TOWN OF DYER, INDIANA

STORM WATER QUALITY MANAGEMENT PLAN - PART C

LAKE COUNTY

SEH No. A-DYERS0401.00

February 8, 2005

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SEH

October 7, 2005

RE: Stormwater Management Board
SWQMP Part C Permit Application
SEH No. ADYERS0401

Christina York
Rule 13 Coordinator
Indiana Department of Environmental Management
Office of Water Quality, Permits Branch
100 North Senate Avenue, MC 65-42 IGCN 1255
Indianapolis, Indiana 46204-2251

Dear Ms. York:

As requested, please find one copy of the Storm Water Quality Management Plan - Part C submitted on behalf of the Town of Dyer Stormwater Management Board. Please contact me if you have any questions regarding this submittal. You may email me at pknueppel@SEH.com or call me at 219.513.2500.

Sincerely,

Paul C. Knueppel

Paul C. Knueppel, PE
Project Manager

Enclosure
c: Dyer Stormwater Management Board
Joe Neeb, Town Manager

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TOWN OF DYER

STORM WATER QUALITY MANAGEMENT PLAN - PART C – PART C

Prepared for the Dyer Storm Water Management Board

1.0 Evaluation of the Storm Water Program

1.1 Identification of Best Management Practices (BMPs)

1.1.1 Public Education Outreach

The Town of Dyer sends brochures to its residents along with its storm water billings.

1.1.2 Public Participation Involvement

Storm Water Board entertains and solicits public participation and actively encourages public participation during its board meetings. Citizens are welcomed and any comments are followed through.

1.1.3 Illicit Discharge Detection And Elimination

Currently there is no existing illicit discharge detection or elimination program. To date, the existing conditions did not warrant a program for illicit discharge detection. Hence, there was no program for illicit discharge elimination.

1.1.4 Construction Site Runoff Control

As of this date, the Town depends on the local developers to develop and implement a Storm Water Pollution Prevention Plan consistent with Town ordinances.

1.1.5 Post Construction Runoff Control

The Town standards allow the minimum of the following values as a release rate from a developed site.

- Two-year preconstruction rainfall
- Maximum allowable discharge based on the downstream storm sewer capacity
- 0.15 CFS/Acre

The developer is required to design detention systems to detain a 100-year post construction rainfall and release the minimum of the above values.

1.1.6 Pollution Prevention And Good Housekeeping

The Town provides roll-off box containers and allows its citizens to drop off old furniture, tires, refrigerators, stoves, etc. at the Public Works Center.

1.2 Assessment of BMPs

1.2.1 Public Education and Outreach

The Dyer Storm Water Management Board (DSWMB) has an established public relations program designed to inform, educate and involve its customers in capital, operational and managerial issues of the DSWMB. Major elements of the program include the following:

1. Statement messages and inserts used in customer billing statements.
2. Public notices.
3. Public hearings.
4. Public participation and involvement.

1.2.2 Public Participation and Involvement

The Town of Dyer is committed to citizen participation as part of the decision-making process. The Town of Dyer plans to continue this commitment to public participation and involvement in the development and implementation of SWQMP.

1.2.3 Illicit Discharge Identification and Elimination

The DSWMB does not have a defined program to address items such as smoke testing. However, they video test when problems occur. The DSWMB will implement a storm water illicit discharge ordinance that will forbid illicit discharge and eliminates them as discovered. The DSWMB is in the process of mapping the storm water system and its capabilities. They have completed about 65 percent of the area.

1.2.4 Construction Site Storm Water Runoff Control

The Lake County Soil and Water Conservation District handles all Rule 5 permits. The Town is developing a storm water management and sediment control policy. This ordinance regulates storm water drainage improvements related to the development of lands located within the Town. It will also regulate drainage control systems installed during new construction, grading of lots and other parcels of land, and the design, construction and maintenance of storm water drainage facilities and systems.

The DSWMB is developing protocols and streamlining processes for incorporating erosion and sediment control plan reviews as well as inspections into the plan review process.

1.2.5 Post-Construction Site Storm Water Runoff Control

The Lake County Soil and Water Conservation District requires post-construction site storm water runoff control as part of the Rule 5 permit application. The Town of Dyer is developing an ordinance for post-construction storm water runoff control. The DSWMB has routine strong enforcement of laws, ordinances and regulations set forth in the storm water

program. The DSWMB is in the process of training inspection staff regarding post construction BMP control measures.

The DSWMB is considering the use of constructed wetlands for storing and filtering storm water. They have been using standard detention and retention basins.

1.2.6 Pollution Prevention and Good Housekeeping

The DSWMB has a management plan in place to clean storm water catch basins, remove sediments and clear storm sewers. The Town of Dyer routinely sweeps all streets as a prevention of debris accumulation. Debris is disposed of at a location in Public Works yard and is used as fill.

The DSWMB has adequate storage to handle historical documents and convert files, electronic data and record drawings for storm water projects.

The DSWMB is developing a system for tracking street sweeping and other litter pick-up efforts.

The DSWMB is also planning to address the following items in future:

- Automobile Maintenance
- Vehicle Washing
- Illegal Dumping Control
- Landscaping and Lawn Care
- Pet Control
- Parking Lot and Street Cleaning
- Roadway and Bridge Maintenance
- Storm Drain System Cleaning
- Hazardous Materials Storage
- Road Salt Application and Storage
- Spill Response and Prevention
- Used Oil Recycling

2.0 Minimum Control Measures

2.1 Public Education and Outreach

The Town has entered into an agreement with the Northern Indiana Regional Planning Commission (NIRPC) to provide minimum control measures for public education outreach. The NIRPC will distribute brochures, conduct classes and utilize the Town's web site to disseminate storm water news and other interesting events.

The DSWMB will also mail informational material to all residents who receive a utility bill for water, sanitary and storm water service from the Town. This mailing would reach every household and business within the MS4 Area.

2.2 Public Participation and Involvement

The Town has entered into an agreement with NIRPC to provide minimum control measures for public participation and involvement. NIRPC will develop a public participation process, which will be designed to reach out and engage all economic groups.

The DSWMB is comprised of citizens within the MS4 area. Monthly public meetings are held to discuss and approve policies that affect the storm water management of the MS4 area. Public attendance and involvement is encouraged at each meeting. There is also a portion of each meeting that is open to public comment.

Citizen participation will be sought in program coordination and volunteer monitoring efforts. These efforts include activities such as storm drain marking.

2.3 Illicit Discharge Detection And Elimination

The DSWMB will develop, implement and enforce a program to detect and eliminate any illicit discharges that may be discovered. A storm sewer system map will be developed showing the location of all outfalls and location of all waters that receive discharges from those outfalls. An illicit discharge detection and elimination ordinance will be developed to prohibit non-storm water discharges into the storm sewer system. Appropriate enforcement procedures and actions will be incorporated into the above ordinance. A plan will be developed to detect and address non-storm water discharges including illegal dumping if situations warrant. Public employees and businesses will be informed about the hazards associated with illegal discharges and improper disposal of waste. Waterline flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated groundwater infiltration, uncontaminated proper groundwater car discharges from potable water resources, foundation drains, air-conditioning condensation, irrigation water, springs, water from crawl space forms, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water may be monitored if found to be a significant contributor of pollutants.

2.4 Construction Site Runoff Control

The DSWMB is currently in the process of approving an Erosion Control Ordinance. The ordinance identifies the procedures for the review and approval of the erosion control plan, design requirements for the listed and approved BMP's, and the inspection of the implemented erosion control plan.

As part of the erosion control plan review, documentation is required from the Soil and Water Conservation District (SWCD) and IDEM for the approval of the Stormwater Pollution Prevention Plan for the respective land disturbing activity.

2.5 Post Construction Runoff Control

The following measures will be taken to improve the post construction runoff control.

- An ordinance to require erosion and sediment controls will be developed as well as sanctions to ensure compliance, to the extent allowable under State law.

- Construction site operators to implement appropriate erosion and sediment control (ESC) best management practices.
- Construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality;
- Procedures for site plan review, which incorporate consideration of potential water quality impacts.
- Procedures for receipt and consideration of information submitted by the public.
- Procedures for site inspection and enforcement of control measures.
- The Town of Dyer does not utilize wells as a source of drinking water; therefore, any restrictions that may accompany the use of wells will not be enforced.

2.6 Pollution Prevention and Good Housekeeping

The following measures will be taken to improve pollution prevention and good housekeeping.

- A training component that has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.
- Using training materials that are available from the United States Environmental Protection Agency (USEPA), Indiana Department of Environmental Management (IDEM) or other organizations. The program will include employee training to prevent and reduce storm water pollution from activities such as parks and open spaces, maintenance, fleet and building maintenance, new construction and land disturbances and storm water system maintenance.

3.0 Implementation Milestones

3.1 Receiving Water Quality

Based on existing monitoring data, it has been determined that the water quality data is limited. In order to continue to monitor the receiving water quality, DSWMB will perform water quality testing as defined in this submittal.

3.2 Effectiveness of Existing Structural BMPs summary

No studies have been conducted in the Town of Dyer to determine the effectiveness of existing structural BMPs. Based on water quality, testing results studies may be conducted.

3.3 Public Education and Outreach

The DSWMB intends to enter into a 5-year cooperative agreement with NIRPC for storm water public education and involvement (PE&I). NIRPC has received plan approval from the IDEM Division of Water for its proposed storm water PE&I program.

NIRPC's proposed PE&I program includes, but it is not limited to the following contractual activities available to the DSWMB:

- Base and five-year evaluation surveys
- Media campaign
- Reproducing K-12 educational materials
- Target audience materials
- Workshops for teachers and the public
- Public meetings
- Message on Town's website
- Telephone hotline
- Special event displays
- Stencil "Do Not Dump Discharge to River" on catch basins and inlets
- Billboards
- Note on storm water bill
- Point of purchase display for lawn products

A partnership is under consideration with the Lake County Surveyor's office to implement a tributary signage program. The signage would be linked to mile markers to allow for easy reporting of unusual conditions. The signage would contain educational information regarding the quality of receiving streams at sign locations.

The Town of Dyer maintains a separated storm sewer system and, therefore, is not a CSS community.

3.4 Public Participation and Involvement

The same 5-year cooperative agreement between the DSWMB and NIRPC, as mentioned in section 3.3, provides for public participation and involvement.

The Town specifications will be modified to incorporate inlet marking for new installations in the year 2005.

The Town of Dyer maintains a separated storm sewer system and, therefore, is not a CSS community.

3.5 Illicit Discharge Detection and Elimination

1. Develop storm water system mapping capabilities.
2. Develop and implement a storm water illicit discharge detection and elimination ordinance in 2005.
3. Develop a plan to identify problem areas by conducting dry weather screening of all major storm sewer outfalls or referencing individual industrial storm water permits. The major outfalls are to be identified by 2006. The illicit discharge detection and elimination ordinance will have provisions for the removal or correction of the problem and the documentation of the corrective action taken. The industrial facilities, which discharge into a regulated MS4 conveyance, will also be identified through the implementation of the plan.
4. Implement a training program for all Town maintenance and inspection staff by the year 2006. Programs sponsored by NIRPC will inform the public and businesses of the hazards of illicit discharges and improper disposal of waste.

5. Consider cross training among departments so that all staff involved in field work and maintenance are equally trained to recognize illicit discharges, improper chemical storage/pollution prevention practice and improper use of chemicals, pesticides, fertilizers, fuels, etc. Additionally, consider working with local MS4's to:
    a. Develop a countywide training program for all field and maintenance employees within Lake County.
    b. Perform routine monitoring of MS4 regulated storm water receiving waters.
6. Establish a list of nutrients and pollutants to be monitored.
7. Develop a program to encourage public reporting of illicit discharges.
8. The Town of Dyer maintains a separated storm sewer system and, therefore, is not a CSS community

3.6 Construction Site Runoff Control

1. Approve an Erosion Control Ordinance which identifies the procedures for the review and approval of the erosion control plan, design requirements for the listed and approved BMP's, and the inspection of the implemented erosion control plan by 2006.
2. Establish an annual review of the effectiveness of recommended BMPs and make any necessary revisions or additions to the list.
3. Develop an educational/training program for the local construction and development community. Conduct review of erosion and sediment control program to determine overall effectiveness and adequacy.
4. Develop protocols and a streamlined process for incorporating erosion and sediment control plan reviews and inspections into the plan review process. Include onsite treatment of the water runoff as a primary goal of the plan review and process approval.
5. Revise design standards for each storm drain inlet cover to include "No Dumping" warnings.
6. Develop written procedures for prioritizing construction sites for inspection and enforcement based upon the extent of construction activities, "developer reliability," topography soils and receiving stream water quality.

3.7 Post Construction Runoff Control

1. Prepare flood control and storm water master plans for identified watersheds in the order of problem severity and as funds become available.
2. Establish and approve a community-wide watershed-planning ordinance for major watersheds to improve water quality, protect pristine habitat and ecosystems, create open spaces, investigate methods of improving water quality and zoning densities, etc. The ordinance should include procedures to:
    a. Reduce unnecessary impervious areas with realistic parking ratios. Rather than enforcing standard parking ratios for all land uses, consider shared parking for facilities that are busy at

different times, pervious overflow parking for busier times of the year as well as the number and size of individual space.

b. Require a percentage of functional open space with each development. Open space should be used in wet weather to maximize on-site treatment and storage of storm water runoff. Encourage neighboring developments to align required open spaces to maximize their benefit.

c. Identify and clearly define existing and potential future flooding/drainage problems in various watersheds using public information meetings, questionnaires, existing hydrologic/hydraulic studies and knowledge of staff members.

d. Determine watersheds that need to be studied based on existing monitoring data, stream classifications, identified flooding and existing and proposed land use characteristics.

7. The Town promotes growth and development as directed in the Town's comprehensive plans.

8. The Town currently utilizes an O&M plan for the existing and new BMP's.

9. The Town's Subdivision Control Ordinance currently establishes the following requirements:

   a. All proposed plats to provide for the collection and management of all storm and surface water drainage.

   b. Storm water is contained in the subdivision to contain a 100-year flood and the release rate is restricted to the least of:

      1) Two-year peak discharge

      2) Downstream storm sewer capacity

      3) 0.15cfs/acre

9. Development in the 100-year flood plain is discouraged. Current zoning ordinance requires a permit or letter of recommendation from the Indiana Department of Natural Resources (IDNR). Buildings and additions to flood protective grades must be at least 2'-0" above the regulatory flood and does not allow any increase in the base flow of the regulatory flood.

10. Promote/encourage development to reduce impervious cover – support/adopt low-density residential planning areas where appropriate.

3.8 Pollution Prevention and Good Housekeeping

1. Clean roadways.

2. Inspect storm water ponds.

3. Inspect and clear storm inlet/outlet structures.

4. Reduce fertilizer applications on park facilities.

5. Use herbicides with short residual life at lowest effective concentration.

6. There are no canine parks within the Town of Dyer. If such a park were designated in the future, a minimum distance of 150 feet from a surface water body would be maintained.
7. Continue the development of the O&M plan to include documentation of maintenance activities, maintenance schedules, and long-term inspection procedures.
8. Maintain the current practice of disposing of the waste removed from roadways, parking lots, structural BMP's, and operational areas to approved dumpsites.
9. Develop a plan to install controls for reducing or eliminating the discharge of pollutants from operational areas such as parking lots, vehicle wash stations, and maintenance and storage yards.
10. Develop a process to document and notify Lake County of any maintenance issues related to the legal drains within the Town Limits. The legal drains, which flow through the Town, are under the jurisdiction of Lake County, not the Town of Dyer. Therefore, Lake County is responsible for the maintenance of the drains.
11. Enforce the requirement of a Stormwater Pollution Protection Plan (SWPPP) for proposed flood management projects. Review the SWPPP for impact on water quality. Inspect current projects for compliance with the approved SWPPP and possibility for incorporation of additional water quality protection measures or practices.
12. Provide annual training and orientation to new employees through an employee handbook and attending training seminars.
13. Include storm water educational brochures with materials distributed to new employees during employee orientation.
14. Install spill containment kits at all locations storing chemicals or petroleum products. Develop a spill response plan where all hazardous materials and chemicals are used or stored.
15. Develop illicit discharge/pollution prevention training program for all field employees.
16. The Town of Dyer maintains a separated storm sewer system and, therefore, is not a CSS community.

4.0 Ongoing Characterization Data

4.1 Scheduling

Wet weather samples will be collected within 24 hours of a measurable rainfall event. Parameters tested will match those listed in the guidance document issued by IDEM. Local wastewater personnel will grab samples. Dissolved oxygen, pH, conductivity and temperature readings will be immediately obtained and recorded, and the remaining required analytical tests will be carried out at the wastewater treatment plant lab in Dyer. Grab samples will be taken at each sampling point for one to three sampling events, dependent on most recent results, between the months of April and October. One of the sampling events will follow a wet weather period. All

the above tests will be carried out based on the outcome of ongoing negotiations between the Indiana Association of Cities and Towns and IDEM.

4.2 Outcome

The baseline characterization data for the Town of Dyer has been obtained from several IDEM sources, namely IDEM 303 (d) Report, IDEM 305 (b) Report. Based on their reports, the Dyer ditch could not support aquatic life. However, IDEM will be conducting further studies and the Town will be able to utilize the data to draw further conclusions. Meanwhile, the Town will be carrying out chemical analysis of the runoff to find out if any parameters are abnormal. The runoff parameters can hint at any remedial measures that may be necessary. In view of this, the Town will be carrying out tests as per guidelines drafted by IDEM. A draft preliminary plan has already been drawn to this effect and submitted to IDEM. Testing results will be shared with adjoining communities. If chemical analysis results warrant biological testing, then the Town will consider the same in years two to five.

5.0 Boundary of the MS4 Area

5.1 Narrative Description of the Boundary of the MS4 Regulated Area

The MS4 regulated area coincides with the Town of Dyer municipal boundaries. The Town of Dyer is bounded on the west by Illinois-Indiana state line, on the north by the common line of Township 35N and 36 N, and on the east, generally, by the west section line of Sections 6, 7, and 18 of Township 35 N, Range 9 W to 77th Avenue. The municipal boundary continues west along the centerline of 77th Avenue to the common line of Range 10 and Range 9, then south to 81st Avenue, then east to Hart Street, then south to 85th Street, and then west to the Indiana-Illinois State Line. The municipal limits of the Town of Dyer and the regulated MS4 area may be expanded in the future by annexation.

6.0 Estimate of MS 4 Conveyances

The linear footage of the storm sewers in the Town of Dyer is estimated at 427,680 feet (81 miles). This is estimated on the basis of the portion of the storm sewer system mapped to date (258,120 feet at 65% complete) and then applying this relationship to the entire Town.

7.0 Post Construction Runoff Control

7.1 Structural BMPS

7.1.1 Ponds

7.1.1.1 Dry Extended Detention Ponds

Drainage Area

In general, dry extended detention ponds should be used on sites with a minimum area of 10 acres. On smaller sites, it can be challenging to provide channel or water quality control because the orifice diameter at the outlet needed to control relatively small storms becomes very small and thus prone to clogging. In addition, it is generally more cost-effective to control larger drainage areas due to the economies of scale.

Slope

Dry extended detention basins can be used on sites with slopes up to about 15 percent. The local slope needs to be relatively flat, however, to maintain reasonably flat side slopes in the practice; there is a 1% minimum slope requirement to provide enough elevation drop from the pond inlet to the pond outlet to ensure that flow can move through the system.

Soils / Topography

Extended detention basins can be used with almost all soils and geology, with minor design adjustments for regions of karst topography or in rapidly percolating soils such as sand. In these areas, extended detention ponds should be designed with an impermeable liner to prevent ground water contamination or sinkhole formation.

Ground Water

Except for the case of hot spot runoff, the only consideration regarding ground water is that the base of the extended detention facility should not intersect the groundwater table. A permanently wet bottom may become a mosquito breeding ground. Research demonstrated that intermittently flooded systems, such as dry extended detention ponds, produce more mosquitoes than other pond systems, particularly when the facilities remained wet for more than three days following a heavy rainfall.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. Some features, however, should be incorporated into most dry extended detention pond designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction and landscaping.

Pretreatment

Pretreatment incorporates design features that help to settle out coarse sediment particles. By removing these particles from runoff before they reach the large permanent pool, the maintenance burden of the pond is reduced. In ponds, pretreatment is achieved with a sediment forebay, which is a small pool (typically about 10 percent of the volume of water to be treated for pollutant removal).

Treatment

Treatment design features help enhance the ability of a storm water management practice to remove pollutants. Designing dry ponds with a high length-to-width ratio (i.e., at least 1.5:1) and incorporating other design features to maximize the flow path effectively increases the detention time in the system by eliminating the potential of flow to short-circuit the pond. Designing ponds with relatively flat side slopes can also help to lengthen the effective flow path. Finally, the pond should be sized to detain the volume of runoff to be treated for between 12 and 48 hours.

Conveyance

Conveyance of storm water runoff into and through a storm water management practice is a critical component of any such practice. Storm water should be conveyed to and from practices safely in a manner that minimizes erosion potential. The outfall of pond systems should always be stabilized to prevent scour. To convey low flows through the system, designers should provide a pilot channel. A pilot channel is a surface channel that should be used to convey low flows through the pond. In addition, an emergency spillway should be provided to safely convey large flood events. To help mitigate warming at the outlet channel, designers should provide shade around the channel at the pond outlet.

Maintenance Reduction

In addition to regular maintenance activities needed to maintain the function of storm water practices, some design features can be incorporated to ease the maintenance burden of each practice. In dry extended detention ponds, a "micropool" at the outlet can prevent resuspension of sediment and outlet clogging. A good design includes maintenance access to the forebay and micropool.

Another design feature that can reduce maintenance needs is a non-clogging outlet. Typical examples include a reverse-slope pipe or a weir outlet with a trash rack. A reverse slope pipe draws from below the permanent pool extending in a reverse angle up to the riser and determines the water elevation of the micropool. Because these outlets draw water from below the level of the permanent pool, they are less likely to be clogged by floating debris.

