



# **Combined Sewer Overflow Operation & Maintenance Plan**

**for the**

## **Sanitary District of Decatur**

501 Dipper Lane  
Decatur, Illinois 62522

March 2022

## **Introduction**

This Combined Sewer System Operation & Maintenance Plan (CSS O&M Plan) has been prepared to meet the requirements of NPDES Discharge Permit Number IL0028321, Special Condition 15 “Operational and Maintenance Plans”. It is an update of a previous plan dated February 26, 1997, that was accepted by the Illinois EPA on February 1, 2000.

The Sanitary District of Decatur (SDD) has developed operation and maintenance plans covering the collection system, four Combined Sewer Overflow Treatment Facilities (CSOTFs), and associated control structures. This CSS O&M Plan incorporates the existing O&M material and supplements it with additional information as recommended by Illinois EPA guidance.

## **Combined Sewer System Overview**

As in many other central Illinois municipalities, the wastewater collection system in Decatur was constructed beginning in the late 19th and early 20th centuries as a combined storm and sanitary system. Early sewer systems were designed to convey both dry and wet weather flows to the nearest receiving stream. When wastewater treatment facilities were constructed in the 1920s, diversion structures were installed at various points in the combined sewer system to carry dry weather flows to the treatment plant and allow the more dilute wet weather flow to overflow without treatment. Although the construction of new combined sewers ended in the 1940s, combined sewers downtown and in the older residential areas of Decatur remain in use.

The SDD serves the communities of Decatur, Mt. Zion, Forsyth, Oreana, and Argenta (Municipalities) which are all located within Macon County Illinois for the treatment of sanitary and/or industrial wastewaters at its treatment facilities located at 501 South Dipper Lane in Decatur, IL.

The SDD owns and operates an interceptor sewer system in excess of 50 miles consisting of 18” and larger pipes which serves several municipal sanitary and/or combined collection systems. In addition, the SDD owns and operates 21 pumping stations and operates 21 additional pumping stations owned by the Municipalities.

The SDD also owns and operates four CSOTFs and all CSO diversion and control structures within the SDD boundaries. Approximately 150 miles of combined sewers tributary to the CSOTFs are owned and maintained by the City of Decatur, along with an additional 140 miles of sanitary sewers. All storm sewers are owned and operated by the communities in which they are located.

The District’s CSO control plan was based on CSO studies conducted in 1982 and 1987 and was developed to minimize industrial wastewater flows tributary to the CSO discharge points, and maximize the capacity of the sewage collection system. Treatment facilities were designed to screen out large solids and floatables in CSOs, capture and store “first flush” for later treatment in the SDD wastewater treatment plant and provide treatment equivalent to primary treatment for CSOs beyond the first flush volume up to the peak flow rate from a one-year storm. Along with construction of new sewers, diversion structures, and pumping stations, treatment facilities were constructed as follows:

McKinley Avenue CSOTF, 1986  
 Seventh Ward CSOTF, 1990  
 Oakland Avenue CSOTF, 1992  
 Lincoln Park CSOTF, 1992

### Combined Sewer System Operation & Maintenance

Operation and maintenance of the interceptor sewers, pump stations, and CSOTFs is the responsibility of the SDD’s Outside Facilities Manager and staff, under the supervision of the Director of Maintenance. While the SDD is not responsible for the operation or maintenance of any portion of the collection system that it does not own, the District intends to maintain communication and cooperation with the various Municipalities’ personnel in order to achieve optimum utilization of both District and City owned facilities.

Book 3, Chapter 3 of the District’s comprehensive O&M Manual, “Description, Operation and Control of Gravity Sewers and Pumping Stations,” provides the basis for flow management as well as collection system maintenance. O&M Manual Book 4, “Combined Sewer Overflow Facilities,” describes the operation and maintenance of the District owned CSOTFs and CSO control structures. Both of these manuals are available for reference at the SDD office.

Because the O&M manuals for the collection system and CSOTFs are lengthy and detailed, a summary of pertinent information is provided below in the format of the Illinois EPA “CSO Operational Plan Checklist.”

