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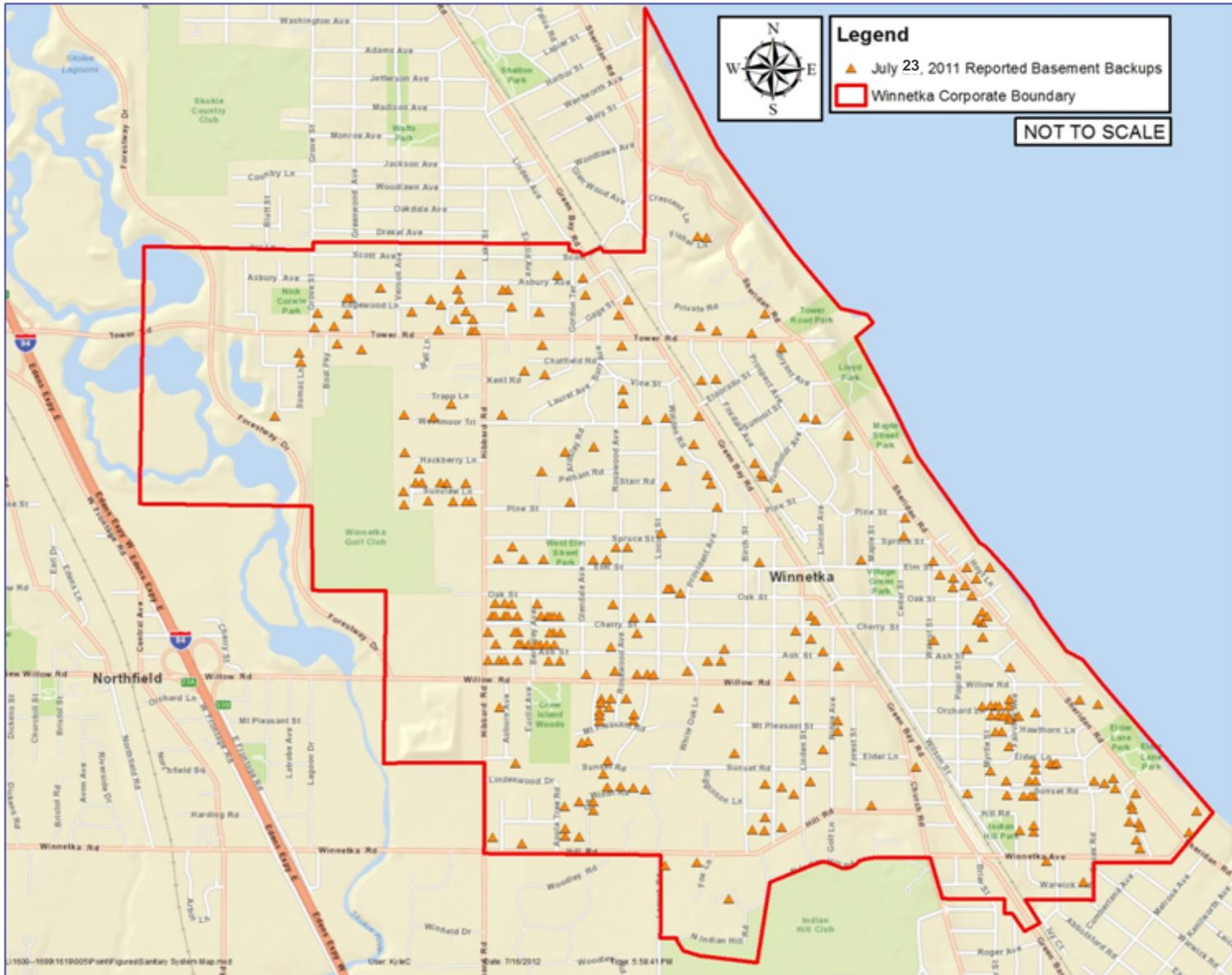
Sanitary Sewer Evaluation Survey Flow Monitoring Results

July 17, 2012

Village of Winnetka



Sanitary Sewer System Contribution to Flooding



SSES Identifies Necessary Sewer System Improvements

Sanitary Sewer Evaluation Survey (SSES)

Characterization Through Flow Monitoring

Prioritization of Problem Areas

Investigation of System Problems

Assessment of Rehabilitation Alternatives

Capital Improvement Program

Flow Monitoring Program Focuses the SSES

Sanitary Sewer Evaluation Survey (SSES)

Characterization Through
Flow Monitoring

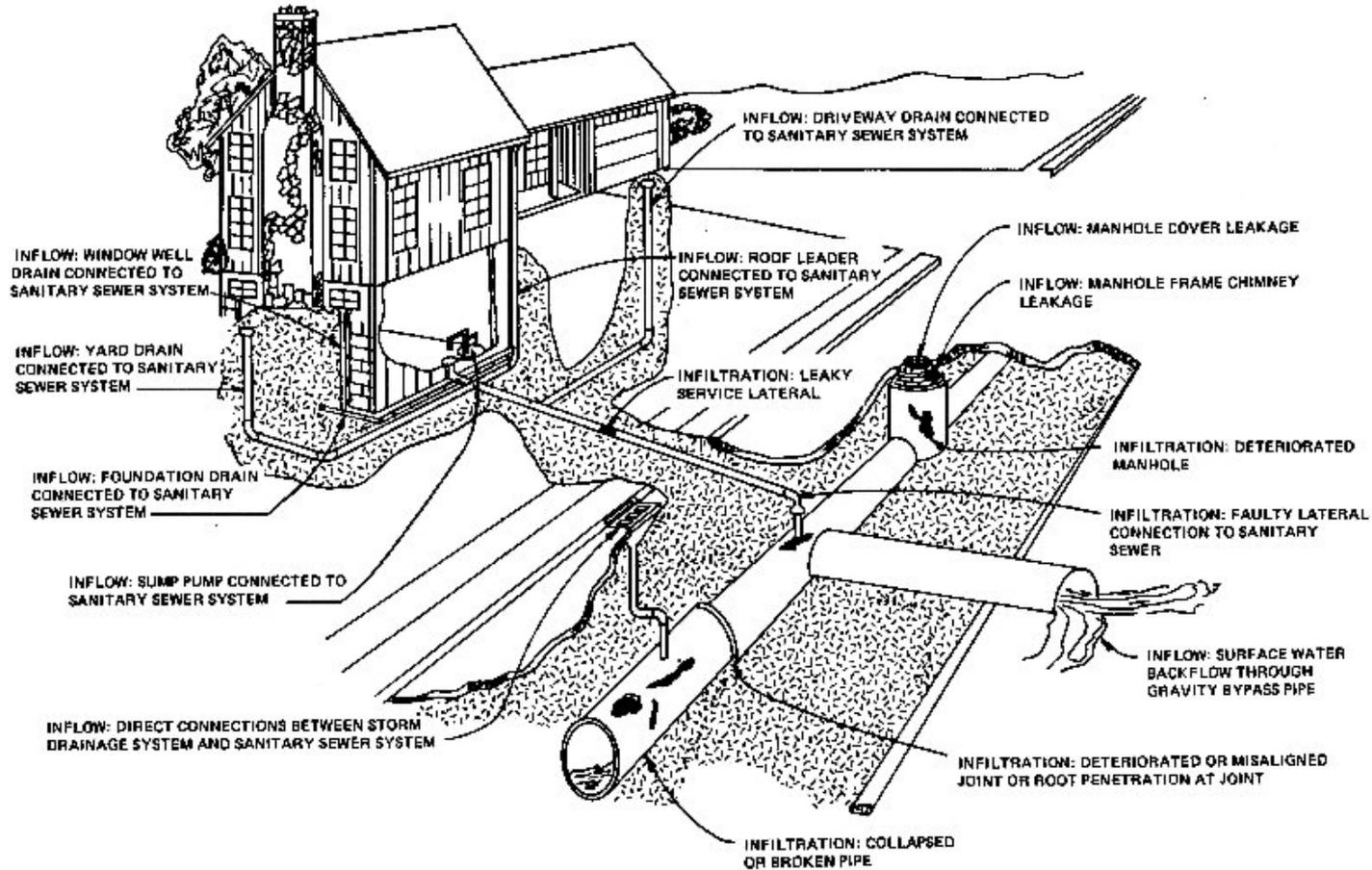
Prioritization of Problem Areas

Investigation of System Problems

Assessment of Rehabilitation
Alternatives

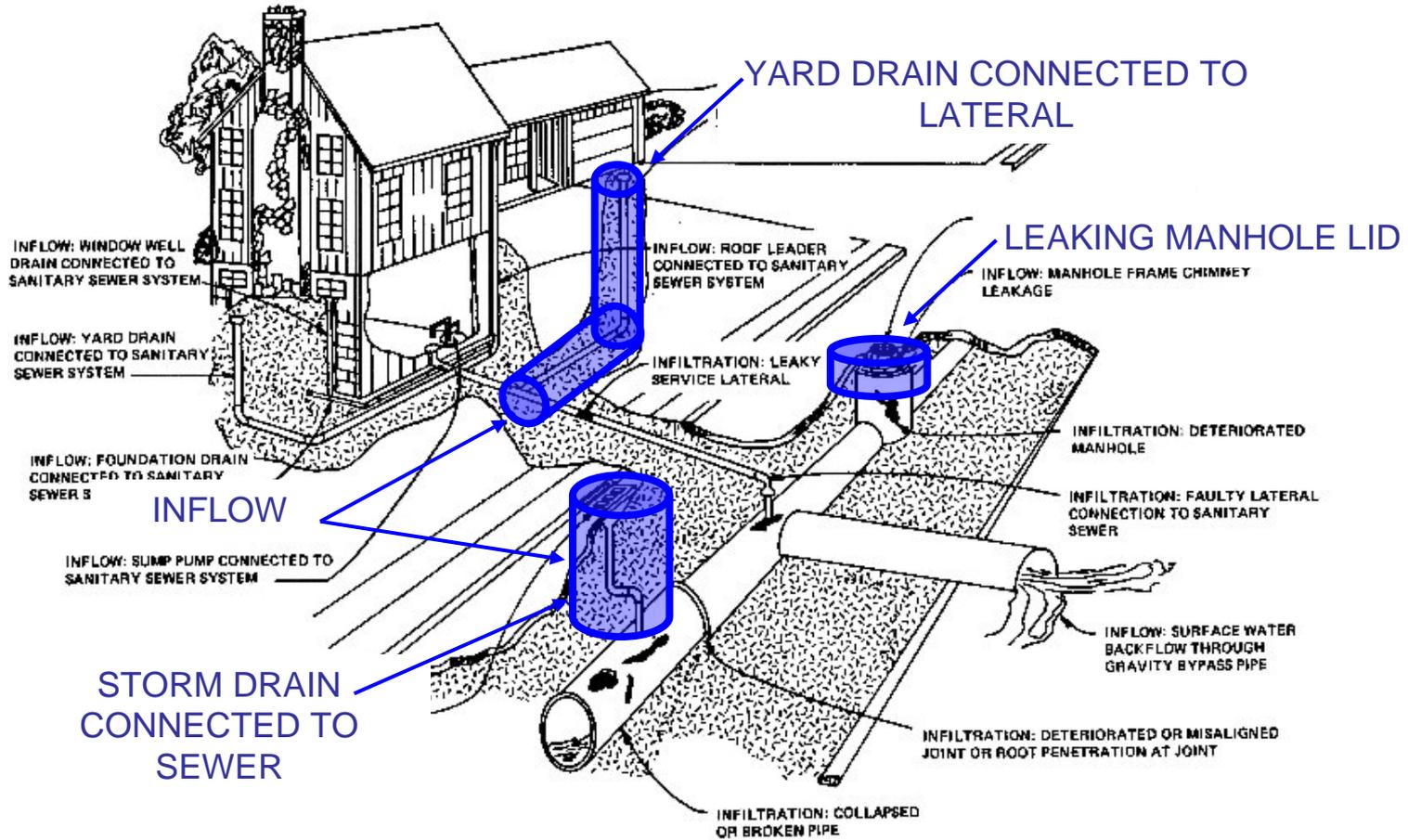
Capital Improvement
Program

SSES Identifies Sources of Inflow and Infiltration (I/I)



