

NPDES PERMIT NUMBER TXS000701

**DALLAS
MUNICIPAL SEPARATE STORM SEWER SYSTEM**

STORM WATER MANAGEMENT PROGRAM

CHAPTER ONE

CITY OF DALLAS

STORM WATER MANAGEMENT PROGRAM

PART 2 PERMIT APPLICATION

City of Dallas

4 PROPOSED MANAGEMENT PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)]

(iv) *Proposed management program.* A proposed management program covers the duration of the permit...The program shall also include a description of staff and equipment available to implement the program. Separate proposed programs may be submitted by each coapplicant. Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. Proposed programs will be considered by the director when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Proposed management programs shall describe priorities for implementing controls.

PART 2 PERMIT APPLICATION

City of Dallas

4.1 PUBLIC PARTICIPATION AND GOVERNMENTAL COORDINATION

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)]

...It shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate.

Program Summary

This Public Information and Governmental Coordination Program is a on going plan designed to call attention to the impacts of storm water runoff in the City of Dallas community. The program's long-term objective is to build public awareness of the issues and involve the public in creative and viable solutions to controlling runoff and maintaining clean water supplies.

Short-term objectives include 1) increasing public awareness of and participation in an illicit discharges reporting and clean-up program; and 2) implementing specific programs to educate the public regarding the responsible use and disposal of toxic materials, used oils, herbicides, pesticides, and fertilizers.

The overall program will emphasize communication with the general public, as well as business and special interest groups. Due to the long-term nature of the effort, it includes particular emphasis on the participation of such basic audiences as school children, families, teachers, and environmental and other civic groups.

A priorities plan for each of the five years of the permit term is divided into action to increase general awareness and develop projects to support the illicit discharge reporting program, as well as the used oil, toxic materials and herbicides/pesticides programs. The plan will be fully implemented over the first three years of the permit. Years 4 and 5 are shown to show the ongoing nature of this program. Each year the prior year will be evaluated to see if changes or adjustments are needed in the program to better convey our message.

This plan acknowledges that public awareness of storm water runoff issues is currently very low, and that the subject is not today considered highly important to the average citizen. Much time will be required to increase awareness of water runoff issues and to motivate community residents to participate.

The plan also acknowledges that resources, in terms of budget and personnel, are limited and must be used wisely and efficiently. The program is designed to build on existing City resources. It calls for the addition of one full-time professional and one assistant to the DWU staff and limited additional equipment for database resources. It suggests that staff serve as storm water experts in the community and as sources of helpful public information. Communication and coordination with other cities and governmental agencies are also encouraged.

Overall efforts of DWU are designed to provide a catalyst for public participation. The program includes initiatives to help involve concerned business leaders, environmental groups, schools and the public at large.

To achieve the program objectives, a series of action steps are proposed, including: audience identification; contact list compilation; benchmark research; media kit production; on-going, pro-active public relations program; community relations and outreach efforts such as a speakers bureau; school programs and pilot projects; development of program information materials such as brochures and public service materials. The five-year effort will include dissemination of specific information about the illicit discharge, pesticides/herbicides/fertilizers, used oil and toxic materials programs.

The initial stages of the program will lay the foundation for the action steps to follow. During this phase, little visible evidence of the program's success is to be expected. Instead, program budgets and personnel will be dedicated to initial research, identification of audiences, compilation of lists and production of basic program materials including comprehensive media kit and basic brochures.

Beginning in the first year of the permit term, a pro-active program will be implemented. This includes media contacts, programs, news releases, public service projects, solicitation of volunteers, and development of pilot programs for schools. Results of these efforts should begin to be visible late in the first year, with the bulk of the efforts coming to fruition during the second year and afterwards.

The plan emphasizes targeted programs that build over time. Informational materials will be created according to an annual schedule, and community groups will be asked to help with distribution. The plan treats advertising and public service dollars as seed money, encouraging additional funding and in-kind services from state agencies, businesses and community groups. At all levels, the plan encourages the active participation of media, volunteers, business leaders and the public schools.

At the culmination of the five-year permit, it is envisioned that the media, business segments, and audiences targeted should be aware of the general problem of storm water runoff. There should be noticeable changes in attitude regarding this problem and program results should be measurable.

Governmental Coordination

City Facilities:

The McCommas Bluff Landfill, under the Department of Streets and Sanitation Services, Office of Sanitation Operations, has been part of a group permitting effort under the auspices of the Texas Municipal League. The NPDES Storm Water discharge permit ultimately will be held by the Department of Street and Sanitation Services as an individual permit as an industrial discharge.

The Central and Southside Wastewater Treatment Plants, and the

Elm Fork, Bachman and East Side Water Treatment Plants, under the Dallas Water Utilities, Office of Water and Wastewater Operations, have also been part of a group permitting effort under the auspices of the Texas Municipal League. The NPDES storm water discharge permits ultimately will be held by the Dallas Water Utilities as individual permits as industrial storm water discharges.

The City of Dallas airports, Love Field and Redbird Airport, under the Department of Aviation, have been part of a group permitting effort by airports in the Dallas-Ft. Worth Metroplex. However, the group effort was recently abandoned and a Notice of Intent (NOI) to file under the general permit option has been made by each airport. The NPDES permit ultimately will be held by the Department of Aviation as industrial storm water discharges.

The Storm Water Utility will monitor these individual industrial storm water discharge permits as it will other industrial storm water discharges within the City of Dallas.

Non-City Facilities

Several other entities are contained within the "general boundaries" of the City of Dallas for which coordination will be needed.

Most of the Dallas Naval Air Station is located within the City of Dallas. The Dallas Naval Air Station drains into Mountain Creek Lake which lies wholly within the City of Dallas. The Naval Air Station, as a Federal facility, is responsible for obtaining its own storm water discharge permit(s). The City of Dallas will depend on Region 6, U.S. EPA, for ensuring that the Naval Air Station fulfills its responsibilities in this regard. Because of the sensitive nature of munitions storage and other issues of "national security", the City of Dallas must depend on the U.S. EPA to provide suitable mechanisms to monitor the Naval Air Station and to require compliance. The City of Dallas does provide water quality monitoring, on a regular basis, upstream and downstream from the Naval Air Station.

The Cities of Cockrell Hill, Highland Park, and University Park are contained within the "general boundaries" of the City of

Dallas, meaning that the City of Dallas totally engulfs these jurisdictions. None of these cities currently has a population large enough to require municipal storm water permitting (MS4s). However, drainage from all of these cities drains through the City of Dallas. Therefore, the City of Dallas maintains monitoring stations immediately downstream from these cities by which to assess the quality of storm water from these cities and the overall quality of the streams. Most of the drainage from Cockrell Hill flows through Coombs Creek. Part of the drainage from Highland Park flows through Cedar Springs Branch. Most of the flow from University Park and Highland Park flows through Turtle Creek into the City of Dallas. The City of Dallas, through the Health and Human Services Department, maintains sampling stations along these streams downstream from these cities for assessing water quality and overall stream health. Percent stream assessments have shown these streams to rank from "fair" to "poor" in terms of overall environmental quality. The City of Dallas, through the Storm Water Utility, will continue stream assessments and will share with these cities information made available to City of Dallas residents on source control measures and house-holder good housekeeping methods. The City of University Park also has a solid waste transfer station the drainage of which flows into the City of Dallas. Coordination with officials of these cities will be maintained between the Dallas Storm Water Utility and operating departments of the cities, as needed. Coordination of efforts also may occur through the NCTCOG on issues of regional commonality.

Area wide transportation agencies also operate within the City of Dallas corporate limits. These agencies currently are not co-permittees with the City of Dallas. These agencies are each responsible for storm water discharge permits for their operations. These agencies include the Texas Department of Transportation (TxDOT), the Dallas Area Rapid Transit Authority (DART), and the Texas Turnpike Authority (TTA). These entities are required to obtain storm water discharge permits for their industrially related activities. The Dallas Storm Water Utility will track these permits as it would other permits within the City of Dallas relating to storm water discharge from other industrial activity. Specific areas of cooperation and coordination are cited in proposed management programs for "Public Transportation Right-of-Way Operation and Management" and

"Pesticide and Fertilizer Management".

Many other entities within the City own large campus-type facilities that drain to the City's municipal separate storm sewer system. Coordination will also be needed between the City and these entities in their efforts to comply with the regulations.

Adjoining Jurisdictions

Adjoining jurisdictions have storm water draining through stream channels through the City of Dallas. These jurisdictions include the Cities or Communities of: Addison, Balch Springs, Buckingham, Carrollton, Cedar Hill, Coppell, DeSoto, Farmers Branch, Garland, Grand Prairie, Hutchins, Irving, Lancaster, Mesquite, Plano, and Richardson. Most of these entities contribute significant storm water runoff to the City of Dallas. The City of Dallas has a modest amount of drainage area contributing drainage to the Cities of Carrollton and Farmer's Branch, and very minor areas contributing to a few of the other entities. The cities of Irving, Plano and Mesquite are due to submit storm water discharge permit applications to EPA as medium-sized municipalities, and may be included within the next tier of municipalities for which permitting regulations may be established. The City of Dallas has a monitoring program to monitor water quality and to assess stream environmental health for principal tributary streams crossing the City of Dallas corporate boundaries. In this way, problems can be indicated and communication with the appropriate jurisdictional officials can be initiated as appropriate.

Jurisdictions, such as City of Carrollton and the City of Mesquite, have solid waste operations covered under the "Landfill Management" program of the City of Dallas. The City of Dallas also has operations which may effect abutting jurisdictions. These have been singled out and addressed in the appropriate management program. The City of Dallas, Storm Water Utility, will track the development of the municipal storm water permit applications submitted by abutting cities required to submit such to the U.S. EPA, and will examine management programs for areas of potential commonality and cooperation. Contact with all abutting jurisdictions will be maintained through NCTCOG, as appropriate, for issues of common concern.

Implementation Plan

For purposes of this program, the following quantites are represented by these items within the implementation plan:

- Bill inserts mailings goes to 265,000 households annually.
- Newsletter is published quarterly and will go to approximately 1,000 entities.
- Media Kit will be distributed to about 20 media outlets.
- School Pilot program will target 3 schools per year.
- Speakers Bureau will address at least 5 groups (schools, civic, industry, etc.) per year.

Year 1 Develop a program to increase general public awareness to be implemented during Year 1. Include the following elements.

General Public Awareness

1. Identify target audiences and build database.
2. Create lists of media and community contacts (groups and individuals).
3. Select firm to do research; complete benchmark surveys for public and industry.
4. Hold background briefings for City officials, department heads and staff.
5. Produce media kit and hold initial media briefing.
6. Begin production of general information brochure and plan contents.
7. Set up education committee to plan first school pilot programs and identify schools to be targeted for first projects.
8. Inventory existing slides, photographs and other graphic materials.
9. Initiate planning for community general information slide

program.

10. Begin PR program, distributing information via water bill inserts, newsletters, news media and public access channels regarding used oil, yard waste, HHW, etc.
11. Hold public input meetings; begin to identify citizen volunteers for Speakers Bureau and committees.
12. Gather information and program ideas from other communities for resource files.
13. Identify resources from EPA and TWC, to use as appropriate.
14. Set up business/industry task force and hold initial meetings to discuss illicit discharge, used oil disposal, herbicides/pesticides/fertilizer programs and others.
15. During the Fall, kick off first school pilot programs and publicize.
16. Select a firm to create logo and campaign theme development.
17. During the final quarter of Year 1, re-evaluate plans for Year 2, and refine as needed.

Illicit Discharges Program

1. Complete fact sheet and tips sheet to be included in media kit.
2. Set up citizen committee to plan pilot program focusing on river and stream areas and involve community volunteer groups.
3. Distribute initial information via water bill insert, media briefing and newsletters.
4. Identify helpful information that can be included in the content of the community general information slide program and other materials.
5. Brief staff and City officials on plans for illicit discharge pilot program.
6. Set up citizen response program and hotline.

Used Oil/Toxic Materials and Herbicides/Pesticides Program

1. Complete fact sheets and tip sheets for each subject to be included in media kit.
2. Identify representatives to be part of business task force to give input on program ideas.
3. Distribute initial information via media briefing and newsletters.
4. Begin to build lists of trade groups and companies with vested interest in each subject.

5. Begin to identify possible corporate sponsors who might underwrite and/or sponsor programs.
6. Identify information (tips, etc.) on the disposal of used oil and household hazardous waste materials and the proper use of herbicides and pesticides that can be included in the slide program and in print materials.
7. Identify neighborhood groups, businesses and others that might want to participate in pilot projects or help distribute information.

Year 2 Develop a program to increase general public awareness to be implemented during Year 2. Include the following elements.

General Public Awareness

1. Complete focus group interviews for general public and industry groups.
2. Begin advanced bookings for programs to start in Spring.
3. Complete production of general information brochure, distribute and publicize.
4. Produce general information slide program for Speakers Bureau presentations.
5. Convert slide program to video; adapt for industry groups, as needed.
6. Preview program for staff and City officials.
7. Hold update media briefing to show slide presentation, review program progress.
8. Begin series of community briefings for leaders and decision makers, using slide program.
9. Kick off Speakers Bureau program schedule for civic groups and trade groups.
10. Continue PR program, publicize community slide program, pilot projects, etc.
11. Produce logo/theme for public service campaign and begin planning for future collateral materials (brochures, other public service materials, etc.).
12. Continue briefings for staff, officials, others, as needed.
13. Produce first public service materials, featuring illicit discharge program.
14. Initiate industry training programs, as feasible.
15. Evaluate school programs from Year 1, continue and expand

them.

16. Initiate planning for community exhibit on water runoff and water quality.
17. Evaluate plans for year 3 and update, as needed.

Illicit Discharges Program

1. Kick off illicit discharge pilot program.
2. Publicize via news conference, ongoing PR through newsletters, cable, etc.
3. Initiate public service campaign.
4. In Fall, give update on program via media.
5. Contact groups to get involved, through Speakers Bureau programs, direct contacts.
6. Identify construction related groups to target for information materials and distribute brochures to them.
7. Explore sponsorships for continuing project.
8. Seek editorial support from newspapers.

Used Oil/Toxic Materials and Herbicides/Pesticides Program

1. Begin planning for information brochure series.
2. Complete business/industry target lists for distribution of information and distribute brochures to them.
3. Produce household hazardous waste disposal print information, in cooperation with CEED or other groups.
4. Distribute public service materials via newsletters, media and newspapers.
5. Sponsor project with volunteers in shopping mall or other high visibility locations.
6. Use cable access for demonstration programming.
7. Target groups for information and programs.
8. Explore and plan school pilot project on herbicides/pesticides to launch in Fall.
9. Kick off program and publicize via school publications, general media.
10. Produce general information brochure for small businesses.

Year 3 Develop a program to increase general public awareness to be implemented during Year 3. Include the following elements.

General Public Awareness

1. Continue recruiting Speakers Bureau volunteers and giving programs, updating database as needed.
2. Utilize cable access channel to continue programming on the water quality control topics and features on community volunteer programs.
3. Update mailing lists of community leaders, civic groups and business organizations.
4. Explore opportunity for new school pilot program to link into the family and home environment.
5. Continue plans for community exhibit and work with citizen volunteers to explore opportunities for sponsorships or grant funding.
6. Plan, produce and distribute annual public service campaigns on herbicides/pesticides and the disposal of used oil.
7. Plan and implement public information programs to support public service campaigns.
8. Continue PR program, publicizing key programs and events throughout the year; give periodic progress reports on ongoing programs such as illicit discharge project, etc.
9. Continue staff briefings, training programs and update for public officials, as needed.
10. Update photo files and media kit, as needed; add fact sheets on new programs.
11. In Fall, launch new school pilot program with news conference with children, parents, school, volunteers and DWU representatives.
12. Publicize through school publications, news media and newsletters.
13. In Fall, evaluate priorities for Year 4 and adjust as needed.

Illicit Discharges Program

1. Continue program from Year 2, broadening the base of support.
2. Look for new story angles to publicize through news media.
3. Continue to recruit new volunteers and new organizations to get involved.
4. Approach bicycle clubs and other environmental groups to plan related programs.
5. Hold "how to" workshop for interested groups and individuals.

Used Oil/Toxic Materials and Herbicides/Pesticides Program

1. In Spring, launch public service program focusing on herbicides/pesticides.
2. In Fall, launch public service program focusing on the disposal of used oil.
3. Explore pilot program through public school system for custodial staff; plan training workshop and launch in Fall.
4. Begin planning for small business workshops for Year 4 for automotive businesses and lawn and garden businesses.
5. Produce print materials on herbicides/pesticides and the disposal of used oil, with versions for business owners/operators, as well as for consumers at point of purchase.
6. Hold workshops for business owners/operators to brief on public service campaigns and offer tips on using and distributing information to customers.
7. Enlist the help of business committee volunteers to help distribute public service materials and promote programs to various business groups.
8. Continue Speakers Bureau program targeted to business groups.

Year 4 Develop a program to increase general public awareness to be implemented during Year 4. Include the following elements.

General Public Awareness

1. Update and reprint general information brochure, as needed.
2. Plan and implement annual public service campaigns, focusing on the disposal of used paints and new campaign on illicit discharges; launch in Spring and Fall.
3. Plan support activities for public service campaigns and publicize via newsletters, media and other outfits.
4. Explore new school pilot project focusing on the disposal of paint and involving both students and parents; launch in Fall and publicize.
5. Work with area newspaper and radio stations to plan and implement public service campaign focusing on lawn and garden environmental tips.
6. Distribute environmental tips information to area newsletter editors.

7. Plan new series of programs for cable access channel, focusing on public service campaign topics and ongoing community and school projects.
8. Update media kit materials, as needed.
9. Continue plans for community exhibit, with objective of launching in Year 5.
10. Begin advance planning to publicize the exhibit and involve citizens, groups and schools.
11. Continue briefings, training programs for staff, as needed.
12. Continue updates for City officials; recap first three years, showing progress, growth of overall community program from Year 1.
13. Continue ongoing PR program, utilizing newsletters and new media.
14. Hold update briefing for news media, giving status report on program from Year 1; distribute updated media kit/portfolio.
15. Meet with newspaper editorial staff, also to update on progress of overall program.
16. In final quarter, evaluate priorities for Year 5 and adjust as needed.

Illicit Discharges Program

1. Enlist new ideas from volunteers on enhancing and broadening the program.
2. Recruit volunteers to help publicize public service program and distribute materials.
3. Explore additional opportunities for contests, incentives for citizens to get involved.
4. Recognize volunteer achievements through community events or other forums.
5. Brief volunteers on community exhibit planned for Year 5 and enlist support.

Used Oil/Toxic Materials and Herbicides/Pesticides Program

1. In Fall launch new public service campaign on the disposal of paints.
2. Launch school project on same subject and tie in publicity efforts.
3. Involve businesses in support activities, publicity efforts.
4. Seek opportunities for shared sponsorships from paint

- companies, trade groups, etc.
5. Plan and implement workshops/training programs for janitorial and custodial services related businesses.
 6. Continue Speakers Bureau programs for business and trade groups.
 7. Develop traveling general information exhibit, using photos and on -case studies from projects developed during first four years of the program.
 8. Display exhibit initially at city Hall or other public space.
 9. Publicize availability of exhibit for outside bookings; utilize volunteers to assist in finding appropriate locations to display exhibit.

Year 5 Develop a program to increase general public awareness to be implemented during Year 5. Include the following elements.

General Public Awareness

1. Produce new community slide program for Speakers Bureau bookings, updating content with visuals and examples from ongoing community programs. Stress the involvement of local citizens and partnerships between community groups, individual volunteers, schools, businesses and the City.
2. Launch new program with special showing for City officials, staff, volunteer leaders and media representatives.
3. Continue Speakers Bureau bookings, recontracting previous groups for updated programs.
4. Conduct new research surveys of general public and businesses to check progress, measure awareness and gather updated information for future priorities.
5. Update and approve general information brochure for small businesses, using examples and photos from community projects.
6. Distribute brochure to business contacts and publicize via newsletters and media.
7. Continue PR program, giving updates as needed.
8. In Spring or Fall, launch community exhibit on water quality.
9. Maximize opportunities to publicize and involve volunteers and school children.

10. Plan and implement new public service campaign for Year 5; allocate some portion of this to publicize exhibit and feature various environmental tips.
11. Continue staff briefings, updates for City officials, as needed; once survey is completed, give five year progress report and recommendations for continuing program.

Illicit Discharges Program

1. Feature illicit discharge program in five-year progress report; involve volunteers and recognize achievements.
2. Evaluate school programs and assess for effectiveness; continue as appropriate and plan additional pilot projects, as needed.
3. Involve schools in planning and producing cable access program to showcase student projects and achievements over five-year program.
4. Publicize recap of student projects through school information channels, PTAs and other outlets; involve parents and teachers.

Used Oil/Toxic Materials and Herbicides/Pesticides Program

1. Feature programs in five-year progress report; recognize achievements of business volunteers who have made major contributions to the program or who have been innovative in developing programs.
2. Publicize programs, progress report and achievements through newsletters, community programs and news media.
3. Work with area newspaper or other media to plan and produce special feature section on volunteer achievements.
4. Continue workshops and training programs for businesses in cooperation with businesses and professional groups or individual businesses.

TASK SCHEDULE

Figure 1

4.2 MAINTENANCE ACTIVITIES AND SCHEDULE

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(1)]

(A) A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:

(1) A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers;

Program Summary

The objective of the storm water Maintenance Activities and Schedule Program is to further reduce pollutants that remain in the storm water after the runoff has flowed off-site from its point of origin and has entered the municipal storm water conveyance system. Key program components include modifying existing operation and maintenance practices, instituting new inspection practices, developing a sediment and debris removal protocol, and generating a maintenance schedule to accomplish these tasks and to manage the maintenance program. The responsibility for maintenance resides with the owner of the facility.

Pollutants in storm water may be present in the dissolved or particulate state. Suspended particles less than a few micrometers in size are important carriers of contaminants in storm water. These suspended solids increase turbidity and carry

nutrients, bacteria, heavy metals and toxic organic compounds adsorbed onto their surface while competing with the aquatic biota for dissolved oxygen. Since the smallest size fraction of the suspended particles may contain the majority of the sediment-bound pollutants, conditions which promote small particle settling will have the greatest effect in removing storm water contaminants. Dissolved contaminants may be assimilated by wetland plants and aquatic life provided that a very long and extended contact period, such as found in a marshy area or a wet pond with a permanent pool elevation, is maintained.

Maintenance activities are important to storm water contaminant removal strategies because if sediment is left to accumulate in a storm sewer, inlet, sump area or detention pond, re-suspension of the sediments may occur and the storm water conveyance system becomes a pollutant source. The design of storm water conveyance or storage facilities should build-in good maintenance access to all parts of the facility. This access allows for functional optimization of the system, providing that routine maintenance is scheduled and performed.