7.1.1.2 Wet Ponds

Drainage Area

Wet ponds need sufficient drainage area to maintain the permanent pool. In humid regions, this is typically about 25 acres, but a greater area may be needed in regions with less rainfall.

Slope

Wet ponds can be used on sites with an upstream slope up to about 15 percent. The local slope should be relatively shallow however. Although there is no minimum slope requirement, there does need to be enough elevation drop from the pond inlet to the pond outlet to ensure that water can flow through the system.

Soils / Topography

Wet ponds can be used in almost all soils and geology, with minor design adjustments for regions of karst topography (see Design Considerations).

Ground Water

Unless they receive hot spot runoff, ponds can often intersect the ground water table. However, some research suggests that pollutant removal is reduced when ground water contributes substantially to the pool volume.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. There are some features, however, that should be incorporated into most wet pond designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction and landscaping.

Pretreatment

Pretreatment incorporates design features that help to settle out coarse sediment particles. By removing these particles from runoff before they reach the large permanent pool, the maintenance burden of the pond is reduced. In ponds, pretreatment is achieved with a sediment forebay. A sediment forebay is a small pool (typically about 10 percent of the volume of the permanent pool). Coarse particles remain trapped in the forebay, and maintenance is performed on this smaller pool, eliminating the need to dredge the entire pond.

Treatment

Treatment design features help enhance the ability of a storm water management practice to remove pollutants. The purpose of most of these features is to increase the amount of time that storm water remains in the pond.

One technique of increasing the pollutant removal of a pond is to increase the volume of the permanent pool. Typically, ponds are sized to be equal to the water quality volume (i.e., the volume of water treated for pollutant removal). Designers may consider using a larger volume to meet specific watershed objectives, such as phosphorous removal in a lake system. Regardless of the pool size, designers need to conduct a water balance analysis to ensure that sufficient inflow is available to maintain the permanent pool.

Other design features do not increase the volume of a pond, but can increase the amount of time storm water remains in the practice and eliminate short-circuiting. Ponds should always be designed with a length-to-width ratio of at least 1.5:1. In addition, the design should incorporate features to lengthen the flow path through the pond, such as underwater berms designed to create a longer route through the pond. Combining these two measures helps ensure that the entire pond volume is used to treat storm water. Another feature that can improve treatment is to use multiple ponds in series as part of a "treatment train" approach to pollutant removal. This redundant treatment can also help slow the rate of flow through the system.

Conveyance

Storm water should be conveyed to and from all storm water management practices safely and to minimize erosion potential. The outfall of pond systems should always be stabilized to prevent scour. In addition, an emergency spillway should be provided to safely convey large flood events. To help mitigate warming at the outlet channel, designers should provide shade around the channel at the pond outlet.

Maintenance Reduction

In addition to regular maintenance activities needed to maintain the function of storm water practices, some design features can be incorporated to ease the maintenance burden of each practice. In wet ponds, maintenance reduction features include techniques to reduce the amount of maintenance needed as well as techniques to make regular maintenance activities easier.

One potential maintenance concern in wet ponds is clogging of the outlet. Ponds should be designed with a non-clogging outlet such as a reverse-slope pipe, or a weir outlet with a trash rack. A reverse-slope pipe draws from below the permanent pool extending in a reverse angle up to the riser and establishes the water elevation of the permanent pool. Because these outlets draw water from below the level of the permanent pool, they are less likely to be clogged by floating debris. Another general rule is that no orifice should be less than 3 inches in diameter. (Smaller orifices are more susceptible to clogging).

Design features are also incorporated to ease maintenance of both the forebay and the main pool of ponds. Ponds should be designed with a maintenance access to the forebay to ease this relatively routine (5-7 years) maintenance activity. In addition, ponds should generally have a pond drain to draw down the pond for the more infrequent dredging of the main cell of the pond.

7.2 Infiltration Practices

7.3 Infiltration Basin

Drainage Area

Infiltration basins have historically been used as regional facilities, serving for both quantity and quality control. In some regions of the country, this practice is feasible, particularly if the soils are particularly sandy. In most areas, however, infiltration basins experience high rates of failure when used in this manner. In general, the practice is best applied to relatively small drainage areas (i.e., less than 10 acres).

Slope

The bottom of infiltration basins needs to be completely flat to allow infiltration throughout the entire basin bottom.

Soils/Topography

Soils and topography are strongly limiting factors when locating infiltration practices. Soils must be significantly permeable to ensure that the practice

can infiltrate quickly enough to reduce the potential for clogging, and soils that infiltrate too rapidly may not provide sufficient treatment, creating the potential for ground water contamination. The infiltration rate should range between 0.5 and 3 inches per hour. In addition, the soils should have no greater than 20 percent clay content, and less than 40 percent silt/clay content. Finally, infiltration basins may not be used in regions of karst topography, due to the potential for sinkhole formation or ground water contamination.

Ground Water

Designers always need to provide significant separation distance (2 to 5 feet) from the bottom of the infiltration basin and the seasonally high ground water table, to reduce the risk of contamination. Infiltration practices should also be separated from drinking water wells.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. There are some features, however, that should be incorporated into most infiltration basin designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction and landscaping.

Pretreatment

Pretreatment refers to design features that provide settling of large particles before runoff reaches a management practice, easing the long-term maintenance burden. Pretreatment is important for all structural management practices, but it is particularly important for infiltration practices. In order to ensure that pretreatment mechanisms are effective, designers should incorporate "multiple pretreatment" using practices such as grassed swales, sediment basins and vegetated filter strips in series.

Treatment

Treatment design features enhance the pollutant removal of a practice. For infiltration practices, designers need to stabilize upland soils to ensure that the basin does not become clogged with sediment. In addition, the facility needs to be sized so that the volume of water to be treated infiltrates through the bottom in a given amount of time. Because infiltration basins are designed in this manner, infiltration basins designed on less permeable soils should be significantly larger than those designed on more permeable soils.

Conveyance

Storm water needs to be conveyed through storm water management practices safely and in a way that minimizes erosion. Designers need to be particularly careful in ensuring that channels leading to an infiltration practice are designed to minimize erosion. In general, infiltration basins should be designed to treat only small storms (i.e., only for water quality). Thus, these practices should be designed "off-line," using a flow separator to divert only small flows to the practice.

Maintenance Reduction

In addition to regular maintenance activities, designers also need to incorporate features into the design to ensure that the maintenance burden of a practice is reduced. These features can make regular maintenance activities easier or reduce the need to perform maintenance. In infiltration basins, designers need to provide access to the basin for regular maintenance activities. Where possible, a means to drain the basin, such as an under drain, should be provided in case the bottom becomes clogged. This feature allows the basin to be drained and accessed for maintenance in the event that the water has ponded in the basin bottom or the soil is saturated.

7.3.1 Infiltration Trench

Drainage Area

Infiltration trenches generally can be applied to relatively small sites (less than 5 acres), with relatively high impervious cover. Application to larger sites generally causes clogging, resulting in a high maintenance burden.

Slope

Infiltration trenches should be placed on flat ground, but the slopes of the site draining to the practice can be as steep as 15 percent.

Soils/Topography

Soils and topography are strongly limiting factors when locating infiltration practices. Soils must be significantly permeable to ensure that the storm water can infiltrate quickly enough to reduce the potential for clogging. In addition, soils that infiltrate too rapidly may not provide sufficient treatment, creating the potential for ground water contamination. The infiltration rate should range between 0.5 and 3 inches per hour. In addition, the soils should have no greater than 20-percent clay content, and less than 40-percent silt/clay content. The infiltration rate and textural class of the soil need to be confirmed in the field; designers should not rely on more generic information such as a soil survey. Finally, infiltration trenches may not be used in regions of karst topography, due to the potential for sinkhole formation or ground water contamination.

Ground Water

Designers always need to provide significant separation (2 to 5 feet) from the bottom of the infiltration trench and the seasonally high ground water table, to reduce the risk of contamination. In addition, infiltration practices should be separated from drinking water wells.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. There are some features, however, that should be incorporated into most infiltration trench designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction, and landscaping.

Pretreatment

Pretreatment refers to design features that provide settling of large particles before runoff reaches a management practice, easing the long-term maintenance burden. Pretreatment is important for all structural storm water management practices, but it is particularly important for infiltration practices. To ensure that pretreatment mechanisms are effective, designers should incorporate "multiple pretreatment," using practices such as grassed swales, vegetated filter strips, detention, or a plunge pool in series.

Treatment

Treatment design features enhance the pollutant removal of a practice. During the construction process, the upland soils of infiltration trenches need to be stabilized to ensure that the trench does not become clogged with sediment. Furthermore, the practice should be filled with large clean stones that can retain the volume of water to be treated in their voids. Like infiltration basins, this practice should be sized so that the volume to be treated can infiltrate out of the trench bottom in 24 hours.

Conveyance

Storm water needs to be conveyed through storm water management practices safely, and in a way that minimizes erosion. Designers need to be particularly careful in ensuring that channels leading to an infiltration practice are designed to minimize erosion. Infiltration trenches should be designed to treat only small storms, (i.e., only for water quality). Thus, these practices should be designed "off-line," using a structure to divert only small flows to the practice. Finally, the sides of an infiltration trench should be lined with a geotextile fabric to prevent flow from causing rills along the edge of the practice.

Maintenance Reduction

In addition to regular maintenance activities, designers also need to incorporate features into the design to ensure that the maintenance burden of a practice is reduced. These features can make regular maintenance activities easier or reduce the need to perform maintenance. As with all management practices, infiltration trenches should have an access path for maintenance activities. An observation well (i.e., a perforated PVC pipe that leads to the bottom of the trench) can enable inspectors to monitor the drawdown rate. Where possible, trenches should have a means to drain the practice if it becomes clogged, such as an underdrain. An underdrain is a perforated pipe system in a gravel bed, installed on the bottom of filtering practices to collect and remove filtered runoff. An underdrain pipe with a shutoff valve can be used in an infiltration system to act as an overflow in case of clogging.

7.4 Filtration Practices

7.4.1 Bio Retention

Drainage Area

Bioretention areas should usually be used on small sites (i.e., 5 acres or less). When used to treat larger areas, they tend to clog. In addition, it is difficult to convey flow from a large area to a bioretention area.

Slope

Bioretention areas are best applied to relatively shallow slopes (usually about 5 percent). However, sufficient slope is needed at the site to ensure that water that enters the bioretention area can be connected with the storm drain system. These storm water management practices are most often applied to parking lots or residential landscaped areas, which generally have shallow slopes.

Soils/Topography

Bioretention areas can be applied in almost any soils or topography, since runoff percolates through a man-made soil bed and is returned to the storm water system.

Ground Water

Bioretention should be separated somewhat from the ground water to ensure that the ground water table never intersects with the bed of the bioretention facility. This design consideration prevents possible ground water contamination.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. There are some features, however, that should be incorporated into most bioretention area designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction and landscaping.

Pretreatment

Pretreatment refers to features of a management practice that cause coarse sediment particles and their associated pollutants to settle. Incorporating pretreatment helps to reduce the maintenance burden of bioretention and reduces the likelihood that the soil bed will clog over time. Several different mechanisms can be used to provide pretreatment in bioretention facilities. Often, runoff is directed to a grass channel or filter strip to filter out coarse materials before the runoff flows into the filter bed of the bioretention area. Other features may include a pea gravel diaphragm, which acts to spread flow evenly and drop out larger particles.

Treatment

Treatment design features help enhance the ability of a storm water management practice to remove pollutants. Several basic features should be incorporated into bioretention designs to enhance their pollutant removal. The bioretention system should be sized between 5 and 10 percent of the impervious area draining to it. The practice should be designed with a soil bed that is a sand/soil matrix, with a mulch layer above the soil bed. The bioretention area should be designed to pond a small amount of water (6-9 inches) above the filter bed.

Conveyance

Conveyance of storm water runoff into and through a storm water practice is a critical component of any storm water management practice. Storm water should be conveyed to and from practices safely and to minimize erosion

potential. Ideally, some storm water treatment can be achieved during conveyance to and from the practice.

Bioretention practices are designed with an underdrain system to collect filtered runoff at the bottom of the filter bed and direct it to the storm drain system. An underdrain is a perforated pipe system in a gravel bed, installed on the bottom of the filter bed. Designers should provide an overflow structure to convey flow from storms that are not treated by the bioretention facility to the storm drain.

Maintenance Reduction

In addition to regular maintenance activities needed to maintain the function of storm water practices, some design features can be incorporated to reduce the required maintenance of a practice. Designers should ensure that the bioretention area is easily accessible for maintenance.

7.4.2 Sand and Organic Filters

Drainage Area

Sand filters are best applied on relatively small sites (up to 10 acres for surface sand filters and closer to two acres for perimeter or underground filters). Filters have been used on larger drainage areas, of up to 100 acres, but these systems can clog when they treat larger drainage areas unless adequate measures are provided to prevent clogging, such as a larger sedimentation chamber or more intensive regular maintenance.

Slope

Sand filters can be used on sites with slopes up to about six percent. It is challenging to use most sand filters in very flat terrain because they require a significant amount of elevation drop, or head (about 5 to 8 feet), to allow flow through the system. One exception is the perimeter sand filter, which can be applied with as little as two feet of head.

Soils/Topography

When sand filters are designed as a stand-alone practice, they can be used on almost any soil because they can be designed so that storm water never infiltrates into the soil or interacts with the ground water. Alternatively, sand filters can be designed as pretreatment for an infiltration practice, where soils do play a role.

Ground Water

Designers should provide at least two feet of separation between the bottom of the filter and the seasonally high groundwater table. This design feature prevents both structural damage to the filter and possibly, though unlikely, groundwater contamination.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. Some features, however, should

be incorporated into most designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction and landscaping.

Pretreatment

Pretreatment is a critical component of any storm water management practice. In sand filters, pretreatment is achieved in the sedimentation chamber that precedes the filter bed. In this chamber, the coarsest particles settle out and thus do not reach the filter bed. Pretreatment reduces the maintenance burden of sand filters by reducing the potential of these sediments to clog the filter. Designers should provide at least 25 percent of the water quality volume in a dry or wet sedimentation chamber as pretreatment to the filter system. The water quality volume is the amount of runoff that will be treated for pollutant removal in the practice. Typical water quality volumes are the runoff from a 1-inch storm or ½ inch of runoff over the entire drainage area to the practice.

The area of the sedimentation chamber may be determined based on the Camp-Hazen equation, as adapted by the Washington State Department of Ecology. This equation can be expressed as:

As = (Qo/W)ln(1-E) where,

As = surface area (ft2)

Qo = discharge rate from basin (water quality volume/detention time)

W = particle settling velocity (ft/s)

E = removal efficiency fraction (usually assumed to be about 0.9(90%))

Using the simplifying assumption of a 24-hour detention time, the above equation reduces to

As = 0.066WTV (>75%)

As = 0.0081WTV (< or = 75%) where,

WTV = water quality volume (ft3), or the volume of storm water to be treated by the practice.

Treatment

Treatment design features help enhance the ability of a storm water management practice to remove pollutants. In filtering systems, designers should provide at least 75 percent of the water quality volume in the practice (including both the sand chamber and the sediment chamber). In sand filters, designers should select a medium sand as the filtering medium.

The filter bed should be sized using Darcy's Law, which relates the velocity of fluids to the hydraulic head and the coefficient of permeability of a medium. The resulting equation is:

AF = WTV d/[k t (h+d)] where,

AF = area of the filter bed (ft2)

d = depth of the filter bed (ft; usually about 1.5 feet, depending on the design)

k = coefficient of permeability of the filtering medium (ft/day)

t = time for the water quality volume to filter through the system (days; usually assumed to be 1.67 days)

h = average water height above the sand bed (ft; assumed to be one-half of the maximum head).

Typical values for k are shown in Table 1.

Table 1: Coefficient of permeability values for storm water filtering practices.

Filter Medium	Coefficient of Permeability (ft/day)
Sand	3.5
Peat/Sand	2.75
Compost	8.7

Conveyance

Conveyance of storm water runoff into and through a storm water practice is a critical component of any storm water management practice. Storm water should be conveyed to and from practices safely and in a manner that minimizes erosion potential. Ideally, some storm water treatment can be achieved during conveyance to and from the practice.

Typically, filtering practices are designed as "off-line" systems, meaning that they have the smaller water quality volume diverted to them only during larger storms, using a flow splitter, which is a structure that bypasses larger flows to the storm drain system or to a stabilized channel. One exception is the perimeter filter; in this design, all flows enter the system, but larger flows overflow to an outlet chamber and are not treated by the practice.

All filtering practices, with the exception of exfilter designs (see Design Variations) are designed with an underdrain below the filtering bed. An underdrain is a perforated pipe system in a gravel bed, installed on the bottom of filtering practices and used to collect and remove filtered runoff.

Maintenance Reduction

In addition to regular maintenance activities needed to maintain the function of storm water practices, some design features can be incorporated to ease the maintenance burden of each practice. Designers should provide maintenance access to filtering systems. In underground sand filters, confined space rules defined by the Occupational Safety and Health Administration (OSHA) need to be addressed.

7.5 Vegetative Practices

7.5.1 Storm Water Wetland

Drainage Area

Wetlands need sufficient drainage area to maintain the permanent pool. In humid regions, this is typically about 25 acres, but a greater area may be needed in regions with less rainfall.

Slope

Wetlands can be used on sites with an upstream slope of up to about 15 percent. The local slope should be relatively shallow however. While there is no minimum slope requirement, there does need to be enough elevation drop from the inlet to the outlet to ensure that hydraulic conveyance by gravity is feasible (generally about 3 to 5 feet).

Soils/Topography

Wetlands can be used in almost all soils and geology, with minor design adjustments for regions of karst (i.e. limestone) topography (see Design Considerations).

Ground Water

Unless they receive hot spot runoff, wetlands can often intersect the groundwater table. Some research suggests that pollutant removal is reduced when ground water contributes substantially to the pool volume. It is assumed that wetlands would have a similar response.

Design Considerations

Specific designs may vary considerably, depending on site constraints or preferences of the designer or community. There are some features, however, that should be incorporated into most wetland designs. These design features can be divided into five basic categories: pretreatment, treatment, conveyance, maintenance reduction and landscaping.

Pretreatment

Pretreatment incorporates design features that help to settle out coarse sediment particles. By removing these particles from runoff before they reach the large permanent pool, the maintenance burden of the pond is reduced. In wetlands, pretreatment is achieved with a sediment forebay. A sediment forebay is a small pool (typically about 10 percent of the volume of the permanent pool). Coarse particles remain trapped in the forebay, and maintenance is performed on this smaller pool, eliminating the need to dredge the entire pond.

Treatment

Treatment design features help enhance the ability of a storm water management practice to remove pollutants. The purpose of most of these features is to increase the amount of time and flow path by which storm water remains in the wetland. Some typical design features include:

- The surface area of wetlands should be at least one percent of the drainage area to the practice.
- Wetlands should have a length-to-width ratio of at least 1.5:1. Making the wetland longer than it is wide helps prevent "short circuiting" of the practice.
- Effective wetland design displays "complex microtopography." In other words, wetlands should have zones of both very shallow (<6 inches) and moderately shallow (<18 inches) wetlands incorporated, using underwater earth berms to create the zones. This design will provide a

longer flow path through the wetland to encourage settling, and it provides two depth zones to encourage plant diversity.

Conveyance

Conveyance of storm water runoff into and through a storm water management practice is a critical component of any practice. Storm water should be conveyed to and from practices safely and to minimize erosion potential. The outfall of pond systems should always be stabilized to prevent scour. In addition, an emergency spillway should be provided to safely convey large flood events. To help mitigate warming at the outlet channel, designers should provide shade around the channel at the pond outlet.

Maintenance Reduction

In addition to regular maintenance activities needed to maintain the function of storm water practices, some design features can be incorporated to ease the maintenance burden of each practice. In wetlands, maintenance reduction features include techniques to reduce the amount of maintenance needed as well as techniques to make regular maintenance activities easier.

One potential maintenance concern in wet ponds is clogging of the outlet. Wetlands should be designed with a non-clogging outlet such as a reverse-slope pipe or a weir outlet with a trash rack. A reverse-slope pipe draws from below the permanent pool extending in a reverse angle up to the riser and establishes the water elevation of the permanent pool. Because these outlets draw water from below the level of the permanent pool, they are less likely to be clogged by floating debris. Another general rule is that no orifice should be less than three inches in diameter. Smaller orifices are generally more susceptible to clogging, without specific design considerations to reduce this problem. Another feature that can help reduce the potential for clogging of the outlet is to incorporate a small pool or "micropool" at the outlet.

Design features are also incorporated to ease maintenance of both the forebay and the main pool of wetlands. Wetlands should be designed with a maintenance access to the forebay to ease this relatively routine (5 to 7 years) maintenance activity. In addition, the permanent pool should have a pond drain to draw down the pond for the more infrequent dredging of the main cell of the wetland.

7.5.2 Grassed Swales

Drainage Area

Grassed swales should generally treat small drainage areas of less than five acres. If the practices are used to treat larger areas, the flows and volumes through the swale become too large to design the practice to treat storm water runoff through infiltration and filtering.

Slope

Grassed swales should be used on sites with relatively flat slopes of less than four percent slope; one to two percent slope is recommended. Runoff velocities within the channel become too high on steeper slopes. This can cause erosion and does not allow for infiltration or filtering in the swale.

Soils / Topography

Grassed swales can be used on most soils, with some restrictions on the most impermeable soils. In the dry swale (see Design Variations) a fabricated soil bed replaces on-site soils in order to ensure that runoff is filtered as it travels through the soils of the swale.

Ground Water

The depth to ground water depends on the type of swale used. In the dry swale and grassed channel options, designers should separate the bottom of the swale from the ground water by at least 2 feet to prevent a moist swale bottom, or contamination of the ground water. In the wet swale option, treatment is enhanced by a wet pool in the practice, which is maintained by intersecting the ground water.

