

LEGEND		★ Problem Area Identified Through Modeling		FEMA Floodplain		— River/Stream	
Problem Type		⊕ Project Alternative Location		■ Zone A, AH and AO		Roadway	
Regional		▲ Maintenance		■ Zone AE		— Interstate	
■ Bank Erosion	■ Bank Erosion	* Candidate Structure(s) for Floodproofing/Acquisition		▭ Calumet-Sag Channel		— US Highway	
▲ Maintenance	▲ Maintenance	▨ DWP 100-year Inundation Area		▭ Watershed Boundary		— Major Road	
● Overbank Flooding	● Overbank Flooding	⋯ Not Modeled in DWP		▭ Subwatershed Boundary		▭ Municipal Boundary	
◆ Pavement Flooding	◆ Pavement Flooding			▭ Cook County Boundary			
★ Ponding	★ Ponding						
◆ Storm Sewer Flow Restriction	◆ Storm Sewer Flow Restriction						

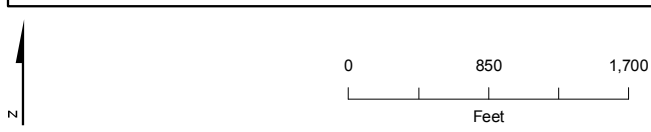
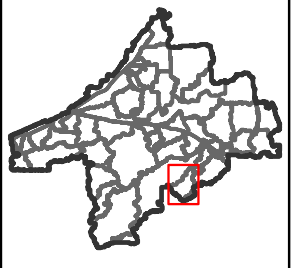
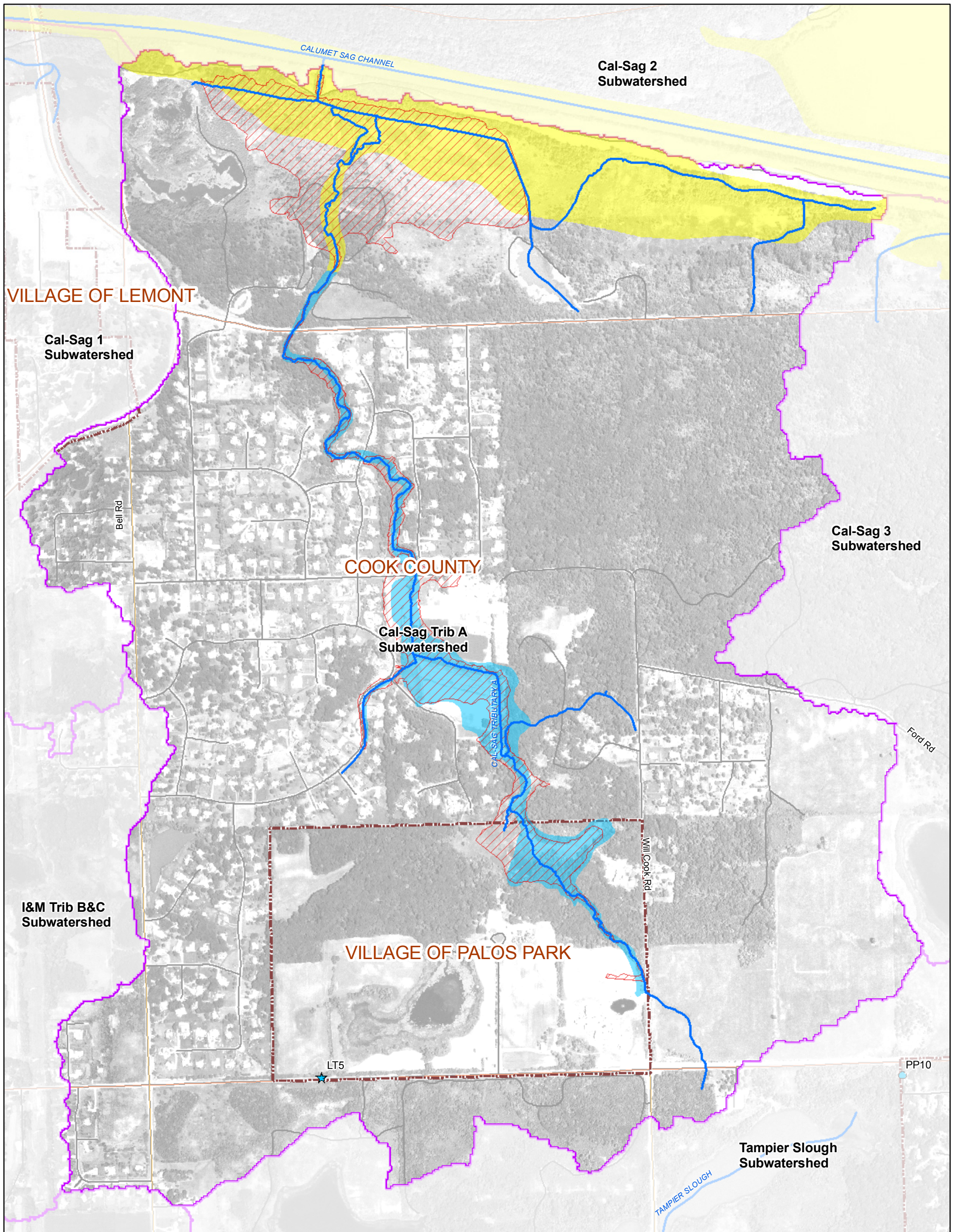


Figure 3.4.1
Tributary Overview: Boca Rio Ditch
Calumet-Sag Channel Detailed Watershed Plan
CH2MHILL



LEGEND		Problem Area Identified Through Modeling		FEMA Floodplain		Roadway	
Problem Type		★	Project Alternative Location	Yellow	Zone A, AH and AO	Blue line	River/Stream
Regional		⊕	Candidate Structure(s) for Floodproofing/Acquisition	Light Blue	Zone AE	Orange line	Interstate
Red square	Bank Erosion	⊛	DWP 100-year Inundation Area	Dark Blue	Calumet-Sag Channel Watershed Boundary	Red line	US Highway
Red triangle	Maintenance	⊞	Not Modeled in DWP	Blue outline	Subwatershed Boundary	Orange line	Major Road
Red circle	Overbank Flooding					Red dashed line	Municipal Boundary
Red pentagon	Pavement Flooding					Grey dashed line	Cook County Boundary
Red star	Ponding						
Red diamond	Storm Sewer Flow Restriction						
Local							
Blue square	Bank Erosion						
Blue triangle	Maintenance						
Blue circle	Overbank Flooding						
Blue pentagon	Pavement Flooding						
Blue star	Ponding						
Blue diamond	Storm Sewer Flow Restriction						

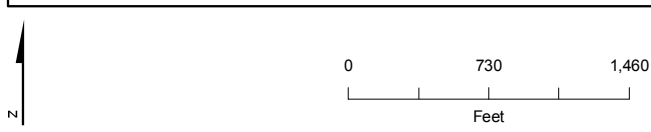
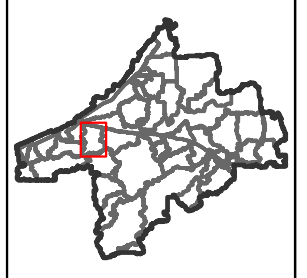
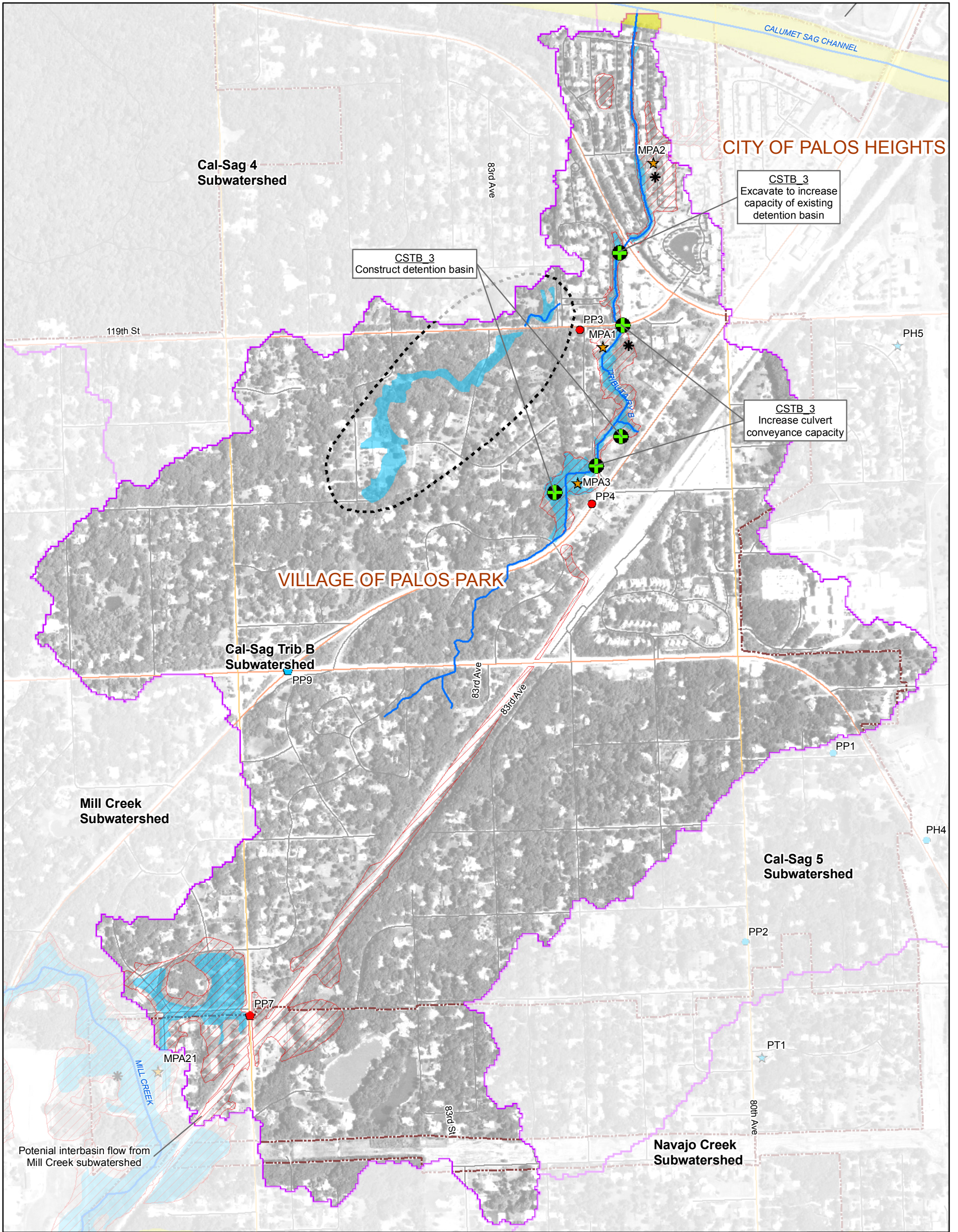