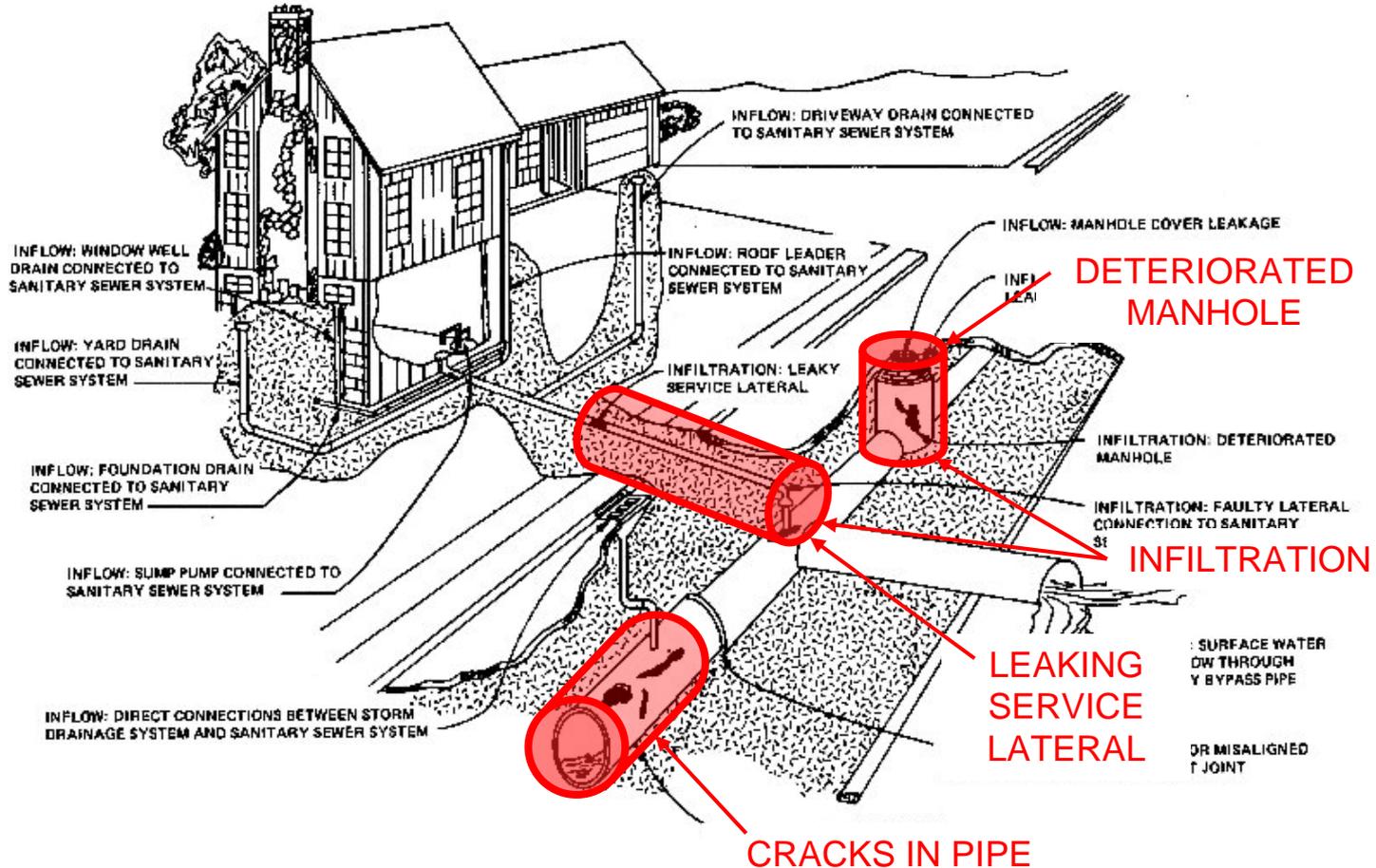
TYPICAL SOURCES OF INFILTRATION AND INFLOW

Inflow Sources



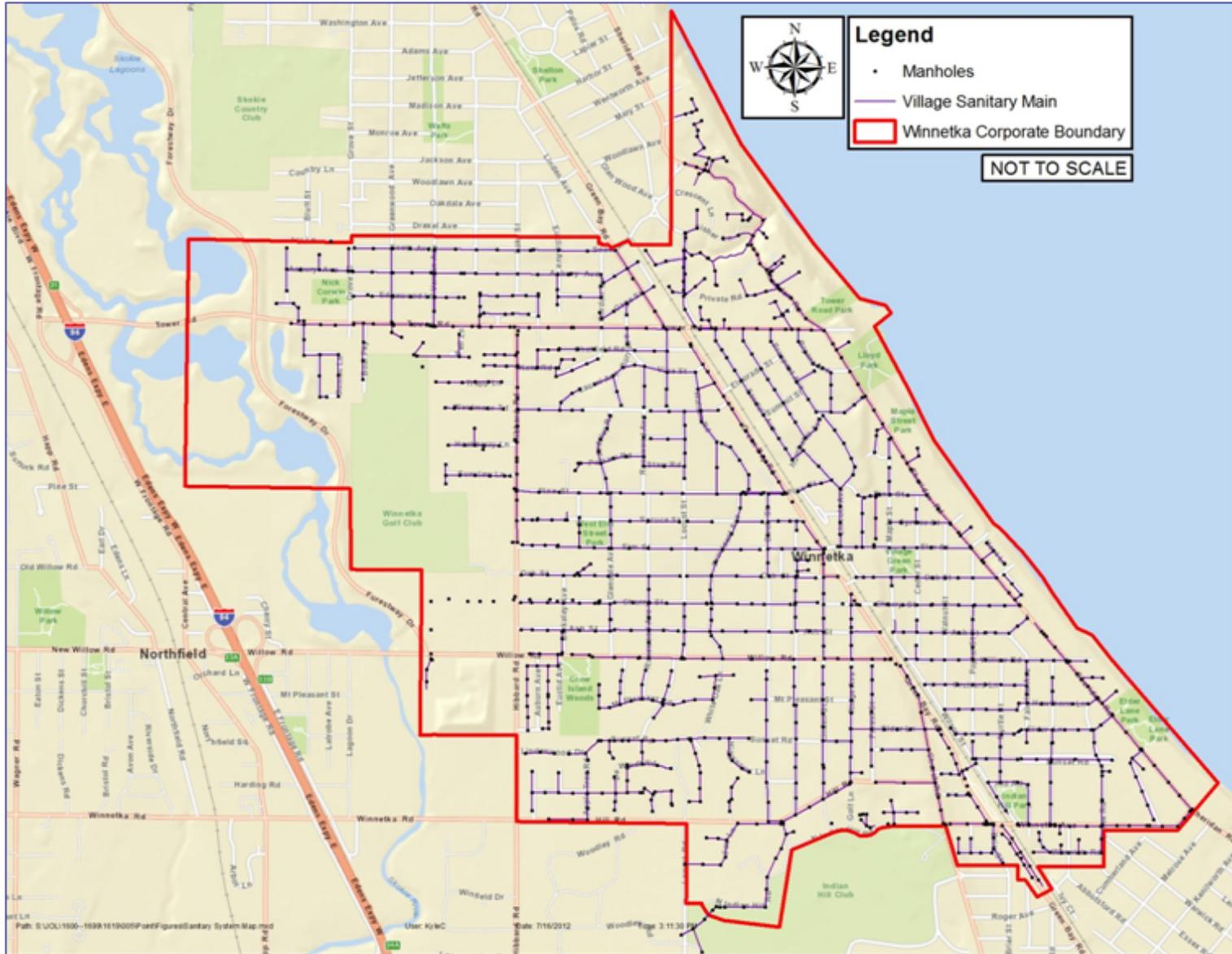
TYPICAL SOURCES OF INFILTRATION AND INFLOW

Infiltration Sources



TYPICAL SOURCES OF INFILTRATION AND INFLOW

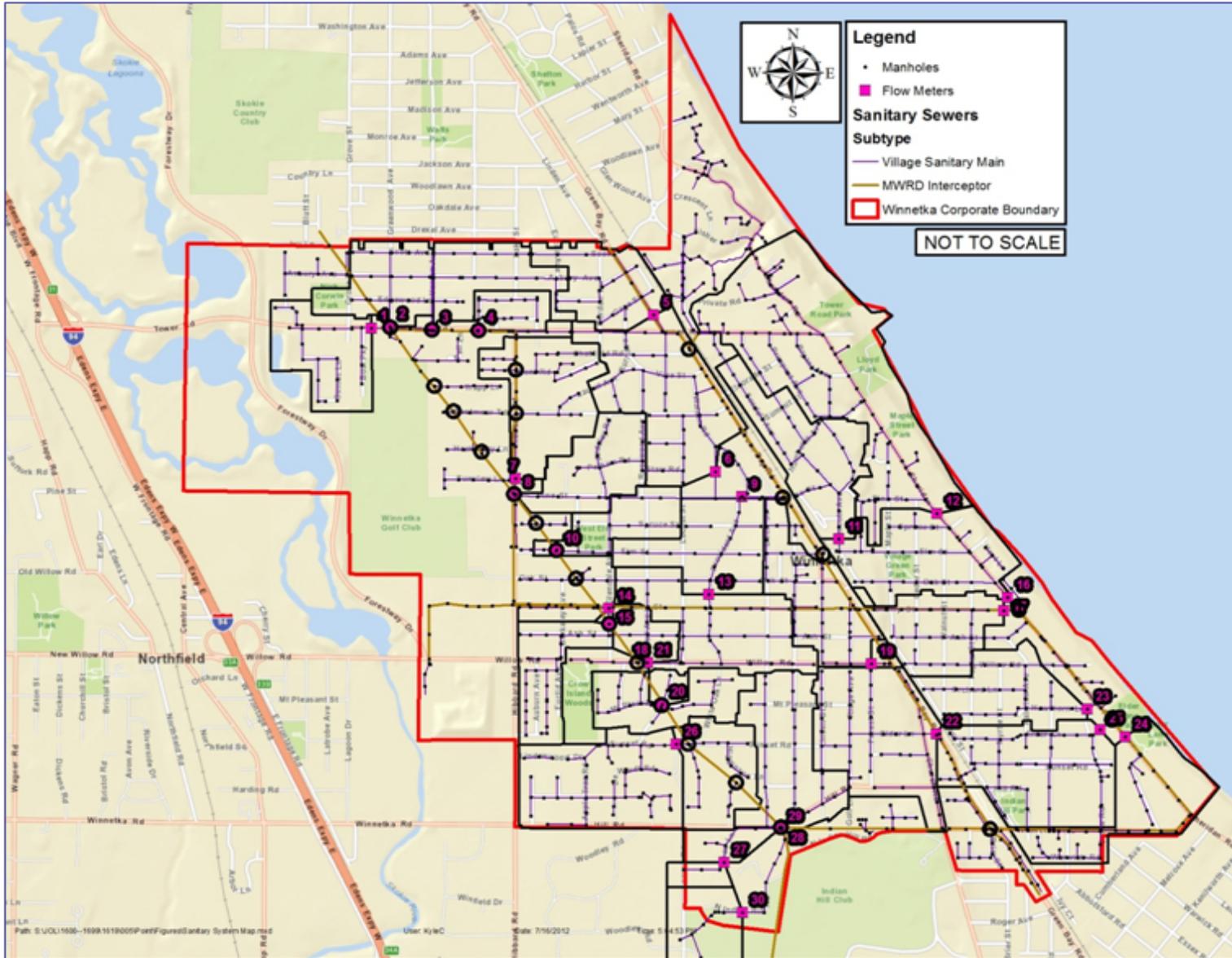
Identification of Winnetka Sewer System