7.5.3 Grassed Filter Strip

Drainage Area

Typically, filter strips are used to treat very small drainage areas. The limiting design factor, however, is not the drainage area the practice treats but the length of flow leading to it. As storm water runoff flows over the ground's surface, it changes from sheet flow to concentrated flow. Rather than moving uniformly over the surface, the concentrated flow forms rivulets, which are slightly deeper and cover less area than the sheet flow. When flow concentrates, it moves too rapidly to be effectively treated by a grassed filter strip. As a rule, flow concentrates within a maximum of 75 feet for impervious surfaces and 150 feet for pervious surfaces. Using this rule, a filter strip can treat one acre of impervious surface per 580-foot length.

Slope

Filter strips should be designed on slopes between two and six percent. Greater slopes than this would encourage the formation of concentrated flow. Except in the case of very sandy or gravelly soil, runoff would pond on the surface on slopes flatter than two percent, creating potential mosquito breeding habitat.

Soils /Topography

Filter strips should not be used on soils with high clay content, because they require some infiltration for proper treatment. Very poor soils that cannot sustain a grass cover crop are also a limiting factor.

Ground Water

Filter strips should be separated from the ground water by between two and four feet to prevent contamination and to ensure that the filter strip does not remain wet between storms.

a) Runoff pretreatment practices

b) Catch basins/catch basin inserts

Applicability

Catch basins are used in drainage systems throughout the United States. However, many catch basins are not ideally designed for sediment and pollutant capture. Ideal application of catch basins is as pretreatment to another storm water management practice. Retrofitting existing catch basins may help to improve their performance substantially. A simple retrofit option is to ensure that all catch basins have a hooded outlet to prevent floatable materials, such as trash and debris, from entering the storm drain system. Catch basin inserts for both new development and retrofits at existing sites may be preferred when available land is limited, as in urbanized areas.

Limitations

Catch basins have three major limitations, including:

- Even ideally designed catch basins cannot remove pollutants as well as structural storm water management practices, such as wet ponds, sand filters and storm water wetlands.
- Unless frequently maintained, catch basins can become a source of pollutants through resuspension.

Catch basins cannot effectively remove soluble pollutants or fine particles.

Siting and Design Considerations

The performance of catch basins is related to the volume in the sump (i.e., the storage in the catch basin below the outlet. An "optimal" catch basin sizing criterion, which relates all catch basin dimensions to the diameter of the outlet pipe (D) is as follows:

- The diameter of the catch basin should be equal to 4D.
- The sump depth should be at least 4D. This depth should be increased if cleaning is infrequent or if the area draining to the catch basin has high sediment loads.
- The top of the outlet pipe should be 1.5 D from the bottom of the inlet to the catch basin.

Catch basins can also be sized to accommodate the volume of sediment that enters the system. Catch basins sizing criterion is based on the concentration of sediment in storm water runoff. The catch basin is sized, with a factor of safety, to accommodate the annual sediment load in the catch basin sump. This method is preferable where high sediment loads are anticipated, and where the optimal design described above is suspected to provide little treatment.

The basic design should also incorporate a hooded outlet to prevent floatable materials and trash from entering the storm drain system. Adding a screen to the top of the catch basin would not likely improve the performance of catch basins for pollutant removal, but would help capture trash entering the catch basin Several varieties of catch basin inserts exist for filtering runoff. There are two basic catch basin insert varieties. One insert option consists of a series of trays, with the top tray serving as an initial sediment trap, and the underlying trays composed of media filters. Another option uses filter fabric

to remove pollutants from storm water runoff. Yet another option is a plastic box that fits directly into the catch basin. The box construction is the filtering medium. Hydrocarbons are removed as the storm water passes through the box while trash, rubbish and sediment remain in the box itself as storm water exits. These devices have a very small volume, compared to the volume of the catch basin sump and would typically require very frequent sediment removal. Bench test studies found that a variety of options showed little removal of total suspended solids, partially due to scouring from relatively small (6-month) storm events. One design adaptation of the standard catch basin is to incorporate infiltration through the catch basin bottom. Two challenges are associated with this design. The first is potential ground water impacts, and the second is potential clogging, preventing infiltration. Infiltrating catch basins should not be used in commercial or industrial areas, because of possible ground water contamination. While it is difficult to prevent clogging at the bottom of the catch basin, it might be possible to incorporate some pretreatment into the design.

7.5.4 In Line Storage

Applicability

In-line storage practices serve the same purpose as traditional detention basins. These practices can act as a surrogate for aboveground storage when little space is available for aboveground storage facilities.

Limitations

In-line storage has several limitations, including:

- In-line storage practices only control flow, and thus are not able to improve the water quality of storm water runoff.
- If improperly designed, these practices may cause upstream flooding.

Siting and Design Considerations

Flow regulators cannot be applied to all storm drain systems. In older cities, the storm drainpipes may not be oversized, and detaining storm water within them would cause upstream flooding. Another important issue in siting these practices is the slope of the pipes in the system. In areas with very flat slopes, restricting flow within the system is likely to cause upstream flooding because introducing a regulator into the system will cause flows to back up a long distance before the regulator. In steep pipes, on the other hand, a storage flow regulator cannot utilize much of the storage available in the storm drain system.

Maintenance Considerations

Flow regulators require very little maintenance; because they are designed to be "self cleaning," much like the storm drain system. In some cases, flow regulators may be modified based on downstream flows, new connections to the storm drain, or the application of other flow regulators within the system. For some designs, such as check dams, regulations will require only moderate construction in order to modify the structure's design.

7.5.4.1 Manufactured Products For Storm Water Inlets

Applicability

Swirl separators are best installed on highly impervious sites. Because little data are available on their performance, and independently conducted studies suggest marginal pollutant removal, swirl separators should not be used as a stand-alone practice for new development. The best application of these products is as pretreatment to another storm water device or in a retrofit situation where space is limited.

Limitations

Limitations to swirl separators include:

- Very little data are available on the performance of these practices, and independent studies suggest only moderate pollutant removal. In particular, these practices are ineffective at removing fine particles and soluble pollutants.
- The practice has a high maintenance burden (i.e., frequent cleanout).
- Swirl concentrators are restricted to small and highly impervious sites.

Siting and Design Considerations

The specific design of swirl concentrators is specified by product literature available from each manufacturer. For the most part, swirl concentrators are a rate-based design. That is, they are sized based on the peak flow of a specific storm event. This design contrasts with most other storm water management practices, which are sized based on capturing and storing or treating a specific volume. Sizing based on flow rate allows the practice to provide treatment within a much smaller area than other storm water management practices.

7.6 Selection of BMPs

The Town of Dyer is situated on a very flat terrain; hence, the slopes are low. The soils are very poorly drained. In such a scenario, detention ponds are a good choice. If the need arises, these ponds will be modified to improve the effectiveness. However, other BMPs will also be considered in demanding situations.

8.0 BMP Selection

8.1 Narrative Discussion of Overall Structural BMP Approach

Based on the quality of runoff and discharge to the stream, the removal efficiencies needed will be calculated. Based on the above removal efficiencies the structural BMP will be chosen as per the removal efficiencies indicated in paragraphs 8.2 – 8.6.

8.2 Structural BMP Selection Criteria And Performance Standards For Ponds

8.2.1 Dry Extended Detention Ponds

Dry extended detention basins provide moderate pollutant removal, provided that the design features described in the Siting and Design Considerations

section are incorporated. Although they can be effective at removing some pollutants through settling, they are less effective at removing soluble pollutants because of the absence of a permanent pool. A few studies are available on the effectiveness of dry extended detention ponds. Typical removal rates are as follows:

- Total suspended solids: 61%
- Total phosphorus: 19%
- Total nitrogen: 31%
- Nitrate nitrogen: 9%
- Metals: 26%-54%

8.2.2 Wet Ponds

Wet ponds are among the most effective storm water management practices at removing storm water pollutants. A wide range of research is available to estimate the effectiveness of wet ponds. Typical removal rates are:

- Total Suspended Solids: 67%
- Total Phosphorous: 48%
- Total Nitrogen: 31%
- Nitrate Nitrogen: 24%
- Metals: 24-73%
- Bacteria: 65%

8.3 Infiltration Practices

8.3.1 Infiltration Basin

Very little data are available regarding the pollutant removal associated with infiltration basins. It is generally assumed that they have very high pollutant removal because none of the storm water entering the practice remains on the surface. The average pollutant removal, assuming the infiltration basin is sized to treat the runoff from a 1-inch storm, is:

- Total Suspended Solids: 75%
- Phosphorous 60-70%
- Nitrogen 55-60%
- Metals 85-90%
- Bacteria 90%

8.3.2 Infiltration Trench

Very little data are available regarding the pollutant removal associated with infiltration trenches. It is generally assumed that they have very high pollutant removal, because none of the storm water entering the practice remains on the surface. The average pollutant removal, assuming the infiltration trench is sized to treat the runoff from a 1-inch storm, is:

- Total Suspended Solids: 75%
- Phosphorous 60–70%
- Nitrogen 55–60%
- Metals 85–90%
- Bacteria 90%

These removal efficiencies assume that the infiltration trench is well designed and maintained.

8.4 Filtration Practices

8.4.1 Bio Retention

Little pollutant removal data have been collected on the pollutant removal effectiveness of bioretention areas. A field and laboratory analysis of bioretention facilities showed very high removal rates (roughly 95 percent for copper, 98 percent for phosphorus, 20 percent for nitrate, and 50 percent for total Kjeldhal nitrogen (TKN).

8.4.2 Sand and Organic Filters

Sand filters are effective storm water management practices for pollutant removal. Removal rates for all sand filters and organic filters are presented in the table below. With the exception of nitrates, which appear to be exported from filtering systems, they perform relatively well at removing pollutants. The export of nitrates from filters may be caused by mineralization of organic nitrogen in the filter bed. The table shows typical removal efficiencies for sand filters.

Table: Sand filter removal efficiencies (percent)

	Sand Filters (Schueler, 1997)	Peat/Sand Filter (Curran, 1996)	Compost Filter System		Multi-Chamber Treatment Train		
TSS	87	66	95	85	85	83	98
TP	51	51	41	4	80	-	84
TN	44	47	-	-	-	-	-
Nitrate	-13	22	-34	-95	-	14	-
Metals	34-80	26-75	61-88	44-75	65-90	91-100	83-89
Bacteria	55	-	-	-	-	-	-

8.5 Vegetative Practices

8.5.1 Storm Water Wetland

Wetlands are among the most effective storm water management practices at removing storm water pollutants. A wide range of research is available to estimate the effectiveness of wetlands. Wetlands have high pollutant removal rates, and are more effective than any other practice at removing nitrate and bacteria. This table provides pollutant removal data.

	Storm Water Treatment Practice Design Variation			
Pollutant	Shallow Marsh	ED Wetland[1]	Pond/Wetland System	Submerged Gravel Wetland[1]
TSS	83±51	69	71±35	83
TP	43±40	39	56±35	64
TN	26±49	56	19±29	19
NOx	73±49	35	40±68	81
Metals	36–85	(-80)–63	0–57	21–83
Bacteria	761	NA	NA	78

8.5.2 Grassed Swales

Few studies are available regarding the effectiveness of grassed channels. In fact, only nine studies have been conducted on all grassed channels designed for water quality. The data suggests relatively high removal rates for some pollutants, but negative removals for some bacteria, and fair performance for phosphorous. One study of available performance data estimates the removal rates for grassed channels as:

- Total Suspended Solids: 81%
- Total Phosphorous: 29%
- Nitrate Nitrogen: 38%
- Metals: 14% to 55%
- Bacteria: -50%

8.6 Runoff Pretreatment Practices

8.6.1 Catch Basins/Catch Basin Insert

Study	TSS[a]	COD[a]	BOD[a]	TN[a]	TP[a]	Metals
1	32	–		–	–	–
2	60–97	10–56	54–88	–	–	–
3	–	–	–	–	–	For Copper: 3–4% (Annual cleaning) 15% (Monthly cleaning

8.6.2 In Line Storage

In-line storage practices only control flow, and thus are not able to improve the water quality of storm water runoff.

8.6.3 Manufactured Products For Storm Water Inlets

Study	1	2
TSS[a]	21	51.5
TDS[a]	-21	-
TP[a]	17	-
DP[a]	17	-
Pb[a]	24	51.2
Zn[a]	17	39.1
Cu[a]	-	21.5
PAH[a]	32	-
NO_2+NO_3[a]	5	-

TSS = total suspended solids; COD = chemical oxygen demand; BOD = biological oxygen demand; TN = total nitrogen; TDS = total dissolved solids; TP = total phosphorus; DP = dissolved phosphorus; Pb = lead; Zn = zinc; Cu = copper; PAH = polynuclear aromatic hydrocarbons; NO2+NO3 = nitrite+nitrate-nitrogen.

9.0 Budget

9.1 Summary of the Program Budget for Five-Year Permit Period

A current budget copy for the year 2005 is enclosed in Appendix A. The current funding of the DSWMB is through Ordinance No. 2002-20 (Appendix B). As per the ordinance, the storm water user fee is levied at $6.00 per ERU (Equivalent Resident Unit). The DSWMB is generating revenue of approximately $560,000 a year. The DSWMB has participated in storm water improvements whenever local streets are reconstructed. The DSWMB has obtained a HUD grant to improve the storm water drainage in and around Berens Monaldi subdivision. The DSWMB has installed new generators in the year 2004 at the Sandy Ridge subdivision storm water pond. There is a full-time director who is developing the storm water system map. The Zoning Administrator, who is a certified Flood Plain Manager, advises the DSWMB on flood and floodway issues. The MS4 operator also serves as a lead superintendent to the Town. Part-time interns are utilized to carryout street improvements and system mapping. The Town's public works department personnel are used on a as needed basis and salaries are apportioned based on the services. In the year 2005, the DSWMB intends to utilize part-time interns to carry out stenciling of storm drains. In the next five years, the DSWMB will carry out storm water improvements to:

1. GONE (Greiving, Oak, Nondorf, Elm, Moeller and Henry Street) project.
2. Berens Mondaldi Flood Control Project, Phase I and II.
3. Pheasant Hills Pond Project.

9.2 Identification of Funding Source for Public Implementation

The Town Council adopted as ordinance (Appendix C) the establishment of a storm water fee, which is the primary funding source for the implementation of the storm water management plan. The fee is based on $6.00 for ERU. Businesses and industry are billed in proportion to the equivalent ERU. This is accomplished by using the Town GIS.

10.0 Attainable Goals For Minimum Control Measures

10.1 Public Education Outreach

1. Beginning in the year 2006 and ongoing, distribute a residential pollution prevention brochure. Distribution methods can include, but are not limited to; mass mailings, handing out during presentations to civic groups, school groups and environmental groups, attaching them to permit approval letters and having them available in the Town offices.

2. Beginning in the year 2006 and ongoing, distribute a commercial pollution prevention brochure. Distribution methods include, but are not limited to; mass mailings; handing out during inspections, handing out at presentations, attaching them to permit approval letters and having them available in the Town offices.

3. Beginning in the year 2006 and ongoing, distribute handout materials for school-aged children addressing storm water pollution prevention. Distribution methods can include, but are not limited to; handouts during classroom presentations and Earth Week activities, and handouts during school or children's group visits to the Town offices and facilities.

4. Beginning in the year 2006 and ongoing, annually conduct at least two presentations addressing storm water quality and pollution prevention, to be given to the general public (e.g., school, environmental, and civic groups).

10.2 Public Participation Involvement

1. Beginning in the year 2006 and ongoing, include in the job description of the MS4 Operator, or the Coordinator's designee, the requirement to participate in a local Watershed Group or other citizen-based environmental or water quality group.
2. Prior to adopting components of the Town's storm water program, gain public input on storm water program issues as appropriate by meeting at least once with Town leaders, stakeholders, technical experts or the general public to present the issue(s) and proposed solution(s) and ask for comment and discussion.
3. Beginning in the year 2005, publicize dates and times for all Council meetings where storm water related ordinances or management objectives are discussed and for the yearly public hearing on storm water issues.

10.3 Illicit Discharge Detection And Elimination

1. Develop a storm sewer system map, showing Town streets, United States Geological Survey solid or intermittent blue line streams, topography and outfall points. Complete map by the year 2008.
2. An Illicit Discharge Ordinance will be developed and adopted in the year 2005.
3. Develop policies, procedures and documentation tools for illicit discharge inspections, enforcement and tracking in the year 2005.
4. All complaints of illegal discharges and dumping to storm drains and local streams will be investigated and actions taken will be documented.
5. Develop map of inspection priority areas in the year 2008.
6. Visual inspections of all outfalls and for illegal dumping will be performed during the storm sewer mapping effort. Inspect outfalls located in priority areas identified on map once per year, starting in the year 2007. Inspect outfalls in all other areas once every two years, starting in the year 2008.
7. Beginning in the year 2006, provide at least one hour of education annually to appropriate maintenance, operations and engineering staff on illicit discharge detection and elimination. Education topics can include, but are not limited to; definition of illicit or non-storm water discharge, local discharge requirements, review of local outfall mapping, identifying and tracking suspected discharges and reporting suspected discharges.
8. Promote the annual household hazardous waste roundup day through a weekly advertisement/notice in the local newspapers, for the two weeks prior to the roundup day.

9. Beginning in 2005, an environmental stamp will be required on curb inlets and manhole covers in all new developments. Examples of permissible stamps include: "No Dumping. Drains to Stream", "Dump No Waste", etc.

10.4 Construction Site Runoff Control

1. By February 2006, revise the existing erosion and sediment control ordinance to address all of the components noted in 327 IAC 15-5. Adopt the revised ordinance once developed.
2. In the year 2007, formally establish a policy that establishes penalties associated with violations of the local ordinance, including the use of monetary fines and stop work orders as enforcement tools.
3. Reference the latest version of the Indiana Storm Water Quality Manual as the technical manual of reference for the MS4 entity's erosion and sediment control program.
4. In the year 2006, provide a training opportunity for the development community on erosion and sediment control design, installation and maintenance.
5. Review all new development plans for compliance with the local ordinance. Document that all plans are reviewed.
6. In the year 2006, train planning review staff on erosion and sediment control.
7. By the year 2006, incorporate erosion and sediment control complaints fully into the existing complaint handling system. Track complaint type, complaint received date, complainant, inspection date and action taken.
8. In the year 2005, develop and formalize policies and procedures for handling complaints.
9. In the year 2005, develop and implement an ongoing erosion and sediment control inspection program, assigning responsibilities and policies and procedures.
10. In the year 2006, after the erosion and sediment control inspection program policies and procedures have been adopted, provide training to the MS4 entity construction program staff on erosion and sediment control and the local requirements. Require erosion and sediment control plan reviewers and construction site inspectors to attend state sponsored training on erosion and sediment control, or enroll these MS4 entity staff in other appropriate training sessions.
11. In the year 2006, require that construction program staff (i.e., plan reviewers and site inspectors) maintain a level of expertise in erosion and sediment control that can be achieved through additional training opportunities or that staff obtain and maintain certification as a Certified Professional in Erosion and Sediment Control.

10.5 Post Construction Runoff Control

Beginning by November 2005, provide at least two hours of education annually to appropriate maintenance, operations and engineering staff on erosion and sediment control measure installation and maintenance practices.

1. Beginning by November 2005, provide two hours of education annually to appropriate maintenance, operations and engineering staff on storm water pollution prevention and good housekeeping practices for municipal operations. Training topics can include, but are not limited to; local ordinances, policies or requirements for pollution prevention, proper installation and maintenance of erosion control measures, proper application of pesticides and herbicides in parks and open spaces, proper fleet maintenance practices, spill prevention and cleanup, stream bank maintenance guidelines, storm water system maintenance, etc.
2. Perform litter pickup activities along roadways and known problem/priority areas weekly. Clean other areas as needed.
3. Perform sweeping of main roadways and priority (high pedestrian) areas weekly. Sweep all Town streets twice per year.
4. Beginning in the year 2007, perform vehicle-washing operations in a facility that does not allow wash water to reach storm drains. Develop and distribute a short memo/policy statement to staff educating them on the purpose of the special facility and stating that the truck wash facility must be used for all Town vehicle wash activities.
5. In the year 2007, examine current municipal operations to determine where additional pollution prevention activities, policies, training or structural measures are needed.

10.6 Pollution Prevention And Good Housekeeping

1. Beginning in the year 2006, provide at least two hours of education annually to appropriate maintenance, operations and engineering staff on erosion and sediment control measure installation and maintenance practices.
2. Beginning in the year 2006, provide two hours of education annually to appropriate maintenance, operations and engineering staff on storm water pollution prevention and good housekeeping practices for municipal operations.
3. Perform litter pickup activities along roadways and known problem/priority areas weekly. Clean other areas as needed.
4. Perform sweeping of main roadways and priority (high pedestrian) areas weekly. Sweep all Town streets twice per year.
5. Beginning in the year 2007, perform vehicle-washing operations in facility that does not allow washing water to reach storm drains. Develop and distribute a short memo/policy statement to staff educating them on the purpose of the special facility and stating that the truck washing facility must be used for all Town vehicle-washing activities.
6. In the year 2008, examine current municipal operations to determine where additional pollution prevention activities, policies, training or structural measures are needed.

