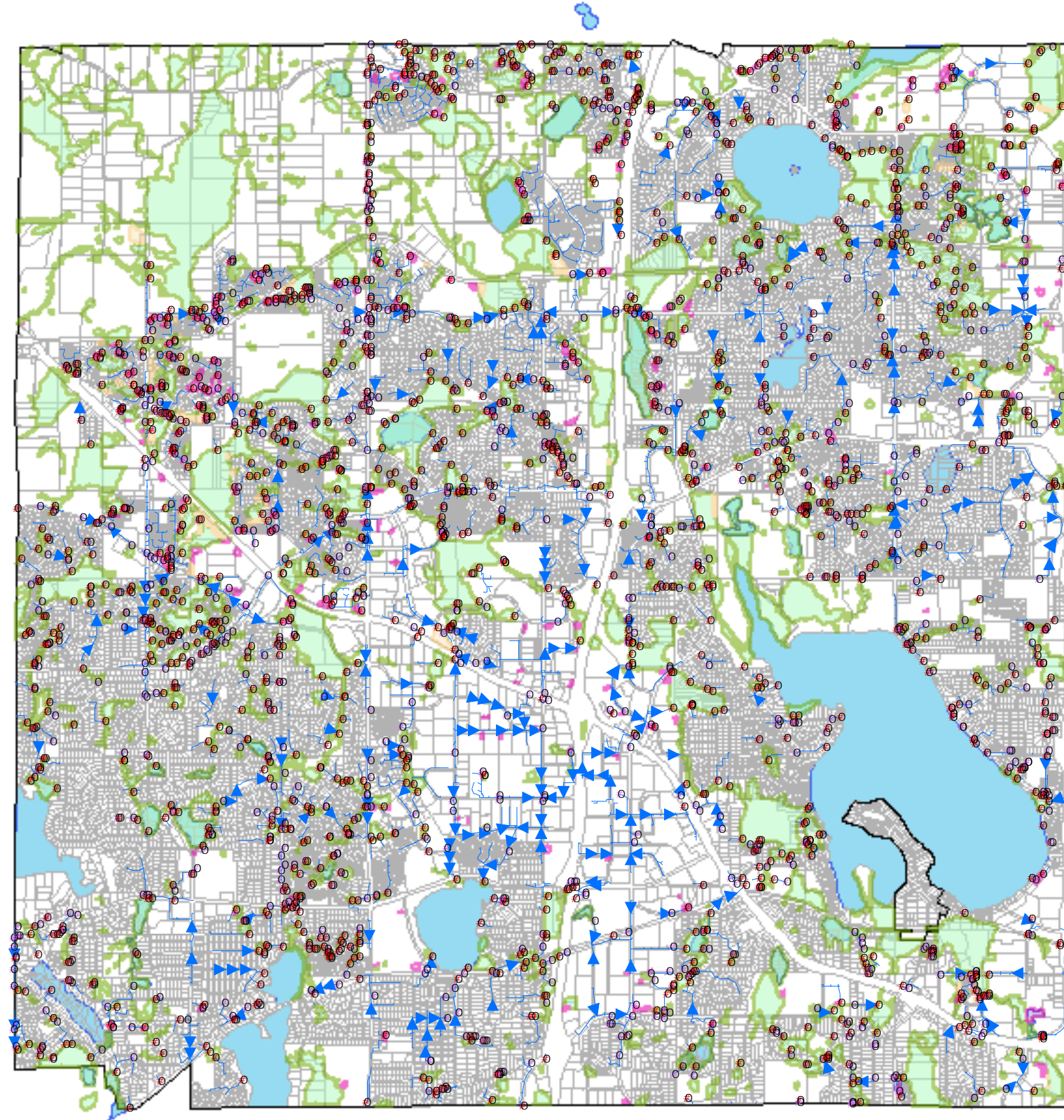
City of Plymouth

***Surface Water
Management Plan***



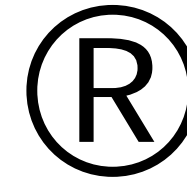
***Flood Plain
100 Year Flood***

***Figure 4
FEMA Flood***









City of Plymouth

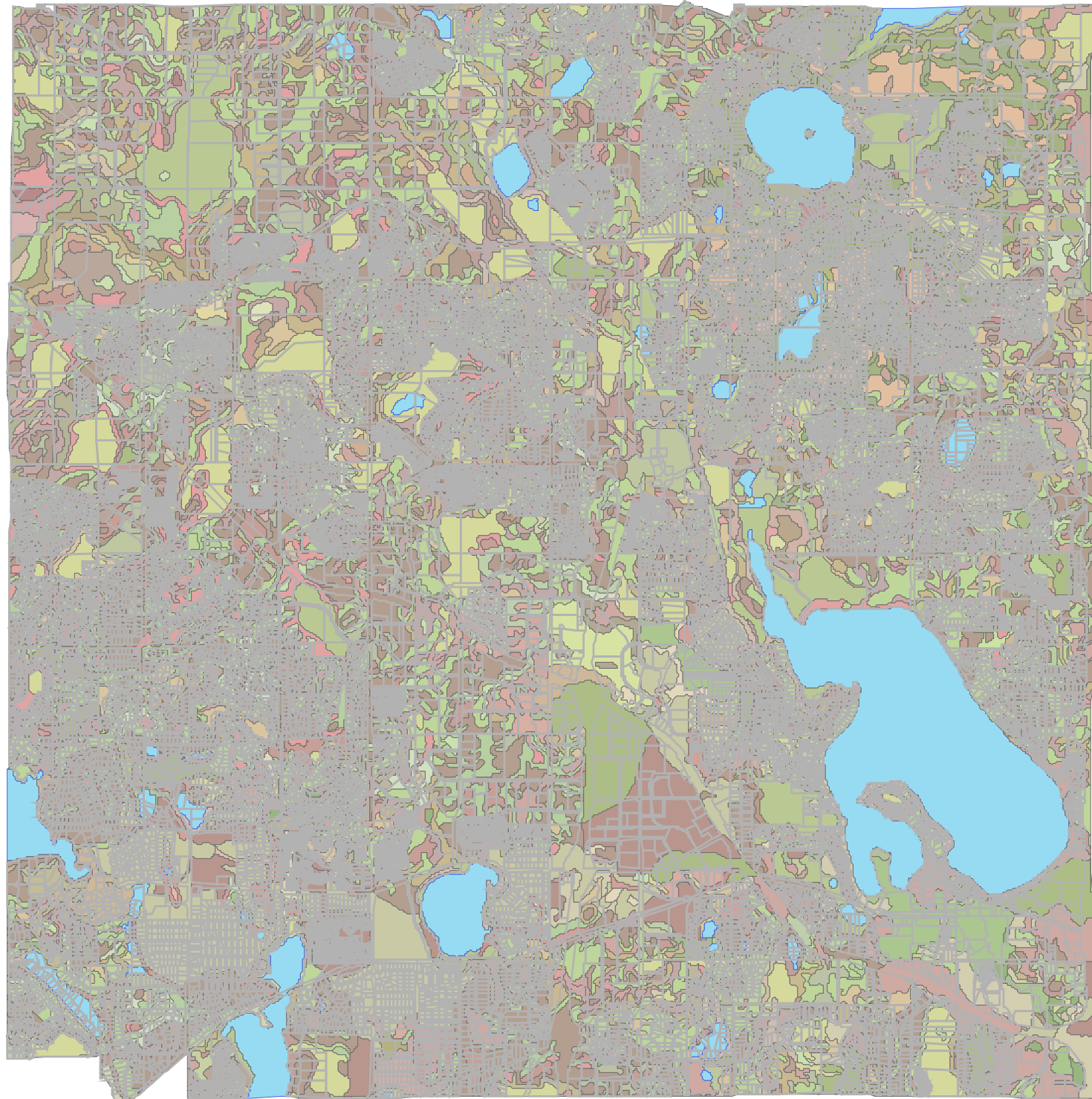
**Surface Water
Management Plan**



Pond Maintenance Basins

-  Natural Basin
-  Nurp
-  Wetland Mitigation
-  Outlet
-  Outfall
-  Pipe Direction

**Figure 5
Storm Sewer System**



City of Plymouth

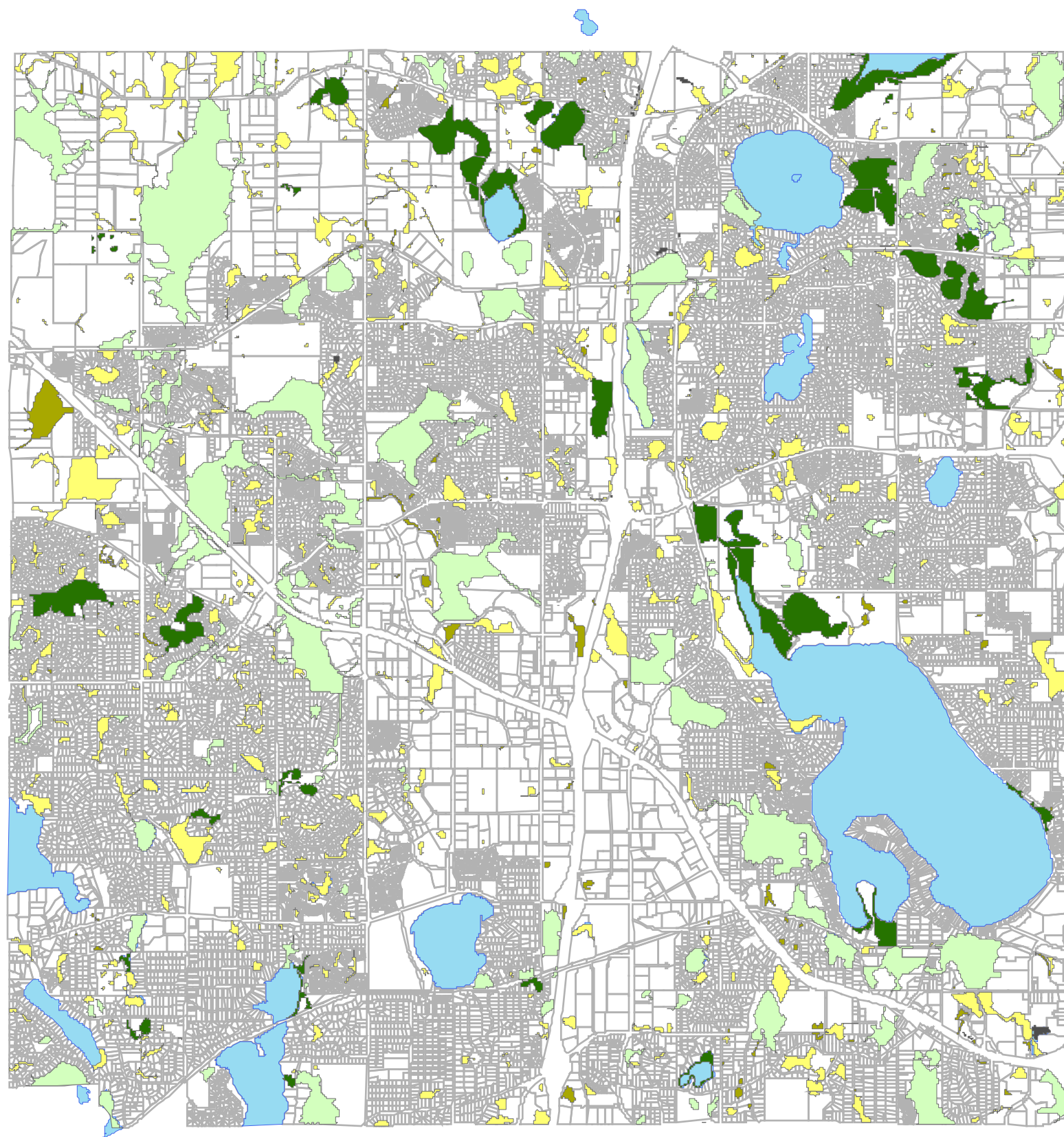
Surface Water
Management Plan



Soils Data
MUSYM

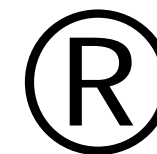
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L132 A	L30A	L54A	U2A
L13A	L31A	L58B	U3B
L14A	L35A	L58C 2	U4A
L15A	L36A	L58D 2	U5A
L16A	L37B	L58E	U6B
L17B	L3B	L59A	W
L18A	L3C	L60B	
L19B	L40B	L61C 2	
L21A	L41C 2	L61D 2	
L22C 2	L41D 2	L61E	
L22D 2	L41E	L62B	
L22E	L42B	L62C 2	
L22F	L42C	L64A	
L23A	L42D	L6A	
L24A	L42E	L70C 2	
L25A	L42F	L70D 2	
L26A	L44A	L70E	
L26B	L45A	L71C	
L26C 2	L46A	L72A	
L28A	L47A	L7A	
L2B	L49A	L8A	
L2C	L4B	L9A	
L2D	L50A	M-W	

Figure 7
Soils









City of Plymouth

**Surface Water
Management Plan**

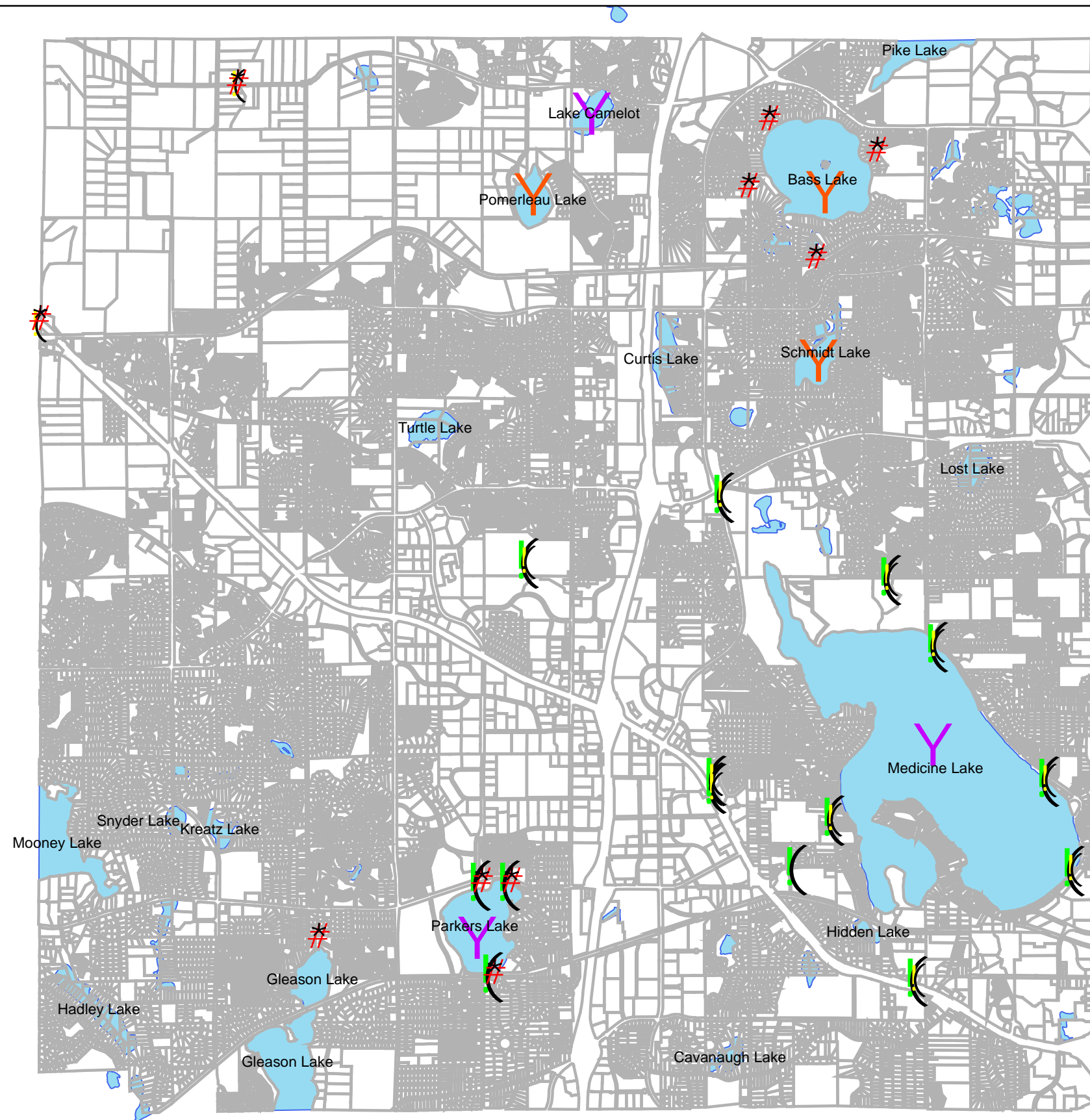


WETLANDS

-  Exceptional
-  High
-  Medium
-  Low
-  Storm
-  Lakes

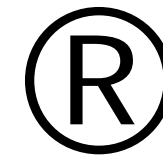
*"Source: Plymouth Functions &
Values Assessment, 1994"*

**Figure 8
Wetlands**





City of Plymouth


**Surface Water
Management Plan**




 2008 Monitoring Locations

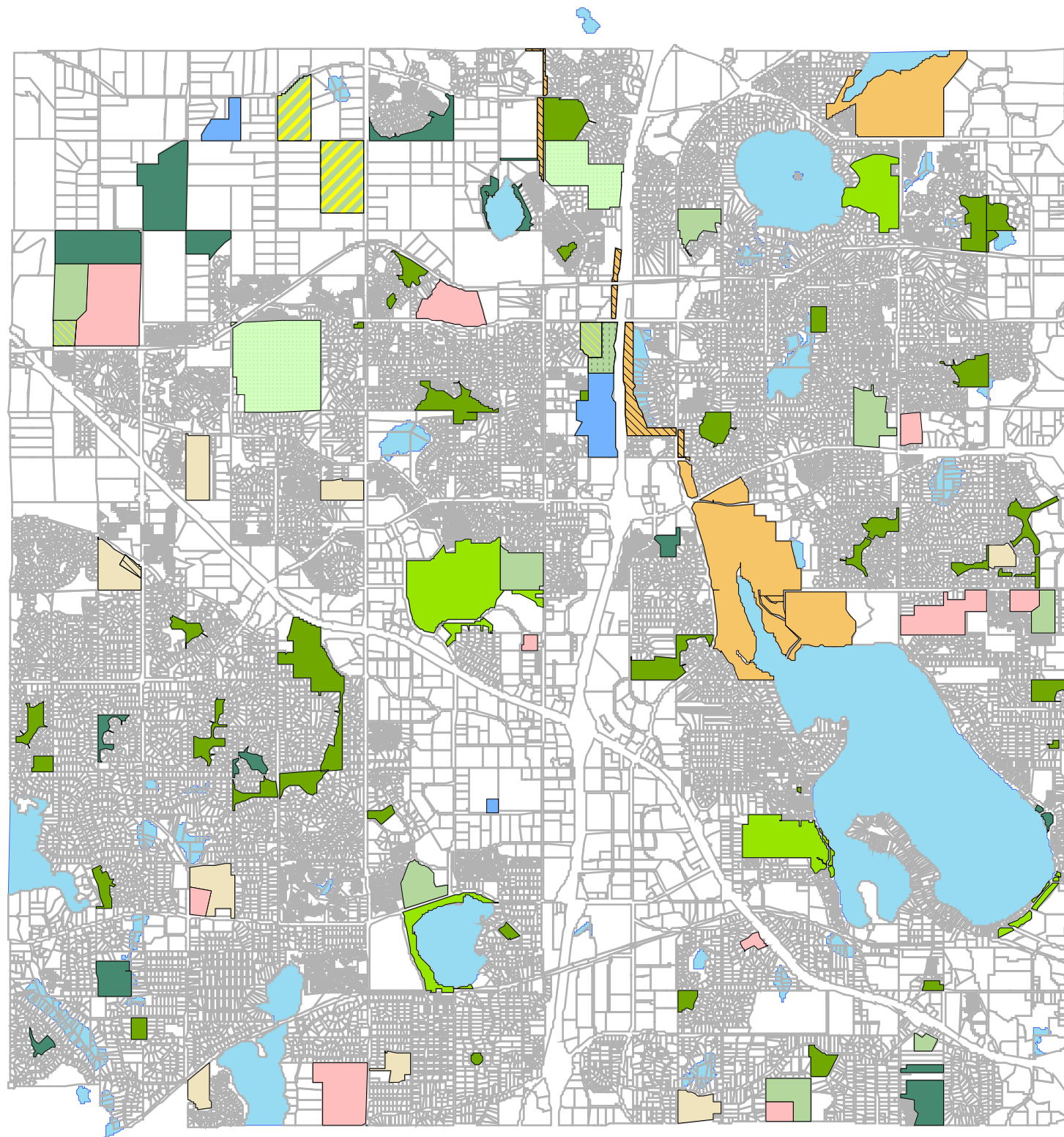
 2009 and 2011 Proposed
Monitoring Locations

 2010 and 2012 Proposed
Monitoring Locations

 In-lake Monitoring
2009 and 2011

 In-Lake Monitoring
2010 and 2012

**Figure 9
Monitoring Locations**



City of Plymouth

**Surface Water
Management Plan**

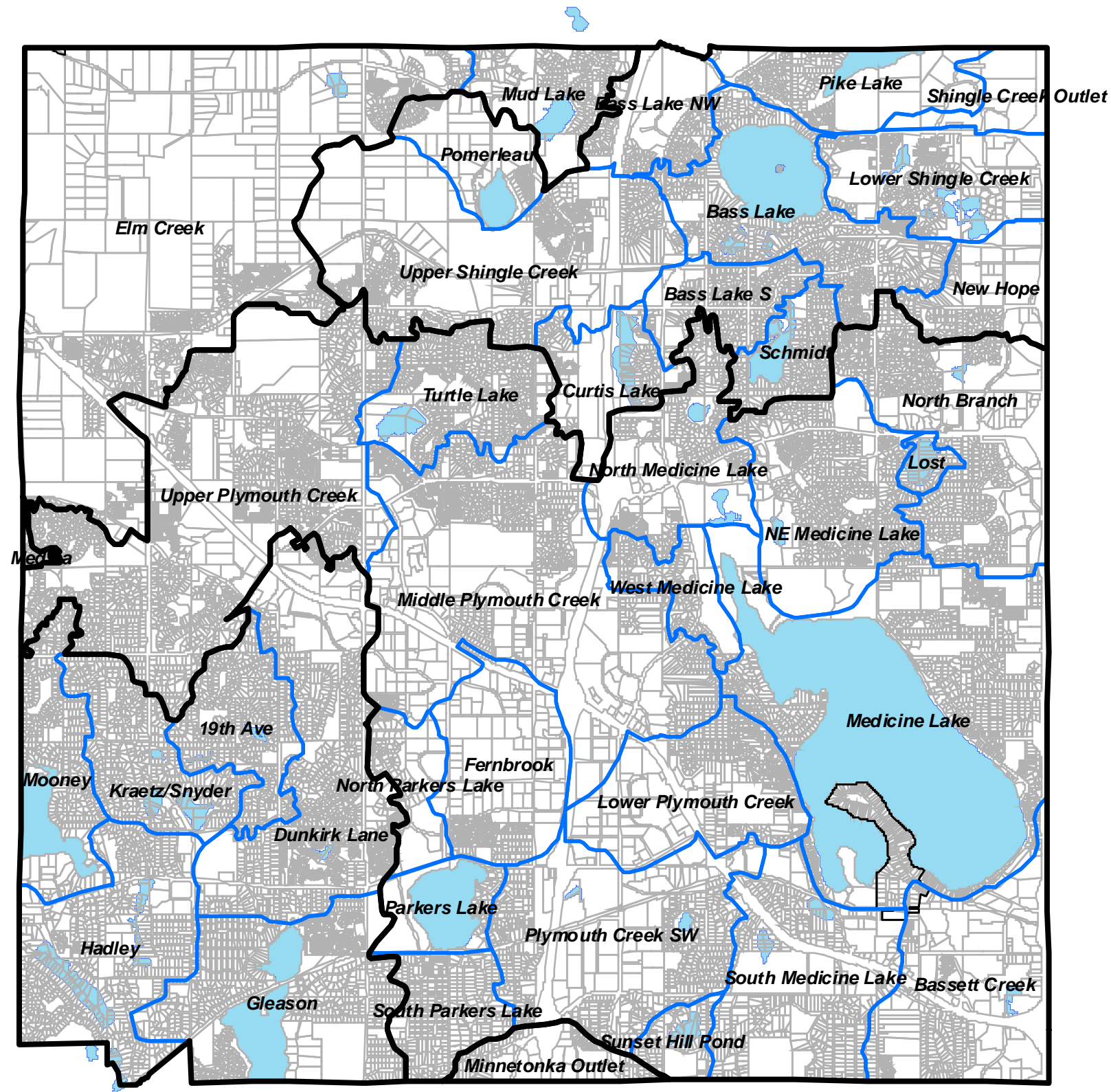


Park-System (Nov 2007)