The NPDES storm water permit program requires municipalities to develop a *Comprehensive Master Plan* to control the discharge of pollutants in storm water runoff from new developments and areas of significant redevelopment. Present in this master plan are recommendations to improve the quality of urban runoff including the construction and use of water quality control basins. Water quality control basins trap and filter pollutants out of storm water either prior to discharge of the surface runoff to the municipal storm drainage system or prior to flowing into municipal detention ponds. Another task of the *Maintenance Activity and Schedule Program* is to develop guidelines for the operation and maintenance of public water quality control structures that may be constructed during the second five-year term of the City of Dallas NPDES storm water permit.

Implementation Plan

Task 1 Add watershed information to databases, verify accuracy of databases, and reorganize district boundaries. This item is

related to Task 1 of the Comprehensive Master Plan.

Subtask 1 Add an additional database field in the inventory list of channels and flood management areas maintained by the Street and Sanitation Services Department to the database and include the watershed name for each entry listed. Verify the accuracy of the channel database information.
(Year 1)

Subtask 2 Develop a reproducible mylar map detailing City maintained creeks and channels.
(Year 1)

Subtask 3 Reprogram mainframe City computer to add the watershed location to all complaints that are reported. This addition will allow the manipulation of complaint data by watershed.
(Years 1-2)

Subtask 4 Re-delineate the geographic district boundaries to include complete watersheds within the new maintenance district boundaries. Develop a reproducible mylar map showing the new district boundaries. Use same base map as subtask 2.
(Year 2)

Task 2 Develop planning and management strategies for optimizing the maintenance of storm water structural controls.

Subtask 1 Complete the revisions and submit the Drainage Design Manual (1990) to the Dallas City Council for adoption, so the Manual's requirements can be enforced by engineering plan review personnel.
(Years 1-2)

Subtask 2 Develop maintenance specifications for all large storm water quantity and quality projects that are submitted for engineering plan review and are to be maintained by City of Dallas personnel. Specifications to consider include an equipment

access plan, maintainability of proposed design,
and functional maintenance sequence.
(Year 2)

Subtask 3 Review and make comments on operation and
maintenance plans submitted for engineering plan
review.
(Years 3-5)

Subtask 4 Resume the vegetation control program with a
private contractor. The vegetation control
program prevents erosion and reestablishes
bermuda-type grasses along specific creeks and
channels.
(Years 3-5)

Task 3 Expand the existing inventory and inspection program into a
full scale operation. Use a 15 year frequency schedule for
inventorying, inspecting, and mapping the whole underground
storm sewer system.

Subtask 1 Initiate the planning process. Develop a data
reporting format between the Street and
Sanitation Services Department, Storm Water
Operations Division and DWU Department, Storm
Water Management Division to input the stored
data logger information and the inventory and
inspection information into the ARC-INFO
database. This format could include the
placement of DWU's employees with the Street and
Sanitation Services Department inspection and
inventory group to facilitate the transfer of
information.
(Year 3)

Subtask 2 Implement a data acquisition process to print
maps for the Street and Sanitation Services
Department using the updated storm sewer
information.
(Year 4)

Subtask 3 Expand existing inventory and inspection program. With an additional CCTV system, an additional 78 miles of storm sewer system could be inventoried, inspected and mapped annually.

Equipment

- One (1) CCTV camera with equipped truck
 - Six (6) data loggers, programmed with ARC-INFO software (These data loggers can also be used to inventory culverts, outfalls, inlets, manholes and other appurtenances of the open stream drainage system).
 - One (1) debris truck
 - One (1) VAC-ALL truck
 - One (1) drag bucket sewer cleaner
- (Years 3-5)

Task 4 Develop a storm water pollutant minimization plan for all district service yards.

Subtask 1 Rehabilitate the three existing VAC-ALL dump pads and construct one new concrete dump pad at the four district service yards to prevent the decanted liquid from gaining entrance into the storm sewer system, roadside ditch drainage system or infiltrating into the ground.

(Years 3-4)

Subtask 2 Develop written procedures for the process of drying out the waste material on these concrete dump pads located at the service yards.

(Year 3)

Subtask 3 Develop a documentation format to record the amount of material removed and set up reporting procedures to the City department that will be responsible for pollutant load analyses.

(Year 4)

Task 5 Develop a sump area inspection schedule and sampling procedure and determine the effectiveness of increasing the

frequency of sump area maintenance activities.

Subtask 1 Schedule monthly inspections. Develop an inspection report form that lists criteria for evaluating need for maintenance.

(Year 3)

Subtask 2 Develop a documentation format to record the amount of material removed from each sump area and record it, and set up reporting procedures to the City department that will be responsible for pollutant load analyses.

(Year 3)

Subtask 3 Develop and write composite sediment and storm water sample collection procedures for the sump areas.

(Year 3)

Subtask 4 Develop and write procedures for disposal process based on whether the sediment sample's Toxicity Characteristic Leaching Procedure (TCLP) testing results indicate contamination or a lack of contamination.

(Years 3-4)

Subtask 5 Test sediment for TCLP parameters. Test storm water samples for conventional pollutants. Document results.

(Years 4-5)

Subtask 6 Evaluate the effectiveness of increasing the frequency of sump area maintenance activities. Evaluating factors will include sediment test results and annual sedimentation rates.

(Year 5)

Task 6 Develop an inspection schedule for inlets in each of the five geographic districts.

Subtask 1 Continue to dedicate personnel to clean inlets in

each of the five geographic districts.
(Years 2-5)

Subtask 2 Develop inspection criteria report form and an inspection scheaule for Districts 1, 2, 3 and 4 and the Central Business District (CBD).
(Years 3-4)

Subtask 3 Develop a documentation format to record the amount of material removed and set up reporting procedures to the City department that will be responsible for pollutant load analysis.
(Year 4)

Subtask 4 Set up inlet sediment sampling program and sampling procedure. The waste material from inlets is usually removed by VAC-ALL trucks and placed onto the concrete dump pads at the district yards. Related to inlet retrofit program contained in Task 3 of the *Best Management Practices for Fully Developed Areas* document.
(Year 4)

Subtask 5 Test material for conventional pollutants.
(Year 5)

Task 7 Develop an inspection schedule and sampling procedures and determine the effectiveness of increasing the frequency of detention/retention pond and flood management area maintenance activities.

Subtask 1 Develop an annual inspection schedule. Develop an inspection report form that lists criteria for evaluating maintenance needs.
(Year 4)

Subtask 2 Develop a documentation format to record the amount of material removed and set up reporting procedures to the City department that will be responsible for pollutant load analyses.

(Year 4)

Subtask 3 Develop and write composite sediment and storm water sample collection procedures for detention/retention ponds and flood management areas.

(Year 4)

Subtask 4 Test sediment material and storm water samples for conventional pollutants prior to removal.

(Year 5)

Subtask 5 Evaluate the effectiveness of increasing the frequency of detention/retention pond area maintenance activities. Evaluating factors will include sediment test results and annual sedimentation rates.

(Year 5)

Task 8 Develop storm water quality control basin maintenance specifications. This item is related to Task 5, subtask 6 of the *New Development and Redevelopment Management Program*.
(Year 5)

TASK SCHEDULE **Maintenance Activities and Schedule**

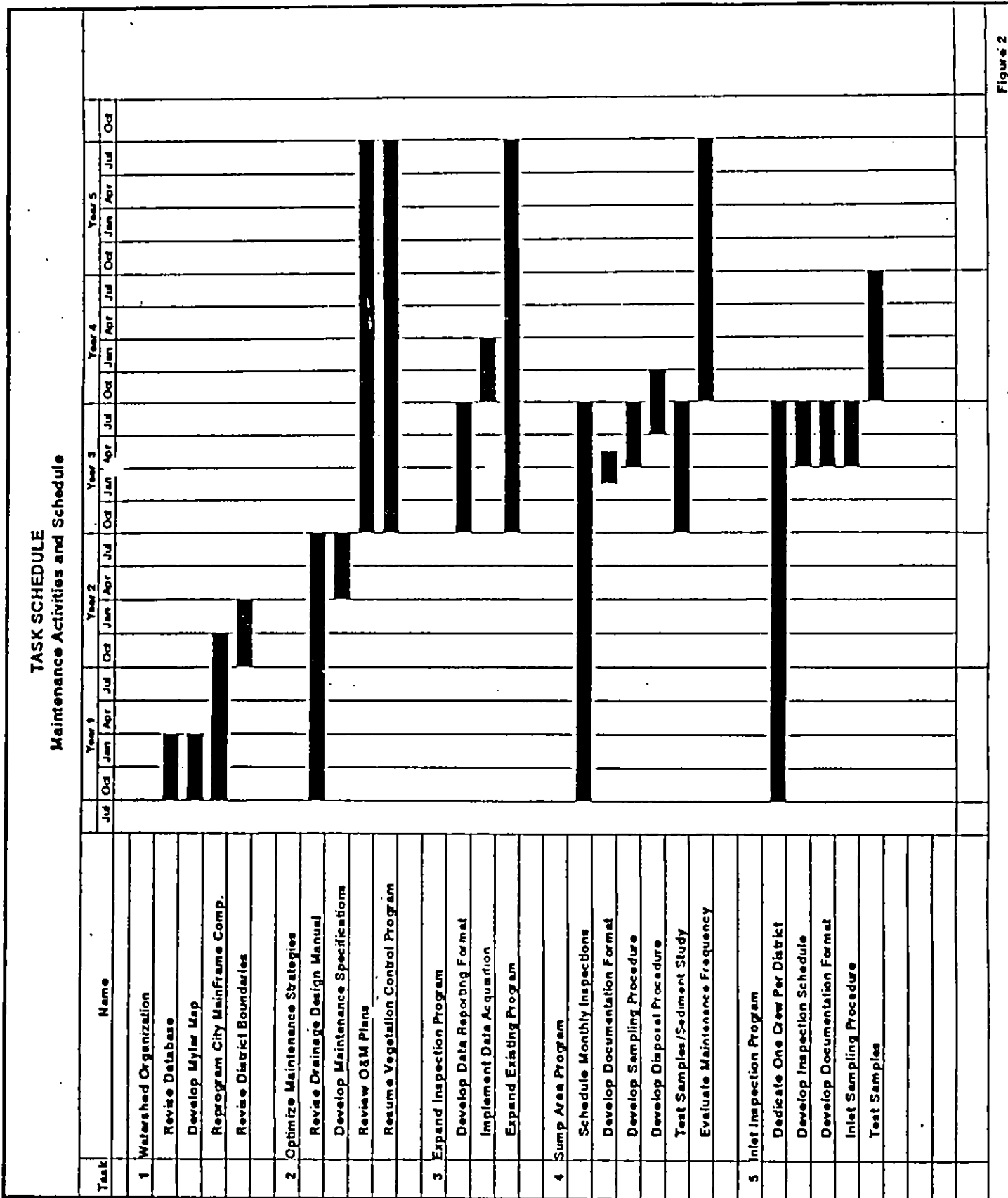


Figure 2

TASK SCHEDULE

[illegible]

4.3 NEW DEVELOPMENT AND REDEVELOPMENT MANAGEMENT PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(2)]

(2) A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment.

Program Summary

Representatives of the City of Dallas accompanied members of the Carter and Burgess consultant team to four cities with successful storm water management programs to review their planning and engineering procedures. Using the information obtained from Dallas and other cities and a literature review of various storm water quality processes, a list of procedural tasks for developing and redeveloping areas has been generated and presented in a sequential order of action. Using this ranking system, a comprehensive master plan of planning procedures and control techniques to be implemented during the five year permit term is presented.

Long term effectiveness and performance of surface water quality structural controls should be the goal of the Comprehensive Storm Water Master Plan. Municipal procedures governing development should be generated to ensure that effective pollutant and sediment removal strategies are considered during the planning phase before construction begins; temporary erosion control measures are implemented during the construction phase; and permanent structures are in place and functioning after construction and throughout the life of the development.

A review of the existing storm water programs, policies and procedures of the City of Dallas was conducted. The review provided information concerning the development potential of Dallas and the status of surface water quality enhancement requirements as vested in the City's legal authority. The review also provided an overview of the planning, engineering design, and platting process required for developing private property or constructing improvements in the public right-of-way. Requirements governing drainage infrastructure design, floodway and flood plain protection, and specific ordinance protection of special geologic features were also examined.

Implementation Plan

Task 1 Develop Best Management Practices (BMP) manual for residential and commercial land uses for use during development/redevelopment of those land uses.

Task 2 Identify each watershed's boundary and categorize each watershed according to urban or suburban conditions. Rank the watersheds in descending order according to potential for development or significant redevelopment. Identify which watersheds in each category contribute storm water runoff to the water supply of Dallas or other communities located in close proximity to Dallas.
(Year 1)

Task 3 Create an interdepartmental review committee to examine the existing organizational structure and to develop policy recommendations regarding the development and implementation of storm water quality controls requirements for new developments and significant redevelopment.

Subtask 1 Review the existing platting process and review existing requirements for development.
(Year 2)

Subtask 2 Assess the possibility of coordinating the detention requirements for new development and significant redevelopment with the storm water quality control requirements and make

recommendations.

(Year 2)

Subtask 3 Assess adding requirements to the site drainage design process to include the pre-construction and post-construction conditions regarding erosion potential, estimated sediment loads, rate of erosion, pollutant loads for the more frequent storm discussed in Task 2, Subtask 4, and the 100-year storm frequency event, and an erosion control and sedimentation plan.
(Year 2)

Subtask 4 Review requirements for submittal of drainage design and detention calculations including volume of runoff and peak rate of runoff for pre-construction and post-construction conditions. Assess adding requirements to include the volume and peak rate of runoff for a more frequent storm, such as the 1-year or the 2-year storm frequency storm, as a means to mitigate erosion problems.
(Years 2-3)

Subtask 5 Assess the engineering plan review process, including checklists and routing procedures by staff, to determine how to integrate the proposed storm water quality requirements with the engineering design and construction process for public infrastructure and private development/redevelopment.
(Years 2-3)

Subtask 6 Review the need for inspection of private development construction and assess the enforcement tools needed for effective regulation of the construction and maintenance of permanent surface water quality control structures.
(Years 2-3)

Subtask 7 Assess the need for proof of financial security to cover the cost of installing and maintaining all surface water quality control structures.
(Years 2-3)

Subtask 8 Evaluate recommendations and make policy decisions.
(Year 3)

Subtask 9 Incorporate policy decisions into a policy manual to be used by developers and their engineers.
(Years 3-4)

Task 4 Review the technical aspects of the City of Dallas legal authority

Subtask 1 Review the City of Dallas (COD) code for discharges to the storm drainage system. Contemplate changes to the code that are analogous to the wastewater pretreatment requirements contained in Section 49-42 and outlined earlier in this document and analogous to the code governing discharges to storm sewer and watercourses. Make recommendations.
(Year 1)

Subtask 2 Coordinate with the Texas Natural Resource Conservation Commission (TNRCC) to be sure that potential water quality impacts are adequately considered at the time state NPDES permits are issued to discharges which require the use of the municipal storm water conveyance system to convey the discharge to the waters of the U.S. Require that monitoring of all pertinent constituents be included as a permit stipulation.
(Year 2)

Subtask 3 Evaluate recommendations and make decisions.
(Year 2)

TASK SCHEDULE

Figure 3

4.4 BEST MANAGEMENT PRACTICES FOR FULLY-DEVELOPED AREAS

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(2)]

...Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed. (Controls to reduce pollutants in discharges from municipal separate storm sewers containing construction site runoff are addressed in paragraph (d)(2)(iv)(D) of this section;

Program Summary

This program addresses Best Management Practices (BMPs) for Fully Developed Areas which might not otherwise be considered in subsequent portions of the management program. Three tasks are proposed for implementation over the five-year life of the initial NPDES permit.

The first task proposed involves conducting a review of standard operating procedures at all municipal facilities. This review will be conducted by existing staff and will be focused on removing any remaining sources of pollutant loadings at municipal facilities. Alteration of current operating procedures at municipal facilities is one method of reducing the levels of certain pollutants in storm water discharges. The Transit Division of the Municipality of Metropolitan Seattle (Metro) implemented this type of BMP at their vehicle maintenance facilities during 1988 and 1989. Detergents were investigated to determine which would perform adequately while protecting the environment and workers. Information from these studies was used in developing purchasing contracts for detergents to be used in the bus washing facilities and for the lot washing program at all Metro Transit Bases. Although the detergents were evaluated for potential impacts on receiving waters in the event of a spill or by-pass, the wash waters from each operation are typically directed to the sanitary sewer system. All wash water from

vehicle washing stations, if not currently being discharged to the sanitary sewer, will be redirected to a sanitary sewer inlet. Storm water from areas outside the wash areas will be diverted. No wash water will be allowed to discharge to storm sewers or natural water bodies.

Another way to reduce the introduction of contaminants to storm water at vehicle maintenance areas is to eliminate exposure to storm water. All fueling islands at the municipal maintenance facilities will be, if not already, covered with an awning, canopy or partial enclosure to prevent storm water from washing spilled fuels into the storm drain. The addition of concrete curbs to prevent runoff of storm water will be investigated and added in areas deemed appropriate. Absorbent materials (such as absorbent pads or kitty litter) should also be readily available at the fuel islands to absorb larger (any amount which creates a puddle) quantities of spilled fuel. Used absorbent materials could be disposed of with other contaminated fuels or waste automotive fluids.

The second task in the BMPs for Fully Developed Areas program involves retrofitting storm water inlets with a sedimentation tray to provide better collection of sediments and easier access for cleaning the inlets. The pilot program currently being conducted by the City of Austin will be evaluated for applicability to the City of Dallas. Following the evaluation, a pilot program for retrofitting fifty storm water inlets in the CBD will be developed, implemented and evaluated for applicability to the remainder of the City of Dallas.

The third task involves creating a storm drain inlet stencilling program to aid in preventing illegal dumping to the storm water conveyance system. This program would entail applying a selected "Storm Water Quality" logo (possibly decided by an open contest) and anti-dumping message to the exterior of the inlet with eye-catching paint. The purpose of stencilling is to remind citizens not to dump materials into the storm sewer conveyance system. Storm drain inlet stencilling programs implemented by other municipalities will be evaluated and a pilot program developed to install a test area of storm drain inlet stencils. The pilot program will be assessed for effectiveness, and a decision will be made concerning continuation of the stencilling program.

Citizen volunteers will be recruited to assist with the monumental task of initially labelling the storm drain inlets not contained in the pilot program. Following the initial stencilling, the stencils could be inspected and repainted as necessary during an annual inspection program.

Implementation Plan

Task 1 Review standard operating procedures at municipal facilities. Address any remaining sources of pollutant loadings at the municipal facilities. The studied sources will primarily be housekeeping activities. These items are fairly easy and economic to implement with existing staff performing the majority, if not all, of the work. Evaluated activities for potential reduction in pollutant loadings include:

- 1) changing detergents used for vehicle washing (of particular interest would be detergents used for washing rapid transit equipment);
 - 2) directing all wash water from any vehicle washing stations to the sanitary sewer rather than to the storm sewer;
 - 3) installing awnings and/or curbing at all fuel island locations; and
 - 4) maintaining stocks of absorbent materials within accessible locations at municipal operations facilities which use or store hazardous materials.
- (Year 1)

Task 2 Retrofit storm drain facilities. Address the feasibility, development and implementation of a program to install sedimentation trays on storm water inlets in the CBD. It has been assumed that sedimentation trays similar to the retrofit equipment developed by the City of Austin, Texas would be used.

Subtask 1 Assess feasibility of retrofitting storm drain inlets. Review information from City of Austin regarding installation of sedimentation trays in storm drain inlets. In particular, review cost-to-benefit ratios developed by the City of Austin regarding water quality benefits achieved versus the costs of installation and maintenance of the retrofitted structures.

(Year 2)

Subtask 2 Develop pilot program for installation of sedimentation trays. If determined to be cost-effective, develop pilot program for installation of sedimentation trays in the CBD. Develop plan for phased installation of additional retrofits in the CBD over the remaining five-year period of the permit, following evaluation.

(Year 3)

Subtask 3 Implement and evaluate pilot program for installation of sedimentation trays. Install retrofit equipment according to pilot program. Evaluate results based on frequency of cleaning required, amount of material collected, reduction in quantity of suspended material in runoff and any other pertinent parameters determined from review of other case studies.

(Year 4)

Task 3 Stencil storm drain inlets. Address the feasibility, development and implementation of a program to stencil or label storm drain inlets to discourage indiscriminant dumping of waste and/or toxic materials into the municipal storm sewer system.

Subtask 1 Assess feasibility of stencilling storm drain inlets. Gather and review information from other municipalities which have instituted stencilling programs (Santa Clara County, California; Bellevue and Seattle, Washington, among others). In particular, assess information regarding water

quality improvement versus cost to implement program.

(Year 3)

Subtask 2 Develop stencil and pilot program for installation. If determined feasible, coordinate with Public Information/Participation to determine appropriate language for signs and storm drain stencils, evaluate alternate designs, and standardize single design or group of designs for use throughout City. Consider use of both English and Spanish on all signs. Develop pamphlet detailing proper installation and use of stencil for distribution to employees and/or volunteers who will be responsible for installing the stencils. Decide what areas to target (i.e. areas of known dumping, residential areas, etc.) Establish plan for pilot program and for stencilling all storm drain inlets over five year period.

(Year 4)

Subtask 3 Implement and evaluate pilot program for stencilling. Using community volunteers, where available, or storm drain maintenance crews, install stencils using durable, non-toxic, quick-drying, highly visible paint. Assess water quality impacts of stencilling program by reviewing: 1) increases in amount of waste oil and recyclable materials collected, and 2) decreases in amounts of material collected during storm drain inlet maintenance. Make recommendations for improvements and/or continuation of program.

(Year 5)

Subtask 4 Implement maintenance program for stencils on storm drain inlets. Inspect stencils during routine maintenance/cleaning of storm drain inlets. Inspection personnel should have materials on truck to repair/relabel inlet during inspection to avoid having to make second trip to

location.
(Year 5)

TASK SCHEDULE **Best Management Practices for Fully Developed Areas**

Task Name	Year 1				Year 2				Year 3				Year 4				Year 5			
	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
1 Review of Standard Operating Procedures at Municipal Facilities																				
2 Retrofit of Storm Drain Facilities:																				
Assess Feasibility																				
Develop Pilot Program																				
Implement and Evaluate Program																				
3 Stencilling of Storm Drain Inlets																				
Assess Feasibility																				
Develop Pilot Program																				
Implement and Evaluate Program																				
Implement Maintenance Program																				
COST PER YEAR																				
TOTAL COST																				

**4.5 PUBLIC TRANSPORTATION RIGHT-OF-WAY
OPERATIONS AND MAINTENANCE**

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(3)]

(3) A description of practices for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities;

Program Summary

Roadways, highways and tollways can be a significant source of pollutants to storm water runoff discharges. The objective of the *Public Transportation Right-of-Way Operations and Maintenance* program is to mitigate the quality degradation of area channels, creeks and the Trinity River from public right-of-way maintenance activities. Key program components include reviewing existing operation and maintenance practices, developing new maintenance specifications and procedures, inspection and maintenance of earthen channels, creeks, and roadside drainageways, and forging new agreements with the other entities operating within the Dallas corporate limits.