11.0 Certification Forms

1. Part C: Program Implementation Certification Checklist - Form 51280
2. Certification of the Informational Program for the Public Education Outreach MCM - Form 51279
3. Certification of the Public Participation And Involvement Program for The Public Participation And Involvement MCM - Form 51273
4. Certification of the Plan To Detect, Address, and Eliminate Illicit Discharges for the Illicit Detection And Elimination MCM - Form 51271
5. Certification of the Development, Implementation, Management, and Enforcement of an Erosion and Sediment Control Program for the Construction Site Storm Water Runoff Control MCM - Form 51272
6. Certification of the Development and Implementation of a Program to Reduce Pollutant Run-Off from Municipal Operations for the Municipal Operations Pollution Prevention And Good Housekeeping MCM - Form 51281
7. Certification of the Development, Implementation, Management, and Enforcement of a Postconstruction Storm Water Run-Off Control Program for the Postconstruction Storm Water Runoff Control MCM – Form 51274

RULE 13 STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) –
PART C: PROGRAM IMPLEMENTATION CERTIFICATION CHECKLIST

State Form 51280 (R / 7-03)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used for compliance with a general NPDES permit pursuant to 327 IAC 15-13.
- Submit this completed form with a complete "SWQMP – Part C: Program Implementation" in accordance with 327 IAC 15-13-8.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

PART A: SWQMP CERTIFICATION CHECKLIST

► **Please check the appropriate box when the requirements for each numbered item have been met, or check "NA" if an item is not applicable. For some of the numbered items, the requirements must be met and "not applicable" is not provided as an option.**

X	NA	ITEM
☒		**1.** SWQMP – Part C: Program Implementation submitted within 1 year from the submission of the NOI letter or the expiration date of the previous 5-year permit term.
☐	☒	**2.** Approved TMDL established for any MS4 discharge receiving water.
☐	☒	* If yes, the SWQMP – Part C includes appropriate modifications to meet the TMDL
☒		**3.** SWQMP – Part C identifies that the required ordinances or similar regulatory mechanisms will be developed, revised, modified, and/or implemented within two (2) years from the submission of the NOI letter
		4. The SWQMP – Part C contains:
☒		a) An initial evaluation of the storm water program for the MS4 area
☒		* The initial evaluation includes all known structural and nonstructural storm water BMPs
☒		b) A detailed program description for each MCM
☒		c) A timetable for program implementation milestones and SWQMP-Part B conclusions
☒	☐	d) A schedule for on-going receiving water characterization to evaluate BMP effectiveness and receiving water quality
☒		e) A narrative and mapped description of the MS4 area boundaries
☒		*The boundary description includes the specific section(s), or, as appropriate, street name(s)
☒		f) An estimate of the linear feet of MS4, segregated by conveyance type
☒		g) A narrative summary of allowed structural BMP types in new development and redevelopment
☒		h) A summary on structural BMP selection criteria and performance standards
☒		i) A narrative summary of the current and projected storm water budget
☒		j) A narrative summary of measurable goals for each MCM
☒		* Measurable goals relate to an environmental benefit
☒	☐	k) Appropriate, completed state-issued certification forms (only required for the initial 5-year permit term)
☒	☐	i) Public education and outreach MCM
☒	☐	ii) Public participation and involvement MCM
☒	☐	iii) Illicit discharge detection and elimination MCM
☒	☐	iv) Construction site storm water run-off control MCM
☒	☐	v) Postconstruction storm water run-off control MCM (not required until end of second year of permit coverage)
☒	☐	vi) Pollution prevention and good housekeeping for operations MCM
☒		l) A listing of programmatic indicators for each MCM. These indicators include:
☒		i) Number or percentage of citizens that have an awareness of storm water quality issues
☒		ii) Number and description of meetings, training sessions, and events conducted to involve citizens
☒		iii) Number or percentage of citizens that participate in storm water quality improvement projects
☒	☐	iv) Number and location of storm drains marked or cast
☒		v) Estimated or actual linear feet or percentage of MS4 conveyances mapped
☒		vi) Number and location of MS4 area outfalls mapped
☒		vii) Number and location of MS4 area outfalls screened for illicit discharges
☒		viii) Number and location of illicit discharges detected
☒	☐	ix) Number and location of illicit discharges eliminated
☒	☐	x) Number of, and estimated amount of material collected from, HHW collections
☒	☐	xi) Number and location of citizen drop-off centers for automotive fluids

PART A: SWQMP CERTIFICATION CHECKLIST

▶ Please check the appropriate box when the requirements for each numbered item have been met, or check "NA" if an item is not applicable. For some of the numbered items, the requirements must be met and "not applicable" is not provided as an option.

X	NA	ITEM	
☒	☐	xii)	Number or percentage of citizens that participate in HHW collections
☒	☐	xiii)	Number of construction sites permitted for storm water quality
☒	☐	xiv)	Number of construction sites inspected
☒	☐	xv)	Number and type of enforcement actions taken against construction site operators
☒	☐	xvi)	Number of public informational requests received related to construction sites
☒	☐	xvii)	Number, type, and location of structural BMPs installed
☒	☐	xviii)	Number, type, and location of structural BMPs inspected
☒	☐	xix)	Number, type, and location of structural BMPs maintained, or improved, to function properly
☒		xx)	Type and location of nonstructural BMPs utilized
☒	☐	xxi)	Estimated acreage or square footage of open space preserved and mapped
☒	☐	xxii)	Estimated acreage or square footage of mapped pervious and impervious surfaces
☒	☐	xxiii)	Number and location of retail gasoline outlets or municipal, state, federal, or institutional refueling areas with installed BMPs
☐	☒	xxiv)	Number and location of entity facilities that have containment for accidental releases
☐	☒	xxv)	Estimated acreage or square footage and location where pesticides and fertilizers are applied by the regulated MS4 entity
☒	☐	xxvi)	Estimated linear feet or percentage and location of unvegetated swales and ditches that have an appropriately-sized vegetated filter strip
☒	☐	xxvii)	Estimated linear feet or percentage and location of MS4 conveyances cleaned or repaired
☒	☐	xxviii)	Estimated linear feet or percentage and location of roadside shoulders and ditches stabilized
☒	☐	xxix)	Number and location of storm water outfall areas remediated from scouring conditions
☒	☐	xxx)	Number and location of de-icing salt and sand storage areas covered or otherwise improved to minimize storm water exposure
☒	☐	xxxi)	Estimated amount, in tons, of salt and sand used for snow and ice control
☒	☐	xxxii)	Estimated amount of material by weight collected from catch basin, trash rack, or other structural BMP cleaning
☒	☐	xxxiii)	Estimated amount of material by weight collected from street sweeping
☐	☒	xxxiv)	Number or percentage and location of canine parks sited at least 150 feet away from a surface water body
☒	☒	xxxv)	Other
☒		**5.**	SWQMP – Part C identifies, as a minimum, the following compliance schedule for implementation from the submission day of the NOI letter:
☒		a)	"SWQMP – Part B: Baseline Characterization and Report" submitted within 180 days
☒		b)	Public education and outreach program developed and implemented within 1 year
☒		c)	Public involvement and participation program developed and implemented within 1 year
☒		d)	Illicit discharge plan and ordinance developed and program implemented and all major outfall conveyances mapped within 1 year
☒		e)	25% of storm water outfall conveyance systems mapped each year after 1 year
☒		f)	All known storm water outfalls with a diameter greater than 12 inches and open ditches mapped within 5 years
☒		g)	Construction site plan and ordinance developed and program implemented within 1 year
☒		h)	O&M plan developed and program implemented within 2 years
☒		i)	Postconstruction plan and ordinance developed and program implemented within 2 years
☒		j)	Operations pollution prevention program developed and implemented within 1 year
		6.	For the Public Education and Outreach MCM:
☒		a)	Plan identifies and schedules implementation of an informational program for constituents
☒		b)	Plan identifies initial assessment of constituents
☒		c)	Plan identifies specific target outreach or reduction goal percentages and timetables
☒	☒	d)	For CSS communities, the current LTCP has been reviewed for ensuring that there is consistency with this MCM
		7.	For the Public Participation/Involvement MCM:
☒		a)	Plan identifies and schedules implementation of a public participation program
☒		b)	Plan identifies initial assessment of constituents
☒		c)	Plan identifies specific public involvement and reduction goal percentages and timetables
☐	☒	d)	For CSS communities, the current LTCP has been reviewed for ensuring that there is consistency with this MCM

PART A: SWQMP CERTIFICATION CHECKLIST

► **Please check the appropriate box when the requirements for each numbered item have been met, or check "NA" if an item is not applicable. For some of the numbered items, the requirements must be met and "not applicable" is not provided as an option.**

X	NA	ITEM
		8. For the Illicit Discharge Detection and Elimination MCM:
☒		a) Plan schedules development of a storm sewer system map
☒		b) Plan schedules development and implementation of an ordinance or other regulatory mechanism that prohibits illicit discharges into the storm sewer system
☒		c) Plan identifies and schedules implementation of a plan to detect, address, and eliminate illicit discharges, including illegal dumping, into the storm sewer system
☒		i) This plan requires that problem areas be located via dry weather screening or other means
☒		ii) This plan requires that the source of the problem be located, the illicit connection be removed or corrected, and the actions taken be documented
☒		iii) This plan identifies all known active industrial facilities that discharge into a regulated MS4 conveyance
☒		d) Plan identifies and schedules implementation of an education program for public employees, businesses, and the general public about the hazards associated with illicit discharges and improper disposal of waste
☒		e) Plan establishes a recycling program for commonly dumped wastes
☒		f) Plan identifies specific outreach and reduction goal percentages and timetables
☐	☒	g) For CSS communities, the current CSOOP and LTCP have been reviewed for ensuring that there is consistency with this MCM
		9. For the Construction Site Storm Water Run-off Control MCM:
☒		a) Plan schedules development and implementation of an ordinance or other regulatory mechanism that controls polluted run-off from construction sites with a land disturbance of greater than or equal to one (1) acre
☐	☒	b) Plan established written agreement or process to allow local SWCD input
☒		c) Plan identifies and schedules implementation of a requirement to use appropriate BMPs on construction sites to control sediment and erosion and other waste at a site
☒		d) Plan identifies and schedules implementation of procedures for plan review, site inspection (including prioritization of sites) and enforcement of control measures to deter infractions
☒		e) Plan identifies procedures for plan review of projects operated by the MS4 operator
☒		f) Plan requires annual training for MS4 personnel responsible for implementing this MCM
☒		g) Plan identifies and schedules implementation of procedures for receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities
☒		h) Plan identifies specific outreach, compliance, and implementation goals and timetables
		10. For the Postconstruction Storm Water Run-off Control MCM:
☒		a) Plan schedules development and implementation of an ordinance or other regulatory mechanism that requires the implementation of planning procedures to promote improved water quality
☒		i) Plan procedures include the postconstruction requirements of 327 IAC 15-5-6.5(b)(8)
☐	☒	ii) Where appropriate, procedures include buffer strip and riparian zone preservation
☐	☒	iii) Where appropriate, procedures include filter strip creation
☐	☒	iv) Where appropriate, procedures include minimization of land disturbance and surface imperviousness
☐	☒	v) Where appropriate, procedures include maximization of open space
☐	☒	vi) Where appropriate, procedures include directing community physical growth away from sensitive areas and towards areas that can support it without compromising water quality
☒		b) Plan identifies the use of any storage, infiltration, filtering, and/or vegetative practice to reduce the impact of pollutants on storm water run-off to meet narrative water quality standards on receiving waters
☒		i) Plan prohibits using infiltration practices in well head protection areas
☒		ii) As site conditions allow, plan requires an appropriately-sized vegetated filter strip width along unvegetated swales/ditches
☒		iii) Plan prohibits discharges directly to sinkholes or fractured bedrock, without appropriate treatment to meet Indiana ground water quality standards
☒		iv) Plan requires any discharge from a storm water practice that is a Class V injection well to meet Indiana ground water quality standards
☒		v) Plan requires installation of appropriate BMPs to reduce metals and hydrocarbons at new retail gasoline outlets or municipal/institutional refueling areas
☒		vi) As site conditions allow, plan regulates the rate of storm water flow through the MS4 conveyances
☒		vii) Plan requires annual training for MS4 personnel responsible for implementing this MCM
☒		viii) Plan identifies and schedules implementation of a written O&M plan for structural BMPs.
☒		c) Plan identifies specific goals for reduction percentages and timetables
		11. For the Municipal Operations Pollution Prevention and Good Housekeeping MCM:
☒		a) Plan identifies and schedules implementation of a written program to ensure that existing municipal, State or Federal operations are performed in ways that will minimize contamination of storm water discharges
☒		i) Program addresses written documentation of maintenance activities, maintenance schedules, and long-term inspection procedures for BMPs to reduce floatables and other pollutants discharged from the storm sewer system
☒		ii) Program addresses controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations
☒	☒	iii) Program requires a minimum distance of 150 feet for canine parks to be sited away from a surface water body
☒		iv) Program addresses written procedures for the proper disposal of waste removed from MS4 conveyances and operational areas

PART A: SWQMP CERTIFICATION CHECKLIST

► **Please check the appropriate box when the requirements for each numbered item have been met, or check "NA" if an item is not applicable. For some of the numbered items, the requirements must be met and "not applicable" is not provided as an option.**

X	NA	ITEM
☒		v) Program addresses written documentation to ensure that new flood management projects assess their impacts on water quality and examine existing projects for incorporation of additional water quality protection devices or practices
☒		vi) Program addresses documentation for MS4 area personnel to attend annual training regarding this MCM
☒		b) Plan identifies specific reduction goal percentages and timetables
☐	☒	c) For CSS communities, the current CSOOP and LTCP have been reviewed for ensuring that there is consistency with this MCM
☒		**12.** "SWQMP – Part C: Program Implementation" has been certified by a Qualified Professional and the MS4 Operator.

PART B: CERTIFICATION AND SIGNATURE

► The Qualified Professional and MS4 Operator (referenced in Part A, Item #12 of this form) must sign the following certification statement:

"By signing this checklist, I hereby certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name of Qualified Professional: CHIGURUPATI RAVINDRANATH
(typed or printed)

Signature of Qualified Professional: [signature] **Date:** 01/13/05
(mm/dd/year)

Name of MS4 Operator: MS4 Operator - Town Of Dyer Lead Superintendent
(typed or printed)

Signature of MS4 Operator: [signature] **Date:** 1/27/05
(mm/dd/year)

RULE 13 –
Certification of the Informational Program for the Public Education and Outreach MCM

State Form 51279 (R /7-03)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used to comply with section 12(b) of 327 IAC 15-13.
- The storm water quality Public Education and Outreach program must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.
- Submit this completed form when the education program has been developed and implemented.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

CERTIFICATION AND SIGNATURE

The State of Indiana requires EDWARD ROBINSON (MS4 Operator) to develop and implement an informational program with educational materials for informing constituents about the impacts of polluted storm water run-off on water quality, and ways they can minimize their impact on storm water quality. This program must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.

The "authorized signature" required below must be either that of the MS4 operator, or, if another entity is responsible for this MCM, the responsible individual. The "title" must either be "MS4 operator", or, if a responsible individual signs, the title of that individual and associated MS4 entity represented (for example, mayor of the City of Indianapolis).

► The following statement, required by the State of Indiana, and the accompanying signature serve as the required certification that the program has been developed and implemented per the requirements of 327 IAC 15-13 and authorized under NPDES permit number INR~~00~~ 040074.

"I certify, under penalty of law, that this program and all required materials were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the above statement is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Authorized Signature: Edward Robinson **Date:** 1/27/05
(mm/dd/year)

Title: MS4 operator (Lead Superintendent Town of Dyer)
(typed or printed)

RULE 13 –
Certification of the Public Participation And Involvement Program for The Public Participation And Involvement MCM

State Form 51273 (R / 7-03)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used to comply with section 13(b) of 327 IAC 15-13.
- The public participation and involvement program must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.
- Submit this completed form when the program has been developed and implemented.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

CERTIFICATION AND SIGNATURE

The State of Indiana requires EDWARD ROBINSON (MS4 Operator) to develop and implement a public participation and involvement program to allow opportunities for constituents to participate in the storm water management program development and implementation. This program must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.

► The following statement, required by the State of Indiana, and the accompanying signature serve as the required certification that the program has been developed and implemented per the requirements of 327 IAC 15-13 and authorized under NPDES permit number INR~~00~~ 040014

"I certify, under penalty of law, that this program and all required materials were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the above statement is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Authorized Signature[1]: Edward Robinson **Date:** 1/27/05
(mm/dd/year)

Title[2]: MS4 Operator – Town of Dyer – Lead Superintendent
(typed or printed)

[1]The "authorized signature" required above must be either that of the MS4 operator, or, if another entity is responsible for this MCM, the responsible individual.
[2]The "title" must either be "MS4 operator", or, if a responsible individual signs, the title of that individual and associated MS4 entity represented (for example, mayor of the City of Indianapolis).

RULE 13 –
Certification of the Plan To Detect, Address, and Eliminate Illicit Discharges for the Illicit Detection and Elimination MCM

State Form 51271 (R / 7-03)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used to comply with section 14(g) of 327 IAC 15-13.
- The implementation plan for this MCM must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.
- Submit this completed form when the plan has been developed and implemented.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

CERTIFICATION AND SIGNATURE

The State of Indiana requires EDWARD D ROBINSON (MS4 Operator) to develop and implement a plan to detect and eliminate illicit discharges, including illegal dumping, into the MS4. As part of this plan, outfall systems within the regulated MS4 area must be mapped throughout the five-year permit term. The plan must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.

► The following statement, required by the State of Indiana, and the accompanying signature serve as the required certification that the program has been developed and implemented per the requirements of 327 IAC 15-13 and authorized under NPDES permit number INR~~00~~ 040074.

"I certify, under penalty of law, that this plan and all required materials were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the above statement is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Authorized Signature[1]: Edward D Robinson **Date:** 1/27/05
(mm/dd/year)

Title[2]: MS4 Operator - Town of Dyer - Lead Superintendent
(typed or printed)

[1]The "authorized signature" required above must be either that of the MS4 operator, or, if another entity is responsible for this MCM, the responsible individual.
[2]The "title" must either be "MS4 operator", or, if a responsible individual signs, the title of that individual and associated MS4 entity represented (for example, mayor of the City of Indianapolis).

RULE 13 –
Certification of the Development, Implementation, Management, and Enforcement of an Erosion and Sediment Control Program for the Construction Site Storm Water Run-Off Control MCM

State Form 51272 (R / 7-03)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used to comply with section 15(b) of 327 IAC 15-13.
- The program required under this MCM must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.
- Submit this completed form when the program has been developed and implemented.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

CERTIFICATION AND SIGNATURE

The State of Indiana requires EDWARD ROBINSON (MS4 Operator) to develop, implement, manage, and enforce an erosion and sediment control program for construction activities that disturb one (1) or more acres of land within the regulated MS4 area. As part of this program, an ordinance or other regulatory mechanism must be created or modified, and be substantially similar to IDEM's construction storm water program (327 IAC 15-5). This program and associated legal authorities must be obtained and implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.

► The following statement, required by the State of Indiana, and the accompanying signature serve as the required certification that the program has been developed and implemented per the requirements of 327 IAC 15-13 and authorized under NPDES permit number INR~~00~~ 040074 .

"I certify, under penalty of law, that this program and all required documents and materials were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the above statement is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Authorized Signature[1]: Edward Robinson **Date:** 1/27/05
(mm/dd/year)

Title[2]: MS4 Operator - Town of Dyer – Lead Superintendent
(typed or printed)

[1]The "authorized signature" required above must be either that of the MS4 operator, or, if another entity is responsible for this MCM, the responsible individual.
[2]The "title" must either be "MS4 operator", or, if a responsible individual signs, the title of that individual and associated MS4 entity represented (for example, mayor of the City of Indianapolis).

RULE 13 –

Certification of the Development and Implementation of a Program to Reduce Pollutant Run-Off from Municipal Operations for the Municipal Operations Pollution Prevention and Good Housekeeping MCM

State Form 51281 (R / 6-03)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used to comply with section 17(b) of 327 IAC 15-13.
- The program required under this MCM must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.
- Submit this completed form when the program has been developed and implemented.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

CERTIFICATION AND SIGNATURE

The State of Indiana requires EDWARD ROBINSON (MS4 Operator) to develop and implement a program to ensure that existing municipal, State or Federal operations are performed in ways that do not cause or contribute to contamination of storm water discharges. Written documentation of preventative maintenance, control measures, pesticide use minimization, proper waste disposal, waste reduction, and municipal employee training must be incorporated into this program. This program must be implemented within three hundred sixty-five (365) days of the Notice of Intent (NOI) letter submittal date.

► The following statement, required by the State of Indiana, and the accompanying signature serve as the required certification that the program has been developed and implemented per the requirements of 327 IAC 15-13 and authorized under NPDES permit number INR040074

"I certify, under penalty of law, that this program and all required materials were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the above statement is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Authorized Signature[1]: _____ **Date:** 1/27/05
(mm/dd/year)

Title[2]: MS4 Operator - Lead Superintendent - Town of Dyer
(typed or printed)

[1]The "authorized signature" required above must be either that of the MS4 operator, or, if another entity is responsible for this MCM, the responsible individual.
[2]The "title" must either be "MS4 operator", or, if a responsible individual signs, the title of that individual and associated MS4 entity represented (for example, mayor of the City of Indianapolis).

RULE 13 –
Certification of the Development, Implementation, Management, and Enforcement of a Postconstruction Storm Water Run-Off Control Program for the Postconstruction Storm Water Run-Off Control MCM

State Form 51274 (R2 / 7-03)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 13 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 234-1601 or
(800) 451-6027, ext. 41601 (within Indiana)
Web Access:
http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13.html

NOTE:

- This form must be used to comply with section 16(b) and (e) of 327 IAC 15-13.
- The program required under this MCM must be implemented within seven hundred-thirty (730) days of the Notice of Intent (NOI) letter submittal date.
- Submit this completed form when the program has been developed and implemented.
- Return this completed and signed form, and any required addenda by mail to the IDEM Rule 13 Coordinator at the address listed in the box on the upper-right.

CERTIFICATION AND SIGNATURE

The State of Indiana requires EDWARD ROBINSON (MS4 Operator) to develop, implement, manage, and enforce a program to address discharges of postconstruction storm water run-off from new development and redevelopment areas within the regulated MS4 area from all development that disturbs one (1) acre or more of land. As part of this program, an ordinance or other regulatory mechanism must be created or modified, and a written operational and maintenance plan for all structural storm water Best Management Practices (BMPs) must be developed and implemented. This program, associated legal authorities and plan must be implemented within seven hundred thirty (730) days of the Notice of Intent (NOI) letter submittal date.