Figure 3.5.1
Tributary Overview: Cal-Sag Trib A
Calumet-Sag Channel Detailed Watershed Plan



LEGEND		Problem Type	
Regional		★ Problem Area Identified Through Modeling	FEMA Floodplain
■ Bank Erosion	▲ Maintenance	⊕ Project Alternative Location	■ Zone A, AH and AO
● Overbank Flooding	◆ Pavement Flooding	* Candidate Structure(s) for Floodproofing/Acquisition	■ Zone AE
★ Ponding	◆ Storm Sewer Flow Restriction	▨ DWP 100-year Inundation Area	▭ Calumet-Sag Channel Watershed Boundary
◆ Storm Sewer Flow Restriction		⋯ Not Modeled in DWP	▭ Subwatershed Boundary
Local			▭ River/Stream
■ Bank Erosion	▲ Maintenance		▭ Interstate
● Overbank Flooding	◆ Pavement Flooding		▭ US Highway
★ Ponding	◆ Storm Sewer Flow Restriction		▭ Major Road
			▭ Municipal Boundary
			▭ Cook County Boundary

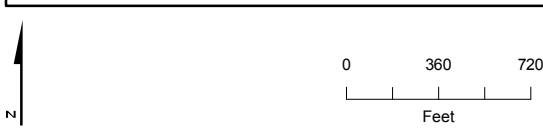
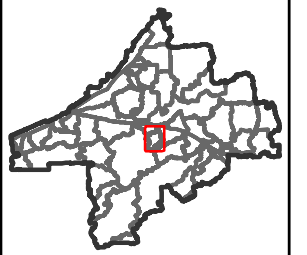
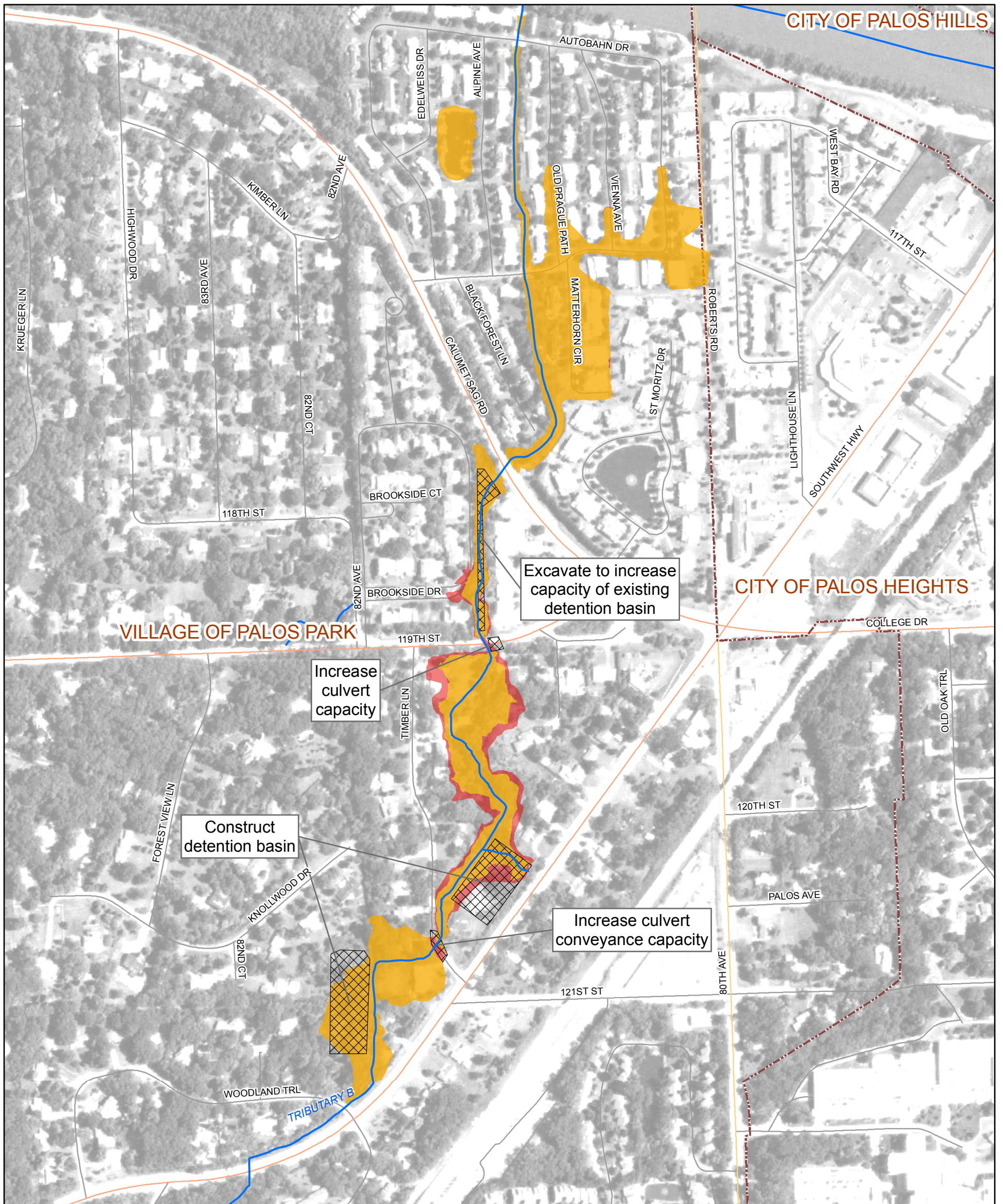


Figure 3.6.1
Tributary Overview: Cal-Sag Trib B
Calumet-Sag Channel Detailed Watershed Plan



Subwatershed: Cal-Sag Tributary B
 Alternative Description:

Alternative: CSTB-3

Construct two detention basins, expand existing detention basin, and increase conveyance capacity of two culverts
 Conceptual Level Cost: \$ 2,131,500 Benefits: \$ 669,700

B/C Ratio: 0.31

LEGEND

- Project Alternative Location
- 100-year Inundation Area With Project
- 100-year Inundation Area Without Project
- Calumet-Sag Channel
- Watershed Boundary
- Roadway**
- Interstate
- US Highway
- Major Road
- Road
- River/Stream
- Municipal Boundary
- Cook County Boundary

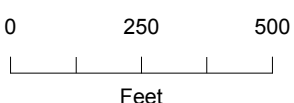
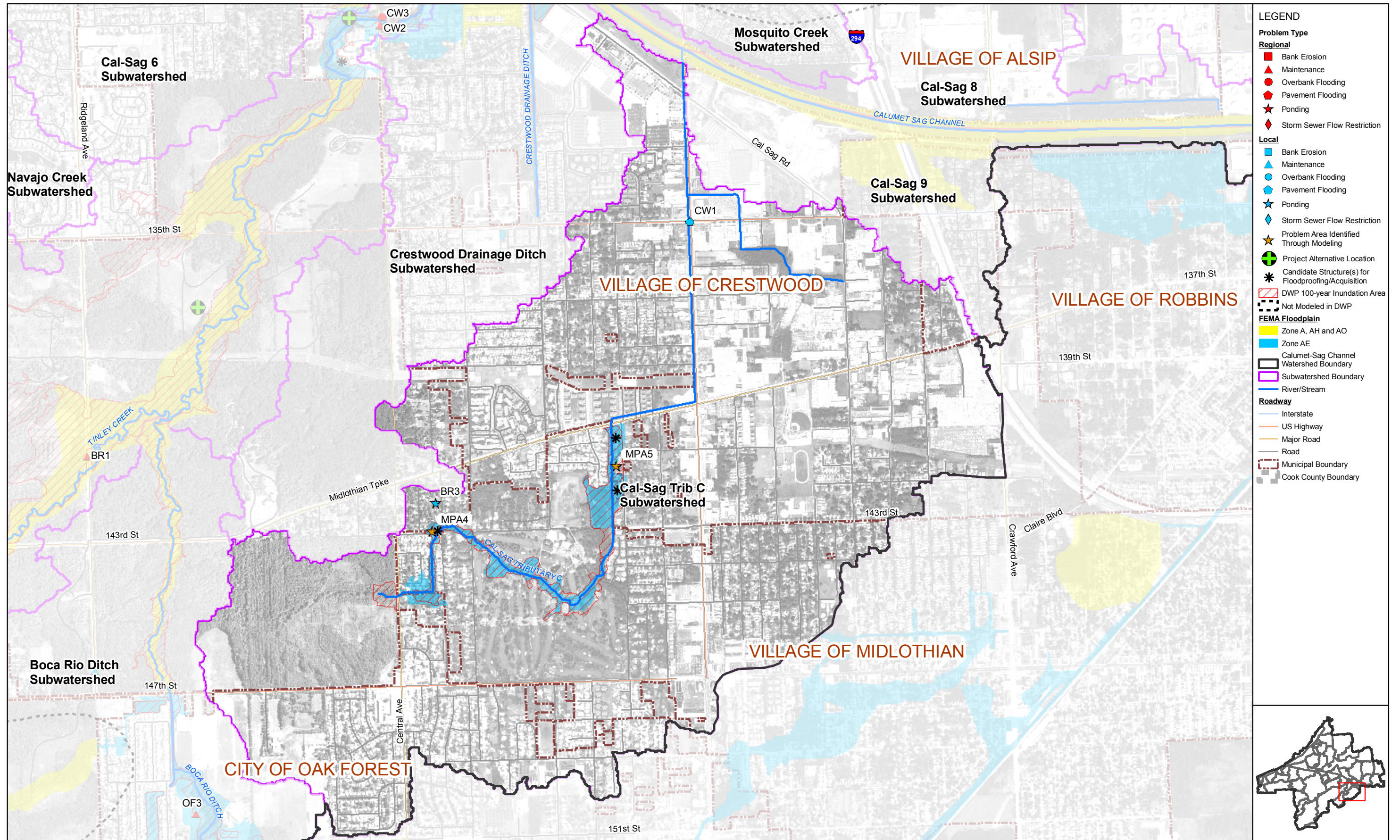