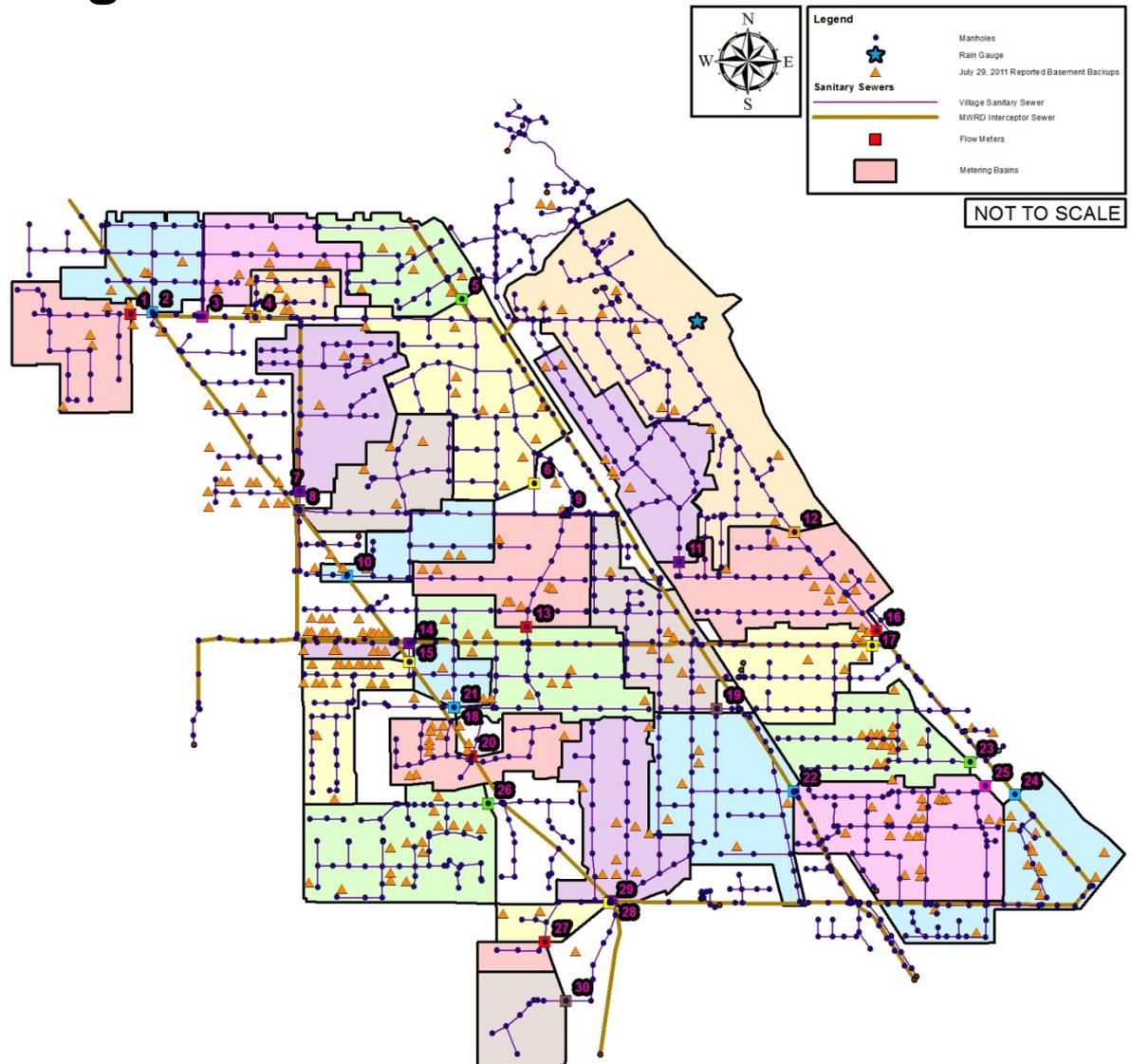
Identification of MWRDGC Interceptor Connections



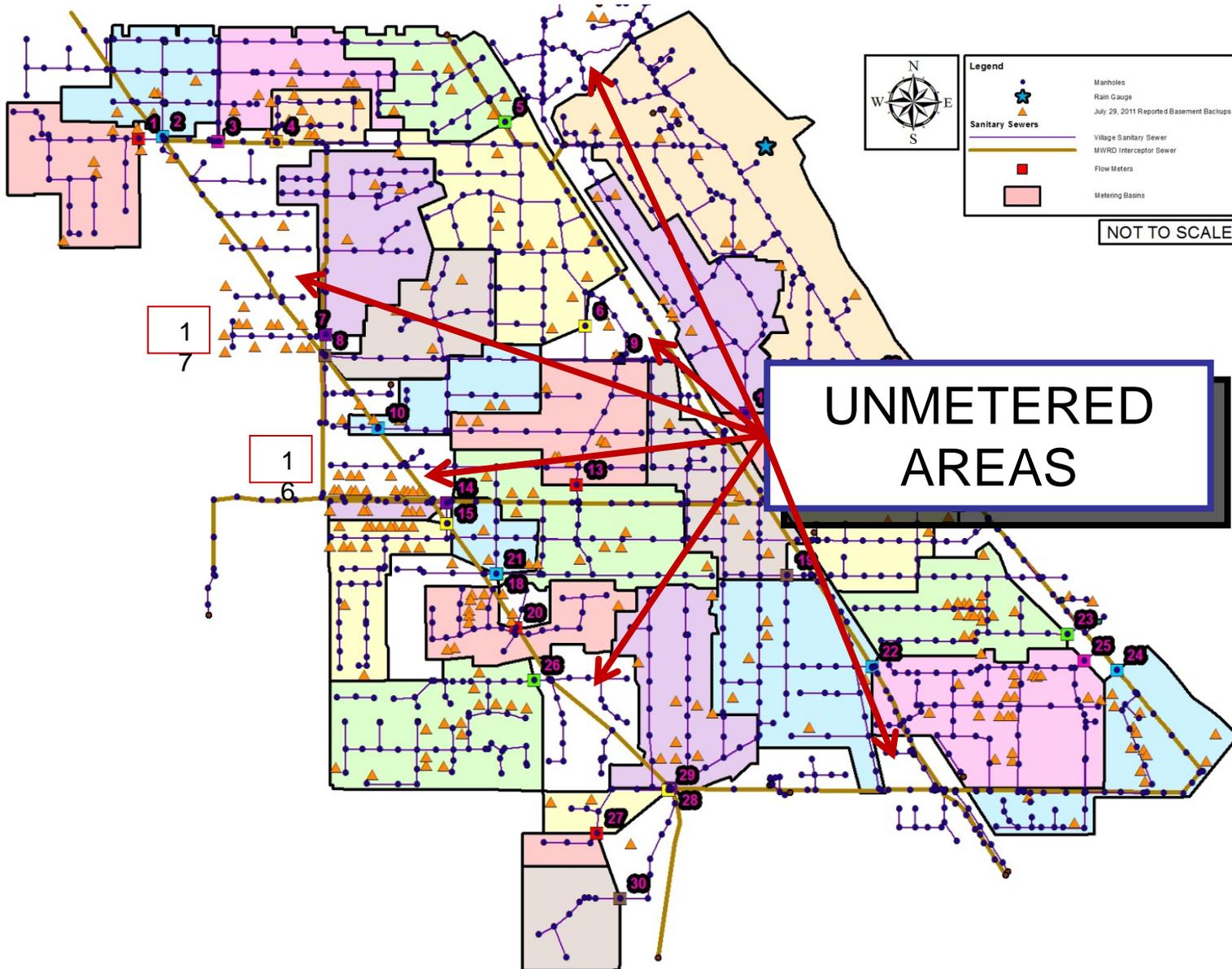
MWRDGC Connections Dictated Final Flow Metering Locations



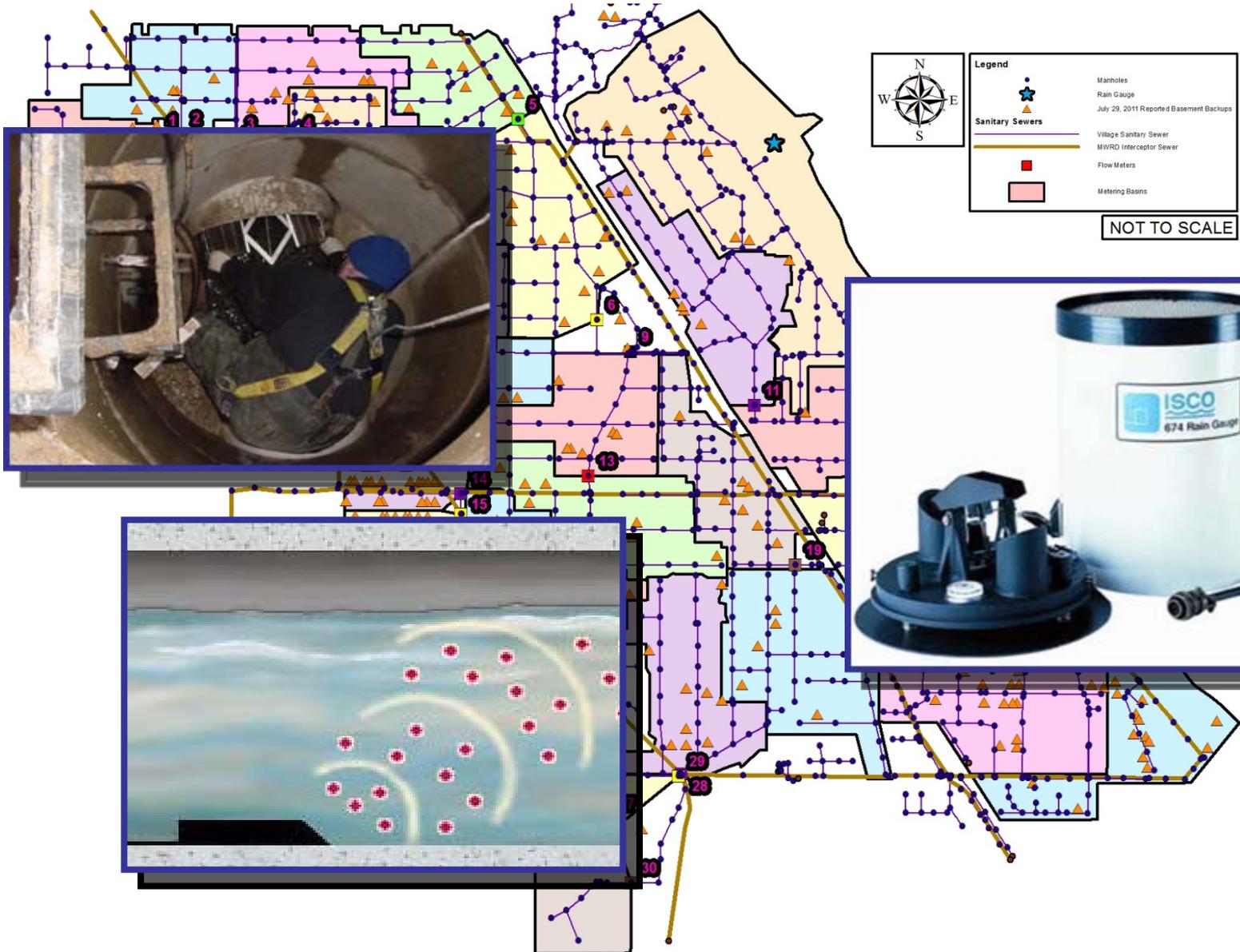
30 Flow Meters Divided the Sewer System Into 30 Flow Metering Basins