Public transportation entities operating within the Dallas corporate limits include the TxDOT, the DART, and the TTA. Much of the runoff originating from other entity facilities is transported by the Dallas storm water conveyance system to the receiving waterbody. Dallas is responsible for all urban runoff that discharges from outfalls located within the City of Dallas corporate limits. Proper operation and maintenance of public roadways and drainage ditches are necessary to reduce the pollutant impacts on receiving streams, creeks or rivers.

A four part strategy is recommended for implementation of this maintenance program. The first consideration is to initiate a review of existing operation and maintenance practices and determination of which may have an adverse impact on storm water quality. The second strategic component is to develop written maintenance specifications which incorporate safeguards to protect the quality of storm water runoff. These maintenance specifications should be generic in nature and applicable to other public transportation entities doing maintenance activities within the Dallas corporate limits. The primary intent of developing City of Dallas maintenance specifications emphasizing water quality is to designate their use by other public transportation entities that do construction improvements and maintenance activities within the corporate limits of Dallas. The third strategic component concerns the inspection and maintenance of earthen channels: creeks and roadside drainageways. Currently, there is no planned inspection, cleaning or desilting program in place for City maintained earthen channels or roadside ditches. The fourth strategy is to develop or renegotiate agreements with other public transportation entities operating in the Dallas corporate limits. These agreements should acknowledge that maintenance practices and traffic loadings can contribute significant amounts of pollutants to urban runoff and that compliance with uniform maintenance specifications will be necessary to mitigate the degradation of receiving waterways.

A detailed review of the operation and maintenance procedures governing right-of-way located within the Dallas corporate limits was conducted. Using information provided from Dallas and TxDOT, a list of procedural tasks for right-of-way maintenance activities has been generated and presented in a sequential order of action. The intent of the action plan is to mitigate the additional water quality degradation of area creeks and the Trinity River originating from public transportation right-of-way maintenance activities.

Implementation Plan

Task 1 Request and receive an inventory list of drainage system connections into the City of Dallas storm water conveyance

system from other entities doing maintenance activities within the City of Dallas corporate limits.

Subtask 1 Request, receive and verify an inventory list from the TxDOT of all TxDOT drainage system tie-ins into the City of Dallas storm water conveyance system. Request and receive copies of existing water quality data characterizing runoff from TxDOT highways or storage facilities located within the Dallas corporate limits.
(Years 1-3)

Subtask 2 Request, receive and verify an inventory list from the TTA of all TTA drainage system tie-ins into the City of Dallas storm water conveyance system. Request and receive copies of existing water quality data characterizing runoff from TTA roadways or storage facilities located within the Dallas corporate limits.
(Year 1)

Subtask 3 Request, receive and verify an inventory list from the DART of all DART drainage system tie-ins into the City of Dallas storm water conveyance system. Request and receive copies of existing water quality data characterizing runoff from DART right-of-way or storage facilities located within the Dallas corporate limits.
(Year 2)

Task 2 Review the City of Dallas right-of-way maintenance procedures listed below and evaluate each activity's potential to adversely impact the quality of storm water runoff. Develop safeguards. Write uniform maintenance specifications that describe the maintenance activity and proper method of sediment or debris disposal, unsuitable weather conditions which would preclude the activity, and safeguards to be used during the maintenance activity to protect the quality of any storm water runoff generated from the site.
(Years 2-4)

Task 3 Develop maintenance specification for pesticide, insecticide, and herbicide use in public right-of-way maintenance activities. Implement Program.

Subtask 1 Develop criteria for the selection of pesticides, insecticides and herbicides. Develop specifications governing the application and usage of pesticides, insecticides and herbicides in public right-of-way. Specify the minimum distance that a pesticide, insecticide, or herbicide is permitted to be applied from a physical feature or sensitive area. Develop criteria for the definition of sensitive areas. Implement Program.
(Year 2)

Subtask 2 Devise a record keeping system on pesticide use and coordinate activities with the Integrated Pest Management committee as discussed under Task 1 of the *Pesticides, Herbicides and Fertilizers*.
(Year 2)

Task 4 Develop erosion protection requirements for right-of-way maintenance activity.

Subtask 1 Develop and implement erosion protection maintenance specification for all swale or ditch regrading or slope stabilization work in public right-of-way. Specify the type of seed or grasses allowed, suitable weather conditions which allow for placement, and the preferred season of application.
(Years 2-3)

Subtask 2 Develop and implement erosion protection planning requirements for all maintenance activity in public right-of-way that disturbs vegetation.
(Years 2-3)

Subtask 3 Assess the creation of a vegetation management program governing the open stream drainage system.

(Year 3)

Task 5 City of Dallas (COD) Legal Department review of private ownership and private maintenance of creeks and channels. Make recommendations for changes in ordinances.
(Years 2-3)

Task 6 Analyze and evaluate the existing street sweeping program for the Trinity River Industrial corridor and the major prime network roadways. Evaluate whether other public entities operating in the Dallas right-of-way should evaluate their street sweeping practices.
(Years 4-5)

Task 7 Develop specification and disposal methodology regarding the use of traction grit particles and deicing chemicals.

Subtask 1 Develop maintenance specification governing the selection and use of traction grit particles and deicing chemicals used for emergency deicing operations.
(Year 4)

Subtask 2 Develop proper clean-up and disposal methodology for used traction grit.
(Year 4)

Task 8 Request an inventory list from TxDOT, TTA and DART of all disposal sites, including all known inactive sites, where each entity disposes of drainage system sediments and highway sweeping debris from each entities' maintained facilities. Record disposal procedures. Verify inventory list and determine if present disposal techniques are

allowable under the Dallas NPDES storm water permit requirements.

(Years 4-5)

Task 9 Develop and implement an inspection schedule for publicly maintained earthen channels and creeks.

Subtask 1 Develop an inspection report form that lists criteria for evaluating maintenance needs.

(Year 4)

Subtask 2 Develop a documentation format to record the amount of material removed and set up reporting procedures to the City department that will be responsible for pollutant load analyses.

(Years 4-5)

Subtask 3 Develop and implement an annual inspection schedule for Districts 1, 2, 3, 4 and the CBD.

(Year 5)

Task 10 Develop and implement an inspection schedule for publicly maintained roadside ditches and roadway culverts.

Subtask 1 Develop an inspection report form that lists criteria for evaluating maintenance needs.

(Year 5)

Subtask 2 Develop a documentation format to record the amount of material removed and set up reporting procedures to the City department that will be responsible for pollutant load analyses.

(Year 5)

Subtask 3 Develop and implement an annual inspection schedule for Districts 1, 2, 3, 4 and the CBD.

(Year 5)

Task 11 Negotiate maintenance agreement with TTA. Elements of the

agreement include:

- delineation of drainage and maintenance responsibilities;
- adoption of uniform maintenance and disposal specifications;
- hazardous material spill response, cleanup and disposal responsibilities and procedures;
- financial reimbursement for cost of hazardous material spill response;
- storm water quality control criteria and monitoring requirements, penalties for non-compliance;
- development of a communication protocol and penalties between TTA and the City of Dallas to resolve maintenance activity problems that result in adverse storm water runoff quality.

(Year 5)

Task 12 Negotiate maintenance agreement with DART. Elements of the agreement include:

- delineation of drainage and maintenance responsibilities;
- adoption of uniform maintenance and disposal specifications;
- hazardous material spill response, cleanup and disposal responsibilities and procedures;
- financial reimbursement for cost of hazardous material spill response;
- storm water quality control criteria and monitoring requirements; and
- development of a communication protocol and penalties between DART and the City of Dallas to resolve maintenance activity problems that result in adverse storm water runoff quality.

(Year 5)

Task 13 Evaluate the development of an open stream master plan. Proposed components of the plan include:

- identification of the direction of the ditch or stream flow;
- the location of its discharge point into a receiving

- waterway or the City storm sewer system;
- drainage subareas contributing to earthen and concrete channels; and
- the condition of the grass lined surface; and
- recommended maintenance for each segment.

This plan will assist maintenance personnel in determining the downstream direction for regrading ditches and instituting erosion protection.

(Year 5)

Task 14 Develop maintenance specification requiring that erosion and sedimentation control BMPs be incorporated in all new construction or any roadway improvement activities performed by public transportation entities operating within the Dallas City limits.

(Year 5)

TASK SCHEDULE

Task	Name	Year 1			Year 2			Year 3			Year 4			Year 5			Total Cost
		Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct		
1	Connection Inventory from Other Entities																
	TxDOT List																
	TTA List																
	DART List																
2	Review Procedures/Write Specifications																
3	Pesticide Maintenance Specifications																
	Develop Maintenance Specs.																
	Develop System of Recording																
4	Erosion Control Maintenance Requirements																
	Ditch Regrading/Slope Stability																
	Planning Requirements																
	Vegetation Management Program																
5	Private Ownership of Creeks & Channels																
6	Street Sweeping Study																
7	Deicing Specification																
	Grit Specification																
	Cleanup and Disposal Method																
8	Inventory of Disposal Sites																
9	Inspection Program for Creeks & Channels																
	Develop Report Form																
	Develop Documentation Format																
	Develop Inspection Schedule																

Figure 5

TASK SCHEDULE

Figure 5

PART 2 PERMIT APPLICATION

City of Dallas

4.6 PROCEDURES FOR EXISTING FLOOD MANAGEMENT PROJECTS

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(4)]

(4) A description of procedures to assure that flood management projects assess receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.

Program Summary

This section of the proposed management program for the City of Dallas' Part 2 NPDES Permit application addresses how Dallas will evaluate its existing flood management projects to determine which retrofits are practicable to reduce pollutants in storm water runoff. [See 40 CFR, Part 122.26 (d)(2)(iv)(A)(4).] Existing projects that were evaluated include detention/retention ponds, lakes, sump areas and pumping stations, and the Trinity River levee system and floodplain.

DETENTION/RETENTION PONDS

The City of Dallas currently maintains eleven detention and retention ponds. Most ponds are designed solely to prevent flooding by delaying storm water runoff. However, a reduction in pollutant concentration also occurs due to settling during the period in which the runoff is detained. If storm runoff is detained for 24 hours or more, as much as 90% removal of particulate pollutants is possible. The best way to improve water quality in existing ponds then is to increase the holding or detention time. It is recommended that the City of Dallas revise its Drainage Design Manual to include design guidelines that prolong detention periods. Pilot retrofitting projects to increase

detention time are recommended for Whispering Oaks Detention Pond and Lone Star Park Retention Pond. A review of the pilot projects and an evaluation of the remaining ponds is also recommended.

LAKES

Three of Dallas' existing lakes were evaluated for retrofits. These included White Rock Lake, Bachman Lake, and Lake Cliff. Suggestions include the installation of litter booms to remove floating debris and improve lake aesthetics, the construction of forebays to collect heavy silt deposits, and dredging to restore full detention volumes. A study of Lake Cliff's vegetation and its impact on pollutant uptake is recommended as well as a study of its outlet and hydrology. Development of a plan to dredge Bachman Lake at the upstream end and construct a forebay is also recommended.

SUMP AREAS AND PUMPING STATIONS

The City of Dallas currently operates six pumping stations and sump areas as a part of the Trinity River levee system. Runoff collected in the sumps flows by gravity through sluices into the Trinity River channel until the river elevation reaches a certain depth at which time the gates close and the pumps begin operating. Two studies to evaluate retrofits to enhance water quality in this area are recommended. One study will incorporate the use of a Supervisory Controlled Automatic Data Acquisition System (SCADA) to maximize sump detention time, without creating a flood hazard, to help remove pollutants through settling. Another study will address how to fund the installation of special automated trash racks that remove floating debris. One additional recommendation is to construct concrete lined areas near each pump site to facilitate the removal of deposited silt.

LEVEE FLOODPLAIN AREA AND CREEKS

The City of Dallas has approximately 2,500 acres of floodplain within its levees. One retrofitting

recommendation is to study how the floodplain may be utilized to benefit water quality. For instance, runoff from small storms could be diverted to a designated marsh area within the floodplain rather than directly into the Trinity River. A marsh environment can remove pollutants through filtering, plant uptake, settling, and biodegrading. Another retrofitting recommendation is to review an existing development plan entitled Trinity Park Master Plan to ensure water quality measures are included. Existing streams were also evaluated. Dallas has nearly 200 miles of streams and creeks. One retrofitting recommendation is to add small check dams at various intervals to enhance the removal of pollutants through settling and velocity reduction. A study of existing check dams along the Peacock Branch of Five Mile Creek is recommended.

Following is an implementation section that provides detail on the cost, scheduling, and scope of each recommendation. A specific task number for each recommendation is also assigned. A cost summary table and a schedule are also included.

Implementation Plan

This section presents the retrofit recommendations described above in more detail as individual tasks and includes preliminary costs and scheduling for each.

DETENTION/RETENTION PONDS

- Task 1** Review and revise Section 3.4, *Detention Design*, of the City's Drainage Design Manual.
 (Year 1)
- Task 2** Retrofit Whispering Oaks Detention Pond.
 (Year 3)
- Task 3** Retrofit Lone Star Park Retention Pond.
 (Year 4)
- Task 4** Review existing retrofits and remaining ponds.

(Year 5)

LAKES

- Task 1** Study the surrounding vegetation of Lake Cliff.
(Year 2)
- Task 2** Install litter booms at inlet and outlet of Bachman Lake.
Evaluate based on volume of debris removed.
(Years 3-5)
- Task 3** Study Lake Cliff's outlet structure and hydrology.
(Year 4)
- Task 4** Study dredging Bachman Lake near the upstream end and
constructing a forebay.
(Year 5)

SUMP AREAS AND PUMPING STATIONS

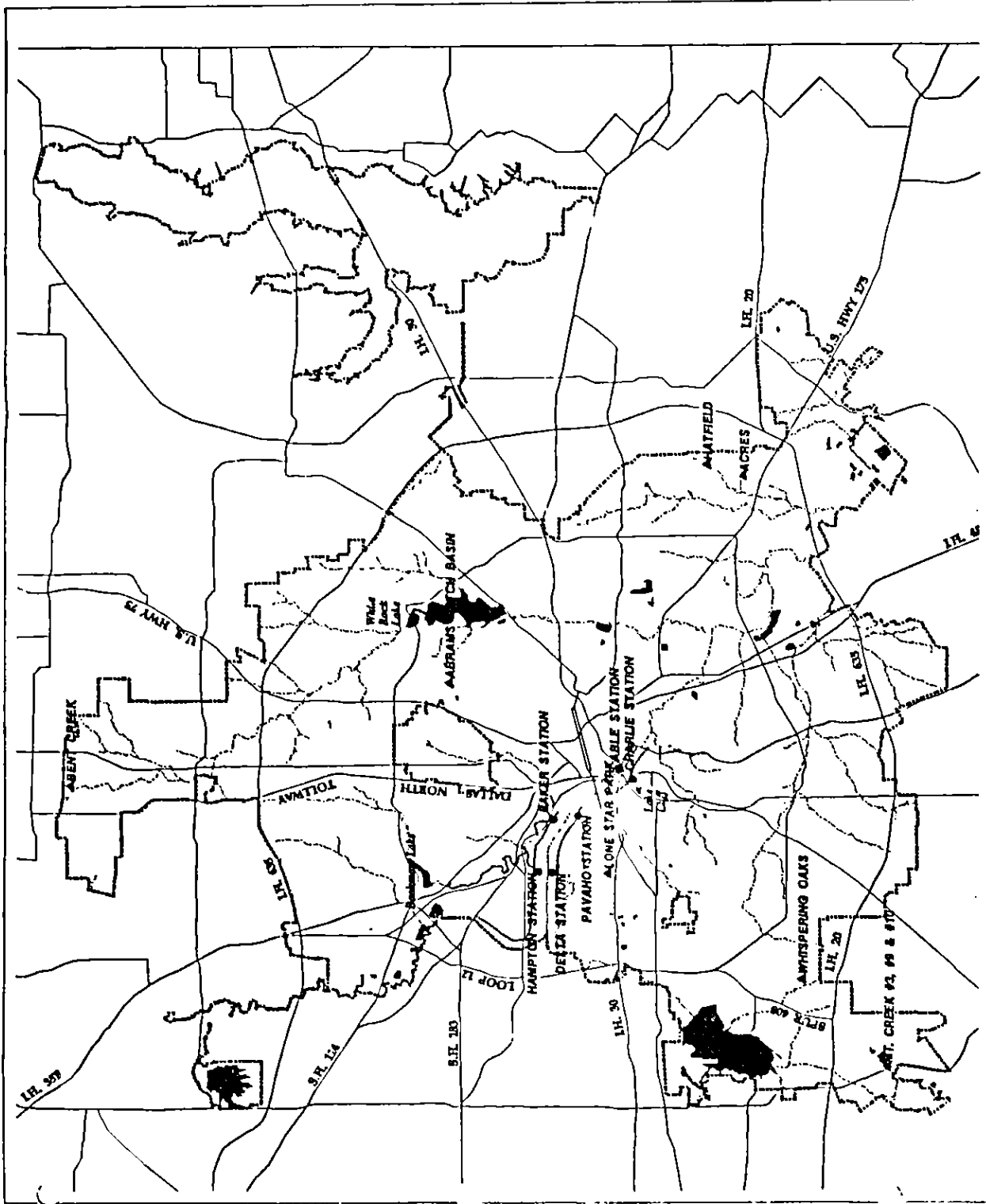
- Task 1** Use SCADA in conjunction with a detailed study of operating
procedures to develop maximum detention times for each sump
under varying conditions.
(Years 4-5)
- Task 2** Begin planning to include the purchase of additional
automated trash racks and the construction of concrete
desilting areas during the next NPDES permit period.
(Year 5)

LEVEE FLOODPLAIN AREA AND CREEKS

- Task 1** Review Trinity Park master plan for water quality impacts.
(Year 4)

- Task 2** Conduct a study of redirecting low flows from pump stations to marsh areas. Construct small berms to delineate marsh areas and redirect pump outflow to marsh areas.
(Year 5)
- Task 3** Study water quality impact of check dams on Peacock Branch.
(Year 4)

CITY OF DALLAS 1992 EXISTING FLOOD CONTROL STRUCTURE LOCATIONS



LEGEND

- ▣ Retention & Detention Basins
- ⊗ Levee Pump Stations
- ▤ City Boundary
- Roads
- Waterways
- ▨ Existing Water Bodies

NOT TO SCALE

This Map Is Part Of
The NPDES Part 2 Stormwater
Permit Application Submitted To
The U.S. Environmental Protection
Agency By And For The
City Of Dallas, Texas

Prepared For:



City of Dallas

Prepared By:



Carter & Burgess, Inc.
Graphics by GIS Division

TASK SCHEDULE

[illegible]

FIGURE 7

4.7 LANDFILL PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(5)]

(5) A description of a program to monitor pollutants in runoff from operating or closed municipal land fills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges (this program can be coordinated with the program developed under paragraph (d)(2)(iv)(C) of this section); and...

Program Summary

This section of the Proposed Management Plan addresses a program to monitor and control pollutants from open and closed municipal landfills or other treatment, storage or disposal facilities for municipal waste. This program is part of a larger management program that addresses hazardous waste treatment, disposal and recovery facilities and industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the City of Dallas determines are contributing substantial pollutant loading to the municipal storm sewer system. Also associated with the "landfill" management program are corollary programs for used oil and for household hazardous waste management. These programs are outlined more completely elsewhere in this permit application. The City of Dallas already has in place, and to a high level of sophistication, most of the elements of this proposed management plan as it relates to landfills and solid wastes. Other programs have been initiated, at least to the pilot program stage. Other activities to complete the management programs are outlined in this document. This document summarizes programs in place and programs begun for landfill management, and describes the remaining program elements

needed to complete the management functions in this area. The planning and management functions are found primarily in the Department of Street and Sanitation Services and in DWU. The present functional arrangement appears to be workable and efficient, and present overall organizational arrangements should continue. With few exceptions, the City has a program in place that should satisfy much of the intent of the storm water regulations. With respect to municipally oriented programs and practices related to landfill operations and solid waste management, the City has much more than the rudiments of an effective storm water management program in place. The most significant area for expanded management efforts relate to practices of individuals, businesses and industries at large which, in the past, have not fallen under the active scrutiny of City officials.

The focus of this storm water management program is to control runoff from landfills and to eliminate pollutants to the waters of the United States. The City of Dallas Department of Street and Sanitation Services, through its Sanitation Operations, is in charge of the City's landfill operations. The present operation centers around solid waste collection operations which deliver solid waste to the City's McCommas Bluff Landfill. (This landfill and its appurtenant operations are subject ultimately to a requirement for an individual storm water discharge permit. The City of Dallas has joined with other cities in Texas, under the auspices of the Texas Municipal League, to address these current landfill operations under a group permitting procedure, which is in progress. This permitting activity is not included within this management plan component, at this time, until the full terms of the individual permit arising from the group permitting activity are known. At that time, those active landfill operations requirements will be subsumed within the overall landfill management plan.) The McCommas Bluff Landfill is permitted as a Type I landfill to receive municipal solid waste, and is actively under the supervision of both the TWC, Municipal Solid Waste Division, and the U.S. EPA, Region VI. The McCommas Bluff Landfill is a modern landfill operating in general compliance with permit conditions as imposed primarily by the TWC, Municipal Solid Waste Division, (formerly State of Texas Department of Health, Bureau of Solid Waste Management through March, 1992, when functions were transferred to the TWC), and the

U.S. EPA. (Note that the TWC is to be renamed the Texas Natural Resources Conservation Commission effective September 1993.)

Most of the solid waste comes to the landfill by way of transfer from three transfer stations spaced geographically in the northeastern, northwestern and southwestern sectors of the city. The McCommas Bluff Landfill is located within the southeastern sector of the City. The transfer stations and their operations are currently maintained under virtually spotless conditions. City pride in these operations sets a positive tone for its citizens. Given the volume of activity that occurs and the dynamic nature of the operations, the landfill itself is maintained with reasonable care.

