

Town of Tewksbury
Illicit Discharge Detection Elimination (IDDE) Program
Written in 2009

Town of Tewksbury Illicit Discharge Detection Elimination (IDDE) Program

The Town of Tewksbury has developed an Illicit Discharge Detection Elimination Program. This is based on an eight step program as outlined in the “Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments”, published by the Center for Watershed Protection and Robert Pitt, University of Alabama, EPA Cooperative Agreement X-82907801-0, October 2004.

A summary of the eight steps are outlined in the next section followed with more specific information outlining the details to each step. This IDDE Program is a great resource to the community and required by the Environmental Protection Agency under the MS4 Phase II National Pollutant Discharge Elimination System (NPDES) Permit. The purpose of this program is to locate illicit discharges, correct the problem, and improve the Town’s water bodies. This program works in conjunction with the Stormwater Discharge Bylaw and Regulations.

Section One: Summary of the Eight Step IDDE Program

The following section provides a summary to each of the eight steps for the IDDE Program. This summary will include action schedule, start-up and annual costs, desired tasks and who is responsible for each function.

Step 1: Audit Existing Resources and Programs

When: Immediately

Start-up Cost: <\$10,000

Annual Cost: -

Who: Planning/Permitting/Engineering

- Infrastructure Profile – missing drainage and outfalls
- Existing Legal Authority – Town meeting 2010: Municipal Stormwater Discharge Bylaw
- Available Mapping – Geographical Information Systems (GIS), plans on file
- Experienced Field Crews – engineering staff, interns, coops, school programs
- Access to Lab Services – Water Treatment Plant (WTP)
- Education and Outreach Outlets – ongoing task
- Discharge Removal Capability – Bylaw, Department Public Works (DPW) staff
- Program Budget and Financing – Hours for mapping/GIS, developing Bylaw, education, testing, field work

Step 2: Establish Responsibility, Authority and Tracking

When: Year 1 (Required) May 2010 (Goal)

Start-up Cost: \$10,000 -\$25,000

Annual Cost: <\$10,000

Who: Legal/Engineering

- Stormwater Discharge Bylaw needs to be approved Town Meeting 2010

Step 3: Complete a Desktop Assessment of Illicit Discharge Potential

When: Year 1 (Required) April 2010 (Goal)

Start-up Cost: \$25,000 - \$45,000

Annual Cost: -

Who: GIS/Engineering

- Delineate sub watersheds – Completed on GIS
- Compile Mapping Layers/Data – ongoing with GIS
- Define Discharge Screening Factors
- Screen sub watersheds for Illicit Discharge Potential
- Develop a rapid Outfall Reconnaissance Inventory (ORI)
- Generate Maps for Field Screening

Step 4: Develop Program Goals and Implementation Strategies

When: Year 1

Start-up Cost: <\$10,000

Annual Cost: -

Who: DPW/Engineering

- Develop measurable goals
- Implement strategies

Step 5: Search for Illicit Discharge Programs in the Field

When: Year 2 to 5 (Required) Year 2 (Goal)

Start-up Cost: \$10,000 -\$25,000

Annual Cost: > \$50,000

Who: DPW/Engineering

- (ORI)
- Integrate ORI in tracking system
- Follow-up monitoring at suspect outfalls

Step 6: Isolate and Fix Individual Discharges

When: Year 2 to 5

Start-up Cost: \$10,000 -\$25,000

Annual Cost: > \$50,000

Who: DPW/Engineering

- Implement Pollution Hotline – on website
- Investigations
- Corrections and Enforcements

Step 7: Prevent Illicit Discharge

When: Year 2 to 5

Start-up Cost: \$10,000 -\$25,000

Annual Cost: > \$50,000

Who: Education/All

- Select Key Discharge Behaviors
- Prioritize Outreach Targets (Residential, Commercial, Industrial, Municipal)
- Develop Budget and Delivery System

Step 8: Evaluate the Program

When: Annually

Start-up Cost: -

Annual Cost: > \$10,000

Who: Engineering

- Analyze Tracking System
- Characterize Illicit Discharge Detected
- Update Goals and Strategies

End of Section

Section Two: Step 1 - Audit Existing Resources and Programs

When: Immediately

Start-up Cost: <\$10,000

Annual Cost: -

Who: Planning/Permitting/Engineering

Based on information gathered from meetings with various Departments throughout Town, many of the audit uncertainties were answered. There are eight topics within auditing the existing Town resources including Infrastructure Profile, Existing Legal Authority, Available Mapping Data, Experienced Field Crews, Access to Lab Services, Education and Outreach Outlets, Discharge Removal Capability, and Program Budget and Financing. The following identifies the questions and answers to each of the IDDE Audit topics.