Some Unmetered Areas Still Existed

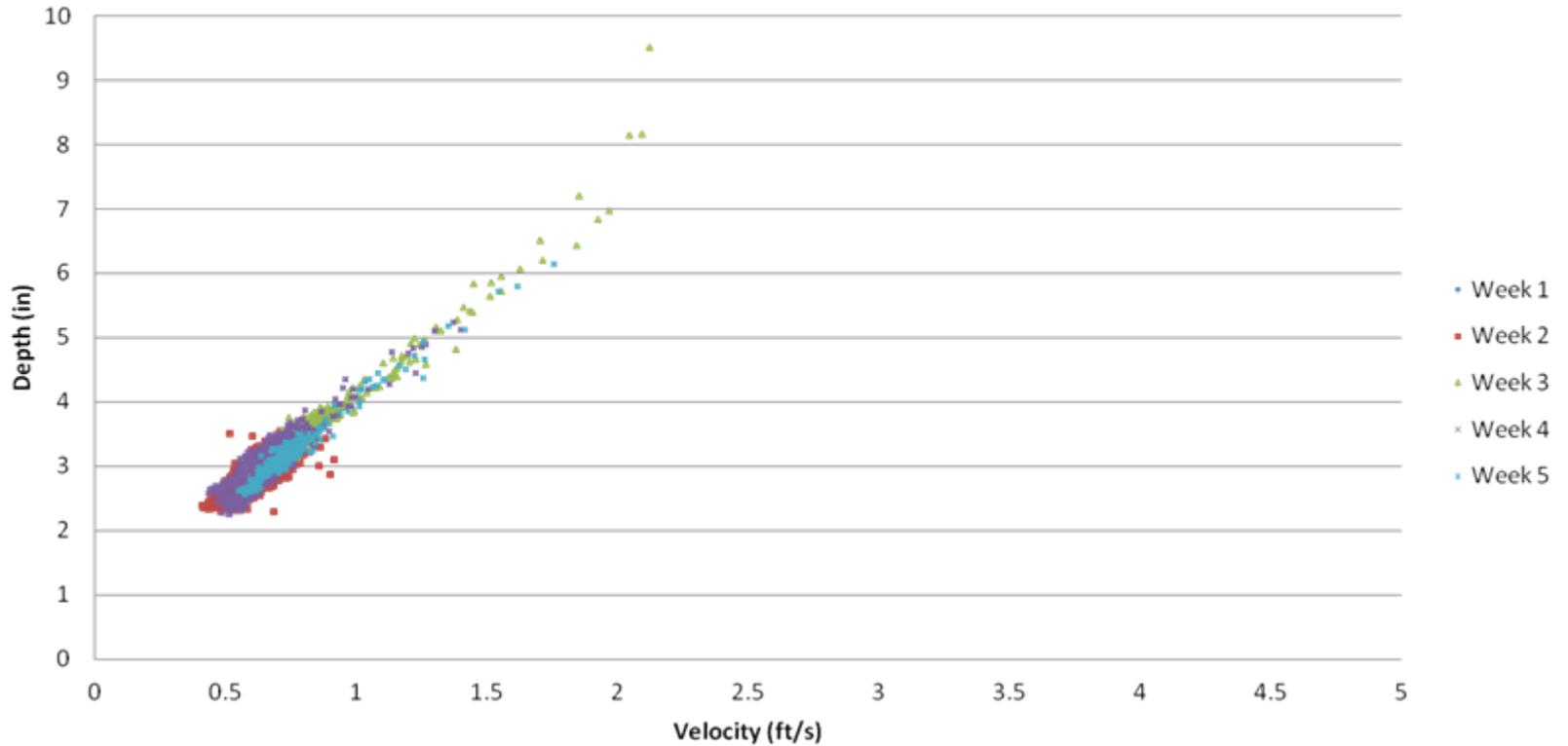


Flow Meter and Rain Gauge Installations

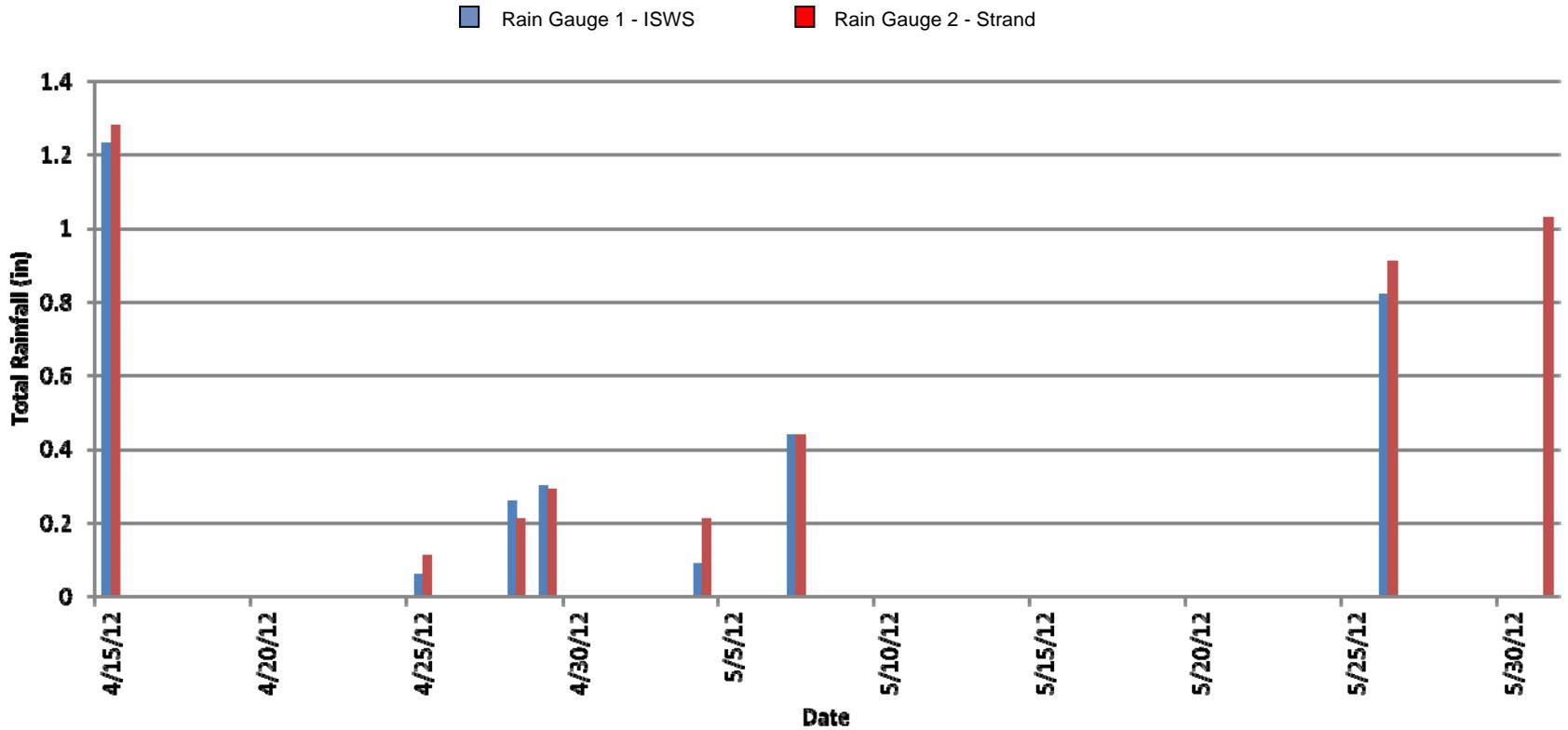


Quality Control of Data Was Important

FM 05 April Scattergraph



Flow Monitoring Period

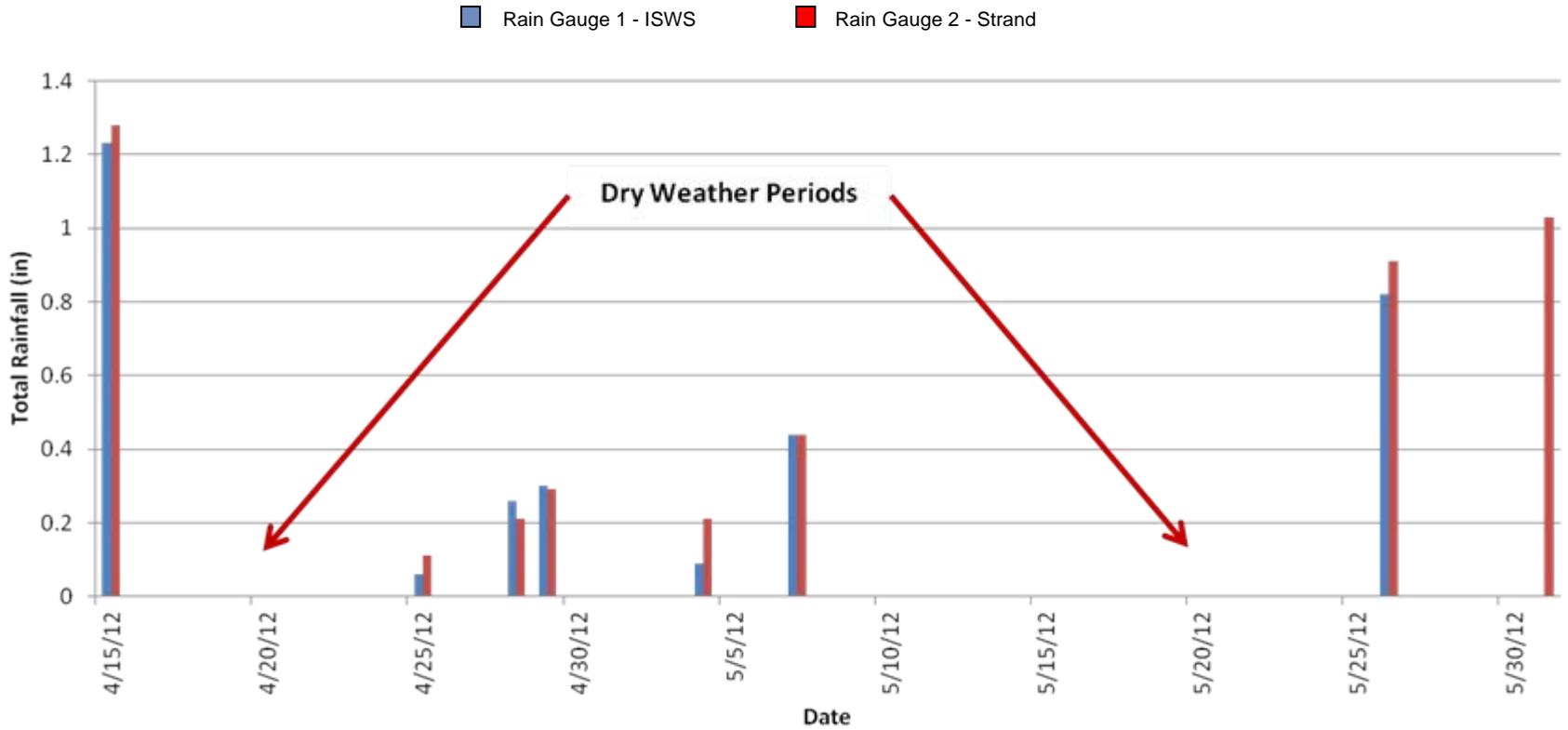


APRIL 15

7 WEEKS

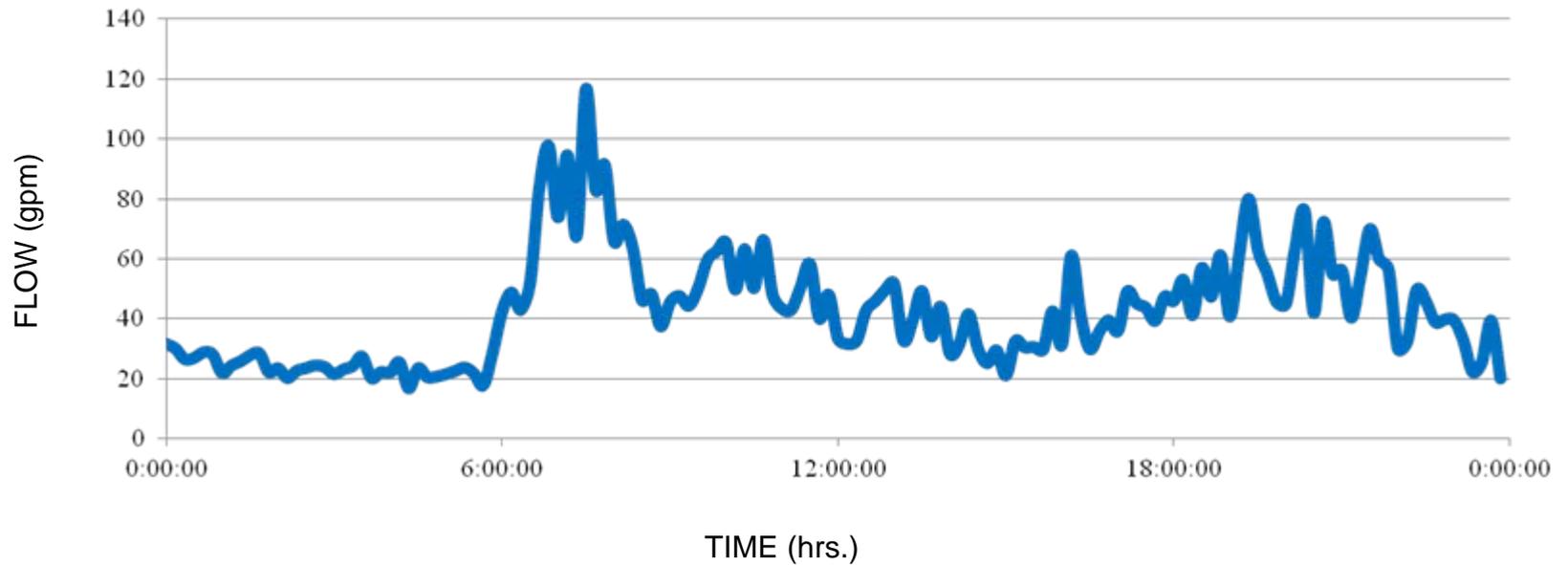
JUNE 8

Dry Weather Periods

