



# Updating MWRD's Excessive Infiltration and Inflow Control Program


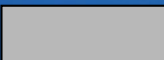
MWRD Advisory Technical Panel

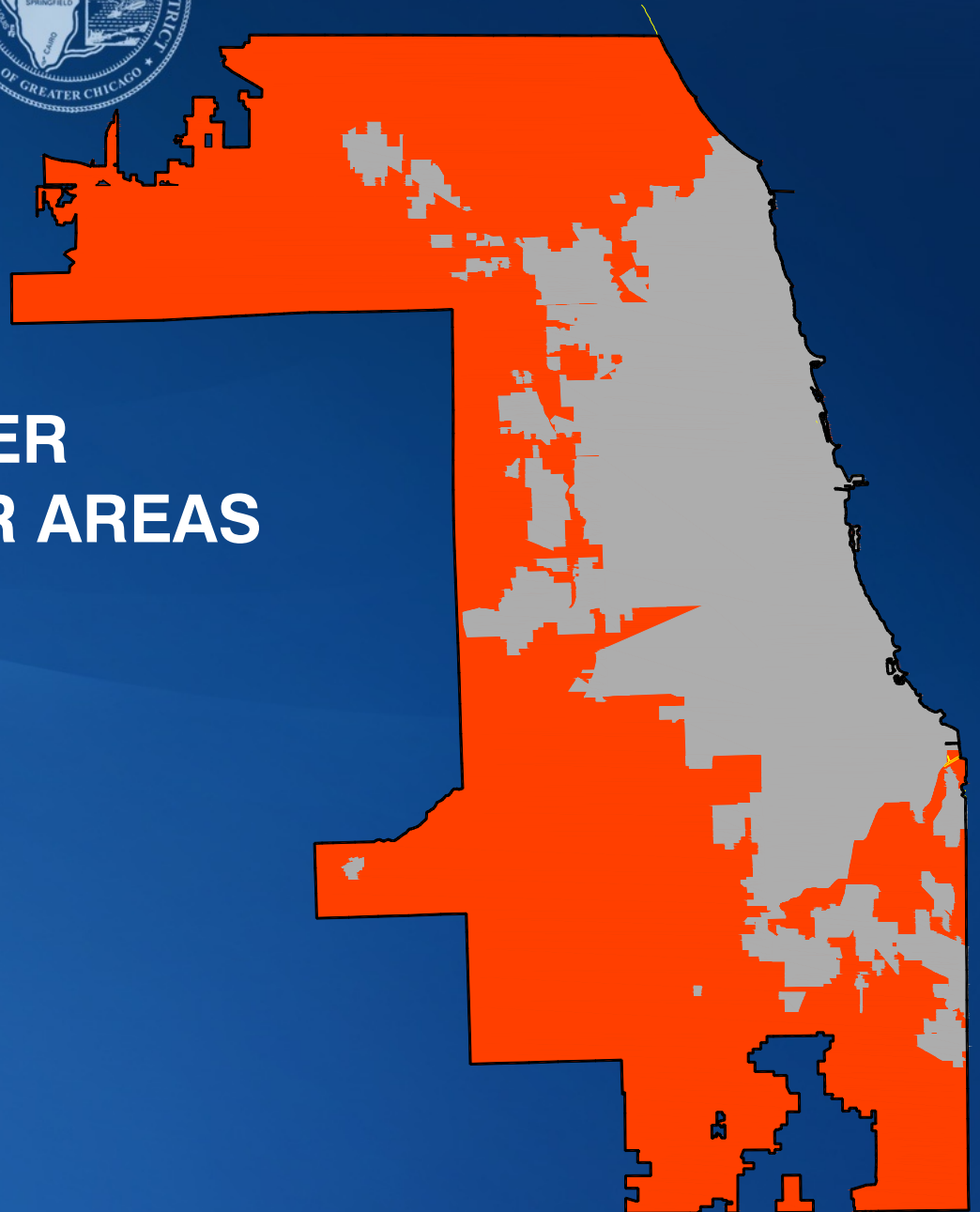