Recent legislation by the Texas Legislature has required the City of Dallas, through its Sanitation Operations, to address used tire shredding and recycling and other recycling issues. Other than the recycling of used oil, recycling in general is not addressed in either the Preamble or in the Storm Water Regulations. However, a useful expertise is being developed within Sanitation Operations in developing contacts for recycling various materials and in developing contracts with commercial concerns for marketing, or otherwise disposing, these materials to parties elsewhere in the state or country. Although recycling markets are volatile (unreliable), the City's commitment to encouraging recycling also is helping its citizenry to develop more of an environmental awareness. The McCommas Bluff Landfill and the Northwest Transfer Station (Bachman) may play a prominent role in the City of Dallas' recycling efforts and in its Household Hazardous Waste (HHW) programs. The latter is detailed within the toxic materials management program given elsewhere. The City already has recycling operations (including used oil) under way at the Northwest Transfer Station as well as at the McCommas Bluff Landfill and at convenient locations throughout the City.

Sludges generated by municipal water and wastewater treatment operations are managed and appropriately disposed of in sludge lagoons and monofills operated by DWU (City of Dallas). These operations either have NPDES permitted discharges or are zero discharge operations. Long range plans are for all operations to be zero discharge as funding permits. Future water treatment and

wastewater treatment sludge management operations should continue to be directed and controlled by DWU.

The City has in the past operated 25 landfill sites on private properties. These sites have all been closed and returned to their owners, except for one. These former landfills all have been closed for more than five years each, with the earliest closure in the late 1930's and the most recent in 1983. These sites were operated in compliance with standards then existent. Current and recently promulgated standards are more stringent.

In addition to City of Dallas facilities, a large landfill is operated within the corporate limits by the City of Mesquite. The City of Carrollton also has a municipal landfill, the drainage from which may flow along the Elm Fork Branch of the Trinity River adjacent to boundaries of the City of Dallas. Other waste management operations are operated by commercial concerns. Most notable among these are: Brown and Ferris Industries; Waste Management, Inc.; and proposed operations by others. Several landfills are located within Dallas County near the City of Dallas boundaries, but not within its confines. Several waste transfer stations operated by other municipalities are located near the City of Dallas boundaries.

Numerous construction debris dumps appear within the confines of the City; parties responsible have not yet been identified. In addition, there is widespread promiscuous and clandestine dumping of waste that should go to the landfill by residents of both the City and the County of Dallas. Enforcement activities are aimed at apprehending dumpers, and ordinances provide for fines and further remedies when dumpers are apprehended. The practices of industries within the City of Dallas for storage or disposal of various waste materials on their own sites are not well known. At locations where hazardous materials are used and stored, information concerning materials that could be encountered is available to the City in a database maintained by the Dallas Fire Department for use by the Hazardous Material (HazMat) response team in the event of an hazardous spill incident. Storage and material usage practices by local industries and businesses will be the subject of City scrutiny under its industrial activities management program (detailed elsewhere), in conjunction with U.S. EPA, during the term of the NPDES storm water discharge permit.

This examination of practices will be conducted so that existing ordinances or other regulations can be effectively enforced and additional ordinances can be drawn up and enacted as needed.

Cognizance and management of landfills in Dallas should continue to fall under the Sanitation Operations office of the Department of Street and Sanitation Services. Besides managing the McCommas Bluff Landfill, satellite transfer stations, and also related material recycling operations presently under way, the Sanitation Operations Office should continue to monitor developments at the former landfill sites, maintain active cognizance of the larger permitted landfill operations within the City of Dallas boundaries, and assure cognizance of other landfill operations presently permitted or those that should be permitted. The Sanitation Operations Office needs to be prepared to provide guidance to these operations to assure compliance with both solid waste disposal requirements and minimization of pollutant runoff from these operations by way of storm water runoff. Based on its expertise, the Sanitation Operations Office needs to devise and initiate the appropriate steps to eliminate unpermitted and/or promiscuous dumping.

Implementation Plan

Significant activity related to recycling, transfer station and landfilling operations is presently budgeted as part of current operations, or has been anticipated because of changes to landfill regulations, etc.; prompted by revisions to RCRA; and started because of Texas Legislature actions. Most of the additional activities outlined in this section can begin immediately, and several may be phased in at a relatively low effort level over the term of the permit.

- Task 1** Prevent polluted runoff at existing McCommas Bluff Landfill and transfer stations. This task involves assuring that runoff leaving the sites of present operations does not come into contact with pollutants, and that possible problems that may develop are caught by a routine monitoring and inspection program.

Subtask 1 Examine and inspect site grading at the McCommas Bluff Landfill and transfer stations to assure that all storm water is diverted away from operations where pollutants are present or, in the case of the landfill, that contaminated storm water is ponded on the site for more than 24 hours (for a ten-year storm). Grading should be checked at least annually, and after any significant construction or other change in operations. (Note that any remedial regrading deemed necessary as a result of the inspections must be determined and performed on an "ad hoc" basis.
(Years 1-5)

Subtask 2 Inspect and maintain vegetative cover at the landfill to minimize erosional problems from storm water.
(Years 1-5)

Subtask 3 Implement instream semi-annual water quality and biotic monitoring program for Five Mile Creek above and below McCommas Bluff Landfill.
(Years 1-5)

Task 2 Review and remediate storm water runoff problems from up to 60 sites of movable "igloos" used to collect recyclable material throughout the City of Dallas, and inspect and correct for any storm water problems associated with recycling efforts at "Dry Gulch Junction" at the Northwest Transfer Station (Bachman).
(Years 1-5)

Task 3 Maintain knowledge and awareness of sludge operations to assure that storm water coming into contact with sludge is treated properly. At present, sludge operations are a closed loop with the supernatant being recycled to the head of the plant. This task also involves staff time required to stay knowledgeable concerning current liner requirements, and the like, associated with sludge land-filling

operations. It also includes assuring that the operations do not violate storm water regulations because of temporary fixes or modifications to operations.

(Years 1-5)

Task 4 Protect the public from problems which may arise from storm water flows from the sites of landfills previously operated by the City of Dallas. (Most of these sites have passed from City control back to the hands of their owners. Several sites have been converted to other uses.)

Subtask 1 Distribute and circulate maps showing former landfills and suitable warnings to all departments associated with development or construction to exercise all due care concerning disturbance of these sites.

(Year 1)

Subtask 2 Revise and update the Street and Sanitation Services document on the former landfills based on current conditions and knowledge, and distribute the same to the departments identified above, and to the general public, as requested.

(Year 1)

Subtask 3 Recover archived landfill files, older topographic maps of the sites (possibly archived maps of the U.S. Geological Survey through its National Cartographic Information Center, Reston, Va.), aerial photographs of the sites, and interviews with former employees having knowledge of the sites and operations. This effort is necessary to provide background and documentation concerning the likelihood of problems with these sites that may develop.

(Year 1)

Subtask 4 Examine sites and current topography to identify storm water discharge points, photograph and document current site conditions, and assess the apparent extent of site problems and potential

for contaminated storm water. This task element will form the basis for defining remedial or enforcement actions that may be deemed necessary, or for defining additional studies needed.

(Year 1)

Subtask 5 Initiate instream semi-annual water quality and biotic monitoring above and below eleven former landfills adjacent to streams.

(Years 2-5)

Task 5 Monitor other permitted landfills operating within or adjacent to the boundaries of the City of Dallas (e.g., Cities of Carrollton and Mesquite, etc.). A sense of City Council resolution or an ordinance may be needed to allow officials of the Street and Sanitation Services Department to effectively exercise oversight. Alternatively, oversight might be exercised by negotiation between jurisdictions. Components of both mechanisms might also be adopted.

(Years 1-5)

Task 6 Address the problem of promiscuous dumps and illegal dumps occurring at random throughout the City of Dallas. A nucleus of staff and inspectors within the Street and Sanitation Services Department presently address this problem. However, the problem appears to exceed the capacity of present staff and equipment to get ahead of the problem. Promiscuous dumps are an obvious source of contamination to storm water. The extent and level of contamination is unknown and indeterminate at this time. Toxic materials may be involved. Therefore, a special expertise in handling such materials is warranted.

Subtask 1 Identify illegal debris dumps and refer to the TWC. This may require assignment of part-time personnel.

(Years 1-5)

Subtask 2 Develop a special promiscuous dump identification and disposal team. Inspectors and crew members are to be trained in identification, handling and

disposal of hazardous materials with requisite periodic recertification. Costs include a full-time inspector, a field supervisor and two laborers and clerical support, a dump truck and loader with specialized material and equipment for hazardous material handling, clerical support, and cross-training of police and other City inspectors in identifying and discouraging potential dumping incidents or in investigating such incidents to find perpetrators. Major start up costs are anticipated in the second year of the program. Existing equipment, modified for and dedicated to the use of the team may defray or postpone incursion of these costs.

(Year 1)

Use existing staff and equipment as possible, while attempting to better assess the extent of the problem.

(Year 2)

Hire or assign inspector and team staff, provide HazMat training, acquire equipment and cross-train other City inspectors and police.

(Years 3-5)

[illegible]

31,300

4.8 PESTICIDES, HERBICIDES AND FERTILIZERS PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(A)(6)]

(6) A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.

Program Summary

The City of Dallas will develop and distribute a brochure on the need for proper application of pesticides, herbicides, and fertilizers and their affect on water quality. This brochure will be used as an education tool and will be distributed to the general public (See Program 4.1 Public Participation and Governmental Coordination). Several city departments are involved in application of pesticides. Each department will be asked to review pesticides that are currently used by their departments, determine whether they are the least toxic materials available, identify alternative management techniques, determine appropriate buffer areas for waterways and sewers and provide such other expertise, and oversight, as necessary. Each departments' applicators must abide by State laws of Texas and obtain an applicator's license from the Structural Pest Control Board. Also, commercial applicators with Texas must also be licensed by this same entity. Municipalities in Texas are not allowed to issue licenses for this type of work. Therefore, the City will rely on the state laws and licensing to govern this work within its city limits.

The Personnel Development/Training section of the City of Dallas

Personnel Department will assist in educational efforts. A priority will be the establishment of an on-going educational program for municipal applicators. Coordination of course offerings for the public, commercial applicators, and municipal applicators will be a significant focus. This task will emphasize utilization of on-going programs. Training programs available in the Dallas area will be publicized. The Texas Agricultural Extension Service (TAEX), which has taken the lead in the development of training materials and short courses in the past, is expected to continue in that role. TAEX through Dallas County and the State currently offer numerous educational seminars, workshops, and home study courses.

The City Park and Recreation Department is expected to play a major role in the pesticide and fertilizer management program. Parks and Recreation has control of nearly 47,000 acres within the City and is the largest municipal applicator of pesticides, herbicides, and fertilizers. Park personnel are licensed by the State and experienced with application and use of pesticides, herbicides, fungicides, and fertilizers and apply them in a conservative manner.

Applicators are required to earn six continuing education points in general training and three points in each category in which the applicator is certified during any 3 year period as required by state law. Effective January 1, 1993, as a result of the Structural Pest Control Act, Texas Civil Statutes, Article 135b, amended 1991, of the six general category points required for recertification.

Because of recent shifts in licensing and enforcement of pesticide control laws (e.g., the Texas "Structural Pest Control Act of 1991), the City of Dallas has lost licensed applicators of pesticides (because supervisors no longer possess the qualifications to obtain a license). The training program for municipal applicator licensing will be modified to include City reimbursement of training and licensing fees.

Guidelines concerning where City personnel apply chemicals, and under what circumstances and constraints, and when and where commercial assistance may be used will be outlined in a Best Management Practices manual.

Implementation Plan

- Task 1** Establish a public and commercial educational effort for applicators. Develop a brochure on pesticide, herbicide, and fertilizer applications and how they affect water quality. Distribute to public and commercial applicators.
- Task 2** Establish procedures to insure City personnel and city contractors that are applicators are licensed and trained in accordance with SPCB requirements.

TASK SCHEDULE

Figure 9

PART 2 PERMIT APPLICATION

City of Dallas

4.9 ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(1) and (5)]

(B) A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:

- (1) A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit dischargers, however, the following category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges and street wash water (program descriptions shall address discharges or flows from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States);

- (5) A description of a program to promote publicize and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers;

Program Summary

This section of the Proposed Management Plan addresses an area of the overall Storm Water Management Plan that is an umbrella to other program elements described in detail elsewhere.

The regulations set forth certain requirements for the individual management programs [55 CFR, pg. 48070]. The U.S. EPA has defined basic criteria for management programs, including the following items:

- They must cover the duration of the permit.
- They must include comprehensive planning involving public participation.
- They must reduce pollutant discharge to the maximum extent practicable.
- They must describe staff and equipment available.
- They may include controls to be imposed on a system-wide, watershed, jurisdiction, or individual outfall basis.
- They may be implemented in a phased manner.
- They must describe priorities for control implementation.

This section describes the "overall" management program for the detection and elimination of non-storm water discharges into the City of Dallas storm drainage system. However, several activities cited by the regulations are presented in other sections of this City of Dallas Storm Water Management Plan. These include: inspections to prevent illicit discharges; procedures for on-going field screening activities; procedures for the detailed investigation of suspect portions of the storm drainage system; procedures to prevent, contain, and respond to spills; educational activities, public information activities, etc., to facilitate the proper management of used oil and toxic substances; and controls to limit the infiltration of seepage from municipal sanitary sewers. Several of these related items were determined to be best addressed individually, while others

were determined to be best addressed in association with other City of Dallas storm water management programs. Those programs which are addressed within this section include the overall coordination and support of related activities and the program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts.

There are four primary objectives of the overall non-storm water detection and elimination program. Simply stated, these objectives are:

1. Identify potential non-storm water discharges.
2. Investigate potential non-storm water discharges.
3. Terminate non-storm water discharges.
4. Reduce potential for future improper dumping.

These objectives overlap with other storm water management program objectives. For example, storm drainage system maintenance and industrial facility inspection activities will both limit impacts of interferences on the definition and investigation of potential non-storm water discharges. In addition, these activities will provide a substantial level of knowledge regarding potential sources of non-storm water, thereby enhancing the ability of field personnel to investigate potential illicit discharges.

For any municipal program aimed at the identification of non-storm water discharges, the use of the local citizenry and municipal employees provides an opportunity for the municipality to observe more portions of the storm drainage system and receiving waters at any given time. Public education and employee awareness training can prove economically beneficial for the community. Equally important is the involvement of local groups with either an "environmental focus," or those who simply may have an interest in the local Dallas environment. Thus, the City of Dallas proposes to provide environmental awareness materials and information to citizens and municipal employees.

The City of Dallas proposes to continue using existing, trained personnel for potential non-storm water discharge investigations. These individuals will continue to handle appropriate, water-related citizen reports, as well as other investigative measures. Additional personnel will be brought into this activity as

conditions demand. These trained investigators also will work with the teams involved in continued outfall screening activities. With this relationship, outfalls with potential non-storm water discharge contamination would be identified with the concurrent ability to research and identify pollution sources.

The City of Dallas proposes to continue to resolve problems with those individuals and companies who may be sources of non-storm water discharges. The City of Dallas will review the technical and legal aspects of the City Code to ensure proper definition of prohibited activities and allowance for effective enforcement, making revisions as necessary.

Through other related programs, the City of Dallas proposes to reduce the potential for non-storm water discharges related to improper disposal of waste material. Of particular importance are the activities associated with HHW, Wastewater Infiltration Controls, Spill Control, Landfill Management, and Used Oil Management.

Implementation Plan

Implementation is presented in terms of actions grouped for the general public, for departments of the City of Dallas, and for industrial facilities within the City of Dallas.

Task 1 As detailed in our Part 1 Permit Application, the City of Dallas Codes prohibit discharge into the storm sewer system of:

- 1) normal domestic wastewater;
- 2) wastewater from the cleaning or maintenance of a bus, truck or other vehicle by a business which operates more than two vehicles or which commercially washes these vehicles;
- 3) wastewater from the cleaning or maintenance of an airplane;

- 4) effluent from a cooling tower, condenser, compressor, or boiler;
- 5) filter backwash from a swimming pool or fountain;
- 6) effluent from an animal pen, animal hospital, meat packing or slaughter house, poultry processing plant, or dairy;
- 7) base material from ready mixed concrete, mortar, asphalt, or ceramic;
- 8) grass, leaves, brush, or other debris;
- 9) crankcase drainings, wastewater from washing the engine of a vehicle, oil, grease, or a similar substance;
- 10) chemical waste;
- 11) industrial or domestic waste; or
- 12) any substance which damages, clogs, or adversely affects the quality of water in the storm sewer system.

The City issues citations of up to \$500 per day for such violations. The City currently responds to citizen complaints/reports of such violations. The City will implement a program to inspect at least 500 outfalls per year during dry weather to see if flow is present. It will then field test the flow to see if a water quality problem exists. If so, it will be traced to its source and generator will be issued a notice of violation and given a set amount of time to rectify the problem. If compliance is not achieved, a citation will be issued. If an illicit discharge is found, it will be corrected within ten days, a schedule for expeditious removal will be developed and followed.

The City will review and modify as necessary its existing City Codes to address other non-permitted storm sewer system discharges and permit discharges by the second year of the

permit.
(Year 1-2)

Task 2 Encourage public reporting of illicit discharges and deliberate dumping in order to have effective public involvement in the program. Access to responsible City inspectors and enforcement personnel may be via several channels. City Councilpersons report incidents, and an aggressive program of investigation and follow up reporting is done concerning the resolution of the incidents. Citizens presently call in to various City departments to report incidents or observations. A system of investigation and response has already been instituted. Follow up calls to the reporting citizen are made, wherever possible, to report the disposition of the cases. Records are kept.

For public reporting to be effective, a citizen must feel that effective and timely follow up is made of reported incidents and that the reporting can be expedited. Several enhancements to the present situation are needed to make effectiveness a reality to the public. Present telephone response to citizens is often ineffective because of understaffed switchboards. Often citizens are put on hold for extended periods of time before an answer is received and, often, the wrong department is reached for effective response. This situation becomes counterproductive to citizen confidence in the City's ability to effectively respond. Telephone operators are needed to give a personal touch to the citizen's interface with the City, however, an automatic voice mail system can provide prescreening of many phone calls to the proper department while minimizing citizen hold times. Therefore, automatic voice mail type equipment needs to be installed on one of the City's switchboards with a unique number for citizen reporting of incidents. The incidents can be recorded on voice mail or routed through to a human responder, as available. A record can be kept and routed into a computerized database to assure prompt and effective response to the average citizen. The switching gear can also route other calls to appropriate departments, or can give preprogrammed answers to run-of-the-mill citizen queries. For those citizens desiring a more active involvement in storm water quality improvement,

City staff (selected staff of the Storm Water Utility, or of the Health and Human Services, or of the Street and Sanitation Services, or of the Parks and Recreation departments, and other interested staff) may be able to help train volunteers in "stream walk" observations or other helpful surveillance activities.

A statistician/planner is also needed to design and implement database and reporting systems development; to analyze data; to identify patterns and trends; to assure that citizen reports, City employee or Councilperson reports are properly considered; as well as to provide overall programmatic support to assure that field screening, detailed investigation, industrial monitoring, and water quality and biotic monitoring programs are effective. These other programs are described in detail elsewhere within the Storm Water Management Plan. The statistician/planner will also need a dedicated microcomputer and peripherals with statistical and database management software.
(Year 1-5)

Task 3 Develop and implement a GIS at the Storm Water Utility for planning storm water operations and investigations and analyzing the storm water drainage system for problems, trends, and possible improvement, and for tracking and documenting the management of the systems. It is assumed that GIS staff of the DWU will assist in the development of the necessary GIS databases and that GIS analyses can be made available to Storm Water Utility staff as needed. As experience is gained with the management of the Storm Water Utility and the storm water drainage systems, additional staff and equipment may prove to be necessary.

Task 4 Plan, review, analyze and report about the illicit discharge detection and removal program and the effective public reporting of illicit discharges and other storm water quality problems. Besides annual analyses and reviews for budgetary and planning purposes, analyses and reviews of operations and data collected for drainage areas and geographic areas of the City need to be made continually

throughout each year of the permit term. This task is also generic for program planning and for analyses of the various means and alternatives for the detection and elimination of illicit discharges and illegal disposal. It is assumed that present, and currently proposed, staff and equipment will be sufficient to provide the necessary review and analyses needed initially.

TASK SCHEDULE

Total	Cost
-------	------

Figure 10

4.10 FIELD SCREENING PROCEDURES

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(2)]

(2) A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens;

Program Summary

Part 2 of the NPDES application process requires the applicant to develop a program which will detect non-storm water discharges by field screening of the storm water system. this section addresses the procedural framework for the City of Dallas personnel to use for field screening on non-storm water discharges for the life of the permit, and is designed to achieve the following:

- Inform City staff of the U.S. EPA requirements
- Develop an implementation plan for the Storm Water Utility for compliance with U.S. EPA requirements
- Introduce Field staff to the step-by-step field screening procedures.
- Provide guidance for safety of field personnel.
- Provide guidance on prioritization of field screening locations

Prioritization of locations for field screening will be accomplished as follows:

1. Screening Location Identified by Citizen Involvement

The storm water program must promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges to municipal

separate storm sewers. The general public will act as additional inspectors and the success of the program will depend on how well the public is educated.

2. Routine Screening of Industrial/Commercial Areas

The Storm Water Utility will implement a plan to classify all industrial/commercial outfalls as having either high or low potential for non-storm water discharges. Those most likely to exhibit contamination from non-storm water discharges should be field screened first. Several factors will be identified to aid in the classification of industrial/commercial outfalls.

3. Routine Screening of Major Stream Systems

The City of Dallas has formulated a list of sampling points on 47 major stream systems within the City. This will be used to identify sampling points on major stream systems during the life of the permit. The major streams will be screened quarterly.

4. Intensive Screening of Streams with Poor Environmental Conditions

The City of Dallas Health and Human Services Department (HHS) performs an annual bioassay of 34 streams. By examining various environmental conditions that have been encountered over the past 10 years, it is possible to obtain a very good indication of the overall environmental condition of City of Dallas streams. This information is used to prioritize screening activities.

The screening program will require monitoring of a series of basic parameters to determine if non-storm water discharges are present. The time and date of any dry-weather flow is recorded. Physical characteristics are noted. Certain chemical analysis will be performed on-site using field kits. Additional analysis may be performed based on the field technician's assessment.

Implementation Plan

- Task 1** Institute citizen report telephone number.
 (Year 4)
- Task 2** Initiate citizen observer program.
 (Years 1-5)
- Task 3** Involve a high school biology/chemistry class in program efforts.
 (Years 1-5)
- Task 4** Begin to develop a prioritization plan for industrial/commercial outfalls during the second year. The potential for illicit discharges and improper disposal is generally higher for areas with significant numbers of heavy industrial facilities.
 (Years 1-5)
- Task 5** Identify SIC classifications with industrial activities by watershed during the first year.
 (Years 1-5)
- Task 6** Track discharge permits issued by TWC on a continuous basis.
 (Years 1-5)
- Task 7** Update prioritization plan for "other streams" annually based on current bioassay.
 (Years 1-5)
- Task 8** Initiate placement of outfall identification numbers on outfalls during first year. Other outfalls identified during Part 2 will be numbered and marked as available resources.