Type

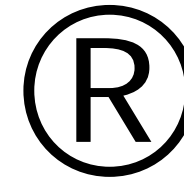
- City Park
- Community Playfield
- Undeveloped Community Playfield
- Possible Playfield Expansion
- Possible Community Playfield (one site to be considered)
- Neighborhood Park
- School
- School Park
- Proposed School Park Expansion
- Special Use Park
- City-owned Open Space
- Regional Park
- Undeveloped Regional Park
- Golf Course

**Figure 10
Existing & Future Parks**



City of Plymouth

Surface Water Management Plan



- Watershed Districts
- Subwatersheds

**Figure 11
Subwatersheds**

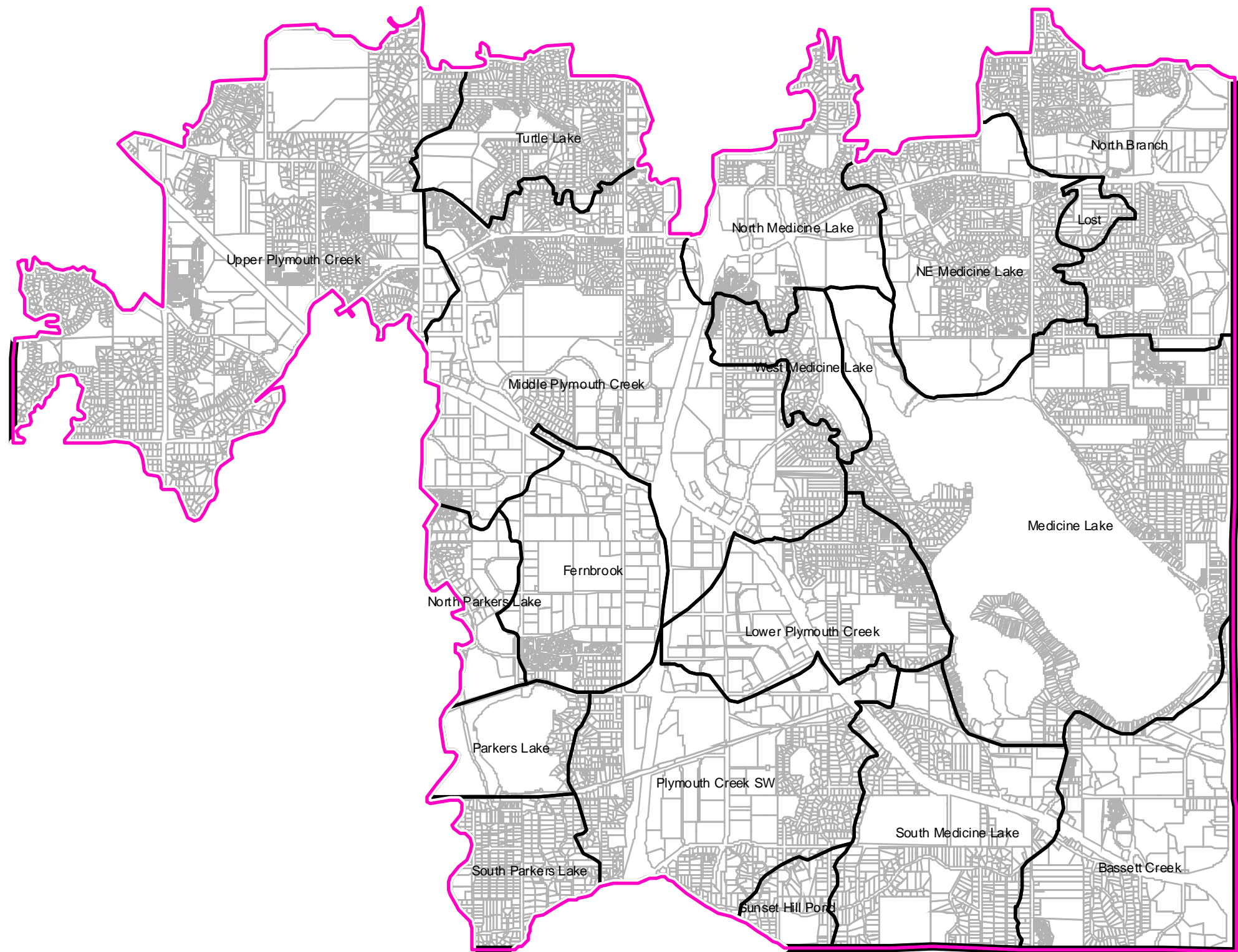
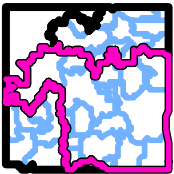


Figure 12
Bassett Creek
Subwatersheds

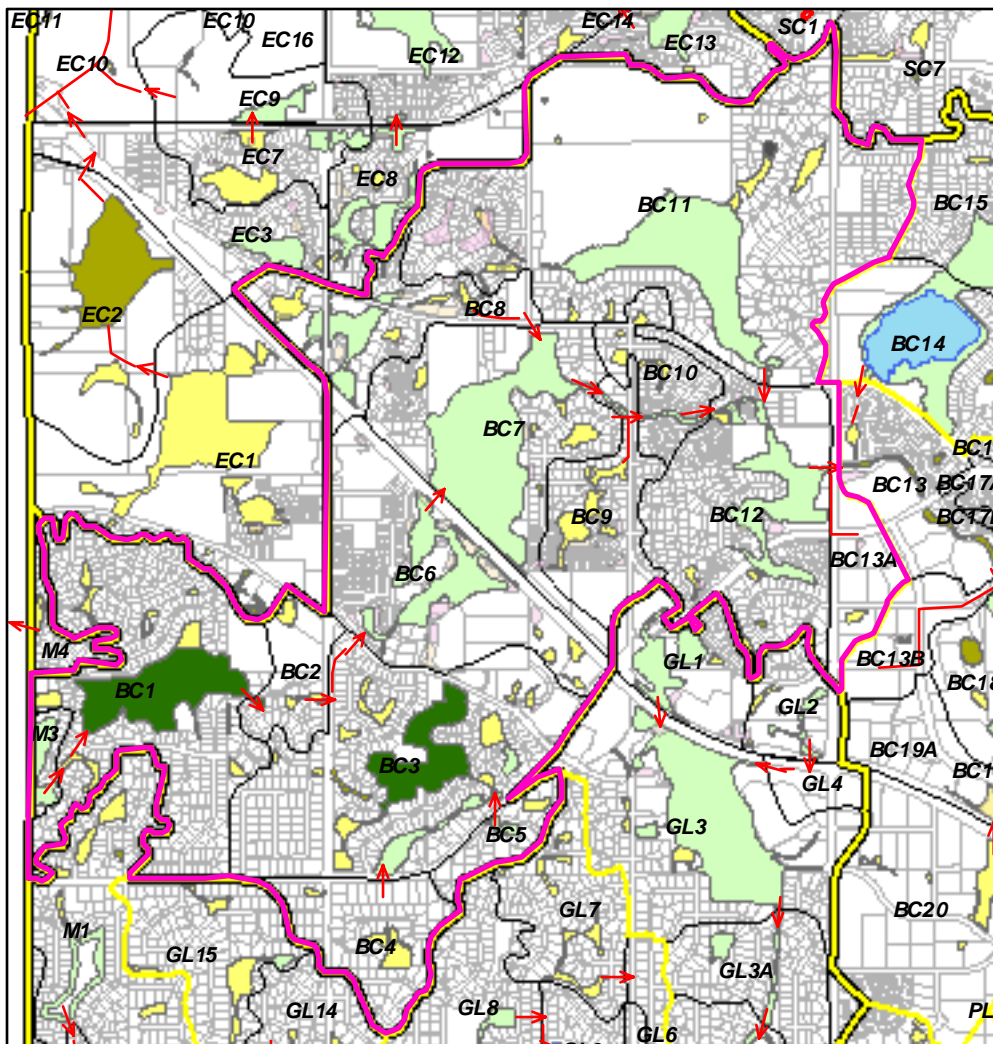
(R)



Surface Water
Management Plan



City of Plymouth
2008



Wetland Class

- | | |
|---------------------|---------------------------|
| Exceptional | Storm Water Conveyance |
| High | SC9 Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

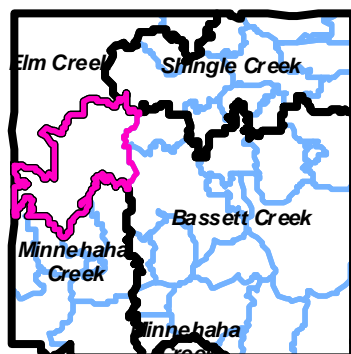
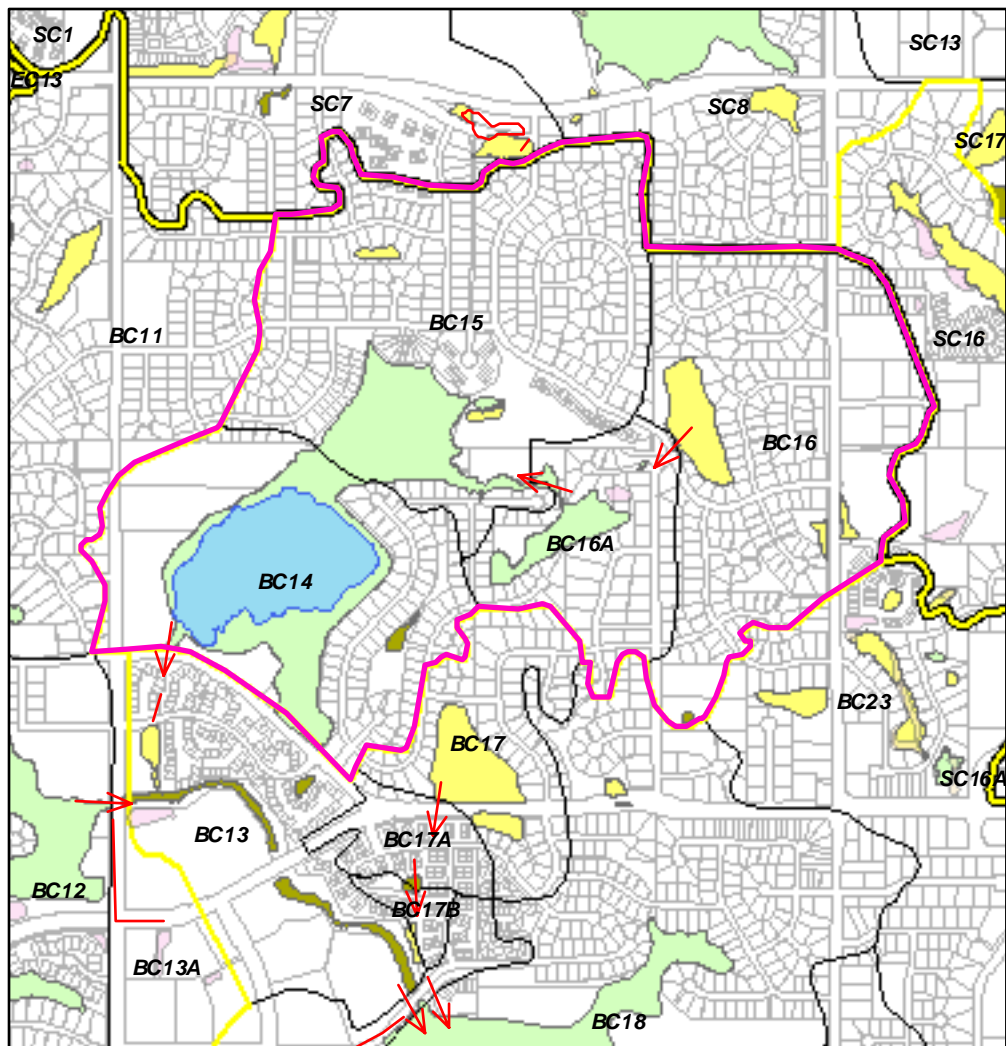


Figure 13
Upper Plymouth Creek
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|--|
|  Exceptional |  Storm Water Conveyance |
|  High |  Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

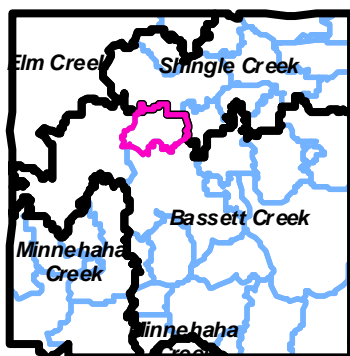
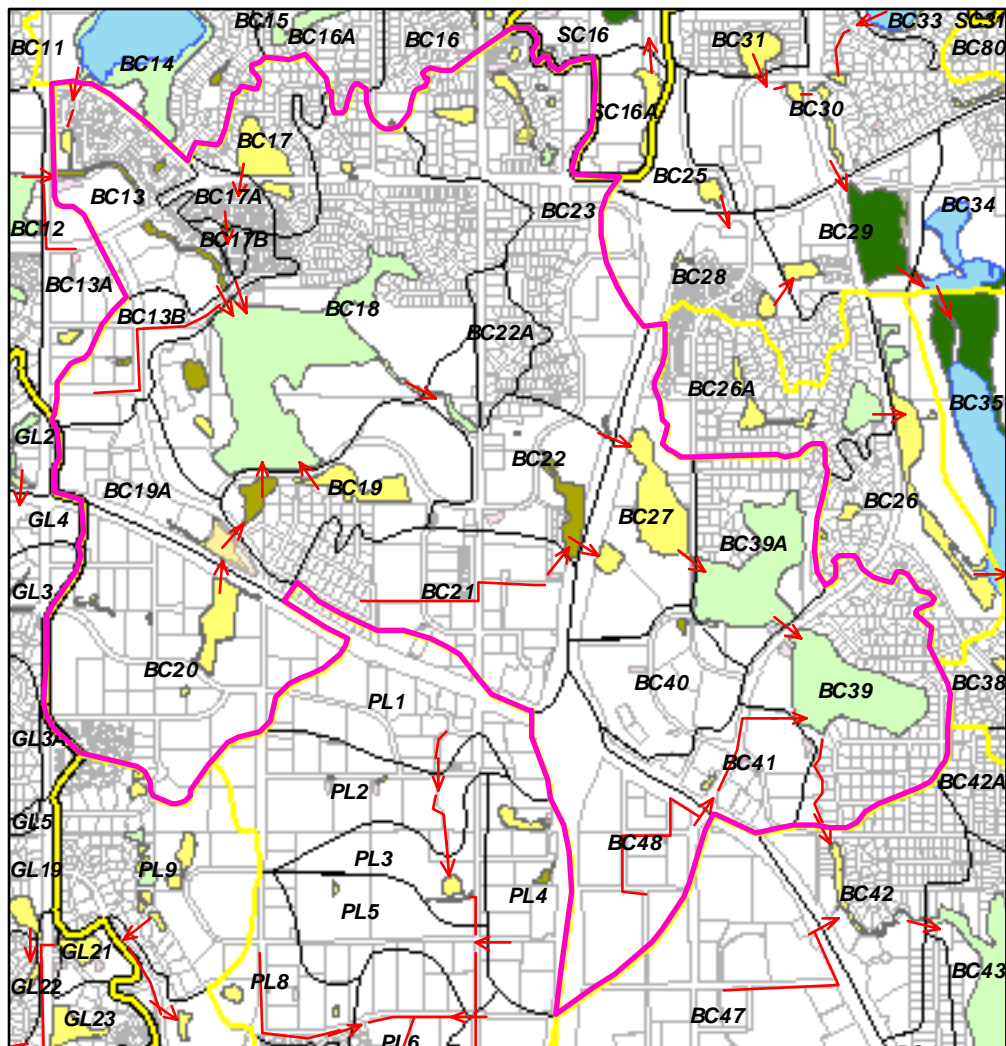


Figure 14
Turtle Lake
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|--|
|  Exceptional |  Storm Water Conveyance |
|  High |  Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

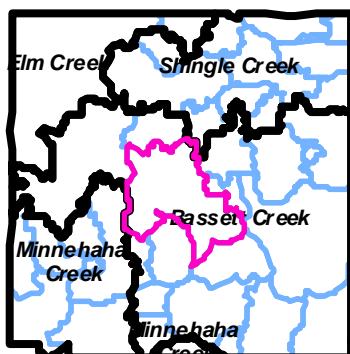
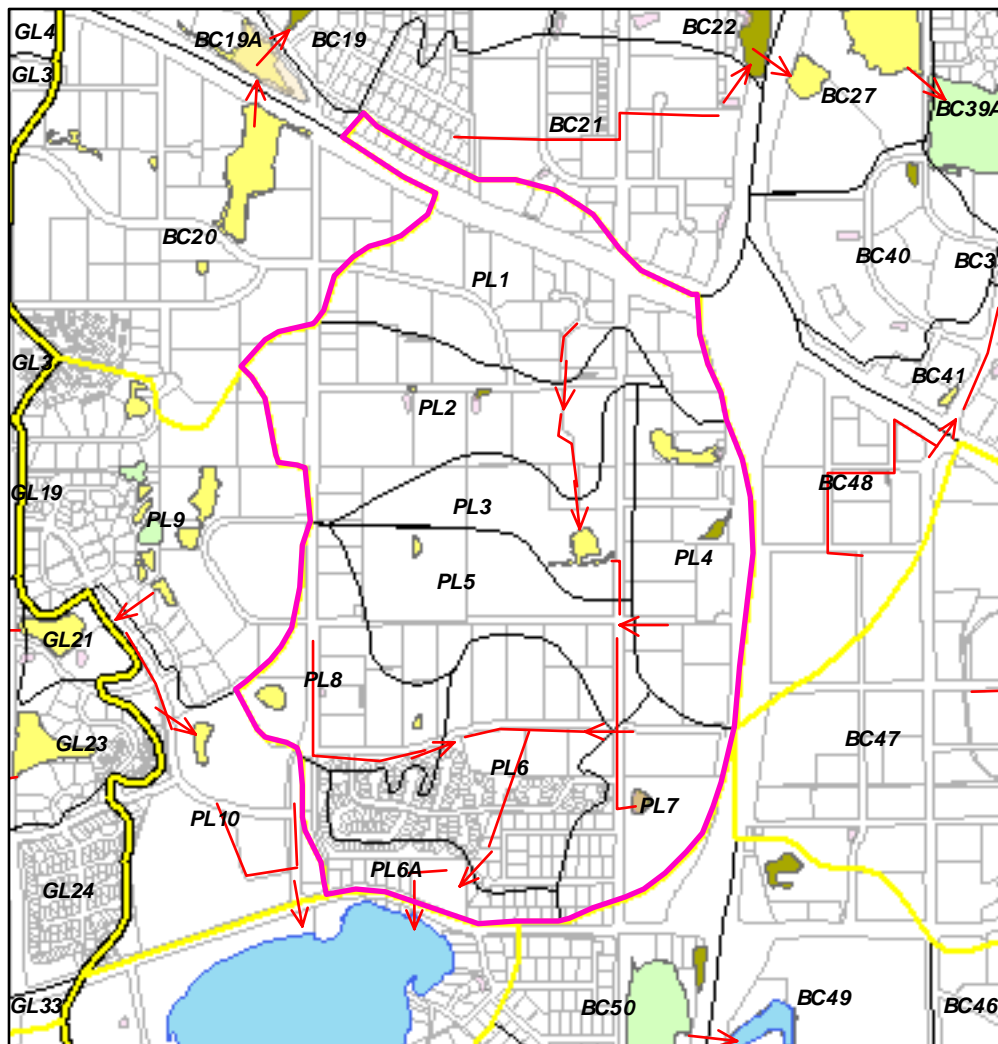


Figure 15
Middle Plymouth Creek
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|--|
|  Exceptional |  Storm Water Conveyance |
|  High |  Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

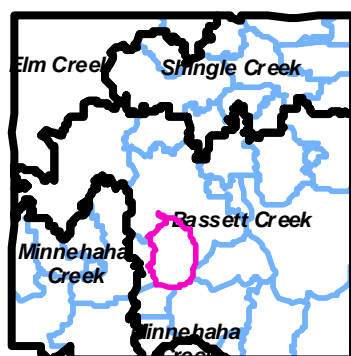
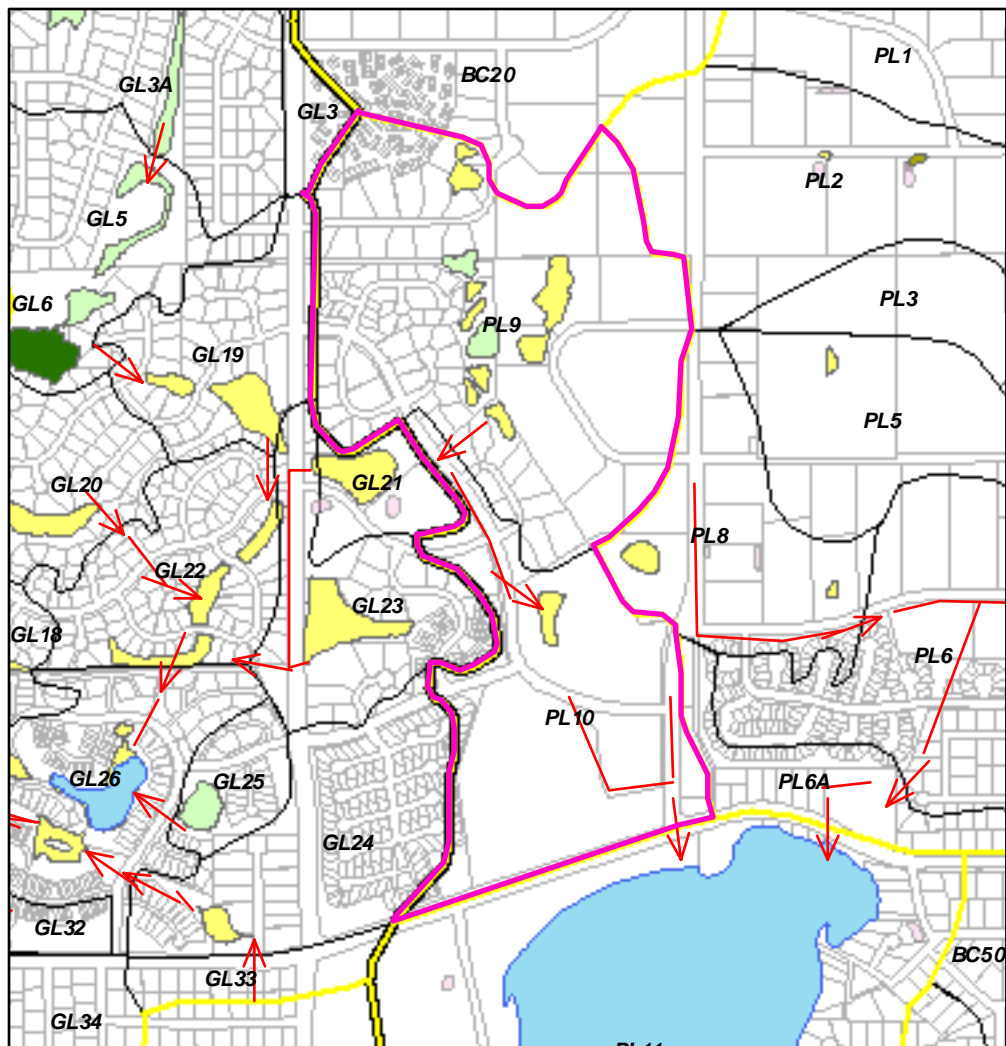


