Ohio Water Environment Association

Private Property Inflow Removal
A Tale of Two Cities
Lansing and Port Huron, Michigan

June 27, 2001
Session 10

Contributors . . .

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Port
Huron
Lansing

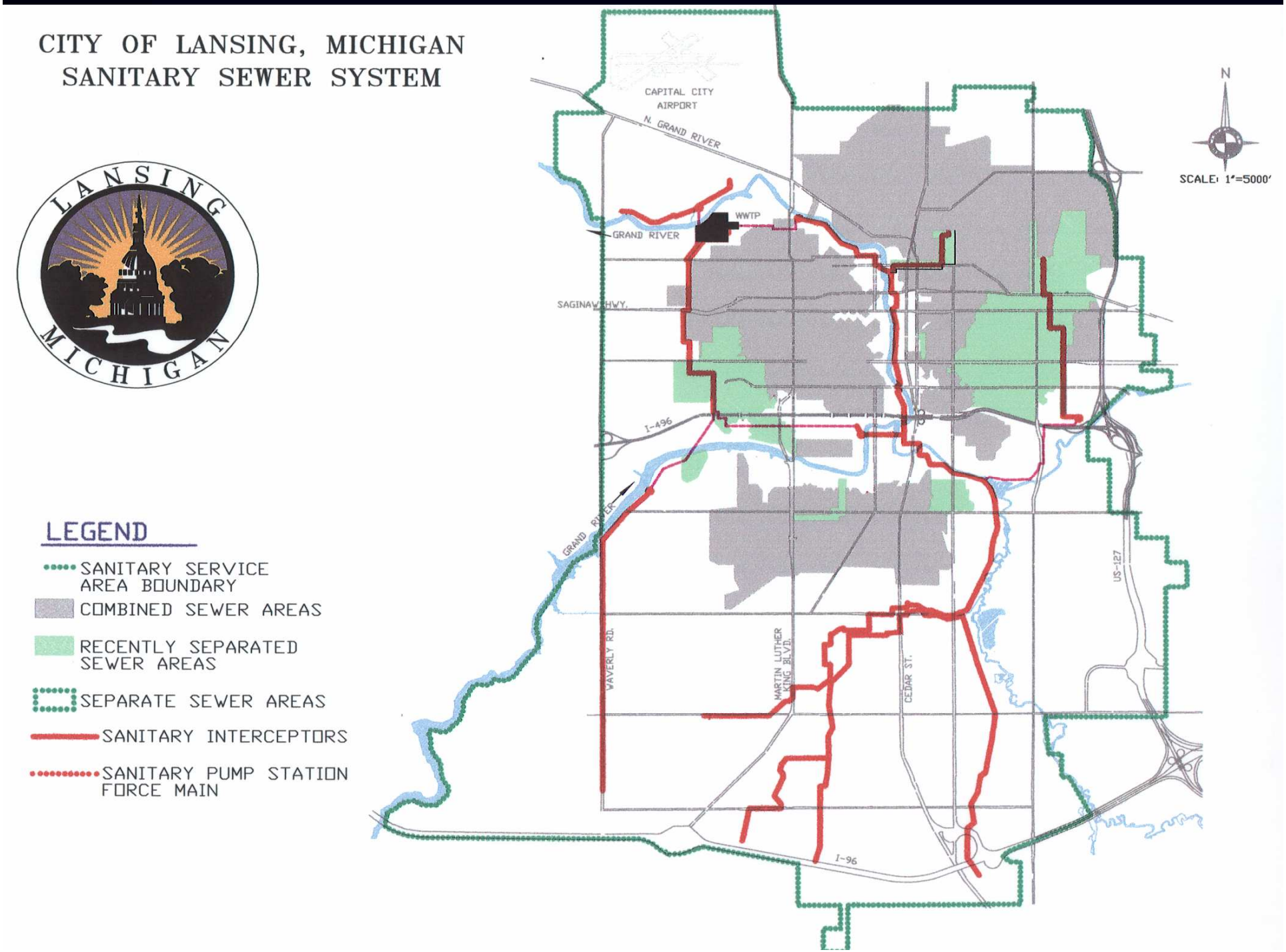
Overview of Presentation

- The “Source Control” Approach
- Why Remove Private Inflow Sources?
- Lansing’s Program
- Inflow Removal Steps
- Port Huron’s Program
- Results
- Other Conclusions

Lansing System Facts

City area:	34 square miles
WWTP Service area:	42 square miles
Service area population:	150,000
Avg. dry weather flow:	15 - 20 MGD
	(100 - 133 GPCP)