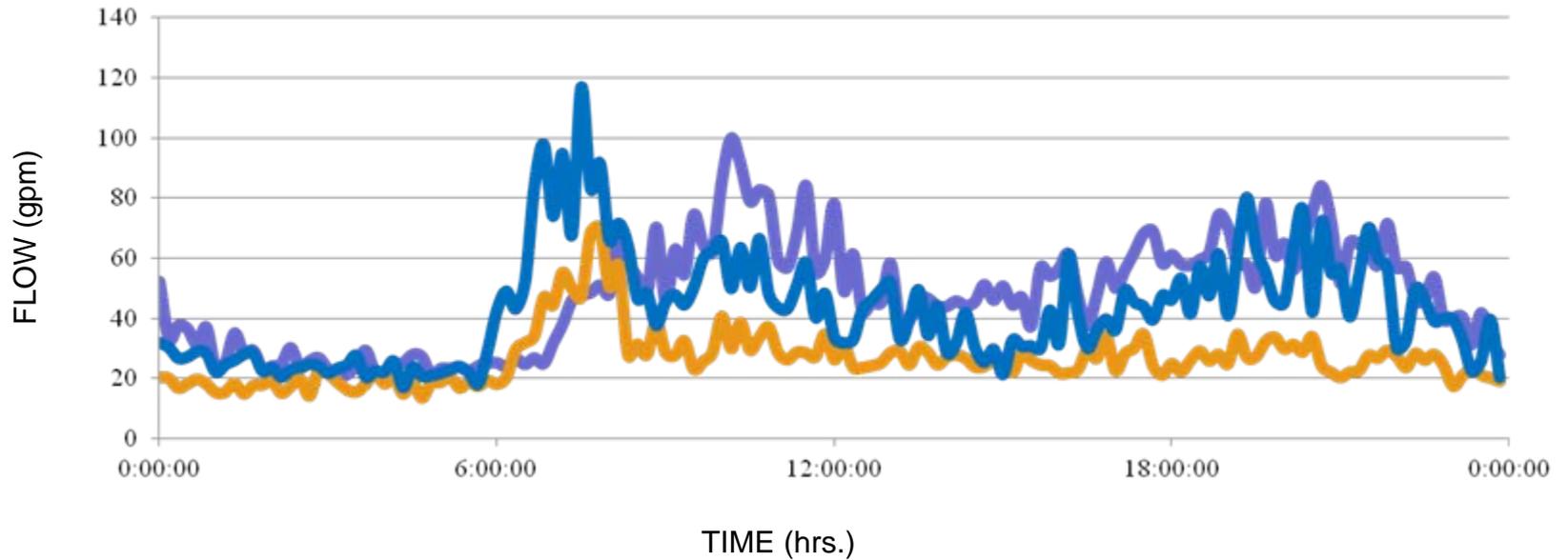


Establish Baseline Flow From Dry Weather Data

1 Day

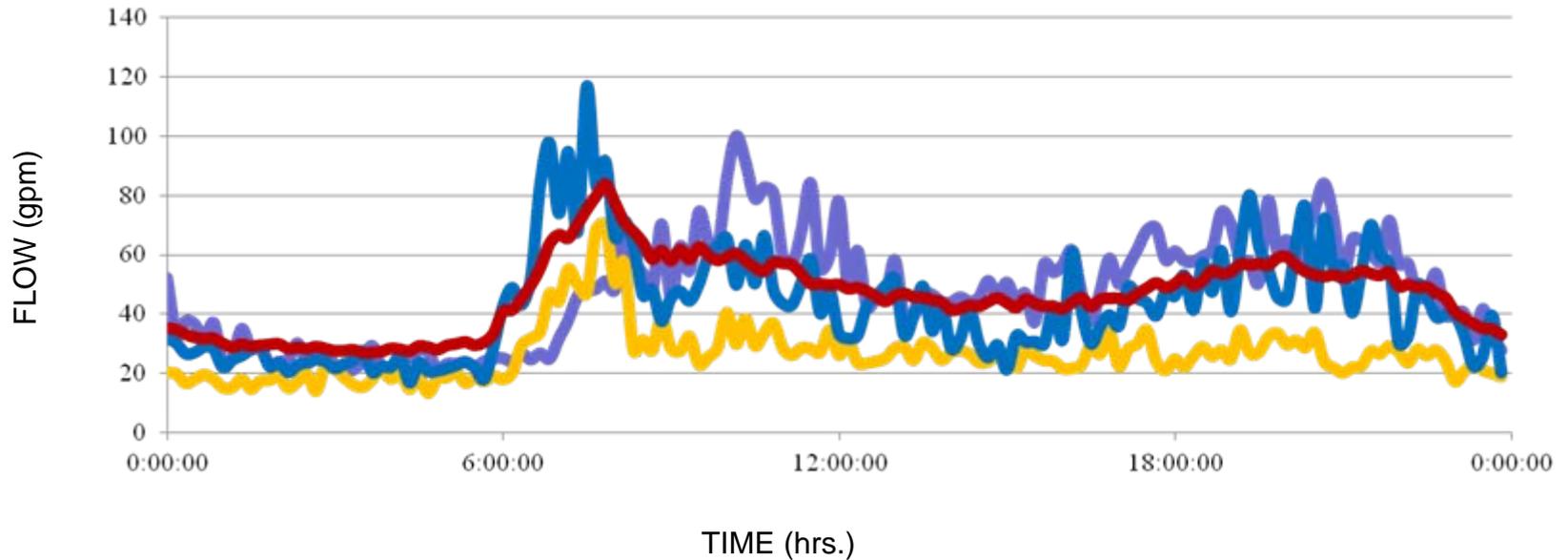


Establish Baseline Flow From Dry Weather Data 3 Days

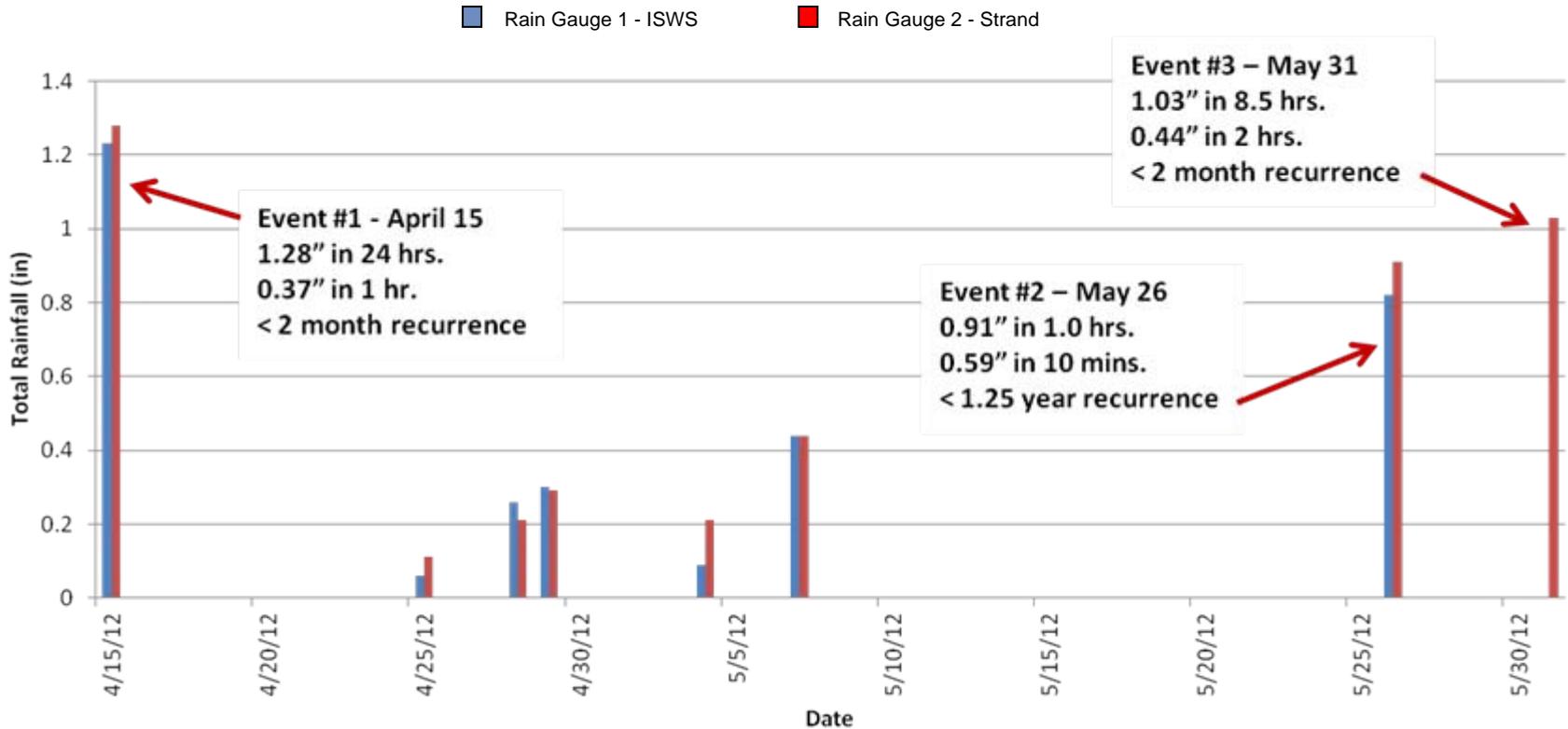


Establish Baseline Flow From Dry Weather Data

Average of All Dry Weather Days

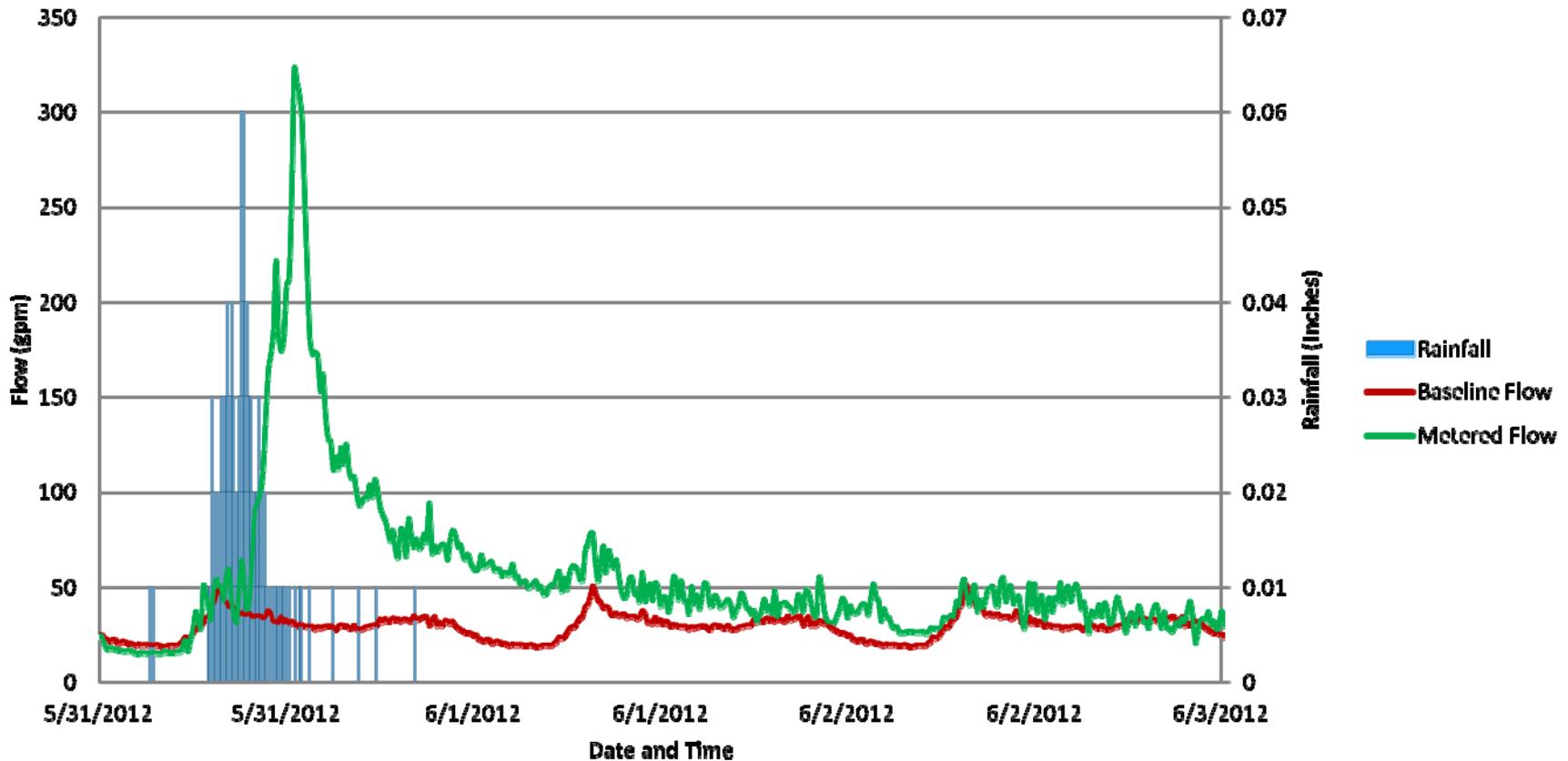


Looking For Rain - Selected Study Events