► The following statement, required by the State of Indiana, and the accompanying signature serve as the required certification that the program has been developed and implemented per the requirements of 327 IAC 15-13 and authorized under NPDES permit number INR~~00~~ 040074

"I certify, under penalty of law, that this program and all required documents and materials were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the above statement is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Authorized Signature[1]: Edward Robinson **Date:** 1/27/05
(mm/dd/year)

Title[2]: MS4 Operator - Town of Dyer - Lead Superintendent
(typed or printed)

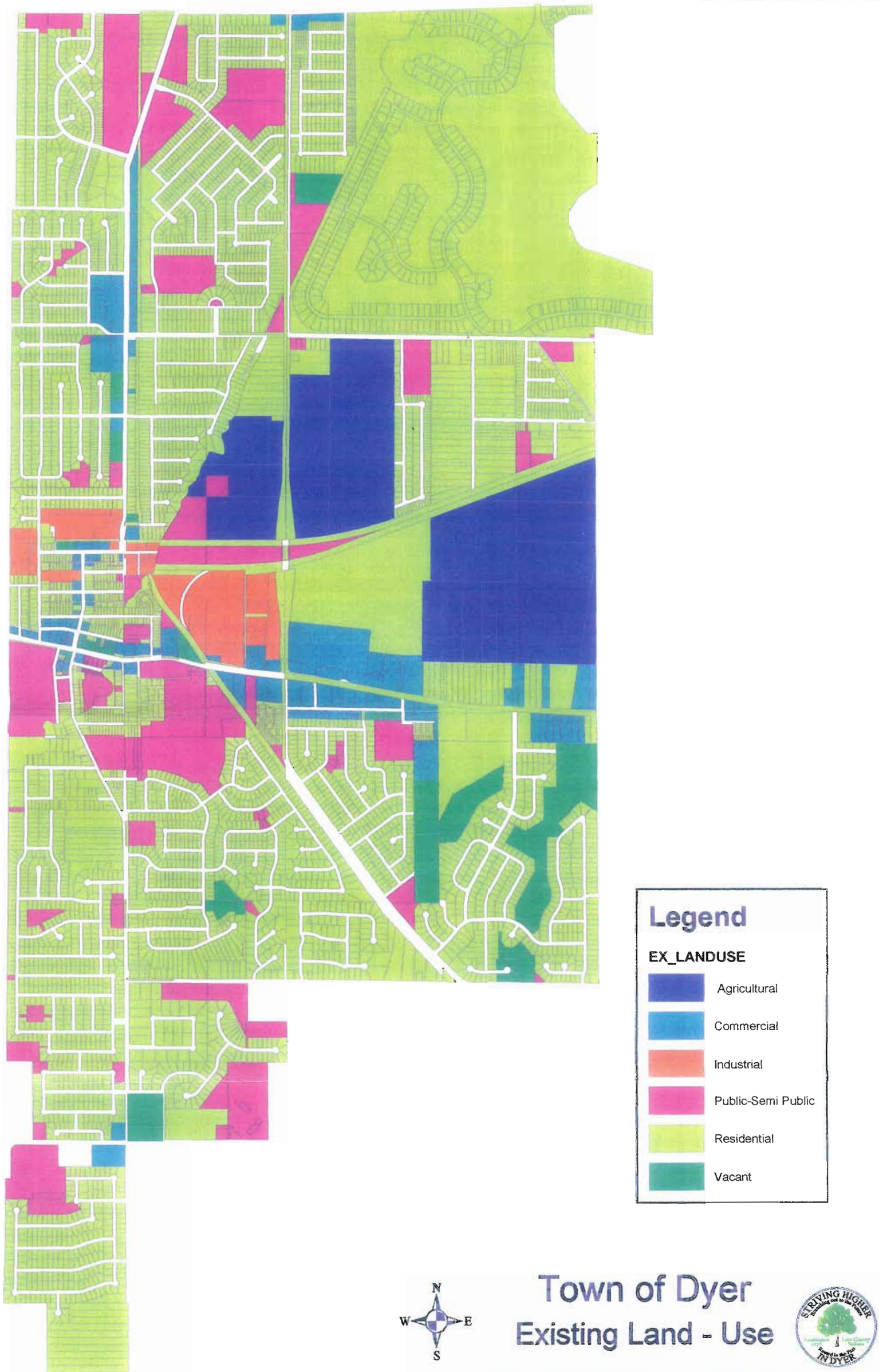
[1]The "authorized signature" required above must be either that of the MS4 operator, or, if another entity is responsible for this MCM, the responsible individual.
[2]The "title" must either be "MS4 operator", or, if a responsible individual signs, the title of that individual and associated MS4 entity represented (for example, mayor of the City of Indianapolis).

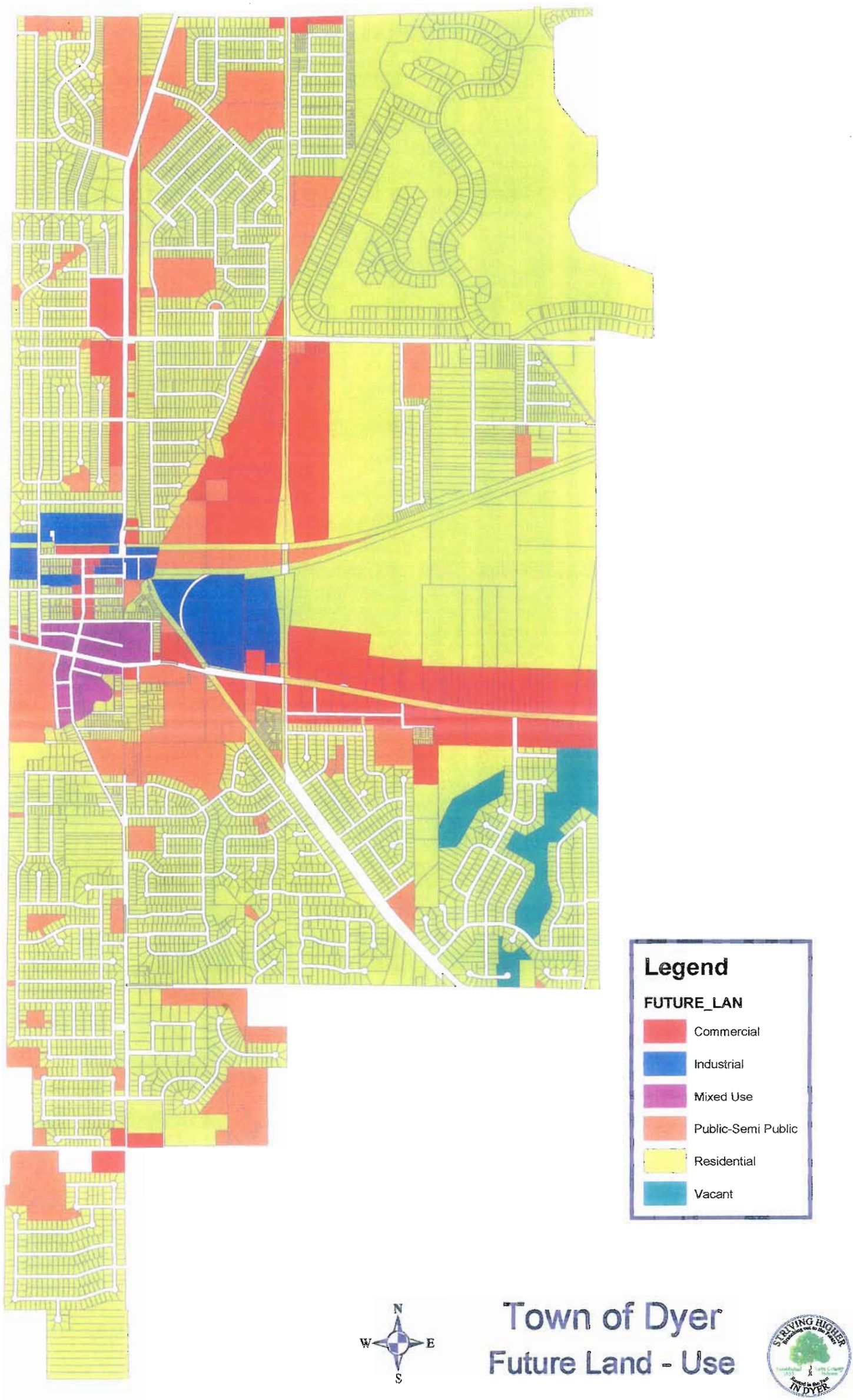
12.0 Programmatic indicators for MCMs

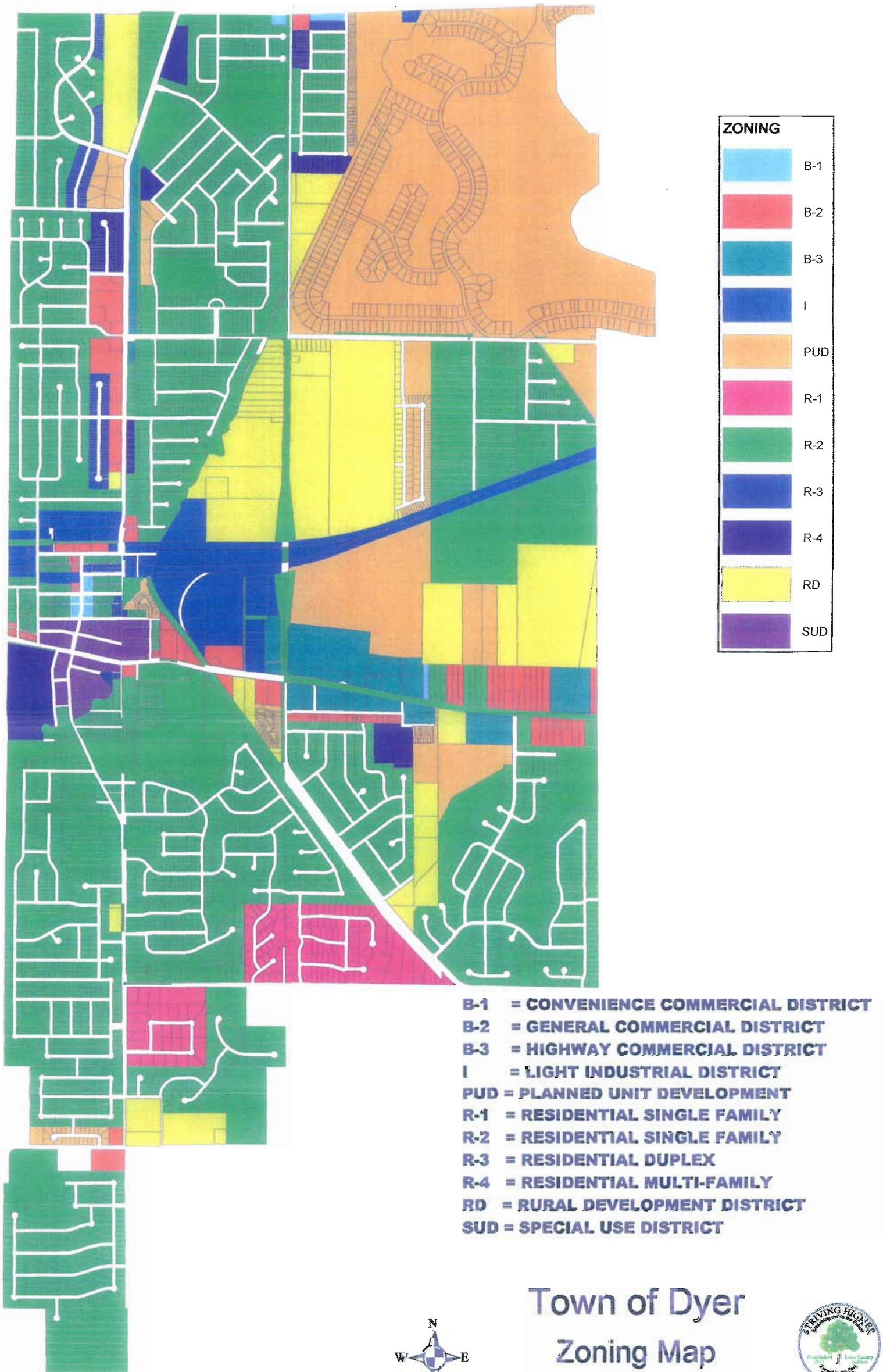
		Used	Not Used
1.	Number or percentage of citizens, segregated by type of constituent that has an awareness of storm water quality issues.	☒	☐
2.	Number and description of meetings, training sessions, and events conducted to involve citizen constituents in the storm water program.	☒	☐
3.	Number or percentage of citizen constituents that participate in storm water quality improvement programs.	☒	☐
4.	Number and location of storm drains marked or cast, segregated by marking method.	☒	☐
5.	Estimated or actual linear feet or percentage of MS4 mapped and indicated on an MS4 area map.	☒	☐
6.	Number and location of MS4 area outfalls mapped.	☒	☐
7.	Number and location of MS4 area outfalls screened for illicit discharges.	☒	☐
8.	Number and location of illicit discharges detected.	☒	☐
9.	Number and location of illicit discharges eliminated.	☒	☐
10.	Number of, and estimated or actual amount of material, segregated by type, collected from, HHW collections in the MS4 area.	☒	☐
11.	Number and location of constituent drop-off centers for automotive fluid recycling.	☒	☐
12.	Number or percentage of constituents that participate in the HHW collections.	☒	☐
13.	Number of construction sites obtaining an MS4 entity-issued storm water run-off permit in the MS4 area.	☒	☐
14.	Number of construction sites inspected.	☒	☐
15.	Number and type of enforcement actions taken against construction site operators.	☒	☐
16.	Number of, and associated construction site name and location for, public informational requests received.	☒	☐

	Programmatic indicators for MCMs (continued)	Used	Not Used
17.	Number, type, and location of structural BMPs installed.	☒	☐
18.	Number, type, and location of structural BMPs inspected.	☒	☐
19.	Number, type, and location of structural BMPs maintained or improved to function properly.	☒	☐
20.	Type and location of nonstructural BMPs utilized.	☒	☐
21.	Estimated or actual acreage or square footage of open space preserved and mapped in the MS4 area, if applicable.	☒	☐
22.	Estimated or actual acreage or square footage of pervious and impervious surfaces mapped in the MS4 area, if applicable.	☒	☐
23.	Number and location of new retail gasoline outlets or municipal, state, federal, or institutional refueling areas, or outlets or refueling areas that replaced existing tank systems that have installed storm water BMPs.	☒	☐
24.	Number and location of MS4 entity facilities that have containment for accidental releases of stored polluting materials.	☐	☒
25.	Estimated or actual acreage or square footage, amount, and location where pesticides and fertilizers are applied by a regulated MS4 entity to places where storm water can be exposed within the MS4 area.	☐	☒
26.	Estimated or actual linear feet or percentage and location of unvegetated swales and ditches that have an appropriately sized vegetated filter strip.	☒	☐
27.	Estimated or actual linear feet or percentage and location of MS4 conveyances cleaned or repaired.	☒	☐
28.	Estimated or actual linear feet or percentage and location of roadside shoulders and ditches stabilized, if applicable.	☒	☐
29.	Number and location of storm water outfall areas remediated from scouring conditions, if applicable.	☒	☐

	Programmatic indicators for MCMs (continued)	Used	Not Used
30.	Number and location of deicing salt and sand storage areas covered or otherwise improved to minimize storm water exposure.	☒	☐
31.	Estimated or actual amount, in tons, of salt and sand used for snow and ice control.	☒	☐
32.	Estimated or actual amount of material by weight collected from catch basin, trash rack, or other structural BMP cleaning.	☒	☐
33.	Estimated or actual amount of material by weight collected from street sweeping, if utilized.	☒	☐
34.	If applicable in the future, list the number or percentage and location of canine parks sited at least one hundred fifty (150) feet away from a surface water body.	☐	☒


Legend
EX_LANDUSE
Agricultural
Commercial
Industrial
Public-Semi Public
Residential
Vacant
N
W
E
S
Town of Dyer
Existing Land - Use

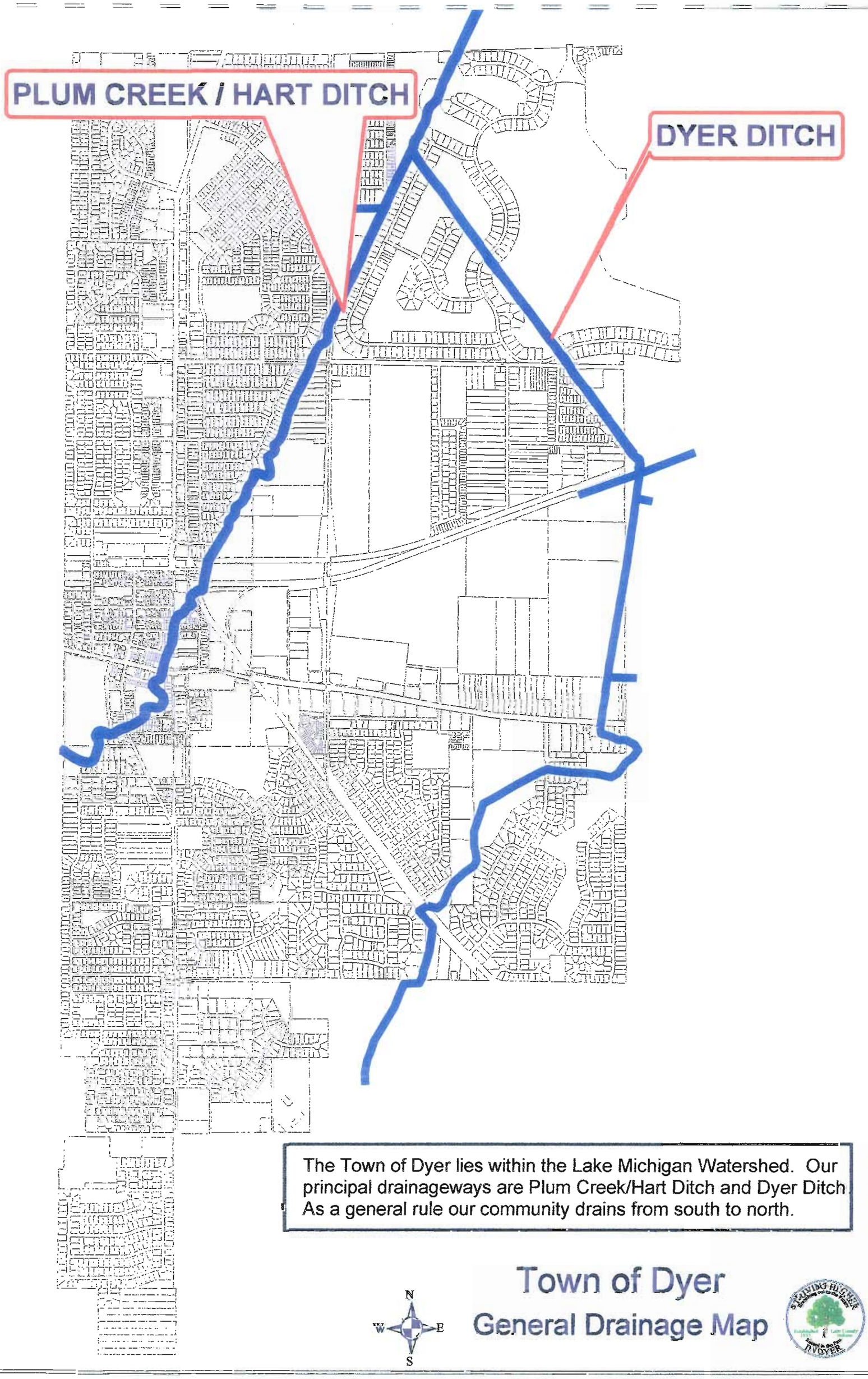

Legend
FUTURE_LAN
Commercial
Industrial
Mixed Use
Public-Semi Public
Residential
Vacant
N
W
E
S
Town of Dyer
Future Land - Use
STRIVING HIGHER
IN DYER



B-1 = CONVENIENCE COMMERCIAL DISTRICT
B-2 = GENERAL COMMERCIAL DISTRICT
B-3 = HIGHWAY COMMERCIAL DISTRICT
I = LIGHT INDUSTRIAL DISTRICT
PUD = PLANNED UNIT DEVELOPMENT
R-1 = RESIDENTIAL SINGLE FAMILY
R-2 = RESIDENTIAL SINGLE FAMILY
R-3 = RESIDENTIAL DUPLEX
R-4 = RESIDENTIAL MULTI-FAMILY
RD = RURAL DEVELOPMENT DISTRICT
SUD = SPECIAL USE DISTRICT

Town of Dyer

Zoning Map



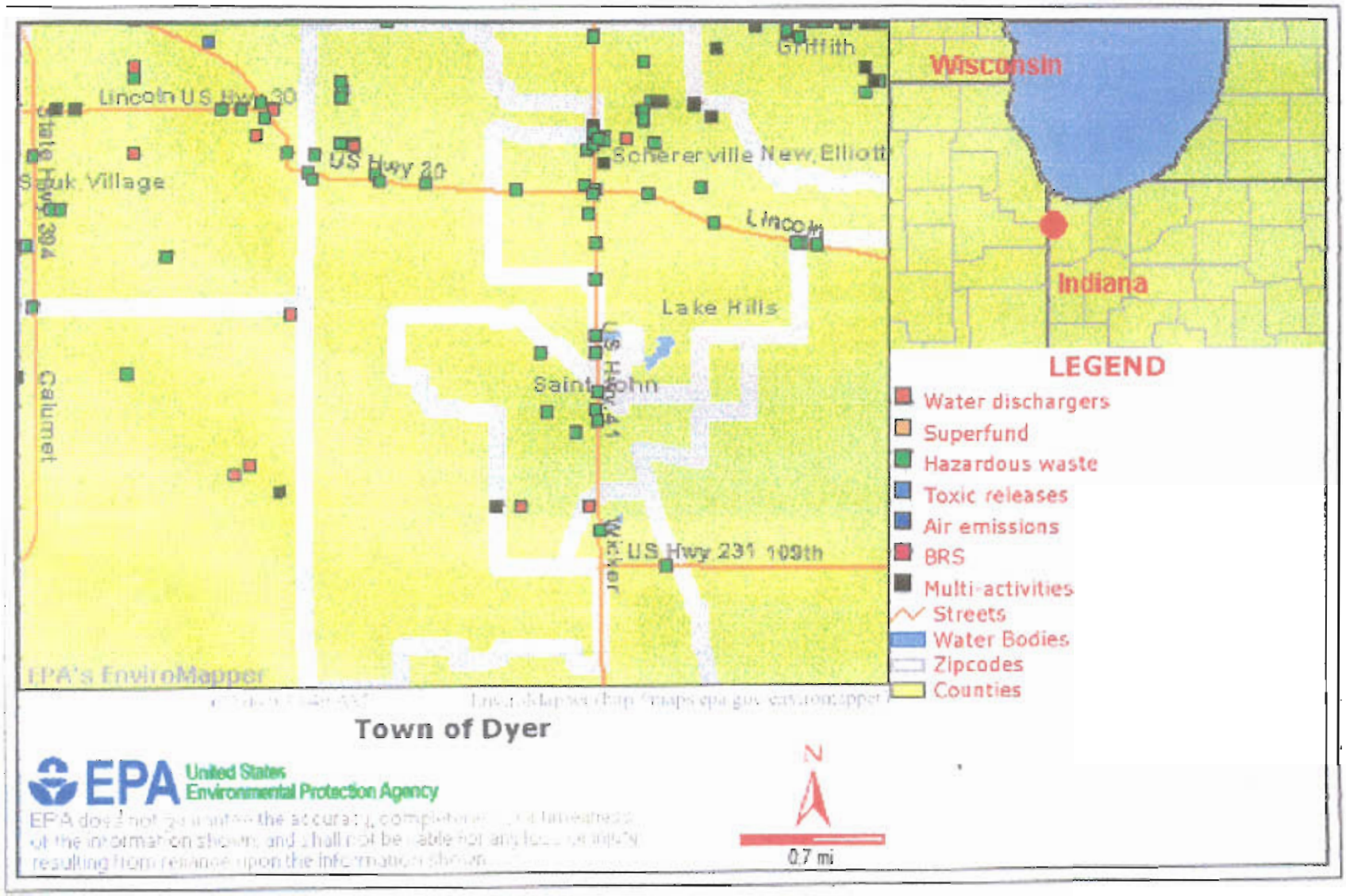
The Town of Dyer lies within the Lake Michigan Watershed. Our principal drainageways are Plum Creek/Hart Ditch and Dyer Ditch. As a general rule our community drains from south to north.