CITY OF LANSING, MICHIGAN
SANITARY SEWER SYSTEM

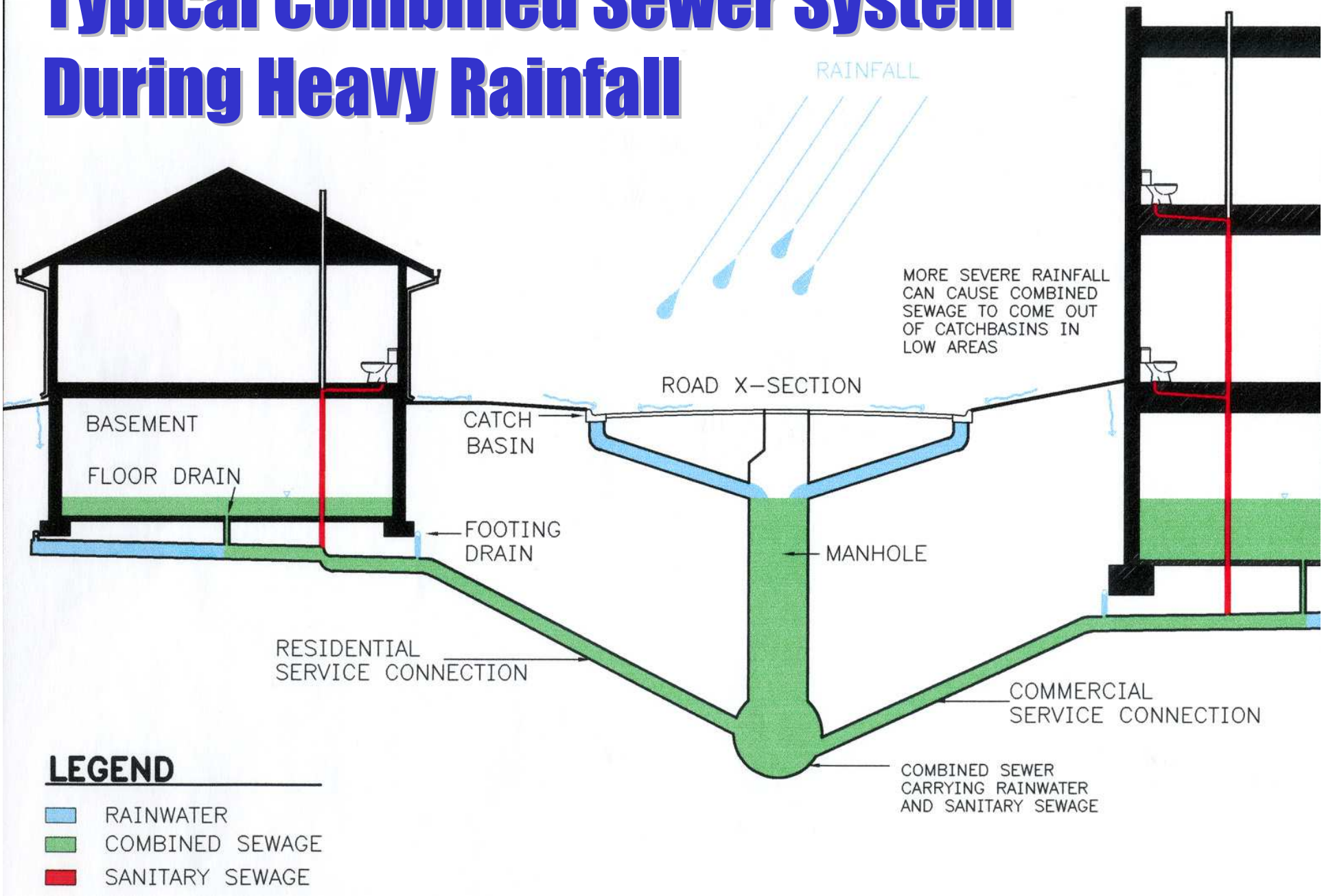


Lansing's Approach is **"Source Control" -** Remove the Problem at its Source.