Figure 16
Fernbrook Lane
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

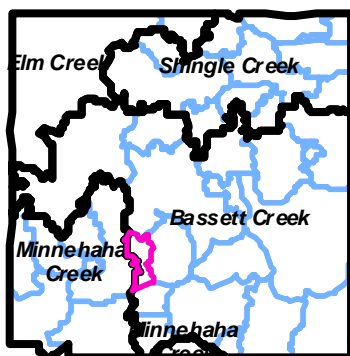
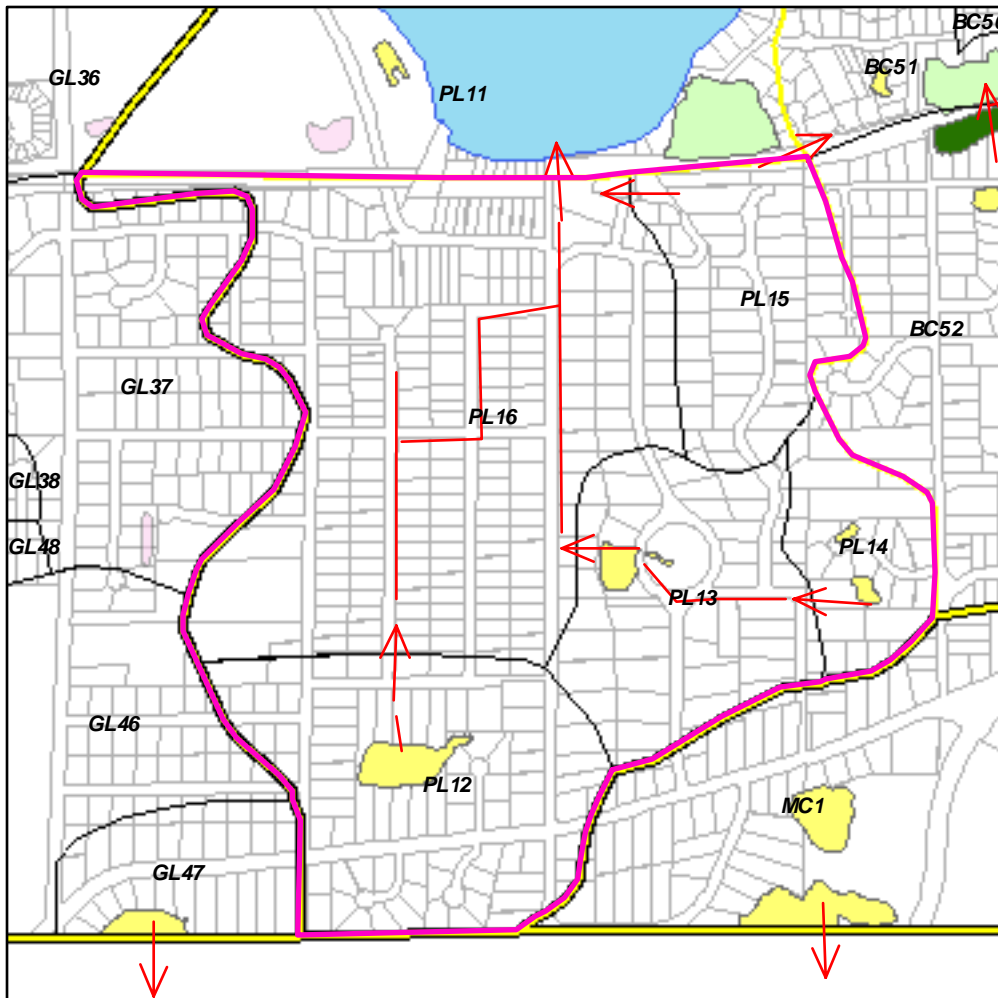


Figure 17
North Parkers Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

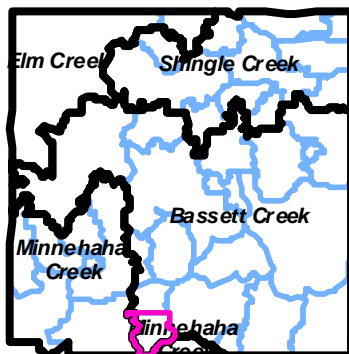
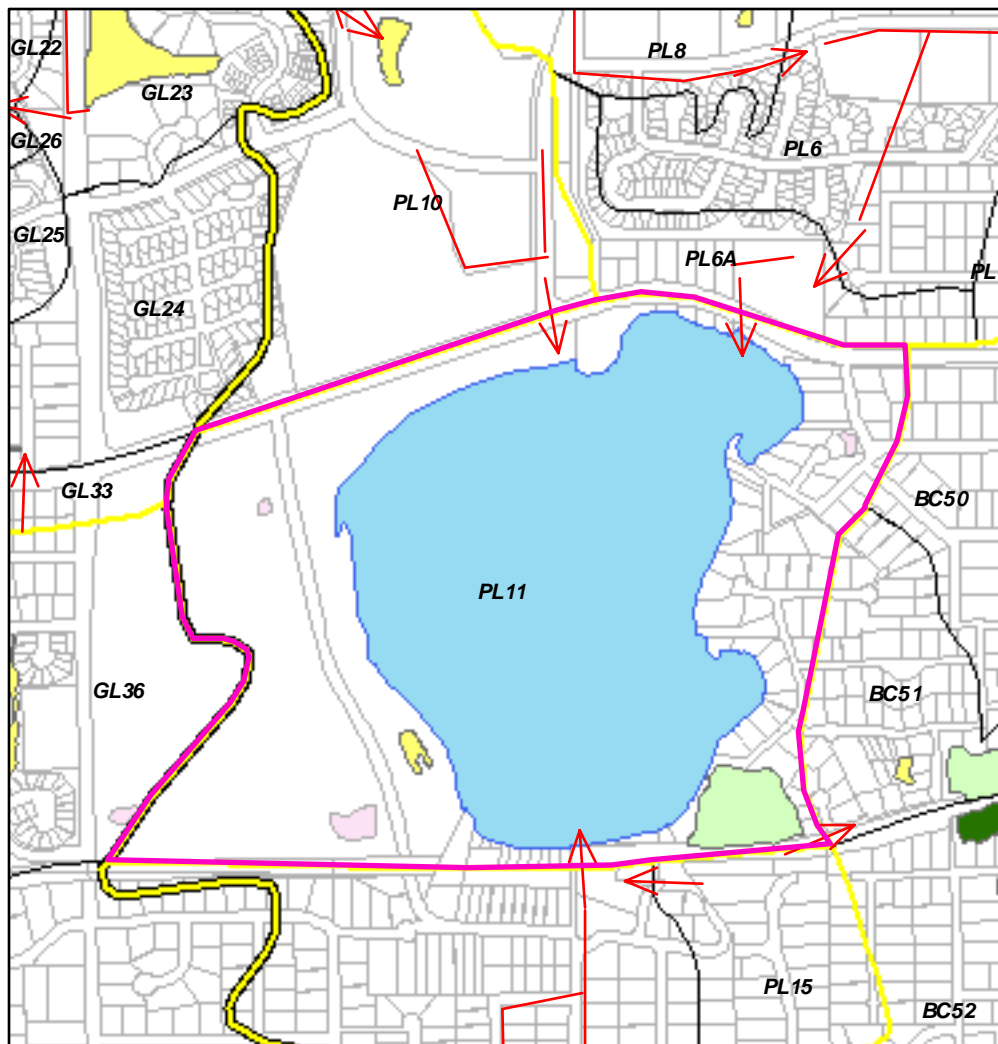


Figure 18
South Parkers Lake
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | | | |
|---|---------------------|---|------------------------|
|  | Exceptional |  | Storm Water Conveyance |
|  | High |  | Storm Water Districts |
|  | Medium |  | Watershed Districts |
|  | Low |  | Subwatershed Districts |
|  | Water Quality Ponds |  | Lakes |
|  | Wetland Mitigation | | |

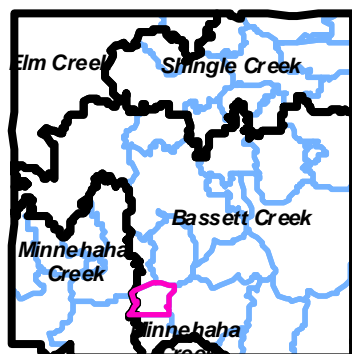
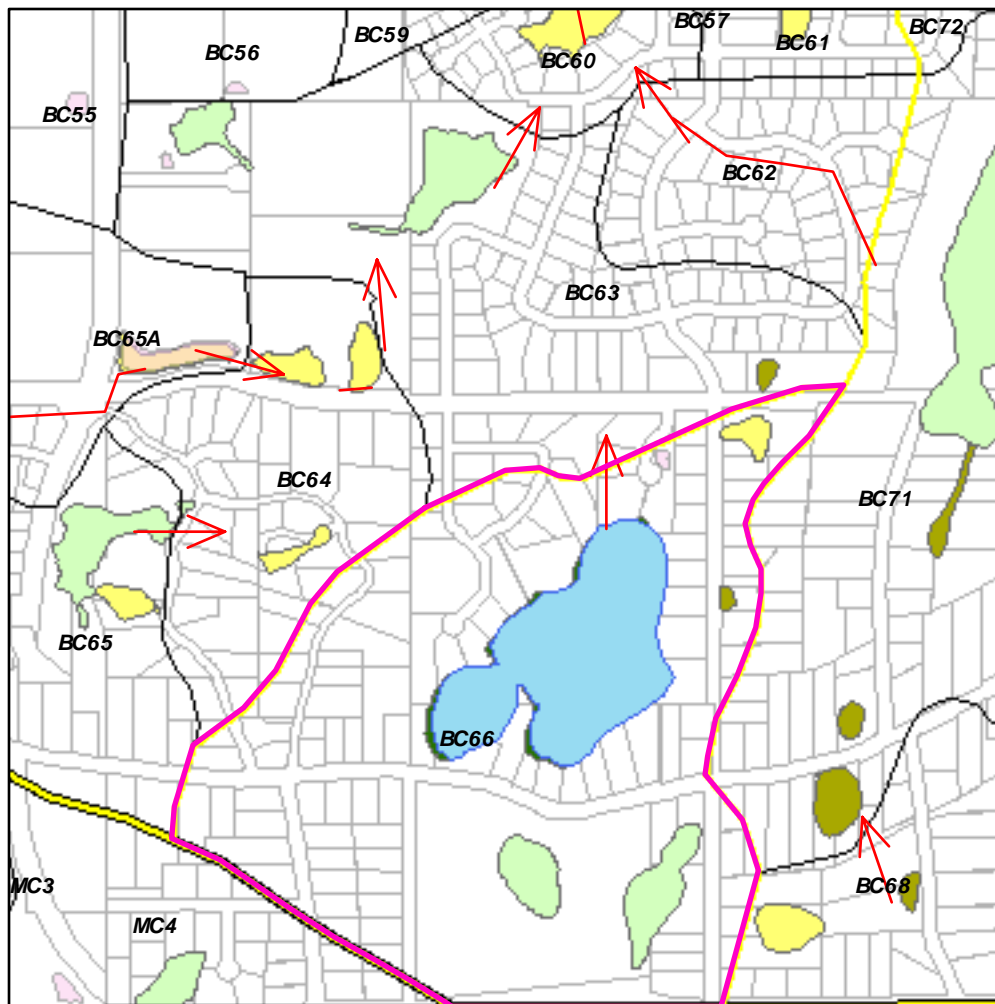


Figure 19
Parkers Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

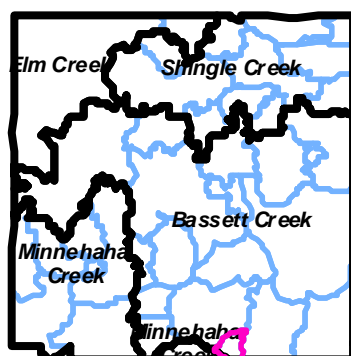
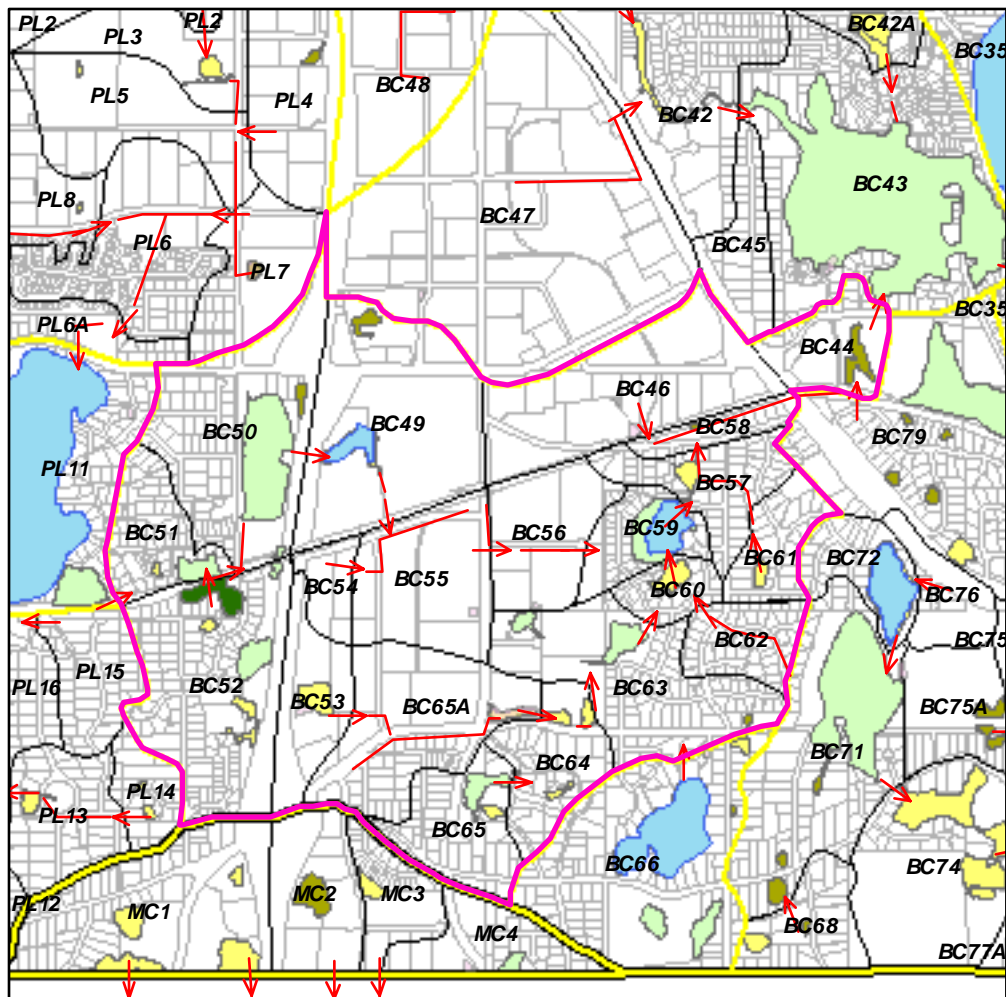


Figure 20
**Sunset Hill Pond/
Cavanaugh Lake
Subwatershed**



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---------------------|------------------------|
| Exceptional | Storm Water Conveyance |
| High | Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

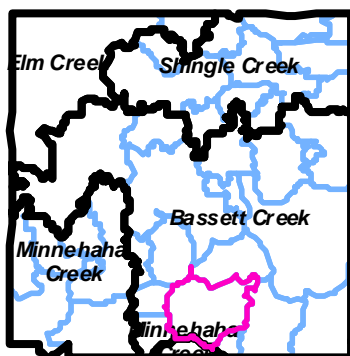
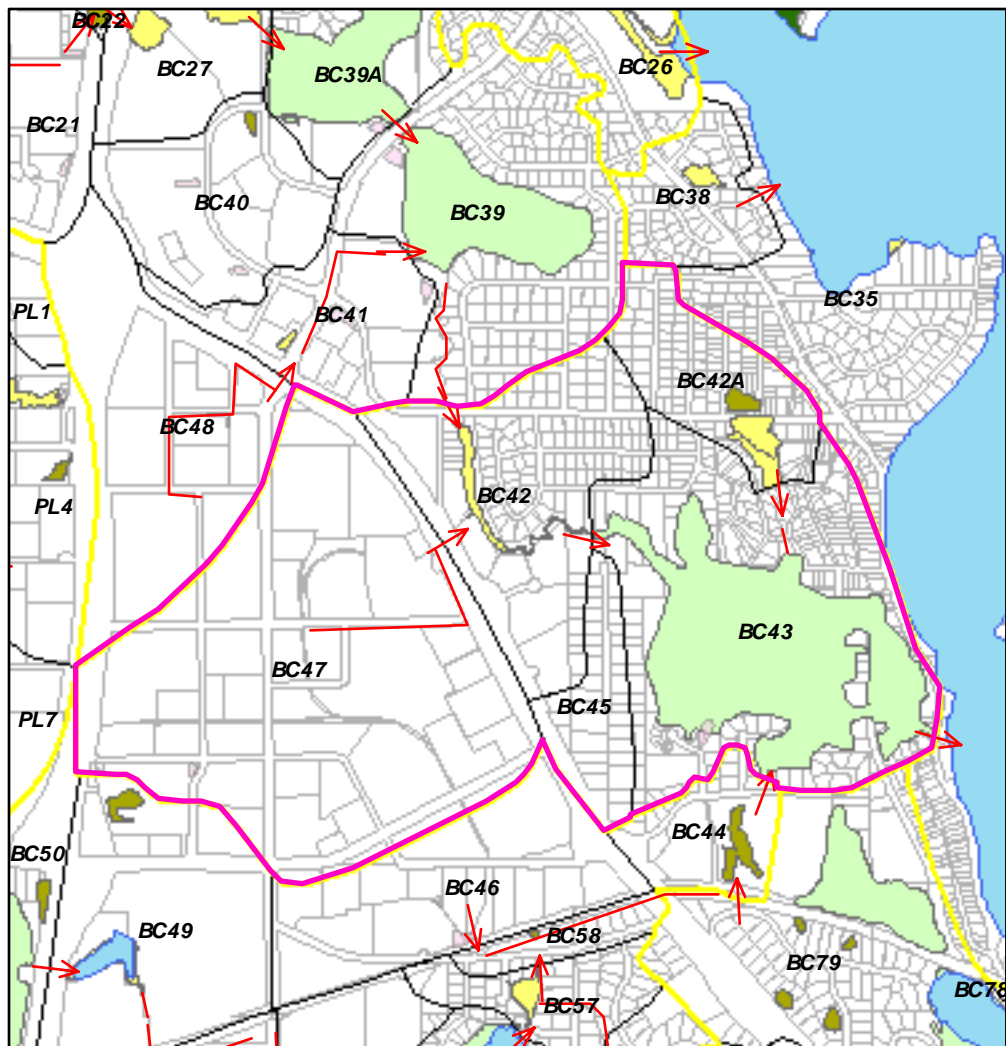


Figure 21
Plymouth Creek SW
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

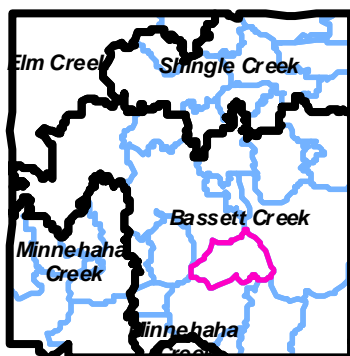
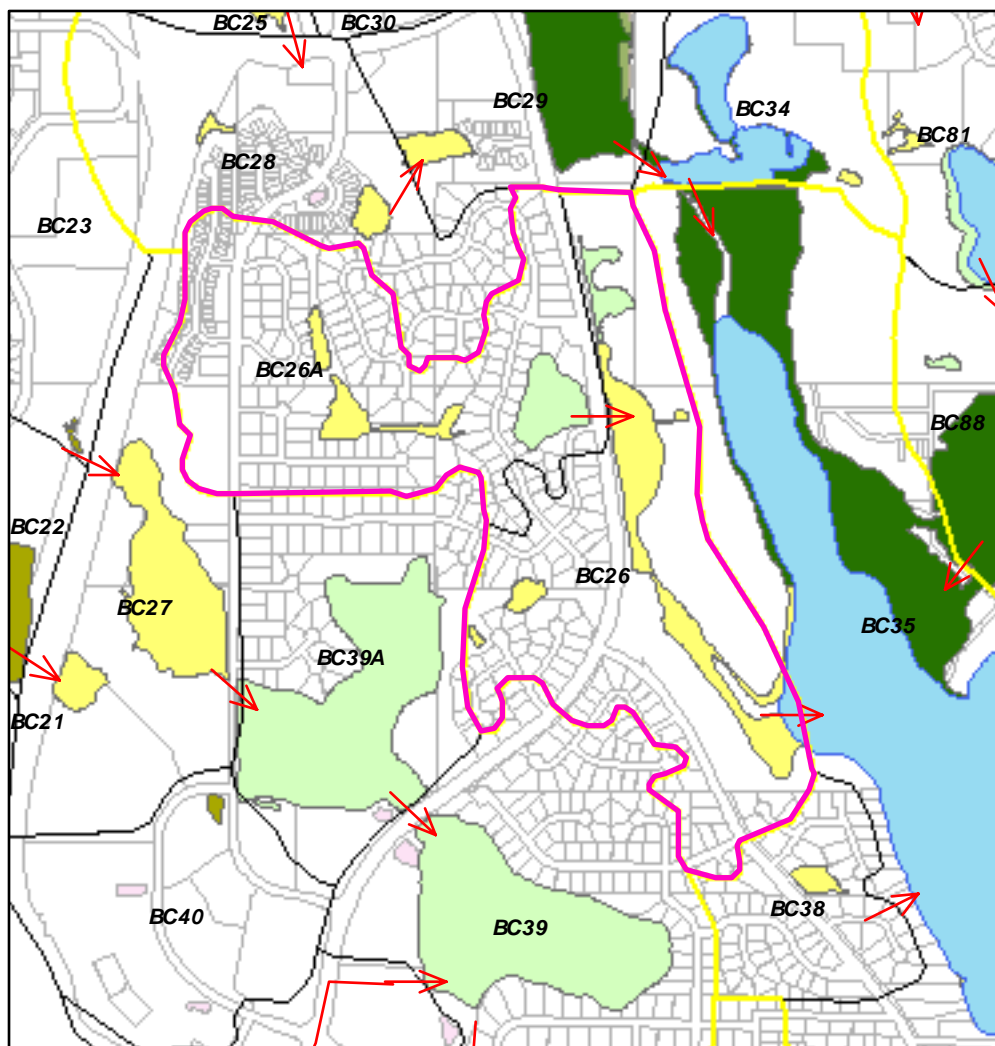


Figure 22
Lower Plymouth
Creek
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

	Exceptional		Storm Water Conveyance
	High		Storm Water Districts
	Medium		Watershed Districts
	Low		Subwatershed Districts
	Water Quality Ponds		Lakes
	Wetland Mitigation		