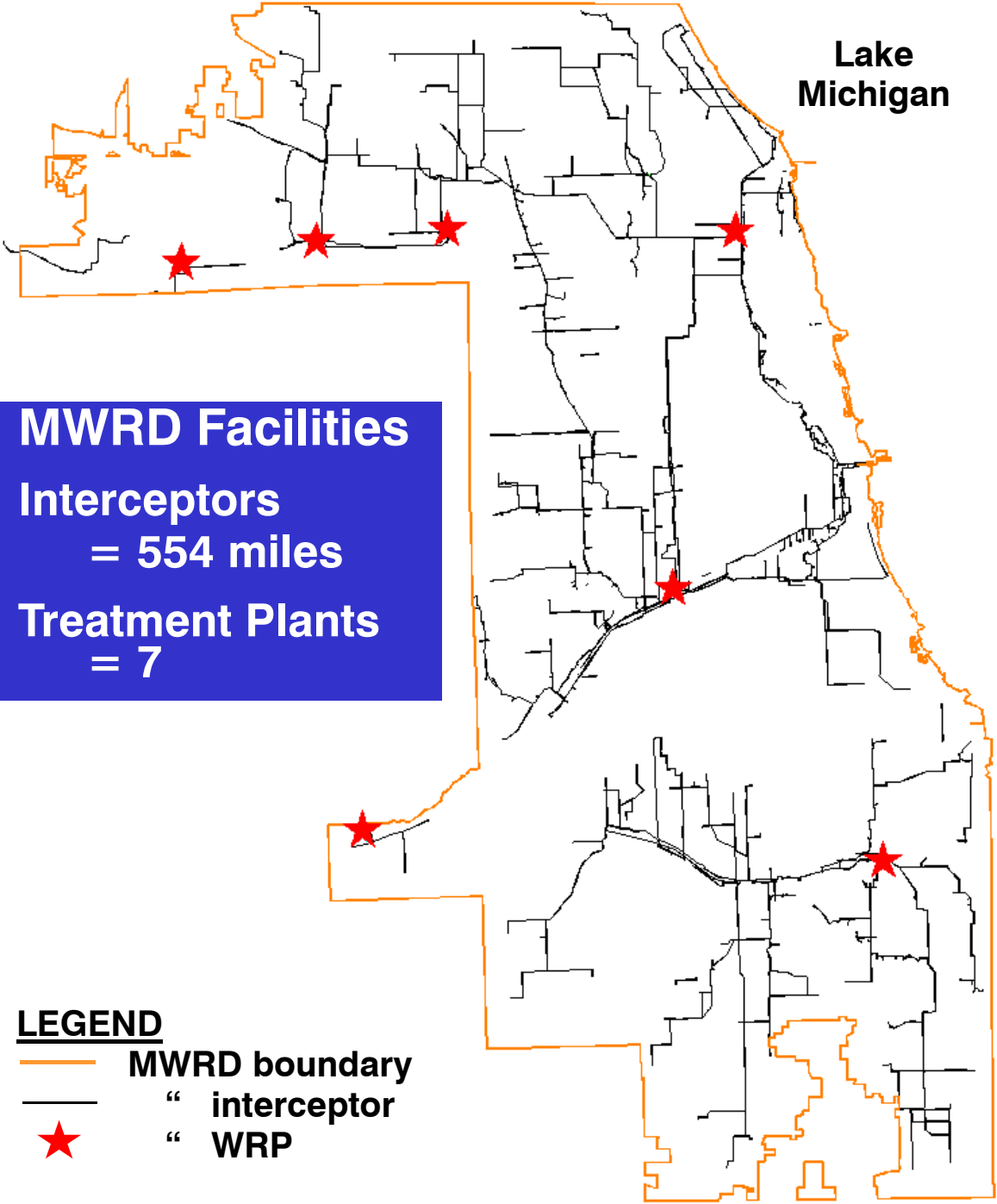
# MWRD SEPARATE SEWER AND COMBINED SEWER AREAS

## LEGEND:

-  Separate/Unsewered area, 508.5 sq. mi.
-  Combined Sewer area, 375 sq. mi.