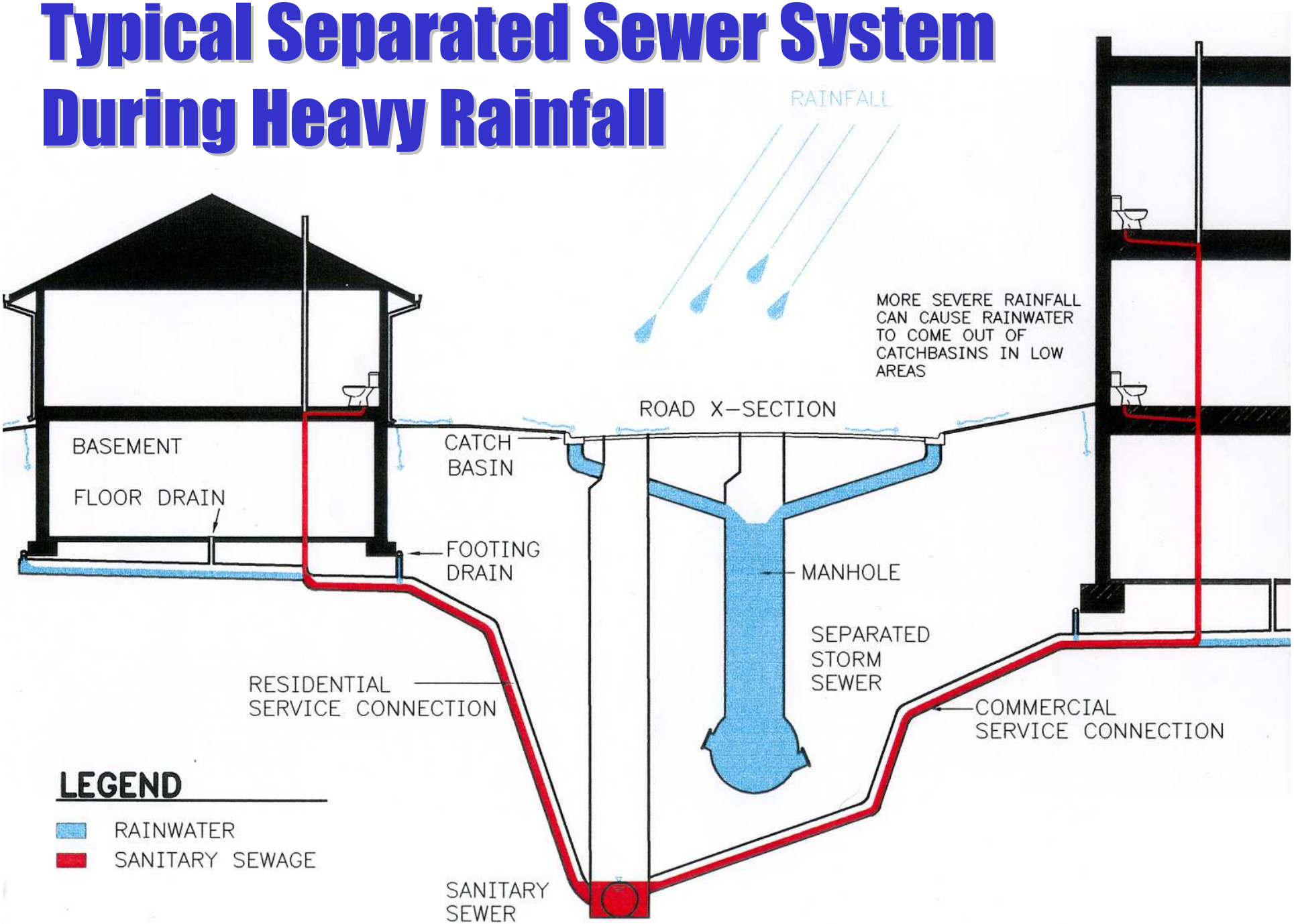
Source Control Examples

- **Combined sewer separation**
- **Private property inflow removal**
- Industrial pretreatment
- Stormwater good housekeeping practices / illicit discharge removal
- Solid waste recycling

Typical Combined Sewer System During Heavy Rainfall

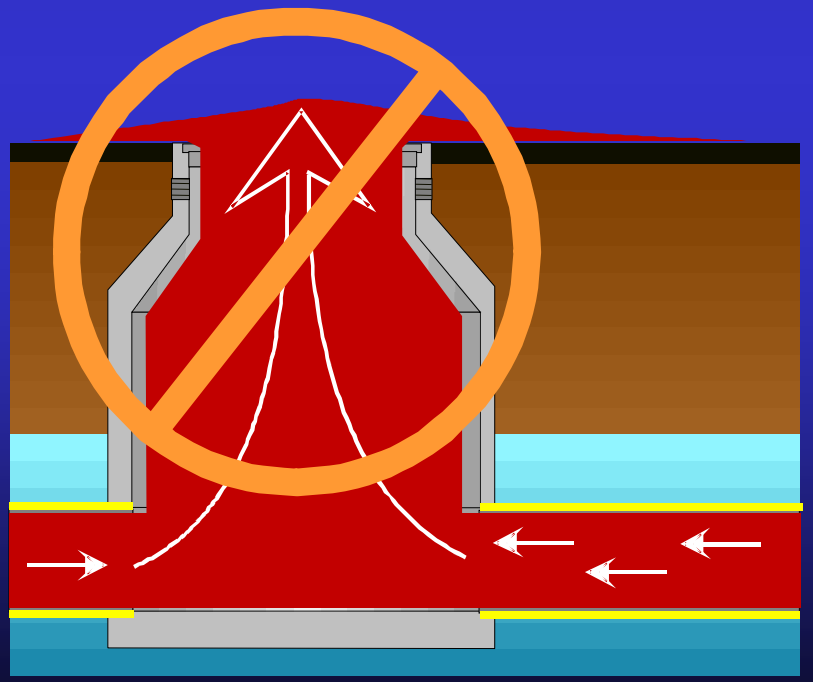


Typical Separated Sewer System During Heavy Rainfall



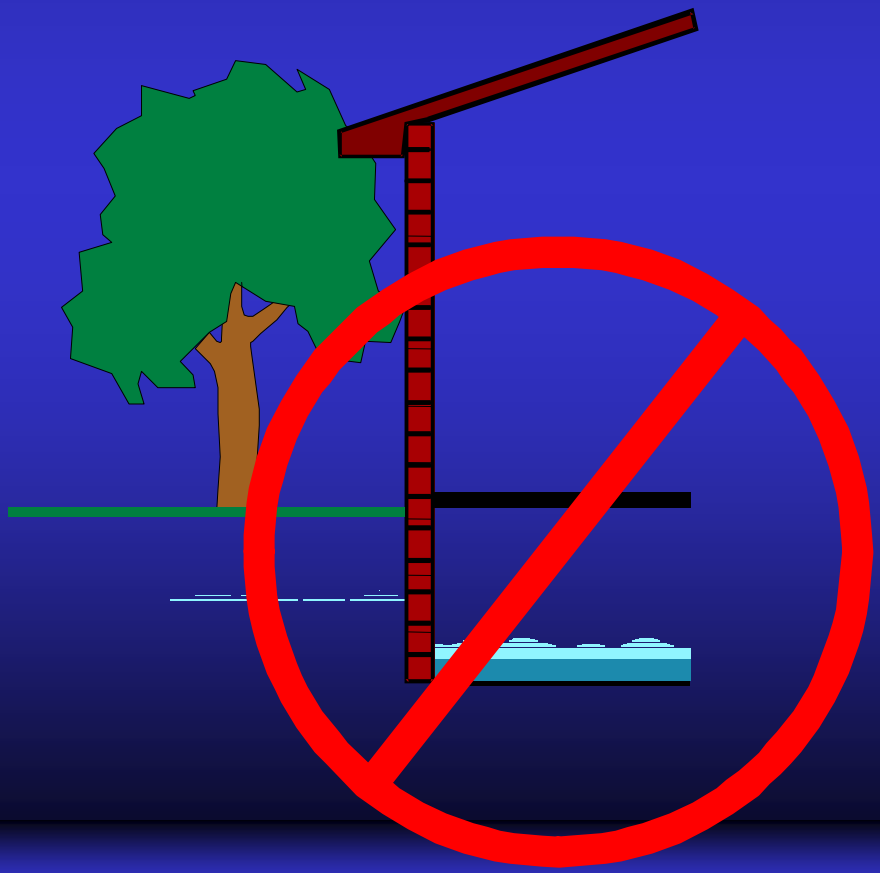
Why Remove Private Inflow Sources?