Figure 3.6.2
 Cal-Sag Tributary B
 Alternative CSTB-3
 Existing and Alternative Inundation Areas
 Calumet-Sag Channel Detailed Watershed Plan





- LEGEND**
- Problem Type**
- Regional**
- Bank Erosion
 - Maintenance
 - Overbank Flooding
 - Pavement Flooding
 - Ponding
 - Storm Sewer Flow Restriction
- Local**
- Bank Erosion
 - Maintenance
 - Overbank Flooding
 - Pavement Flooding
 - Ponding
 - Storm Sewer Flow Restriction
 - Problem Area Identified Through Modeling
 - Project Alternative Location
 - Candidate Structure(s) for Floodproofing/Acquisition
 - DWP 100-year Inundation Area
 - Not Modeled in DWP
- FEMA Floodplain**
- Zone A, AH and AO
 - Zone AE
- Calumet-Sag Channel Watershed Boundary**
- Watershed Boundary
 - River/Stream
- Roadway**
- Interstate
 - US Highway
 - Major Road
 - Road
 - Municipal Boundary
 - Cook County Boundary

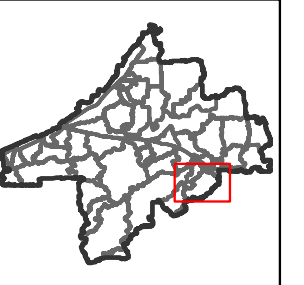
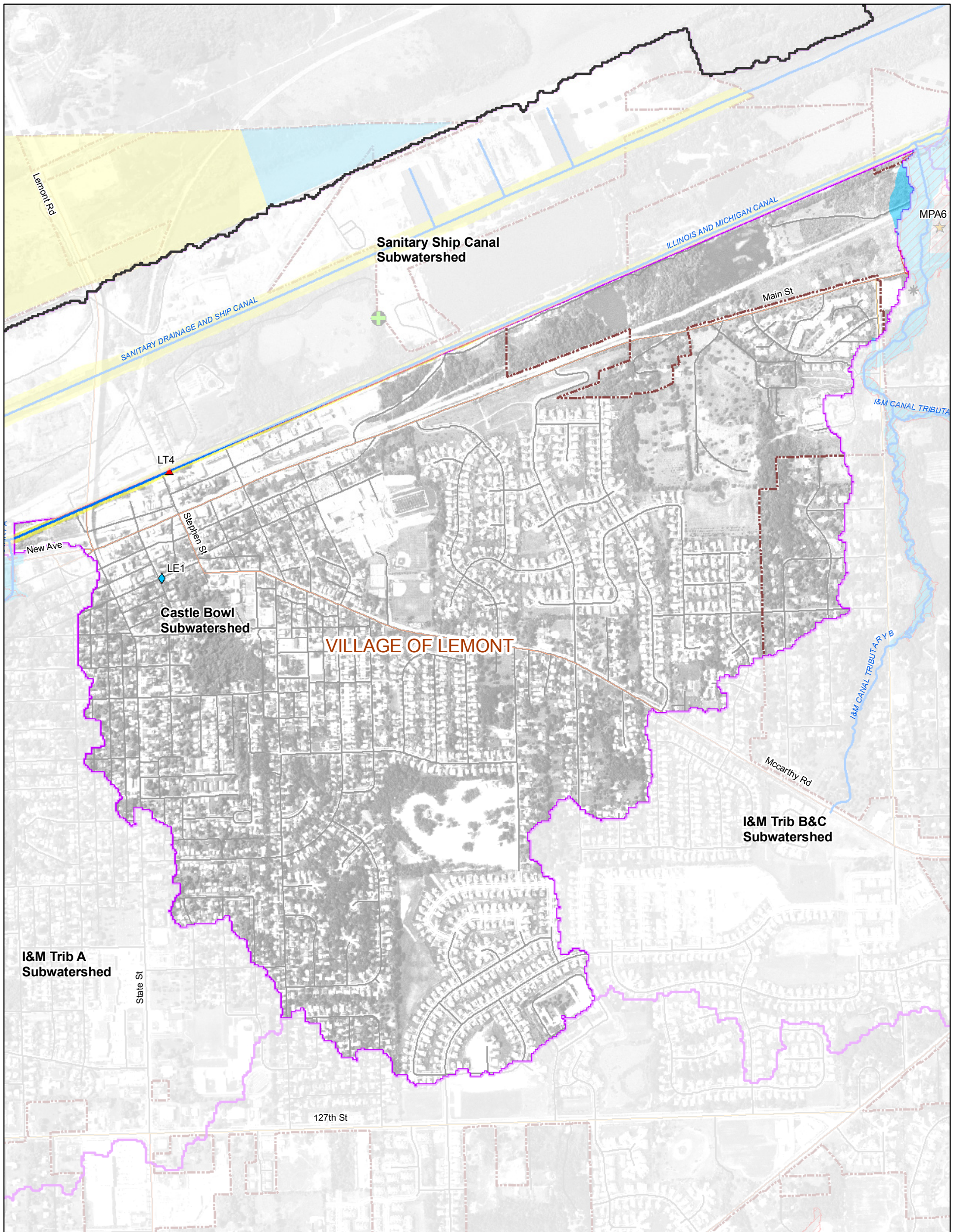


Figure 3.7.1
Tributary Overview: Cal-Sag Trib C
Calumet-Sag Channel Detailed Watershed Plan



LEGEND			
Problem Type			
Regional			
■ Bank Erosion	▲ Maintenance	★ Problem Area Identified Through Modeling	FEMA Floodplain
● Overbank Flooding	◆ Pavement Flooding	⊕ Project Alternative Location	■ Zone A, AH and AO
★ Ponding	◆ Storm Sewer Flow Restriction	* Candidate Structure(s) for Floodproofing/Acquisition	■ Zone AE
◆ Storm Sewer Flow Restriction		▨ DWP 100-year Inundation Area	▭ Calumet-Sag Channel Watershed Boundary
		⊘ Not Modeled in DWP	▭ Subwatershed Boundary
Local			Roadway
■ Bank Erosion	▲ Maintenance		— River/Stream
● Overbank Flooding	◆ Pavement Flooding		— Interstate
★ Ponding	◆ Storm Sewer Flow Restriction		— US Highway
			— Major Road
			— Municipal Boundary
			▭ Cook County Boundary

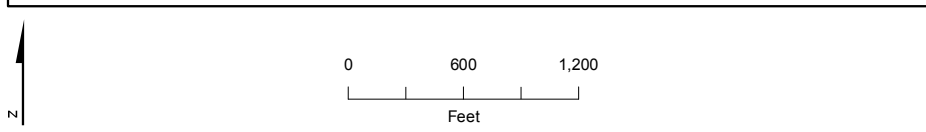
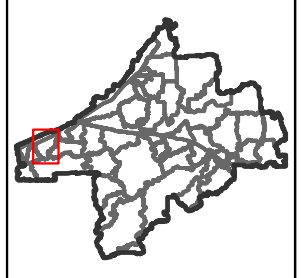
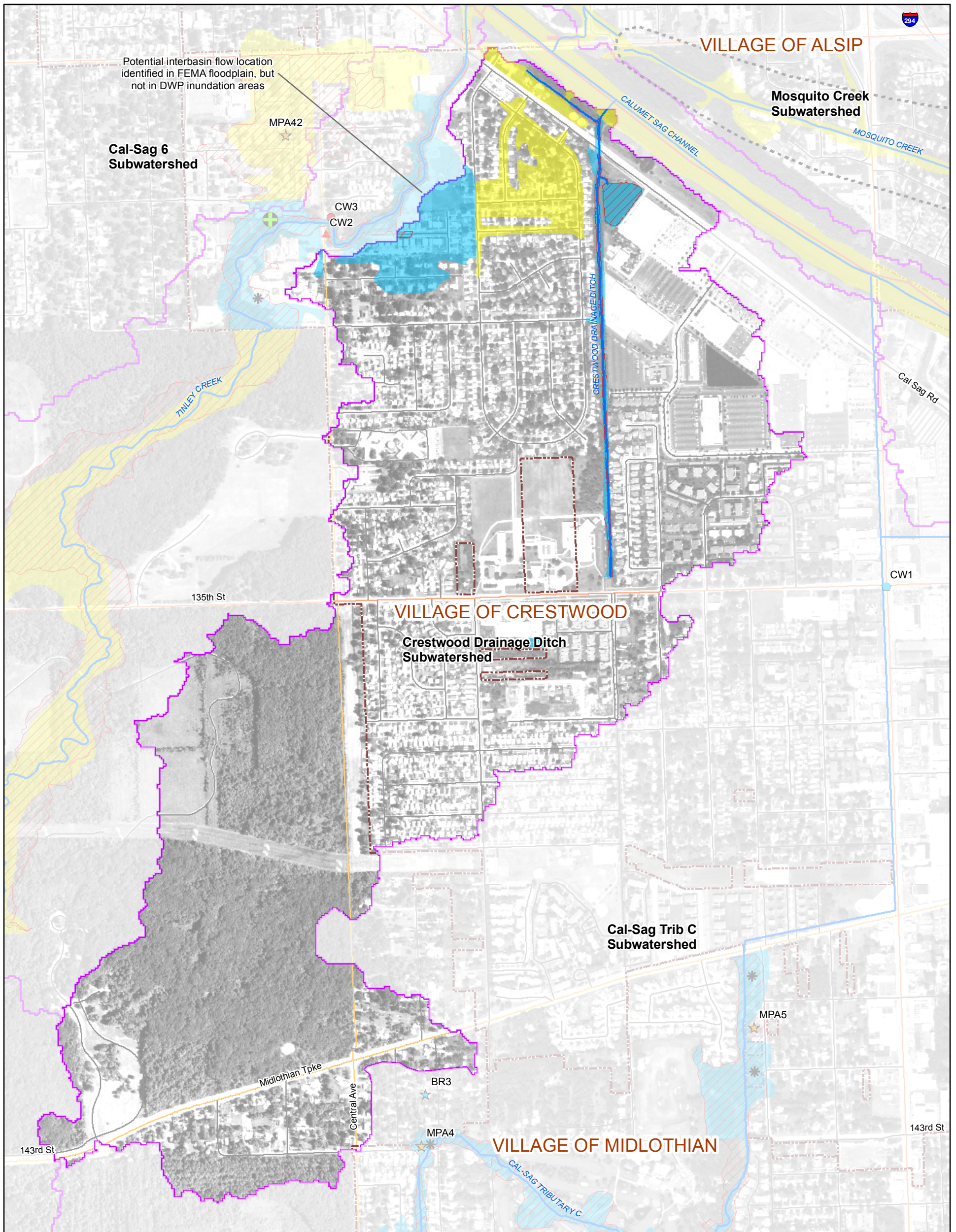


