NPDES PERMIT NUMBER TXS001801

PLANO

MUNICIPAL SEPARATE STORM SEWER SYSTEM

STORM WATER MANAGEMENT PROGRAM

CHAPTER ONE

CITY OF PLANO

STORM WATER MANAGEMENT PROGRAM

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SECTION 4

STORM WATER MANAGEMENT PLAN

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SECTION 4

STORM WATER MANAGEMENT PLAN

OVERVIEW

The City of Plano has developed its Storm Water Management Plan (SWMP) following two years of intensive committee meetings and discussions at NCTCOG. During the two year period several guidance documents and related materials have been published. Through these materials the City of Plano has crafted its SWMP for submittal to EPA.

Documents such as the Storm Water Quality Best Management Practices Manuals for Construction Activities, Industrial Activities, and Residential/Commercial Land Uses (see NCTCOG submittal) served as "guidelines" for the SWMP. The manuals will also be used for implementation and assessment of the SWMP.

The plan contains a detailed description of City activities, along with projected manpower needs, schedules and fiscal analysis. The City's approach is to employ "best management practices" which provide source control methods aimed at preventing pollutants from entering storm water runoff. The alternative, which is treating storm water using expensive structural controls such as filtration mechanisms or detention/retention ponds, is not part of the City's plan.

Most of the components of the proposed plan are currently being performed by various City departments such as Public Works, Development Services, Health Department, Parks and Recreation and Fire Department. The following is a brief description of each element.

Public Education and Employee Training

Educating the "public" on how each person can improve water quality is one of the most important segments of the plan. With news articles, newsletters, fliers, videos, slides and PTN programs, guidance on proper use and disposal of harmful products will be provided to Plano citizens and businesses. The educational process will be incorporated with Keep Plano Beautiful network and other campaigns initiated by Public Works aimed at improving the environment.

Development Planning, Review and Construction Management

Development Services will investigate ways to improve the review of development and re-development plans to incorporate better methods for reducing pollutants in storm water. Inspection of construction sites will be conducted in a manner which ensures proper installation and maintenance of erosion and sediment control devices. Engineering plans for construction will require pollution prevention documents and proper notification to EPA prior to release for construction. This approach will apply to all construction activity which must be covered by an NPDES permit.

Storm Sewer System Maintenance

The Streets and Traffic/Drainage departmental procedures will remain relatively the same with an emphasis on removing litter, debris, trash, and other pollutants from storm sewers, curb inlets, creeks and siltation ponds. Day-to-day operations will be analyzed for proper maintenance techniques, and training will be provided where changes are nece[illegible] improve water quality.

Pesticide and Fertilizer Use

Proper application of pesticides, herbicides and fertilizers by City personnel, such as Parks Maintenance, will be stressed in this management plan. In meeting this goal, employees will continue to keep licenses valid, maintain spray logs and other records, and receive periodic training to ensure appropriate use, disposal and storage. Annual evaluations of various City departments will be made to highlight proper application techniques and recommend changes when appropriate.

Illicit Discharges and Improper Disposal Management

For the program element of Illicit Discharges and Improper Disposal Management, dry-weather field screening to find illegal connections or discharges will continue. Because very few illegal discharges were found in initial screening, it is proposed that existing personnel, such as Utility Operations, Traffic/Drainage and Health, lend support to correct the problem in these cases rather than provide additional staff. For response to chemical spills and other occurrences, it is anticipated that the Fire Department and Environmental Health can adequately handle most situations. Rehabilitation of sanitary sewer lines to prevent overflows to storm sewers and creeks will continue and should improve water quality over time, as required by the regulations.

Used Oil and Toxic Materials Collection

Through Solid Waste and Public Works educational programs, the promotion and encouragement of citizens to bring used vehicular oil to businesses and solid waste transfer stations will be integrated in the plan. Funds will be made available to supplement this effort. Education of citizens and businesses on proper disposal of household hazardous wastes will be funded as well.

Industrial Inspection and Monitoring

Inspection and monitoring of industrial facilities will enable City personnel to document potential contamination of storm water by exposed chemicals, manufacturing and shipping processes and material disposal practices. If a particular problem should be discovered, appropriate action by the City will take place. The inspections will be accomplished by hiring one Environmental Health Specialist in fiscal year 1994-95. These activities and overall enforcement of water quality problems are currently handled on a complaint basis. A more active role in inspection of industries and everyday occurrences, such as grease and sand trap overflows, carpet cleaning disposal into streets, dumping of grass clippings, swimming pool drainage to alleys, and other items, should discourage these activities and satisfy this element of the regulations.

Stream Bank Erosion Control and Drainage

Erosion control currently aimed at protecting stream banks will continue. The erosion protection also serves to reduce the sediment load or amount of soil that washes from unstable slopes. Without erosion control water quality suffers, increased flooding potential tends to occur and maintenance costs associated with dredging increase. The amount set aside for Capital Improvement Projects will fund this portion of the plan.

NCTCOG Activities

The City of Plano will continue to work with the North Central Texas Council of Governments and the other six cities, as appropriate, in the regional approach to the EPA requirements. We believe this approach will greatly benefit the City and provide a better methodology for improving water quality on a regional basis rather than according to municipal boundaries.