- Prevent separate sanitary sewer overflows (SSOs)



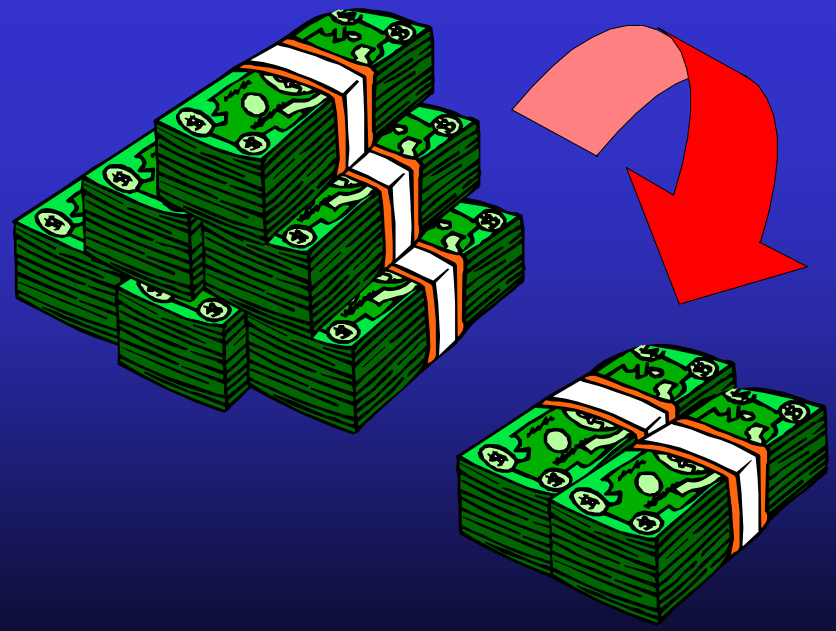
Why Remove Private Inflow Sources?

- Prevent Basement Flooding



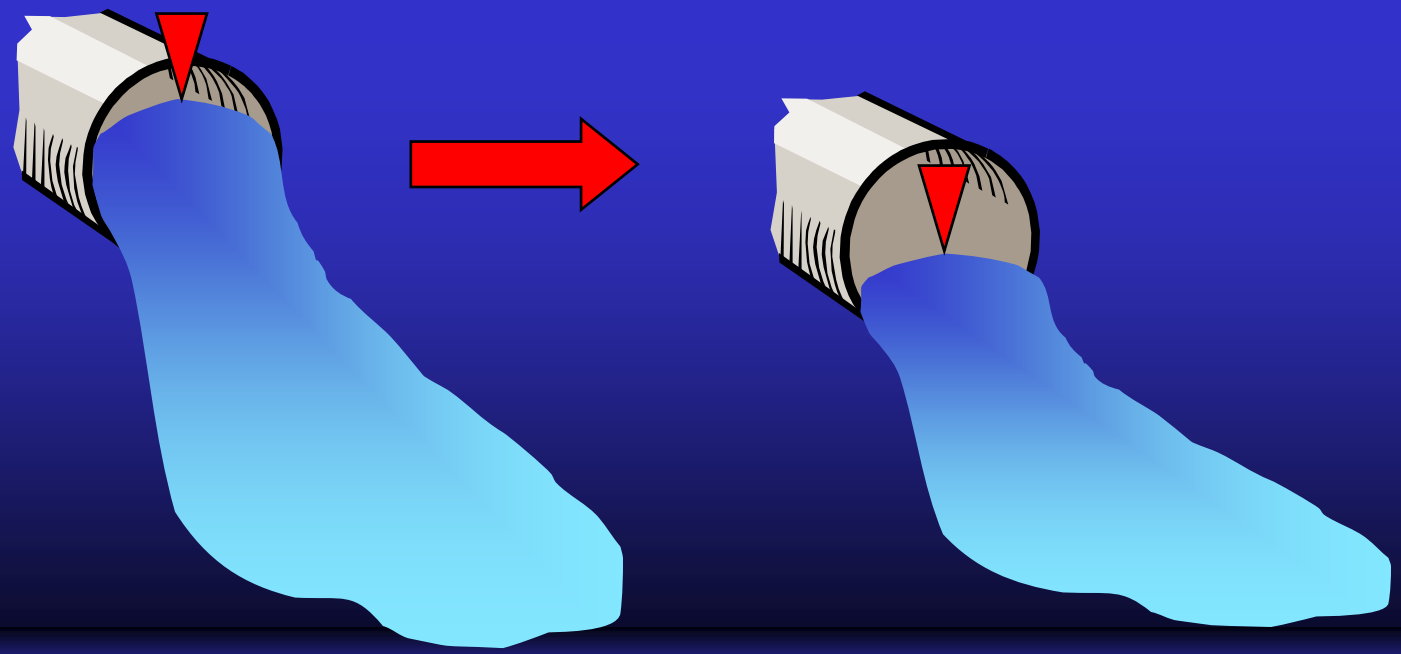
Why Remove Private Inflow Sources?