(Years 1-5)

Task 9 Conduct quality control of field screening on a quarterly basis or as new staff are hired.

(Years 1-5)

Task 10 Formulate an Emergency Action Plan for emergencies encountered during field screening efforts.

(Year 1)

Task 11 Provide annual in-house training in first aid, CPR, hazardous waste and confined space entry.

(Years 1-5)

Task 12 Report on effectiveness of programs on annual basis.

(Years 1-5)

Task 13 Monitor storm related work by other departments.

(Years 1-5)

Task 14 Acquire necessary start-up equipment for field screening.

(Year 1)

Task 15 Acquire equipment and expendable supplies during duration of permit.

(Years 1-5)

TASK SCHEDULE Field Screening Procedures

Task	Name	Year 1				Year 2				Year 3				Year 4				Year 5			
		Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct		
1	Citizen Complaint Line																				
2	Citizen Observer Program																				
3	High School Science Class Involvement																				
4	Develop Outfall Plan																				
5	Identify SIC's In Watersheds																				
6	Track TWC Discharge Permits																				
7	Update Prioritization Plan																				
8	Outfall Identification																				
9	Quality Check Of Field Screening																				
10	Emergency Action Plan																				
11	Staff Emergency Training																				
12	Annual Reports																				

FIGURE 11

TASK SCHEDULE Field Screening Procedures

Task	Name	Year 1				Year 2				Year 3				Year 4				Year 5			
		Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
13	Monitor Other Departments																				
14	Start-up Equipment																				
15	Additional Equipment And Supplies																				
	COST PER YEAR																				
	TOTAL COST																				

4.11 DETAILED INVESTIGATION PROCEDURES

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(3)]

(3) A description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water (such procedures may include: sampling procedures for constituents such as fecal coliform, fecal streptococcus, surfactants (MBAS), residual chlorine, fluorides and potassium; testing with fluorometric dyes; or conducting in storm sewer inspections where safety and other considerations allow. Such description shall include the location of storm sewers that have been identified for such evaluation);

Program Summary

Part of the NPDES approaches requires the applicant to develop procedures to investigate portions of the storm sewer system that, based on the results of the field screening or other appropriate information, indicate a reasonable potential of containing non-storm water discharge. This document addresses the procedural framework which City of Dallas personnel will use for detailed investigation of non-storm water discharges for the life of the permit. The focus of the document is to pinpoint and remediate non-storm water discharges. Detailed investigative procedures and estimated costs are included in the procedure development.

This document is designed to achieve the following:

Inform City staff of U.S. EPA requirements

Develop an implementation plan for the Storm Water Utility

Introduce field staff to the field investigation procedures
Provide guidance for safety of field personnel
Provide guidance on sample collection, preservation,
analysis and completion of chain-of-custody forms, and if
necessary, to insure investigations produce evidence
admissible in court.

The City of Dallas current program for field screening is
to continue the dry weather screening process performed
during Part 1 of Permit Application. Screen all outfalls
during permit term or at least 500 outfalls per year.
Screen outfalls for color, odor, turbidity, presence of oil
or scum, pH, total chlorine, total copper, total phenol, and
detergents on any flow observed. Implement in year one as
an ongoing program. Illicit discharges are then handled as
described in Program 4.9, Illicit Discharge Detection and
Elimination Program.

Implementation Plan

- Task 1** Document training procedures, calibration of
instrumentation, sample collection procedures, and
investigative methodology for each investigation performed.
(Years 1-5)
- Task 2** Modify City Ordinance No. 21108 (re: substances prohibited
in storm drainage system) to establish the adequate legal
authority to control non-storm water discharges as mandated
by U.S. EPA.
(Year 1)
- Task 3** Characterize discharges by SIC Codes (via GIS) to provide
identity of possible sources.
(Years 1-5)
- Task 4** Train personnel in field sampling, first aid, CPR, hazardous
waste, confined entry, and material safety data.
(Years 1-5)

- Task 5** Establish reporting file system for developing forms, tracking investigations and coordination of crews.
(Years 1-5)
- Task 6** Compile annual assessment reports.
(Years 1-5)
- Task 7** Develop a priority system for investigation of non-storm water discharges.
(Years 1-5)
- Task 8** Develop a written safety policy and procedure manual for the storm water program.
(Year 1)
- Task 9** Establish a confined entry program.
(Year 1)
- Task 10** Analyze selected samples at the Central Laboratories or other qualified laboratory.
(Years 1-5)
- Task 11** Acquire ownership of all confined space entry equipment and supplies. The Storm Water Utility must also obtain other equipment such as vehicles, expendables, communication equipment and fuel.
(Year 1-5)

TASK SCHEDULE

Figure 12

4.12 SPILL CONTROL PROCEDURES

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(4)]

(4) A description of procedures to prevent, contain and respond to spills that may discharge into the municipal separate storm sewer;

Program Summary

This program addresses the development of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer system. Four tasks are proposed for implementation over the five-year life of the initial NPDES permit.

The establishment of a Spill Response Subcommittee of the Interagency Storm Water Task Force for oversight of the spill response program is recommended. This subcommittee would meet on a regular basis, monthly at first and then less frequently as action items are completed, to address the specifics of the spill control program. Some of the items which would be evaluated include staffing requirements, the need for reinstatement of a second Fire Department HazMat team, formalization of interagency activation and coordination, implementation of a fine/penalty system to recover administrative costs for the program and formalization of standard procedures such as identifying responsible parties, washdown of spills, and instituting long-term monitoring after spills. Additional topics requiring action might become apparent during the course of the meetings. If not, the Spill Response subcommittee could be disbanded when its usefulness was served.

Another task which would improve the current spill response program is the incorporation of information gathered from

Industrial Spill Response plans prepared under the Industrial Inspection and Control Program into the database of users of significant quantities of hazardous materials. Updating and cross-referencing the Fire Department and Office of Emergency Preparedness databases would provide better information during a spill response and a faster, more accurate response.

Development of a small business spill containment education program will also provide additional information for the Fire Department and Office of Emergency Preparedness databases. The intent of this program is to identify and educate businesses that use or store quantities of hazardous materials below the threshold reporting quantities established by the existing Fire Department notification and the proposed Industrial Inspection and Control programs. The education component focuses on the proper use and storage of hazardous materials to prevent endangerment to water resources from spills. The Fire Department's threshold quantity is established by the Texas Community Right-to-Know program.

An additional recommendation is the identification of Rapid Response Areas for spill response. The Rapid Response Areas would be defined as locations where a spill of hazardous materials has a very short travel time to impact a City water resource or a water supply watershed. Once identified, these areas may require special containment procedures or establishment of special spill response procedures. Special containment procedures would be developed as part of the Small Business spill containment education program recommended above and the Industrial Inspection and Control program.

Implementation of a HHW program to encourage proper disposal of these materials would improve the spill response program by limiting the potential for spills of these materials. While small quantities of these materials are not likely sources of impacts to receiving waters, continual dumping or certain concentrations could cause acute problems. The HHW program is discussed in another section of the permit application.

The City currently has two programs to respond to spills - one for large hazardous spills and a second for small spills and abandoned substances. For large spills, the Fire Department

responds and determines the nature of the spill. If it is hazardous, Fire Department HazMat team and truck are dispatched to the scene. They handle command of the incident, containment, and absorbing of spilled material, and public safety. Once the incident is determined safe and under control, a contract clean up firm is called to handle site cleanup and disposal of hazardous material. If the incident is on private property or company causing spill on public property is known, the owner is charged with site clean up. On small spills or abandoned substances, the environmental inspection staff of the Water Department, responds, absorbs material, controls site or substance and calls contract clean up firm to pick up and dispose of material. The following implementation plan addresses ways we plan to supplement and reinforce our current program.

Implementation Plan

This section provides specific information on the tasks required to implement the management program for spill control.

Task 1 Organize Spill Response Subcommittee of the Interagency Storm Water Task Force for review and evaluation of ongoing spill response program.

Subcommittee members will consist of:

1. Fire Department HazMat Team Captain
2. Department of HAS, Environmental Health Division representative
3. Department of Streets and Sanitation, Operations representative
4. Department of Streets and Sanitation, Office of Emergency Preparedness representative
5. Police Department representative
6. DWU, Storm Water Utility or Customer Service representative
7. DWU Purification Division Representative (for watershed management concerns)

Some of the subtasks below will be evaluated on a one-time basis and some will require annual evaluation. It is assumed that, once formed, the subcommittee will remain in effect, although in later years the meetings may become less

frequent.

Subtask 1 Compile information on existing program. Collect data on the number and character of incidents, response time, problems encountered in coordination between various agencies during responses, ability of response team to identify the responsible party for reimbursement of cleanup costs to City, and any other data sets deemed pertinent by the subcommittee. Compilation of data on the program may continue through the life of the program as deemed necessary by the Subcommittee.

Subtask 2 Evaluate staffing requirements. Current budgeting allows for staffing of eleven Fire Department HazMat team personnel per shift (one Captain, one Lieutenant and nine staff). Due to various personal leaves (such as sick time, vacation, training, etc.) staffing is usually below this number. This can create difficult or even dangerous situations since a minimum of ten personnel is required for certain entry activities. The Spill Response Subcommittee will evaluate not only the Fire Department's, but also other response departments' staffing. This subtask will be evaluated annually.

Subtask 3 Evaluate reinstatement of second HazMat team. From compiled data, determine if an additional Fire Department HazMat team should be reinstated at Station #20. Location of rapid response areas, the potential for simultaneous, multiple or large incidents with a lack of adequately trained personnel, the ability of Station #4 to respond in a timely manner and sources of funding for the additional team should be considered in this subtask. This subtask will be evaluated annually.

Subtask 4 Evaluate and formalize procedures for calling coordinating response agencies to a spill

response incident. During discussions with various City departments who would be represented on the proposed Spill Response Subcommittee, it became apparent that the communications network for coordinating response departments (other than the Fire Department HazMat response team) is fairly informal and could lead to occasions where a department was not called to respond in time to prevent endangerment of a water resource. The Subcommittee will evaluate and establish formal procedures for assuring all necessary agencies are called.

Subtask 5 Evaluate and formalize procedures for interagency coordination. The Subcommittee will consider establishing bi-monthly or post-incident roundtable discussions between representatives from each responding agency to air grievances, discuss alternatives, etc. A primary communications channel for onsite communications will be established, such as using Fire Department Channel Five which is non-repeating. The Subcommittee will also establish a time frame and funding source for purchasing enough handheld radios (and rechargeable battery packs) to ensure that each Fire Department HazMat team member and each coordinating agency onsite has a radio.

Subtask 6 Evaluate and formalize onsite standard operating procedures with all agency departmental representatives. Of particular concern is establishing procedures which protect water resources. Revisions to the City of Dallas Code will be implemented as described in the New Development and Redevelopment Management Program to govern discharges to the storm sewer system and water courses. For instance, washing hazardous materials which have been spilled down the storm drain would not be allowed unless the material had been neutralized or otherwise rendered harmless to the environment.

Subtask 7 Evaluate the establishment of a long-term monitoring program following spills of hazardous materials. Of concern here would be not only spills that directly impact water resources, but also spills of materials on soils located near a water resource where the residual materials might leach into the water following precipitation events or flooding. The current monitoring program conducted by Health and Human Services should be evaluated and broadened as deemed necessary by the Subcommittee. A long-term monitoring program would most likely become a task of the field-screening crew in locales following spills of hazardous materials.

Subtask 8 Evaluate and formalize procedures for identifying responsible party and for obtaining reimbursement for cleanup costs from responsible party. The Subcommittee will establish formal guidelines for assuring information on the identity of the responsible party is obtained so that remediation costs can be recovered. The Subcommittee will meet with the City Attorney's office to discuss legal alternatives.

Subtask 9 Evaluate implementation of a fine/penalty system for spills of hazardous materials. The Subcommittee will also meet with the City Attorney's office to discuss establishing a fine/penalty system for recovering some of the administrative costs associated with the spill response program. This would be in addition to, not instead of, recovering response and cleanup costs from responsible parties.

(Years 2-5)

Task 2 Incorporate Industrial Spill Response Plans into existing Emergency Response databases. Review the incoming Industrial Spill Response Plans and determine what information would be useful for updating and cross-

referencing the existing spill response databases maintained by the Fire Department and the Office of Emergency Preparedness. Perform the actual data entry.
(Years 2-5)

Task 3 Develop Small Business spill containment education program. Address businesses that store quantities of hazardous materials that are below the minimum quantities set by the Fire Department notification and Industrial Inspection and Control programs. Storm Water Utility personnel will be responsible for overseeing development and implementation of the program.

Subtask 1 Develop Small Business spill containment education program. Using the existing Fire Department guidelines and the proposed Industrial Inspection and Control program, an inspector from the Fire Department and an inspector from Industrial Waste Control program or Storm Water Utility personnel will develop the Small Business spill containment education program. The program will focus on identifying and educating businesses that store small quantities of hazardous materials.
(Year 3)

Subtask 2 Implement Small Business spill containment education program. Using the guidelines developed in Subtask 1, Storm Water Utility personnel will determine the best method for contacting identified small businesses, such as through group mail-outs, individual facility visits, or group seminars. The program will be implemented based on this decision.
(Years 3-5)

Task 4 Define Rapid Response Areas for spill incidents. Using the GIS developed for the City of Dallas, Dallas Storm Water Utilities personnel will define those areas where travel time for hazardous materials spills to impact City water

resources is short. DWU personnel would develop the final criteria for defining the extent of the rapid response areas. Some of the GIS databases that could be used for defining the location of the rapid response areas include the intersection of surface water bodies with known industrial users of hazardous materials (from the inventory of industrial sites) or hazardous cargo routes, drainage slopes or soil types, among others. In analyzing the proximity of hazardous cargo routes to surface water bodies, particular attention should be directed to interchanges where merging traffic patterns and increased traffic can increase the potential for an accident and subsequent spillage of hazardous materials. The information generated in defining the rapid response areas will also be useful to the Spill Response subcommittee when determining if an additional HazMat team should be re-instated.

(Year 2)

TASK SCHEDULE

[illegible]

4.13 USED OIL PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(6)]

(6) A description of educational activities, public information activities and other appropriate activities to facilitate the proper management and disposal of used oil...

Program Summary

This section of the Proposed Management Plan addresses a program to manage used oil. The U.S. EPA has identified the improper disposal of used oil as being a pollution problem of nationwide importance. In the past, some cities have exacerbated the problem by passing ordinances precluding the disposal of used oil to the sanitary sewers and have even prescribed that used oil be disposed of in the storm sewers by homeowners doing their own automotive maintenance. Although it is known that the larger wastewater treatment plants are able to successfully treat a relatively high volume of oil and grease arriving at the plant intakes, such practices promote poor regard for the environment, and actual harm to it, as well as waste of valuable resources. Only a small quantity of oil in the waters of the United States can create unsightly conditions. It is widely reported that one quart of oil can create an oil slick covering a pond of an acre or more in size. Oil slicks are positive signs of the discharge of pollutants into the waters of the United States irrespective of the volume of the pollutants discharged. Likewise, improper disposal of oil on the ground can also cause pollution of the groundwater. The TNRCC estimates that "do-it-yourself" oil changers in Texas dump 17 million gallons of used motor oil on the ground or down storm drains each year. This program for used oil management will help to eliminate used oil entering the storm sewer system (creating problems with the waters of the United States) and to relieve the wastewater treatment facilities

from the possibility of operational problems from the receipt of unnecessary or excessive oil and grease.

This program will focus on public awareness of the problem among private citizens and the commercial/industrial/governmental community. The program will focus on disseminating of information on environmentally correct means and methods for disposal of used oil and will provide current inventories of receptors of used oil and the likely methods of ultimate disposal of used oil. Programs both by the City of Dallas and private businesses are in place in and around the City for the proper disposal of oil. This document summarizes programs in place and describes program elements required to enhance these programs and preserve them into the future.

This management program will emphasize general public disposal methods of used oil. Commercial, industrial, and municipal users will also be targeted by the program. Specific program elements of the used oil program will include:

1. Identifying methods for the proper disposal and management programs for used oil.
2. Identifying public and industrial sectors to be targeted by future programs.
3. Developing and compiling a plan for educational materials/activities to be implemented during the initial five year permit period.

The third element will be part of the overall "public information program" presented elsewhere.

This used oil management program builds upon, and enhances, existing programs in the City of Dallas. The focus of this management program is to eliminate, or at least to greatly reduce, improper disposal of used oil to the storm and sanitary sewer systems and to groundwater. A secondary goal is to recycle the used oil as a resource.

The City of Dallas, Department of Street and Sanitation Services, through its Division of Sanitation Operations, is in charge of the City's oil recycling operations. The Department of General Services of the City also is active in collecting and recycling used oil from vehicle maintenance and similar operations. The Health and Human Services Department tracks shipments of used

oil. The Department of Aviation also has programs in place similar to those of General Services. As an industrial enterprise of the City, the airports, under the direction of the Department of Aviation, have entered into a application for a general NPDES storm water permit for airport operations . Love Field and the Redbird Airport are the City of Dallas airports included with that application.

Through the Department of Street and Sanitation Services, Division of Sanitation Operations, the City of Dallas participates in the TNRCC's "Clean Texas 2000" programs, along with other area jurisdictions. Used oil recycling is one of the programs being promoted statewide through this vehicle. Further, the Division of Sanitation Operations maintains contact with the Corporate Recycling Council of Dallas, which is a voluntary amalgamation of corporations that sponsor recycling efforts on their premises and among their employees. These programs include used oil recycling among other recyclables.

Finally, several commercial entities, operating within the City of Dallas, are active receptors of used oil from the public.

Implementation Plan

Implementation is presented in terms of actions grouped for the general public, for departments of the City of Dallas, and for industrial facilities within the City of Dallas.

Task 1 Identify and promote used oil receptors. The following activities will be implemented by the Street and Sanitation Services Department, with the recycling program staff taking the lead.

Subtask 1 Continue development of updated brochures and bill inserts concerning receptors of used oil and problems with improper disposal. Continue to develop and maintain files of instructional and motivational material from available sources to assist in the development of suitable bill inserts, brochures and posters. Coordinate with

DWU Public Relations staff, as appropriate, for dissemination of such material in a timely manner. Submit brochures to public through bill inserts within 18 months of permit issuance giving specifications of private receptors of used oil.

Subtask 2 Develop and maintain a GIS database of used oil receptors for use in producing maps and updating information for mapping and poster and literature production purposes.

Subtask 3 Participate with Dallas County's Regional Household Hazardous Waste Program (see Toxics Materials Program) for disposal of contaminated used oil and other motor vehicle fluids.

Subtask 4 Review receptor location posters and literature availability. Produce and provide receptors with information on disposal of "contaminated" used oil, when available. Make available or direct receptors to suitable material for dissemination to the public concerning used oil disposal.

Subtask 5 Provide information to, and coordinate with, other City inspectors concerning used oil receptors and other entities storing used oil.

Task 2 Review and inspect City of Dallas facilities. The following activities will be implemented by the General Services Department staff.

Subtask 1 Perform annual site review and maintenance to minimize the possibility of storm water contact with General Services fueling or vehicle maintenance operations.

Subtask 2 Examine Street and Sanitation Services facilities, in conjunction with Street and Sanitation Services staff, for storage and

handling of used oil, grease, and related materials. General Services and Street and Sanitation Services staff will coordinate to assure that such materials are handled and disposed of correctly, and that storm water does not come in contact with these materials or containers.

Task 3 Inspect industrial sites. The following activity will be conducted by industrial site inspection and monitoring staff under the direction of the Storm Water Utility. Other City inspectors may also be involved, as appropriate. Review SWPPPs of industries as they relate to handling and disposition of used oil, grease, solvents, and other related material.

Full implementation of the industrial inspection and monitoring procedures must await granting of permits to the industries by U.S. EPA or the TNRCC. Inspectors should be available to assist industries in questions concerning siting of used oil containers, and the like, as inspectors become available.

TASK SCHEDULE

[illegible]

4.14 TOXIC MATERIALS PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(6)]

(6) A description of educational activities, public information activities and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials;

Program Summary

To reduce the inflow of toxic products into local environments, local government efforts to manage household hazardous wastes (HHWs) tend to focus on (1) educating citizens about the nature of hazardous wastes and the potential danger to the environment, property and themselves and (2) collecting and disposing of HHW in an efficient and proper manner that minimizes the impact on the local watersheds and local environment.

The City of Dallas Toxic Materials Program is designed around a regional Household Hazardous Waste Program being developed by Dallas County and the Coalition for the Earth's Environment of Dallas (CEED). The components of the proposed regional program in which Dallas is participating include: preparation of a plan to organize and implement a county-wide program for the collection, transportation, and disposal of household hazardous wastes, increased educational and informational efforts pertaining to HHW issues including proper use and storage, and promotion of alternative less toxic materials. This program includes promotion of industrial materials exchange programs for commercial and industrial hazardous waste generators. The program will involve a plan to recommend the best options for the management of HHW and to facilitate development of a county-wide HHW management plan. Federal and State grant funds will assist the City in funding this very important program.

Implementation of this task calls for :

- study to provide county service area demographic information;
- analysis and recommendations on alternative collection methods, frequency, and hours for specified areas;
- recommendation on collection sites;
- types of chemicals to collect and reject;
- limitations on quantities and participation eligibility;
- waste diversion plans for materials to be recycled;
- functions to be performed by personnel and volunteers;
- list of recommended collection/disposal contractors;
- define contractor responsibilities;
- identify support functions needed;
- comparison of safety of disposal methods;
- financial assurance requirements, sources, and costs;
- recommendation of funding sources;
- recommendation for media coverage;
- draft of a survey to be distributed on site;
- estimated volume of materials to be collected;
- cost analysis and estimate for collection, disposal, and support services; and
- provide opinion on benefit to the environment of diverting HHW from municipal solid waste stream.

Preparation of this county plan was completed, through CEED, with funding being provided by an EPA grant. The county received a grant from Texas Natural Resource Conservation Commission (TNRCC) to conduct a pilot HHW collection day. The grant funded the planning, packaging, transporting, and public education for this collection day with the participating cities, which includes Dallas, funding their respective share of disposal costs. Based on results of this study and the HHW collection day, permanent collection and disposal plans will be considered for development in Dallas and Dallas County. The first two collection dates were held on November 5 and November 12, 1994. These collection days collected typical household hazardous wastes as paints, pesticides, herbicides, cleaning household chemicals, and used vehicle fluids. Three more collection days are scheduled for March 5, April 8, and April 29, 1995.

A countywide, regional effort provides for a broader range of public participation that is cost efficient by sharing costs with other municipalities within the county. It also brings participation by more municipalities than just those currently required under EPA's Storm

Water Permit process. This approach makes much more sense to Dallas than going it alone and it has the potential to be more beneficial to our storm water system due to the larger base of participation.