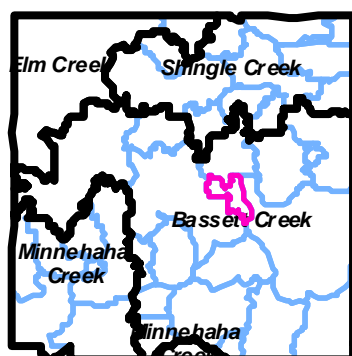
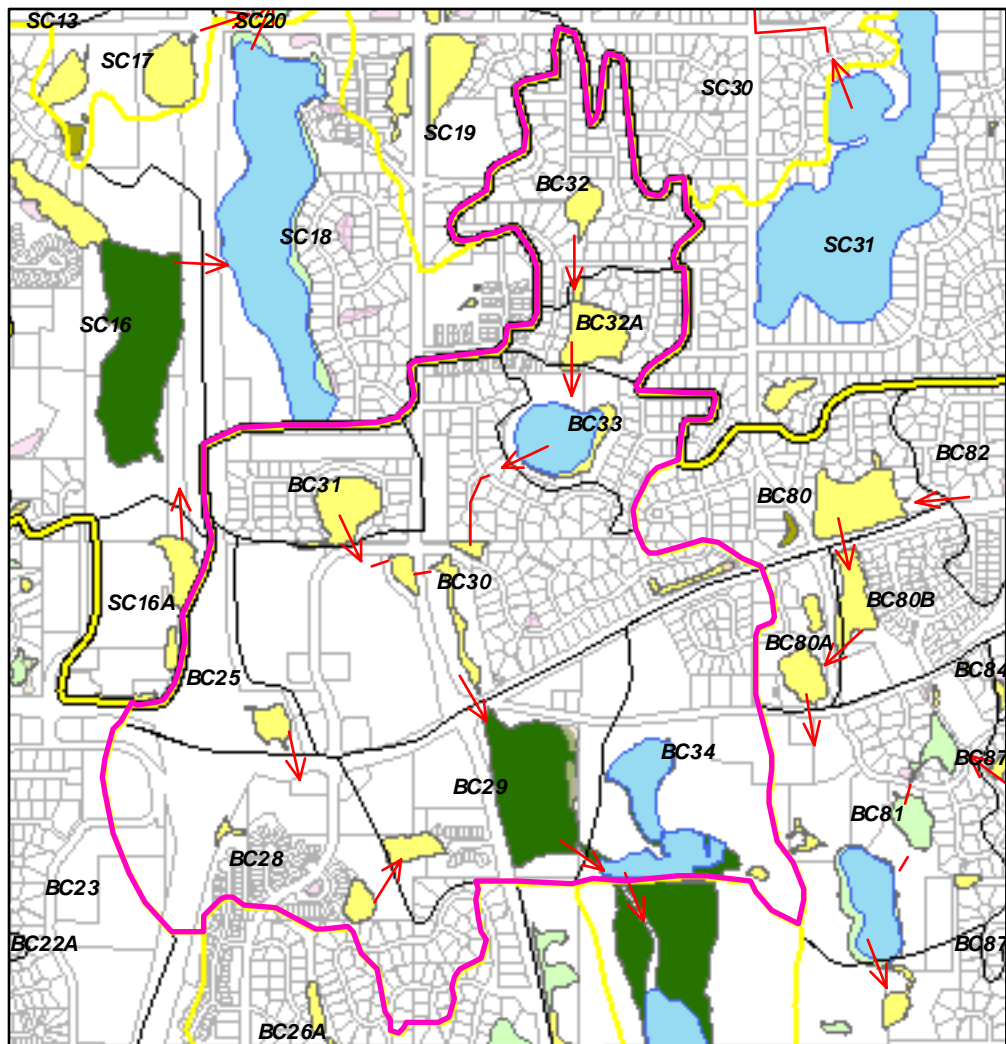


Figure 23
West Medicine Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---------------------|------------------------|
| Exceptional | Storm Water Conveyance |
| High | Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

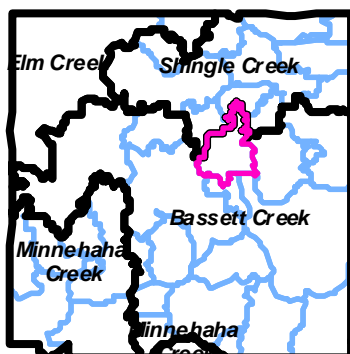
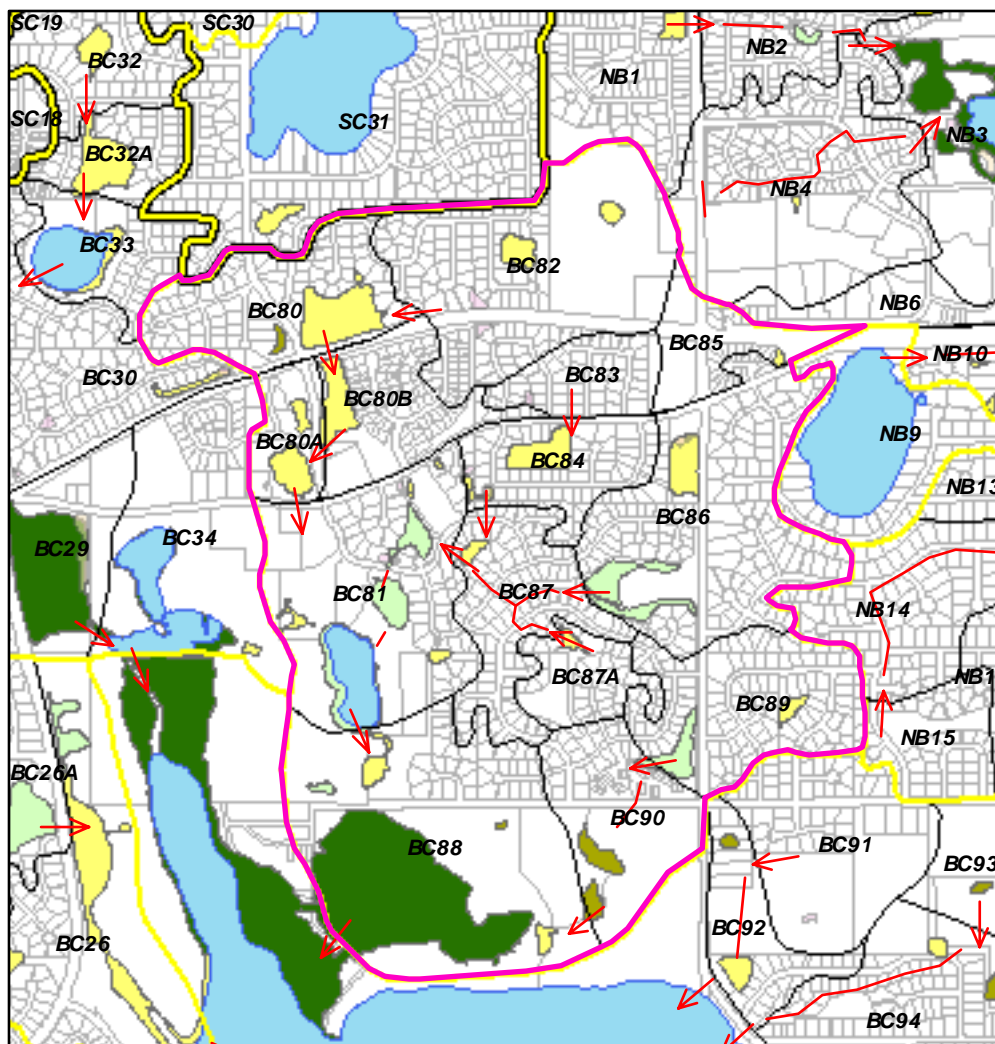


Figure 24
North Medicine Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

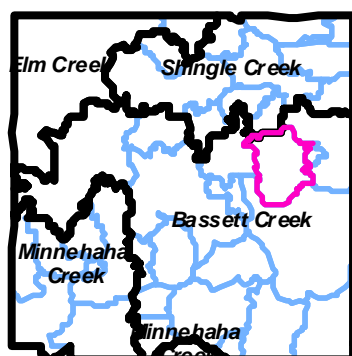
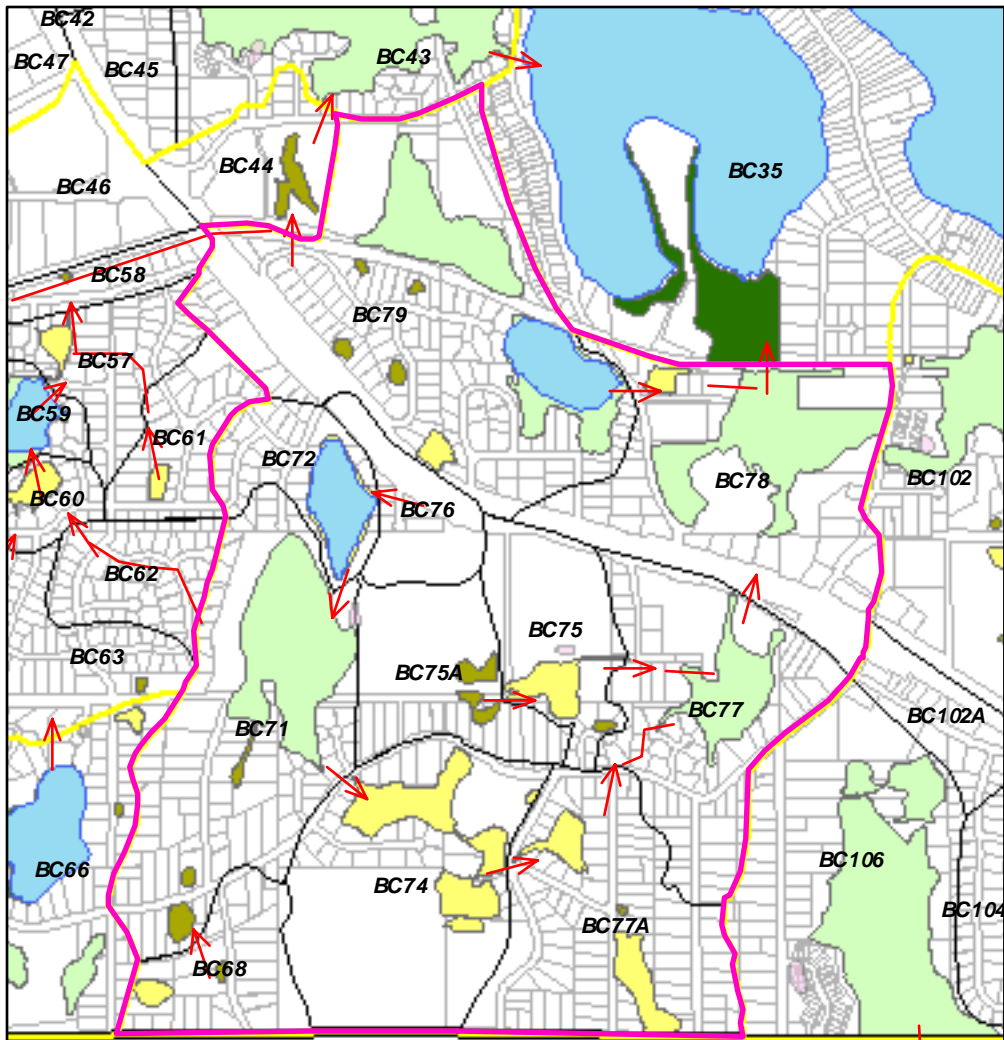


Figure 25
NE Medicine Lake
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|--|
|  Exceptional |  Storm Water Conveyance |
|  High |  Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

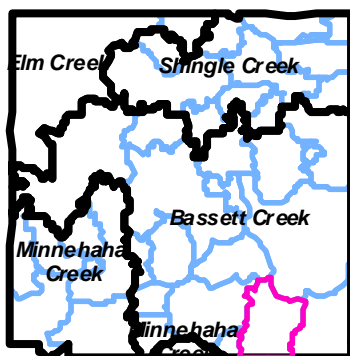


Figure 26
South Medicine Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan

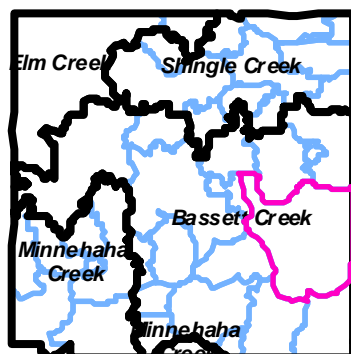
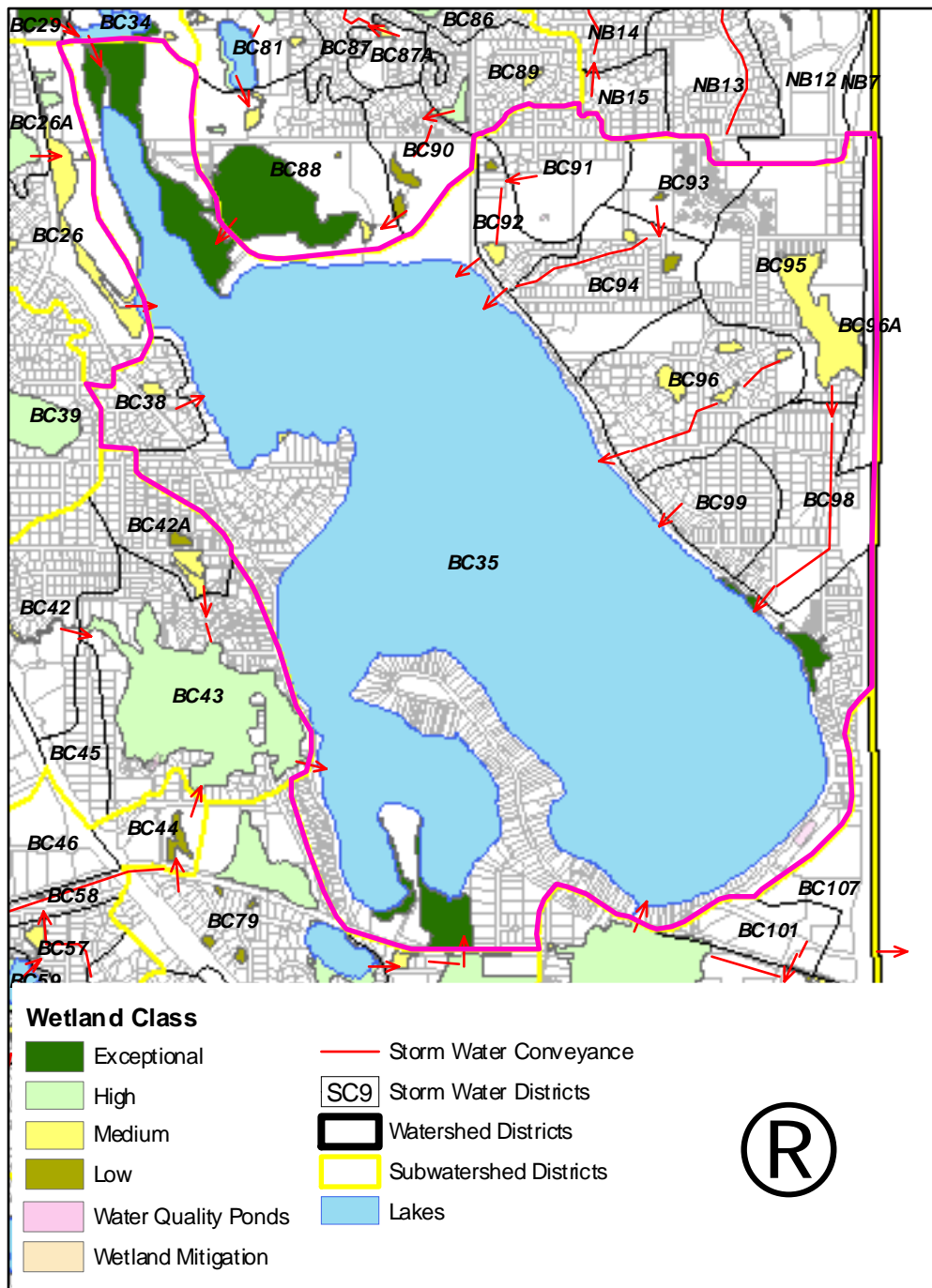
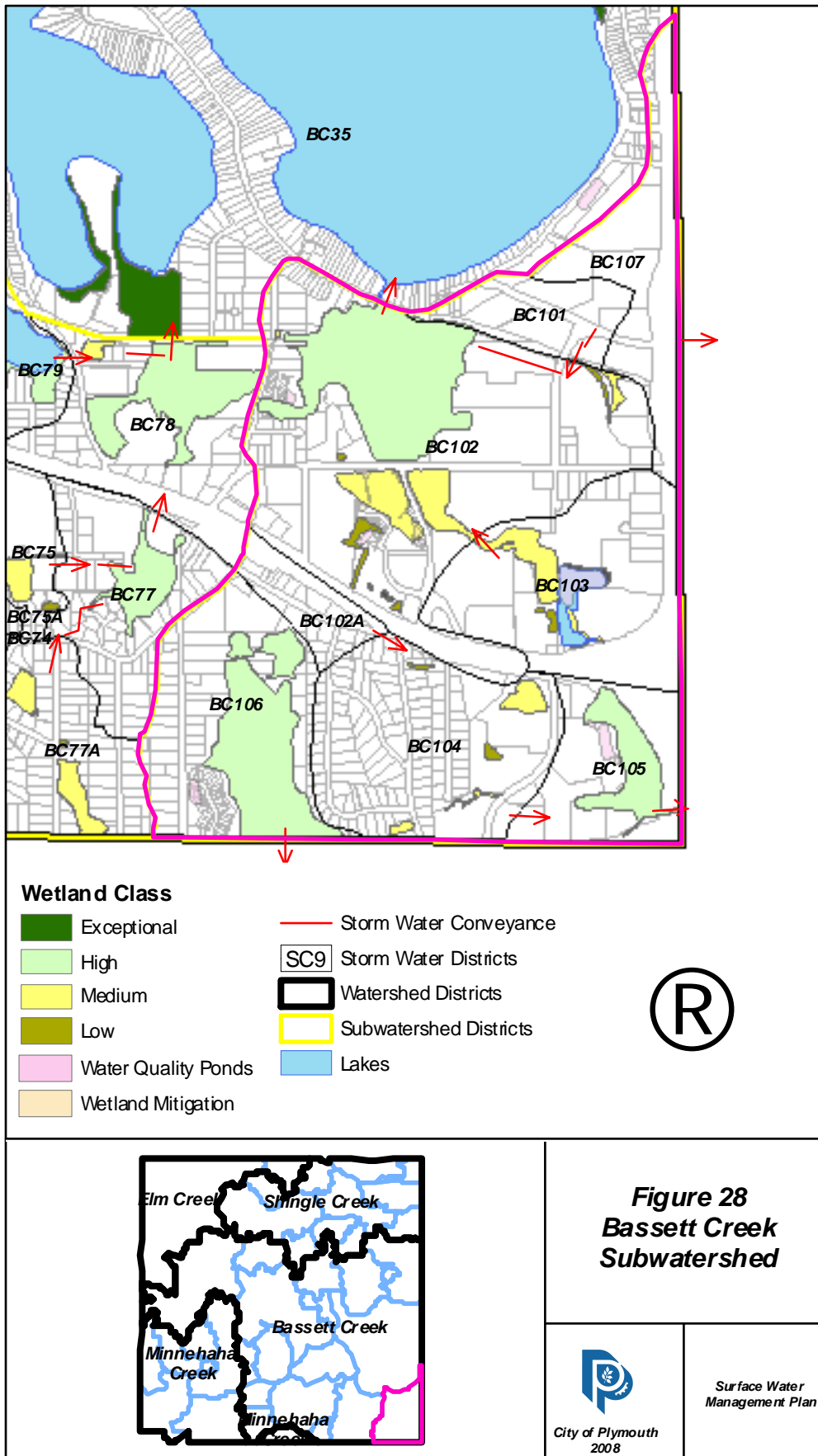


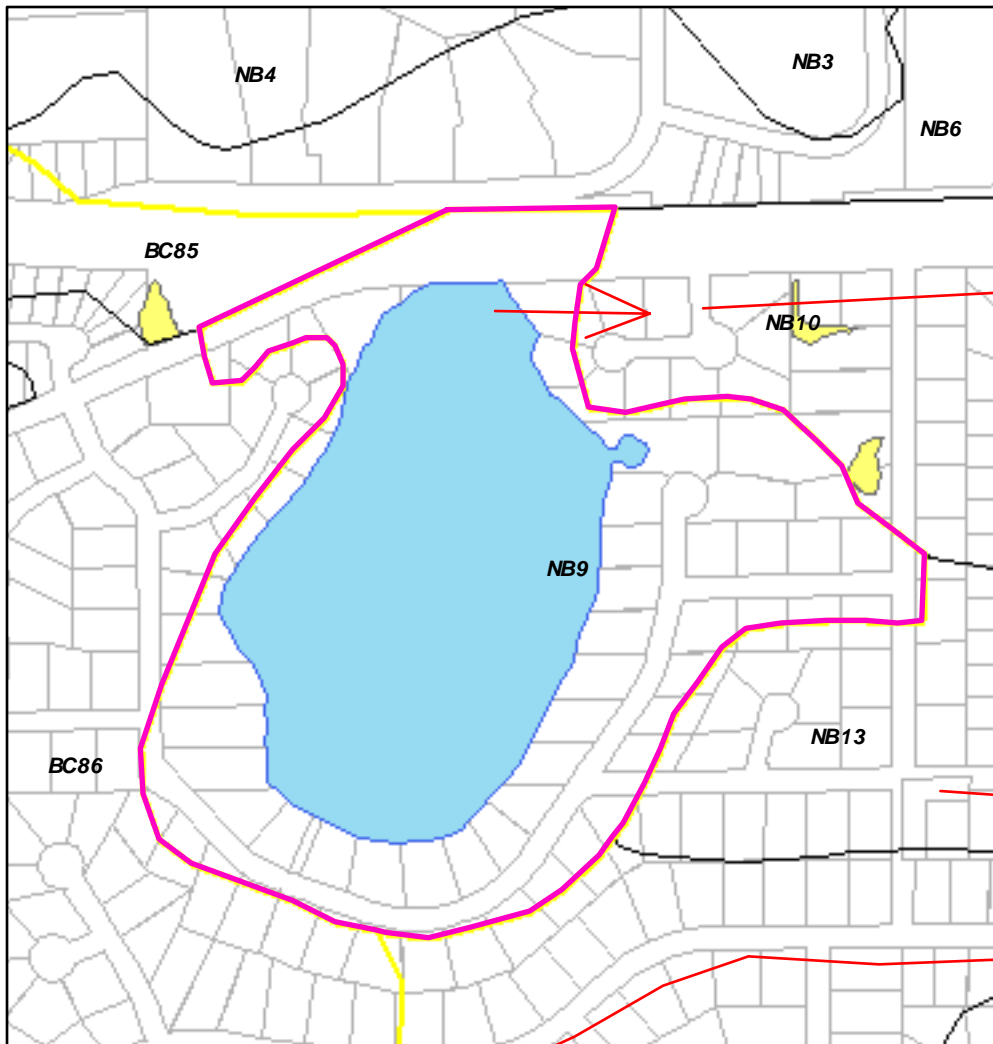
Figure 27
Medicine Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan





Wetland Class

- | | |
|---------------------|---------------------------|
| Exceptional | Storm Water Conveyance |
| High | SC9 Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