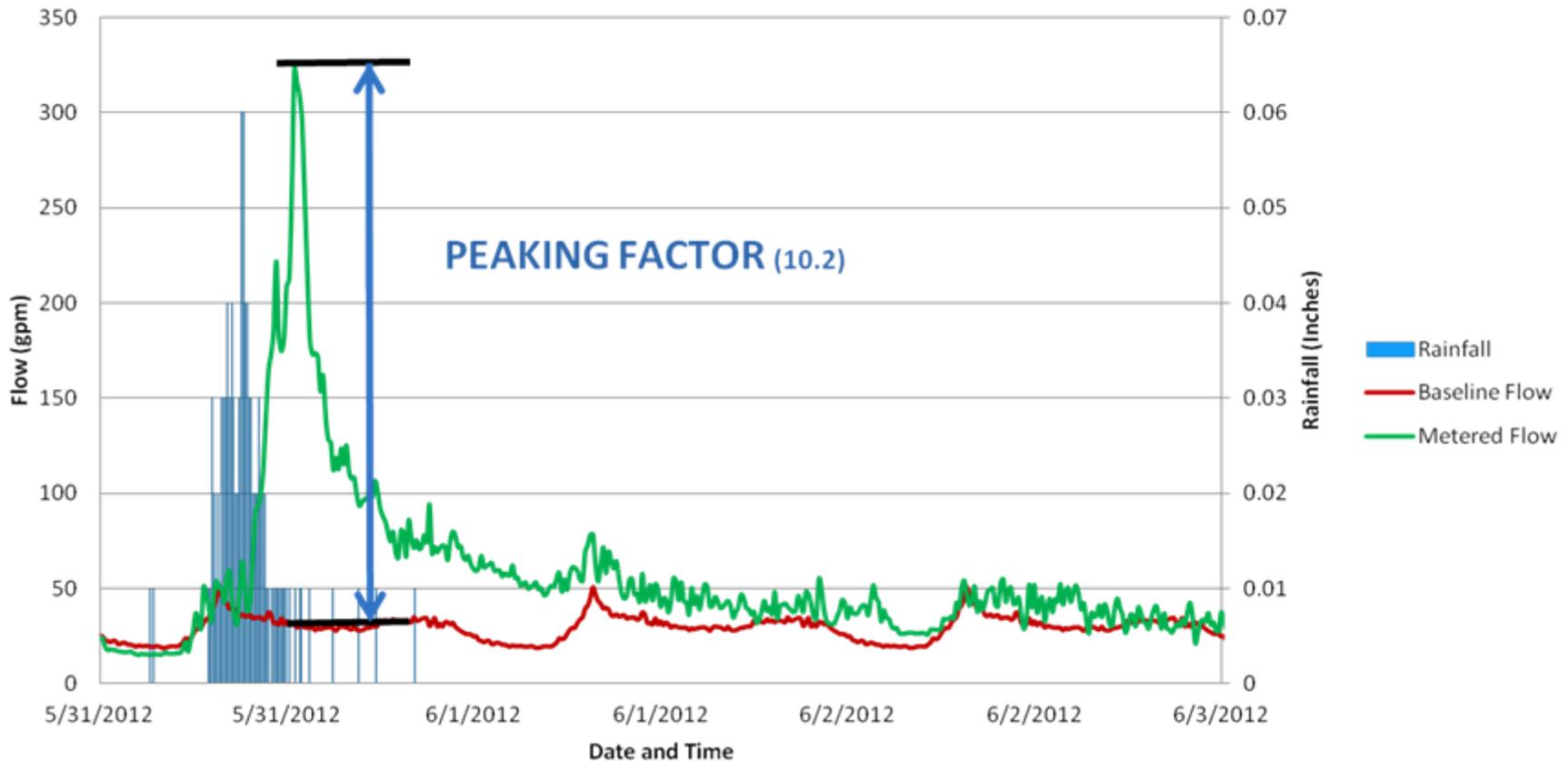
Flow Response to Rainfall Events

Event #3 - May 31 Flow Meter 14

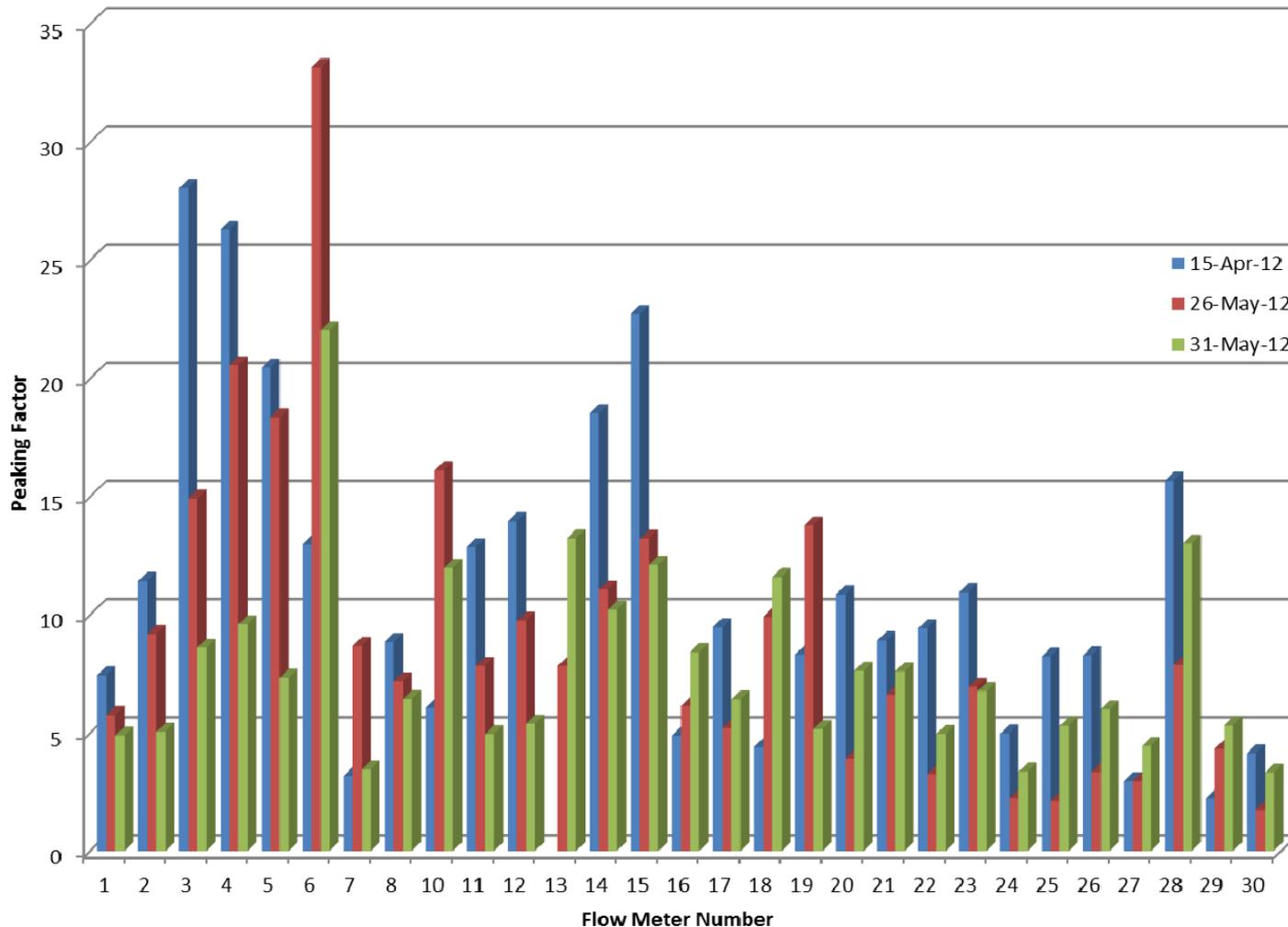


Wet Weather Flow Analysis Starts With Inflow

Event #3 - May 31
Flow Meter 14

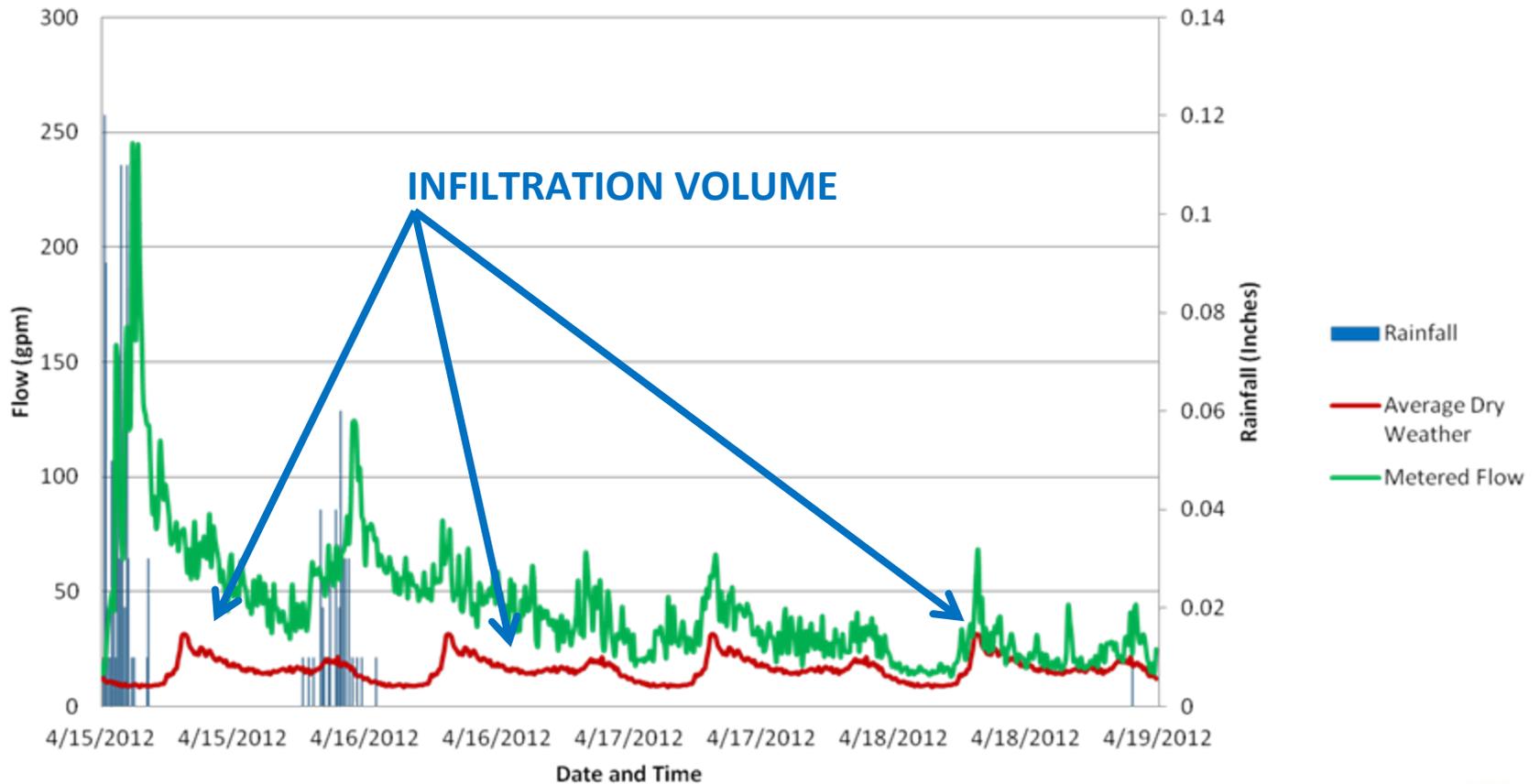


Peaking Factor Analysis Identifies Basins Prone to Inflow and Potentially Contribute to Flooding