Figure 3.8.1
Tributary Overview: Castle Bowl
Calumet-Sag Channel Detailed Watershed Plan



LEGEND			
Problem Type		★ Problem Area Identified Through Modeling	FEMA Floodplain
Regional	Local	⊕ Project Alternative Location	■ Zone A, AH and AO
■ Bank Erosion	■ Bank Erosion	* Candidate Structure(s) for Floodproofing/Acquisition	■ Zone AE
▲ Maintenance	▲ Maintenance	▨ DWP 100-year Inundation Area	▭ Calumet-Sag Channel
● Overbank Flooding	● Overbank Flooding	⋯ Not Modeled in DWP	▭ Watershed Boundary
◆ Pavement Flooding	◆ Pavement Flooding		▭ Subwatershed Boundary
★ Ponding	★ Ponding		— River/Stream
◆ Storm Sewer Flow Restriction	◆ Storm Sewer Flow Restriction		— Roadway
			— Interstate
			— US Highway
			— Major Road
			▭ Municipal Boundary
			▭ Cook County Boundary

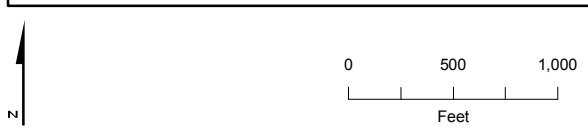
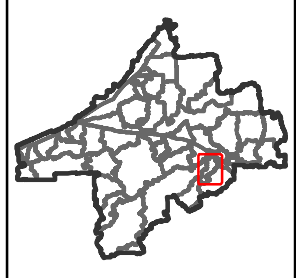
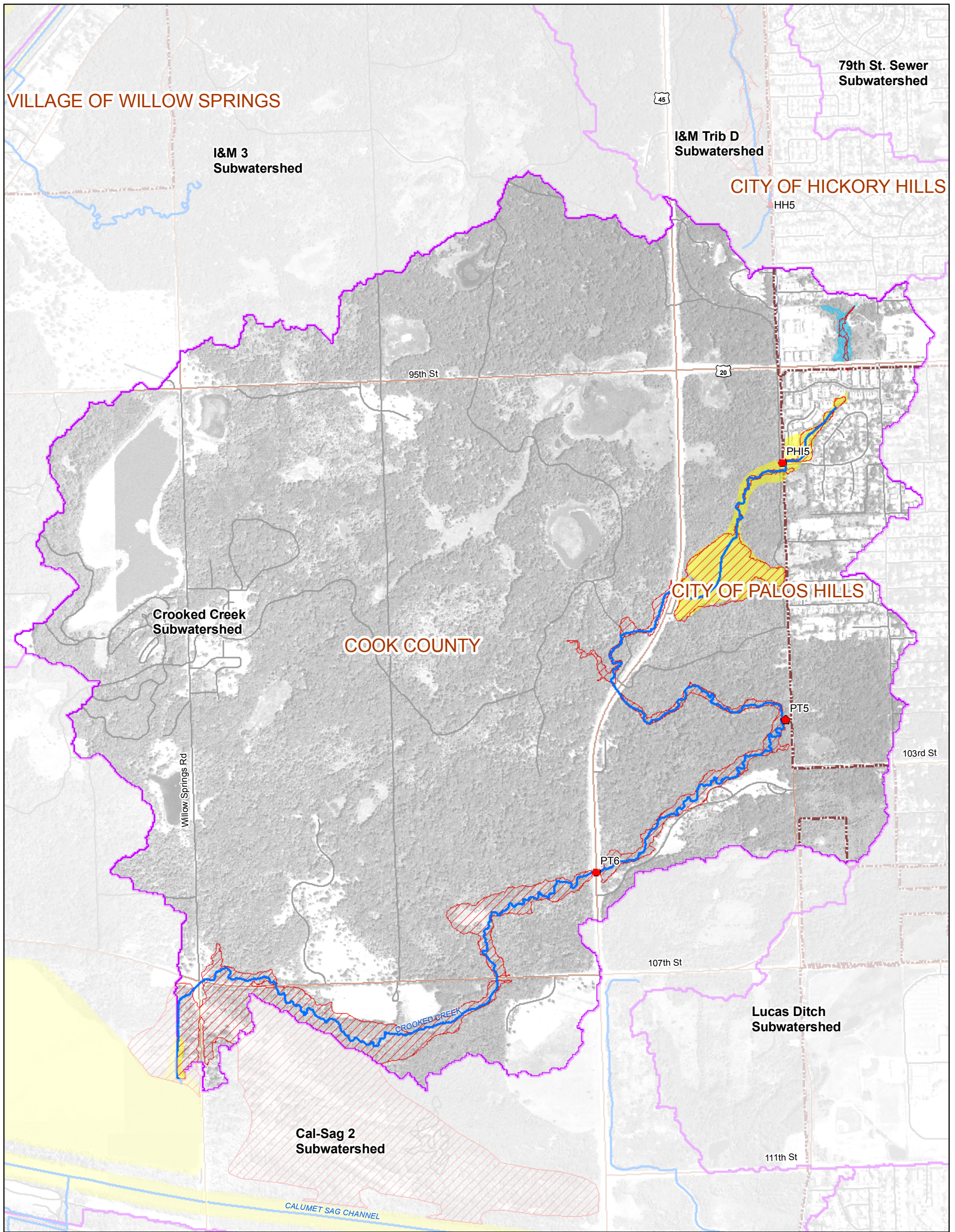


Figure 3.9.1
Tributary Overview: Crestwood Drainage Ditch
Calumet-Sag Channel Detailed Watershed Plan



LEGEND

Problem Type		★ Problem Area Identified Through Modeling	FEMA Floodplain	— River/Stream
Regional				
■ Bank Erosion	■ Bank Erosion	⊕ Project Alternative Location	■ Zone AE	— Interstate
▲ Maintenance	▲ Maintenance	* Candidate Structure(s) for Floodproofing/Acquisition	▭ Calumet-Sag Channel	— US Highway
● Overbank Flooding	● Overbank Flooding	▨ DWP 100-year Inundation Area	▭ Watershed Boundary	— Major Road
◆ Pavement Flooding	◆ Pavement Flooding	⊘ Not Modeled in DWP	▭ Subwatershed Boundary	▭ Municipal Boundary
★ Ponding	★ Ponding			▭ Cook County Boundary
◆ Storm Sewer Flow Restriction	◆ Storm Sewer Flow Restriction			

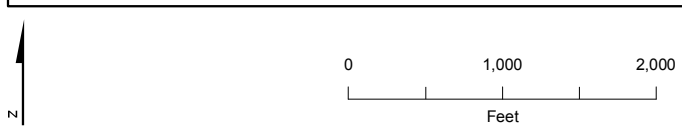
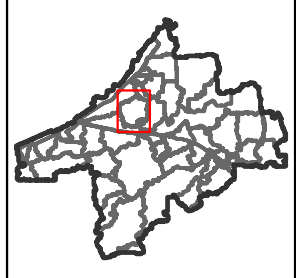


Figure 3.10.1
Tributary Overview: Crooked Creek
Calumet-Sag Channel Detailed Watershed Plan