- Reduce sewage transportation and treatment costs



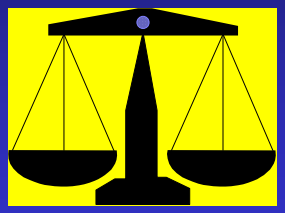
Why Remove Private Inflow Sources?

- Provide additional transportation and treatment capacity



Lansing's Program Elements Overview

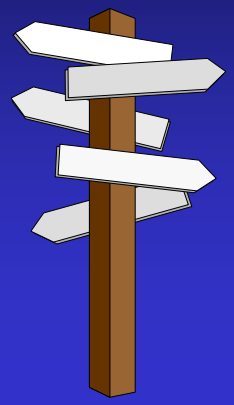
- Private Inflow Ordinance



- Property Owner Education/Information
- City Identification of Inflow Sources

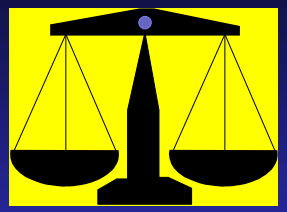
- Tracking and Follow-Up

Lansing's Program Elements Overview



- Flexibility on Removal Method/Schedule

Lansing's Ordinance 1040.10



- **Prohibited discharges to sanitary sewers:** No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof run-off, cooling water or unpolluted industrial process waters into any sanitary sewer

- inspect your property . . .
- fill out and return questionnaire . . .
- budget and plan for disconnection . . .

PUBLIC SERVICE DEPARTMENT

732 City Hall
124 W. Michigan Ave.
Lansing, MI 48933-1691
(517) 483-4455
FAX (517) 483-7630

LETTER A

July 22, 1994

Re: SEWER SEPARATION PROJECT

Dear Property Owner:

Lansing has begun a long-term project that will eliminate the City's combined sewers-single sewer pipes that contain both sanitary sewer water and storm water. The project, which includes adding a new pipe to handle sanitary sewer water, should help reduce basement flooding problems some residents have experienced. The City is required by federal law to implement this program. If we fail to do so, we [illegible] per day.

[illegible]ewer lines in your area may begin May of 1995.

[illegible]r communicating with you at this time. First, we are asking you to fill [illegible]tionnaire so that we can design a system to serve you properly. Second, [illegible]me to disconnect sources of rainwater from your sanitary sewer piping. [illegible] discharging storm or ground water to the City's sanitary sewers is a [illegible]ction 1040.10). All sources of rainwater, including downspouts (and [illegible]rains, driveway drains, stairwell drains, etc., must be disconnected from [illegible] to separation of sewers in your area.

The following is a summary of steps you should take:

1. Thoroughly inspect your property using the enclosed information sheets, to identify all connections of rainwater sources to your sanitary sewer piping.
2. Fill out and return the enclosed questionnaire in the envelope provided.
3. Budget and plan for disconnection of the rainwater sources from your sanitary sewer piping.

Our goal is to work with you and help make sure you are in compliance with City ordinances. If you're not sure whether you have any improper connections, or if you have a question about what to do on your property, please contact the City of Lansing's **Private Inflow Line at 694-3334**. The City's project consultant, McNamee, Porter and Seeley will respond to your questions.

Sincerely,

Lansing residents and property owners are an important part of the success of the CSO Control Project.

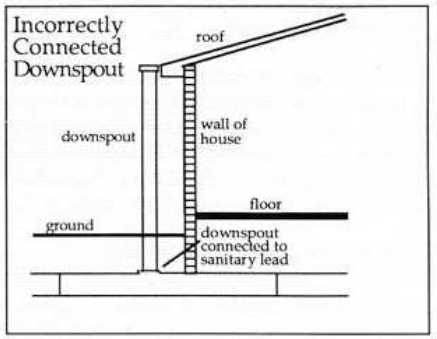
. . . basement flooding could occur if you-or your neighbors-fail to remove any I/I sources . . .

Help Lansing dry out.

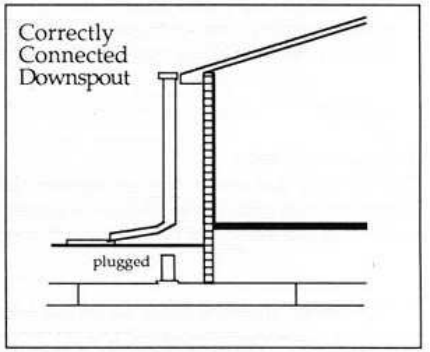
Make the connection correction.

The problem.
Forty to fifty times a year, heavy rains and spring thaws send millions of gallons of sanitary sewage and storm water rushing into the Grand and Red Cedar Rivers, polluting one of our city's greatest natural resources. That's because Lansing's aging combined sewer system can't always handle the load.

The solution.
It won't be easy or quick. But Lansing's Public Service Department is working on a massive project to fix the problem. A project so big it will take 30 years and $176 million to complete. The project—called Combined Sewer Overflow Control—begins in the late spring of 1992 in three Lansing neighborhoods and continues in six, five-year phases, a few neighborhoods at a time, until the city's entire sanitary sewer system is separated from its storm water removal system.