N
W E
S

Town of Dyer
General Drainage Map


TYPES
SOILS
MAUMEE - BONO - WARNERS
MORLEY - BLOUNT - DEWAMO
PLAINFIELD - WATSEKA
N
W
E
S
Town of Dyer
Soils Map
STRIVING HIGHER
IN DYER


N
W
E
S
TOWN OF DYER
WETLANDS MAP


Griffith
Wisconsin
Lincoln US Hwy 30
State Hwy 394
US Hwy 20
Schererville New Elliott
Lincoln
Indiana
Lake Hills
US Hwy 41
Saint John
Calumet
US Hwy 231 109th
Wicker
EPA's EnviroMapper
LEGEND
Water dischargers
Superfund
Hazardous waste
Toxic releases
Air emissions
BRS
Multi-activities
Streets
Water Bodies
Zipcodes
Counties
Town of Dyer
EPA United States Environmental Protection Agency
N
0.7 mi

Appendix A

Dyer Storm Water Management Board 2005 Budget

Utility Fees

	Avg. Monthly	Avg. Quarterly	Avg.Annually
Original Approved Plan Billed	$ 48,000	$ 144,000	$ 600,000
Actual Billed	$ 54,000	$ 162,348	$ 649,392
Actual Collected	$ 46,551	$ 139,653	$ 558,612

NOTE: Averages based on actual numbers through 12/31/04 Totalling 26 months x 3 x 12

Capital

	2003		2004		2005		2006	2007	Totals
Original Approved Plan	$ 580,000	73.0%	$ 1,285,000	85.0%	$ 630,000	75.0%	$ 230,000	$ 630,000	$ 3,355,002
Actual/***Proposed***	$ 75,030	29.0%	$ 463,230	50.0%	***$ 550,000***	**66.0%**			$ 1,088,261
Difference	$ (504,970)		$ (821,770)		***$ (80,000)***				

Expense

Original Approved Plan	$ 210,000	27.0%	$ 210,000	15.0%	$ 210,000	25.0%	$ 210,000	$ 210,000	$ 1,050,001
Actual/***Proposed***	$ 186,900	71.0%	$ 509,100	50.0%	***$ 308,740***	**36.0%**			$ 1,004,742
Difference	$ (23,100)		$ 299,100		***$ 98,740***				

C/E Summary

Original Approved Plan	$ 790,000		$ 1,495,000		$ 840,000		$ 440,000	$ 840,000	$ 4,405,000
Actual/***Proposed***	$ 261,000	33.0%	$ 972,300	65.0%	***$ 858,740***	**102.0%**			$ 2,092,042
Difference	$ (529,000)		$ (522,700)		***$ 18,740***				

The information contained within this summary is based on data available to the Town Storm Water Managaement Board at the time of its preparation and may be incomplete and is subject to revision.

DSWMB
2005 Budget

1/6/2005

	Jan.	Feb.	Mar.	1Q05	Apr.	May	June	2Q05	July	Aug.	Sept.	3Q05	Oct.	Nov.	Dec.	4Q05	Budget Totals 2005
Monthly Fees Billed	54.35	54.35	54.35		54.35	54.35	54.35		54.35	54.35	54.35		54.35	54.35	54.35		652.20
Monthly Fees *Collected*	46.1	46.1	46.1		46.1	46.1	46.1		46.1	46.1	46.1		46.1	46.1	46.1		552.84
Difference Billed vs. Collected	-8.28	-8.28	-8.28		-8.28	-8.28	-8.28		-8.28	-8.28	-8.28		-8.28	-8.28	-8.28		
Capital & Expense																	
Administrative	12.20	0.18	5.0		0.84	0.15	1.83		0.36	0.18	0.02		0.55	0.00	0.00		21.3
Billing	4.08	0.40	3.44		1.13	0.15	2.15		0.06	2.26	0.00		2.12	0.00	0.00		15.8
Citizen Awareness	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.0
Employees	10.79	6.84	7.74		6.95	8.98	18.93		17.83	17.14	7.95		6.97	6.84	6.84		123.8
Engineering	5.00	5.00	30.00		30.00	5.00	5.00		5.00	5.00	5.00		5.00	5.00	5.00		110.0
Equipment	0.06	0.81	1.53		0.61	0.42	1.67		1.75	0.92	0.71		0.41	0.00	0.00		8.9
Legal	0.04	0.04	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00		0.1
Mapping	0.31	0.00	2.87		4.20	0.69	2.88		2.25	2.90	0.00		2.34	0.00	0.00		18.4
Maintenance	0.88	2.64	0.79		3.09	11.55	1.97		0.69	4.44	4.19		3.44	0.00	0.00		33.7
Miscellaneous Material	2.73	0.00	0.75		0.18	4.00	4.07		6.71	2.41	1.09		0.77	0.00	0.00		22.7
Material & Labor for Capital Projects	0.00	0.00	0.00		0.00	0.00	0.00		100.00	100.00	100.00		100.00	100.00	0.00		500.0
Training	0.00	1.20	0.00		1.07	1.58	0.00		0.24	0.00	0.00		0.00	0.00	0.00		4.1
Total Monthly Expenditures	36.1	17.1	52.1		48.1	32.5	38.5		134.9	135.2	119.0		121.6	111.8	11.8		858.74
Cumulative C& E Expenditures	36.1	53.2	105.3		153.4	185.9	224.4		359.3	494.5	613.5		735.1	348.4	360.2		
USER FEE CASH ON HAND	162.2	191.0	184.9		182.9	196	204.0		115.2	26.0	-46.9		-122.4	-122.4	-122.4		

Proposed 2005 C&E Budget 858.74

Difference of 2005 Fee Collections and Proposed Budget

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	EOY 2003	PTD 2002-2003	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	YTD 2004	PTD 2002-2004	2004 vs.2003 Expenditures
Monthly Fees **Billed**	**53.25**	**53.29**	**53.32**	**53.31**	**53.28**	**53.28**	**53.32**	**54.32**	**644.36**	**754.36**	**54.25**	**54.26**	**54.33**	**54.34**	**54.35**	**54.36**	**54.37**	**54.40**	**54.40**	**54.43**	**54.43**	**54.76**	**652.65**	***1407.01***	
Monthly Fees ***Collected***	**44.4**	**41.339**	**44.40**	**44.913**	**49.275**	**43.72**	**51.59**	**42.251**	**558.7**	**643.02**	**45.7**	**65.9**	**45.5**	**44.97**	**47.0**	**43.36**	**46.95**	**46.81**	**45.76**	**48.60**	**40.13**	**46.63**	**567.29**	***1210.32***	
Difference Billed vs. Collected	8.9	12.0	8.9	8.4	4.0	9.6	1.7	12.1	**85.6**	**111.39**	5.1	11.7	8.8	9.4	7.4	11.0	7.4	7.6	8.6	5.8	14.3	8.1			
Cumulative Difference Billed vs. Collected	-29.0	-41.0	-49.9	-58.3	-62.3	-71.8	-73.6	-85.6	-85.6	**-111.39**	-8.6	3.1	-5.8	-15.1	-22.5	-33.5	-40.9	-48.5	-57.1	-62.9	-77.2	-85.4	85.4	196.7	
Capital & Expense																									
A1 Building Rental Fees		12.00							**12.0**		12.19												**12.2**		
A2 Safety Supplies	0.18	0.07		0.39					**0.9**				0.28	0.05									**0.3**		
A3 Office Supplies		0.24	0.011	0.17	0.28				**0.8**			0.18	4.72	0.54	0.15	0.18	0.36	0.18	0.02	0.30			**6.6**		
A4 Building Mtce. Items		0.20							**0.2**		0.01			0.26		11.47				0.26	0.18		**12.2**		
Administrative	**0.18**	**12.51**	**0.01**	**0.56**	**0.28**	**0.00**	**0.00**	**0.00**	**13.9**	**13.93**	**12.20**	**0.18**	**5.0**	**0.84**	**0.15**	**11.65**	**0.36**	**0.18**	**0.02**	**0.55**	**0.18**	**0.00**	**31.3**	**45.3**	**17.4**
B1 Bank Fees			0.04					0.14	**1.4**		0.04	0.10	0.13		0.15	0.06	0.06	0.15					**0.7**		
B2 Bonding Fees									**0.6**			0.3		0.53									**0.8**		
B3 Comtek	0.21								**9.4**				0.33										**0.3**		
B4 Lithographics		0.30			0.30	1.37			**3.0**		0.35			0.60		0.29		0.30		0.297		0.30	**2.1**		
B5 Postage	0.03	1.80			1.80			2.94	**9.5**		2.94		2.98			1.79		1.82		1.82		1.83	**13.2**		
B6 Billing Miscellaneous		0.04					2.45	0.60	**3.1**		0.76										0.33	5.06	**6.1**		
Billing	**0.24**	**2.14**	**0.04**	**0.00**	**2.10**	**1.37**	**2.45**	**3.68**	**26.9**	**26.9**	**4.08**	**0.40**	**3.44**	**1.13**	**0.15**	**2.15**	**0.06**	**2.26**	**0.00**	**2.12**	**0.33**	**7.19**	**23.3**	**43.0**	**-3.6**
Ed 1 Education																						5.21	**5.2**		
Ed 2 Publications/Media																							**0.0**		
Citizen Awareness	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.21**	**5.2**	**0.0**	**5.2**
Emp 1 Miscellaneous						0.07	0.035		**0.1**		0.04					0.02	0.09						**0.1**		
Emp 2 Recognition									**0.0**														**0.0**		
Emp 3 Salaries		0.33	0.025					2.63	**3.0**		2.63				1.29	5.42	4.50	2.07	1.11	0.129	1.92	7.20	**26.3**		
Emp 3A Summer Hires									**0.0**														**0.0**		
Emp 3B Fee Manager									**0.0**														**0.0**		
Emp 3C New Hires									**0.0**														**0.0**		
Emp 4 Testing					0.04				**0.0**				0.9		0.14			1.84			0.05	0.04	**3.0**		
Emp 5 Training									**0.0**		0.13			0.11		0.25					1.45		**1.9**		
Emp 6 Uniforms	0.60					0.626			**1.2**		1.16				0.70							1.40	**3.3**		
Employees	**0.60**	**0.33**	**0.03**	**0.00**	**0.04**	**0.70**	**0.04**	**2.63**	**4.4**	**4.36**	**3.95**	**0.00**	**0.90**	**0.11**	**2.14**	**5.69**	**4.59**	**3.90**	**1.11**	**0.13**	**3.42**	**8.63**	**34.6**	**38.9**	**30.2**
Eng. 1 S.E.H. Gen. Eng. Reviews				3.74	7.20	5.959	0.09		**20.6**		0.75				18.36		8.04	1.87	1.00			12.73	**42.8**		
Eng. 1E S.E.H. GONE Project One Dig									**0.0**					0.49									**0.5**		
Eng. 1F S.E.H. Sandy Ridge									**0.0**														**0.0**		
Eng. 1G S.E.H. Pheasant Hills Pond									**0.0**									2.77					**2.8**		
Eng. 2 Surveying Hardesty etc.			2.2						**2.2**														**0.0**		
Eng. 3 S.E.H. ERU Fee Implememt.									**22.5**														**0.0**		
Eng. 4 Other Engineering Work									**0.0**									0.82	4.80	0.231			**5.8**		
Engineering	**0.00**	**0.00**	**2.20**	**3.74**	**7.20**	**5.96**	**0.09**	**0.00**	**45.3**	**45.30**	**0.75**	**0.00**	**0.00**	**0.49**	**18.36**	**0.00**	**8.04**	**5.46**	**5.80**	**0.23**	**0.00**	**12.73**	**51.9**	**97.2**	**6.6**
EQ 1 Miscellaneous						1.52			**1.7**		0.06					0.53	0.19			0.194			**1.0**		
EQ 2 Saftey									**0.1**				0.1			0.98	0.06			0.216		0.29	**1.6**		
EQ 3 Purchases									**4.8**				1.05						0.63				**1.7**		
EQ 4 Rental/Lease		0.75			4.25	0.7		9.65	**15.3**			0.42					9.65	9.81					**19.9**		
EQ 5 Parts & Labor			0.32	0.19	0.14	0.73			**1.9**			0.31	0.38	0.61	0.42	0.17	0.67	0.11	0.07		0.21		**2.9**		
EQ 6 Pumps,Motors etc...				0.33	0.11	0.71			**1.1**			0.08							0.01				**0.1**		
Equipment	**0.00**	**0.75**	**0.32**	**0.52**	**4.49**	**3.66**	**0.00**	**9.65**	**25.0**	**25.0**	**0.06**	**0.81**	**1.53**	**0.61**	**0.42**	**1.67**	**10.56**	**9.92**	**0.71**	**0.41**	**0.21**	**0.29**	**27.2**	**52.2**	**2.2**
Legal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.03**	**0.1**	**0.01**	**0.04**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.1**	**0.1**	**0**

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	EOY 2003	PTD 2002-2003	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	YTD 2004	PTD 2002-2004	2004 vs.2003 Expenditures
M 1 Computer Supplies						0.525	2.25		3.0		0.31										0.43		0.7		
M 2 Computer Hardware/Software		0.13							0.1														0.0		
M 3 License Agreements									0.0														0.0		
M 4 Video Equipment				0.07					0.1												0.14		0.1		
M 5 Intelliplex GIS Services							2.53		17.0				2.87	4.2	0.69	2.88	2.25	2.90		2.34	2.25	1.97	22.3		
Mapping	**0.00**	**0.13**	**0.00**	**0.07**	**0.00**	**0.53**	**4.78**	**0.00**	**20.3**	**20.26**	**0.31**	**0.00**	**2.87**	**4.20**	**0.69**	**2.88**	**2.25**	**2.90**	**0.00**	**2.34**	**2.82**	**1.97**	**23.2**	**43.5**	**2.9**
MTCE 1 Electronics, Radios,phones etc.		0.09	0.28	0.51	0.18	0.05	0.32		1.4			0.09		0.32			0.03		0.18				0.6		
MTCE 2 Equipment		0.28		0.17					0.7			0.07	0.25			1.97			0.58				2.9		
MTCE 3 Fuel			0.47		1.11			0.83	2.4		0.22	1.68		1.33					2.59			2.09	7.9		
MTCE 4 Lumber									0.0			0.25											0.2		
MTCE 5 NIPSCO									0.0														0.0		
MTCE 5 A Power 1607 Capri	0.07	0.05	0.09	0.13	0.08	0.16	0.09	0.09	0.8		0.15	0.05	0.08	0.09	0.09		0.20		0.07	0.078	0.008	0.07	0.9		
MTCE 5 B Power 2230 Nondorf	0.36	0.13			0.67		0.08		1.2			0.28	0.30	0.18			0.23	0.10	0.09		0.18	0.34	1.7		
MTCE 5 C Power 1102 Granite	0.16	0.06	0.13	0.02	0.06		0.11	0.15	0.7		0.51	0.22	0.16	0.10	0.11		0.22		0.20	0.365	0.27	0.39	2.5		
MTCE 6 Misc. Parts/Labor lift stations							0.10		0.4						0.05			0.32					0.4		
MTCE 7 Miscellaneous	0.75	0.09	0.45	0.05		0.22	1.16		3.3					0.66				4.02	0.13		0.63		5.4		
MTCE 8 Tires & Batteries	0.86	0.06	0.1		0.10	0.36			1.5					0.14	0.12				0.12			0.27	0.6		
MTCE 9 Repairs						0.09			0.1					0.27	0.10				0.24	3			3.6		
MTCE 10 Monitoring & Sampling									0.1						0.26								0.3		
MTCE 11 Mosquito Control	4.41	0.24	0.04	0.06					4.8						10.83								10.8		
MTCE 12 Poison Ivy Control					0.06				0.1												0.05		0.1		
Maintenance	**6.59**	**1.00**	**1.55**	**0.93**	**2.26**	**0.88**	**1.86**	**1.07**	**17.3**	**17.3**	**0.88**	**2.64**	**0.79**	**3.09**	**11.55**	**1.97**	**0.69**	**4.44**	**4.19**	**3.44**	**1.14**	**3.17**	**38.0**	**55.3**	**20.7**
Mat 1 Dirt				1.04		1.3			2.3		2.73				1.44		1.84						6.0		
Mat 2 Gravel/Stone									0.0							1.56	0.55	1.39			0.57	0.69	4.8		
Mat 3 Sod/Seed/Fertilizer		1.57		1.55				1.20	4.3									0.10	0.35				0.4		
Mat 4 Concrete			0.04	0.38	2.24	0.71			3.6								0.86			0.078	0.29		1.2		
Mat 5 Limestone				0.91	1.19				2.1											0.688			0.7		
Mat 6 Catch Basins/Grate/Covers	0.17	1.25	1.25		0.16				2.8							1.72							1.7		
Mat 7 Piping	3.10	1.42	1.63	0.64		0.20		0.04	13.4					0.18	13.04	0.79	3.46	0.92			0.82	0.11	19.3		
Mat 8 Ashphalt				0.13	1.46				1.6				0.75						0.75			5.13	6.6		
Miscellaneous Material	**3.27**	**4.24**	**2.92**	**4.65**	**5.05**	**2.21**	**0.00**	**1.24**	**30.2**	**30.20**	**2.73**	**0.00**	**0.75**	**0.18**	**14.48**	**4.07**	**6.71**	**2.41**	**1.09**	**0.77**	**1.68**	**5.93**	**40.8**	**71.0**	**10.6**
CP 4 Sandy Ridge Generator & Controls																	164.16		20.64	0.399			185.2		
CP 5 GONE Project																		4.47					4.5		
CP6 Rosemary & Gardenia																			39.7				39.7		
Material & Labor for Capital Projects	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**164.16**	**4.47**	**60.34**	**0.40**	**0.00**	**0.00**	**229.4**	**229.4**	**229.4**
T 1 Displays and Materials									0.0														0.0		
T 2 Memberships				0.28					1.5			1.20										0.10	1.3		
T 3 Seminar Travel & Lodging	1.99								2.0					1.07	1.58		0.24						2.9		
Training	**1.99**	**0.00**	**0.00**	**0.28**	**0.00**	**0.00**	**0.00**	**0.00**	**3.5**	**3.50**	**0.00**	**1.20**	**0.00**	**1.07**	**1.58**	**0.00**	**0.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.1**	**7.6**	**0.6**
Total Monthly Expenditures	**12.9**	**21.1**	**7.1**	**10.8**	**21.4**	**15.3**	**9.3**	**18.3**	**186.9**	**186.8**	**25.0**	**5.3**	**15.3**	**11.7**	**49.5**	**30.1**	**197.6**	**35.9**	**73.3**	**10.4**	**9.8**	**45.2**	**509.10**	**650.6**	**276.95**
Cumul. C& E Expenditures	**83.62**	**104.7**	**111.8**	**122.5**	**144.0**	**159.3**	**168.5**	**186.8**			**211.8**	**217.0**	**232.3**	**244.0**	**293.5**	**323.6**	**521.3**	**557.2**	**630.5**	**640.8**	**650.6**	**695.8**			
Fees Collected minus Expenditures	**31.5**	**20.2**	**37.3**	**34.2**	**27.9**	**28.4**	**42.3**	**24.0**			**20.7**	**60.6**	**30.2**	**33.2**	**-2.5**	**13.3**	**-150.7**	**10.9**	**-27.5**	**38.2**	**30.4**	**1.4**	**56.82**		
User Fee Refunds	**0.03**	**0.04**							**0.07**	**0.07**		**0.16**	**0.07**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.23**	**0.31**	
CASH ON HAND	**241.9**	**262.1**	**299.4**	**333.6**	**361.5**	**389.9**	**432.2**	**456.1**			**476.8**	**537.3**	**567.4**	**600.7**	**598**	**611.5**	**460.8**	**471.7**	**444.1**	**482.4**	**512.7**	**514.1**			