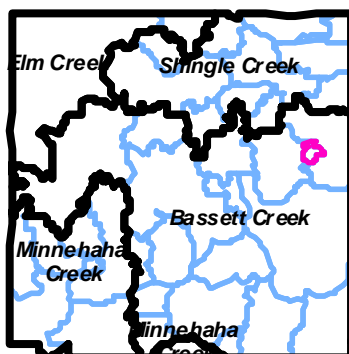
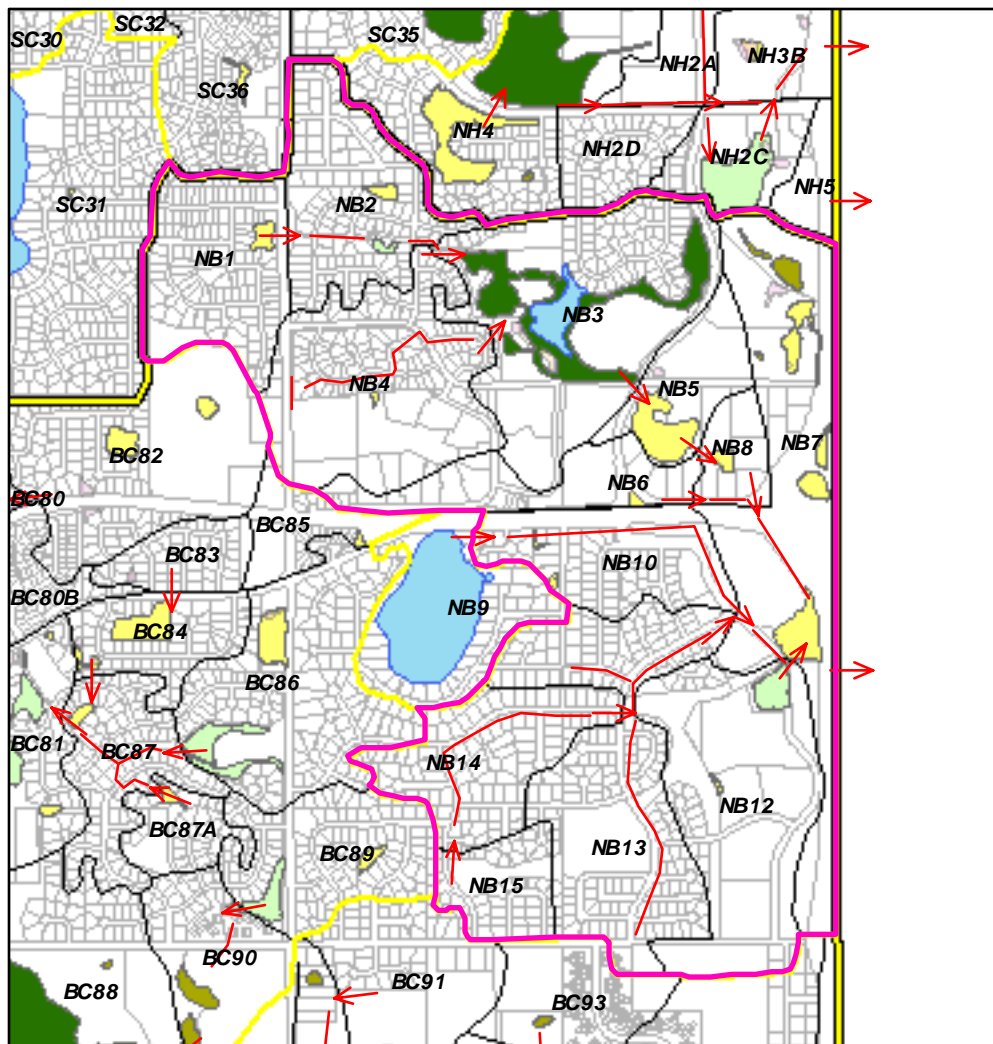


Figure 29
Lost Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---------------------|------------------------|
| Exceptional | Storm Water Conveyance |
| High | Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

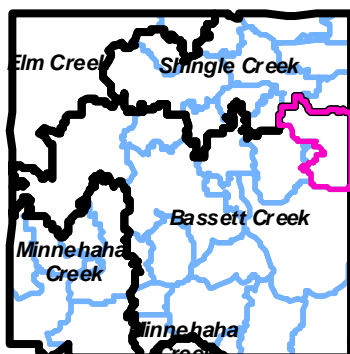


Figure 30
North Branch
Subwatershed

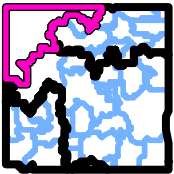
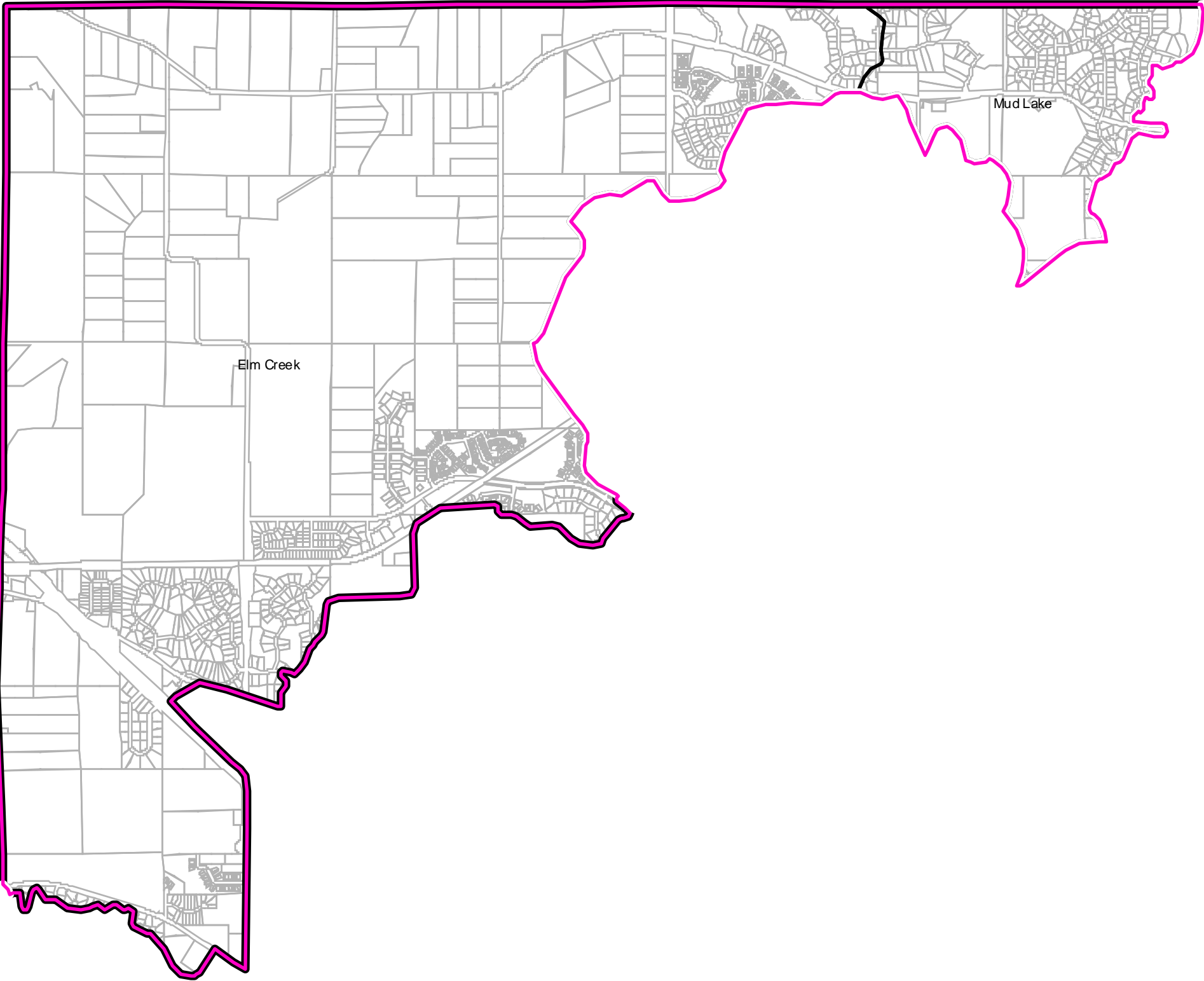


City of Plymouth
2008

Surface Water
Management Plan

**Figure 31
Elm Creek
Subwatersheds**

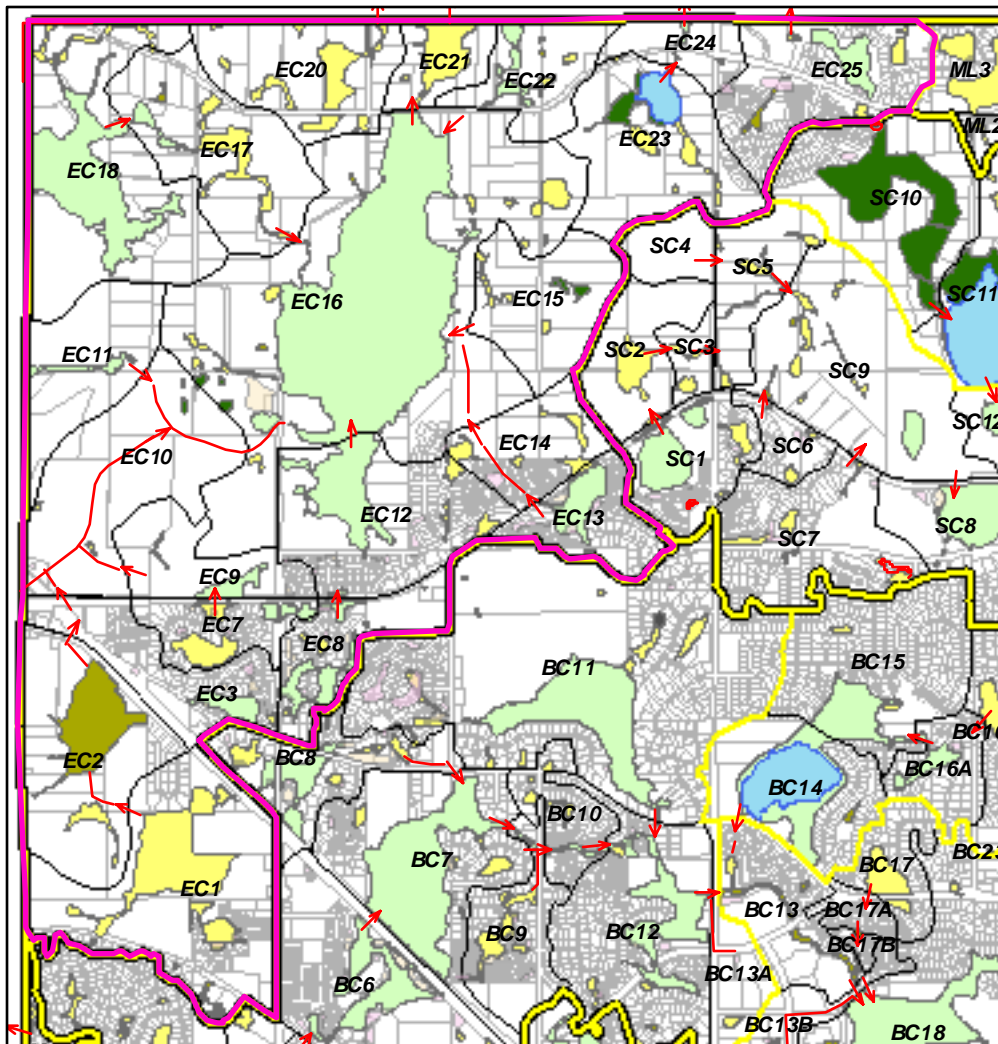
Ⓡ



**Surface Water
Management Plan**



**City of Plymouth
2008**



Wetland Class

- | | |
|---------------------|------------------------|
| Exceptional | Storm Water Conveyance |
| High | Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

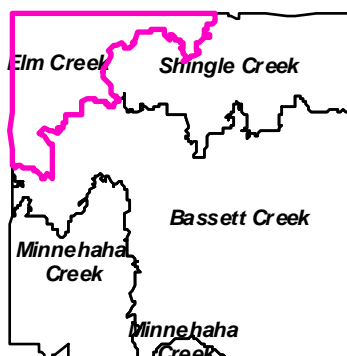
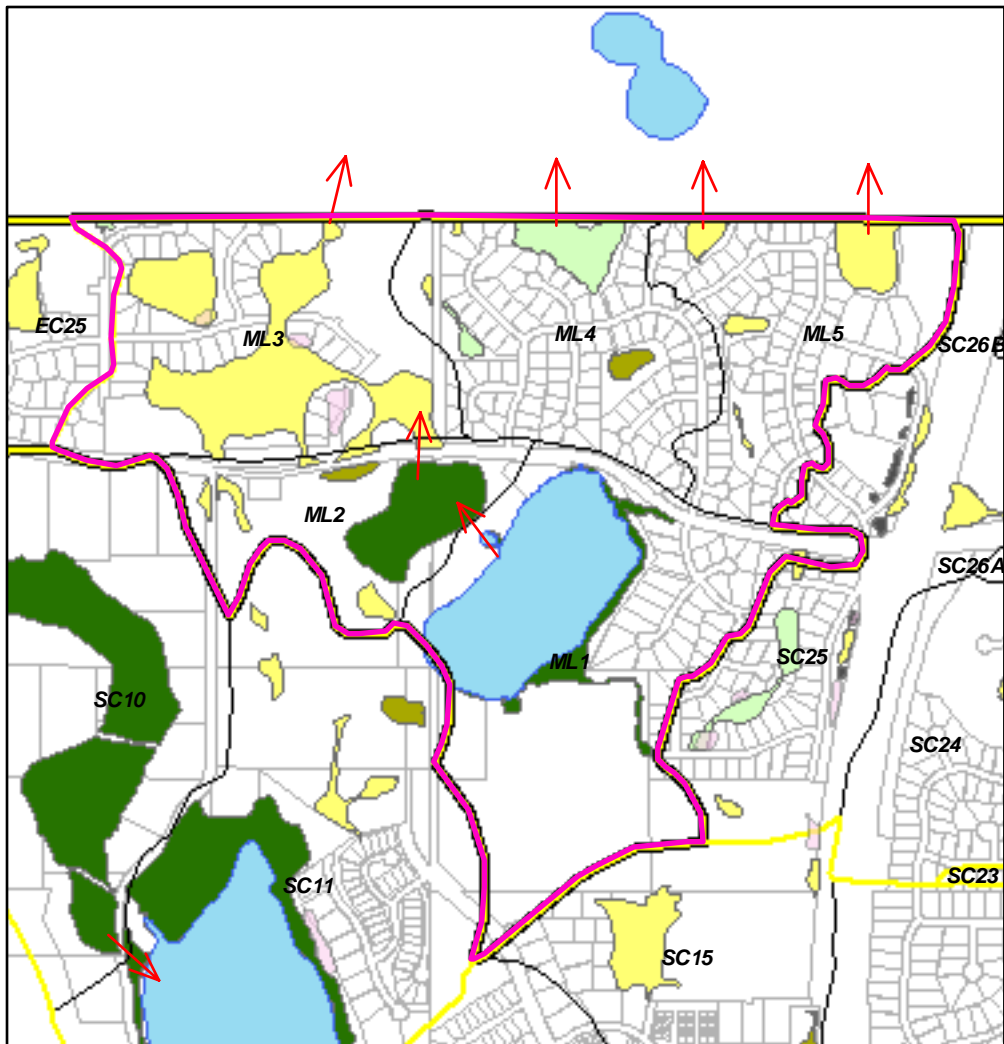


Figure 32
Elm Creek
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---------------------|------------------------|
| Exceptional | Storm Water Conveyance |
| High | Storm Water Districts |
| Medium | Watershed Districts |
| Low | Subwatershed Districts |
| Water Quality Ponds | Lakes |
| Wetland Mitigation | |

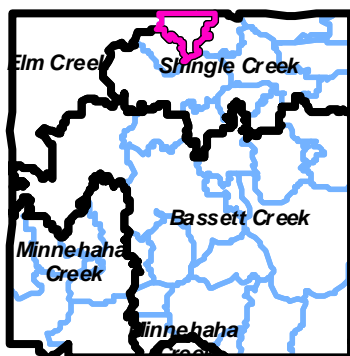


Figure 33
Lake Camelot
Subwatershed

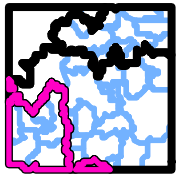


City of Plymouth
2008

Surface Water
Management Plan

Figure 34
Minnehaha Creek
Subwatersheds

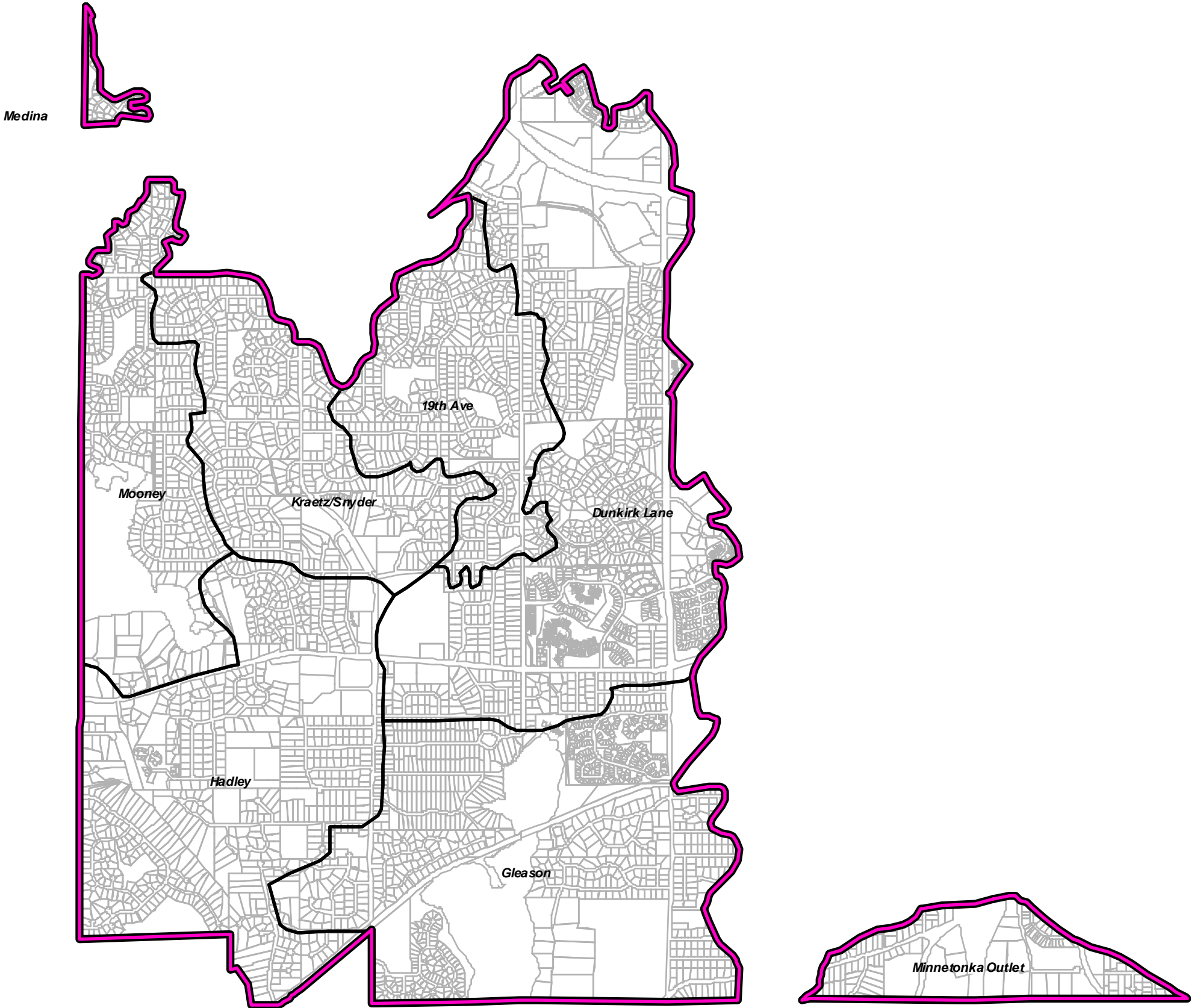
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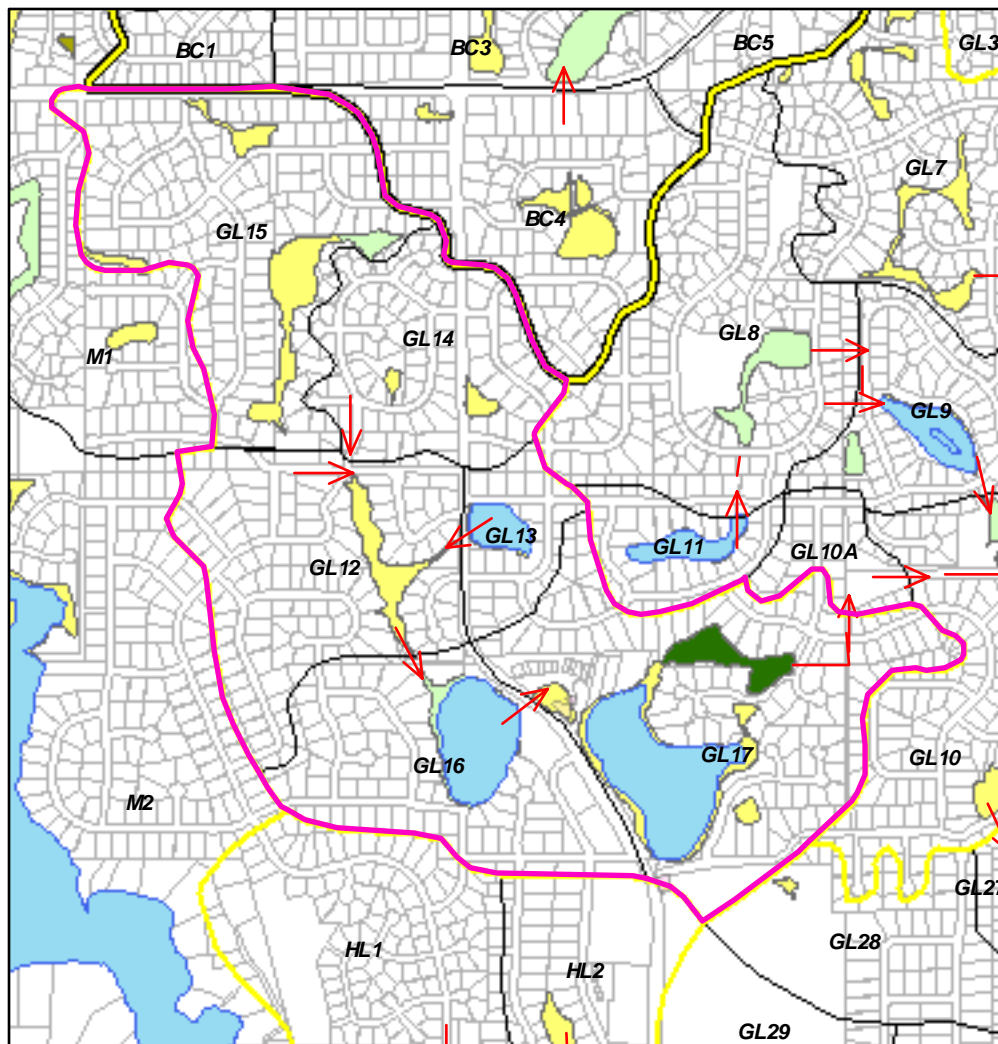


Surface Water
Management Plan














City of Plymouth
2008





Wetland Class

- | | |
|---|---|
|  Exceptional |  Storm Water Conveyance |
|  High |  SC9 Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