Item	Checklist Item	Detail and References
1	Describe the collection system including all outfalls and overflows, control (diversion) structures, treatment facilities, pumping stations, and associated capacities.	A table of design capacities for sewers, diversion structures, and the CSOTFs is included in Book 4, appendix 2. Operation of the diversion structures associated with each CSOTF and of the CSOTFs in described in Book 4, Chapter 3, Tabs 2-6.
2	Describe the relationship to other collection entities, esp. other CSO collection entities	See discussion on Page 2, above
3	Has the Illinois Pollution Control Board issued any orders, currently in effect, regarding any of these outfalls? If yes, include a copy of the Board Order with the Plan.	AS 91-7 was issued by the IPCB June 23, 1992. This adjusted standard allows SDD to discharge from the CSOTFs without disinfection. A copy of the order can be found at: <a href="https://pcb.illinois.gov/documents/dsweb/Get/Document-21480">https://pcb.illinois.gov/documents/dsweb/Get/Document-21480</a>
4	Are any of these outfalls to sensitive areas (designated Outstanding National Resource Waters, National Marine Sanctuaries, bathing beaches, shellfish beds, waters with threatened or endangered species and their habitat, contact recreation, or drinking water intakes)?	None of the outfalls discharges to areas as described.
5	Describe efforts undertaken to minimize the discharge of pollutants from all CSO outfalls	Flow routing to maximize collection system utilization and route industrial flows around combined sewer areas; interceptor and diversion

		structure O&M practices to maintain efficiency; full utilization of CSOTFs
6	Describe efforts undertaken to maximize storage of pollutants in the collection system	Flow routing to maximize collection system utilization; interceptor and diversion structure O&M practices to maintain efficiency
7	Describe the pollution prevention aspects of this Operational Plan	Flow routing as above; see CSO Pollution Prevention Plan for additional information
8	Describe efforts to monitor CSO impacts and the efficacy of CSO controls	SCADA system monitors operation of CSOTFs; daily sampling performed when CSOTFs are discharging; receiving stream biological monitoring performed beginning in 1998 and continuing as part of post-construction monitoring
9	Describe the public notification program for CSO occurrences and impacts	Signs at CSOTFs to alert public when discharges are occurring; see CSO Public Notification Plan for additional information. Also a copy of the previous 12 months of CSO discharge records are maintained on the SDD website for public access at <a href="http://www.sddcleanwater.org">www.sddcleanwater.org</a>
10	Latitude and longitude information given for each outfall	003 Lat 39deg 49 min 54.15 sec N Lon 88 deg 58 min 22.29 sec W 004 Lat 39 deg 40 min 49.29 sec N Lon 88 deg 57 min 44.37 sec W 007 Lat 39 deg 52 min 11.73 sec N Lon 88 deg 58 min 54.53 sec W 008 Lat 39 deg 49 min 59.54 sec N Lon 88 deg 59 min 30.43 sec W
11	Schedule for regular street cleaning in combined sewer area	Municipalities are responsible for cleaning all curbed streets based upon their own needs.
12	Added emphasis for leaf removal	Managed by refuse haulers as yard waste.
13	Schedule for catch basin cleaning	City of Decatur maintains a rotating schedule for cleaning.
14	Schedule for routine cleaning of trunk and interceptor sewers	As-needed basis, the scheduling is maintained by the SDD Maintenance department.
15	Stop planks at highest level practical without causing basement backups or excessive street flooding	Weir elevations set according to system design and initial operation.
16	Date system stop planks last adjusted	Early 1990s
17	Describe your procedures for: Cleaning screening equipment after and, if necessary, during each storm	Screens at the CSOTFs operate automatically. All structures are cleaned after each overflow event.
18	Regulating diversion and bypass valves	All diversion structures operate automatically (i.e. weirs, hydrobrakes).
19	Reducing solids deposition in the combined sewer system	Street sweeping as noted above.
20	Schedule to inspect regulator and diversion structures included	Annually