The City reserves the option to refuse participation in a NCTCOG program if it is not beneficial to the needs of the SWMP. The City is not presenting the NCTCOG programs as binding requirements of its Part II Application or permit conditions.

Personnel

The implementation and coordination of the City of Plano Storm Water Management Plan, as outlined by the issued permit, will be handled by its Environmental Engineer. This person will be dedicated full time to overseeing the activities of the management plan to assure permit compliance. Periodic reviews, updates and collection of data from various city departments will also be conducted by the Environmental Engineer.

The City will also utilize the skills of its Hydraulic Engineer to review impacts of flood management projects on water quality and assessment of retrofitting flood control devices to provide additional pollutant removal. The Hydraulic Engineer will also provide most of the support for the Stream Bank Erosion Control and Drainage Problem Correction.

The Engineering Department will lend assistance to the Environmental Engineer in areas such as development review, construction inspection and collection of data. Departmental activities outside of Engineering will be conducted by existing staff with the exception of the Health Department.

As detailed later in the management plan, the City anticipates hiring an Environmental Health Specialist during fiscal year 1994-95. The individual hired would be responsible for water quality violation enforcement, illegal dumping, illicit discharge correction, improper disposal, industrial inspection and industrial monitoring.

Storm Water Management Plan Summary Sheets

A one-page summary of each program element of the Storm Water Management Plan is located at the end of this section for quick reference. The summaries contain the appropriate regulation addressed, objective, responsible parties, implementation requirements, program elements and schedule.

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PUBLIC EDUCATION AND EMPLOYEE TRAINING

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2)---(iv) (A) (6):
(iv) (B) (5) (iv) (B) (6)

Objective:

Educate the "public" on how each person can contribute to the effort of improving water quality. Provide guidance on the proper use and disposal of harmful products. Distribute information to citizens which contains the do's and don'ts of handling potential pollutants of storm water. Train municipal employees on the proper use of chemical application and other maintenance related activities.

Program Description:

The Public Education program of the City of Plano will be integrated into existing efforts to inform citizens of recycling, composting, solid waste pickup and Keep Plano Beautiful activities. Existing programs, as detailed later, include Clean Campus Program, Adopt-A-Highway, City-Wide Clean-Ups and Don't Bag It. These activities carried out by existing staff and volunteers are invaluable in protecting the environment and provides the appropriate mechanism to carry out the storm water education campaign. As activities are implemented through Public Works, the storm water pollution prevention message will be blended into the normal process of educating school children, citizens, businesses and other interests. A hotline number will be established for public reporting of illegal dumping (see City's response to January 30, 1995, EPA letter).

Throughout the permit term, public information/education efforts, materials such as press releases, news articles, newsletters, fliers, video and slide shows will be developed. As the materials are made available and further enhancement by the City takes place, the education literature will be distributed to the appropriate audiences. Example audiences include homeowners groups, civic organizations, school children, general public, elected officials, municipal employees, and businesses.

The City of Plano cable television station, along with the local newspaper, will be used to broadcast videos and messages and to publish articles. The storm water education campaign will also extend to City festivals and fairs where large groups of people can be introduced to City programs and given useful information for proper storm water care. The Plano Balloon Festival held each September is an example of this type of event.

Training sessions will be held on an annual basis for City personnel whose maintenance activities during normal job functions could impact water quality. The sessions will be generic in nature unless a specific problem or target audience warrants more detailed training. The content of the training session will be developed over the initial period of the permit term.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Distribution of Public Information to Citizens, Schools, Organizations, Etc.	6 Months
Material Research & Development of Public Awareness Literature	24 Months
Targeted Audience Campaign for Commercial & Industrial Sectors	30 Months
Media Involvement	24 Months
Development of Municipal Employee Training Materials	36 Months
Training of Municipal Employees Using Developed Materials	36 Months

Fiscal Summary:

The costs to operate the public education campaign and Keep Plano Beautiful Program during the City of Plano fiscal year 1993-94 (Oct. 1 - Sept. 30) was approximately $92,826. After the permit is approved, the City will be able to provide costs for fiscal year 1995-96. Yearly costs will be provided on an annual basis thereafter.

Program Assessment:

The City of Plano strongly believes public education is the primary source control measure that provides the most cost effective means of preventing pollution of storm water. Attitude change and stopping the problem at the source should be one of the "best management practices" that is well worth the money and time spent on the activity.

The City will monitor and observe the progress of this program through its sampling effort, attitude of its citizens and changes of every day activities, and report to EPA on an annual basis. Hopefully progress will be shown and elimination of careless dumping and improper disposal will occur.

DEVELOPMENT PLANNING AND CONSTRUCTION MANAGEMENT

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2)---(iv) (A) (2):(iv) (A) (4):(iv) (D);(iv) (D) (1):(iv) (D) (2):(iv) (D) (3):(iv) (D) (4)

Objective:

Review existing subdivision development ordinances, comprehensive master plan and other procedures which regulate development and re-development. Modify and update policies where appropriate to require development to implement practices to reduce pollutants in storm water.