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	EOY 2003	PTD 2002-2003	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	YTD 2004	PTD 2002-2004	2004 vs.2003 Expenditures
HUD Grant Award 500k																									
Eng. 1A S.E.H. Berens Monaldi 1&1A		31.73		5.64	8.82	1.53	0.23		59.6		19.83	12.92		1.378	41.39		6.31						81.8		
Eng. 1B S.E.H.Berens Monaldi 2									0.0														0.0		
Eng. 1C S.E.H. One Dig Infra. North									0.0						28.19			18.34	18.09				64.6		
Eng. 1D S.E.H. One Dig Infra. South									0.0														0.0		
Surveying																									
Engineering		31.73	0.00	5.64	8.82	1.53	0.23	0.00	59.6	*72.77*	19.83	12.92	0.00	1.38	69.58	0.00	6.31	18.34	18.09	0.00	0.00	0.00	146.4	219.2	86.8
-3 Other Proj. 1-1A Berens Monaldi		1.20			0.04	0.03			1.4		0.00	0	0	0	0	0	0	0							
-egal		1.20			0.04	0.03			1.4	*2.31*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	2.3	-1.4
CP 1/1A Berens Monaldi Berm											0.00												0.0		
CP 2 Berens Monaldi Berm Ph. 2																	0.1						0.1		
CP 3 One Dig Infrastructure North																	18.85	0.00	0.00	0	0	351.91	370.8	370.8	
CP 3a One Dig Infrastructure South											0.00												0.0		
Material & Labor for Capital Projects											0.00	0.00	0.00	0.00	0.00	0.00	18.95	0.00	0.00	0.00	0.00	351.91	370.9	370.9	370.9
Grant $$ C& E Expenditures		32.93	0.00	5.64	8.86	1.56	0.23	0.00	60.94	75.08	19.83	12.92	0.00	1.38	69.58	0.00	25.26	18.34	18.09	0.00	0.00	351.91	463.2		
Grant C& E Cuml.Expenditures		58.79	58.79	64.43	73.29	74.85	75.08	75.08			94.91	107.83	107.83	109.21	178.79	178.74	204.01	222.35	240.44	240.44	240.44	592.35			
Available HUD Grant Monies		441.21	441.21	435.57	426.71	425.15	424.92	424.92		424.92	405.09	392.17	392.17	390.79	321.21	341.49	316.226	126.74	81.67	81.67	81.67	-270.24			
Actual cash on hand	? 25.86 ?	229.17	299.40	327.96	352.64	388.34	431.97	456.97			456.97	524.38	567.40	599.32	528.40	611.50	435.54	453.36	426.01	482.40	512.70	162.19			

NOTE: Total Grant dollars submitted through 1/06/05 $25,860.00

Appendix B

Town of Dyer, Indiana - Ordinance No. 2002-20 – Storm Water Utility User Fee

TOWN OF DYER, LAKE COUNTY, INDIANA
ORDINANCE NO.: 2002-20

AN ORDINANCE AMENDING DYER TOWN ORDINANCE NO. 2002-17, BEING AN ORDINANCE ESTABLISHING A STORM WATER UTILITY USER FEE FOR THE TOWN OF DYER AND ADOPTING STORM WATER SERVICE USER FEE RATES AND POLICIES FOR THE TOWN OF DYER, INDIANA, AND REPEALING ALL TOWN CODE SECTIONS AND ORDINANCES, OR PARTS THEREOF, IN CONFLICT HEREWITH.

WHEREAS, the Town Council of the Town of Dyer, Lake County, Indiana, adopted Ordinance No. 2002-17 on or about July 16, 2002, which ordinance established a Storm Water Utility User Fee and Storm Water Service User Fee Rates and Policies for the Town of Dyer, Indiana; and

WHEREAS, the Town Council of the Town of Dyer, Lake County, Indiana, has determined that certain revisions to said Town Ordinance No. 2002-17 are necessary in order to clarify certain provisions of said ordinance; and

WHEREAS, in order to avoid confusion regarding the revisions being made to Town Ordinance No. 2002-17, the Town Council of the Town of Dyer, Lake County, Indiana, has determined to re-adopt the entire provisions of said Ordinance No. 2002-17, with all of the revisions made thereto, in this Amendatory Ordinance No. 2002-20.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF DYER, LAKE COUNTY, INDIANA, AS FOLLOWS:

That Ordinance No. 2002-17 shall be amended and revised, as follows:

AN ORDINANCE ESTABLISHING A STORM WATER UTILITY USER FEE FOR THE TOWN OF DYER, INDIANA, ADOPTING STORM WATER SERVICE USER FEE RATES AND POLICIES FOR THE TOWN OF DYER, INDIANA, AND ESTABLISHING THE STORM WATER OPERATION AND MAINTENANCE FUND FOR THE TOWN OF DYER, LAKE COUNTY, INDIANA.

WHEREAS, the Town Council of the Town of Dyer, Lake County, Indiana, adopted Ordinance No. 91-5 on or about February 12, 1991, thereby creating and

establishing a Department of Storm Water Management for the Town of Dyer, Indiana; and

WHEREAS, pursuant to said Ordinance No. 91-5, the Department of Storm Water Management for the Town of Dyer, Indiana, is charged with the responsibility of providing for the collection, disposal, and drainage of storm and service water and the relieving of sanitary sewers of such water in the Storm Water Management District; and

WHEREAS, said Ordinance No. 91-5 created a special taxing district which includes all of the territory within the corporate boundaries of the Town of Dyer, Lake County, Indiana; and

WHEREAS, Indiana Code § 8-1.5-5-7, as amended, provides authority to the Department of Storm Water Management for the Town of Dyer, Indiana, after approval by the Town Council of the Town of Dyer, Indiana, to assess and collect user fees from all of the property located within said District; and

WHEREAS, the Department of Storm Water Management has conducted investigation into the needs of the Town of Dyer, Indiana, and has listed and ranked by priority the Storm Water projects determined to be necessary to maintain and approve the handling of surface water and storm water in the Town of Dyer, Indiana; and

WHEREAS, Indiana Code § 8-1.5-5-6, as amended, enables the Board of Directors of the Department of Storm Water Management of the Town of Dyer, Indiana, to:

1. Make findings and determinations;

2. Install, maintain, and operate a storm water collection and disposal system;

3. Make all necessary or desirable improvements of the grounds and premises under its control;

4. Recommend to the Town Council reasonable and just rates in charges for services provided by the Department of Storm Water Management; and

WHEREAS, the Board of Directors of the Department of Storm Water Management has determined that it is necessary for regular funding to be provided to properly budget and support the operation, repair and maintenance of the storm water collection system; and

WHEREAS, the Board of Directors of the Department of Storm Water Management has determined that it is necessary for the public health and welfare, and to provide for public utility and benefit to the Town of Dyer, Lake County, Indiana, to construct, reconstruct, repair, and install storm and service storm water sewers in order to improve storm and surface water drainage within the Town of Dyer, Indiana; and

WHEREAS, on the basis of reviewing rate structures established by other municipalities within the State of Indiana, and the Cost of Services Study prepared by Bonar Group Engineering, the Board of Directors of the Department of Storm Water Management has determined that a system of user fees based on the equivalent impervious surface area of all of the individual parcels of real property located within the Storm Water Management District is a fair and non-discriminatory basis for imposing such user fees.

WHEREAS, the Board of Directors of the Department of Storm Water Management has determined that every parcel of real property located within the Storm Water Management District contributes storm water to Dyer's storm water system.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF DYER, LAKE COUNTY, INDIANA, AS FOLLOWS:

SECTION ONE: Definitions. Whenever used in this Ordinance, the meaning of the following words and terms shall be as defined in this Section, namely:

ABATEMENT	Any action taken to remedy, correct, or eliminate a condition within, associated with, or impacting a storm water drainage system.
AGRICULTURAL PROPERTY	A parcel of land or lot having an area in excess of five (5) acres and upon which crops have been grown for harvest within the past twelve (12) months.
APARTMENT/ CONDOMINIUM PROPERTY	A lot or parcel of land on which is situated a building containing five (5) or more single-family dwelling units, or on which two (2) or more buildings each containing multiple single-family dwelling units are situated.
APPROVED PLANS	Plans approved by the Town of Dyer Department of Storm Water Management according to a permits and plan review which will govern all improvements made within the Town that require storm water facilities or changes or alterations to existing storm water facilities.
BEST MANAGEMENT PRACTICES ("BMP")	Structural and/or non-structural controls that temporarily store storm water runoff to reduce flooding and provide other benefits.
BOARD	Board of Directors of the Town of Dyer Department of Storm Water Management established under Section 9-80, et seq., of the Dyer Town Code .
CODE	Dyer Town Code.

COUNTY REGULATED DRAIN	Part of the storm water conveyance system under the jurisdiction of the Lake County Drainage Board, including certain ditches, tiles, and sewers.
DESIGN STORM	A rainfall event of specified size and return frequency that is used to calculate the runoff volume and peak discharge rate of a BMP.
DETENTION	The temporary storage of storm water runoff in a basin, pond or other structure to control the peak discharge rates by holding the storm water for a period of time and which provides some gravity settling of particulates.
DIRECT DISCHARGE	Storm water runoff from a lot or parcel of real property contiguous to Plum Creek, Hart Ditch or Dyer Ditch, or any laterals to either Plum Creek, Hart Ditch or Dyer Ditch that are regulated by the Lake County Drainage Board and enters either such ditch or lateral without crossing other properties or entering the Public Storm Water Facilities or Storm Water System.
DIRECTOR	A person appointed by the Dyer Town Council to undertake the tasks and responsibilities set forth by this Ordinance, who shall serve at the discretion of the Dyer Town Council.
DRAIN	Any sewer, tile, ditch, stream or other storm water conveyance channel or conduit
DSM	Dyer Department of Storm Water Management.
EQUIVALENT IMPERVIOUS AREA	The square foot sum of all land cover types multiplied by the corresponding runoff coefficient for each land cover type, as identified as follows:

Land Cover	Runoff Coefficient
Asphalt and concrete drives, walks, and parking	0.90
Rooftops	0.90

Grass, lawns, parks, golf courses, cemeteries	0.15
Unimproved land, woods, agricultural	0.20
Gravel drives and parking	0.55
Ponds and lakes	0.90

EQUIVALENT RESIDENTIAL UNIT (ERU) A unit value equal to the average amount of equivalent impervious area of a residential property within the Town of Dyer and established at 4,343 square feet. It is also the basis for calculating the proper assessment of storm water charges to all users of the Dyer Storm Water System.

EXEMPT DRAIN Plum Creek, Hart Ditch or Dyer Ditch, or any laterals to either Plum Creek, Hart Ditch or Dyer Ditch that are regulated by the Lake County Drainage Board.

IMPERVIOUS AREA Real property that has been paved and/or covered with buildings and materials which include, but are not limited to, concrete, asphalt, rooftop, blacktop, and compacted gravel, such that the natural infiltration of water into the soil is prevented.

INFILTRATION A complex process of allowing storm water runoff to penetrate the ground surface and flow through the upper soil surface.

LOT/PARCEL A part or portion of land having a legal description that is formally set forth in a conveyance instrument.

NON-RESIDENTIAL PROPERTY All properties not encompassed within the definition of Residential Property shall be defined as Non-Residential Property. Non-Residential Property shall include, but not necessarily be limited to:

* - Agricultural property;
* - Apartment and Condominium property;
* - Mobile Home Parks;
* - Commercial property;

	* - Industrial property; * - Institutional property; * - Governmental property; * - Churches; * - Schools; * - Federal, State and Local Government owned property; and * - any other property not mentioned herein and not specifically defined as either Residential Property or Vacant Residential Property.
NPDES	National Pollutant Discharge Elimination System. Regulations for storm water discharges as described in The Federal Register, 40 CFR Parts 122, 123 and 124, as amended.
NPDES PERMIT	Permit required to be obtained by the Town of Dyer pursuant to Section 402 of the Clean Water Act, as amended.
PEAK DISCHARGE	The maximum rate of flow of water passing a given point during or after a rainfall event.
PERVIOUS AREA	Real property that has a runoff coefficient of less than 0.90.
PRIVATE STORM WATER FACILITIES	Various storm water and drainage works not under the control or ownership of the Town, County, State and/or Federal Government which may include inlets, conduits, pipes, pumping stations, manholes, structures, channels, outlets, retention or detention basins, other structural components and equipment designed to transport, move, hold or regulate storm water.
PUBLIC STORM WATER FACILITIES	The various storm water and drainage works under the control and/or ownership of the Town, County State or Federal Government which may include inlets, conduits, pipes, pumping stations, manholes, structures, channels, outlets, retention or detention

	basins, other structural components and equipment designed to transport, move, hold or regulate storm water.
RESIDENTIAL PROPERTY	For the purpose of this Ordinance, Residential Property refers to a ***lot or parcel or contiguous lots or parcels of single ownership*** of real property on which a building or mobile home is situated, which building contains a group of rooms forming a single inhabitable dwelling unit with facilities that are used or are intended to be used primarily for living, sleeping, cooking and eating. This definition also includes a lot containing one (1) individual building containing four (4) or fewer separate or contiguous single-family dwelling units. Each and every residential property shall be assigned one (1) ERU. A Residential Property having a land area in excess of five (5) acres shall be assigned one (1) ERU for the first five (5) acres, and the remaining acres in excess of five (5) acres shall be calculated according to its land cover type and size and additional ERUs shall be billed accordingly.
RETENTION	The holding of storm water runoff in a constructed basin or pond or in a natural body of water without release except by means of evaporation, infiltration or emergency bypass.
RETROFIT	To install or improve a Private Storm Water Facility using BMP.
RUNOFF COEFFICIENT	Ratio of peak flow from a drainage area (in cubic feet per second) and the product of rainfall intensity (in inches per hour) over a given land area (in acres). A measure of how much storm water runoff is produced in response to the rainfall.
STORM SEWER	A sewer designed or intended to convey only storm water, surface runoff, street wash waters, and drainage, and not intended for sanitary sewage and industrial

	wastes other than unpolluted cooling water. The portion of a sewer intended to carry storm water only, which begins at the grating or opening where water enters said sewer, through the sewer and any other conduits to the outlet structure where water enters a channel, natural watercourse or combined sewer.
STORM WATER	The chemical compound of hydrogen and oxygen which is produced from atmospheric clouds as rain, snow, sleet, and hail.
STORM WATER UTILITY USER FEE	A charge imposed on users of the Town's Public Storm Water Facilities and Storm Water System.
STORM WATER SYSTEM	All constructed facilities, structures and natural watercourses under the ownership, and/or control of the Town and/or the DSM, used for collecting and conducting storm water to, through and from drainage areas to the point of final outlet, including, but not limited to, any and all of the following: inlets, conduits and appurtenant features, creeks, channels, catch basins, ditches, streams, culverts, retention or detention basins and pumping stations; and excluding therefrom, any part of the system of drains and watercourses under the jurisdiction of the Lake County Drainage Board.
STORM WATER UTILITY CUSTOMER/USER	The owner of a Lot or Parcel of Residential, Non-Residential, or Vacant Residential Property.
SUBDIVISION GROUP	All of the parcels of land within a platted residential development.
VACANT RESIDENTIAL PROPERTY	A lot or parcel of real property on which there does not exist a building or mobile home and which has a residential zoning classification A vacant residential property in excess of five (5) acres in size shall be assigned a 1/3 ERU for the first five (5) acres, thereafter the remaining acreage shall be calculated according to

its land cover type and additional ERUs shall be billed accordingly.

SECTION TWO: Storm Water Utility User Fee. A Storm Water Utility User Fee shall be imposed on each and every lot and parcel of real property within the Town of Dyer, Lake County, Indiana, which charge shall be assessed against the owner thereof, who shall be considered the Storm Water Utility Customer/User for the purposes of this Ordinance. This user fee is deemed reasonable and is necessary to pay for the repair, replacement, planning, improvement, operation, regulation and maintenance of the existing and future Storm Water System for the Town of Dyer, Indiana.

SECTION THREE: Storm Water Utility User Fee Establishment Procedures. The storm water utility user fee shall be Six Dollars ($6.00) per ERU per calendar month. Any billings for storm water service outside this time shall be on a per diem basis. This storm water utility user fee rate is designed to recover and be able to pay the cost of rendering storm water service to the users of the Storm Water System, and shall be the basis for assessment of the Town's Storm Water Utility User Fee. This rate is established so as to maintain adequate fund reserves to provide for reasonably expected variations in the cost of providing services, as well as variations in the demand for services. This rate shall be evaluated annually as to its sufficiency to satisfy the needs of the DSM.

SECTION FOUR: User Fee Structure. For the purposes stated herein, there is hereby assessed a storm water utility user fee to each Storm Water Utility Customer/User within the corporate limits of the Town of Dyer, Lake County, Indiana, in an amount as determined below. For any such property, lot, parcel of land, building or premises which contributes directly or indirectly to the Storm Water System of the Town of Dyer, Lake County, Indiana, such charge shall be based upon the quantity of equivalent impervious area situated thereon. All properties having pervious or impervious area within the Town of Dyer, Lake County, Indiana, will be assigned an equivalent residential unit (ERU), or a multiple thereof.

1. **Residential Properties**: A monthly flat user fee for storm water service rendered to Residential Property located within the Town of Dyer shall be charged to each account, according to the service address. All Residential

Properties are hereby assigned one (1) ERU. This flat rate shall apply to all Residential Properties as defined herein, except that any Residential Property having land area in excess of five (5) acres shall be assigned one (1) ERU for the first five (5) acres, and the remaining acres in excess of five (5) acres shall be calculated according to its land cover type and size and additional ERUs shall be billed accordingly.

2. **Non-Residential Properties:** Non-residential properties located within the Town of Dyer will be assigned an ERU based upon said properties' individually measured pervious and impervious area (in square feet) divided by 4,343 square feet (one ERU). This division will be calculated to the first decimal place (nearest tenth of one ERU).

3. **Vacant Residential Property:** Vacant Residential Property located within the Town of Dyer shall be assigned one-third (1/3) of one (1) ERU (.33 ERU) except that any Vacant Residential Property in excess of 5 acres shall be assigned one-third (1/3) of one (1) ERU for the first five (5) acres, thereafter the remaining acres will be calculated based on the land cover type and additional ERUs will be billed accordingly.

SECTION FIVE: Billings and Terms of Payment.

A. Billings. All storm water service bills shall be rendered on a monthly basis, along with the Storm Water Utility User's charges for other Town utility services.

B. Terms of Payment. The Storm Water Utility User Fee shall be due on the payment date set out for the Town utility bill. It shall be a violation of this Ordinance to fail to pay a storm water service bill when due. All bills for storm water services not paid on or before the due date, which due date shall be approximately fifteen (15) days after the bill is rendered, shall be subject to a collection or deferred payment charge equal to ten percent (10%) of the outstanding balance.

C. **Collection.** Delinquent Storm Water Utility User Fees may be collected in a civil action along with other delinquent town utility charges by the Town, and the Town shall be permitted to collect its reasonable attorney's fees and Court costs.

SECTION SIX: Credit Policy and Procedure

A. **Credit Availability** - Credit will be available to all properties except individual Residential Properties for various forms and levels of abatement, as approved by the DSM in accordance with the Town of Dyer Storm Water Service Credit Application and Appeal of ERU Calculations Instruction Manual.

1. **Maintenance Requirements** – Credit may only be allowed for lots and parcels of real property where structural controls are maintained in fully functional condition and according to maintenance criteria and design standards required by the DSM.

2. **Existing Structure Credits** – Credit may be allowed for previously constructed abatement features or storm water controls. The amount of credit granted will be determined by the methods of design of the structure and as approved by the DSM.

3. **Direct Discharge Credit** – Credit may be granted on the basis of location of a given property in relation to the Dyer Ditch, Hart Ditch, or Plum Creek and other legal public drains under the control and jurisdiction of the Lake County Drainage Board, if such property directly discharges its storm water to such drain in conformance with all maintenance criteria and design standards as applicable.

4. **Voluntary Controls** –Voluntary controls and/or upgrades of existing private storm water facilities through retrofitting that exceed the Town's standard storm water abatement design criteria may be considered for credit on a case-by-case basis considering the impact of the controls on the Town's Storm Water System, as determined by the DSM.

5. **Industrial NPDES Permit Credits** – No credit shall be allowed for industries in compliance with federal laws and regulations regarding industrial storm water discharge permits.

6. **Pollution Reduction** – No credit shall be allowed for voluntary efforts to reduce the amount of pollutants in a user's storm water runoff or for improvements to the quality of a user's storm water discharge.

7. **Regional Basins** – Credit will not be granted to properties draining into ponds or basins maintained or owned by the Town. Credit

may only be considered for privately owned and maintained regional controls.

8. **Percent Discounted Credits for Private Storm water Facilities** - Discounts and credits shall be computed on an ERU basis. A maximum credit equal to 80% of the gross ERUs originally assigned may be granted for the construction and maintenance of private storm water facilities considering the potential of each such facility to reduce peak and/or volume storm water flow and direct discharge capabilities.

The administrative costs involved with operation of the DSM shall be shared by all Storm Water Utility Customer/Users, including future costs incurred to meet quality-based NPDES Permit requirements which provide community-wide benefits, and thus cannot be credited. The administrative cost component of the storm water utility user fee charges is approximately twenty percent (20%) of the overall DSM operation costs. Discounts and credits shall be cumulative; however, in no case shall the total amount of discounts and credits exceed eighty percent (80%) of the Storm Water Utility Customer/User's gross storm water utility user fee. The formula for determining the applicable credit percentage for individual parcels shall be specifically set out by the DSM.