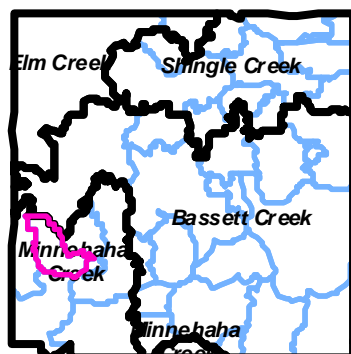
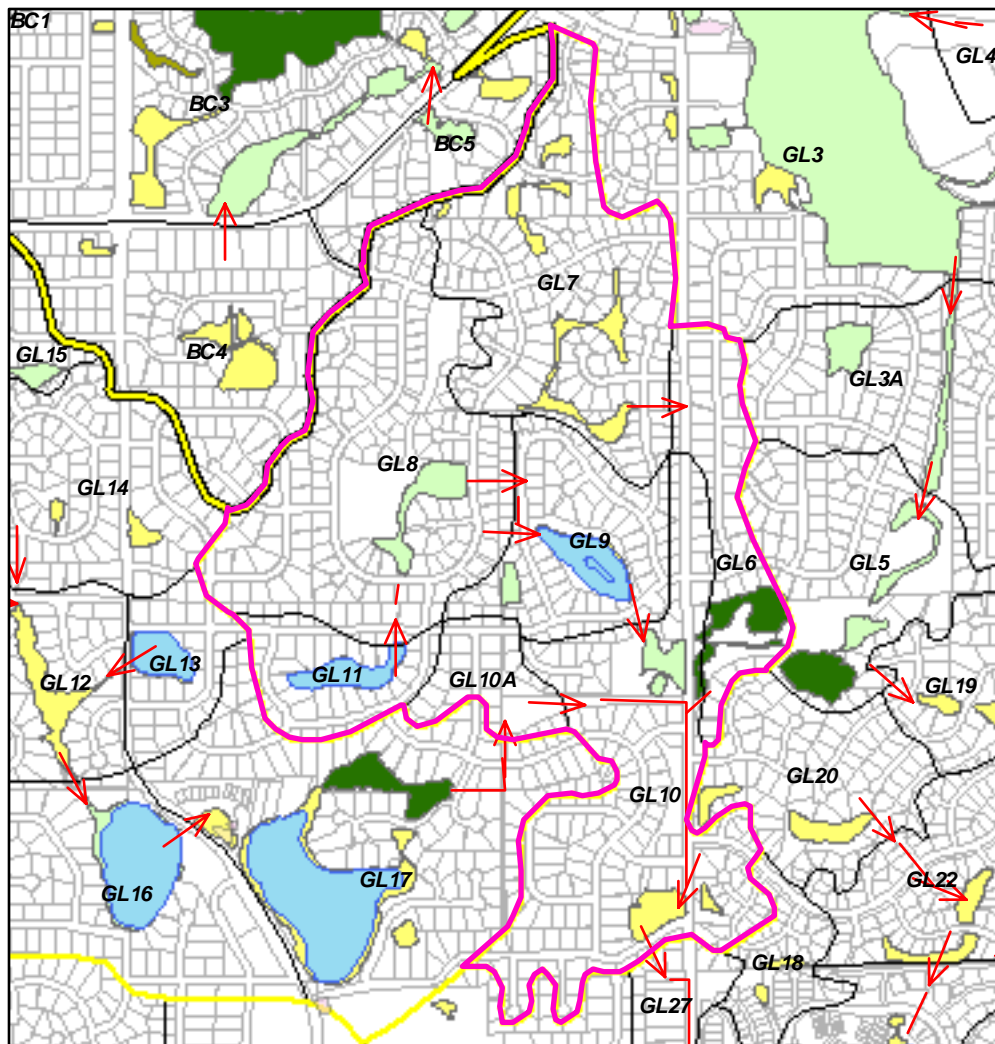


Figure 35
Kraetz/Snyder Lake
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|--|
|  Exceptional |  Storm Water Conveyance |
|  High |  Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

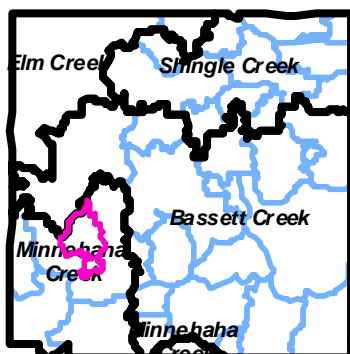
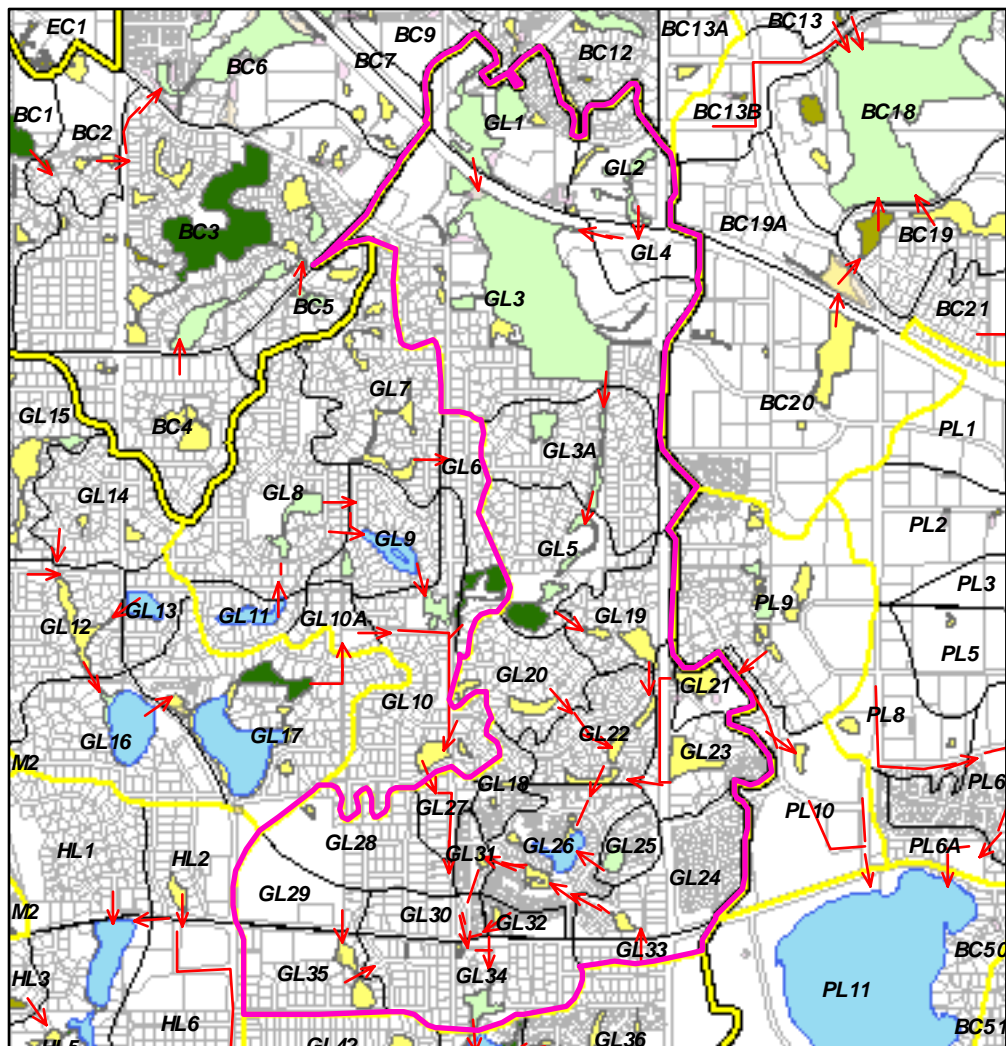


Figure 36
19th Ave
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation



Storm Water Conveyance

Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

BAP

Catch Basin

Catch Basin Man Hole

EAP

Lift Station

Man Hole

Sump Man Hole

Weld

Pipe Direction

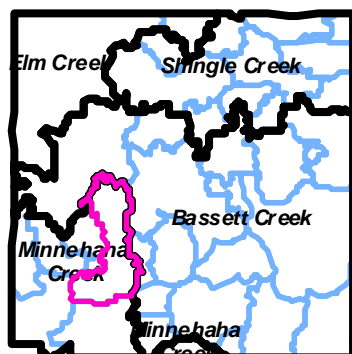
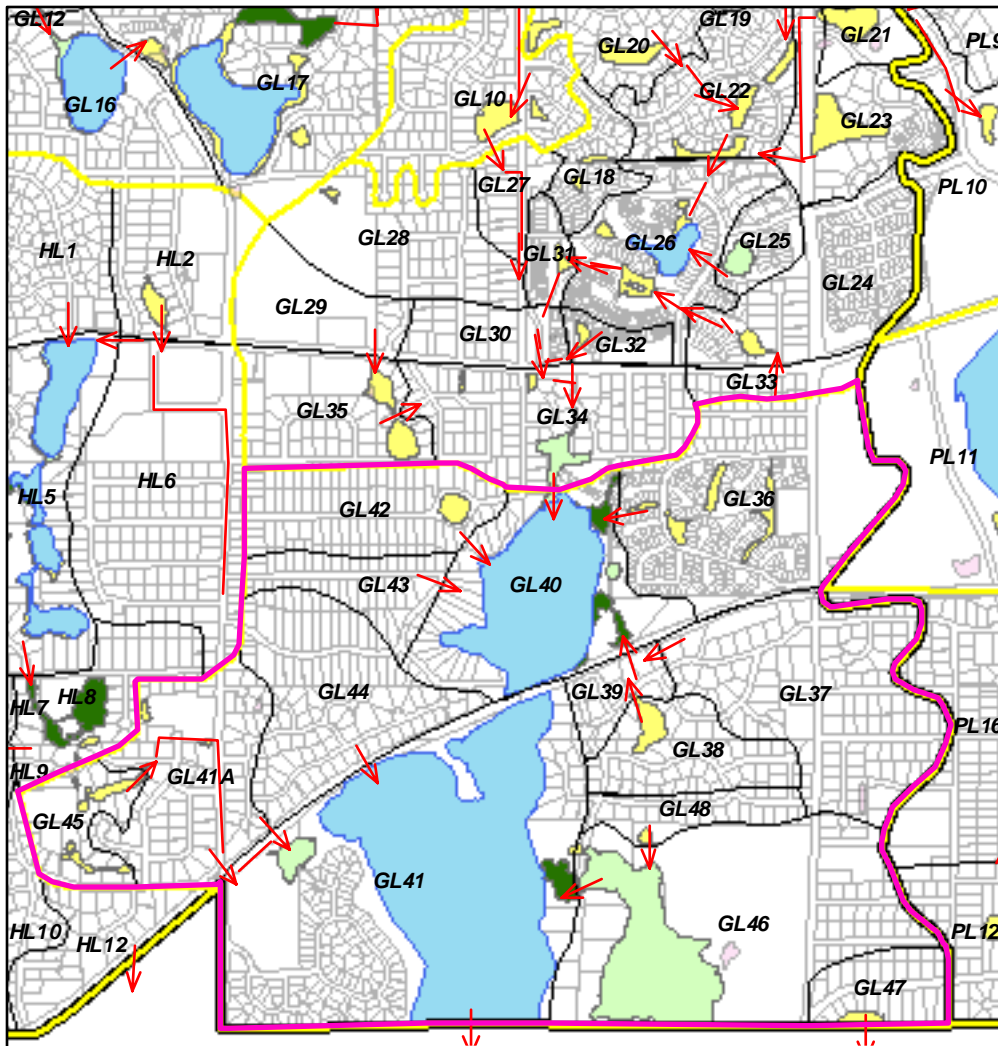


Figure 37
Dunkirk Lane
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

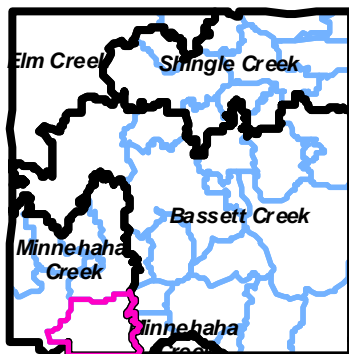
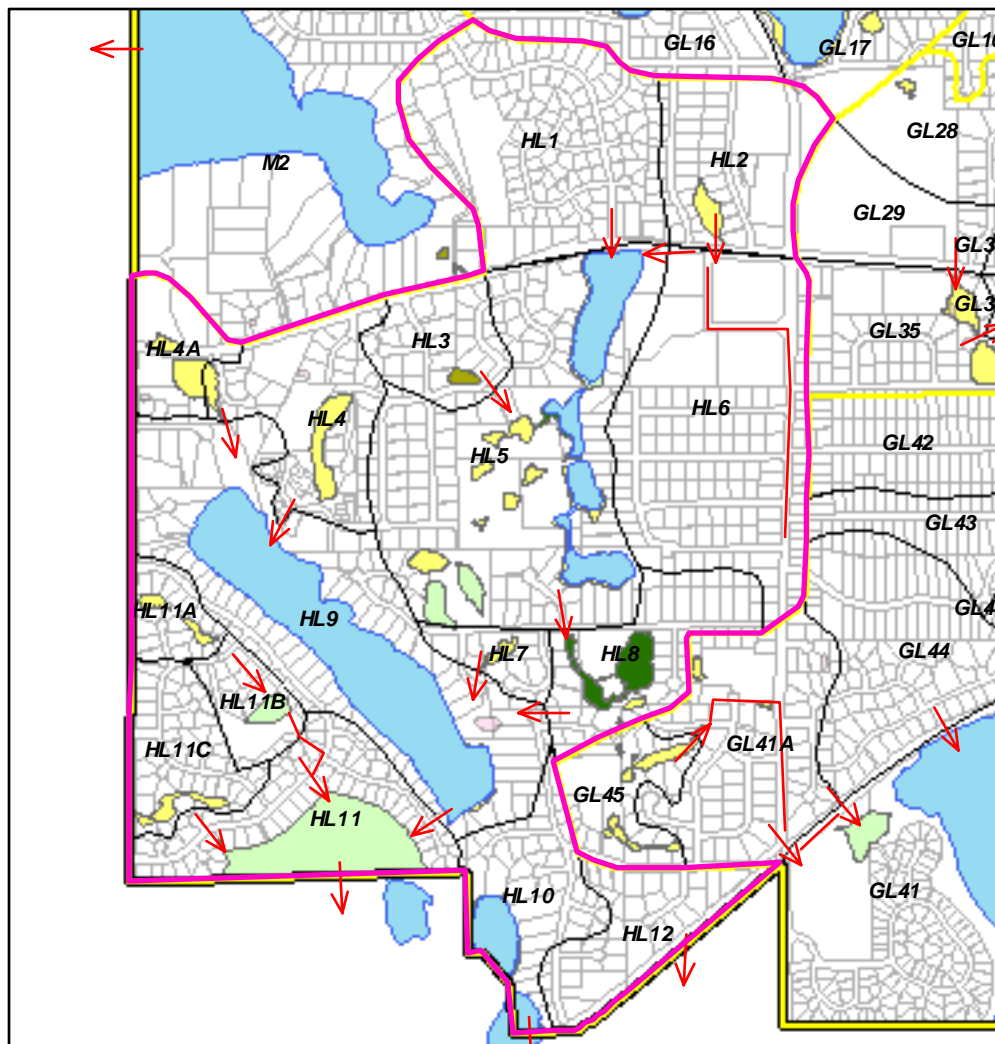


Figure 38
Gleason Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

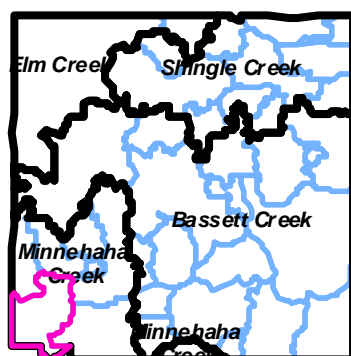
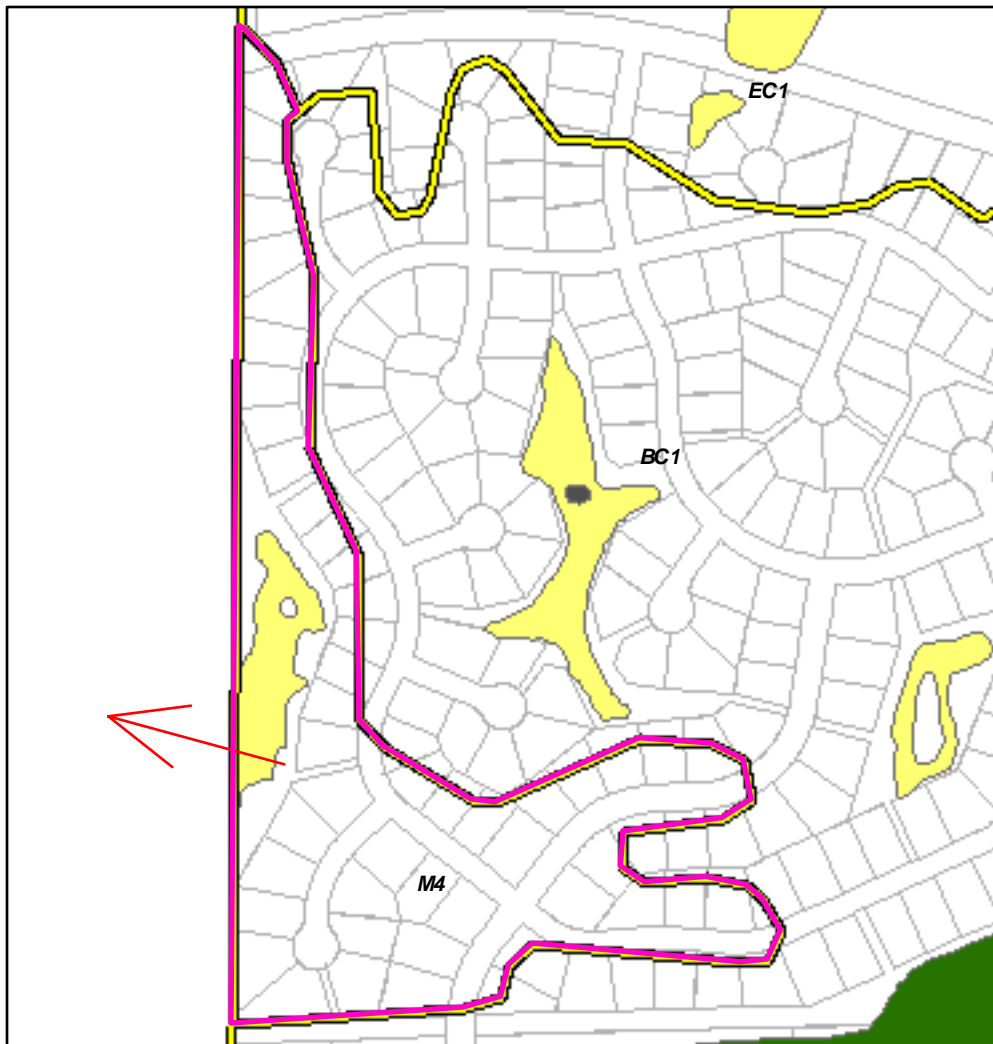


Figure 39
Hadley Lake
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|---|
|  Exceptional |  Storm Water Conveyance |
|  High |  SC9 Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

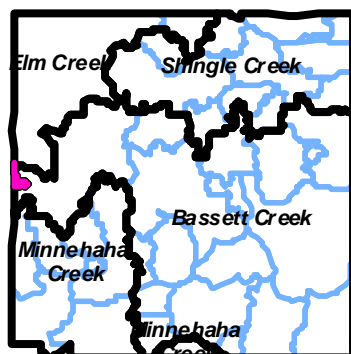
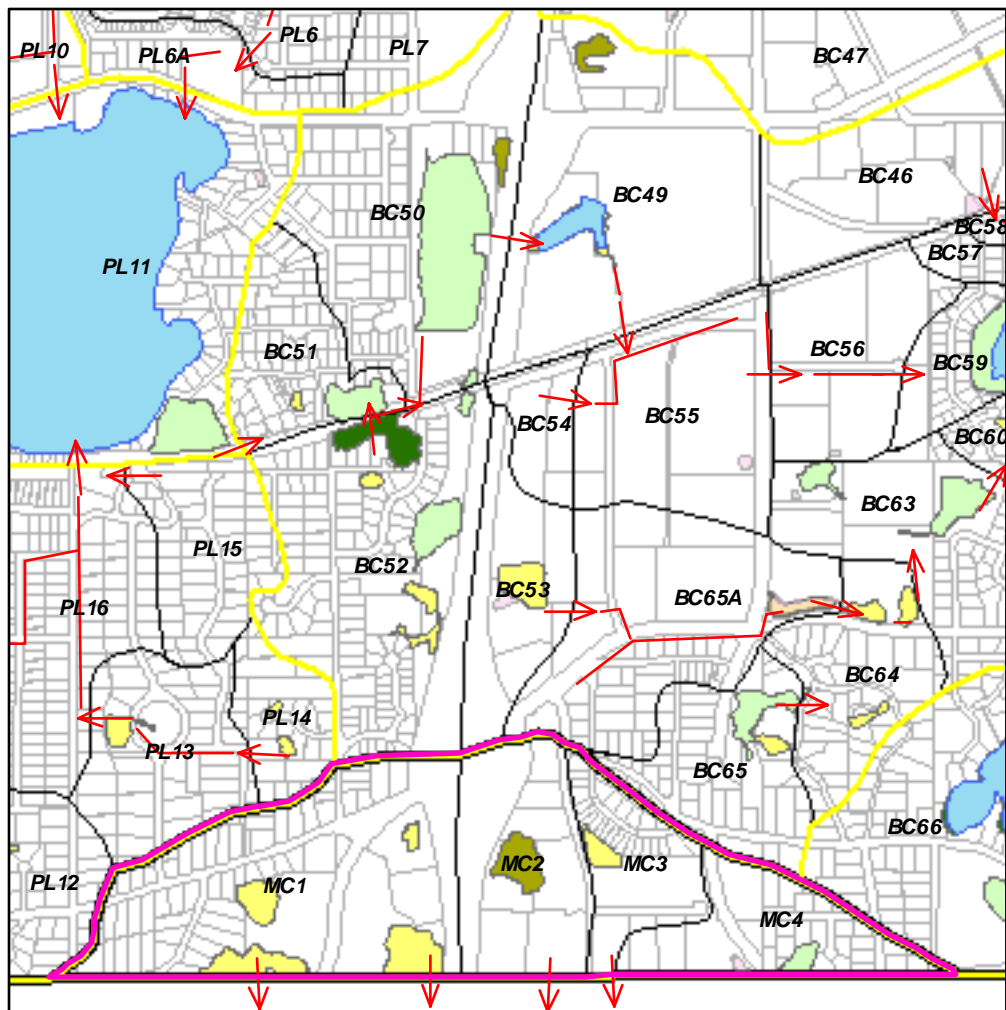


Figure 40
Medina
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

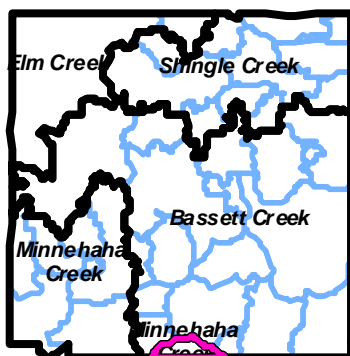
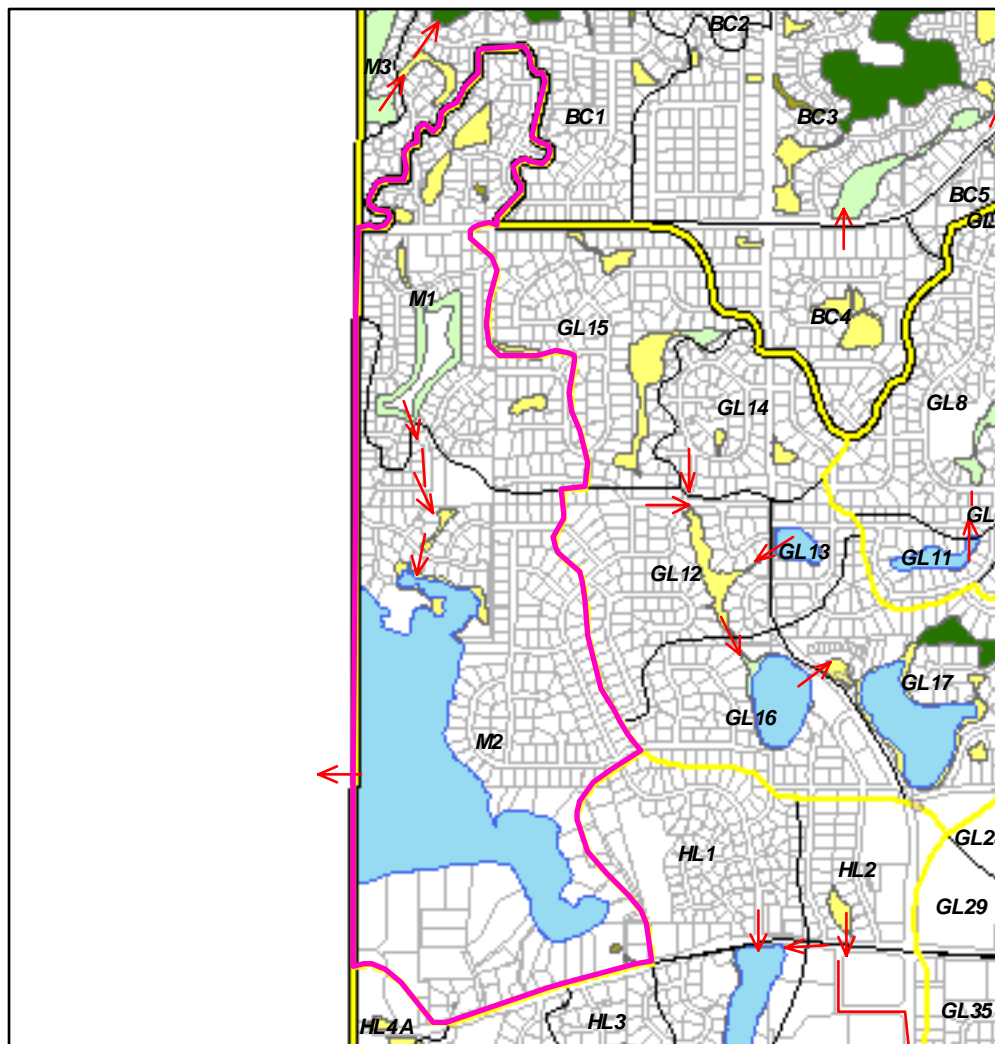


