



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels, Jr.*  
Governor

July 27, 2012

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Indianapolis, Indiana 46204  
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*Thomas W. Easterly*  
Commissioner

Krista S. Taggart, Corporation Counsel  
City of Greenwood  
225 S. Emerson Avenue, Suite B  
Greenwood, IN 46143

Dear Ms. Taggart:

Re: Approval of Compliance Plan  
City of Greenwood  
Case No. 2011-20446-W  
Johnson County

This office has reviewed the City of Greenwood Compliance Plan (copy enclosed) received July 20, 2012, under Agreed Order 2011-20446-W, and the Plan is hereby approved for implementation. The schedule on page 8 of the Plan summarizes the comprehensive Plan milestones to prevent sewage overflows and maintain the sewage collection system. Scheduled items are through December 31, 2017. Section 5 of the Plan includes updating IDEM on the Plan implementation each 6 months (January 30 and July 31) of each year of the Plan.

Thank you for your continued cooperation in this matter. If you have questions, you may contact me at 317/232-8432.

Sincerely,

Paul Cluxton, Case Manager  
Enforcement Section  
Surface Water, Operations &  
Enforcement Branch  
Office of Water Quality

Enclosure

cc: The Honorable Mark Myers, Mayor (via e-mail)  
Terry McLaughlin, Director of Operations (via e-mail)  
Mark Richards, City Engineer (via e-mail)  
Adam Stone, Controller (via e-mail)  
Johnson County Health Department



Office of Corporation Counsel

July 20, 2012

Paul Cluxton, Enforcement Case Manager  
Surface Water, Operations & Enforcement Branch  
Indiana Department of Environmental Management  
Office of Water Quality – Mail Code 60-02W  
100 North Senate Avenue  
Indianapolis, Indiana 46204-2251

IDEM  
OFFICE OF  
WATER QUALITY  
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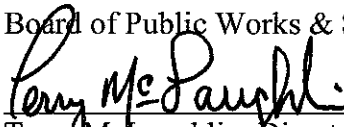
RE: City of Greenwood, Indiana's Agreed Order Compliance Plan (2011-20446-W)

Dear Mr. Cluxton,

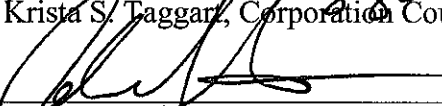
Enclosed please find a copy of the City of Greenwood's proposed Compliance Plan in accordance with the Agreed Order entered into with the Indiana Department of Environmental Management ("IDEM"). On July 16, 2012, the Board of Public Works & Safety, at a public meeting, approved submittal of the proposed Compliance Plan and delegated authority to the City's Director of Operations, Corporation Counsel, Controller, and City Engineer to finalize said Compliance Plan and submit the proposed Plan on its behalf prior to the July 20, 2012 deadline. The enclosed Plan is submitted in accordance with this delegation of authority. We would be happy to meet with you to discuss the Compliance Plan. Please call with any questions or to schedule an appointment. Thank you.

Sincerely,

THE CITY OF GREENWOOD, by and through its  
Board of Public Works & Safety

  
Terry McLaughlin, Director of Operations

  
Krista S. Taggart, Corporation Counsel

  
Adam Stone, Controller

  
Mark Richards, City Engineer

# City of Greenwood, Indiana

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## Agreed Order Compliance Plan

Case No. 2011-20446-W

Prepared by:

STRAND ASSOCIATES, INC.®  
629 Washington Street  
Columbus, IN 47201  
[www.strand.com](http://www.strand.com)

July 2012



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## EXECUTIVE SUMMARY

On March 8, 2012, the Greenwood Board of Public Works and Safety passed Resolution 12-10, approving entry into Agreed Order No. 2011-20446-W dated March 23, 2012, with the Indiana Department of Environmental Management (IDEM). Partially in anticipation of the IDEM Agreed Order, the Greenwood Common Council passed Ordinance 12-06 on March 5, 2012, enacting an immediate 10 percent sanitary sewer utility rate increase and passing an additional 10 percent rate increase to go into effect January 1, 2013. This rate increase is designed to, in part, fund needed maintenance and capital improvements to the City of Greenwood (City) sanitary sewer system (System) mandated by the terms and conditions of the Agreed Order. This Compliance Plan outlines the City's proposed maintenance program, operations and capacity improvements, information management program, and training and review program. The Compliance Plan will be continuously monitored for needed modifications and improvements.