Analyze existing City procedures used to review erosion and sediment control plans. Encourage use of Construction BMP manuals for design of pollution prevention plans. Train construction inspectors on the proper methods of installation and maintenance of erosion and sediment control devices.

Program Description:

The City of Plano currently uses established policies and procedures which provide the guidelines for development and re-development on all property within the City boundaries. Development plans are submitted to the City and processed by Development Services. During this process the plans are reviewed for consistency with subdivision ordinances, comprehensive master plan, zoning requirements, planned development ordinances, drainage criteria manual, construction specifications and other adopted policies and procedures. Recommended changes are provided by staff and handed back for revisions. After all revisions are properly addressed, the construction plans and documents are approved for construction. As projects are being built, a staff of 12 construction inspectors from Engineering conduct routine inspections to document conformity to the plans. The inspectors direct contractors to make changes as the need arises. Stop work orders are issued if cooperation and revisions are not made by contractors.

The standard procedures mentioned above will continue for development with the following additions:

- Review of policies and procedures.
- Encouragement of more open space and pervious area.
- Promotion of the use of the Storm Water Quality Best Management Practices for Construction Activities developed through NCTCOG.

- Requiring appropriate Storm Water Pollution Prevention Plans (SWPPP) for construction activities that must be covered by an NPDES permit.

- Requiring a copy of the Notice of Intent (NOI) prior to release for construction for any project that is seeking coverage under an NPDES general permit.

- Providing training for construction inspectors and professional staff.

- Providing information to developers, owners, engineers and contractors on construction permit requirements.

- The City of Plano plans to participate in appropriate NCTCOG activities aimed at reviewing existing City codes and making recommendations for improved development processes. Procedures to document impacts of new flood management projects on water quality will also be analyzed. Construction BMP manual amendments, training and certification will also be coordinated by NCTCOG.

- Evaluating existing structural flood control devices maintained by the City to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Development Policy and Procedure Review	36 Months
Update and Adopt Necessary Changes to Policies and Procedures	36 Months
Implement Recommended Changes	36 Months
Promote Use of Construction BMP Manual	6 Months
Require SWPPP and NOI Prior to Release for Construction	6 Months
Training for City Staff Responsible for Review of Engineering Plans and Inspection of Construction Sites	12 Months
Provide Information to Development Community	6 Months
Evaluate Existing Structural Controls for Retrofit	36 Months

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Fiscal Summary:

The day-to-day review and inspection of all development projects will be conducted by existing staff. No additional personnel is required. Expenditures of inspection personnel for salaries and benefits dedicated to erosion and sediment control are projected at $35,000 (approximately 8% of 12 inspectors' time spent at construction sites) for fiscal year 1993-94.

Program Assessment:

With the current mechanisms in place for the development process and construction inspection, along with recommended additions, most water quality concerns associated with development should be addressed. Training of staff associated with construction design and inspection should provide expertise to assure adequate control of sediment and erosion.

Documentation of the success of this program element will be provided by annual totals of development projects, SWPPP submitted and NOI's collected. Inspection summaries and periodic project reviews will also be documented.

STORM SEWER SYSTEM MAINTENANCE PROGRAM

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2)---(iv) (A) (1):(iv) (A) (3)

Objective:

Remove the highest possible level of pollutant from streets, storm sewers, catch basins, and creeks using existing equipment, materials, and manpower. Monitor and control maintenance activities, including de-icing of bridges and roadways, to minimize impacts to water quality.

Program Description:

Street Cleaning and Roadway/Bridge Maintenance

The City of Plano is currently performing street sweeping along major thoroughfares and in the old downtown area of the City and municipal parking lots. Nine municipal parking lots and 8.92 miles of downtown streets are being swept on a weekly basis. Approximately 444 miles of major thoroughfare are swept on a monthly basis. This program is contracted to an outside source.

The City of Plano is proposing to continue all street sweeping operations that currently exist. During the first 2 to 3 years of the permit the City will monitor and evaluate operation of work performed by outside contractor. If changes to routes, equipment, and frequency of cleaning are determined to be cost effective, these alternatives will be implemented by the end of the third year.

The City of Plano Street Department performs normal maintenance of roadways and bridges on a daily basis. During these operations storm water is diverted away from excavated and disturbed areas. After repairs are complete the entire work site is cleaned and all loose debris is removed for proper disposal. Permanent erosion control, including vegetation, is provided upon completion of repairs. De-icing operations consist of spreading sand on roadway surfaces and calcium magnesium acetate (CMA) on bridges and box culverts. Sand spreaders are calibrated on a routine basis, and equipment operators are educated in proper application techniques. Sand is removed from streets through normal sweeping operations. As mentioned above for street sweeping, the roadway/bridge maintenance will follow existing operational procedures and evaluation schedule.

Storm Sewer, Catch Basin and Creek Maintenance

The City of Plano Municipal Drainage Division currently performs normal maintenance on a complaint/request basis for various programs.

The Vegetation Control Program consists of mowing of all channels at least five times during the year (growing season: April-September). The amount of mowing is approximately 54.8 acres of grassed area along open channels. Weed-eating is performed in areas not attainable by mowers. There is some herbicide used in areas where equipment is limited in use.