Figure 41
Minnetonka Outlet
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

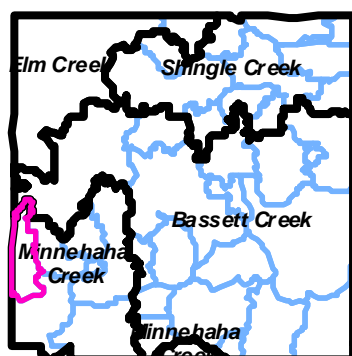


Figure 42
Mooney Lake
Subwatershed

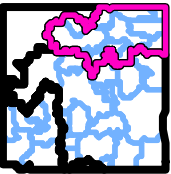
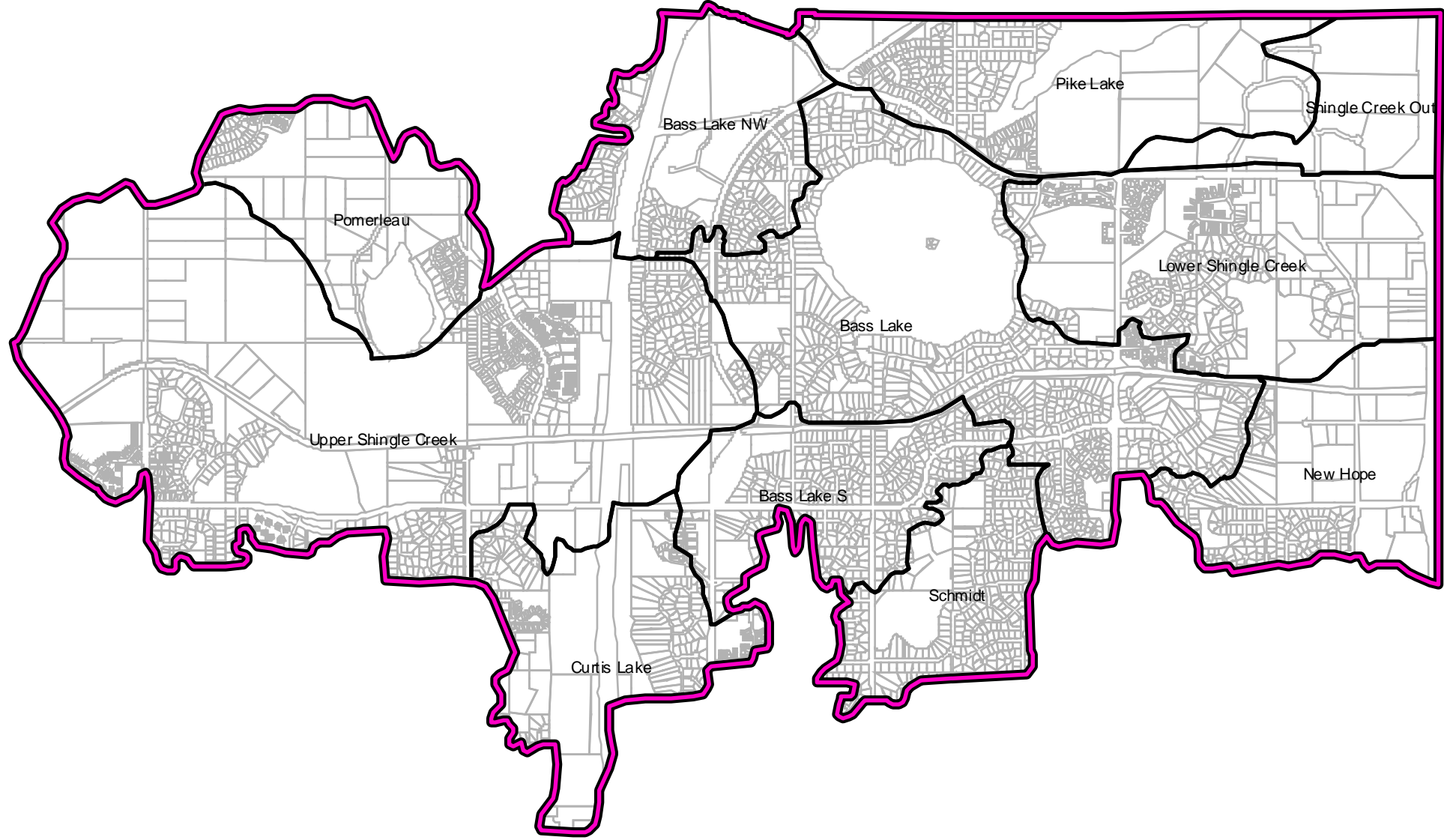


City of Plymouth
2008

Surface Water
Management Plan

Figure 43
Shingle Creek
Subwatersheds

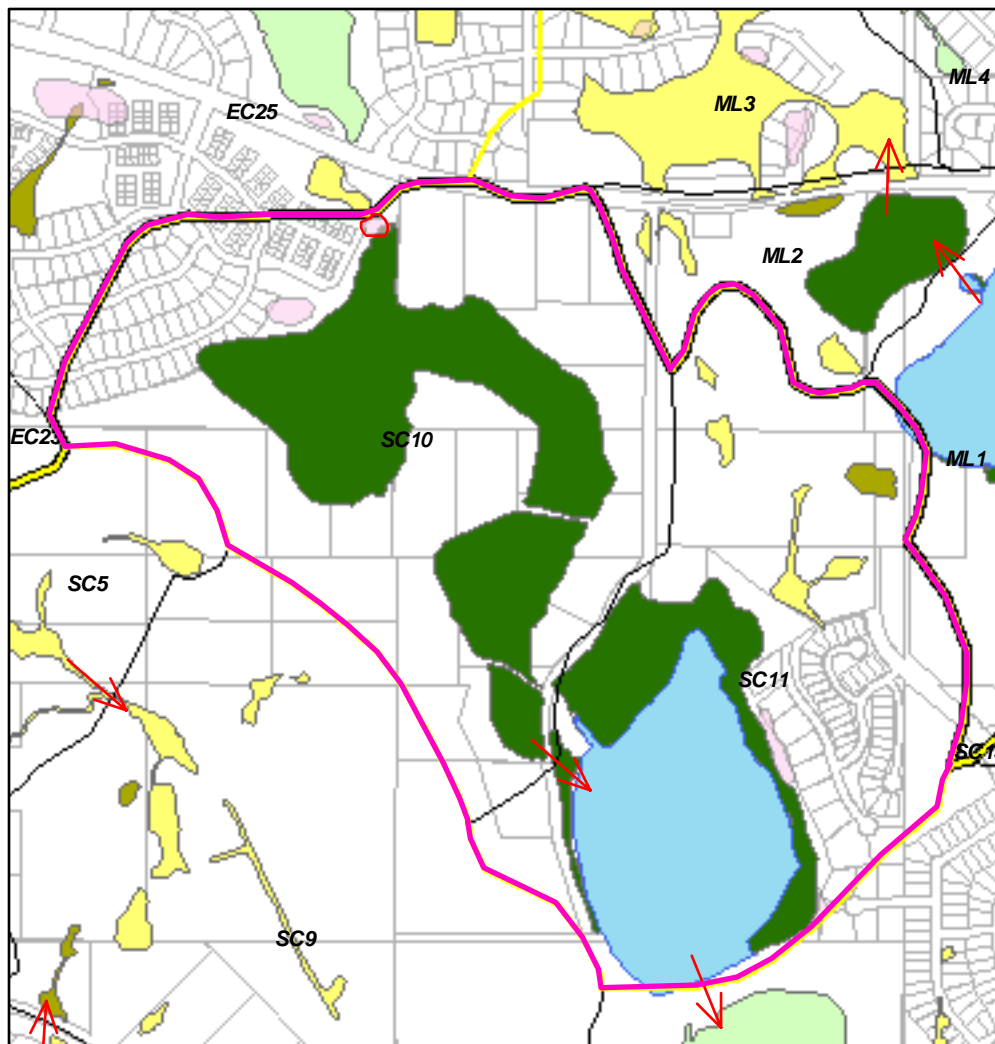
Ⓡ



Surface Water
Management Plan



City of Plymouth
2008



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

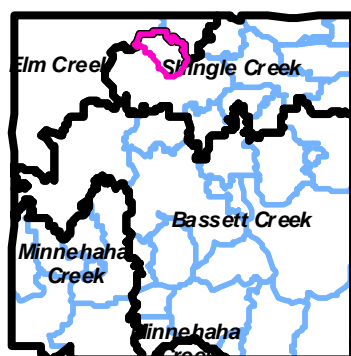
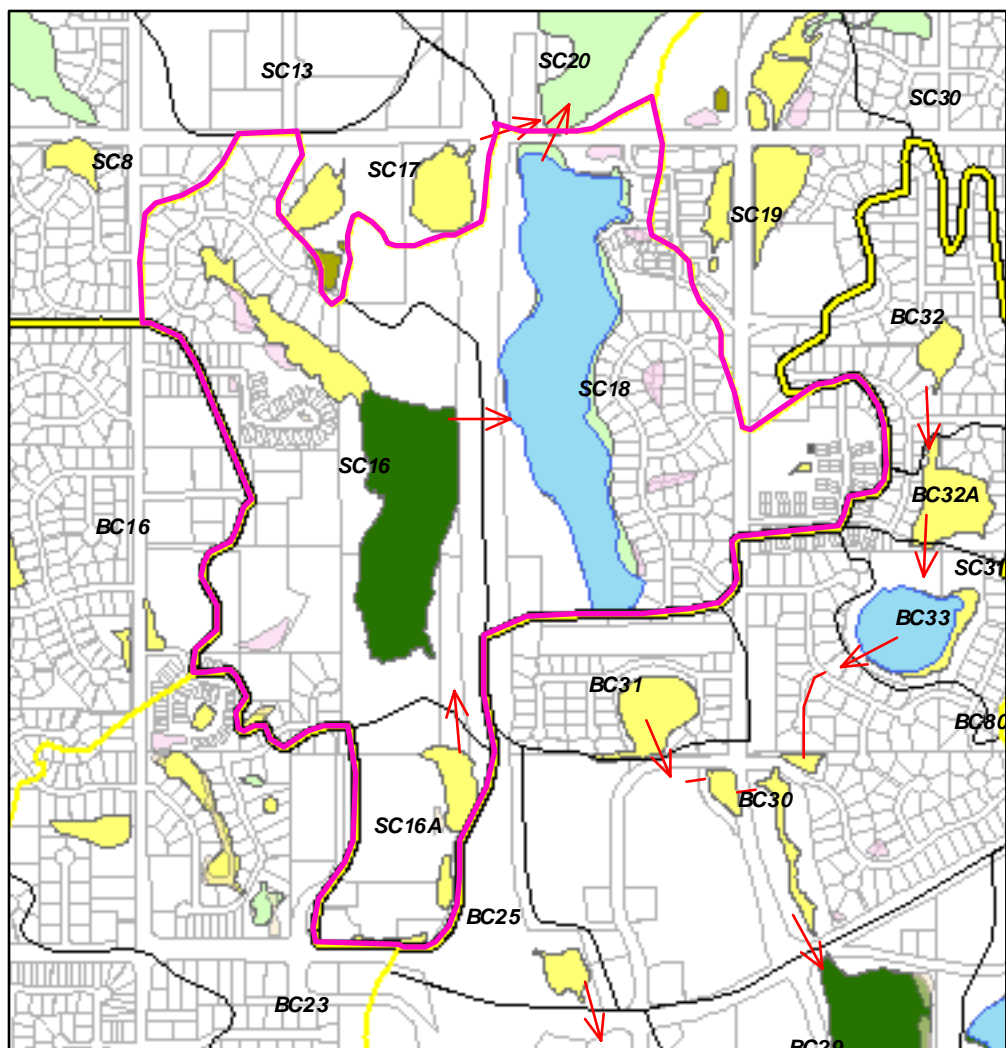


Figure 44
Pomerleau Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

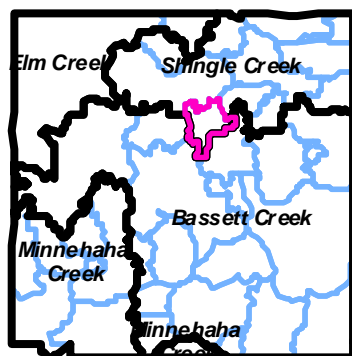
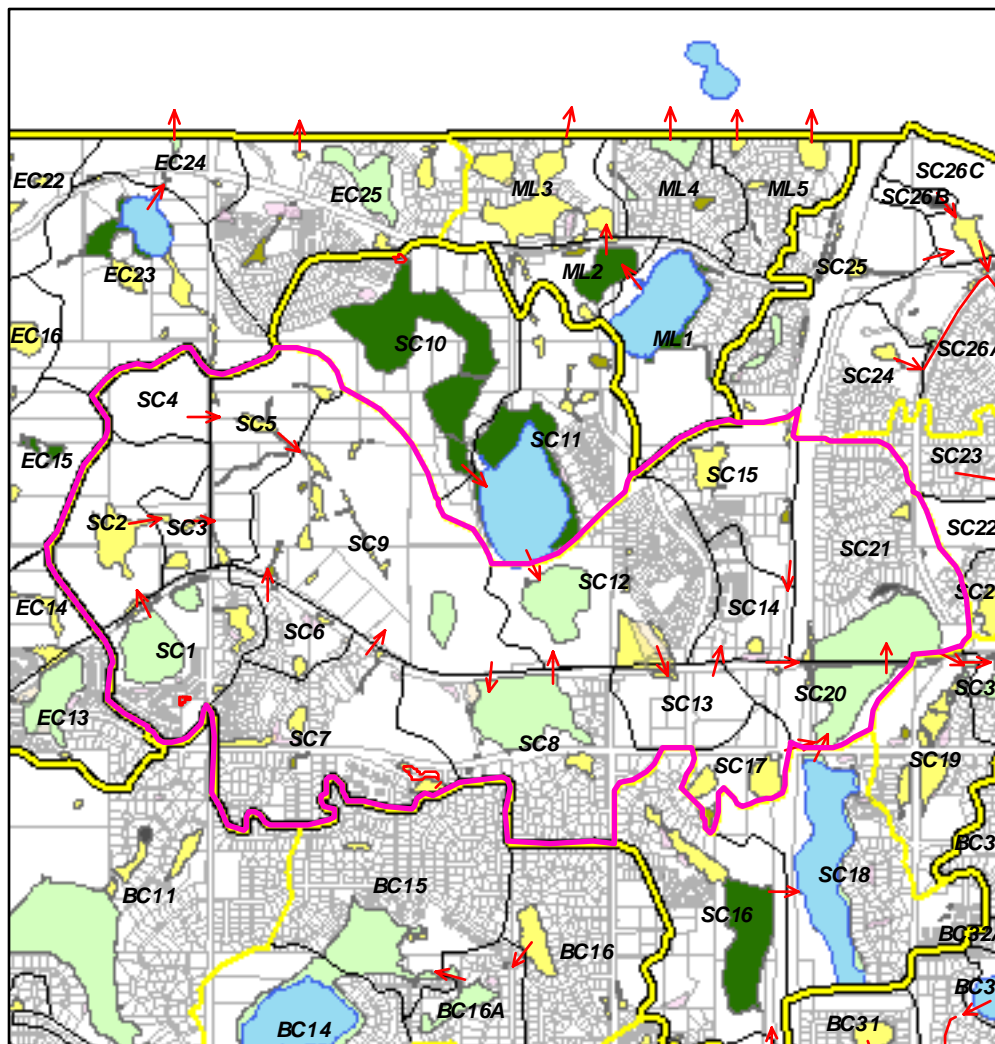


Figure 45
Curtis Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

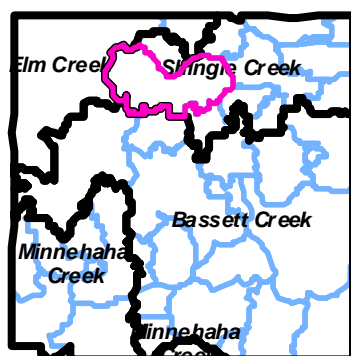
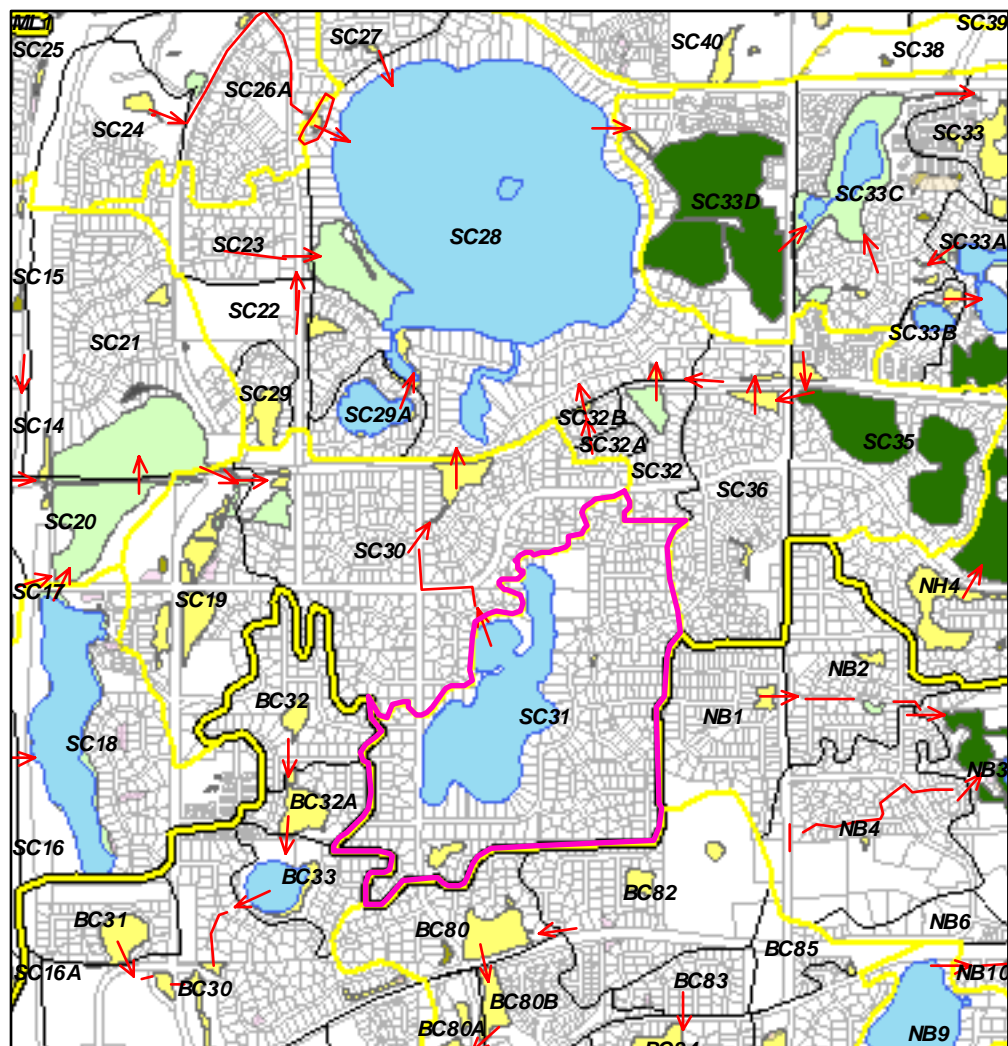


Figure 46
Upper Shingle
Creek
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

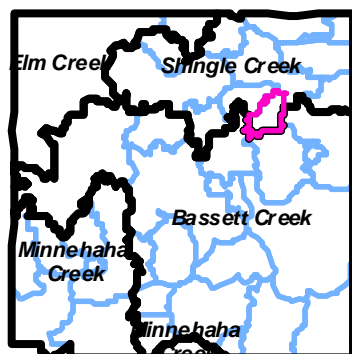
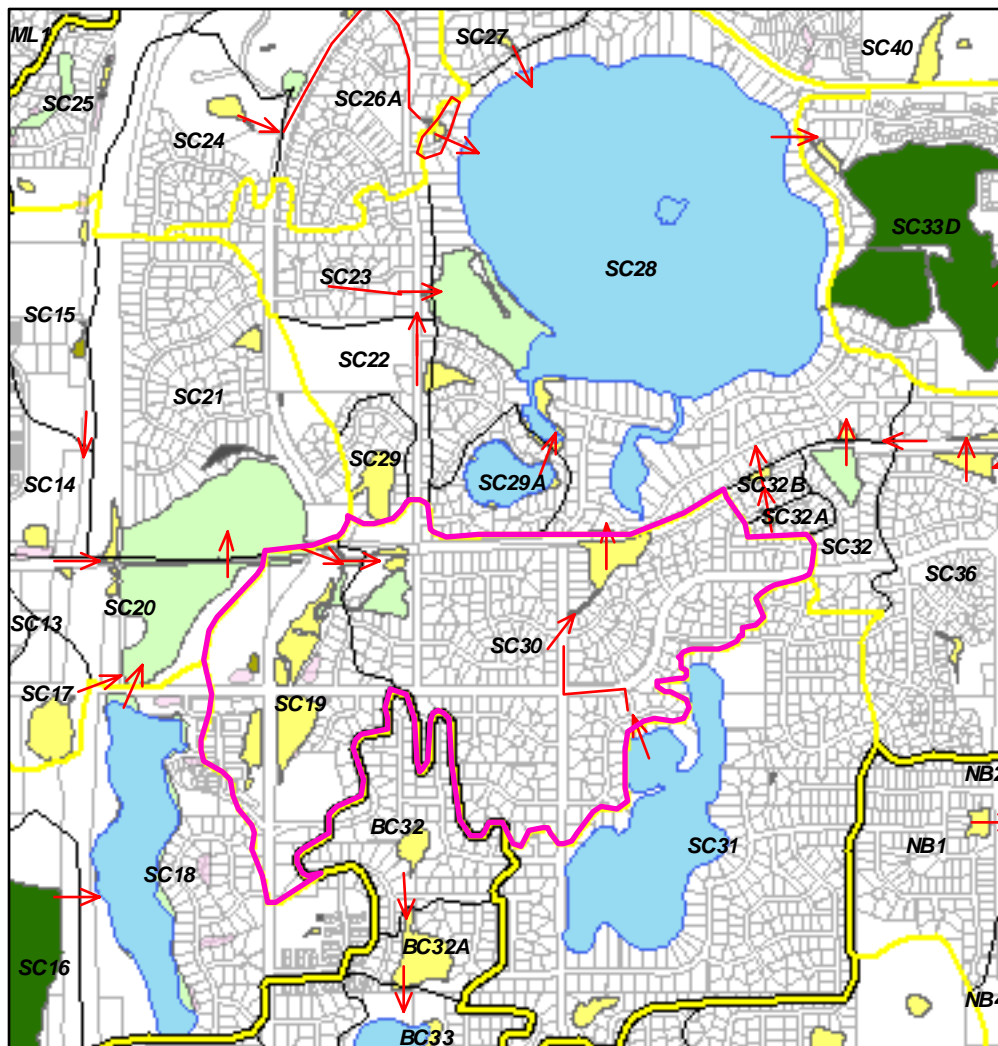


Figure 47
Schmidt Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

	Exceptional		Storm Water Conveyance
	High		Storm Water Districts
	Medium		Watershed Districts
	Low		Subwatershed Districts
	Water Quality Ponds		Lakes
	Wetland Mitigation		