## SECTION 1: MAINTENANCE PROGRAM

### 1.1 Preventive Maintenance Plan

The City shall develop a comprehensive preventive maintenance schedule to be performed on its System to keep facilities in good working order. Ongoing preventive maintenance measures shall be implemented and documented to continually monitor the condition of equipment and anticipate special needs for maintenance and/or replacement. The City currently performs ongoing daily preventive maintenance on its system. However, in response to the Agreed Order, the City shall develop a standardized, routine maintenance plan and shall ensure that all such maintenance is properly documented and that employees receive adequate training on the plan.

Routine and preventive maintenance shall be performed in a scheduled manner and shall include written documentation of work performed, date of work, and identification of any special conditions observed during the completion of the work. Development of the maintenance program shall begin within seven days following approval of the Compliance Plan by IDEM, and implementation of the program shall begin within 60 days following approval of the plan.

The City's Preventive Maintenance Plan shall include the following elements:

1. A routine and standardized schedule for:
  - a. Inspecting each lift station and recording the hours on each pump.
  - b. Removing solids collected in the wet well with a vacuum truck or other appropriate method.
  - c. Performing pump down testing on each lift station.
  - d. Checking operation of portable generator for lift stations.
  - e. Exercising valves in dry wells.
  - f. Testing operation of dedicated generators.
  - g. Visually inspecting dry pumps.
  - h. Checking macerators.
  - i. Greasing pumps and macerators.

- j. Washing down macerators and wet wells.
  - k. Maintaining and servicing equipment.
2. A standardized system of documenting preventive maintenance measures and development of a centralized storage and collection system for inspection and maintenance records.
  3. A routine and standardized schedule for review of maintenance records and pump run times.

## 1.2 Critical Components of System Operation and Maintenance

The City has identified its gravity sewers and lift stations as the most critical components of operating the wastewater collection system. The City shall identify a list of critical gravity sewer and lift station components within 60 days after approval of this Compliance Plan and shall identify replacement component parts that are needed in the event of component failure. The component listing shall include information regarding the sourcing, ordering, timing, and delivery of each critical component. The City shall procure an adequate inventory of critical components no later than February 28, 2013. Where critical components are readily available from vendors, on-site inventory will not be required.

## 1.3 Inventory

The City shall maintain inventory of consumable items in anticipation of need for maintenance and replacement. A comprehensive list of wastewater collection and treatment items maintained in inventory shall be kept and continuously updated by the City. The inventory data shall include the following information for each item (when available):

1. Item description.
2. Date item put into stock.
3. Unit cost.
4. Number in stock.
5. Date item used.

The initial inventory list for the City shall be completed no later than December 1, 2012. An adequate inventory of replacement consumable parts shall be established on or before February 28, 2013. Thereafter, the City shall conduct semi-annual inventory records maintenance. The City shall also develop a centralized system of documenting and collecting inventory records. For critical items where it is not practical to maintain an on-site inventory, the City will identify information regarding the sourcing, ordering, timing, and delivery of such parts as described in Section 1.2.

## 1.4 Inflow and Infiltration (I/I) Reduction Measures

The City shall develop routine and ongoing practices to identify and remove sources of I/I from the sanitary sewer collection system. Monitoring of I/I shall be performed through daily flow and rainfall monitoring. Identification of I/I shall be performed through routine inspection and testing. A comprehensive plan to eliminate I/I shall be developed in coordination with the City's Storm Water

Management Department. The City's plan with respect to I/I reduction measures shall include development of:

1. A schedule for reading and recording lift station meters and pump hours (to be developed and implemented on or before October 31, 2012).
2. A standardized method for recording and charting lift station meter readings (to be developed and implemented on or before October 31, 2012).
3. Monthly review, analysis, and comparison of data collected (to be developed and implemented on or before December 31, 2012).
4. A meter study in targeted areas of concern to measure flow trends (to be conducted by December 31, 2013).
5. Schedule and procedures for visual inspection of all manholes and televised pipe inspections of targeted areas of system based on objective standardized criteria and documenting the results of said inspections. Schedule of inspections shall be prioritized based on age of collection system and experience of historical problem areas (schedule and procedures to be developed on or before December 31, 2012, inspections to be complete on or before December 31, 2017).
6. Schedule and procedures for identifying illegal connections, sump pump issues, or other conditions determined to be the responsibility of property owners, and development of enforcement measures to ensure necessary requirements are made within a specified period of time (schedule and procedures to be developed on or before June 30, 2013; enforcement measures to be implemented by December 31, 2013).
7. Development of comprehensive plan to eliminate I/I based upon severity and development of an objective ranking system to prioritize projects (to be complete by December 31, 2013).

The results of inspections and revisions and modifications to the plan to eliminate I/I shall be assessed and prioritized on an annual basis.

## **SECTION 2: OPERATIONS AND CAPACITY MANAGEMENT PROGRAM**

### **2.1 Assessment of Structural Integrity and Capacity**

The City shall develop and implement a program to provide ongoing monitoring of the structural integrity and capacity of the sanitary sewer collection system. As part of the City's ongoing Maintenance Program, reports shall be made noting any deterioration of the structural integrity or capacity of the system. Reports of sewage backup, overflow, or other capacity-related events shall be reported, monitored, tracked, and analyzed. The City's assessment program will include the inspections and studies noted in Section 1. Additionally the City shall develop a capital improvement plan on or before December 31, 2013, as noted in Section 2.3 below.

The assessment of structural integrity and capacity of the system shall take place concurrently with the inspections listed under Section 1.4 and shall be completed on a similar time table. An interim hard copy or electronic centralized records system shall be established on or before December 31, 2012, with conversion to geographical information system (GIS) records at a later date.

## 2.2 Impact of Industrial and Other Non-Domestic Wastewater Flow

The City does not have any users that place a significant volume of industrial or non-domestic wastewater flow into the system. The City does have an Industrial Discharge Program in place that is currently being implemented.

## 2.3 Identification and Prioritization of Structural and Hydraulic Deficiencies

Structural deficiencies shall be identified and prioritized in accordance with Section 2.1. Photographs of structural problems shall be taken whenever possible and maintained with the collection system records. The City shall conduct a study of hydraulic deficiencies and maintain records of said deficiencies on or before December 31, 2013. Hydraulic system deficiencies shall be alleviated by addressing I/I to the collection system as outlined in Section 1.4. A capital improvement plan addressing structural and hydraulic deficiencies shall be developed on or before December 31, 2013 with implementation to begin in 2014.

## 2.4 Collection System Monitoring

The City shall develop a list of parameters to be monitored on a daily basis relating to its collection system. This list shall be developed on or before October 31, 2012. Concurrently, the City shall develop a system of recording and tracking the results of its monitoring program. Monitoring of the system in this manner will demonstrate the impact of wet weather on the collection system and allow the City to identify and address problem areas. As noted in Section 1.4, monthly review, analysis, and comparison of data collected shall begin on or before December 31, 2012.

## 2.5 Procedures for Response and Operation During Conditions Likely to Result in a Collection System Discharge

The City shall develop a plan to respond to and operate during major rain events and other conditions likely to result in a collection system discharge. This plan shall include:

1. Action plan for major rain events.
2. Installation, maintenance, and inspection of alarm and alarm backup systems at all lift stations.
3. Installation, maintenance, and inspection of backup pumps at all lift stations.
4. Establishment of an adequate inventory of backup generators and other equipment necessary to respond to power outages and equipment failures.



All overflow events are, and will continue to be, reported immediately to IDEM. The City will develop a written response plan to all overflow events and documentation of maintenance procedures on or before December 31, 2012.