The Erosion Control Repair Program involves "minor" work performed by the Drainage Division ranging from sandbag/rip rap to gabion type retaining walls. These walls average from 100 square feet to 3,600 square feet.

The repair of "minor" drainage structures consists of headwall and pipe repair, pipe separation, wing walls, etc.

Vegetation and silt removal in storm sewers, catch basins and creeks is performed on an as needed basis. Certain channels require grading or dredging of silt/vegetation, while others involve removing trees fallen or downed by high water. These trees are identified by staff reconnaissance and removed to prevent flow blockage and collection of debris damns.

The cleaning of storm sewers and box culverts is performed on an as needed basis. The Municipal Drainage Division is also responsible for monitoring one detention facility (Riverbend/Finger Lakes) and scheduling of silt/debris removal. Currently, the Division performs an annual cleaning of this facility. Inspections are performed on a quarterly basis or after a heavy rainfall, to check the concentration of silt/debris buildup.

The Parks Department performs silt removal on an as needed basis only for seven park ponds. These ponds serve mainly as park enhancement features rather than detention or water quality structures. However, these ponds have a configuration and sufficient volume such that some sediment collection from storm water flow is provided. The collection of sediment provides benefit to the MS4.

Analysis and assessment of current operations as proposed in other programs shall be part of the City's Storm Water Management Plan. If alternative methods are feasible and fundable, then implementation of additional activities will take place.

Removal of Floatables

The Street and Right-of-Way Department currently utilizes four employees for litter collecting of medians and rights-of-way throughout the City. These employees clean all medians once a month, with the major thoroughfares cleaned twice a month. The City also services trash receptacles placed at all major intersections once a week. Presently the City services 141 receptacles and collects an average of 970 bags of litter a month. The City plans to continue this litter abatement program over the entire permit term.

The Keep Plano Beautiful (KPB) program provides litter abatement activities and public education messages such as:

Clean Campus Program - implements cleanliness patrols on school campuses and participates in annual clean-ups.

Adopt-A-Highway - currently consists of 44 volunteer groups who commit to cleaning a portion of Plano thoroughfare a minimum of four times per year. Signage provides visible community reinforcement of anti-littering.

City-wide Clean-ups - organizes an annual city-wide clean-up to concentrate on cleaning of parks, neighborhoods, school campuses, hike and bike trails and creeks. In addition, KPB sponsors "Clean a Creek" targeted to Boy Scouts and Adopt-A-Park program.

Photometric Index - Each year the City of Plano conducts an inventory of loose trash using the Keep America Beautiful Photometric Index. The procedures used to calculate the index measures spatial distribution of loose trash using slides (or photographs) of randomly selected, but specific, locations where litter is likely to accumulate within the community. Specific portions of the community are representative terms of land use and household income. The City currently uses 43 sites in its photometric indexing process.

The coordination of these programs, including Keep Plano Beautiful Program, is performed by a full-time employee (Special Projects Coordinator) with assistance from the Public Works Administrative Assistant.

The Parks Department conducts general litter pick-up in park areas once a week. Floating debris present on pond edges is accomplished on a monthly basis. The City plans to make only minor changes, if necessary, to the existing litter/floatables removal program after the initial evaluation phase as mentioned before.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Monitor, Evaluate and Assess Existing Operations	24 Months
Select and Implement Alternatives, if feasible	36 Months

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Fiscal Summary:

All labor and supplies for this program from the Municipal Drainage Division for fiscal year 1993-94 amounts to $587,870. This amount covers street sweeping, catch basin cleaning, storm drain flushing, storm drain/creek maintenance and detention/device maintenance. Costs budgeted for litter abatement by Street and Right-of-Way Department is $260,525.

Program Assessment:

The activities conducted under this program reduces the amount of debris, trash, litter and sediment entering the storm water system and provides a visible benefit to the citizens. Oxygen demanding water quality parameters, such as BOD and COD, can be reduced by removing organic matter through storm water system maintenance.

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PESTICIDE AND FERTILIZER USE

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2) (iv) (A) (6)

Objective:

Provide education and training for municipal employees who apply pesticides, herbicides, and fertilizers on public land, public right-of-way and at municipal facilities. Educate the "public" on proper timing, application, and disposal of yard care products.

Program Description:

Application by City Employees

The pesticide/fertilizer application program for City of Plano park lands, rights-of-way and designated public building grounds is managed by the Parks and Recreation Department (PARD). The Parks and Athletic Divisions provide various types and levels of maintenance for approximately 2,100 acres of developed park lands, public grounds, rights-of-way, athletic complexes and an 18-hole golf course. Approximately 1,200 acres are classified as undeveloped and left in a natural state or leased out as agricultural sites.

Department pesticide applications are conducted by applicators licensed by the Texas Department of Agriculture and the Texas Structural Pest Control Board. Only EPA-labeled products are applied.

On-going employee education programs which are regularly conducted include:

A. Licensed applicators completing annual requirements of continuing education to retain certification.

B. PARD provides funding for each licensed applicator's annual license fee and all related educational courses.

C. All Parks and Athletic Divisions' employees receive annual training concerning Federal Hazard Communication (Right-to-Know) issues through the City Risk Management Division. Understanding Material Safety Data Sheets (MSDS's) is emphasized.