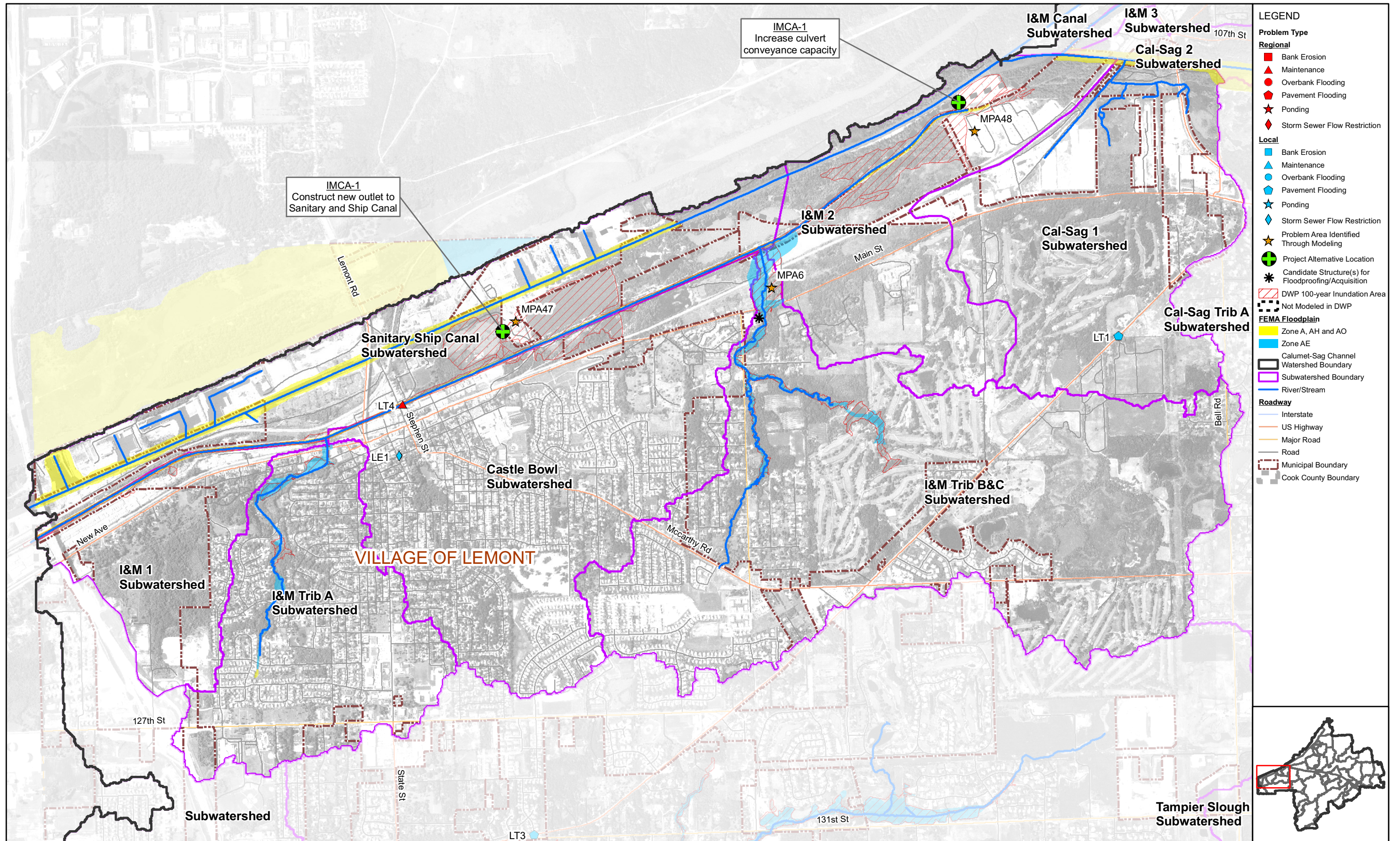
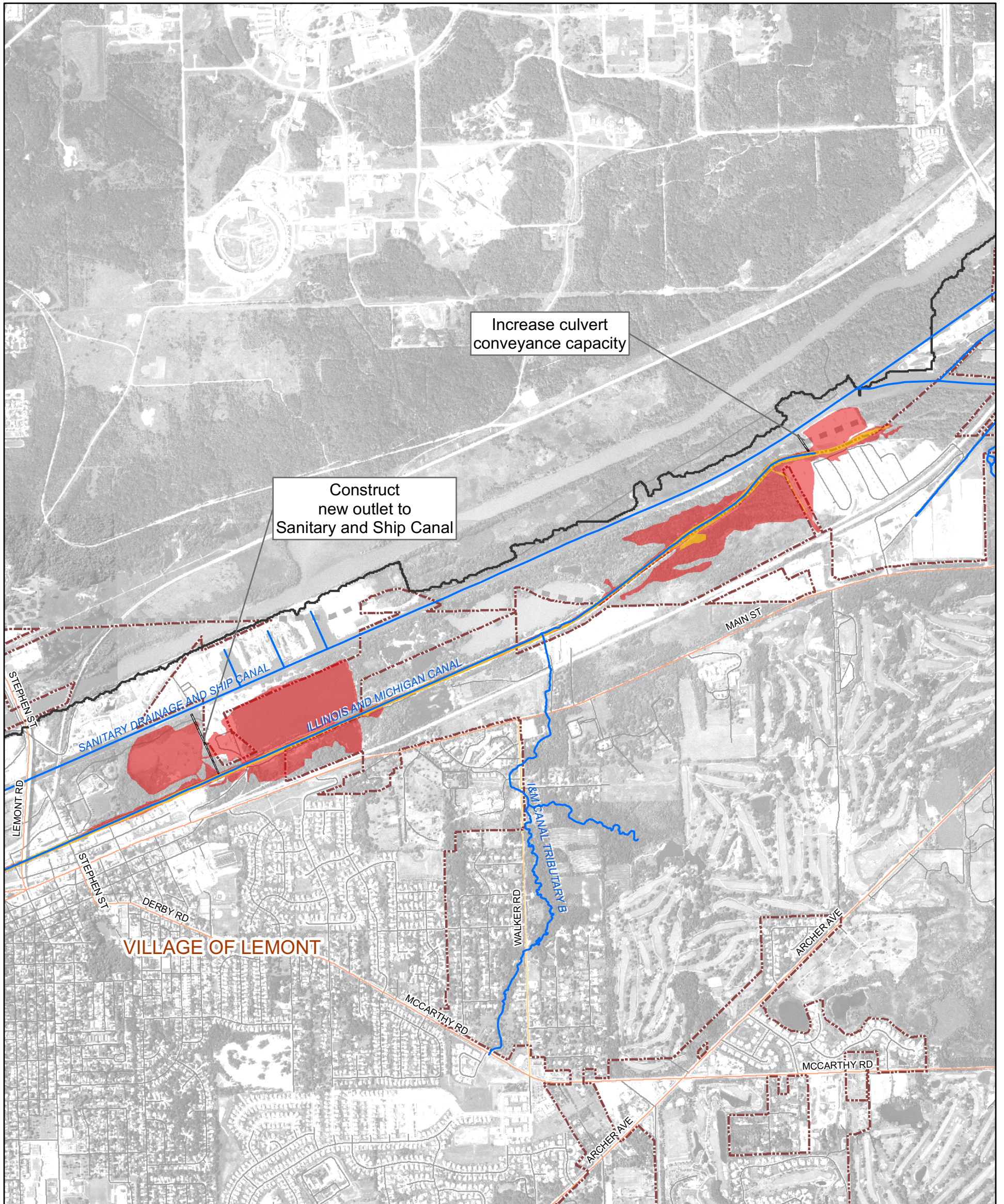


Figure 3.11.1
 Tributary Overview: I&M Canal
 Calumet-Sag Channel Detailed Watershed Plan



Subwatershed: I&M Canal

Alternative: IMCA-1

Alternative Description:

Construct new outlet to Sanitary and Ship Canal and increase culvert conveyance capacity

Conceptual Level Cost: \$ 1,043,800

Benefits: \$ 34,700

B/C Ratio:0.03

LEGEND

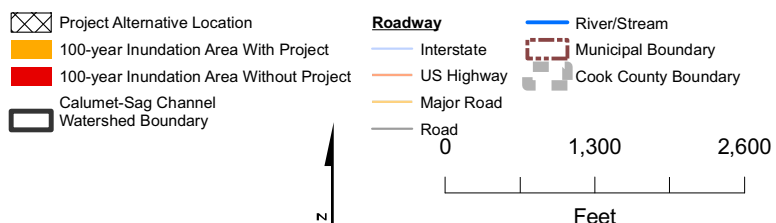


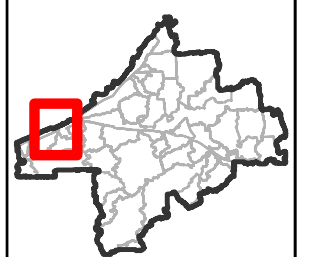
Figure 3.11.2

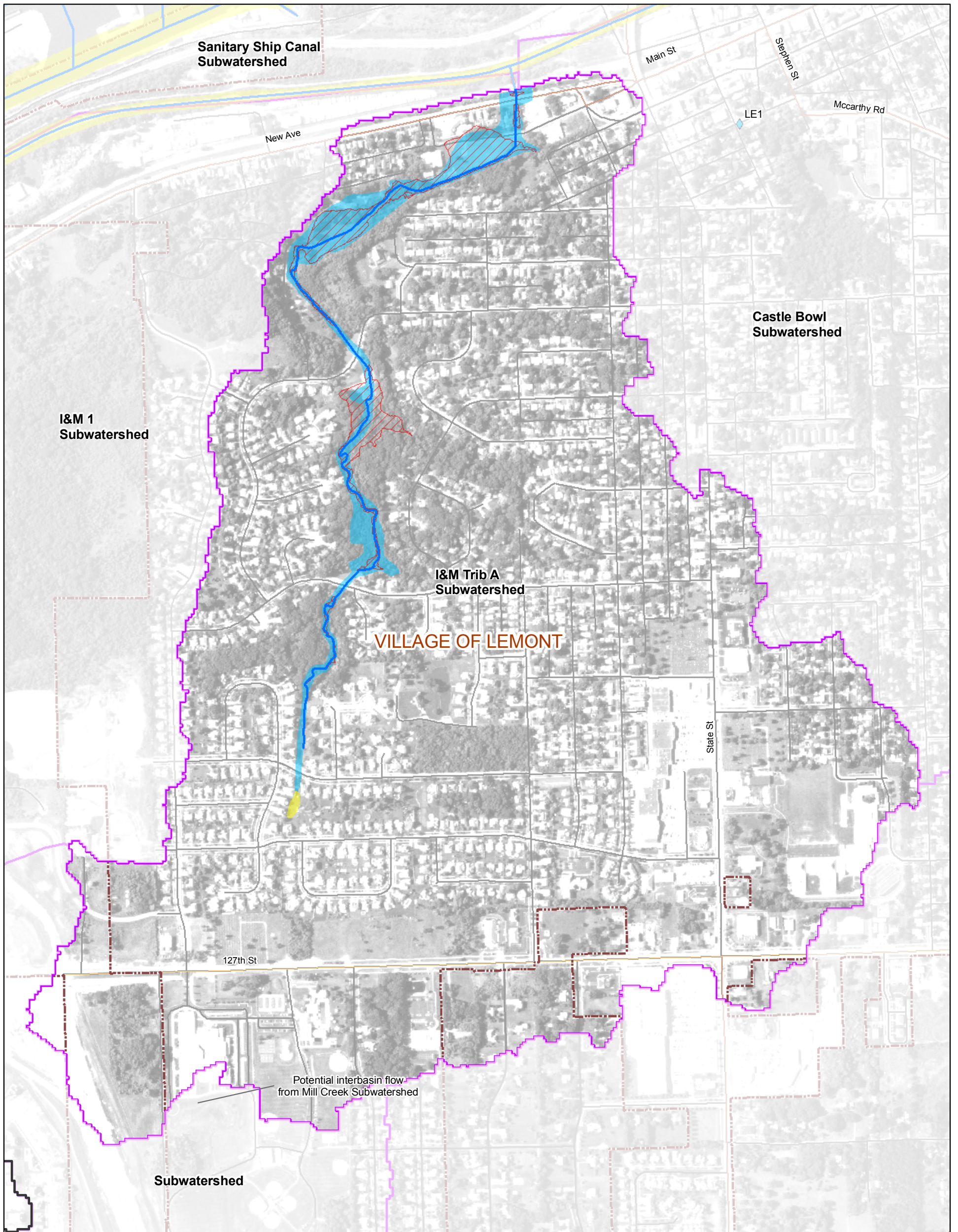
I&M Canal

Alternative IMCA-1

Existing and Alternative Inundation Areas

Calumet-Sag Channel Detailed Watershed Plan





LEGEND			
Problem Type			
Regional			
■ Bank Erosion	★ Problem Area Identified Through Modeling	FEMA Floodplain	— River/Stream
▲ Maintenance	⊕ Project Alternative Location	■ Zone A, AH and AO	— Interstate
● Overbank Flooding	* Candidate Structure(s) for Floodproofing/Acquisition	■ Zone AE	— US Highway
◆ Pavement Flooding	▨ DWP 100-year Inundation Area	▭ Calumet-Sag Channel Watershed Boundary	— Major Road
★ Ponding	⊞ Not Modeled in DWP	▭ Subwatershed Boundary	▭ Municipal Boundary
◆ Storm Sewer Flow Restriction			▭ Cook County Boundary
Local			
■ Bank Erosion			
▲ Maintenance			
● Overbank Flooding			
◆ Pavement Flooding			
★ Ponding			
◆ Storm Sewer Flow Restriction			