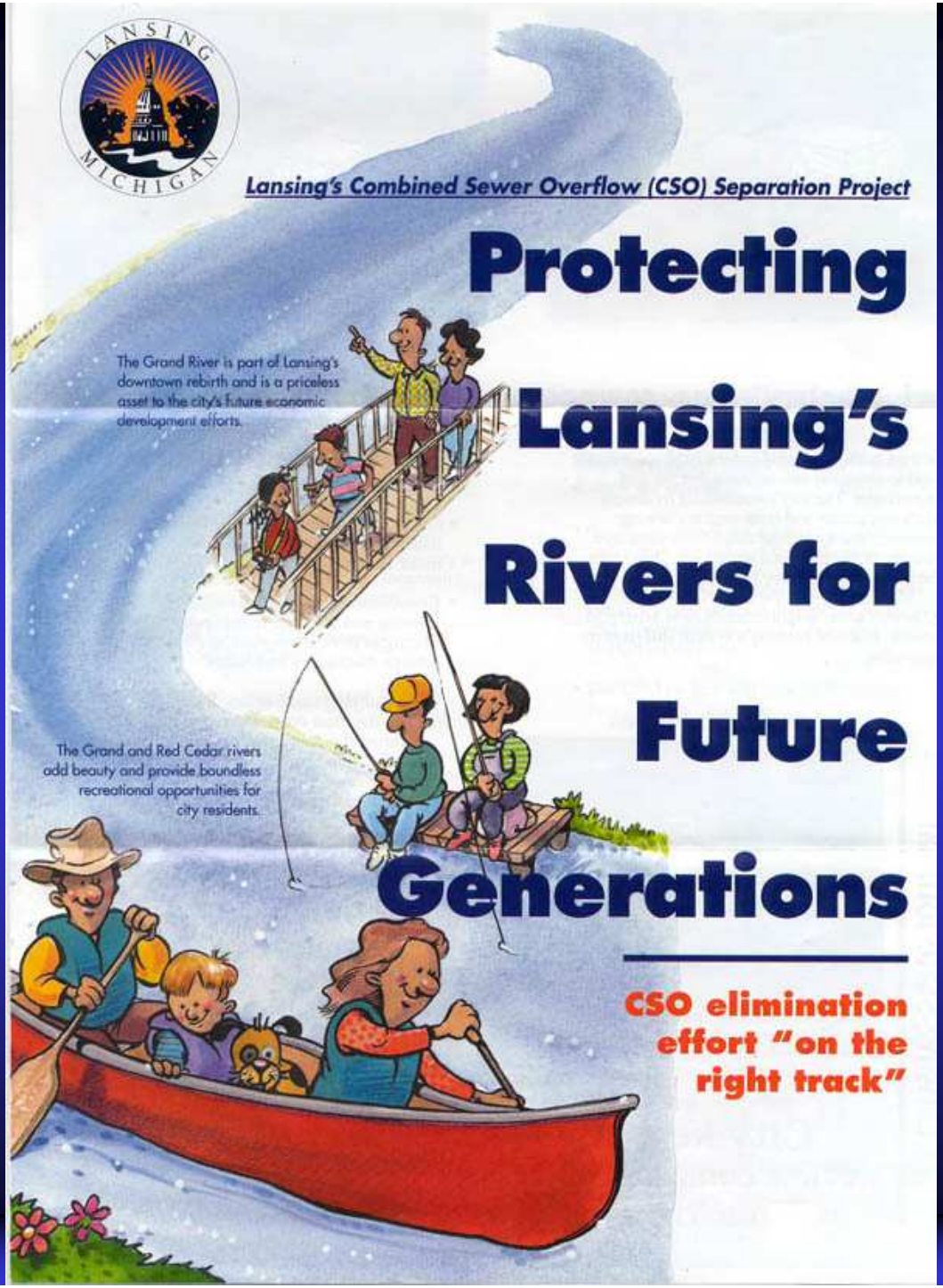


Lansing residents and property owners are an important part of the success of the CSO Control Project. Once the Lansing Public Service Department has separated the storm and sanitary sewer pipes, each resident and/or property owner is responsible for making sure that all sources of water from their property are being routed to the proper pipe. City ordinances require that all sources of storm or groundwater be removed from the sanitary sewer system. These sources of storm or groundwater are called "I/I's", which stands for "inflow/infiltration", once they enter the sanitary sewer system.