Lake  
Michigan



**MWRD Facilities**

**Interceptors**

= 554 miles

**Treatment Plants**

= 7

**LEGEND**

- MWRD boundary
- “ interceptor
- ★ “ WRP



## History of MWRD I/I Control

- Federal Clean Water Act – 1972
- Article 6-5 of the MWRD Manual of Procedures - 1973
- Wet-weather flow limit raised to 150 gpcpd (from 100 gpcpd) in mid-1970s following expressions of difficulties by tributary agencies
- Negotiations with the tributary agencies and COGs resulting in enactment of Sewer Summit Agreement in 1985 with endorsement from the USEPA and IEPA
- Two Compliance Options
  - 150 gpcpd daily average wet weather flow
  - Cost-effectiveness based ICAP



## Current Status

- Out of 125 tributary agencies, 121 are in technical compliance
- Those 121 agencies and 8 additional are required to submit annual summary reports in 2014



## Recent Developments

- IEPA has imposed a special condition in the NPDES permits that requires the MWRD to require measures in addition to the Sewer Summit Agreement if excessive wet weather flow in a tributary system causes or contributes to basement backups or SSOs
- There has been an increase in wet weather flows to the MWRD facilities
- MWRD formed the Advisory Technical Panel in November 2011 to address these developments



## **ATP Composition and Work**

- ATP Members: USEPA, IEPA, COGs-sponsored representatives from member municipalities, local sanitary districts, utility company, consulting engineers and MWRD staff
- ATP held bi-monthly/monthly meetings over last two years and developed an I/I control program to address the regulatory requirement

**Short-term (5-year) program**

**Long-term program (starting after 5-year period)**



## **Program Prior to Input by COG's/ Stakeholders**

### ***Public Sewer System-Initial Condition Assessment***

- CCTV and Manhole Inspection - 100% of system in 5 Years (20%/Year)
- Smoke test/External Building Inspection/Dye test 100% of system in 6 Years (17%/Year)





## Program Prior to Input by COG's/ Stakeholders

### *Private Sector Sewer System*

- Program to start January, 2014
- Inspection/Source removal program
  - Local ordinance must provide for:
    - Right to entry for inspection for purpose of determining nature of connections to the sewer system after reasonable notification
    - Right to dye test sump pump discharges with indeterminate discharge location(s)
    - Written notice of non-compliance, right to inspection after disconnection
    - Inspect all homes in areas with surcharging, SSO's or basement backups plus areas upstream of these areas every eight years
    - Re-inspect homes with illegal connections every four years, no re-inspection for buildings on slabs, full basement with no sump pump
    - Document directly connected foundation drains, stairwell drains, driveway drains for removal under long term program



## Program Prior to Input by COG's/ Stakeholders

### *Private Sector Sewer System*

- Property Transfer Ordinance
  - Inspection required prior to property closing
  - Illegal sources including directly connected storm sumps, downspouts, open/defective cleanouts and area drains but not foundation drains removed before closing
  - Seller can establish escrow account in lieu of confirmation of removal of illegal source



## Program Prior to Input by COG's/ Stakeholders

### *Private Sector Sewer System*

- Private Service lateral replacement/complete rehabilitation

Complete replacement/rehabilitation plus installation of cleanout required for all laterals installed before January 1, 1983 and removal of all clear water sources including foundation drains during:

- Tear Downs
- Major Renovation:
  - >25% increase in occupied space or addition of bathroom
  - Exemption for laterals replaced or completely rehabilitated after 2000 and ductile/PVC laterals with acceptable CCTV
  - Tear downs with lower level require overhead sewers
- Penalty for non-compliance- MRWD Permit moratorium



## Program Prior to Input by COG's/ Stakeholders

### *Long Term O & M Program*

- Immediately after Initial Condition Assessment Program
- Update sewer Atlas/migrate to GIS/CMMS within 8 Years
- Identify Target Annual Expenditures to complete the following:
  - CCTV - High Priority every 3 years, Medium priority every 7 years, low priority every 12 years
  - Rehabilitation – Sewers and manholes All High Priority within 13 years, medium priority within 25 years, low priority within 40 years
- As an alternative to above method to target annual expenditures:
  - Minimum annual expenditure of 2% Household income, or 2% of complete system replacement cost



## Revised Plan – Applicability

- All tributary municipalities that own and/or operate a sanitary sewer system which discharges directly and/or indirectly into MWRD facilities.



## Scope and Goals

- Comply with the NPDES Permit
- Eliminate basement backups (BBs).
- Eliminate waterway pollution through sanitary sewer overflows (SSOs).
- Work with municipalities on a cost-effective approach to I/I reduction



## Short Term Plan

- Completed within the first 5 years
  - Public Sector Condition Assessment and Rehabilitation
  - Development of a Private Sector Program by each municipality
  - Development of a Long Term O&M Program by each municipality.