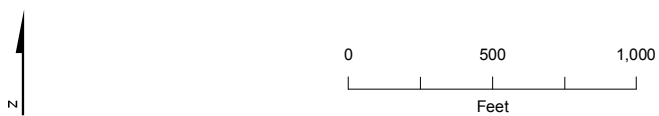
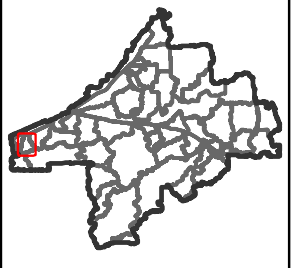
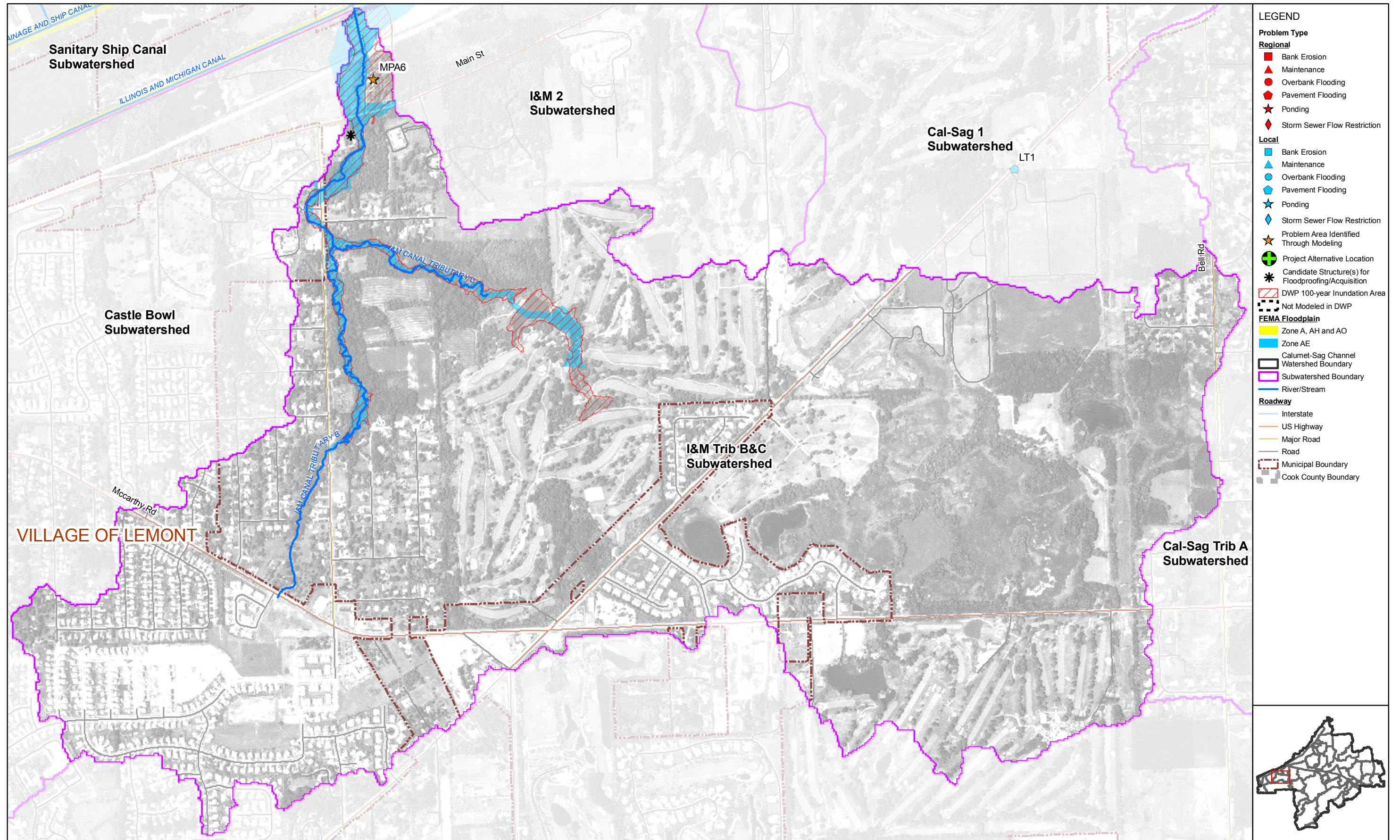


Figure 3.12.1
Tributary Overview: I&M Trib A
Calumet-Sag Channel Detailed Watershed Plan



- LEGEND**
- Problem Type**
- Regional**
- Bank Erosion
 - ▲ Maintenance
 - Overbank Flooding
 - ◆ Pavement Flooding
 - ★ Ponding
 - ◆ Storm Sewer Flow Restriction
- Local**
- Bank Erosion
 - ▲ Maintenance
 - Overbank Flooding
 - ◆ Pavement Flooding
 - ★ Ponding
 - ◆ Storm Sewer Flow Restriction
 - ★ Problem Area Identified Through Modeling
 - ⊕ Project Alternative Location
 - * Candidate Structure(s) for Floodproofing/Acquisition
 - ▨ DWP 100-year Inundation Area
 - ▨ Not Modeled in DWP
- FEMA Floodplain**
- Zone A, AH and AO
 - Zone AE
- Calumet-Sag Channel Watershed Boundary**
- ▭ Watershed Boundary
 - ▭ Subwatershed Boundary
 - ▭ River/Stream
- Roadway**
- ▭ Interstate
 - ▭ US Highway
 - ▭ Major Road
 - ▭ Road
 - ▭ Municipal Boundary
 - ▭ Cook County Boundary

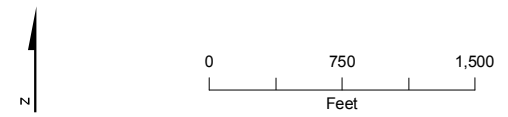
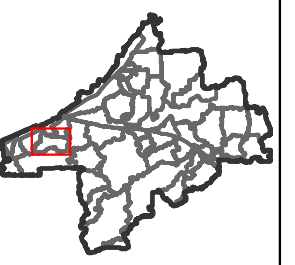
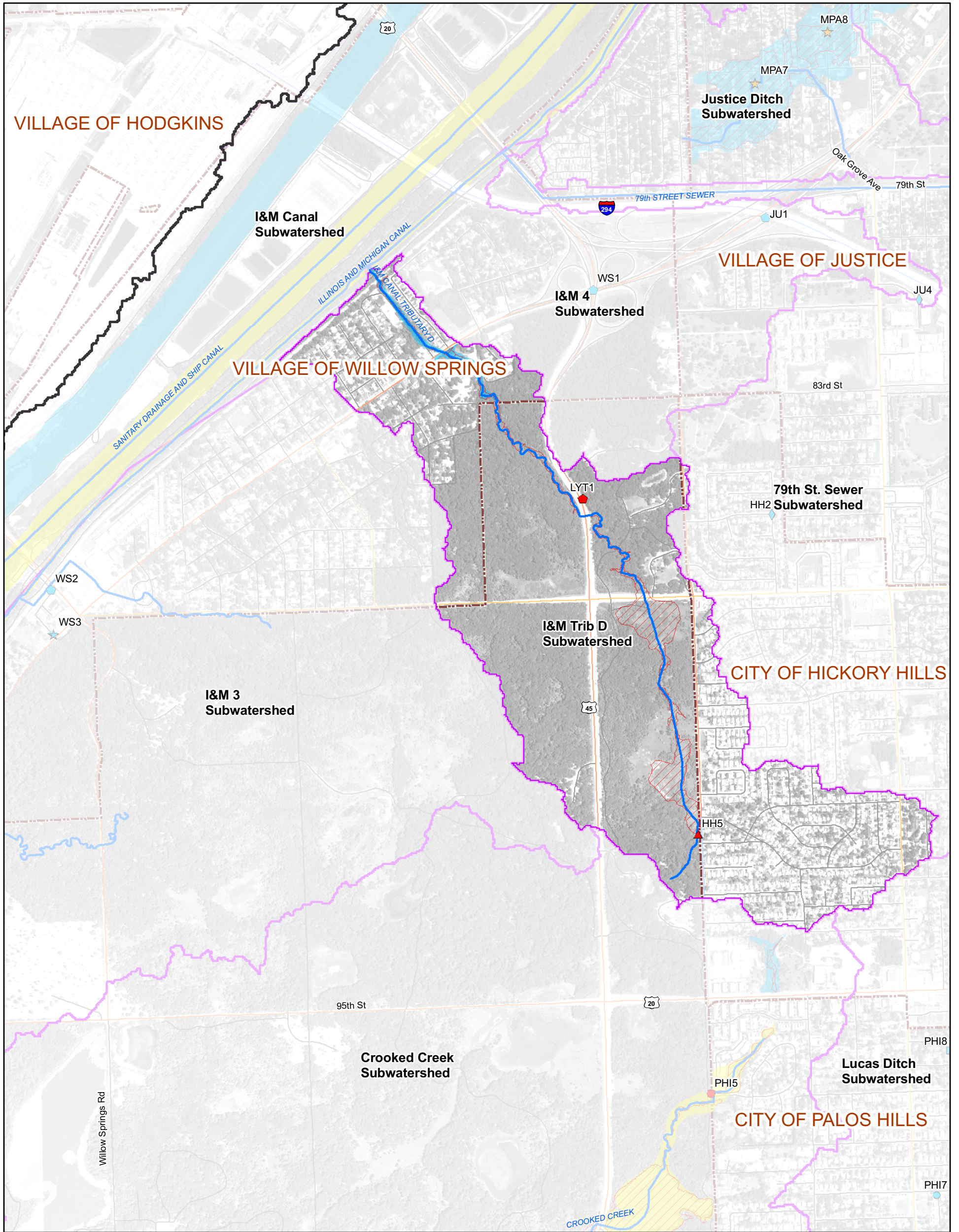