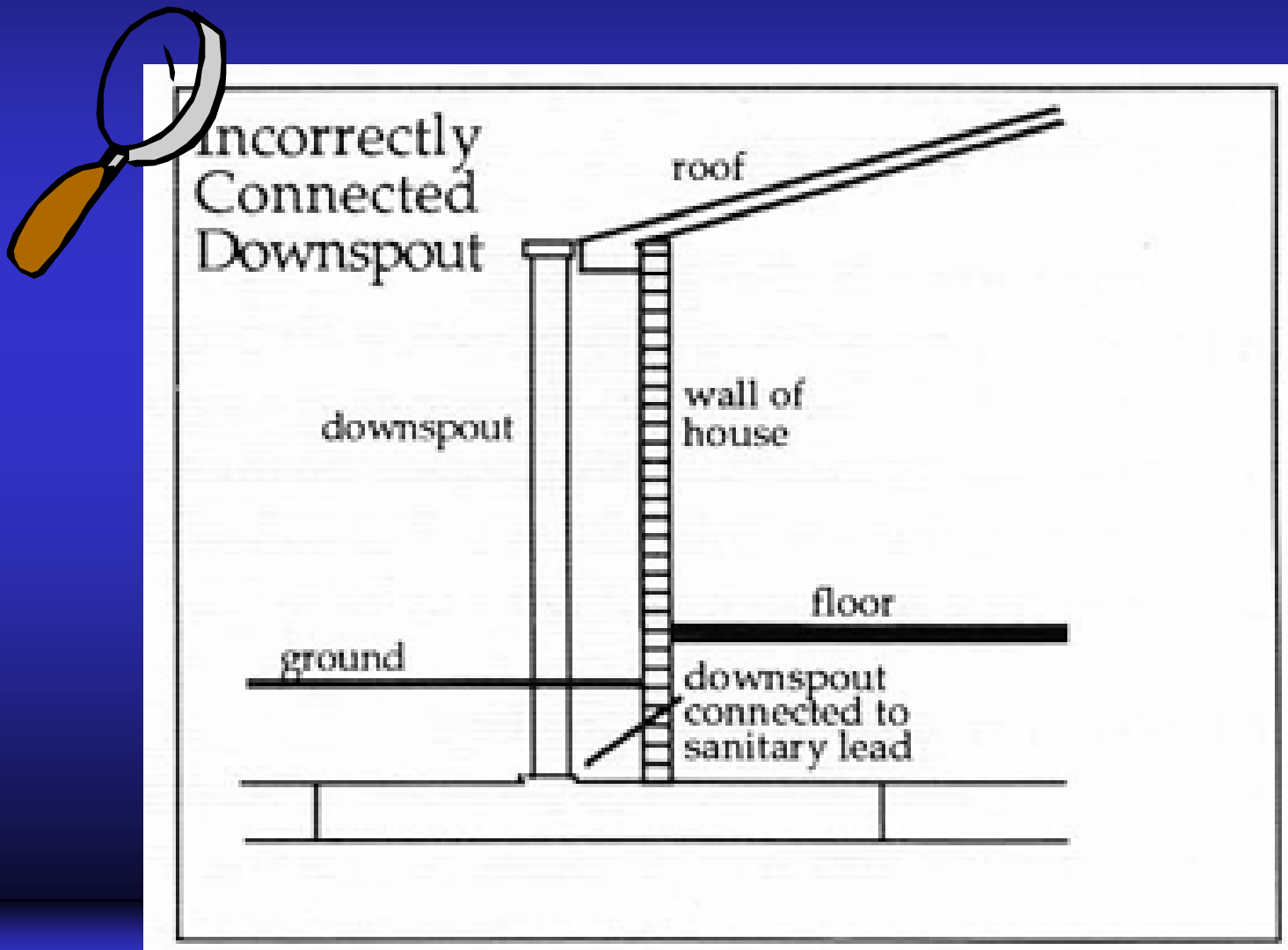
What are inflow and infiltration (I/I) sources?
Typical I/I sources include gutters, downspouts, window well drains, patio drains, driveway drains, foundation drains, internal drains and catch basin drains.

Why I/I sources must be removed.
Once the city separates a combined sewer, basement flooding could occur if you—or your neighbors—fail to remove any I/I sources. Believe it or not, a single drain spout illegally hooked up to the city's sanitary sewer line can mean a flooded basement at a neighbor's home two doors down the street.


LANSING
MICHIGAN
Lansing's Combined Sewer Overflow (CSO) Separation Project
Protecting Lansing's Rivers for Future Generations
The Grand River is part of Lansing's downtown rebirth and is a priceless asset to the city's future economic development efforts.
The Grand and Red Cedar rivers add beauty and provide boundless recreational opportunities for city residents.
CSO elimination effort "on the right track"

Private Inflow Hotline

City Identification of Inflow Sources



Tracking and Follow-Up

- ✓ You are hereby notified that you must correct the following condition on this property. This correction must be completed prior to the separation of sewers in front of this property.

COMBINED SEWER SYSTEM 11692

CITY OF LANSING • DEPARTMENT OF PUBLIC SERVICE • LANSING, MICHIGAN
124 W. Michigan Avenue, 732 City Hall, Lansing, MI 48933; Ph. 517-694-3334

Parcel Number 00-01-14-300-000-0 P.S. # 00004
Name of Owner: WALTER WHITMAN
Owner Mailing Address: 1707 PENNSYLVANIA AVE
LANSING, MI 48820
Phone # Date Mailed 5/17/94

INITIAL INSPECTION

Property Address: 1707 PENNSYLVANIA AVE. Phone #

[11] No noticeable rainwater sources discharging to the sanitary sewer (Property O.K.)

[M] You are hereby notified that you must correct the following condition on this property. **This correction must be completed prior to the separation of sewers in front of this property. If you do not comply, you will be in violation of Section 1040.10 of the City of Lansing Code of Ordinances.** Violations consist of:

[21] Downspout from roof drain(s) connected to the sanitary sewer
[22] Abandoned downspout lead not plugged
Complete a sketch on reverse if inflow exists

Surface drain connected to the sanitary sewer
[31] Yard Drain [32] Driveway Drain [M] Patio Drain [34] Stairwell Drain [39] Other