D. Division safety meetings are held a minimum of once per year to discuss pesticide handling and use.

Detailed record-keeping is in accordance with State regulations/recommendations.

A. MSDS's are maintained in an accessible location in each District Service Center.

B. Inventories of chemicals in current stock are prepared monthly.

C. Spray logs of products, rates, sites and weather conditions are written for each application and retained for a minimum of two (2) years.

D. Posting notices are provided as required.

Storage of chemicals and fertilizers is minimized to maximum extent practicable (MEP). Any necessary storage areas are designed to protect and secure the materials.

A. An annual contract to purchase chemicals and fertilizers has been established to reduce storage needs by purchasing/receiving materials as they are needed for scheduled applications.

B. Weather-tight, locked and labeled storage areas are within the fenced confines of each Service Center, yet away from regular employee work areas. Ventilation systems and concrete floors are provided. Spill cleanup materials are readily available. Access to storage is limited to supervisors and licensed applicators.

C. Quarterly inspections of service center facilities are conducted by the City of Plano Fire Department for code compliance.

Pesticide applications are conducted in accordance with various Best Management Practices (BMP).

A. Lowest label rates recommended for pests are applied only after clear identification of the pest and if it reaches an unacceptable level of tolerance.

B. Weather forecasts are consulted prior to spraying to reduce runoff from rainfall and drift from wind.

C. Fertilizer applications are generally limited to irrigated areas where controlled amounts of water can prevent runoff.

D. Slow release, urea-based fertilizers have been recently adopted for use by the Parks Division, with related reductions in the number of applications used.

E. Soil sampling is conducted periodically to identify specific soil nutrient deficiencies and reduce over-fertilization.

F. Several designated park sites are managed as test sites for organic programs and receive no chemical applications.

Disease resistant and drought tolerant plant materials requiring fewer chemical treatments and less water are consistently utilized in new park developments and in renovations of older areas. Xeriscape concepts and standards are also encouraged.

Disposal of pesticide containers and residue follows State regulations and industry standards.

A. Rinseates from containers are added to spray tank for controlled application at appropriate areas.

B. Triple-rinsed containers are punctured/crushed and collected by the Solid Waste Division for proper disposal.

All above-mentioned controls are currently in practice and will continue throughout the duration of the permit. The City will also evaluate these practices within the first two years of the permit and incorporate any recommendations into employee training in subsequent years.

Public Education

Similar to the public education program, various pieces of material will be developed in the initial years of the permit to address pesticides, herbicides, and fertilizers. As materials are available the appropriate audiences will be targeted to receive the information.

The City plans to continue the "Don't Bag It" program which promotes the use of mulcher mowers or non-bagging which leaves grass clippings on the lawn. The City also provides curb-side pick up of yard debris and grass clippings. Material collected during this operation is sent to the City's composting facility. Compost is made available to citizens for their use. Compliance with these programs results in less fertilizer used by the homeowner, less runoff from lawns and reduced levels of nutrients in storm water. Periodic brochures are mailed to citizens informing them of the program. This program is administered by Public Works and Keep Plano Beautiful Coordinator.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Evaluation of City Program	36 Months
Recommendations and Alternatives for Program	36 Months
Implementation of Recommended Changes	36 Months
Public Education	6 Months

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Fiscal Summary:

The current program implemented by the Parks and Recreation Department involves existing staff and normal maintenance activities. Because of overlapping responsibilities and benefits of the program, the costs associated with this effort are not identified. However, the costs to provide public education in fiscal year 1995-96 is $5,000.

Program Assessment:

Because the Parks and Recreation Department requires all employees who apply chemicals to be licensed by State Agencies and to follow proper application and disposal techniques prescribed by law, pesticides and fertilizer residuals are greatly reduced in storm water leaving public property. The educational aspect of the program should limit the amount of harmful products of lawn care exposed to storm water. This reduction is made possible because proper timing, application and disposal, along with alternative methods, allows for maximum intake of nutrients by plants and soil. The washoff of pesticides is also minimized.

ILLICIT DISCHARGES AND IMPROPER DISPOSAL MANAGEMENT

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2)—(iv) (B):(iv) (B) (1):(iv) (B) (2):(iv) (B) (3):(iv) (B) (4):(iv) (B) (7)

Objective:

Provide enforcement of ordinances to prevent illicit discharges and illegal dumping into Municipal Separate Storm Sewer System (MS4). Continue dry-weather field screening to identify illicit connections or illegal dumping. Correct non-storm water discharges as discovered. Modify spill response procedures where necessary. Isolate and attempt to correct infiltration of sanitary sewers into MS4.

Program Description:

ENFORCEMENT OF ILLICIT DISCHARGES AND ILLEGAL DUMPING

As mentioned in the legal authority section, an updated ordinance addressing prohibitions to MS4 will be written and adopted by Council by the end of the first year of the permit. This ordinance will be enforced upon its passage, which will provide a proactive role in stopping illegal activity which pollutes storm water. A full-time environmental health specialist, to be hired within 6 months of permit issuance, will be responsible for enforcing the ordinance. Review of building codes and inspections will be incorporated into the land development management review to ensure the entire process of development prevents illicit discharges and improper waste disposal practices.