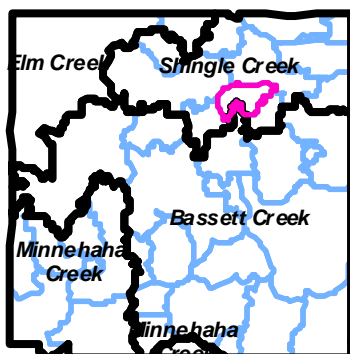
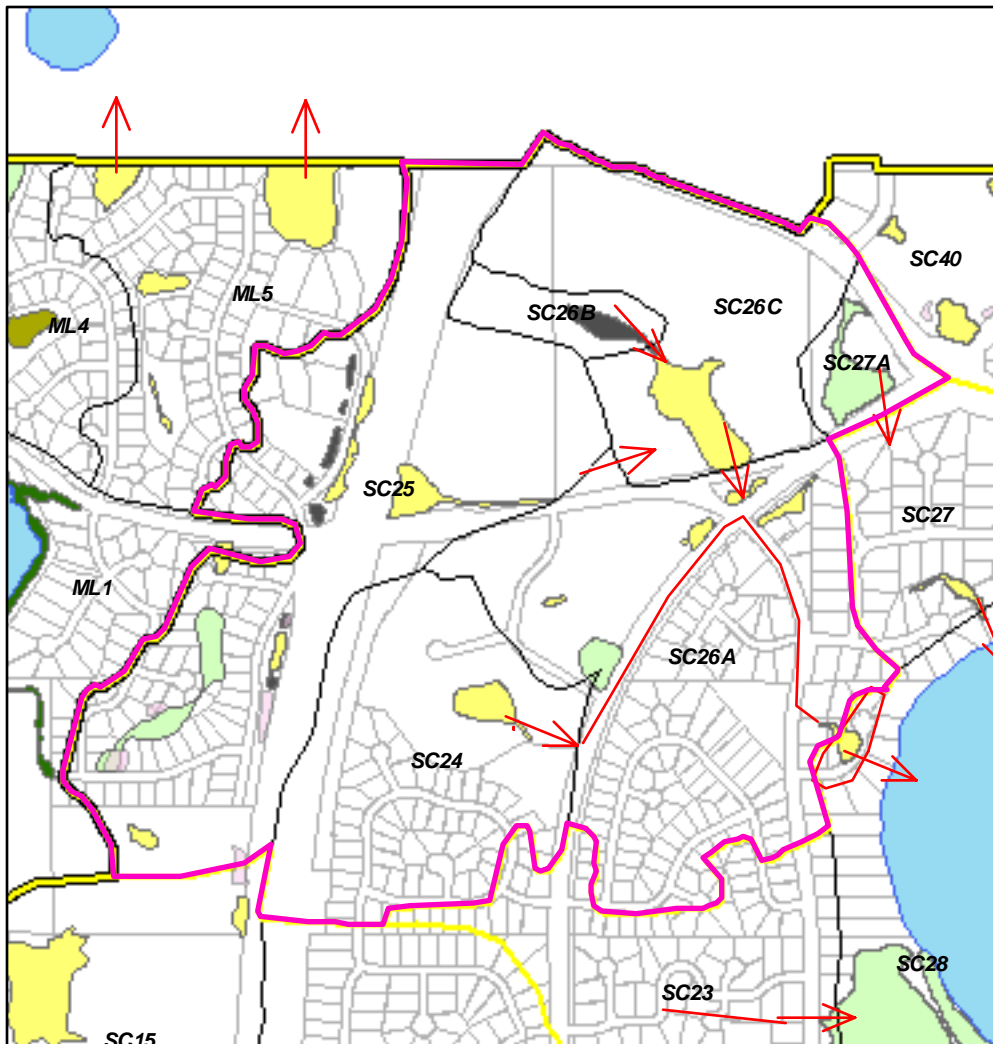


Figure 48
Bass Lake South
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | |
|---|--|
|  Exceptional |  Storm Water Conveyance |
|  High |  Storm Water Districts |
|  Medium |  Watershed Districts |
|  Low |  Subwatershed Districts |
|  Water Quality Ponds |  Lakes |
|  Wetland Mitigation | |

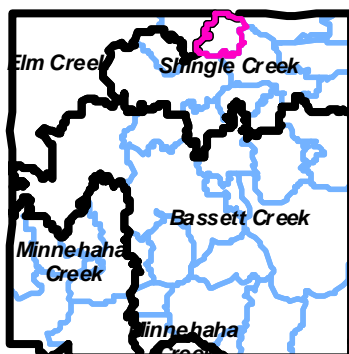
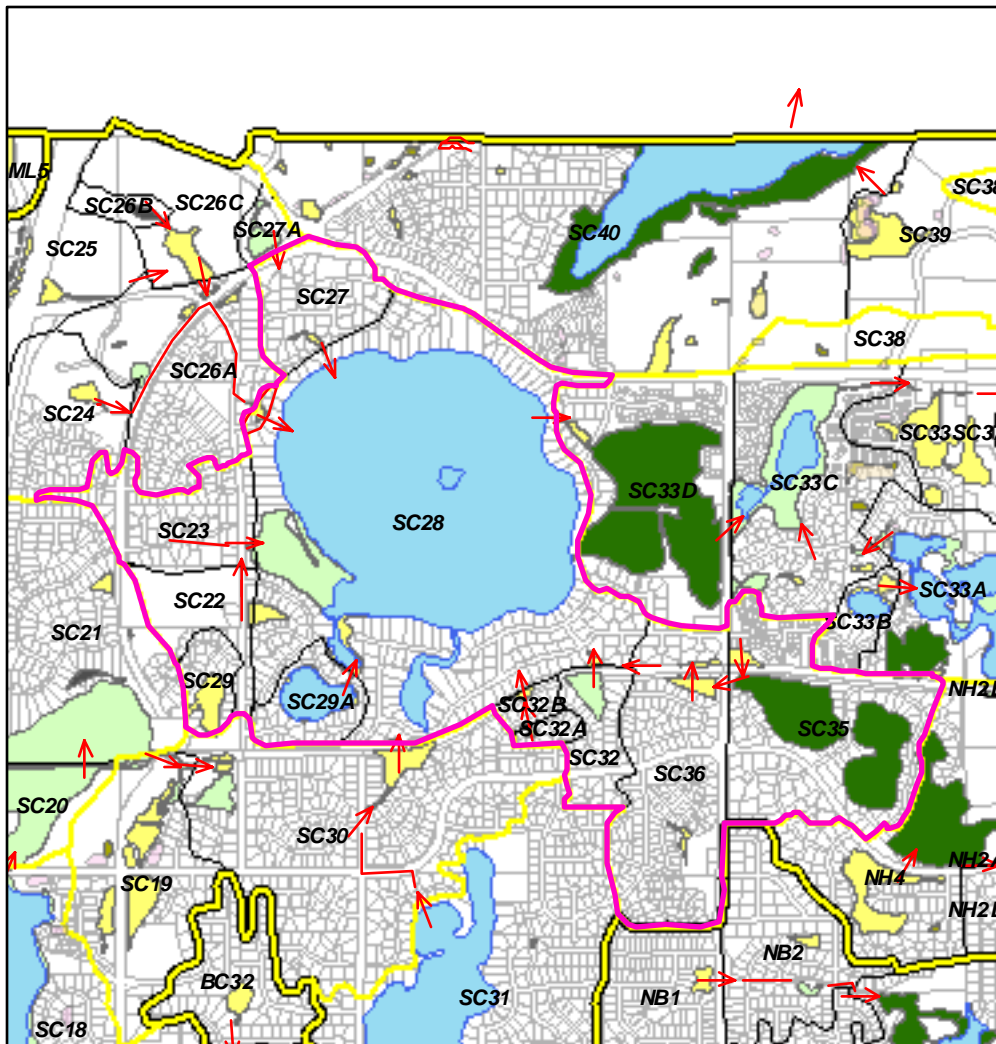


Figure 49
Bass Lake NW
Subwatershed














City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

- | | | | |
|---|---------------------|---|------------------------|
|  | Exceptional |  | Storm Water Conveyance |
|  | High |  | Storm Water Districts |
|  | Medium |  | Watershed Districts |
|  | Low |  | Subwatershed Districts |
|  | Water Quality Ponds |  | Lakes |
|  | Wetland Mitigation | | |

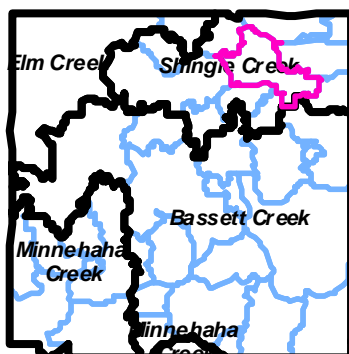
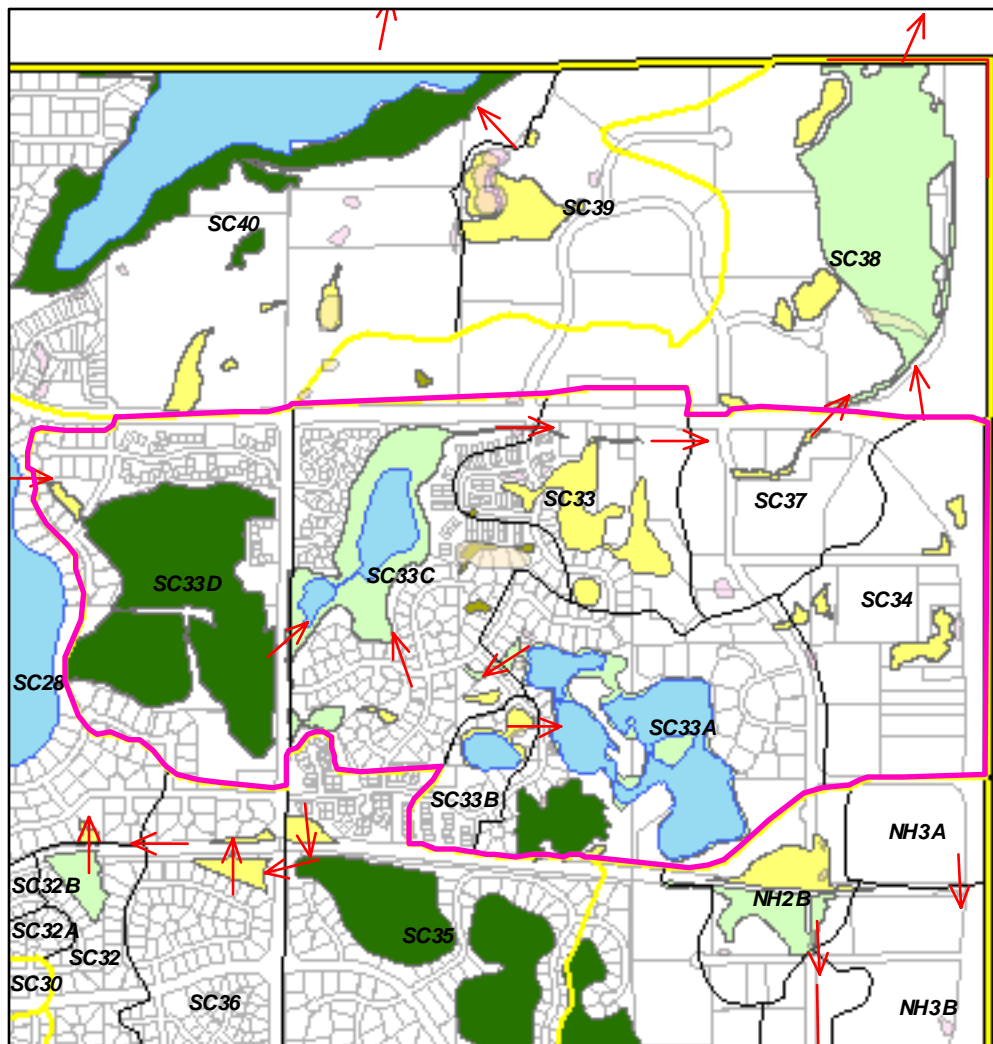


Figure 50
Bass Lake
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan



Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

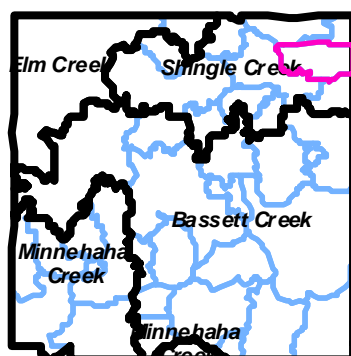
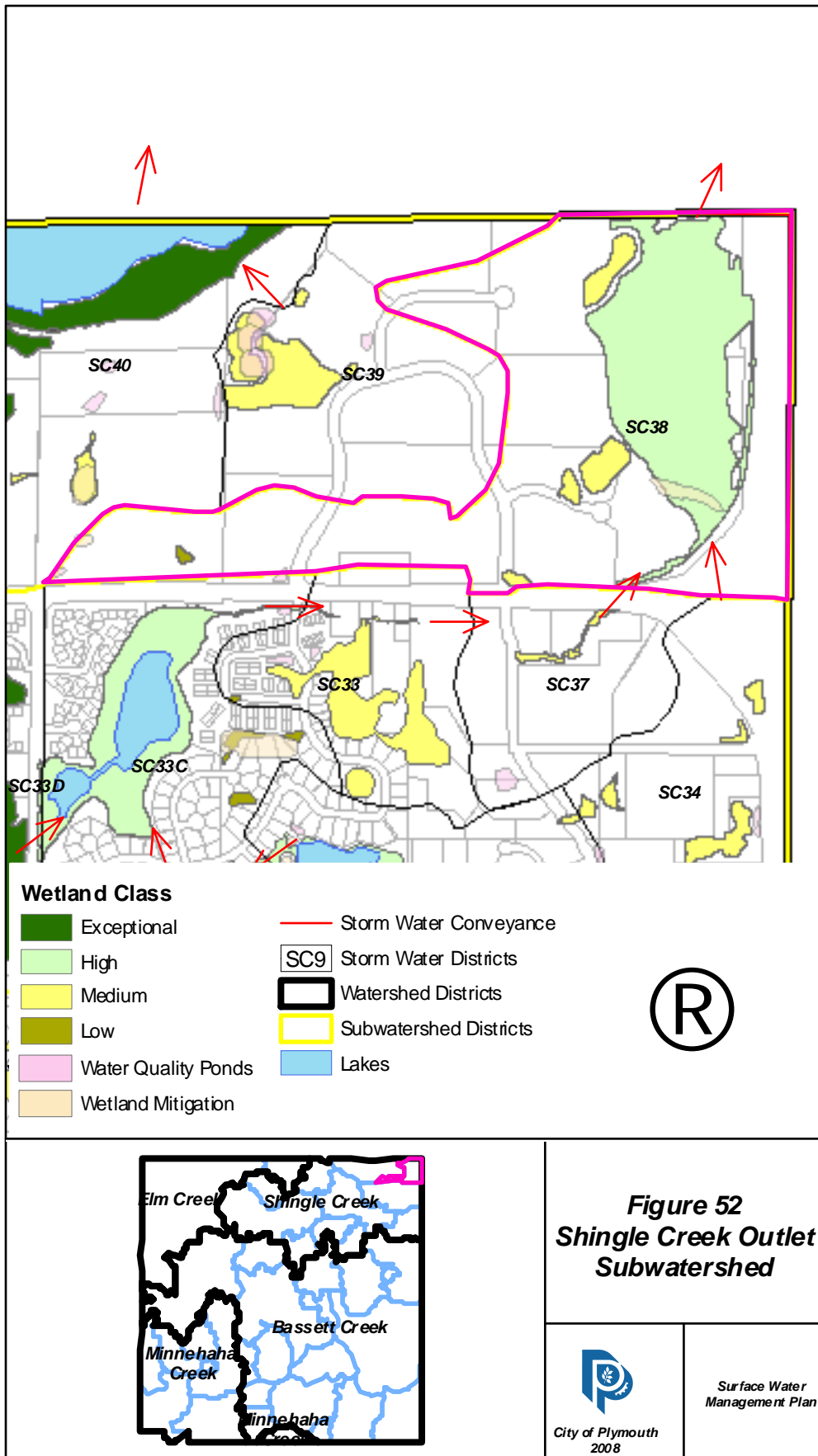


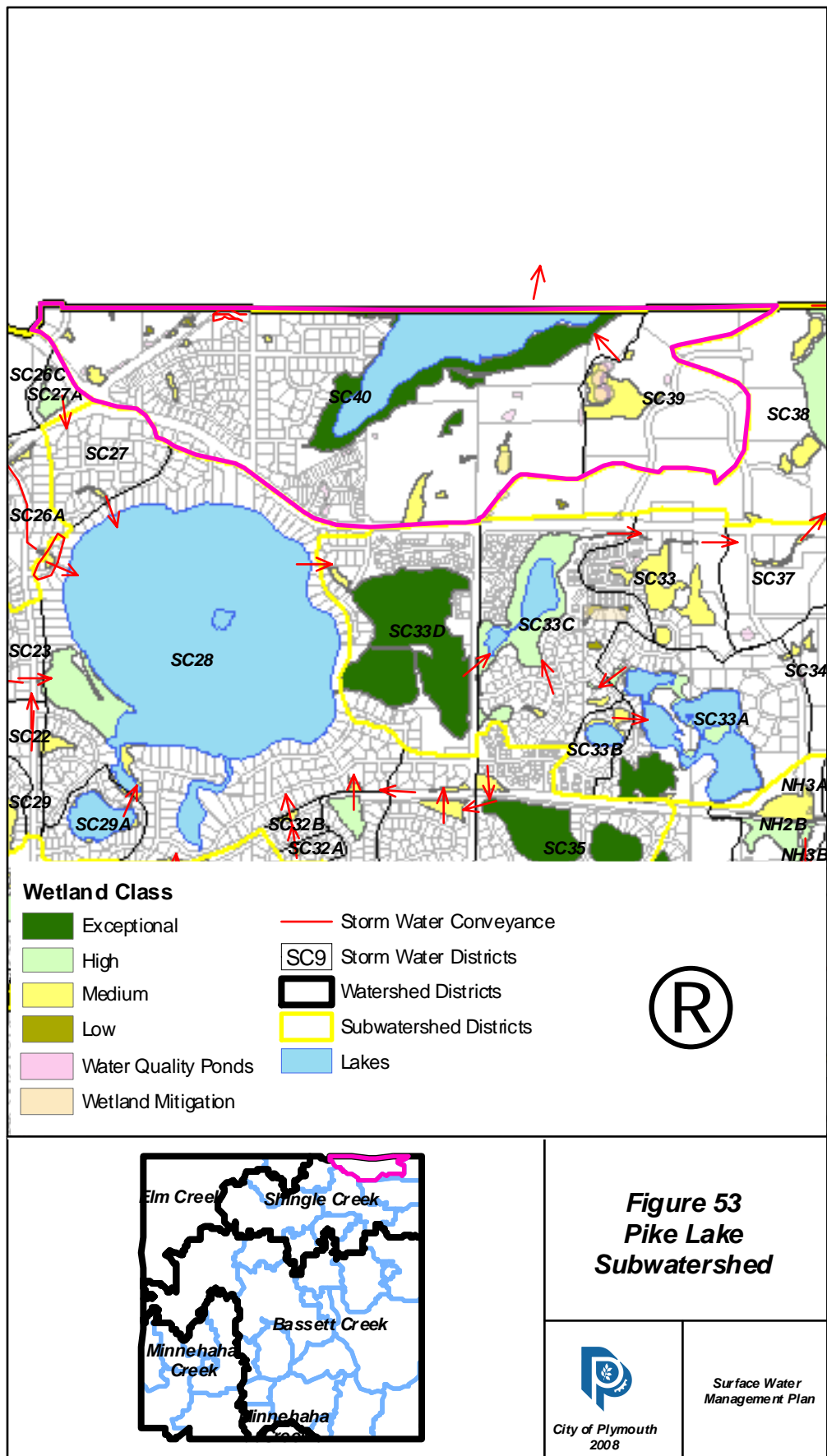
Figure 51
Lower Shingle
Creek
Subwatershed

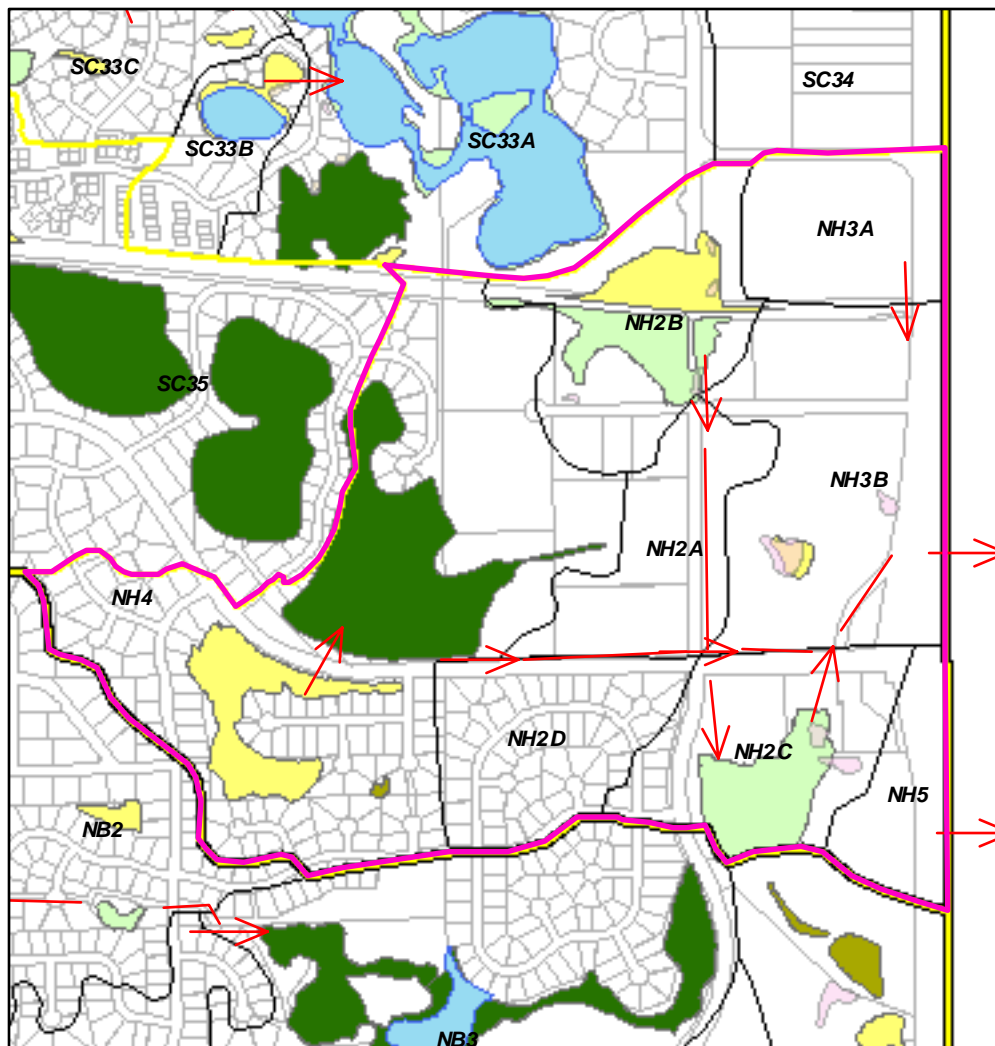


City of Plymouth
2008

Surface Water
Management Plan







Wetland Class

Exceptional

High

Medium

Low

Water Quality Ponds

Wetland Mitigation

Storm Water Conveyance

SC9 Storm Water Districts

Watershed Districts

Subwatershed Districts

Lakes

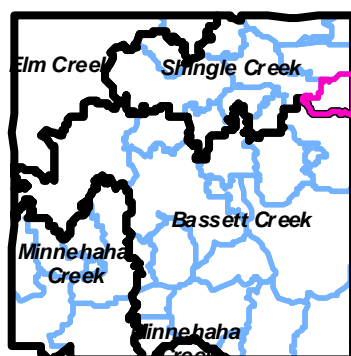


Figure 54
New Hope
Subwatershed



City of Plymouth
2008

Surface Water
Management Plan