Final Report

Village of Oak Lawn, IL

Sanitary Sewer Master Plan

Volume 1 of 2
(Report and Figures)

May 2012

CDM

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Executive Summary

The Village of Oak Lawn, Illinois (the Village) is located southwest of the City of Chicago within Cook County. The Village is served by separate sanitary and storm sewer systems. The sanitary system discharges to the Calumet 20 Interceptor owned by the Metropolitan Water Reclamation District (the District), and is eventually conveyed to the District's Calumet Water Reclamation Plant for treatment.

Parts of the Village's sanitary sewer system experience severe surcharging during storm events. This surcharging subsequently causes problems such as manholes flooding to ground level and basement backups. These problems could be caused by infiltration and inflow (I/I) to the system, by downstream capacity restrictions, localized bottlenecks, or a combination thereof.

To address these problems, especially following the heavy rains of 2008, the Village retained CDM to develop a sanitary sewer master plan. The purpose of the master plan is to gain an understanding of the sewer system, identify which areas experience the worst problems at the highest frequencies, determine the cause of the problems in these high-severity areas, and implement a set of solutions to address those issues. The master plan sets forth an iterative process by which each year the Village can address issues in the next high-severity area until the desired level of service is achieved.

The sewer system master plan was a yearlong effort in which the following tasks were performed:

- Created a GIS of the Village's sewer system
- Created and calibrated a computer model of the Village's sewer system
- Simulated a number of system configurations to identify potential causes for basement backups and surface flooding related to the sanitary sewer system

Over the course of developing the master plan, it was discovered that:

- Groundwater infiltration is significant throughout the Village, indicating the presence of leaky pipes
- Excessive wet weather flows are entering the Village's system, potentially contributing to basement backups and surface flooding
- Sediment buildup in some interceptors may be causing sanitary sewer backups in some areas of the Village's system
- Outside communities convey flows through the Village's trunk sewers, utilizing hydraulic capacity and potentially causing problems upstream in the Village's system
- Sump pumps can be a key contributor to the I/I problem.

The following recommendations are proposed for the next phase of the project:

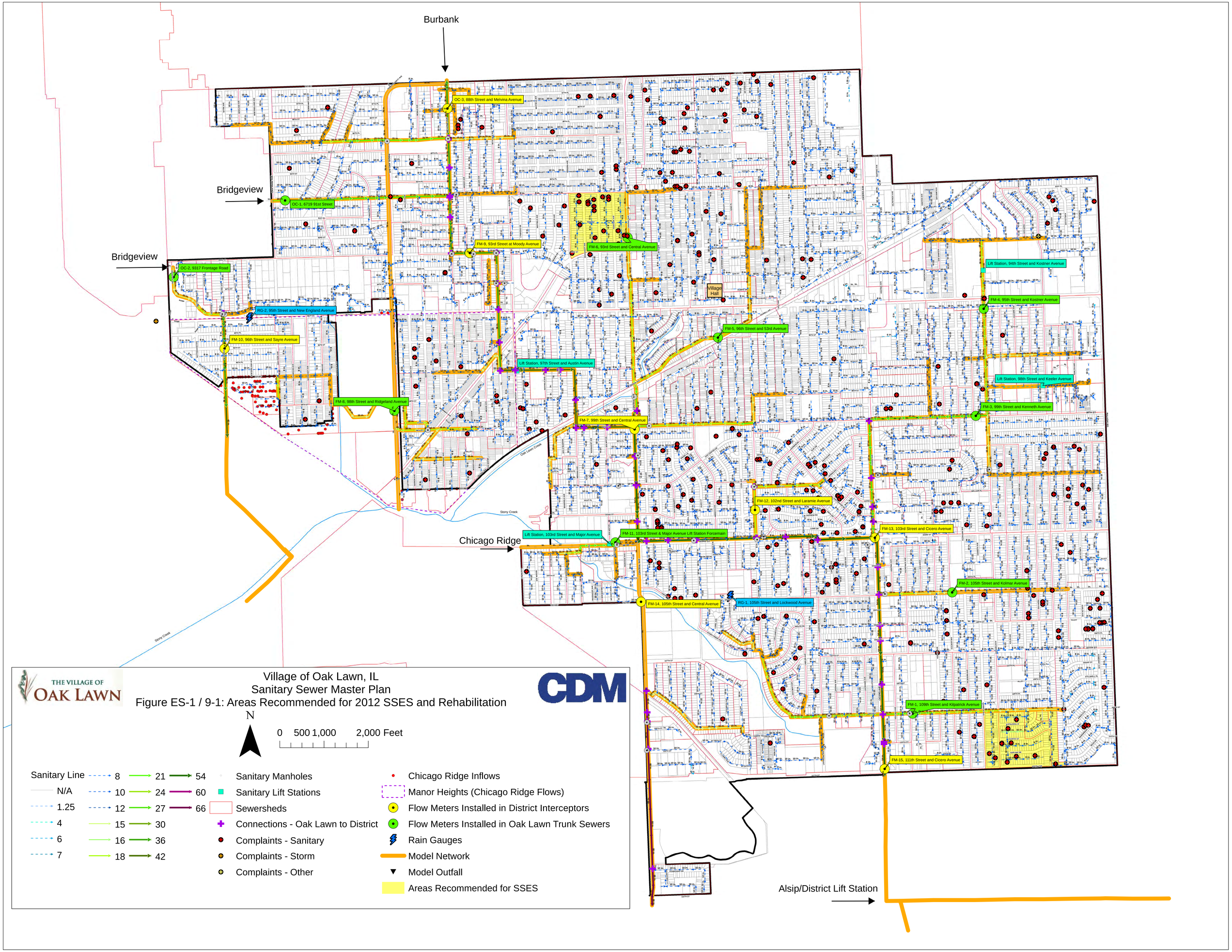
Immediate Recommendations

- Field investigations of selected drainage areas (based on historical complaints and areas where wet weather flow reduction appears to be beneficial, shown in Figure ES-1):
  - Area bounded by 91st Street to the north, Central Avenue to the east, 93rd Street to the south, and Menard Avenue to the west (approximately 6,000 feet of pipe / 32 manholes / 212 parcels)
  - Area bounded by 109th Street to the north, Tripp Avenue to the east (including sewer lines that run along Tripp Avenue), 111th Street to the south, and Kenneth Avenue to the west (approximately 10,200 feet of pipe / 61 manholes / 248 parcels)
- Coordination with District re: cleaning and inspections for the Calumet 20 interceptor along 103rd Street between Central Avenue and Cicero Avenue
- Installation of permanent meters at outside community flow inputs and discussion with outside communities re: sewer use and maintenance fees

Long-term Recommendations

- Development of Village sewer ordinances including:
  - Illegal connection removal program
  - Point of sale inspection program
  - Private property lateral repair program
- Completion of ICAP compliance tasks
  - Address District provided comments and questions from last round of correspondence
  - Submit annual reports re: system maintenance and repair
  - Summarize and submit documentation of system repair and rehabilitation work completed since 1990 SSES investigation report

The sanitary sewer master plan is the road map by which the Village can methodically address its sewer system issues, cost-effectively applying resources to develop system-wide solutions.


Burbank
Bridgeview
Bridgeview
Chicago Ridge
Alsip/District Lift Station
OC-3, 88th Street and Melvina Avenue
OC-1, 6719 91st Street
OC-2, 9317 Frontage Road
FM-9, 93rd Street at Moody Avenue
FM-6, 93rd Street and Central Avenue
Village Hall
Lift Station, 94th Street and Kostner Avenue
FM-4, 95th Street and Kostner Avenue
RG-2, 95th Street and New England Avenue
FM-10, 96th Street and Sayre Avenue
FM-5, 96th Street and 53rd Avenue
Lift Station, 97th Street and Austin Avenue
Lift Station, 98th Street and Keeler Avenue
FM-8, 98th Street and Ridgeland Avenue
FM-3, 99th Street and Kenneth Avenue
FM-7, 99th Street and Central Avenue
Oak Lawn Creek
FM-12, 102nd Street and Laramie Avenue
Stony Creek
Lift Station, 103rd Street and Major Avenue
FM-11, 103rd Street & Major Avenue Lift Station Forcemain
FM-13, 103rd Street and Cicero Avenue
FM-2, 105th Street and Kolmar Avenue
FM-14, 105th Street and Central Avenue
RG-1, 105th Street and Lockwood Avenue
Stony Creek
FM-1, 109th Street and Kilpatrick Avenue
FM-15, 111th Street and Cicero Avenue
THE VILLAGE OF OAK LAWN
Village of Oak Lawn, IL
Sanitary Sewer Master Plan
Figure ES-1 / 9-1: Areas Recommended for 2012 SSES and Rehabilitation
CDM
N
0 500 1,000 2,000 Feet
Sanitary Line
N/A
1.25
4
6
7
8
10
12
15
16
18
21
24
27
30
36
42
54
60
66
Sanitary Manholes
Sanitary Lift Stations
Sewersheds
Connections - Oak Lawn to District
Complaints - Sanitary
Complaints - Storm
Complaints - Other
Chicago Ridge Inflows
Manor Heights (Chicago Ridge Flows)
Flow Meters Installed in District Interceptors
Flow Meters Installed in Oak Lawn Trunk Sewers
Rain Gauges
Model Network
Model Outfall
Areas Recommended for SSES