Existing educational programs concerning HHW issues are supported by the TRNCC, NCTCOG, CEED, Texas Department of Agriculture (TDA), and Texas Agriculture Extension Service (TAEX). These existing educational programs provide guidance on alternatives, waste minimization, proper disposal and storage of HHW. Safe disposal options such as small quantity disposal of dried latex paint at landfills and commercial collection options of used oil and used batteries will be implemented. Additionally the NCTCOG has been selected by U.S. EPA and the TNRCC to undertake a comprehensive HHW public education outreach program in which the City will be participating.

The organization CEED and affiliated HHW Task Force of Dallas County have produced an educational brochure on household hazardous alternative materials and disposal guidelines. Utilization of such existing educational information will be increased.

The City will promote an industrial waste exchange program for commercial and industrial businesses. The City will work with the TNRCC which currently sponsors a materials exchange program entitled "RENEW." The push of our program will be to educate the public of the dangers of HHW and to identify their less toxic alternatives. We will also stress proper usage of pesticides, herbicides, cleaners, and other household chemicals. The goal is to drastically reduce the quantity of HHW that will need a means of disposal. Our program will also educate the public on proper and improper disposal methods. It will urge public to store their HHW's until disposal day(s) is held. Thus our program will be effective year around.

Implementation Plan

Task 1 Participate in regional, county-wide plan to study, organize, and implement a program for the collection, transportation, and disposal of HHW. Participate in proposed county-wide pilot HHW collection and disposal days. These collection days were planned to occur during the first year of this permit and were to collect the normal HHW's as well as used motor vehicle fluids. Since the permit issuance was delayed, the City and the County went forward and implemented this program prior to permit issuance.

Task 2 Review study results and experience gained from pilot HHW collection day and develop with county a plan for permanent collection and disposal of HHW. The current proposal is to establish a permanent site in the county for HHW collection with a mobile collection unit to serve remote locations, making 24 stops (See attached letter from Dallas County).

Task 3 Initiate public informational campaign.

Subtask 1 Promote existing educational programs (as materials are available) concerning HHW issues supported by the TNRCC, NCTCOG, CEED, TDA and TAEX. Provide guidance on use alternatives, waste minimization, proper disposal and storage. Promote safe disposal options such as small quantity disposal of dried latex paint at landfills and commercial collection options of used oil (Exxon, Chief) and used batteries (Sears, K-Mart, Wal-Mart, etc.), and the current City collection program.

Promote NCTCOG HHW Public Educational Outreach Program to undertake a comprehensive HHW public education outreach program pursuant to Section 319 of the Clean Water Act.

As a result of educational programs, the goal is to reduce amount of HHW available for disposal. That is available will be encouraged to be stored until collection day or days arrive. This will provide a year around program for our citizens.

Subtask 2 Promote an industrial waste exchange program for commercial and industrial businesses with the assistance of the TWC which currently sponsors an exchange program entitled "RENEW."

Subtask 3 Promote existing educational information by the CEED and affiliated HHW Task Force of Dallas County on household hazardous alternative materials and disposal guidelines.



Dallas Area Household Hazardous Waste Network
Shirin C. Yousuff, Manager

February 20, 1995

Larry McDaniel
The City of Dallas
Public Works and Transportation

Dear Mr. McDaniel,

As per your request, here is some information on what the County hopes the program will continue. Please keep in mind that this program can only continue if there is a significant financial support from the cities.

Current program:

Dallas County has received a grant from the TNRCC to cover the administrative costs for a one year program. This program involves five one-day collection events for residents of participating cities. Thus far, 11 of the 26 Dallas County cities, representing approximately 75% of the population of the county, have signed interlocal agreements to participate. To date 2 of 5 events have been held servicing 1300 residents. Three more events are planned for the spring: March 25 (Richardson), April 8 (Irving), and April 29* (South Dallas) *tentative. Residents may bring a variety of HHWs, including automotive products, cleaners, pesticides, herbicides, paints, tires, auto batteries, antifreeze, and craft/hobby supplies. All wastes are handling by local recyclers or a licensed disposal contractor who signs the manifest as generator. The current contract with TNRCC for this grant ends at the end of June, 1995.

Plans for future program:

a) Option A: Permanent Program

Much interest has been expressed by the participating cities, Texas Dept. of Transportation, and residents in establishing a permanent HHW drop off site. While it is uncertain whether the County will be able to continue to provide this service beyond the current grant year, efforts are being made to pursue funding through grants. A proposal was recently submitted to the US EPA to request funds to establish a HHW Drop Off Center and Mobile Collection Unit. The Drop-Off site would be open one day a week, with extended hours. Residents from participating cities could drop off their wastes while the center is open. A mobile collection unit would

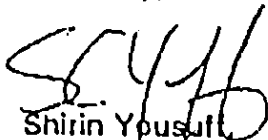
be used to service remote areas, making 24 stops in different locations to collection HHWs, and would transport these wastes back to the drop off center for proper packaging, storage, recycling. The grant requested funds for salaries, equipment and supplies, and a community education program. Funds were requested for a two year period. Cities would again be asked to sign interlocal agreements to participate in the program. The estimated cost/household (for disposal and transportation) is estimated to be \$67.00. The drop off center would be serviced by a licensed disposal contractor at least once a month.

b) Option B: One Day Collection Events

Another option would be to continue the program as it is currently being conducted. One day collection events would be held as before, serving the different participating jurisdictions of the county. Cities would again be required to pay for their residents waste disposal (and transportation) costs, but funding options for salary, set-up costs, other administrative costs have not been explored yet.

I hope this information is helpful in completing your MS4 permit requirements.

Sincerely,


Shirin Yousuff
HHW Manager

TASK SCHEDULE

Figure 15

PART 2 PERMIT APPLICATION

City of Dallas

4.15 WASTEWATER INFILTRATION CONTROL PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(B)(7)]

(7) A description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary;

Program Summary

Part 2 of the NPDES application process requires the applicant to describe the programs and/or controls which are currently implemented and that will be implemented to limit infiltration from municipal sanitary sewers to municipal separate storm sewers.

This section provides only a brief summary of wastewater master plan elements that will provide wastewater infiltration control during the five-year permit term. The City of Dallas I/I Wastewater Plan (currently underway with completion date of November, 1993) will serve as the detailed written document in support of this program. The previous Wastewater Master Plan will also be used to support this program.

Implementation Plan

The City of Dallas has several existing programs that contribute to the elimination of wastewater infiltration into the storm sewers. Those programs are as follows:

- Annual Maintenance
- Replacement in Advance of Paving Projects
- Environmental Data Acquisition System (EDAT)
- I/I Reduction Studies and Rehabilitation Plans

Post-Rehabilitation Flow Monitoring
Sanitary Sewer Internal Inspection
Cleaning of Sanitary Sewers
Rehabilitation Construction of Sanitary Sewers
Storm Water Sampling
Capital Improvements
Development Design
Construction Inspection
Private Sewer Construction
Emergency Response

The Wastewater Master Plan update is expected to review each of these on-going programs and to make recommendations for improvement of addition to existing efforts to eliminate wastewater infiltration.

The schedule of additional programs and modification to existing programs will be delineated in the Wastewater Master Plan update, scheduled to be completed in December, 1993.

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 6

IN THE MATTER OF	§	DOCKET NO. VI-93-1264
	§	
THE CITY OF DALLAS	§	
	§	
PROCEEDINGS UNDER SECTION 309(a)(3),	§	
CLEAN WATER ACT,	§	
[33 U.S.C. § 1319(a)(3)],	§	ADMINISTRATIVE ORDER
In RE: NPDES PERMIT NO. TX0047830	§	

The following FINDINGS are made and Order issued pursuant to the authority vested in the Administrator of the Environmental Protection Agency (EPA) by the above referenced statute (hereinafter the Act) and duly delegated to the Regional Administrator, Region 6, and duly redelegated to the undersigned Director, Water Management Division, Region 6.

I.

The city of Dallas (hereinafter the Permittee) is a municipality in the State of Texas and located in Dallas County, the mailing address for which is 1500 Marilla, City Hall 4A-North, Dallas, Texas 75201.

II.

Pursuant to the authority of Section 402(a)(1) of the Act, 33 U.S.C. § 1342, Region 6 issued National Pollutant Discharge Elimination System (NPDES) Permit No. TX0047830 to the Permittee on September 30, 1988, with an effective date of November 15, 1988. The permit authorizes the discharge of

RECEIVED AUG 13 1993



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

JUL 22 1993

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (P 399 614 643)

Mr. Roger Proza, Assistant Director
Dallas Water Utilities
1500 Marilla, City Hall 4A-North
Dallas, Texas 75201

Re: Administrative Order Docket No. VI-93-1264
NPDES Permit No. TX0047830

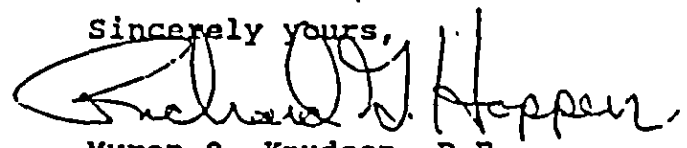
Dear Mr. Proza:

Violation of an NPDES permit requires the Environmental Protection Agency (EPA) to take appropriate enforcement action to assure compliance. Pursuant to the Clean Water Act (33 U.S.C. § 1251 et seq.), the enclosed Administrative Order is hereby served on you and the city of Dallas for the violations described therein. This Order replaces Administrative Orders Docket Nos. VI-93-1268 and VI-93-0084, which are hereby closed.

Compliance with the provisions of this Order is expected within the maximum time periods established by each part of the Order. Your cooperation and prompt attention will be appreciated. In response hereto, please reference Docket No. VI-93-1264 and your NPDES permit number, and send correspondence to the attention of Ms. Terry D. Lane (6W-EAT). The violations cited in the referenced Order could result in the issuance of an EPA administrative penalty order or referral to the United States Department of Justice for judicial action with monetary fines.

It is the policy of EPA to achieve full compliance with the NPDES permit program as rapidly as possible. This office is prepared to help you in any way it can. If you have any questions, please contact Ms. Cecilia Kernodle, EPA, Dallas, Texas at (214) 655-6452.

Sincerely yours,


for Myron O. Knudson, P.E.
Director
Water Management Division (6W)

Enclosure

cc: SEE NEXT PAGE

-2-

cc: Mr. Rick Ruddell
Section Chief, Enforcement
Watershed Management Division
Texas Water Commission

specified qualities and quantities of effluent to receiving waters named Trinity River in Segment No. 805 of the Trinity River Basin. The permit also requires the submission of Discharge Monitoring Reports (DMRs) and Noncompliance Reports.

III.

Part III.B.4. of the permit prohibits bypassing, the diversion of wastes or wastewaters from any portion of the treatment facilities unless all the following conditions are met:

1. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
2. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the Permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance.

Part III.B.3. of the permit requires the Permittee to at all times properly operate and maintain facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit.

IV.

FINDINGS OF FACT

Administrative Order Docket No. VI-92-1268 was issued to the Permittee on March 19, 1992, citing bypasses which had occurred

throughout the city. The Order also incorporated schedules for collection system studies and rehabilitation work in several basins throughout the city and required the Permittee to eliminate all overflows and bypasses by September 1, 1999. Inflows/Infiltration (I/I) Studies for the Cedar Creek and Coombs Creek Drainage Basins were to be completed by September 30, 1992. Schedules for the necessary design and construction in these basins were incorporated in Administrative Order Docket No. VI-93-0084. The Permittee has completed the I/I study for Kidd Springs Basin and has submitted a schedule for the design and construction in this basin. This schedule will be incorporated in this Order.

In addition, the Permittee has indicated some changes in the construction schedule for the West Bank Interceptor. The start construction date for Phase I will be delayed, but construction on Phase II will begin sooner. The changes in the schedule will not affect the date for the completion of rehabilitation work in that area or the final compliance date of September 1999.

Administrative Orders Docket Nos. VI-92-1268 and VI-93-0083 will be closed and all the schedules and requirements of those Orders will be incorporated into this Order.

V.

FINDINGS OF VIOLATION

Based on information provided by EPA and the Permittee, the Regional Administrator, through the Director of the Water Management Division, finds that the Permittee has violated Parts III.B.4. and III.B.3. of the permit.

Parts III.B.4. and III.B.3. of the permit has been violated in that the Permittee has experienced several instances of bypasses and overflows throughout the city.

VI.

Issuance of this Order does not preclude the pursuit of additional enforcement action including additional administrative penalty orders, and/or civil or criminal judicial actions for the violations cited herein. If an EPA administrative penalty order is issued or a judicial action is initiated by the U.S. Department of Justice, you will be subject to a monetary fine.

ORDER

Based on the foregoing FINDINGS OF VIOLATION and pursuant to the authority vested in the Administrator under Section 309(a)(3) of the Act, 33 U.S.C. § 1319(a)(3), and duly delegated to the Regional Administrator, Region 6, and duly redelegated to the undersigned Director, Water Management Division, Region 6, it is ordered:

A. That the Permittee shall comply with the following schedules:

<u>ACTIVITY</u>	<u>DATE</u>
1. Coombs Creek	
a. Complete In-House Repairs	December 31, 1993
b. Complete Design for Rehabilitation	Completed
c. Start Construction of Rehabilitation Projects	December 31, 1993.
d. Complete Construction of Rehabilitation Projects	December 31, 1994
e. Complete Design for Phase I Replacements	April 30, 1994
f. Start Construction of Phase I Replacements	October 31, 1994
g. Complete Construction of Phase I Replacements	April 30, 1996
h. Complete Design for Phase II Replacements	April 30, 1995
i. Start Construction of Phase II Replacements	October 30 1995
j. Complete Construction of Phase II Replacements	April 30, 1997
2. Cedar Creek	
a. Complete In-House Repairs	December 31, 1994
b. Complete Design for Phase I Replacements	October 31, 1995
c. Start Construction of Phase I Replacements	April 30, 1996
d. Complete Construction of Phase I Replacements	October 30, 1997
e. Complete Design for Phase II Replacements	April 30, 1996
f. Start Construction of Phase II Replacements	October 30, 1996
g. Complete Construction of Phase II Replacements	October 30, 1997
h. Complete Design for Phase III Replacements	April 30, 1997
i. Start Construction of Phase III Replacements	October 30, 1997
j. Complete Construction of Phase III Replacements	April 30, 1999

ACTIVITY (Continued)	DATE
3. Kidd Springs	
a. Start In-House Repairs	January 1, 1995✓
b. Complete In-House Repairs	June 30, 1995✓
c. Complete Design of Replacement	July 31, 1996✓
d. Start Construction of Replacement	November 30 1996✓
e. Complete Construction of Replacement	June 30, 1998✓
4. East Bank Interceptor	
a. Start Construction on Phase I	June 30, 1994
b. Complete Construction on Phase I	June 30, 1996
c. Start Construction on Phase II	June 30, 1997
d. Complete Construction on Phase II	June 30, 1999
5. Elmwood Branch Drainage Basin	
a. Complete all Rehabilitation and Replacement	April 30, 1994
6. Five Mile Creek Drainage Basin	
a. Start Inflow Infiltration Study upper half of drainage basin	Completed
b. Complete this study	April 30, 1994
c. Start Inflow/Infiltration Study for lower half of drainage basin	April 31, 1995
d. Complete this study	December 31, 1996
7. Knights Branch Drainage Basin	
a. Complete In-House Repairs	Completed
b. Start Phase I Line Replacement	Completed
c. Complete Phase I Line Replacement	April 30, 1994
d. Start Phase II Line Replacement	July 31, 1993
e. Complete Phase II Line Replacement	October 31, 1994
8. West Bank Interceptor	
a. Start Construction of Phase IV Relief Interceptor	Completed
b. Start Construction of Phase I Interceptor	April 30, 1996
c. Start Construction of Phase II Relief Interceptor	December 31, 1994

<u>ACTIVITY (Continued)</u>	<u>DATE</u>
d. Start Construction of Phase III Relief Interceptor	April 30, 1998
e. Complete all rehabilitation on the existing West Bank Interceptor	August 31, 1999
9. White Rock Creek Relief Interceptor	
a. Start Construction on Phase I	January 31, 1994
b. Complete Construction on Phase I	June 31, 1996
c. Start Construction on Phase II	April 30, 1994
d. Complete Construction on Phase II	June 30, 1996
e. Start Construction on Phase III	April 30, 1995
f. Complete Construction on Phase III and eliminate all overflows and bypasses in the Basin	June 30, 1997


B. That the Permittee submit quarterly progress reports on the 15th of each month following a calendar quarter with the first report being due April 15, 1993.

C. That the Permittee, within thirty (30) days of completion of the I/I study for Five Mile Creek, submit a schedule for the necessary design and construction activities.

D. That the Permittee eliminate all bypasses and overflows of the collection system by September 1, 1999.

The effective date of this Order shall be the date it is received
by the Permittee.

DATED: This JUL 22 1993 day of _____, 1993.


for Myron O. Knudson, P.E.
Director
Water Management Division (6W)

PART 2 PERMIT APPLICATION

City of Dallas

4.16 INDUSTRIAL INSPECTION AND CONTROL PROGRAM

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(C)(1)]

(C) A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system. The program shall:

(1) Identify priorities and procedures for inspections and establishing and implementing control measures for such discharges;

Program Summary

This program addresses the Industrial Inspection and Control Program which identifies priorities and procedures for inspections and establishes and implements control measures for industrial discharges to the municipal separate storm sewer system. Five tasks are proposed for implementation over the five-year life of the initial NPDES permit.

The first task proposed involves adding industrial inspectors to the Storm Water Utility staff. In addition to personnel, the databases maintained by the different departments currently performing industrial inspection will need to be coordinated and shared to provide timely information to the department requiring the information.

The next four tasks are partially funded by a U.S. EPA grant and

are interrelated. The first of these, industrial wet-weather sampling, involves the collection of independent data to evaluate existing correlations between industrial category and storm water discharge characteristics. The next task is correlation and analysis of the data developed in the wet-weather sampling program. Concurrently, a review of existing industrial best management practices (BMPs) will be conducted to determine which BMPs are effective in reducing pollutant loadings. Finally, industrial BMP guidelines and discharge limits will be developed based on data gathered in the other tasks. Various chapters of the Dallas City Code will be amended to reflect these discharge limits.

Currently, as part of the City's wastewater pretreatment program, an inspection staff annually visits industries in Dallas and inspects their operations. Their primary duties are to insure that the industries are not discharging materials or substances improperly to the wastewater system. However, as part of this inspection they insure that there are no cross or illicit connections between the storm sewer and wastewater systems. If they see a potential storm water quality problem with the industries activities, they report these activities for correction. Inspection and monitoring of municipal landfills is covered as part of Program 4.7, Landfills Program. The following implementation plan describes additions to this program.

Implementation Plan

This section provides specific information on the tasks required to implement the management program for Industrial Inspection and Control. A major portion of this program will be funded through a grant from the U.S. Environmental Protection Agency.

Task 1 Expand Storm Water Utility industrial inspection program. This task involves adding an industrial inspection program to the Storm Water Utility to include storm water quality activities.

Subtask 1 Evaluate all City programs (Industrial Waste Control, Environmental Health, Fire Department) currently performing activities

related to industrial inspection, control and monitoring. In the evaluation, consider coordination of resources and data bases to provide a smooth transfer of information between the various departments performing industrial inspection.

Subtask 2 Consider consolidating all industrial databases including Industrial Waste Controls' Roster of Significant Industrial Users, Environmental Health's list of facilities receiving a plant survey, Fire Department's industrial inspection list and the list of industrial sources identified for the Part II NPDES Storm Water Permit Application into one master database. The master database will be maintained on the GIS which has been developed as part of the NPDES Part II Storm Water Permit Application. Since the City has limited GIS resources, part of this task may be contracted to a consultant.

Subtask 3 Develop/revise industrial inspection forms to include storm water quality inspection items.

Subtask 4 Develop inspection forms and checklists for inspection of hazardous waste transfer and TSD facilities including review of RCRA spill control plans and inspection of structural BMPs.

Subtask 5 Develop a system for reviewing NPDES storm water discharge permits issued to industrial facilities in the City of Dallas. Industrial facilities are required to notify the owner of the municipal storm drain system used for discharge of storm water. A self-reporting form will be developed and sent to industries. Determine contact point for receipt of all

storm water related notifications. Amend appropriate chapters of the Dallas City Code to address industrial notification and submittal of permit information to the City and to levy fines for noncompliance with notification or submittal requirements.

Subtask 6 Develop a system for notifying the state and U.S. EPA, Region VI of noncompliant industrial facilities.

Subtask 7 Transfer personnel or hire two additional full-time inspectors and a clerk to handle work involved in expanding the Storm Water Utility program.
(Years 1-5)

Task 2 Initiate an industrial wet-weather sampling program to develop data for evaluating the correlation between industrial category and storm water discharge characteristics.

Subtask 1 Divide the list of major outfalls (primarily industrial facilities) prepared under the Source Identification program of the City of Dallas NPDES Part II storm water permit application by SIC classification. Make an analysis of this list to select five (5) representative industrial categories. Base the selection on which industrial categories are most representative of the Dallas industrial community and which industries would most significantly impact receiving waters (or which would have the most potential for improving water quality in receiving waters).

Subtask 2 Evaluate, once the five industrial categories have been selected, the industries within those categories for selection as a candidate wet-weather

sampling site. Contact the selected industries to request participation in the wet-weather sampling program. An incentive package may be developed to encourage voluntary industrial participation, such as assistance in addressing those problem areas, etc.

Subtask 3 Develop sampling plan for industrial wet-weather monitoring program. Samples from three to seven representative storm events from each of the five sites will be analyzed for general parameters including Oil & Grease, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen, Nitrate plus Nitrite Nitrogen, Total Phosphorus and pH. In addition, each site may also have individual analytical parameters assigned which will provide representative data for the specific industrial activity. (For instance, storm water discharge from metal manufacturing industries would be analyzed for specific heavy metals, while discharges from chemical manufacturers would be analyzed for specific chemical compounds.) The total number of samples which will be analyzed will be determined after the total number of parameters to be analyzed has been finalized. The sampling plan will also detail the sampling frequency, types of samples to be collected (one grab and one flow-weighted composite), and quality assurance/quality control procedures.

Subtask 4 Prepare a brief report detailing the results of the sampling program.

The majority of this task will be funded through the U.S. EPA grant for industrial inspection and control. Work will be

contracted to a consultant.
(Years 1-3)

Task 3 Analyze the data collected during the industrial wet-weather sampling program and compare the quantitative results to the industrial classification in an effort to develop a relationship between the industrial category and a specific set of discharge characteristics. Compare data at the Storm Water Utility to sampling data provided by various industrial groups in response to U.S. EPA's group application requirements. Use statistical methods to assess proper representation of sampling events at each of the five industrial sites.
(Years 1-3)

Task 4 Review Best Management Practices (BMPs) currently being used by industries and their effectiveness to develop a database of effective BMPs.