9. **Federal, State, Town, County and Private Roadways** - Streets, roads and highways shall be given 100% credit as they form an integral part of the Storm Water System. The surface water control system incorporated in design of roadways are areas engineered to convey all design runoff without street flooding. Primary elements of the drainage system yield community-wide benefits and are installed to service the general public's interests.

10. **Subdivision Group Credit** - A Subdivision Group comprised of Residential Properties may be eligible for a Subdivision Group Credit.

B. CREDIT PROCEDURES

1. **Timing of Applications/Determinations** - An application for credit shall be made on forms provided by the DSM and the Town Clerk-Treasurer and shall be accompanied by the appropriate application fee in the sum of One Hundred Dollars ($100.00). It is the intent of the Town that all applications will be reviewed and credits and discounts determined

within forty five (45) days after submittal of a complete and correct application package. Any credit issued or approved will be effective on the 1st billing cycle for that property following completion of construction, or the date of the application. However, in the discretion of the DSM, and as determined by the DSM, a credit issued or approved may be applied retroactively to the first billing of service charges under this Ordinance.

2. **Appeals** - Appeals of credit or discount determinations shall be considered and reviewed consistent with the procedures set out below for reconsideration of ERU determinations.

3. **Payment required pending appeal determination** - An application for credit, or an appeal of a determination thereon, shall not constitute a valid reason for non-payment of the originally assessed storm water service charge by the Storm Water Utility Customer/User.

SECTION SEVEN: APPEALS OF ERU DETERMINATIONS - If a Storm Water Utility Customer/User determines that the ERU multiple assigned to said user's real property is incorrect for any reason, said Storm Water Utility Customer/User shall have the right to appeal the ERU determination and thus the rate assessed in the following manner:

A. The Storm Water Utility Customer/User shall obtain and complete a Petition to Appeal Storm Water Rate form ("Petition"), which shall be returned to the Town of Dyer Clerk-Treasurer with verifiable documentation supporting the appeal.

B. The Director shall investigate the appeal and, upon review thereof, shall render a written determination to the Board and the Storm Water Utility Customer/User that either the original ERU determination and assessed rate should be affirmed or the Storm Water Utility User Fee should be adjusted in accordance with the Petition.

C. If a Petition to Appeal is denied, said determination shall be forwarded to the Storm Water Utility Customer/User by certified mail, return receipt requested. The Storm Water Utility Customer/User shall then have thirty (30) days from the date of receipt of said determination to request a reconsideration by the Board. Any additional facts concerning the appeal shall be submitted in writing to the DSM, along with a copy of the original Petition and supporting documents, to the Board. The Director shall submit a written

report of the determination in the case, along with any documents used in denying the appeal.

D. Thereafter, the Board shall review all documentation and, if requested in writing by the Storm Water Utility Customer/User, conduct a hearing to determine and resolve the appeal. Such hearing will be scheduled by the DSM and the Storm Water Utility Customer/User will be notified by certified mail of the date of such hearing, which notice shall be received by the Storm Water Utility Customer/User at least seven (7) days prior to the date of such hearing. A written opinion shall be rendered within forty five (45) days after the hearing or submission of documentation if no hearing is conducted. The written opinion of the Board shall constitute the final DSM determination. The hearing shall be electronically recorded and if requested by the Storm Water Utility Customer/User, a transcript of the hearing shall be provided to the Storm Water Utility Customer/User. The Storm Water Utility Customer/User will be charged at a cost per page as determined by the Board, in accordance with applicable law as amended from time to time.

E. A Storm Water Utility Customer/User aggrieved by the final Board determination shall have the right to judicial review of such determination in accordance with applicable Indiana law.

F. If the Director recommends the Storm Water Utility User Fee be reduced, or reduction is ordered by the Director, the Board or any Court of competent jurisdiction, the Storm Water Utility Customer/User shall be credited accordingly for any overpayment made from the date of the Petition.

G. Dispute or appeal of an ERU determination or storm water service rate shall not be a valid reason for non-payment of the originally assessed storm water utility user fee by the Storm Water Utility Customer/User.

SECTION EIGHT: Storm Water Fund. That there is hereby established for the Town of Dyer, Lake County, Indiana, a "Dyer Storm Water Operation and Maintenance Fund," which shall be a non-reverting fund. All revenues and fees collected for storm water service, including but not limited to, Storm Water Utility User Fees, credit application fees, and interest earnings on any unused funds, shall be deposited in the "Dyer Storm Water Operation and Maintenance Fund." Disbursements from this fund will be authorized by the Board. Such disbursements will be used for the operation, maintenance and improvement of the Town of Dyer's Storm Water System in accordance with applicable Indiana

law. Monies from this fund shall not revert to any other Town utilities or Town fund and may not be transferred for any other purpose, except as permitted by applicable Indiana law. The fund shall exist in perpetuity or until such time as this Ordinance has been repealed, at which time any monies held in said fund shall be transferred to the Town of Dyer's general fund after payment of any and all fees, expenses or charges that may then be owing for the operation, maintenance and improvement of the Town of Dyer's Storm Water System.

Commencing in the first quarter of 2007, the Board, in cooperation with the Town of Dyer Clerk-Treasurer, shall on a biennial basis retain the services of a Certified Public Accountant to perform an independent financial management report regarding the DSM and the Storm Water Utility. Such report shall include an evaluation of the rates and charges collected by the DSM, including the Storm Water Utility User Fee, expenditures by the Board, anticipated future revenues, and the overall financial condition of the DSM and the Storm Water Utility. The report is intended to provide information to the Board and the Town of Dyer officials in their role as managers of the Storm Water Utility. The cost of such report shall be paid by the DSM from the Dyer Storm Water Operation and Maintenance Fund.

SECTION NINE: Lien on Premises. Each Storm Water Utility User Fee charged pursuant to this Ordinance is hereby made a lien upon the Residential, Non-Residential and Vacant Residential Property to which the same is charged, and, if the same is not paid within ninety (90) days after it shall be due and payable, it may, in the discretion of the Board, be certified to the Auditor of Lake County, who shall place the same on the tax duplicate of said County with the interest and penalties allowed by law to be collected as other taxes are collected.

SECTION TEN: Severability. If any section, clause, provision or portion of this Ordinance shall be held to be invalid or unconstitutional by any Court of competent jurisdiction, such decision shall not affect any other section, clause, provision or portion of this Ordinance.

SECTION ELEVEN: Repeal Conflicting Ordinances. All existing Dyer Town Ordinances, or parts thereof, in conflict with the provisions of this Ordinance, are hereby deemed null, void, and of no legal effect, and are specifically repealed.

SECTION TWELVE: Passage. This Ordinance shall take effect, and be in full force and effect, from and after its passage by the Town Council of the Town of Dyer, Lake County, Indiana.

ALL OF WHICH IS PASSED AND ADOPTED THIS 15 DAY OF OCTOBER, 2002, BY THE TOWN COUNCIL OF THE TOWN OF DYER, LAKE COUNTY, INDIANA.

NAYS	AYES
Robert C. Block, President	Robert C. Block, President
Paul Hayes, Vice President	Paul Hayes, Vice President
James H. Thomas, Member	James H. Thomas, Member
Glen L. Eberly, Member	Glen L. Eberly, Member
Patricia L. Hunter, Member	Patricia L. Hunter, Member

TOWN COUNCIL
TOWN OF DYER, LAKE COUNTY, INDIANA

ATTEST:

Thomas G. Hoffman, I.A.M.C.
Clerk-Treasurer

Appendix C

Ordinance No. 91-5 – Establishing Department of Storm Water Management

ORDINANCE NO. 91-5

An ordinance creating and establishing a Department of Storm Water Management for the Town of Dyer, Indiana

WHEREAS, the citizens of the Town of Dyer, Indiana have experienced much property damage resulting from uncontrolled storm water; and

WHEREAS, the Town of Dyer, at present, has no Board or Commission specifically charged with the duties and responsibilities of investigating the storm water problem; and

WHEREAS, the Town of Dyer deems it in the best interest of its citizens to so have said organization; and

WHEREAS, the Indiana State Legislature has enacted laws dealing with this exact subject.

NOW, THEREFORE, BE IT ORDAINED AS FOLLOWS:

Section 1. The statute (I.C. 8-1.5-5) of the State of Indiana entitled "An Act to Amend the Indiana Code Concerning Storm Water Management" is hereby adopted by the Town Council of the Town of Dyer, Indiana, so as to make said Act and any and all amendments thereto effective and operative as to the Town of Dyer, Lake County, Indiana.

Section 2. Pursuant to said Act, a Department of Storm Water Management shall be and is hereby created for the purpose of providing for the collection, disposal and drainage of storm and surface water and the relieving of sanitary sewers of such water in the district.

Section 3. The territory to be included initially in the district shall be all of that territory included at any time within the corporate limits of the Town of Dyer, and any territory, addition, or platted subdivision or unplatted lands lying outside the corporate limits of the Town of Dyer, Indiana, which have been taken into or which have been connected with the public sewer system of the Town of Dyer, Indiana, in accordance with the provisions of any prior act, and the drainage of which discharge is into or through the storm sewer system of the Town of Dyer, Indiana.

Section 4. The Board shall consist of three (3) directors to be appointed by the Town Council, not more than two (2) of whom may be of the same political party. The term of the first director shall end on December 31, 1991; the term of the second director shall end on December 31, 1992; and the term of the third director shall end on December 31, 1993. Thereafter all terms will be for a period of three (3) years. The members of the Board shall be compensated for their services as set forth annually in the salary ordinance for the Town of Dyer. Should a vacancy occur on the Board, that vacancy shall be filled by the Town Council within sixty (60) days from the date the vacancy occurred. The Town Council shall appoint one of its own members to fill the vacancy during any interim period of time. The Town Council may by simple majority vote remove a director at any time when, in the judgment of the Town Council, it is for the best interest of the Department of Storm Water Management.

Section 5. Pursuant to Indiana Code 8-1.5-5, there is hereby created a special taxing district which shall include all of the territory within the corporate boundaries of the Town of Dyer, Lake County, Indiana, as identified and set out hereinabove in Section 3.

Section 6. That an emergency exists for the immediate taking effect of this Ordinance and it shall be in full force and effect immediately upon passage.

Dated this 12th day of February, 1991.

TOWN COUNCIL, TOWN OF
DYER, INDIANA

Michael J. Kapusta

Susan M. Sweitzer

Jeffrey L. Kirkman

ATTEST:

Maryann Brown
Clerk/Treasurer

Appendix D

Municipal Separate Storm Water System (MS 4) Agreement Between NIRPC and the Town of Dyer

MUNICIPAL SEPARATE STORM WATER SYSTEM (MS4) AGREEMENT

Between

The Northwestern Indiana Regional Planning Commission

And
Town of Dyer

WHEREAS, the Federal Clean Water Act requires storm water discharges from certain types of urbanized areas to be permitted under the National Pollution Discharge Elimination System (NPDES) program (Phase II); and,

WHEREAS, the Indiana Department of Environmental Management, hereinafter referred to as "IDEM", has designated communities in Lake, Porter, and LaPorte Counties as MS4 Entities under the provisions of 327IAC 15-13 (Rule 13); and,

WHEREAS, the Storm Water Phase II Rule 13 extends coverage of the NPDES storm water program to all Small MS4s, requiring the implementation of a six (6) element program (minimum control measures); and,

WHEREAS, each MS4 entity is responsible for implementation of all six MCMs in their own jurisdiction; and,

WHEREAS, IDEM encourages regulated communities and entities to coordinate their MS4 activities; and,

WHEREAS, two of the MCMs are (1) Public Education/Outreach and (2) Public Participation/Involvement and can best be implemented on a regional basis; and,

WHEREAS, the Northwestern Indiana Regional Planning Commission has developed a regional program to satisfy the permitting requirements placed on area MS4 entities for Public Education/Outreach and Public Participation/Involvement; and,

WHEREAS, the MS4 entities participating in this regional public education and participation program will be able to identify this regional cooperative agreement in their Notice of Intent filed with the Indiana Department of Environmental Management (IDEM) and in their required permit reports to IDEM; and,

WHEREAS, this regional program will be cost effective for all MS4 entities while fulfilling permit requirements; and,

WHEREAS, the **Town of Dyer** is a Small MS4 entity in northwest Indiana required to comply with Rule 13;

NOW THEREFORE BE IT RESOLVED THAT THE PARTIES SIGNATORY HERETO DO HEREBY AGREE AS FOLLOWS:

1. The Northwestern Indiana Regional Planning Commission (NIRPC) will be responsible for the development and implementation of a five-year (5) Joint Storm Water Quality Phase II Public Education and Involvement Program as set forth in Attachment A to this Agreement.

2. NIRPC will be responsible for meeting all state and federal requirements as they pertain to two of the elements of the Rule 13 permit program: Public Education/Outreach and Public Involvement/Participation.

3. NIRPC will be responsible with providing necessary permit reports as required by IDEM.

4. The **Town of Dyer** agrees to participate in the regional program and agrees to pay NIRPC a base program fee of twenty-five hundred dollars **($2,500.00)** per year plus a **first year per capita** fee of nineteen and one half cents **(.195)** and a twenty-five cents **(.25)** per capita fee for the **second, third, fourth and fifth year.**

5. The cost for the first year **(2005)** will be a total of **$5,209.53** based on a population of **13,895.** The cost of years **2006, 2007, 2008, 2009** will be **$5,973.75 per year** based on the same 2000 Census population numbers.

6. The five year program will begin in 2005 and conclude in 2009. First year fees (2005) are due to the Commission by October 15, 2004. Subsequent years, payment is due to the Commission by February 28th.

7. NIRPC may use funds received through this Agreement to match federal, state, local, or non-profit grant funds available for use for the MS4 program objectives as provided for in Attachment A to this Agreement.

8. Either party may during the fourth quarter of each year provide the other party with written notice of its intent to withdraw from the Agreement.

NIRPC Contact:

Ms Reggie Korthals, Director
Environmental Programs
6100 Southport Road
Portage, IN 46368
(219) 763-6060
rkorthals@nirpc.org

Town of Dyer Contact:

IT IS FURTHER UNDERSTOOD that this agreement becomes effective when both parties are signatory hereto.

This AGREEMENT, made and entered into as of the_____day of_____, 2004.

Northwestern Indiana Regional Planning Commission

_____

Dan Gardner, Interim Executive Director

_____

PROPOSED NIRPC PROGRAM FEES FOR NPDES MS4 STORM WATER PHASE II PUBLIC OUTREACH AND EDUCATION PROGRAM - FIRST YEAR

	2000 Census Population	Base Annual Fee	Per Capita Factor	Per Capita Annual Fee	Total Annual Fee
Lake County					
Gary	102,746	2,500	0.195	20,035.47	22,535.47
East Chicago	32,414	2,500	0.195	6,320.73	8,820.73
Merrillville	30,560	2,500	0.195	5,959.20	8,459.20
Hobart	25,363	2,500	0.195	4,945.79	7,445.79
Schereville	24,851	2,500	0.195	4,845.95	7,345.95
Highland	23,546	2,500	0.195	4,591.47	7,091.47
Munster	21,511	2,500	0.195	4,194.65	6,694.65
Crown Point	19,806	2,500	0.195	3,862.17	6,362.17
Griffith	17,334	2,500	0.195	3,380.13	5,880.13
Lake Station	13,948	2,500	0.195	2,719.86	5,219.86
Dyer	13,895	2,500	0.195	2,709.53	5,209.53
St. John	8,382	2,500	0.195	1,634.49	4,134.49
Lowell	7,505	2,500	0.195	1,463.48	3,963.48
Cedar Lake	9,279	2,500	0.195	1,809.41	4,309.41
Lake County Gov't.	23,707	2,500	0.195	4,622.87	7,122.87
Lake County Sub-total	**374,847**	**37,500**		**73,095.17**	**110,595.17**
Porter County					
Portage	33,496	2,500	0.195	6,531.72	9,031.72
Valparaiso	27,428	2,500	0.195	5,348.46	7,848.46
Chesterton	10,488	2,500	0.195	2,045.16	4,545.16
Porter	4,972	2,500	0.195	969.54	3,469.54
Ogden Dunes	1,313	2,500	0.195	256.04	2,756.04
Porter County Gov't.	8,067	2,500	0.195	1,573.07	4,073.07
Porter County Sub-total	**85,764**	**15,000**		**16,723.98**	**31,723.98**
Other Entities					
South Haven CDP		3,500			3,500.00
Valpo Lakes Area CD		3,500			3,500.00
Twin Creeks CD		3,500			3,500.00
Aberdeen Property CD		3,500			3,500.00
Other Entities Sub-total		**$14,000**			**$14,000**
Total	**460,611**	**$66,500**		**$89,819.00**	**$156,319**

PROPOSED NIRPC PROGRAM FEES FOR NPDES MS4 STORM WATER PHASE II PUBLIC OUTREACH AND EDUCATION PROGRAM - 2006, 2007,2008, 2009

	2000 Census Population	Base Annual Fee	Per Capita Factor	Per Capita Annual Fee	Total Annual Fee
Lake County					
Gary	102,746	2,500	0.250	25,686.50	28,186.50
East Chicago	32,414	2,500	0.250	8,103.50	10,603.50
Merrillville	30,560	2,500	0.250	7,640.00	10,140.00
Hobart	25,363	2,500	0.250	6,340.75	8,840.75
Schereville	24,851	2,500	0.250	6,212.75	8,712.75
Highland	23,546	2,500	0.250	5,886.50	8,386.50
Munster	21,511	2,500	0.250	5,377.75	7,877.75
Crown Point	19,806	2,500	0.250	4,951.50	7,451.50
Griffith	17,334	2,500	0.250	4,333.50	6,833.50
Lake Station	13,948	2,500	0.250	3,487.00	5,987.00
Dyer	13,895	2,500	0.250	3,473.75	5,973.75
St. John	8,382	2,500	0.250	2,095.50	4,595.50
Cedar Lake	9,279	2,500	0.250	2,319.75	4,819.75
Lowell	7,505	2,500	0.250	1,876.25	4,376.25
Lake County Government	23,707	2,500	0.250	5,926.75	8,426.75
Lake County Sub-Total	**374,847**	**$35,000.00**		**$91,392**	**$126,392**
Porter County					
Portage	33,496	2,500	0.250	8,374.00	10,874.00
Valparaiso	27,428	2,500	0.250	6,857.00	9,357.00
Chesterton	10,488	2,500	0.250	2,622.00	5,122.00
Porter	4,972	2,500	0.250	1,243.00	3,743.00
Ogden Dunes	1,313	2,500	0.250	328.25	2,828.25
Porter County Government	8,067	2,500	0.250	2,016.75	4,516.75
Porter County Sub-Total	**85,764**	**$15,000**		**$25,674**	**$40,674**
Other Entities					
South Haven CDP		3,500			3,500.00
Valpo Lakes Area CD		3,500			3,500.00
Twin Creeks CD		3,500			3,500.00
Aberdeen Property CD		3,500			3,500.00
Other Entities Sub-Total		$14,000			**$14,000**
TOTAL	**460,611**	**64,000**		**$117,066.25**	**$181,066**

JOINT STORM WATER QUALITY PHASE II
PUBLIC EDUCATION / OUTREACH & PUBLIC INVOLVEMENT / PARTICIPATION PLAN
DRAFT BUDGET OUTLINE

NIRPC PERSONNEL COSTS*	First Year - 2005	2006, 2007, 2008, 2009
Project Manger (NIRPC Environmental Director)	*$10,000*	$10,000
Project Coordinator (Watershed Coordinator)	*$15,000*	$25,000
* Personnel Costs include salary plus benefits including leave, FICA, & other taxes, PERF assessments, health, life and disability insurance, etc.		
TOTAL PERSONAL COSTS	***$25,000***	**$35,000**
CONTRACTED FULL TIME EDUCATOR	*$30,000*	$35,000
DIRECT PROJECT COSTS		
Media Costs Will include but are not limited to: Logo development Radio Spots, Television Spots Neighborhood Flyers, Newspaper Inserts Newsletters/Fact Sheets, Press Releases Web Site Contractual Services Printing and production of materials	*$20,000*	*$30,000*
Educational Curriculum Formulate, organize and personalize materials available from: US EPA Purdue University-Planning With Power Soil and Water Conservation Districts Project WET Create In-school program for educator Create education program for community service groups and targeted audiences Printing and reproduction of materials	*$12,000*	*$12,000*
Community Programs Conduct baseline community survey Develop Community Advisory Group Identify Target Audiences Produce Exemplary Products Restaurant Placemats Neighborhood Door Hangers Specialty Items (for Fairs and Special Events Develop Volunteer groups in communities Contractual Services Printing of materials and mailing	*$20,000*	*$30,000*
TOTAL DIRECT PROJECT COSTS	**$107,000**	**$142,000**
INDIRECT COSTS	*$25,000*	**$30,000**
TOTAL PROJECT COSTS	**$132,000**	**$172,000**

Project Personnel

A. Project Manager - NIRPC Director of Environmental Planning and Programs

- Coordinating all aspects of the project
- Lead contact with US EPA, IDEM, communities, contractors, organizational partners, community volunteers
- Complete and submit all required reports and information
- Coordinate activities of full time educator and watershed coordinator
- Coordinate media campaign
- Coordinate partnerships with consultants, organizations, communities
- Work with Watershed Coordinator on development of Advisory Group and with other water related projects
- Produce yearly final report and five year summary and evaluation
- Other responsibilities as they are identified

B. Part Time Project Coordinator – This position will be filled by the current Watershed Coordinator.

- Work with project staff and advisory group on development of the program
- Coordinate project efforts with watershed planning project
- Coordinate Joint Community Advisory Group
- Help coordinate and supervise volunteer activities
- Help develop media campaign and supervise aspects of campaign
- Present programs to community service groups
- Other responsibilities as they are identified

C. Full Time Environmental Educator – This will be a new staff position.

- Work with project staff to develop educational programs for, schools, community groups, targeted audiences.
- Present programs in the regional schools
- Work with organizational partners to coordinate regional programs
- Identify new materials available
- Work with volunteers and targeted audiences
- Other responsibilities as they are identified