1. Infrastructure Profile

- Number of miles of streams and storm drains exist in the MS4.

Estimated miles in streams: This is an unknown that will not be determined until all drainage is gathered into the Towns GIS program. This task will be added to the IDDE Schedule.

Estimated miles in drains: This is an unknown that will not be determined until all drainage is gathered into the Towns GIS program. This task will be added to the IDDE Schedule.

- The area served by storm drains, sewers, and septic.

Estimated area of town served by storm drains: This is an unknown that will not be determined until all drainage is gathered into the Towns GIS program. This task will be added to the IDDE Schedule.

Estimated area of town served by sewers: 100% of Town with access to sewer, 50% of Town connected to sewer.

Estimated area of Town served by septic systems: 50% of Town on septic.

- The general age and condition of the infrastructure.

The first sewer pipe was installed in 1973 and the final sewer pipe was installed in 2009.

2. Existing Legal Authority

- Establish an illicit discharge ordinance.

The Bylaw for Municipal Stormwater Discharge is going to Spring Town Meeting in 2010.

- Establish effective inter-departmental coordination and cooperation.

The Town has organized a Stormwater Committee that meets on a monthly basis.

- Establish an existing reporting and tracking system.

This is online on the engineering website.

- Municipality involvement with industrial storm water NPDES permit activities or pre-treatment programs.

No, the Town has no knowledge of such programs.

3. Available Mapping Data

- GIS current data including coverage of sanitary and storm sewer networks.

The Town has a complete sewer GIS network. The drainage layer is ongoing and at this time only 20% complete which includes 100% of all catch basins and 10% outfalls located.

- Establish a centralized location for the data.

The Town has a GIS server.

- Readily available digital and hardcopy versions of mapping data.

All hard copy mapping is readily available. Digital versions are limited to the input in the GIS network.

4. Experienced Field Crews

- Availability of municipal staff to walk stream miles and record information.

Yes, on a part time basis.

- Trained and experienced municipal staff to lead a field team.

Yes based on our educational background, however, no formal specific training has been conducted or identified at this time.

- Basic field supplies owned by the municipality and available for use.

GPS unit is readily available. Testing supplies will need to be ordered and will be added to the IDDE Schedule.

5. Access to Lab Services

- Municipality access to an analytical laboratory.

The Town of Tewksbury has a Water Treatment Plant with a laboratory available for testing.

- Willing partnership with a local university or institution.

The Health Department is working with the University of Massachusetts – Lowell to develop a plan. This will need to be added to the IDDE Schedule.

- Existing equipment and instrumentation considered to be safe, accurate and reliable.

To be determined.

- Experienced municipal staff available to conduct analytical analyses.

Yes.

- Capabilities for the lab and staff to conduct more sophisticated special studies.

Yes, depending on the specificity of the special studies.

6. Education and Outreach Outlets

- Provide an Internet website for the community to post outreach materials.

This is located on the engineering website.

- Host regular community events to spread the message.

The Town has utilized opportunities like Town Meetings, public cable channel, website, and newsletters to spread the stormwater message out to the community.

- Good inter-agency communication mechanisms.

Yes, the Town works well with its counterparts.

- Existing outreach materials on illicit discharges.

The Town has strategically placed posters, post cards, book markers through out Town at various locations for the public to observe.

7. Discharge Removal Capability

- Personnel that currently responds to spills, overflows and hazardous material emergencies.

DPW, Health Department, Police and Fire Department.

- Municipal staff properly equipped and trained to repair most common types of illicit Connections.

Yes.

- The municipality has clear authority identifying responsible parties.

The Town is working on it. This will be achieved once the Bylaw for Municipal Stormwater Discharge passes at Spring Town Meeting in 2010.

- A response time commitment to known and reported problems.

Yes, it is outlined in the Bylaw for Municipal Stormwater Discharge.

- A list of pre-approved contractors to perform corrections.