Subtask 1 By inspection, document the use of BMPs at various industries. If the industry is conducting storm water discharge monitoring, review this data to provide input on the effectiveness of the BMP.

Subtask 2 Enter the information gathered during facility inspections in a database for future analysis of BMP effectiveness.

Subtask 3 At the conclusion of the first year of the storm water program, analyze the data and develop a brief report documenting effective BMPs. Include information on BMPs which were not deemed effective and the reasons for such classification. Use the information developed in this report in developing BMP recommendations for industrial categories and in documentation of the first year results.
(Years 1-2)

Task 5 Develop discharge limits and recommendations for BMPs for each of the five industrial categories identified in Task No. 2 above. After the Storm Water Utility develops the guidelines and discharge limits (based on data and new industries added), amend the Dallas City Code. Limits will need to be adjusted as other industries are added. Recommendations for BMP usage for other industrial categories may be addressed if information is available based on Tasks No. 3 and 4 above. As part of the deliverables associated with the U.S. EPA grant funding, careful documentation of this activity will produce guidelines which can be directly utilized by regulatory agencies on a state, regional and national level in the development of industrial general permits.
(Years 1,2,3)

TASK SCHEDULE

Figure 18

4.17 MONITORING PROGRAM FOR INDUSTRIAL FACILITIES

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(C)(2)]

(2) Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD₅, TSS, total phosphorus, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21 (g)(7)(iii) and (iv).

Program Summary

This section of the Proposed Management Plan sets forth a monitoring program for industrial facilities to meet the requirements of the U.S. EPA National Pollution Discharge Elimination System (NPDES) storm water discharge regulations. This document provides specific guidance on monitoring industrial storm water discharges to detect illicit connections within the City of Dallas, and should be used in conjunction with a description of the overall program given in the section entitled "Industrial Inspection and Control Program".

The industrial inspection and control program is designed to supplement, but not supersede, U.S. EPA's program of NPDES permitting of industrial storm water discharges and other discharges subject to permit requirements. Several approaches are available to industries required to obtain storm water discharge permits and permits for other discharges. Industries could have submitted group applications, individual applications,

or, in some cases, submit a notice of intent (NOI) to be covered under a general permit. All the permitting approaches should ultimately converge to a specific set of requirements for each industrial facility. The time frame in which the specific set of requirements is ultimately developed may vary depending on the application approach. It is expected that the final permit terms may be adjusted over the course of the permit term in a similar manner to permit term adjustments for more traditional point source discharges. Therefore, a multi-tiered monitoring program is envisioned to reflect adjustments to permit requirements, while at the same time assisting in making sure that industries are in compliance with storm water discharge regulations and that illicit discharges can be detected and eliminated.

A basic requirement of industry is to certify that storm water does not come into contact with pollutants, and that no illicit discharges are made to the storm water drainage system. That means that controls are in place to assure that storm water does not come into contact with pollutants, and that any discharge that contains pollutants is accounted for and is properly permitted, with suitable treatment, or else is disposed of by means of discharge to a wastewater treatment system that is permitted.

Consequently, an industry may have four principal components for its permitting requirements, as follows:

1. It will have permits in place for all discharges that may contain pollutants.
2. It will develop and document a storm water pollution prevention plan to assure that potential pollutants are not exposed to storm water so that storm water can not be contaminated. (In permits issued, U.S. EPA will require this component as a central requirement. This requirement essentially will be the heart of most permits.)
3. It will monitor to assure that no illicit connections are made and that no illicit discharges can occur (or that, if by accident, such occur that there is a prompt and effective cleanup made so that there will be no storm water pollution after the accident).

4. It will maintain water quality sampling data from storm events for such storm water discharge points as its NPDES permit may require.

A typical permit requirement will be that records will be kept, on site or suitably available, to document compliance with permit terms.

The City's efforts will be directed to assist U.S. EPA in seeking industrial compliance with storm water discharge permit terms and in assuring that such permits are, in fact, obtained. It is recognized that since the U.S. EPA storm water discharge regulations are new, and the requirements are not well understood by all parties affected, that City monitoring efforts will be an interactive process in conjunction with the U.S. EPA, Region 6.

The City's primary monitoring and enforcement efforts will be conducted by the Storm Water Utility (DWU) staff. During the early phases of monitoring and enforcement efforts it may be desirable to coordinate these efforts with the Industrial Waste Control Division (IWC) of the DWU's Wastewater Operations Department. Inspectors from the IWC are already familiar with pretreatment requirements of significant industrial users of the City's wastewater collection system. The significant industrial users are likely candidates for the more stringent NPDES storm water discharge permits that U.S. EPA will ultimately issue. The IWC inspectors also have become familiar with other potentially polluting industries within the City. IWC inspectors observe the operations of several industries which exhibit polluting potential within a general surveillance program. Work efforts for Storm Water Utility inspectors are being formalized within this program and the additional staffing and budget requirements have been outlined in the document, "Industrial Inspection and Control Program".

The assigned inspectors will inspect industrial facilities, subject to the storm water regulations, at least once during the five year permit term. The inspectors will review and examine the documentation and data required to be maintained by the industrial storm water dischargers, as outlined above. They will also conduct an overview evaluation of the industrial site and site operations for conformance with the site's SWPPPs.

Deviations and discrepancies between the Plan and practice will be cited, as appropriate. Where illicit discharges or connections are suspect, the inspectors will arrange for investigative examination of the site along guidelines set up by the Storm Water Utility, or may initiate storm water monitoring and sampling of suspect outfalls, on an ad hoc basis. Every effort will be made to encourage industries to self-monitor and to meet the terms and requirements of their permits.

In order to provide a wider surveillance capability within reasonable budget constraints, additional City personnel may be trained to assist Storm Water Utility staff during the course of conducting inspections for other programs. Thus, Fire Department personnel, and other City inspectors, may be cross-trained and authorized to inspect records and sites during their official visits. (Ordinances may need to be examined to assure that any City inspector on the premises has authority to inspect storm water NPDES permit related documents.) Spot checks may be made randomly, to keep all parties honest, but may also be made by design for industries suspected of illicit discharges, or industries which prove to be generally non-cooperative with the program. Problems noted will be referred to inspectors of the Storm Water Utility for follow-up and further action. The latter will also schedule and arrange for additional specialized City staff as appropriate. For instance, staff of the Department of Health and Human Services Department's Environmental Assessment Section may be able to render effective assistance in some investigations. Similar arrangements have been effected in the past.

To the maximum extent practicable, industries will be encouraged to voluntarily obtain and comply with the terms of their storm water discharge permits. City ordinances will need to be developed to provide for fines and other enforcement mechanisms for those that don't.

Implementation Plan

Task 1 Establish industries covered by the program and assess industrial response. Focus during the first year on

establishing which industries should be permitted under this storm water permitting program, and assure that the permit process is underway for each of them. This is an on-going activity to begin during year 1.
(Years 1-5)

Task 2 Inform industries of U.S. EPA NPDES Storm Water Permit responsibilities. During the first and second years of the City's permit, staff will focus on informing industries of their individual Storm Water Pollution Prevention Program responsibilities. A general information form will be mailed to the industries covered under the storm water regulations. Industries will be required to return the form to the storm water utility so that the staff can remain informed of industrial activity that occurs within the City. In addition, staff will be involved in reviewing the monitoring information required from the industries on the form, and setting up the general random storm water sampling program and any special sampling programs for specific industries, as needed.

During the second and third years, staff should be able to identify and prioritize problem industries and to be able to estimate whether additional staff and equipment support would be needed. If additional resources are needed, they should be acquired during the fourth year. By the fourth and fifth years, the program should be established and become more-or-less routine in overall operation. This evaluation of staffing and equipment needs is part of the on-going operation of the Storm Water Utility and is not identified, herein, as a separate task. Like task 1, this program is on-going with initial implementation beginning in year 1 and continuing through year 5 with program evaluations and adjustments taking place as needed. Request sampling/monitoring data on priority industries from EPA. This data would be accomplished under their EPA Storm Water Permits - General, Group, Multisector, etc.
(Years 1-5).

Task 3 Review industrial monitoring data and industrial storm water pollution prevention plans to measure the expected risk of storm water pollution based on the industrial activities involved. Industries, which are found to be in violation of the storm water regulations because of "illicit" flows will be of significant importance to the City. These situations may involve minor corrective plumbing adjustments or extensive remedial action for which the industry may need to work out a consent decree with the EPA. Violators will be notified to begin remedial action immediately. Data will be accumulated and also will be evaluated in terms of other water quality measurements and measures of stream quality and biotic health made by City staff and others. This task will be implemented begin in year 3, but on-going from then on.

(Years 3-5)

Task 4 Inspect all industries holding NPDES storm water discharge permits within the City of Dallas at least once during the five-year permit term by Storm Water Utility inspectors or other qualified City staff trained in site evaluation procedures for storm water runoff considerations. Request and obtain sampling data from Dallas industries from EPA. Such data is required under the industries' EPA storm water permits. Set up a review of this data at least annually to determine industries that require permits but have not obtained them, or industries in violation of their permits. Refer these industries to EPA for enforcement action. Implement program by third year, with in continuing from then on.

(Years 3-5)

TASK SCHEDULE

Figure 17

4.18 SITE PLANNING PRACTICES

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(D)(1)]

(d) A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system, which shall include:

(1) A description of procedures for site planning which incorporate consideration of potential water quality impacts:

Program Summary

The NPDES Part 2 permit program will include a range of requirements for operators of regulated construction sites to document and implement efforts toward reducing pollutant discharges from the regulated sites. Correspondingly, municipal permittees, including the City of Dallas, will have to include in their permit applications a description of a comprehensive program to reduce pollutant discharges from construction sites - including program procedures and control measures, as well as provisions for oversight and enforcement of compliance by construction-industry permittee.

Good site planning practices are a well developed and understood technique to prevent or control pollutants in storm water discharge from urban development and construction activity. As part of preparing the municipal NPDES Part 2 permit application, the City of Dallas directed its consultant team to:

1. Conduct an assessment of current site planning practices
2. Identify additional or improved practices to reduce pollution from construction activity
3. Propose programmatic measures to implement these beneficial

practices, as well as to oversee and enforce parallel implementation by developers and operators of regulated construction sites

4. Estimate costs to the City of Dallas to implement the proposed site planning practices
5. Suggest an implementation schedule consistent with the November, 1992 deadline for the City's NPDES municipal permit application and the five-year term of the permit once approved by U.S. EPA.

This section presents an introductory site planning program as an important component of an overall urban storm water management program. The issues raised in this document are applicable to any significant development (i.e. roughly one acre or larger) within an urban watershed. The water quality-based objectives of any site plan, and the factors that shape site plan decision-making, are basically the same for private developers as for municipalities as they undertake public works projects that significantly disturb the natural landscape. The emphasis herein is on a general approach (but also some very specific site planning practices) which, if implemented, can minimize the adverse water quality impact of any significant urban development.

The Implementation Plan summarizes and suggests major activities of a "Site Planning Practices" program to be implemented by the City of Dallas over the term of the municipal NPDES Part 2 permit. This section also addresses the anticipated costs of implementation and concludes by presenting a suggested implementation schedule for the Site Planning Practices program activities.

Implementation Plan

- Task 1** Identify and adopt measures to increase interagency coordination of site planning and plan review for new developments. Include a review of all current interagency development review procedures, formulation of management recommendations for any recommended procedural changes, and follow-up through

implementation by the affected departments.

The recommended mechanism is that the Executive Steering Committee forms an interagency, interdisciplinary committee comprised of planning and design professional staff, including administrators, from the departments with responsibility in this area. The committee would be a working group. In addition to this first task, it is recommended that the committee also be responsible for accomplishing the other activities in the Site Planning Practices program.

(Years 2-5)

Task 2 Conduct a comprehensive review of all municipal development ordinances, floodplain management ordinances, and general development plans and standards. Revise as required to strengthen the requirements for beneficial site planning practices, and to enhance attainment of water quality objectives during construction. Objects of this review to include at a minimum:

- The Dallas Development Code (e.g. the escarpment ordinance, floodplain fill ordinance)

- The City of Dallas Planning Policies

- The storm drainage policy of the City of Dallas

- The Long Range Physical Plan for Parks and Recreation Facilities

- The Dallas City Code

- The Dallas Building Code

- Dallas Fire Code

- Thoroughfare Plan

- The CBD Streets and Vehicular Circulation Plan

- Dallas CBD Pedestrian Facilities Plan

Revise ordinances as required to reflect more explicit consideration of water quality impact during construction of proposed development plans, and to assure implementation of regulated sediment and erosion control measures.

(Year 1)

- Task 3** Review and revise (as necessary) the draft Tree Preservation ordinance. Finalize, ratify and implement.
(Year 1)
- Task 4** Review and revise the City's in-place comprehensive development plan. Identify and evaluate watershed areas "at risk" from the standpoint of water quality or nonpoint source pollution (NPS) due to topography, hydrology, advisable land uses, etc. Establish procedures for special screening of proposed new development plans (both public and private) and applications for zoning changes in these areas.
(Year 1)
- Task 5** Conduct additional training of staff with responsibilities for development planning, Environmental Assessment/Environmental Impact Statement, and review of site development plans and appropriate participation of the development community with responsibilities for plan development is recommended. Training topics include the recommended use of site planning practices to minimize nonpoint-source pollution, erosion and sedimentation. Note that the cost estimate below includes labor cost to the various City departments for staff attendance in training sessions.
(Years 1-5)
- Task 6** Conduct a public information campaign to increase awareness of required site planning practices for construction activities and recommended site planning practices to achieve improved water quality. Targeted groups for outreach should include design professional organizations (civil engineers, landscape architects), urban and regional planners, the development community, and civic and community groups. Outreach mechanisms could include brochures, presentations to appropriate professional or industry groups and mass mailings.

(Years 1-5)

Task 7 Adopt a comprehensive Site Planning Checklist and a detailed Erosion and Sediment Control Plan for utilization by City staff with responsibility for site planning or site plan review. Make the submission of the Storm Water Pollution Prevention Plan a condition of receiving a building permit.
(Year 1)

TASK SCHEDULE

[illegible]

4.19 BEST MANAGEMENT PRACTICE REQUIREMENTS

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(D)(2)]

(2) A description of requirements for nonstructural and structural best management practices;

Program Summary

One important means of addressing the new storm water requirements is through the implementation of storm water controls at construction sites. These management, structural and source control measures are known as Best Management Practices (BMPs). A BMP can best be described as a tool to mitigate the adverse environmental impact of storm water runoff.

This section provides an overview of BMP technology and the role of BMPs in a comprehensive approach to storm water management at construction sites. It proposes a City of Dallas program to implement construction BMPs on public works projects and to encourage and enforce BMP implementation by operations of regulated construction sites.

The construction BMP program will be complemented by two other programs which deal with site planning practices and construction inspection, respectively. Together, these three programs will comprise a comprehensive approach by the City to the reduction of pollutant discharges due to new development and construction.

Implementation Plan

Task 1 Develop, in conjunction with NCTCOG and/or a

consultant, a detailed BMP technical design manual which includes the following:

1. Screening criteria accompanied by a detailed discussion of use for selecting BMPs.
2. Compilation of detailed design information for each type of BMP. The design manual would include discussion of the relevant design parameters as well as quantitative design aids such as charge and hydrographs for performing design calculations.

It should be noted that the BMP design manual could be developed cooperatively by the City of Dallas and NCTCOG. Also, this activity should develop BMP design information (and perhaps standard details) distinct from and broader in scope than contained in the pending draft revision of the Public Works Storm Drainage Manual.

(Year 3)

Task 2 Compile standard specification language for installation, use, and maintenance of BMPs at construction sites. Incorporate these requirements in the existing Public works standard specifications and Construction Standard Details.

(Year 2)

Task 3 Review existing City ordinance requirements for submittal of a formal erosion and sediment control plan and use of construction BMPs. Strengthen and further detail.

(Year 2)

Task 4 Conduct additional training of engineering staff in BMP planning and implementation. Training will include City engineers with responsibility for engineering design or review of paving, drainage, water, wastewater or development projects.

(Years 1-5)

Task 5 Implement a program to develop innovative region-specific construction BMPs and to assess the performance of various BMPs. The program could encompass both in-house engineering designs as well as consultant designs for both private and public works.
(Years 1-5)

Task 6 Develop bonding requirements to ensure that funding is available to correct problems when responsible parties fail to act. Also investigate establishing a system of fines and a system for assessing and collecting fines for violations by construction site operators or other responsible parties.
(Years 1-5)

TASK SCHEDULE

[illegible]

4.20 INSPECTION PRIORITIES

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(D)(3) and (4)]

(3) A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and

(4) A description of appropriate educational and training measures for construction site operators.

Program Summary

One important means of addressing the storm water requirements is through the implementation of controls at construction sites. U.S. EPA has included in the regulatory definition of industrial activity "...discharges resulting from activities involving construction operations that result in the disturbance of five acres total land...". This definition was adopted for good reason. Reduction of discharges from new site development and construction will be one of the areas emphasized under the NPDES program because construction activity has been shown to be a major contributor to urban water quality impairment.

The key role of the construction inspector cannot be overemphasized. First, both structural and non-structural measures to reduce pollutants generated by construction operations are only effective to the degree that they are properly implemented - and in the case of structural measures, properly maintained as well. From the day of the preconstruction conference until the project's completion, the inspector is the individual in closest contact with the contractor and his onsite operations. Oversight and enforcement is the inspector's

responsibility, and his role in ensuring implementation of measures to manage storm water runoff from the construction site cannot be filled by anyone else.

Implementation Plan

- Task 1** Develop an Inspectors Field Manual which will assist field personnel inspect for pollutant reduction measures. The manual should cover topics including:
1. A review of the basic principles of sedimentation, erosion and pollutant generation by construction site operations.
 2. A review and discussion of the inspection prioritization criteria.
 3. Descriptions of construction BMPs including proper implementation of operational BMPs as well as the installation and maintenance of structural BMPs. The manual would also discuss the applicability, benefits and drawbacks of the various types of BMPs for different site conditions.
 4. Discussions of enforcement options available to the inspector in case of non-compliance by operators of regulated sites.

(Year 4)

- Task 2** Conduct additional training for City construction inspection staff. The training sessions would basically cover the same topics as recommended for the Inspectors Field Manual. A cooperative approach to training in conjunction with NCTCOG is practical and should be considered by the City of Dallas. Training should include inspectors (and selected managers) from the following organizational units:

Public Works, Construction Inspection
Public Works, Development Activity
Public Works, Facilities Planning
Economic Development, Code Enforcement
Street and Sanitation department, Street
Operation Division, River Levee Operations

Section

DWU, Capital Improvements

Park and Recreation

Estimated cost to the City of Dallas assumes a 16-hour course conducted with a class size of 20 inspectors each session. Year 3 costs include course development, and assume that a total of 100 staff would take the training class. In Years 4 & 5, it is assumed that the course would be repeated once yearly for an average of 20 staff. Training of contractors will be accomplished through a regional training program to be given through NCTCOG of which Dallas is a participant.

(Years 3-5)

Task 3 Recognizing the additional workload that will be associated with increased inspection to reduce pollutants from regulated construction sites, the City of Dallas may hire additional inspectors. The recommendation herein is for five (5) additional inspectors to be hired in Year 2 of the permit team. The inspectors will initially be assigned to the Storm Water Utility but may be assigned differently as workload is evaluated.

Hire new inspectors. Additional funds for vehicles and equipment should also be budgeted. It is assumed that 5 new vehicles would be purchased in Year 2. After the first year, cost would be limited to labor, miscellaneous equipment, insurance, supplies, gas and maintenance.

The recommended numbers of new inspectors are minimum initial numbers for Year 2 of the term of the City's NPDES Part 2 Permit. Additional inspectors may be needed in later years, pending more detailed analysis of the frequency of inspections that can be achieved by the staff, for different project types and by department, district etc.

(Years 2-5)

Task 4 The City should develop flat-file database techniques and/or GIS application to reference construction activity and flag "priority" projects by geographic area as they are permitted. The report and/or special purpose maps developed would total and indicate locations of projects by prioritization factors including disturbed land area and project type.
(Year 1)

Task 5 Review the historic and current inspection workload to compute average frequency on inspections by organizational unit (and district, where applicable). Results of this analysis should be compared with a recommended goal of inspections at least every two weeks for the following project categories:

1. Projects three acres or larger in area.
2. Projects located in the escarpment or geologically similar area.
3. Projects that otherwise require a formal erosion and sedimentation control plan as part of the construction documents.

(Year 1)

Task 6 Implement the draft "Warranty Maintenance Program" currently being developed by Public Works Department. Finalize requirements for financial responsibility for maintenance of permanent structural BMPs by the operators of private development and retainage by the City for funds to cover maintenance in the event of default for a 1-2 year warranty period. Identify which City inspection unit will be responsible for inspection of "Warranty Maintenance Program" - covered control structures.
(Year 2)

Task 7 Implement measures to enforce compliance by site operators with provisions of the municipal NPDES permit and establish penalties for violations by responsible parties. Available enforcement measures

and penalties include direct fines for violators; withholding acceptance on public works jobs; withholding issuance of a certificate of occupancy; and issuance of "stop work" orders for sites in violation. The "Warranty Maintenance Program" should be included as an integral part of this activity. Develop brochure on construction site practices to protect storm water quality to give to all contractors as they obtain their building permits.
(Year 2-5)

Task 8 Conduct a systematic review of the Construction Inspection Priorities program to assess its effectiveness before the expiration of the initial five-year NPDES Part 2 permit and reapplication to U.S. EPA for permit renewal. Rather than waiting and conducting only one assessment in Year 5, it is recommended that assessments be conducted in both Years 3 and Years 5.
(Year 2 and 5)

[illegible]

Figure 20

5 ASSESSMENT OF CONTROLS

Regulatory Requirement [40 CFR 122.26 (d)(2)(iv)(D)(v)]

(v) *Assessment of controls. Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water.*

Program Summary

Estimated reductions in loadings of pollutants from the municipal storm sewers should have a basis. The basis may be from quantitative measurements, where those are possible; or the basis may be qualitative, based on surrogate measures. A strong emphasis in the permitting program is the reduction or elimination of pollutants at the source. To a large measure, reductions at the source depend greatly upon public awareness of the environmental stress caused by the actions of human beings, and upon commitment by the public to good housekeeping and other practices that can prevent pollutants from reaching the surface or ground waters of the United States.