DRY-WEATHER FIELD SCREENING

The City of Plano plans to continue dry-weather field screening of "major outfalls" (defined in 40 CFR 122.26) following the techniques and procedures of the Part I Application of 40 CFR 122.26. The City shall add or delete testing parameters as conditions warrant. The following schedule for field screening of "major outfalls" is provided as a guideline only:

Permit Year	Cumulative Percentage of MS4 Screened
1	20%
2	40%
3	60%

4	80%
5	100%

Due to circumstances where outfalls are submerged by backwater or water stored in retention/irrigation ponds and lakes, the City may not be able to accomplish 100 percent screening. In these instances it is not practicable to provide screening. The City will document the submerged outfalls and make a visual observation at the time of dry-weather screening. The documentation will be helpful when problems are encountered in the receiving stream.

ILLICIT CONNECTION/DISCHARGE REMOVAL

Where dry-weather field screening indicates a potential illicit connection or illegal discharge, existing staff will be mobilized. The new health specialist position would coordinate with Utility Operations, Streets and Drainage Divisions to provide the manpower to search, identify and eliminate the source of pollution. Citations or orders issued by the health specialist may be necessary to correct these problems. The adopted storm water ordinance will provide legal authority to correct illicit connections and/or discharges.

SPILL RESPONSE

The City of Plano will utilize the existing Hazardous Material Response Team of the Fire Department to respond to any emergencies involving spills. During spill response, the team will follow local fire codes and departmental policy as submitted in Part I Application and response to EPA's letter dated January 30, 1995. The health specialist person may be called out to any spill site for assistance. The persons involved with the spill response process will continually analyze and research better methods to control spills and prevent contamination of storm water. After viable alternatives are chosen, then implementation of an updated plan will take place.

LEAKING SANITARY SEWERS INTO MS4'S

The City of Plano is committed to identifying and removing most leaking sanitary sewers, where feasible, throughout its entire wastewater collection system. Utility Operations has conducted inflow/infiltration (I/I) studies in the past to identify most leaks into or out of the sanitary sewer system. As these areas were identified, a comprehensive I/I Abatement Program was initiated to begin repairs. The City of Plano plans to continue this approach during the permit term. Eliminating leaking sanitary sewers protects storm water and prevents storm water from entering and overloading sanitary sewers.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Hiring of Health Specialist	6 Months
Adoption of New Storm Water Ordinance	12 Months
Enforcement of New Storm Water Ordinance	18 Months
Evaluate & Research Spill Response Methods	18 Months
Implement New Spill Response Methods, if needed	24 Months

Fiscal Summary:

Items budgeted for fiscal year 1993-94 include:

Dry-Weather Field Screening:	$4,000
Illicit Connection/Discharge Removal:	$4,000
Illegal Dumping:	$3,750
Sanitary Sewer Rehabilitation and I/I Studies	$3,475,000

Program Assessment:

The addition of the new health specialist position and the increased enforcement will help eliminate cases where commercial businesses discharge various pollutants into the MS4. Examples of this activity include grease and sand trap overflows, dumping by service oriented contractors and dumping of toxic materials and yard debris by citizens.

In the dry-weather field screening and illicit connection/discharge removal process, the expenditure of manpower should be minimal. This is due in part to the limited number of occurrences found in the initial Part I screening and small number of industries and majority of development happening in the last 10 to 15 years in Plano. Therefore, the relative effectiveness of this program may be difficult to quantify.

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USED OIL AND TOXIC MATERIALS MANAGEMENT

Appropriate Federal Regulations:

40 CFR 122.26 (d) (2) (iv) (B) (6)

Objective:

Promote and encourage businesses to provide a collection point for citizens to bring used oil. Provide educational assistance to solid waste transfer stations in the City of Plano which collect used oil. Continue pick-up of household hazardous waste from citizens on a request basis only.

Program Description:

USED OIL COLLECTION

The City currently collects used oil generated by homeowners on a per-call basis only. The City does not have a regular route to pick up used oil. The City recycles the oil in conjunction with the City's Equipment Services Department.

The City also promotes all companies accepting used oil from do-it-yourselfers by listing them in any solid waste literature distributed to the citizens. In addition, North Texas Municipal Water District (NTMWD), who operates the landfill and transfer stations in Plano, was awarded a grant for implementation of used oil and filters collection sites at all their facilities This program must be in place by August 1, 1993 and includes notification to all Plano residents. Initial cost of program is $65,000, and NTMWD will continue to operate the sites over the next five years.

HOUSEHOLD HAZARDOUS WASTE COLLECTION

The City collects any household hazardous waste (HHW) from its residents on a per call basis as long as it is normal quantities that would be generated from a homeowner, including batteries, paint, pool chemicals and herbicides/pesticides. Where possible, the City of Plano recycles collected items. Unrecycled items are disposed of in landfill. Currently State regulations allow disposal of these quantities in the landfill. A hotline number, as described in the response to EPA's January 30, 1995, letter, is attached.