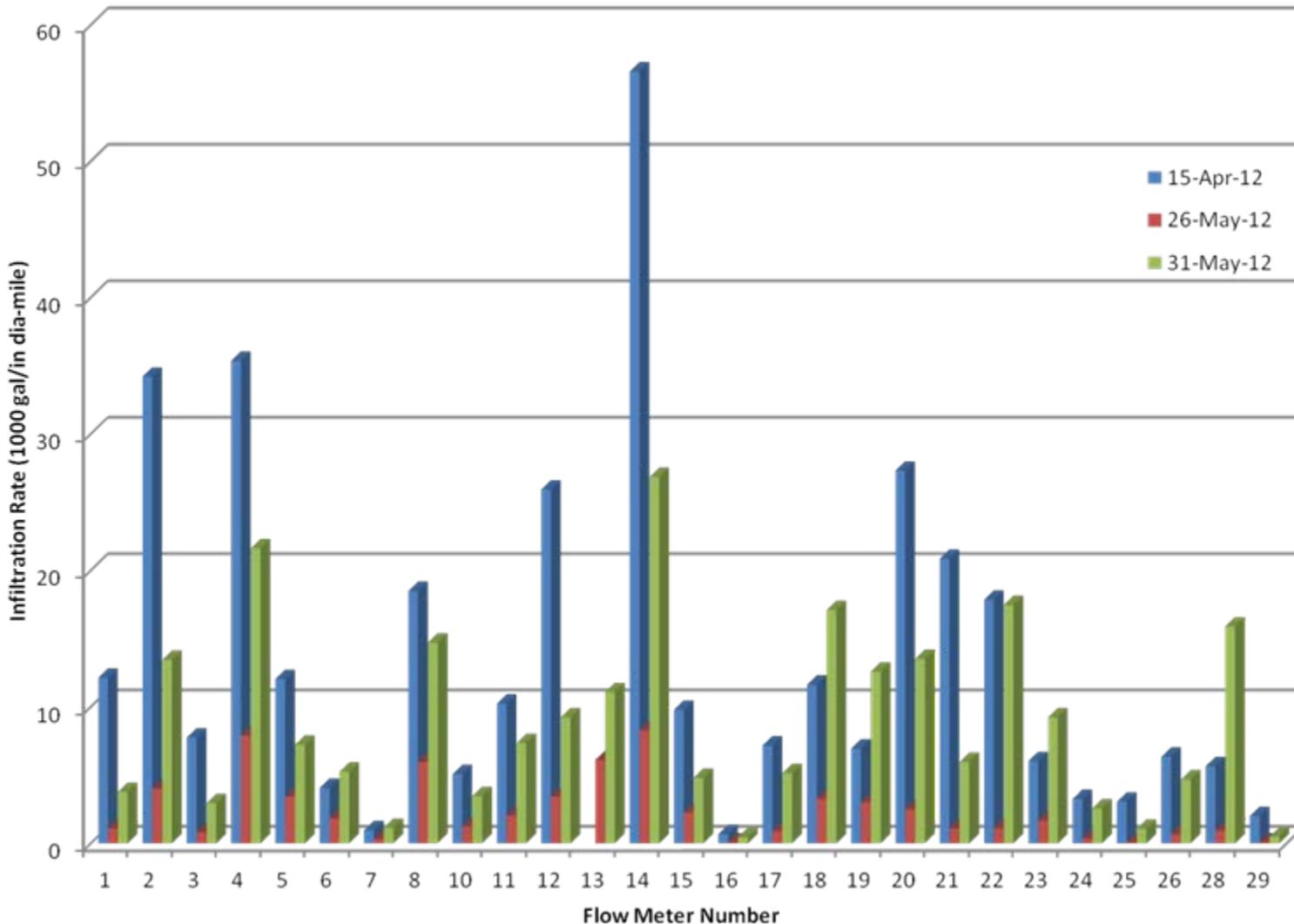


Wet Weather Flow Analysis Includes Infiltration

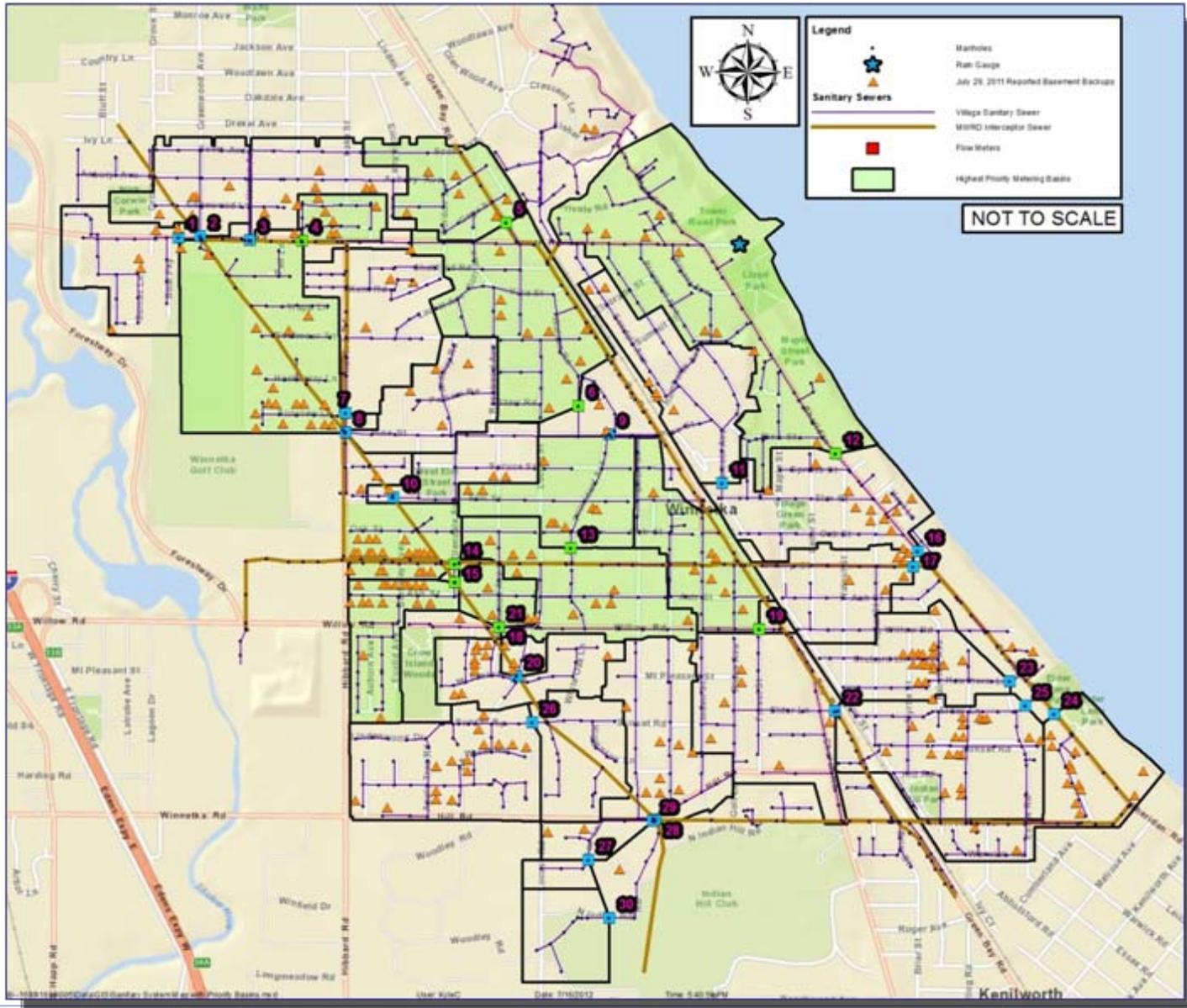
Event #1 - April 15
Flow Meter 04



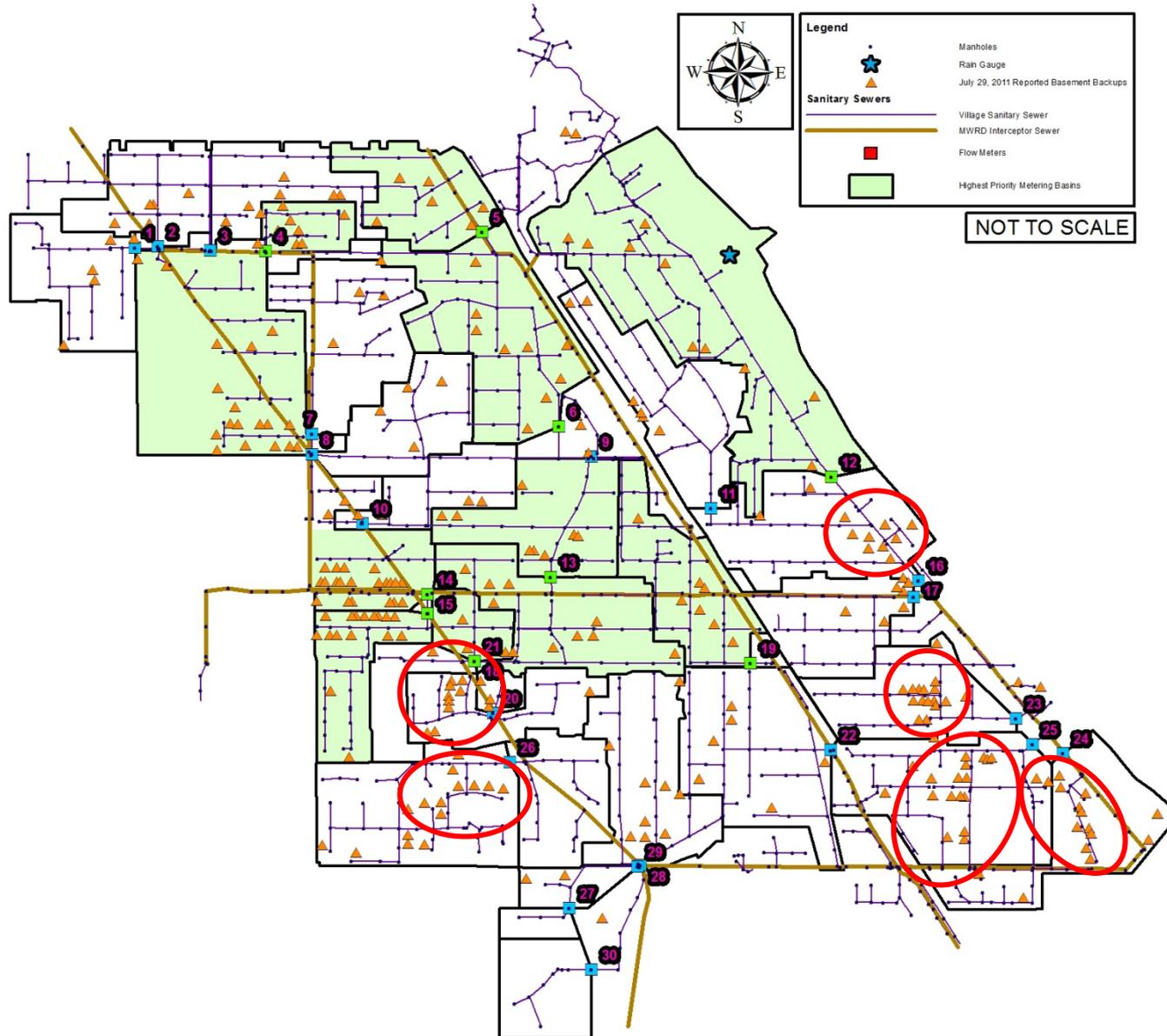
Infiltration Volume Analysis Identifies Basins With Potential Sewer Deficiencies



Identification of Priority Basins



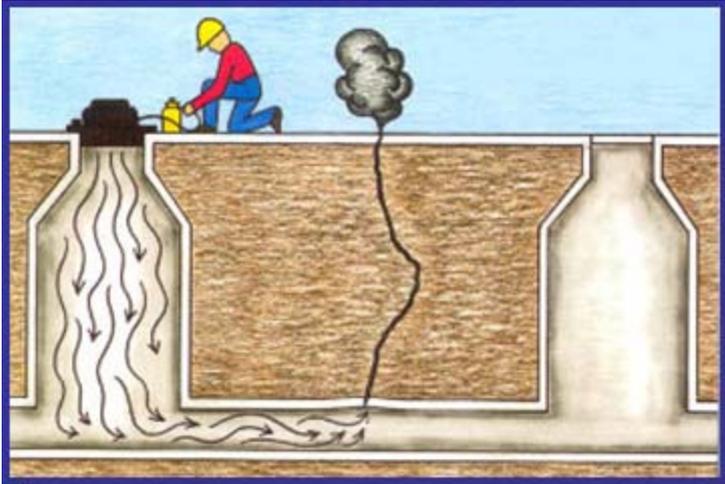
Identification of Priority Basins