Some "best management methods", such as street sweeping practiced in the City of Dallas and elsewhere, may be somewhat counter-productive in terms of direct pollutant reduction. Street sweeping, while modestly effective in reducing total solids and suspended solids, may actually contribute to slightly higher loadings of metals and nutrients being released to the surface waters. This negative aspect results from the fact that the operations best remove the coarser sediment fractions while leaving finer material, to which the pollutants bind, disturbed and more susceptible to storm water washoff. However, street

sweeping produces streets that are free from litter and which appear to be cleaner than unswept streets. The appearance serves as a psychological boost to individuals to refrain from littering the "clean" streets. Enforcement of anti-littering ordinances is also easier to accomplish because the littering occurs and can be seen against a background of a "clean" street. Consequently, the simple measurement of pollutant loading reduction for street sweeping may show only marginal effect when taken by itself. However, street sweeping, when taken in context with its possible corollary effects, may be an effective BMP measure even though the quantifiable results of the operations may appear to be only marginally effective or somewhat counter-productive. Of the BMP's available, adequately sized detention and retention ponds offer the better pollutant reduction potential once pollutants have entered the drainage system. However, it appears to be true that the best loading reductions occur by intercepting possible pollutants before they can enter the storm sewer system. Such reductions may only be measured by surrogate measures with the end result being an apparently healthier environment.

The City of Dallas is a well established and mature city. Many areas, particularly the industrialized corridor adjacent to the Trinity River, are substantially developed, highly impervious, and offer few opportunities for the large scale retention basins that are possible in under developed areas of the City. Some under developed areas exist for which regional BMP's may be appropriate within the City. However, in the industrial corridor, good housekeeping procedures and tight control over potential pollutant discharges offer the best feasible approaches for storm water quality management.

Therefore, measures of effectiveness of controls should include surrogate measures such as number of calls, gallons of oil collected, number of classrooms visited, etc. None of these measures can be directly converted into estimates of pollutant loading reductions. However, they all may be measures of management program effectiveness in reducing pollutants. The proposed storm water management program includes the use of surrogate measures, where appropriate, in lieu of, or in addition to, other quantifiable measures. Some of the measures used will be modified, as the management program unfolds, to produce measures that better reflect environmental conditions in the City

of Dallas than those presently available.

Surface and Ground Water in the City of Dallas

Water supply for the City of Dallas, and most adjacent jurisdictions, is from surface water sources. The City derives water from the Elm Fork of the Trinity River, from Lake Ray Hubbard, and several other reservoirs non-contiguous to the City. The City has virtually no drainage control over the point of withdrawal on the Elm Fork of the Trinity River, and has no drainage control over the land areas tributary to Lake Ray Hubbard, and has no control over drainage areas tributary to the non-contiguous reservoirs. The Trinity River through the City of Dallas is largely composed of treated wastewater from other jurisdiction (during dry weather conditions). The City of Dallas contributes its own treated wastewater to the Trinity River for use again by downstream jurisdictions. The City also is correcting storm surcharged sanitary sewer overflows to the Trinity River and contributing drainage areas within the City of Dallas.

Little use is made of ground water within the City of Dallas. Most wells, for which records have been kept, have been capped in recent years as surface water supplies have become more plentiful to users. Only a few deep wells appear to be operating, apparently for cooling and makeup water purposes. The City of Dallas' surface waters have no apparent interaction with the deep aquifers beneath the City. Indeed, surface soils are mostly silt or clay loams that do not readily support ground water recharge. The surface soils are underlaid by chalk and shale formations which also discourage ground water recharge. Therefore, principal storm water runoff and quality interactions with ground water considered in the storm water management program have been mostly focused on shallow ground water in the upper soil column and on interflow and water table level interactions. These interactions can be reflected in the existing and proposed stream water quality monitoring activities (which presently use National Sanitation Foundation water quality indices), and in the programs

monitoring ground water quality such as that found in wells adjacent to active landfill activities, or in remediation of past faulty solid waste disposal practices.

Public Participation and Governmental Coordination

Public participation is a key component in the development of storm water management programs for the City of Dallas. Programs are being developed to involve citizens at every level in controlling pollutants with means that may be at their disposal. These means include providing citizens with literature (and facilities, where appropriate), speaker's bureau appearances, and school programs concerning good housekeeping; proper disposal of used oil and household hazardous wastes; proper application and handling of pesticides, herbicides and fertilizers; promotion of the adoption of streams (and stream-walking programs); adoption of streets and local park areas (for maintenance and beautification programs); observation and reporting of promiscuous dumps; and public reporting of apparent stream and storm sewer water quality problems such as spills, dumping, or accidental discharge of materials.

Programs are also being developed for governmental coordination within the City of Dallas so that the number of eyes officially available to the City is maximized in order that problems can be detected at the earliest possible time and remedies initiated in a timely fashion. In addition, the City of Dallas will participate and cooperate with adjoining jurisdictions, either by direct contact or in suitable forums, to share program experiences, problems and results; and to maintain contact with adjacent jurisdictions from which the City of Dallas receives storm water flows or to which the City contributes storm water flows.

All of these measures help the City to know, manage and monitor, and control its storm water systems. The various communication and reporting assessment measures are initially outlined in this document and supporting documents developed for the City of Dallas. Experience with the storm water management programs may result in revisions to the reporting measures to enhance and maximize their utility. All the proposed storm water management

programs being formulated within the United States are dynamic in nature and must be adapted to the uniqueness of each municipal storm sewer system. It will take some time for the best set of assessment measures to be developed. The measures outlined are a starting point, not an ending point.

Quantitative Measures

An ARC/INFO Geographic Information System is being developed within the City of Dallas which will assist in the management of the storm sewer system and other systems of the City requiring management and maintenance. An ARC/INFO Macro Language (AML) has been formulated to permit analysis and assessment of storm water drainage concerns to any point within the City of Dallas. Both present and future conditions can be assessed. Present conditions include present land uses, drainage patterns, pollutant loading rates, present best management practices and pollutant removal efficiencies (based on reported values from the literature), and the like. The current AML makes use of existing City of Dallas land uses (as developed and reported by the North Central Texas Council of Governments (NCTCOG)). National Urban Runoff Program (NURP) pollutant loading rates, imperviousness as estimated for various NCTCOG land uses, and BMP removal efficiencies (taken from the literature) for recognized BMP's. The AML follows the draft guidance from EPA for use of its "simple method" for surface water assessments. The AML allows assessment of pollutant loadings for EPA's list of 12 pollutant parameters based on the NURP data. (Dallas Metroplex pollutant loading rates can be easily substituted for the NURP rates when the Metroplex numbers become available.) The AML allows analyses for four conditions: 1) present land use with no BMP's, 2) present land use with existing BMP's, 3) present land use with additional BMP's, and 4) future land use (with or without BMP's present or future). The AML allows analyses of full watersheds down to small catchment areas, depending on how extensive the base file coverage is. The key is to set up the base files with the land use polygons and basin boundaries to the point of drainage concentration. BMP's can be assigned to specific polygons or to areawide BMP's, as appropriate. Removal efficiencies for each pollutant can be assigned for the various BMP's. A lookup table is developed for each BMP. The removal

efficiencies assigned can be based on national experience (as done for the set of available BMP's in the AML) or from local data, as developed. The AML contains a routine allowing the establishment of a BMP centered on a physical feature, such as street-sweeping centered along a street centerline, or a vegetative buffer established alongside a stream. Such an AML allows assessment of BMP's for a wide variety of "what if ?" situations.

The City of Dallas has several BMP's in place. Street sweeping is extensive; covering the central business district (CBD) downtown five working days per week; covering 2042 curb/gutter miles of the primary street system once per month; and covering residential areas, in the past, once or twice per year. As noted, pollutant reduction may be modest, or slightly counter-productive; but, by keeping the streets free from debris, corollary benefits may accrue by encouraging people to not litter, etc. The storm water sump system along the Trinity River provides a BMP of unquantified benefit. The sumps are for flood control, but trapped sediments must be removed periodically. These sediments probably contain nutrients and other pollutants that would otherwise be carried down the Trinity River. Bachman, Mountain Creek, Lake Cliff, and White Rock Lakes all provide trapping efficiency and removal of sediments and pollutants from surface waters. Data is not available yet to characterize the removal efficiencies. The City also has a few detention/retention facilities in small drainage areas near the periphery of the City. Data concerning effectiveness of these facilities has not yet been developed. As part of the management programs, data development studies have been proposed to assist in evaluating the effectiveness of several of these "BMP's".

The following Table, "Gross Pollutant Loadings", based on NURP unit loading values, local land use based on NCTCOG definition, and estimates of imperviousness for the land uses, shows the potential gross contribution of pollutants for the City of Dallas, and the Town Highland/City of University Park, and Cockrell Hill based on the ARC/Info methodology. The rainfall depths used are based on National Climatic Center, Asheville, N. C. rainfall statistics for Love Field in Dallas. The annual rainfall depth of 34.89 inches, and the average storm depth of 0.698 inches, were used.

There are other quantifiable measures that will be used within the storm water management program. Some measures that may be obtained include: the gallons of used oil turned in to various receptors; the tons (or other measure) of recyclables turned in to approved receptors; the numbers, sizes and composition of promiscuous dumps cleaned up; and similar quantifiable measures. These measures cannot be directly translated into pollutant reductions. Rather they are measures of reduced opportunity for environmental degradation that result from storm water management programs.

Other quantifiable measures that can be used to assess water quality are the stream water quality indices and water quality sampling results taken at set sampling sites throughout the City. The City of Dallas has a total of 191 sampling points. Most of the sampling locations are at points along the principle streams, or tributaries in the City. Both water quality samples and physical and biotic assessments are made at these sites once or twice per year. Water quality measurements are made approximately quarterly at 46 locations located near the mouths of principal streams or tributaries. Measurements have been taken, more or less regularly, since 1982. The observations and measurements taken are measures of water quality which may not be directly related to pollutant loading rate reductions, but certainly will be indicative of the effectiveness of storm water management efforts. An annual report on the observations is usually produced.

GROSS POLLUTANT LOADINGS

		JURISDICTION		
POLLUTANT	LOADING (pounds)	CITY OF DALLAS	CITY OF COCKRELL HILL	TOWN OF HIGHLAND PARK/CITY OF UNIVERSITY PARK
BOD5	Annual Storm	8,538,710 170,823	13,627 273	138,772 2,776
COD	Annual Storm	66,886,564 1,338,115	106,743 2,135	1,087,048 21,747
Total Suspended Solids	Annual Storm	170,062,64 8 3,402,228	271,399 5,430	2,763,876 55,293
Total Cadmium	Annual Storm	1,423 28	2.27 0.05	23.1 0.5
Total Copper	Annual Storm	37,713 754	60.2 1.2	613 13
Total Lead	Annual Storm	169,351 3,388	270.3 5.4	2,752 55
Total Zinc	Annual Storm	251,180 5,025	400.9 8.0	4,082 82
Total Dissolved Solids	Annual Storm	56,924,736 1,138,821	90,845 1,817	925,147 18,508
Total Phosphorus	Annual Storm	355,780 7,118	568 11	5,782 116
Dissolved Phosphorus	Annual Storm	106,734 2,135	170.3 3.4	1,735 35
Total Nitrogen	Annual Storm	2,355,261 47,119	3,759 75	38,278 766
Organic + Ammonia Nitrogen	Annual Storm	1,636,586 32,741	2,612 52	26,598 532
Average Percent Impervious		44.85	42.16	41.72
Total Area (Acres)		219,834	371	3,809

Loadings based on National Urban Runoff Program unit loadings and "simple" procedure. Land uses based on NCTCOG determinations. Imperviousness assigned to land uses based on engineering judgement. Possible effects of BMP's not included (see text).

Qualitative Measures

A host of qualitative measures will be used to measure the level of effort exercised within the storm water management programs. Some of these can be quantified. Examples of quantifiable measures of a qualitative nature are: numbers of citizens involved in stream walk programs; number of speaker's bureau addresses made to civic groups; numbers of bill-stuffer brochures and newsletters sent to citizens; numbers of citizen reports of storm water quality problems; and the like. These qualitative measures cannot be directly related to pollutant load reductions, but are a measure of citizen awareness and response to storm water management initiatives. Ultimately, quantifiable water quality improvements will begin to be measured on a regular basis. The results will not be as predictable or measurable as point source clean up efforts but may prove to be dramatic, ultimately.

The following sections outline initial qualitative and quantitative measures to be used to assess potential for pollution reduction and program effectiveness for the four principal storm water management areas and their respective individual programs. The four principal areas are: commercial and residential programs; illicit discharges and improper disposal; industrial and related facilities; and construction sites (associated with new development and redevelopment).

Residential and Commercial Management Programs

Public Participation and Governmental Coordination

The success of this program area can be measured in terms of increased awareness of the general problems of storm water runoff by the media (radio, television, newspapers, etc.), the business community, neighborhood groups, school students, and the general public. Measures of success will include production and distribution of the specific literature targeted at problem areas such as: illicit discharges and spills; proper disposal of used oil and toxic household materials; and the proper use and disposal of pesticides, herbicides and fertilizers. Random phone surveys may be used to test community awareness of the issues following distribution of bill-stuffers, and the like. Other

measures of success may include speaker bureau engagements concerning storm water problems for the general public, and briefings for City staff and elected officials. Records will be kept concerning the various groups to be targeted, the nature of the public awareness thrust, and records concerning responses received.

Maintenance Activities and Schedule

Measures of success in this program area include reviewing and revising operation and maintenance practices to reduce sedimentation and disturbance of fine grained material resulting in training material and/or directives to maintenance staff; development of a written sediment and debris removal protocol; instituting new inspection practices with associated written training materials and/or directives to staff; and generating a maintenance schedule to accomplish these objective. and to manage the maintenance program. The latter should be keyed to the ARC/Info GIS system so that problems may be properly logged, appropriate data accumulated, and maintenance activities tracked.

Specific measures include the revision of the City's Drainage Design Manual during the first year of the permit, and development of maintenance specifications during the second year.

Opportunities exist to develop quantitative data from these maintenance activities by recording sediment and debris composition and removal quantities so that accumulation rates can be later correlated to land use and runoff patterns over time. Such data can then be used to quantify the effectiveness of BMP's adopted and management practices adopted.

Comprehensive Master Plan - New Development and Redevelopment

Measures of effectiveness of this program include delineation of watersheds sufficiently small (say approximately six square miles each) to allow ranking of watershed according to urban and suburban conditions (percent impervious) according to development or redevelopment potential. Review and refine the platting process and define requirements for inclusion of storm water quality considerations in development and redevelopment activities. Enactment of suitable ordinances during the course of the permit will also be measures of success.

Best Management Plans for Fully Developed Areas

Measures of success include review of City operations and establishing storm water pollution prevention plans at City facilities including measures to maintain good housekeeping and to assure that pollutants are kept clear from storm drains.

Results of installation of a pilot program of inlet sedimentation trays in the central business district will be a measure of success. If quantifiable reductions in pollutants result at a suitable cost-benefit ratio, the pilot program can be extended in the future. If positive results are produced the program could also be tried in industrial areas, such as trucking terminals and bus yards, etc.

Results from stenciling of storm water inlets can be evaluated based on opinion polling of area citizens to assess awareness response to such a program. Also results from physical assessment of the durability and maintainability of the stencils can be used to assess the merits of such a program.

Public Transportation Right-of-Way Operations and Maintenance

Suitable lists of drainage facilities received from TxDOT, TTA, and DART in a timely fashion may be a measure of the possibility of cooperation between the City and these public entities.

Joint review and development of maintenance procedures and specifications can result in the production of a common document(s) between entities for the maintenance of public right-of-way facilities within the City. Common maintenance specifications for pesticides, herbicides, and fertilizers; for removal and disposal of sediment and debris (and maintenance of records quantifying the activities); definition of erosion and sedimentation control and vegetation management practices; definition of unsuitable weather conditions to conduct maintenance activities and safeguards to be used to protect the quality of storm water generated from right-of-ways will be positive measures for the improvement of surface waters and possibly of ground water.

Procedures for Existing Flood Management Projects

Specific studies are to be accomplished during the term of the permit. Results of these studies may be used to guide possible

retrofits of eleven existing detention and retention ponds, three lakes totally contained within the City of Dallas, sump areas and pumping stations, and levee flood plains and adjacent creeks. Use of litter booms and creation of forebays for sediment trapping appear to be viable means of enhancing lake water quality and pollutant removal efficiency. Likewise, operational modifications of sump areas and pumping trigger levels.

Landfill

Specific measures related to surface and ground water quality for this program include: regular examination of recycling and active landfill sites to assure that pollutants do not come into contact with storm water; continuous tracking of solid waste disposal regulations to resolve any differences between landfill and storm water regulations; redevelopment of former landfill documents and site examination; and inauguration of a promiscuous dump clean up team. Specific measures of success include the number and types of promiscuous dumps closed and citizen participation in the reporting of such dumps.

Pesticides, Herbicides and Fertilizers

The establishment of an Integrated Pest Management Coordinator with an IPM committee will be an early measure of success in this program. Development of coordinated procedures and training of City personnel in the proper application and handling of these substances are also measures of success. Development of literature for citizens and the promotion of state sponsored training programs, and the use of City employees as speaker's bureau participants concerning these matters are also useful measures of program success.

Illicit Discharge Programs

Illicit Discharge Detection and Elimination

Measures of success in the overall illicit discharge and detection program include: developing relationships between the stream monitoring and sampling program of the City of Dallas and watershed related databases of land use, industries, outfalls, and results of inspection, data gathering, and citizen complaints and actions. Specific measures of success relate to public reporting of spills and illicit discharges and the mechanisms in

place to respond to reports and resolve them. A measure of success may relate to citizen awareness of the storm water hotline and its purpose. (The City will pursue adopting a catchy telephone number such as XXX-RAIN, where XXX is the specific telephone exchange available.) Further success is related to public participation programs including involving citizen groups in "stream-walking" programs ("adopt-a-stream") and/or other pro-active programs to which the City of Dallas citizens respond.

Field Screening Procedures

The field screening program has easily definable measures of success. The program involves dry weather inspection of all storm water outfalls on a regular schedule. Areas of anticipated problems will receive special attention. These areas of special attention will be redefined during the program based on experience gained in the overall program and on specific data gathered and analyzed through the GIS linked databases developed.

Detailed Investigation Procedures

Most of the measures used to measure the initial success of the program relate to documentation of procedures to be used, training personnel in following those procedures for field sampling and for following appropriate safety practices, and in acquiring the necessary equipment. A City ordinance regarding prohibited substances to storm drainage systems needs to be rewritten and approved. Further initial definable efforts relate to characterizing possible industrial discharges to City storm water drainage systems by SIC codes. An initial set of reporting forms and a corresponding data base need to be set up. It is expected, based on initial pilot studies, that a limited amount of detailed inspections will be required. Results of investigations performed and other SWU investigations will be used to develop prioritization schemes for how staff will be assigned to perform detailed investigations.

Spill Control Procedures

The principal initial measure of success in this program is the establishment of an inter-departmental Spill Response Committee (or sub-committee) to evaluate City spill response capabilities and to standardizing and formalizing procedures between departments during and after spill events. A second measure is

reviewing industrial spill response plans and incorporating appropriate information into City databases to enhance City response and follow-up capabilities. A third measure is establishing a small business spill containment education program for those businesses too small to fall under the industrial spill response planning requirements. A final measure is defining and establishing rapid response areas where time of response is of particular importance.

Used Oil

Measures of success involve dissemination of information to citizens concerning proper disposal of used oil and the location of used oil receptors. Some receptors keep records concerning the volume of used oil received and processed. Receptor organizations will be encouraged to gather such information and share it with the City for planning purposes. The City will keep the necessary records concerning its own used oil program and for its role as a receptor. The City will review its own operations, at least annually, to assure proper housekeeping practices concerning used oil and grease, etc. The City will continue to track the transportation and disposal of used oil by used oil carriers, and will inspect used oil management by industries as part of its overall industrial inspection program.

Toxic Materials

The City will disseminate information on the proper storage and disposal of household hazardous wastes and will provide businesses with literature on toxic materials exchange programs and concerning other means of commercial collection and disposal of hazardous materials. The City will also disseminate literature on the use of safe alternatives to household hazardous wastes. The City will explore options and will initiate a household hazardous waste collection day(s) at one or more of its facilities. The City will expand the days and sites to provide relatively convenient disposal sites for its citizens as budgets allow, based on experience with its phased program.

Wastewater Infiltration Control

Specific goals and timetables have been, or are being, established for wastewater infiltration control. Remediation of storm water surcharged sanitary sewer overflows, as presently identified, is underway according to a schedule. A wastewater

master plan is being finalized in which other problems are being identified with a schedule to address them being established. The SWU will integrate these efforts within its overall storm water management planning so that efforts can be coordinated to the maximum extent practicable.

Industrial Activity Programs

Industrial Inspection and Control

Industrial inspection programs within the City will be coordinated, and an industrial database will be constructed for use within the GIS system so that field inspectors will be able to coordinate and evaluate storm water observations with industrial activity which could influence the observations. Mechanisms will be developed to track the status of NPDES industrial storm water discharge permits for industries within the City so that appropriate actions may be taken. A specific EPA grant program will be used to develop wet-weather sampling data for evaluating the correlation between industrial category and storm water discharge characteristics for several industrial categories in Dallas.

Monitoring Program for Industrial Facilities

In conjunction with the management area above, a database of industries having, or needing, NPDES storm water discharge permits will be built. The City will assess industrial response and will encourage industries to meet requirements. A program of reviewing industrial storm water pollution prevention plans (SWPPP's) will be started as industries comply with the permit requirements. A program of selected inspection and storm water monitoring of industries will be begun later in the permit period, as appropriate.

Construction Activity Programs

Site Planning Practices

The City will examine its site planning review process to incorporate erosion and sedimentation control measures and other water quality considerations within the City's site planning review and approval procedures. Existing City ordinances will be

reviewed in order to develop and adopt the necessary new ordinances to meet these water quality related objectives with the full force of City authority.

Best Management Practice Requirements

A detailed BMP technical design manual will be developed for use within the City. A set of specifications will be developed for installation, use and maintenance of BMP's at construction sites for incorporation in City of Dallas standard specifications and details.

Inspection Priorities

An Inspectors Field Manual will be developed to assist personnel in inspecting for pollutant reduction measures in the field. City personnel will be trained in its use and objectives. Additional inspectors will be added to City staff to accomplish the additional efforts required.

CHAPTER TWO

TEXAS TURNPIKE AUTHORITY

STORM WATER MANAGEMENT PROGRAM

THE TEXAS TURNPIKE AUTHORITY

Part 2

**NPDES PERMIT APPLICATION FOR
STORM WATER DISCHARGES FROM A
MUNICIPAL SEPARATE STORM SEWER SYSTEM**

**DALLAS NORTH TOLLWAY
(The segment within the City of Dallas)
and
MOUNTAIN CREEK TOLL BRIDGE
(The segment within the City of Dallas)**

Co-application with the City of Dallas

**This Part 2 is a supplement to
and is a part of the Part 2 NPDES
Permit Application for Storm Water
Discharges from a Municipal Separate
Storm Sewer System filed by the City of Dallas**