Including used oil, the City picked up 546 household hazardous items the first six months of fiscal year 1992-93. The City anticipates similar levels of participation in the future.

The City will continue to collect items that it can recycle but will be forced to discontinue collection of other hazardous materials if regulations change to prevent landfill disposal.

The City of Plano believes that its existing HHW program is adequate to meet permit regulations and the needs of its citizens. Collection of HHW beyond current levels is not part of the City of Plano program. Any additional steps beyond existing programs would be expensive, and the potential cost per pound of pollutant removed is tremendous. In addition, there is no demonstrated water quality impact from HHW in the Plano area at present, and the effectiveness of increased collection is not known. Other proven storm water management program elements should be funded rather than HHW collection.

PUBLIC EDUCATION

The City of Plano will participate in appropriate NCTCOG program aimed at Household Hazardous Waste/Used Oil Outreach activities. In addition, the City will continue to publicize used oil collection sites available to the "public" and provide material on proper disposal of HHW and list of non-toxic alternatives.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Promotion of Used Oil Sites at Businesses and NTMWD Solid Waste Transfer Stations	6 Months
HHW Pick-Up of Small Quantities by City	6 Months
Public Education	6 Months

Fiscal Summary:

The collection of used oil and HHW by the City is funded through the general fund at $10,000 to $20,000 per year. The activities of NTMWD through its grant amounts to $65,000. Money allocated in fiscal year 1993-94 for the public education program will fund the promotional materials sent to citizens for used oil and HHW.

Program Assessment:

By providing a convenient list of sites for citizens to deposit used oil, the activity of illegal dumping this fluid into the MS4 is greatly reduced. The availability of City staff and drop-off points for used oil & HHW also provides a similar effect. Public education which provides information about HHW and used oil, along with safer alternatives, should direct these materials to the appropriate disposal site and reduce illegal dumping of the substances.

DRAFT

INDUSTRIAL INSPECTION AND MONITORING

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2)--(iv) (A) (5):(iv) (C):(iv) (C) (1):(iv) (C) (2)

Objective:

Conduct inspections on a scheduled basis to ensure industrial facilities are following proper procedures to prevent pollution of storm water. Examine pollution prevention plans of industrial facilities required to obtain a storm water NPDES permit. Develop policies, procedures, and forms to monitor and inspect priority facilities.

Program Description:

In the first six months of the permit, the City plans to hire one health specialist. This person will coordinate the industrial program and carry out enforcement under the Illicit Connection/Discharge Program mentioned previously. The first two years of the permit term will be a period in which the City will identify

- Specific industries to inspect.
- Obtain any pollution prevention plans from regulated industries.
- Develop policies for inspecting priority industries.

In addition to this work, standard forms and checklists will be developed to assist in inspections and monitoring of industries. The City will utilize the NCTCOG Storm Water Quality Best Management Practices for Industrial Activities manual, where possible, for policy decisions and scheduled inspection.

The City plans to conduct annual inspections of all industries identified as priority facilities during the initial analysis phase. The inspections, at a minimum, shall concentrate on the following:

- Pollution Prevention Plan.
- Handling of toxic materials.
- Exposure of harmful products to storm water.
- Loading and unloading procedures.
- Other items identified by policies developed in first two years.

If a particular problem is noted and needs correction to conform with City ordinances, even prior to initiation of inspection, appropriate action will be taken by the health specialist. When a particular violation of the facilities pollution prevention plans or general permit cannot be enforced under City of Plano ordinances, the problem will be referred to the EPA. Monitoring of these facilities will be accomplished by:

- Requiring copies of pollution prevention plans be forwarded to the City.
- Requiring copies of results from any storm water sampling be sent to the City.
- Providing field reconnaissance of industries when sampling of industrial watersheds shows a need to trace the source of an unusually high pollutant concentration.

If additional ways to monitor facilitie[illegible] ommended in the policy review process, then changes will be implemented accordingly.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Hiring of Health Specialist	6 Months
Evaluation of Policies and Procedures and Identification of Industries	24 Months
Recommendation of Overall Plan	24 Months
Implementation of Plan	24 Months
Inspections of Industries	24 Months
Monitoring of Industries	24 Months

Fiscal Summary:

Money budgeted for fiscal year 1993-94 only includes $1,500 and provisions to fund existing staff which will be involved in the initial evaluation phase. The health specialist will be funded by the municipal drainage fee.

DRAFT

Program Assessment:

The City of Plano anticipates that only ten to twenty industrial facilities will be impacted by storm water regulations or the City's management plan. Given this fact, the City believes its efforts in this program element are adequate to reduce the amounts of toxic material, heavy metals, and other storm water pollutants over the permit term.

DRAFT

STREAM BANK EROSION CONTROL AND DRAINAGE PROBLEM CORRECTION

Appropriate Federal Regulation:

40 CFR 122.26 (d) (2) (iv) (B) (6)

Objective:

To provide erosion control and stabilization for high priority areas subject to stream bank erosion. Investigate existing and future drainage problems and construct appropriate structures to control flow. Schedule, on an annual basis, the design and subsequent construction of erosion control and drainage structures at priority sites.