### **SECTION 3: INFORMATION MANAGEMENT PROGRAM**

#### **3.1 Collection System Map**

The City shall create a comprehensive GIS mapping system for maintaining and updating its collection system map. The mapping was started in 2011 and is partially complete. In July 2012, the City hired an additional technician to aid it in its mapping efforts. The finished project shall include all sanitary sewer manholes, gravity sewer mains, lift stations, and force mains. Private sewer laterals will be added as resources allow. The mapping system shall also include the storm sewers. Once developed, the mapping system will be continuously updated to include changes and additions. The mapping system will include complaint and maintenance records and will be utilized to help identify priority areas for rehabilitation and replacement. The mapping system shall be completed on or before January 31, 2014.

#### **3.2 Procedures for Recording and Reporting Collection System Discharge Events**

Collection system discharge events shall be documented in Monthly Operations Reports. A standardized form for Monthly Operating Reports shall be established by the City on or before September 30, 2012. IDEM shall continue to be notified within 24 hours of all events by completion of the IDEM report form and faxing of the report to IDEM.

#### **3.3 Identification and Illustration of Trends in Overflow Occurrences**

All System overflows shall be recorded and documented in standardized Monthly Operating Reports that shall be developed and implemented on or before September 30, 2012. Daily wastewater flow and precipitation records shall be recorded, graphed, and analyzed on a monthly basis as noted in Section 1.4. This analysis shall identify days where overflow occurred.

#### **3.4 Procedures for Response to an Overflow Event**

The City shall develop a comprehensive plan for responding to overflow events. This plan shall include:

1. Notification and chain of command to superintendent and senior staff.
2. Notification and documentation procedures to IDEM.
3. Establishment of best practices guide for response.
4. Documentation and record keeping procedures.
5. Debriefing procedures following response.

This comprehensive plan shall be developed on or before December 31, 2012.

### 3.5 Procedure for Tracking Collection System Problems and Customer Complaints

The City shall establish an interim paper or electronic system of record keeping for its sanitary sewer utility on or before December 31, 2012. This system shall include procedures for reporting and documenting:

1. Routine maintenance actions.
2. Repairs and rehabilitations.
3. Work orders.
4. Operations and capacity inspection reports.
5. Capital projects.
6. Collection System Monitoring.
7. Customer complaints.
8. Overflow reporting and responses.
9. Monthly Operating Reports.

The interim system may include tracking through the City's GIS mapping system, electronic storage and maintenance of records and/or paper records. The City plans to implement comprehensive tracking via a GIS mapping system on or before December 31, 2015.

### 3.6 Maintenance of All Records

The City shall maintain detailed records of the actions and reports itemized in Section 3.5. A formalized interim procedure for maintaining records shall be established on or before December 31, 2012, with a GIS maintenance procedure to follow on or before December 31, 2015.

### 3.7 Documentation of Activity to Implement Section 3b of the Agreed Order

The City's proposed Compliance Plan requires a wide range of actions for the purpose of ensuring that the System is efficiently operated and maintained in good working order at all times. Such actions are outlined in detail herein and shall be recorded and documented by the appropriate City staff as outlined in this Plan.

## **SECTION 4: TRAINING PROGRAM**

### 4.1 Training Program

The City shall establish a uniform system of initial and refresher training for staff. Such training shall be appropriate for the position and experience level of each staff member. Licensed operators shall be required to attend the minimum number of continuing education classes required to maintain their license. The City is in the process of adopting a Safety Program, which will apply to the sanitary sewer utility. The City will also develop a schedule to provide confined entry training, safety training, and special training as needed for new procedures, safety, equipment, and technology. The Training Program shall be designed on or before October 31, 2012, and shall be reviewed on an annual basis. Employees will obtain training on the preventive maintenance plan outlined in section 1.1 on or before December 31, 2012.

#### 4.2 Annual Review of Compliance Plan

The Sanitation Superintendent, City Director of Operations, City Engineer, Director of Storm Water Management, and Corporation Counsel shall review the information collected through implementation of the Compliance Plan on an annual basis. The review will include assessment of the overall effectiveness of the Compliance Plan and recommended revision for improvement. A report shall be prepared and presented to the Board of Public Works and Safety and the Common Council in January of each year to describe the conclusions of each Compliance Plan review. The first annual review shall occur in December 2012.