Cleanout problem
[41] Missing cap [42] Broken or cracked

Comments ABANDON OR REROUTE PATIO DRAIN TO REMOVE INFLOW FROM SANITARY SERVICE LEAD

Inspected by: Date 5/16/94

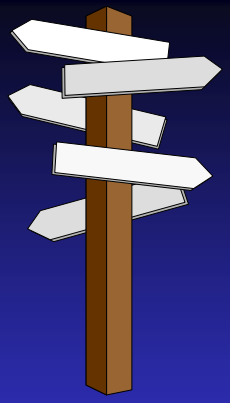
DO NOT WRITE IN THIS SPACE

USE REVERSE FOR SKETCH

Comments ABANDON OR REROUTE PATIO DRAIN TO REMOVE INFLOW FROM SANITARY SERVICE LEAD

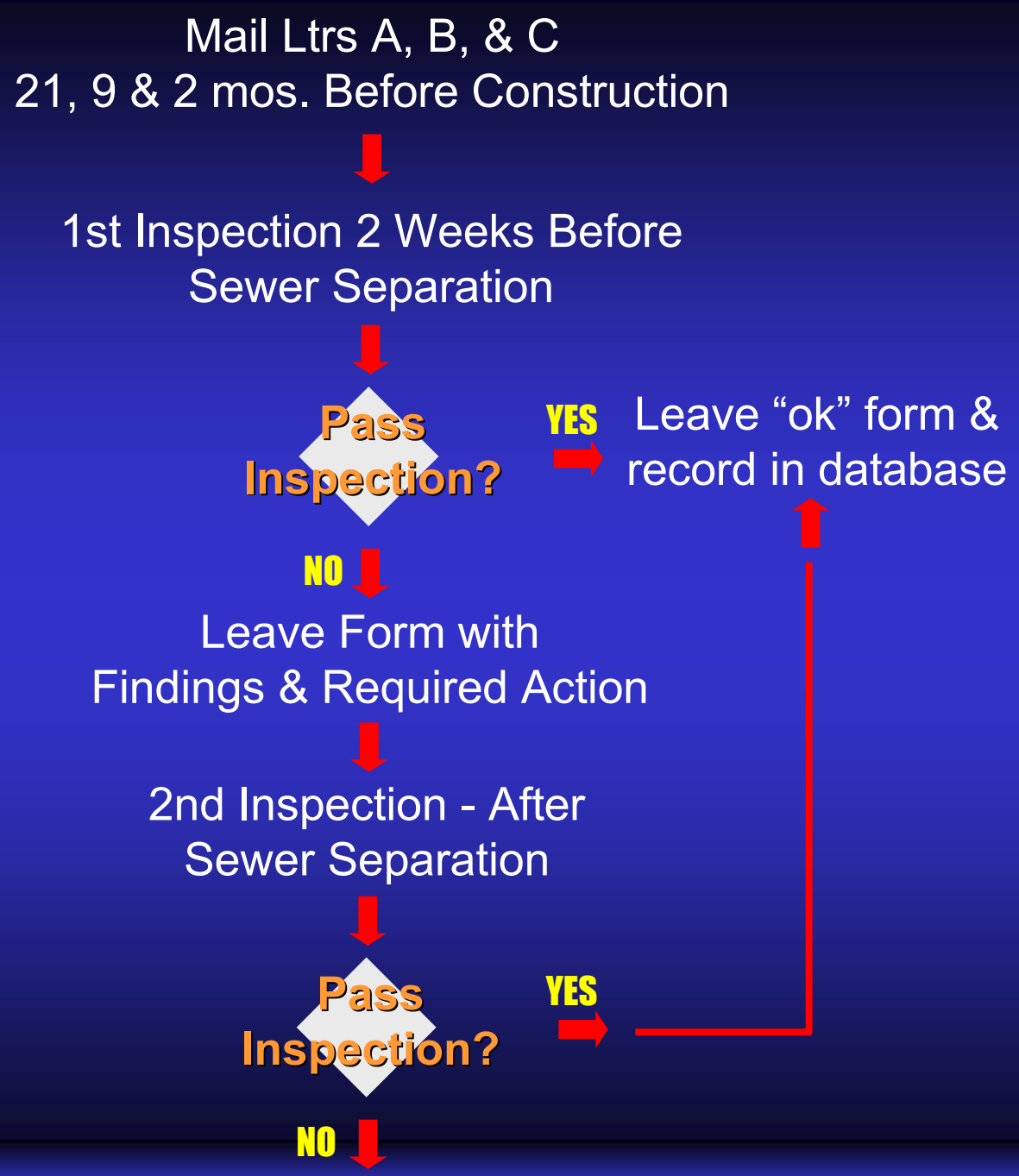
CITY COPY - INSPECTOR
1 white

Flexibility on Removal Method/Schedule



- Listen to Owner's Concerns/Objectives
- Work with Owner's Schedule
- Provide Advice/Concepts - Not Design, Labor, or $$
- Provide Service Lead to Property Line

Inflow Removal Steps



Inflow Removal Steps

Port Huron System Facts

City area:	8 square miles
Service area population:	46,000
Avg. dry weather flow:	9 - 11 MGD
	(196 - 240 GPCP)

Port Huron's Program

- Letter/Information to Property Owners/ Residents
- Telephone Line
- Quarterly Newsletter
- Inspections
- Dye Testing
- Database Tracking
- Inform Property Owners of Action Required

Summary of Lansing and Port Huron CSO Sewer Separation / Private Inflow Removal (Updated Spring 2001)

Description	Lansing	Port Huron
Program construction start	Spring 1992	Spring 1997
Total combined sewer area, acres	6,700	2,358
Combined sewer area separated to date, acres	1,600	1,480
# of properties inspected	4,740	3,602
# of properties with inflow at first inspection	1072 (23% of 4,740)	297 (8% of 3,602)
# of properties where inflow was removed	1,006 (94% of 1,072)	In Progress
# of properties free of inflow	4,674 (97% of 4211)	3,305 (92% of 3,602)

Other Conclusions . . .

- Private property inflow removal is required for acceptable performance
- No design storm allowed – remove inflow and footing drains
- Private property owners will get the job done if . . .
- Private inflow removal efforts may need to be repeated periodically