Figure 3.13.1
Tributary Overview: I&M Trib B&C
Calumet-Sag Channel Detailed Watershed Plan



LEGEND		Problem Area Identified Through Modeling		FEMA Floodplain		River/Stream	
Problem Type		★	Project Alternative Location	Yellow	Zone A, AH and AO	Blue line	River/Stream
Regional		⊕	Candidate Structure(s) for Floodproofing/Acquisition	Light Blue	Zone AE	Blue line with dashes	Roadway
Red square	Bank Erosion	⊛	DWP 100-year Inundation Area	Dark Blue	Calumet-Sag Channel	Blue line with dots	Interstate
Red triangle	Maintenance	⊞	Not Modeled in DWP	Blue	Watershed Boundary	Orange line	US Highway
Red circle	Overbank Flooding	⊠		Light Purple	Subwatershed Boundary	Yellow line	Major Road
Red diamond	Pavement Flooding	⊡		Dark Purple		Orange line with dashes	Municipal Boundary
Red star	Ponding	⊣				Grey line	Cook County Boundary
Red diamond with star	Storm Sewer Flow Restriction	⊤					
Local							
Blue square	Bank Erosion						
Blue triangle	Maintenance						
Blue circle	Overbank Flooding						
Blue diamond	Pavement Flooding						
Blue star	Ponding						
Blue diamond with star	Storm Sewer Flow Restriction						

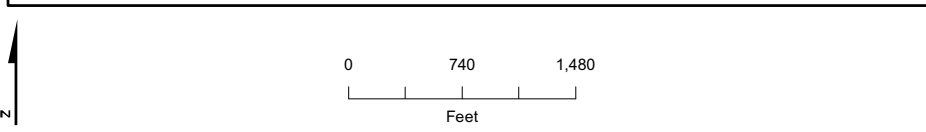
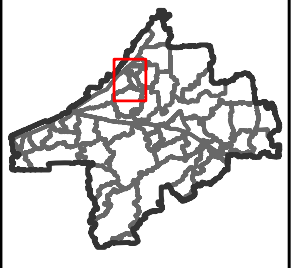


Figure 3.14.1
Tributary Overview: I&M Trib D
Calumet-Sag Channel Detailed Watershed Plan

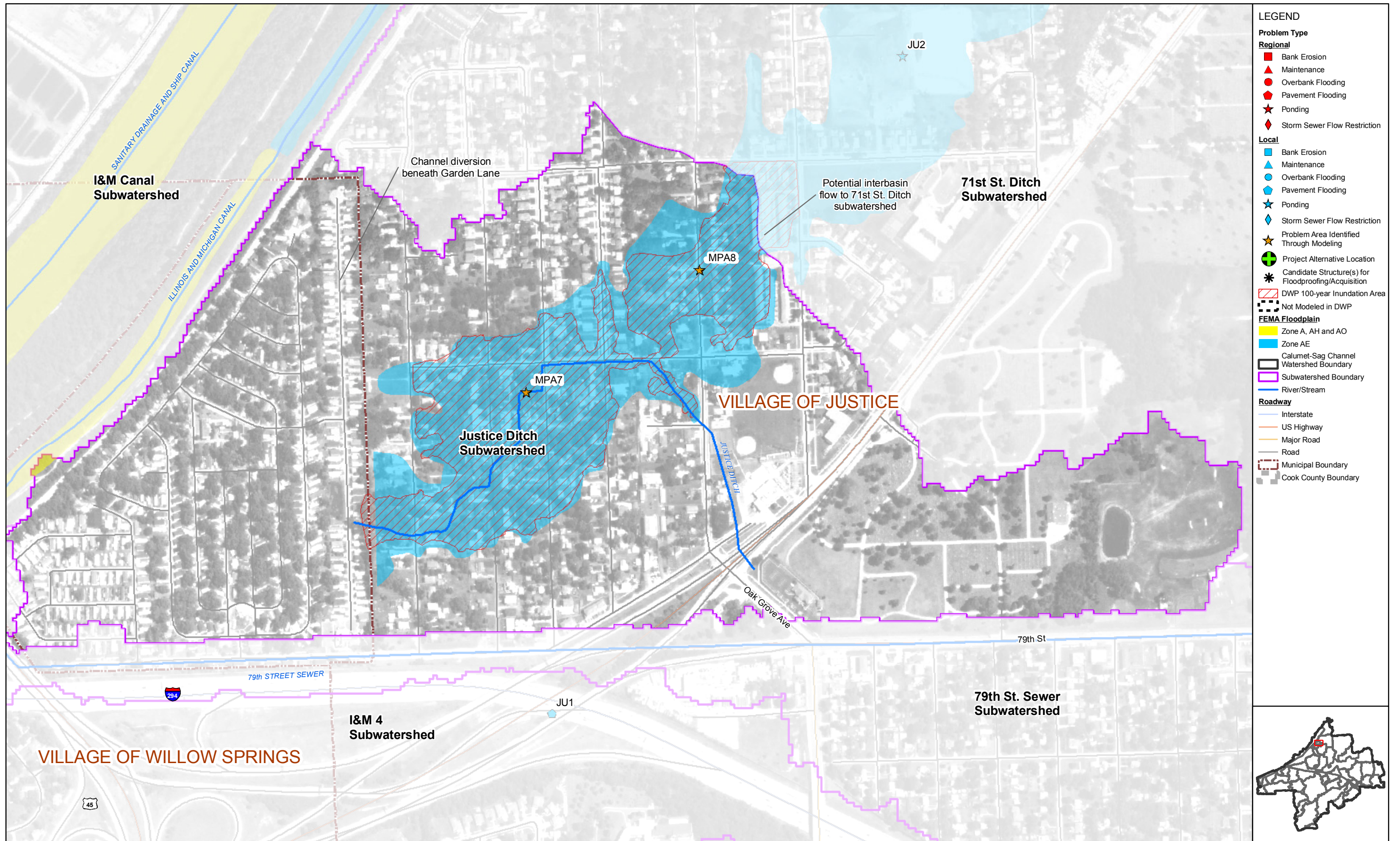
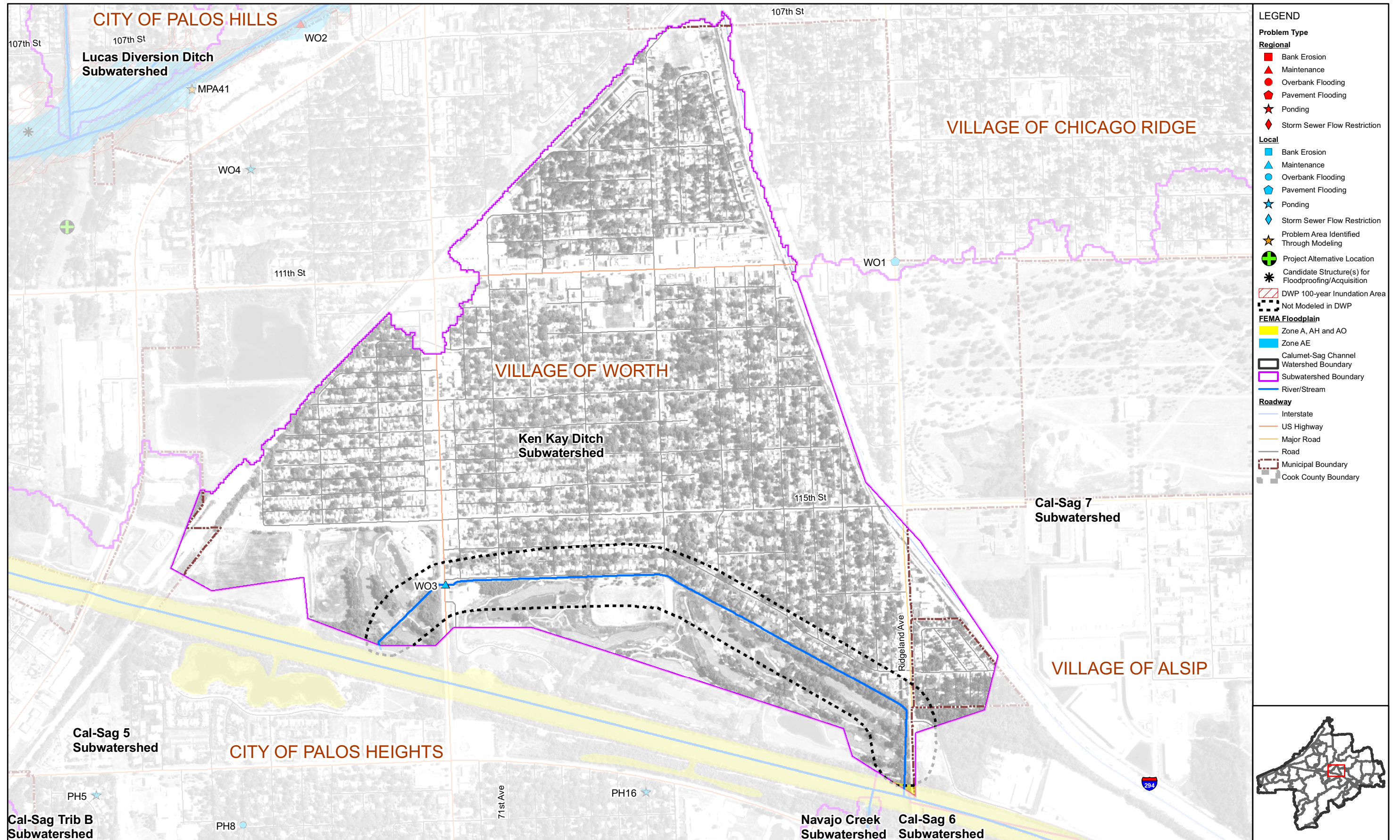


Figure 3.15.1
 Tributary Overview: Justice Ditch
 Calumet-Sag Channel Detailed Watershed Plan





LEGEND

Problem Type

Regional

- Bank Erosion
- Maintenance
- Overbank Flooding
- Pavement Flooding
- Ponding
- Storm Sewer Flow Restriction