### **SECTION 5: COMPLIANCE PLAN MONITORING**

#### 5.1 Compliance Plan Monitoring

Monitoring of the Compliance Plan effectiveness shall be performed through benchmarking, quarterly meetings of senior staff, and preparation of an annual report. A system of benchmarking and analysis shall be developed by the City on or before October 31, 2012.

#### 5.2 Modification and Update of Compliance Plan

The Sanitation Superintendent, City Director of Operations, City Engineer, and Corporation Counsel shall meet on a quarterly basis to evaluate progress under compliance plan and to determine the need for any modifications and/or updates to the Compliance Plan.

#### 5.3 Reporting to IDEM during Compliance Plan Development and Implementation

The City shall provide IDEM with updates every six months, on or before January 30 and July 31, of each year regarding its progress with respect to its implementation of the Compliance Plan.

### **SECTION 6: IMPLEMENTATION SCHEDULE**

The implementation and completion schedule is presented in Table 1. The City of Greenwood has scheduled the above work from the time the Compliance Plan is approved to December 31, 2017. The majority of the Compliance Plan is scheduled to be completed by December 31, 2015, (approximately 41 months), but the sewer television and manhole inspections are anticipated to take until approximately December 31, 2017, because of the size of the system and amount of man-hours required to complete the tasks.

Pursuant to Paragraph 3d of the Agreed Order, the City of Greenwood must demonstrate a 12-month period with no overflows within 18 months of completion of the implementation schedule. This is currently scheduled to start in August 2018, which is 6 months after the Compliance Plan implementation is anticipated to be complete.

	Item	Duration	Start Date	Anticipated Completion Date	Actual Completion Date
1	Implement Compliance Plan.	65 months	8/1/12 <sup>1</sup>	12/31/17	
2	Develop and implement Preventive Maintenance Program.	2 months	8/1/12 <sup>1</sup>	9/30/12	
3	Develop complete inventory including critical components.	5 months	10/1/12	2/28/13	
4	Develop and implement schedule and procedures for recording and charting lift station data.	3 months	8/1/12 <sup>1</sup>	10/31/12	
5	Implement monthly review of lift station data.	2 months	11/1/12	12/31/12	
6	Conduct flow study in areas of concern.	12 months	1/1/13	12/31/13	
7	Visually inspect all manholes and televise targeted area of system.	60 months	1/1/13	12/31/17	
8	Develop procedures and implement enforcement measures to eliminate illegal and sump pump connections.	14 months	11/1/12	12/31/13	
9	Develop Capital Improvement Plan.	12 months	1/1/13	12/31/13	
10	Develop list of collection system parameters to be monitored daily.	3 months	8/1/12 <sup>1</sup>	10/31/12	
11	Develop centralized record keeping system and procedures.	5 months	8/1/12 <sup>1</sup>	12/31/12	
12	Develop procedures for operating in conditions likely to result in a system discharge.	2 months	11/1/12	12/31/12	
13	Develop collection system map.	31 months	7/1/11	1/31/14	
14	Develop standard monthly operations report form.	2 months	8/1/12 <sup>1</sup>	9/30/12	
15	Develop comprehensive plan for responding to overflow events.	5 months	8/1/12 <sup>1</sup>	12/31/12	
16	Incorporate tracking collection system problems, customer complaints, and other records into GIS system.	12 months	1/1/15	12/31/15	
17	Develop training program for employees.	3 months	8/1/12 <sup>1</sup>	10/31/12	
18	Train employees on Preventative Maintenance Program.	2 months	11/1/12	12/31/12	
19	Conduct annual review of Compliance Plan.	Ongoing	12/1/12	12/31/17	
20	Develop system of benchmarking and analysis of Compliance Plan effectiveness.	3 months	8/1/12 <sup>1</sup>	10/31/12	

<sup>1</sup> Dependent on approval date of Compliance Plan.

**Table 1 Compliance Plan Implementation Schedule**