## Public Sewer System – Initial Condition Assessment

- Assessment of high to medium risk public sewer system condition.
- CCTV, Manhole Inspection, Smoke testing, dye flooding, external building inspection
- Prioritization of areas with SSOs, BBs and sewer surcharges, including areas upstream
- Prior documented investigations can contribute toward meeting the assessment requirement
- Plan for correcting identified defects, including schedule and funding approach
- Remove illegal downspout connections within 6 months of detection





## Private Sector Sewer System

- Private sector program to be developed by each tributary municipality in no longer than 5 years
- Municipalities with an existing private sector program should submit for review within 6 months.
- Programs to be implemented as soon as practicable.
- The MWRD will develop and provide minimum guidelines for the program.
- Items to be determined by each municipality:
  - Areas subject to inspection to identify I/I sources
  - Time to complete private sector inspections
  - I/I sources that require immediate or long term correction
  - Time to correct identified I/I sources
  - Enact local ordinances to allow private property inspections
  - Enforcement actions/incentive programs for ensuring compliance



## Long Term O&M Program

- Implemented no later than 5 years
  - Implementation of the Private Sector Program
    - Cost-effective I/I source removal
    - Rehabilitation work to reduce BBs
  - Implementation of Public Sector Program
    - Proactive Program addressing sewers on a prioritized basis
    - Continual sewer inspection, maintenance, cleaning and rehabilitation.
    - Emergency/Reactive Programs to address BBs and SSOs
    - GIS Mapping
    - Asset Management/CMMS to process work orders, customer service and sewer work
    - Plan for funding necessary O&M, rehabilitation and asset replacement
    - Develop prioritized Capital Improvement Program (CIP)



## Annual Reporting

- Summary of all public and private sector SSOs and BBs
- Report progress toward completing the Short Term Plan
  - Progress made toward completing the Public Sector Condition Assessment
  - Progress toward addressing high priority deficiencies
  - Progress made toward developing the Private Sector Program and the Long Term O&M Program
- Report completed work under the Long Term O&M Program
  - All inspection, rehabilitation and maintenance completed on the public and private sewer system
  - Communities must demonstrate that they are inspecting, maintaining and rehabilitating their system per their approved plan



## System Analysis

- MWRD
  - Identify/allocate MWRD interceptor capacity
  - Develop local storage standards/regulations and guidelines
- Local Sewer System and ATP
  - Develop performance metrics to define success
  - Develop percentage of system to be inspected/cleaned/rehabilitated annually.
  - Condition Assessment
  - Private Sector Program implementation (identify areas for internal/external inspection and source removal).



## Enforcement

- MWRD
  - Establish enforcement actions and incentives to comply with the Short Term Plan, Long Term O&M Program and submittal of the Annual Report
    - Qualifications for funding assistance
    - Develop excess flow charge schedule
- Municipality Enforcement
  - Enact and enforce ordinance(s) to address non-compliance with the Private Sector Program
  - Incentive program(s) to encourage compliance



## Funding

- The MWRD may provide funding options to the municipalities for their I/I removal/rehabilitation subject to Public Act 90-0690 as amended from time to time.
- IEPA – SRF funding is available to all communities within the MWRD corporate limits.
- Municipalities can fund their Short Term Plan and Long Term O&M Program via local sewer service fees or other funding options.



## Follow-up Tasks

### *2014 (1<sup>st</sup> Quarter)*

- Establish enforcement penalties/incentives
- Standards for manhole inspection, smoke testing, dye flooding, television inspection, flow monitoring, NAASCO Coding
- Refinement of definition of “High Priority” defects (NAASCO Condition 4 and 5)
- Condition Assessment prioritization based on system peaking factors



## Follow-up Tasks

### *2014 – 2019 (to be prioritized)*

- Outcome-based and flow-based metrics
- CMOM service levels (dry/wet weather performance metrics)
- Interceptor capacity analysis and distribution
- Private Sector Plan template – MWRD/ATP
- Long Term O&M Program template – MWRD/ATP
- GIS/CMMS assistance by MWRD
- Private property program – policy decision on transfer ordinance, service lateral rehabilitation/replacement on tear down or major renovation
- Funding program details and implementation – IEPA and MWRD
- Municipalities complete individual Private Sector Plans
- Municipalities complete individual Long Term O&M Program
- MWRD assistance on flow monitoring





## Schedule

- Public Meetings with COGs – January/February 2014
- MWRD Board of Commissioners Study Session – March 2014
- Adoption – April 2014
- Effective date – May 1, 2014
- ATP continues to meet to develop technical guidance