Local

- Bank Erosion
- Maintenance
- Overbank Flooding
- Pavement Flooding
- Ponding
- Storm Sewer Flow Restriction
- Problem Area Identified Through Modeling
- Project Alternative Location
- Candidate Structure(s) for Floodproofing/Acquisition
- DWP 100-year Inundation Area
- Not Modeled in DWP

FEMA Floodplain

- Zone A, AH and AO
- Zone AE

Calumet-Sag Channel

- Watershed Boundary
- Subwatershed Boundary
- River/Stream

Roadway

- Interstate
- US Highway
- Major Road
- Road

Municipal Boundary

- Municipal Boundary
- Cook County Boundary

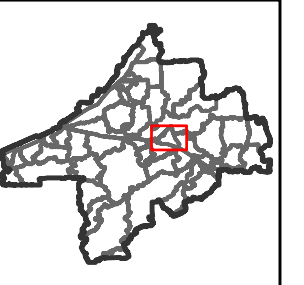
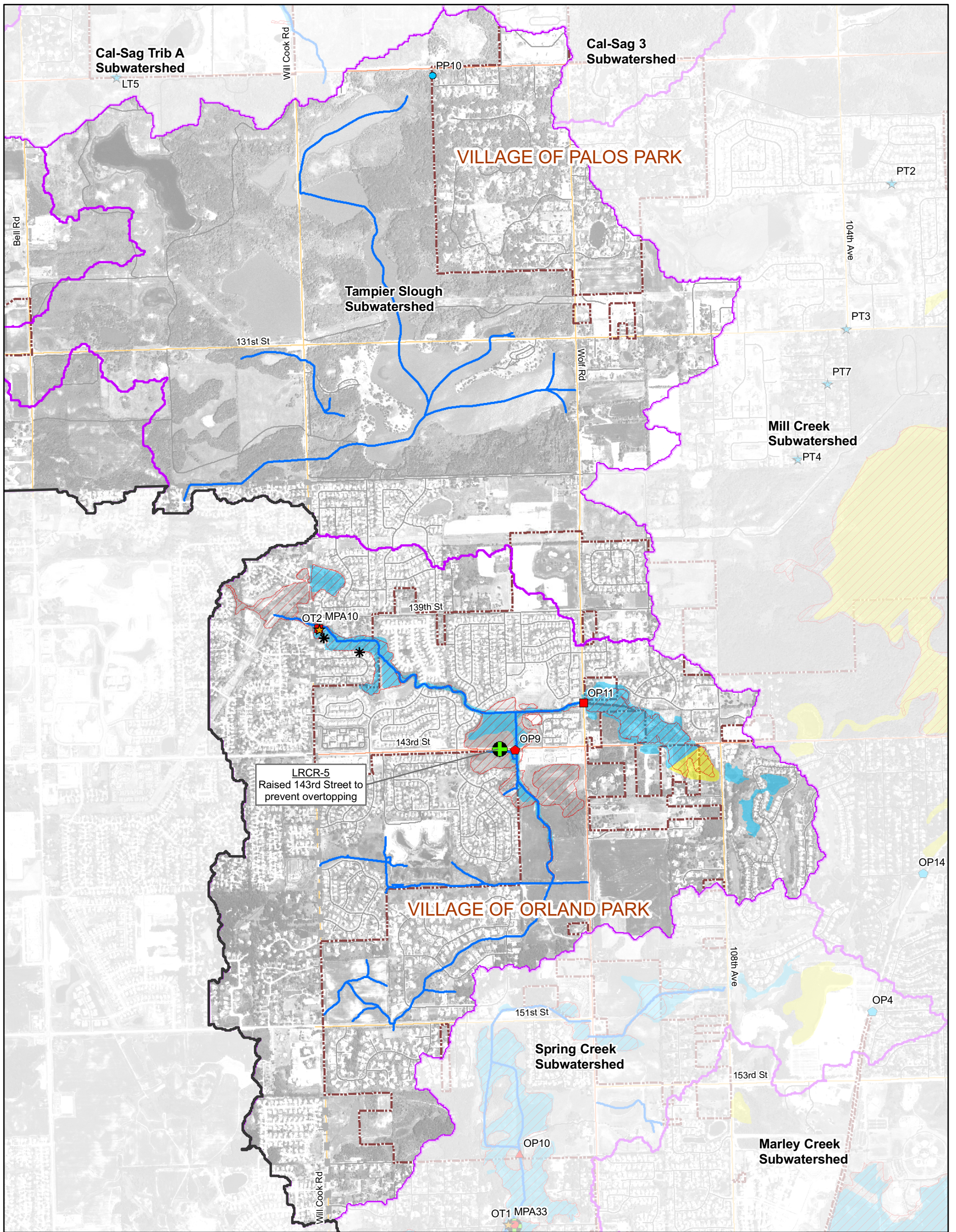


Figure 3.16.1
 Tributary Overview: Ken Kay Ditch
 Calumet-Sag Channel Detailed Watershed Plan



LEGEND		Problem Area Identified Through Modeling		FEMA Floodplain		River/Stream	
Problem Type		★	Project Alternative Location	Yellow	Zone A, AH and AO	Blue line	River/Stream
Regional		⊕	Candidate Structure(s) for Floodproofing/Acquisition	Light Blue	Zone AE	Blue line with dashes	Roadway
Red square	Bank Erosion	⊗	DWP 100-year Inundation Area	White with black outline	Calumet-Sag Channel Watershed Boundary	Blue line with thick dashes	Interstate
Red triangle	Maintenance	⊘	Not Modeled in DWP	Purple outline	Subwatershed Boundary	Blue line with thin dashes	US Highway
Red circle	Overbank Flooding					Orange line	Major Road
Red pentagon	Pavement Flooding					Yellow line	Municipal Boundary
Red star	Ponding					Grey line	Cook County Boundary
Red diamond	Storm Sewer Flow Restriction						
Local							
Blue square	Bank Erosion						
Blue triangle	Maintenance						
Blue circle	Overbank Flooding						
Blue pentagon	Pavement Flooding						
Blue star	Ponding						
Blue diamond	Storm Sewer Flow Restriction						

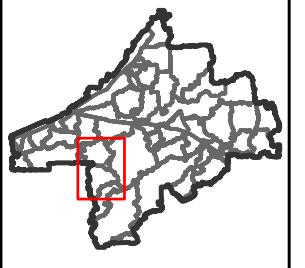


Figure 3.17.1a
Tributary Overview: Long Run Creek (1 of 2)
Calumet-Sag Channel Detailed Watershed Plan

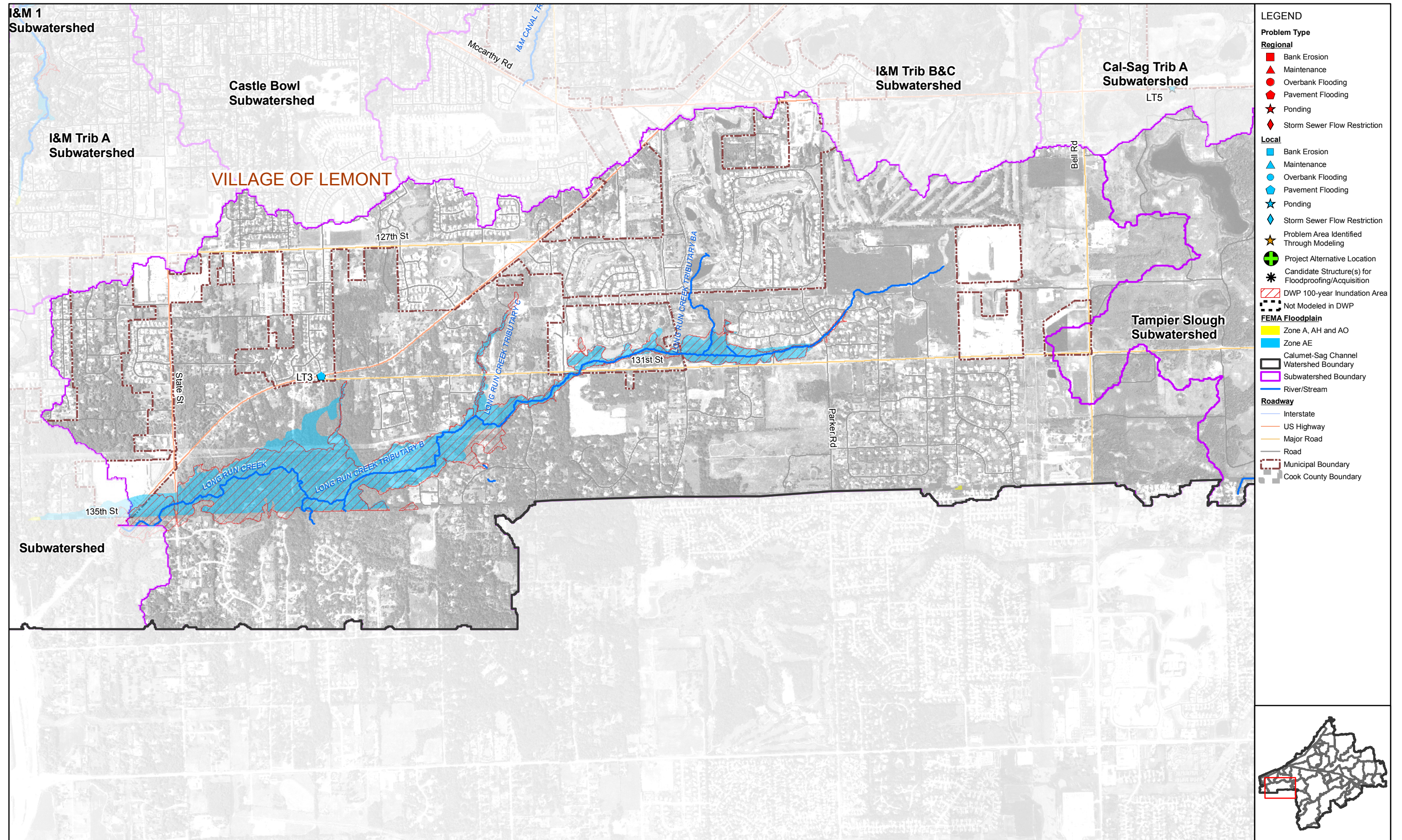


Figure 3.17.1b
 Tributary Overview: Long Run Creek (2 of 2)
 Calumet-Sag Channel Detailed Watershed Plan