21	Routine pump/lift station inspection and preventive maintenance	SCADA system continuously monitors pump station status. Routine inspections scheduled on a rotating basis. Preventive maintenance included in plant database and maintenance scheduling program.
22	Schedule to inspect manholes and sewers (e.g., televise, etc.) included	Visual inspection of all sewer routes annually, televising on a ten-year cycle.
23	Schedule to inspect surface water anti-intrusion devices (e.g., flapgates, etc.)	Present only at 7th Ward facility; inspected after every event.
24	Describe your procedures for finding and eliminating illegal sewer connections	City conducts smoke testing supplemented by televising prioritized based on problem areas.
25	Describe your procedures for finding and eliminating dry-weather overflows	Presence of discharge monitored by plant SCADA system.
26	Sewer system map included	Available at SDD office in several versions including CAD and GIS
27	Combined sewers and sanitary sewers tributary to combined sewers marked	Yes
28	Storm sewers using combined sewers as a transport link marked	N/A
29	All major interceptors and trunk sewers marked	Map shows location for each SDD interceptor sewer.
30	Sewer sizes, slope, and material indicated	Size and material indicated in O&M Book 3, Chapter 3. Any recent modifications are maintained in the SDD Engineering (internal) GIS record.
31	Manholes and catch basins identified	Yes; if owned by SDD with GIS records.
32	All CSOs, treatment plant bypasses, outfalls, and their receiving waters identified	CSO diversion structures, CSOTFs, outfalls, and receiving waters identified in O&M Book 4, Chapter 3. The single treatment plant emergency bypass point is identified in O&M Book 1, Chapter 3.
33	All control (diversion) structures, including valves, marked	Capacities and operation of diversion structures associated with each of the CSOTFs are covered in O&M Book 4, Chapter 3.
34	All pump and lift stations and their capacities marked	Pump station equipment, capacities, and operation are described in O&M Book 3, Chapter 3.
35	Diagram of CSO Treatment Facilities	Diagram shown in O&M Book 4, Chapter 3.
36	All unit processes and associated capacities identified	Unit processes, capacities, and operating procedures described in O&M Book 4, Chapter 3.
37	Drainage area and population tributary to each overflow indicated	Contained in 1976 Facilities Plan and 1992 Capacity Study
38	Sewer capacity immediately upstream and downstream of each overflow indicated	Contained in 1976 Facilities Plan and 1992 Capacity Study
39	Description of structural and physical condition of sewer system	Known but not included on map, and/or may exist in the SDD Engineering (internal) GIS records.
40	Age of system included	Contained in 1976 Facilities Plan and 1992 Capacity Study
41	Bottlenecks in the system included	None known
42	Average dry weather flow rate through sewer at each overflow (diversion structure)	Contained in 1976 Facilities Plan and 1992 Capacity Study
43	Year last monitored	1982; McKinley 1987
44	Land use and zoning classification in the vicinity of each overflow indicated	Contained in 1976 Facilities Plan and 1992 Capacity Study

45	Projected growth tributary to each overflow indicated	Limited growth potential in combined sewer area
46	List of non-residential sewer users tributary to each overflow	Contained in pretreatment files
47	Dischargers of toxics indicated	Contained in pretreatment files
48	Dischargers of high strength wastewater indicated	Contained in pretreatment files
49	High-volume dischargers indicated	Contained in pretreatment files
50	Percent pervious area developed and kept current for each sewerage basin	Not currently developed; can be estimated from land use data if needed. SDD is currently working on this information for GIS purposes.
51	Logs should be maintained on the following subjects: Collapsed and blocked sewers	Information contained in SDD maintenance management system
52	Basement backups, street flooding, and other collection system complaints	Information contained in SDD maintenance management system
53	Regulator and diversion structure inspections	Annually
54	CSO and excess flow retention basin levels	Information monitored in plant SCADA system.

Note: in regard to various information location(s) listed above are accurate within the limits of the original information available, however through modernization activities which are ongoing at the District additional information may also be available through Engineering and Maintenance departmental records and/or through ACR-GIS.

The SDD interceptor sewers and pump stations have been designed to allow an unusual degree of flexibility in routing flows, especially flows from the two largest industrial users, through the system. In addition, a computerized model of the interceptor sewer system has been developed to aid in analyzing the hydraulics of the system, balancing flows, and maximizing the flow routed to the treatment plant to minimize CSOs. When significant changes occur in the collection system, the model serves as a tool to predict impacts and needed changes in facilities or flow routing.

System flexibility and ongoing implementation of the operation and maintenance procedures and practices described above result in minimizing both the frequency and the impact of CSO discharges. The SDD believes that this combination of design and O&M achieves the level of CSO control required by U.S. EPA's "Nine Minimum Controls" and the District's NPDES permit.