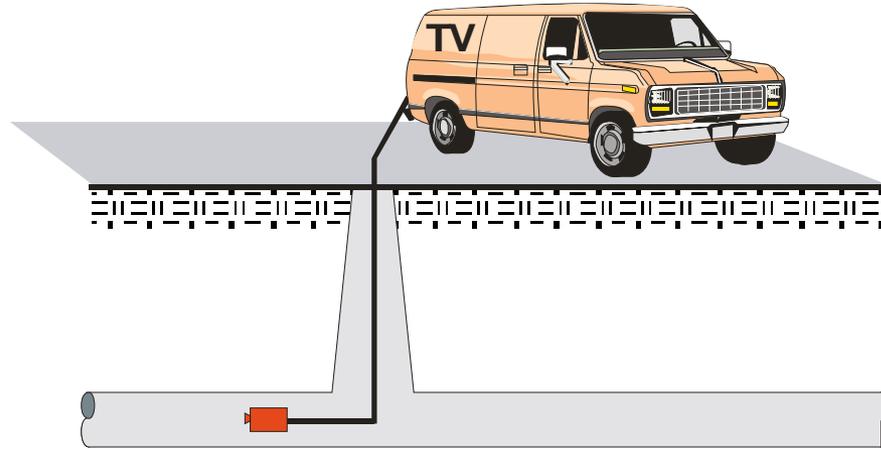
Next Step Investigations Focus on Inflow Sources



Smoke Testing Is A Valuable Tool To Identify Inflow, Cross Connections, and Sewer Deficiencies



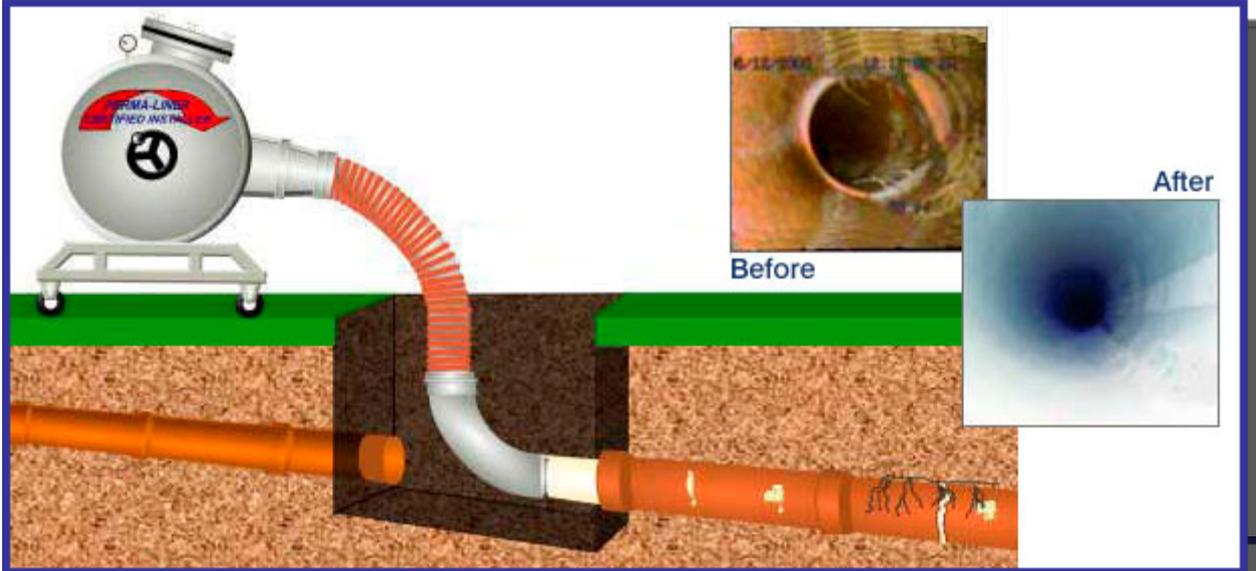
Smoke Testing Also Helps Focus Television Inspections



Source Investigations Support to Rehabilitation Alternatives



Source Investigations Support to Rehabilitation Alternatives





Questions

Text