Yes, the Licensed Drain Layer List approved by the Town of Tewksbury.

8. Program Budget and Financing

- A dedicated annual budget line item planned for the IDDE program.

Not currently, the Town will propose this for the next year budget and add it to the IDDE schedule.

- Cost-share arrangements/opportunities available with other departments.

No, but this is something the Town can work on as it moves forward with the program.

- Grant awards awarded in the past to the municipality for special studies associated with watershed restoration.

No, but this is something the Town can work on as it moves forward with the program.

Based on average cost estimates for IDDE Program costs on an annual basis, the Town is looking at a budget of approximately \$120,000 per year. This cost estimate includes staffing time, office and field equipment, lab testing, educational resources, and an approximated five illicit construction correction costs that the DPW will need to fix on an emergency basis. A breakdown of this cost as follows;

End of Section

Section 3: Step 2 - Establish Responsibility, Authority and Tracking

When: Year 1(Required) May 2010 (Goal)

Start-up Cost: \$25,000 - \$45,000

Annual Cost: <\$10,000

Who: Legal/Engineering

1. This step will be accomplished by passing the Stormwater Discharge Bylaw at spring Town Meeting 2010. This Bylaw will establish legal and administrative authority, as well as response and enforcement to illicit discharges in the community.
2. Illicit discharges will be tracked with the Towns GIS data base and responded to accordingly as outlined in the Bylaw.
3. The Town has an Illicit Discharge Notification on our website www.tewksbury.info/dcd/engineering/index.html. It was been established online since 2008. Since this time, the Town has not received any notifications.
4. The Town will work on educating the public of illicit discharge awareness and the hotline location for reporting such activities.

End of Section

Section 4: Step 3 - Complete a Desktop Assessment of Illicit Discharge Potential

When: Year 1(Required) April 2010 (Goal)

Start-up Cost: \$10,000 -\$25,000

Annual Cost: -

Who: GIS/Engineering

This step in the program uses mapping and testing data to determine the potential severity of illicit discharges within a community. It is the main tool to identify which subwatersheds merit priority investigation.

The steps to complete this task are as follows;

1. Subwatersheds are delineated and have been added onto GIS.
2. All available mapping and data for each drainage structure is compiled and added to the GIS.
3. Derive subwatershed discharge screening criteria using GIS analysis. This would be based on density factors, residential, industrial, and commercial site locations.
4. Screen and rank illicit discharge potential at the subwatershed and neighborhood levels. This would help prioritize investigation locations based on past complaints, poor dry weather water quality, age of sewer system, age of failing septic systems, and outfall density.
5. Generate maps to support field investigations.

End of Section

Section 5: Step 4 - Develop Program Goals and Implementation Strategies

When: Year 1

Start-up Cost: <\$10,000

Annual Cost: -

Who: DPW/Engineering

This component in the plan defines the steps and performance milestones to measure progress in the IDDE program.

STEPS WITHIN IDDE PROGRAM	YEAR ONE 2009	YEAR TWO 2010	YEAR THREE 2011	YEAR FOUR 2012	YEAR FIVE 2013	WAS GOAL ACCOMPLISHED? IF NOT, WHY?
1. AUDIT EXISTING RESOURCES AND PROGRAM	Dec-09					YES
2. ESTABLISH RESPONSIBILITY AUTHORITY TRACKING		May-10				
3. COMPLETE A DESKTOP ASSESSMENT OF ILLICIT DISCHARGE POTENTIAL		Apr-10				
4. DEVELOP PROGRAM GOALS AND IMPLEMENTATION STRATEGIES	Dec-09					YES
5. SEARCH FOR ILLICIT DISCHARGE PROGRAMS IN FIELD		MAY TO OCTOBER 2010				
6. ISOLATE AND FIX INDIVIDUAL DISCHARGES		10% REPAIRED	30% REPAIRED	70% REPAIRED	100% REPAIRED	
7. PREVENT ILLICIT DISCHARGES		EDUCATE RESIDENTIAL	EDUCATE COMMERCIAL	EDUCATE INDUSTRIAL	EDUCATE MUNICIPAL	
8. EVALUATE PROGRAM		Dec-10	Dec-11	Dec-12	Dec-13	

End of Section

Section 6: Step 5 - Search for Illicit Discharge Programs in the Field

When: Year 2 to 5 (Required) Year 2 (Goal)

Start-up Cost: \$10,000 - \$25,000

Annual Cost: > \$50,000

Who: DPW/Engineering

The purpose of this task is to locate and map all outfalls, develop an (ORI), and locate illicit discharges.

The Town will collect documentation including data sheets for every outfall located and compile an ORI. Photographs and GPS data will be collected at each location. Water quality sampling will be performed at all "dry weather" flow locations. At least 48 hours of no precipitation is required. All outfalls tested that indicate illicit discharge will follow with an investigation process to have property owners resolve the discharge.

All documentation (ORI forms, photographs, lab results, maps) for this step is located under separate cover.

End of Section

Section 7: Step 6 - Isolate and Fix Individual Discharges

When: Year 2 to 5

Start-up Cost: \$10,000 - \$25,000

Annual Cost: > \$50,000

Who: DPW/Engineering

There are five tools that exist to isolate and fix individual discharges. This includes pollution reporting hotline, drainage area investigations, trunk investigations, on-site discharge investigations and correction/enforcement. The desired outcome from this step will improve water quality, increase homeowner and business awareness about pollution prevention and develop a maintenance system for tracking repairs and identify repeat offenders.

The Town has implemented an illicit discharge hotline on the engineering website. While performing the ORI in the field and water quality testing, all contaminated areas should be located. The next step is identifying the location of the illicit discharge. This will be done by investigating upstream from the problem in a drain network fashion, identifying the problem area, performing dye tests, smoke test, and sand bagging if needed.

Once the source is identified, the Town will need to determine who is responsible, what method should be used for repair, how long will it take to fix such repairs, and confirm removal of the illicit discharge. The financial responsibility and construction will be placed on the property owner. The Town will have to make judgment on either to (i) monitoring the correction, providing assistance with the correction or (ii) have to fix the problem and have the responsible party pay for the costs through enforcement if needed. The Town's goal is to work with the responsible party which is causing the contamination, to correct the problem, and improve everyone's water quality and environment.

End of Section

Section 8: Step 7 - Prevent Illicit Discharge

When: Year 2 to 5

Start-up Cost: \$10,000 - \$25,000

Annual Cost: > \$50,000

Who: Education/All

This portion of the program is to promote education of pollution and enforcement when needed. Three sectors of the community need to be targeted, residential, commercial/industrial, and municipal.

Pollution prevention practices related to discharge prevention in residential neighborhoods include storm drain stenciling, lawn care awareness, septic system maintenance, vehicle fluid changing, car washing, household hazardous waste disposal and swimming pool draining. The Town has covered all these key points for educating the residents over the first five years of the NPDES permit and will continue to emphasize these points to the residents with new educational tools in the future.

Outreach to common business operations need to be undertaken. Topics to be discussed would include vehicle operations and maintenance, fueling, washing, storage, waste management, spill prevention, dumpster management, parking lot maintenance, building repairs, turf and landscaping, golf courses, pools, restaurants, as well as new construction. They will be educated in spill prevention and response plans, employee training and site inspections, as well as all the key components that were described for the residential education and prevention practices.

Municipal operations emphasizes on good housekeeping practices. This would include sewer and storm drain maintenance, plumbing code revision, provision of household hazardous waste and used oil collection services. The Town's staff has been trained twice within the 5 year NPDES permit. New and interacting educating tools will be used for future training purposes to help prevent pollution practices on municipal properties.

All educational training would be done with a combination of training sessions, brochures, posters and newsletters.

End of Section

Section 9: Step 8 - Evaluate the Program

When: Annually

Start-up Cost: -

Annual Cost: > \$10,000

Who: Engineering

The last part of the program is to assess and review progress made in meeting the measurable goals. This would be done by checking the schedule annually and confirm that all tasks have been accomplished. By checking the progress to date, the Town can determine their findings and understand if their scheduled work plan will be reasonably achieved and that all goals and milestones will be met. This will aid in assessment for the budget and staff resources required for this program.

As part of the tracking system, mapping will be updated, costs for the eight step components will be reviewed, number of discharges corrected will be counted, status and dispositions of enforcement actions will be updated. Regular analysis of the tracking system will show the programs strengths, deficiencies, and improve limited program resources.

End of Section