Program Description:

The City of Plano currently funds the design and construction of erosion control and drainage structures throughout the City. These sites have been identified through field reconnaissance by City personnel and citywide investigation by an engineering consultant. The City plans to continue its efforts in providing stream bank protection and improved flow capacity during the permit term.

Throughout the permit term the City proposes to implement erosion control by the following mechanism:

- Field reconnaissance of erosion sites.
- Inventory of stream reaches experiencing erosion.
- Ranking of severity of erosion at each stream reach.
- Selection of stream reaches to be protected by erosion control.
- Design, construct and inspect erosion control measures.

For areas where increased flow capacity is required, a similar mechanism will be used to address the problem.

Implementation Strategy and Schedule:

	Due Date - Months From Effective Date of Permit
Evaluation of Erosion Sites	12 Months
Evaluation of Drainage Problems	12 Months

Construction of Erosion Control	24 Months
Construction of Drainage Structures	24 Months

Fiscal Summary:

The City anticipates issuing $5,000,000 in revenue bonds during fiscal year 1994-95 to fund erosion control and drainage projects. The bonds will be paid back on an estimated annual rate of $490,000. Budgets for future years will be included in the City's Annual Report to EPA.

Program Assessment:

Since stream bank erosion is a major problem to receiving body water quality, this program should reduce some pollutant loads. The City of Plano believes that the effort directed at stream bank erosion control and flow control will have a moderate impact on the sediment and suspended solids loads in storm water.

Public Education and Employee Training

Program Approach : Educate Citizens and Municipal Employees

Type of Development Addressed : Existing and Future

Appropriate Federal Regulation : 40 CFR 122.26(d)(2)---(iv)(A)(6) : (iv)(B)(5) (iv)(B)(6)

Compliance Objective : Educate the "Public" on how each person can improve water quality. Provide guidance on proper use and disposal of harmful products along with alternative means of application. Train "Municipal" employees on the proper use of chemicals applied in daily operations.

Primary Responsible Parties :
 # Public Information
 # Public Works

Other Parties Involved :
Engineering

Program Elements :
Public Education
Storm Drain Stenciling & Signs

Educational Elements :
Illicit Discharges & Improper Dumping
Proper Management of Toxic Material
Pesticides, herbicides, and fertilizers
Industrial and construction site activities

Implementation Requirements :

Administrative Requirements
- Development of Public Educ. Campaign Materials
- Training of Municipal Employees
- Hotline for Reporting & Information

Public Awareness
- Press Releases : News Articles
- Newsletters : Fliers
- Video and Slide Presentations
- School Curriculum
- Festivals and Fairs
- PTN Cable Television
- Volunteer Groups

Employee Training
- On the Job Training
- Training Sessions

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Distribution of Public Info to Citizens, Schools, Org., Etc.	6 Months
Material Research & Development of Public Awareness Literature	24 Months
Targeted Audience Campaign for Commercial & Industrial Sector	30 Months
Involvement of Media	24 Months
Development of Municipal Emplyee Training Material	36 Months
Training of Municipal Employees using Developed Materials	36 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Development Planning, and Construction Management

Program Approach :	Promote reduction of pollutants from new and existing development
Type of Development Addressed :	New and Existing
Appropriate Federal Regulation :	40 CFR 122.26 (d)(2)---(iv)(A)(2) : (iv)(A)(4) : (iv)(D) (iv)(D)(1) : (iv)(D)(2) : (iv)(D)(3) : (iv)(D)(4)
Compliance Objective :	Provide Master Plan to develop, implement, and enforce controls to reduce pollutants from new development and re-development . Implement program to promote, review, and inspect non-structural and structural best management practices on construction sites.

Primary Responsible Parties :

#Engineering

#Development Services

Other Parties Involved :

#Building Inspection

Program Elements :

#Land Use Planning/Management

#Construction Inspection & BMP Training

Implementation Requirements :

Administrative Requirements

-Review of Policies & Procedures

-Construction Inspector Training

#Development Process

-Promote Open Space & Pervious Areas

-Promote use of Const. BMP Manual

-Review SWPPP Plans

-Require Notice of Intent(NOI) and SWPPP prior to Release for Construction

-Improved Inspection at Constr. Sites

-Information Sessions for Developers, Engineers, and Contractors

-Evaluate Structural Controls for Retrofit

Schedule:

PROGRAM MILESTONES	**Milestone Due Date Months From Effective Date of Permit**
Development Policy and Procedure Review	36 Months
Update & Adopt Any Revisions made to the Development Process	36 Months
Implement Recommended Policy Revisions	36 Months
Promote Construction BMP Manual	6 Months
Require NOI & SWPPP prior to Construction of Projects ≥ 5 Acres	6 Months
Training of City Staff Responsible for Plan Review & Const. Inspection	12 Months
Provide Information to Development. Community	6 Months
Evaluate Structural Controls for Retrofit	36 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Storm Sewer System Maintenance Program

Program Approach : Removal of Pollutants from Storm Sewer System

Type of Development Addressed : Existing and Future
Appropriate Federal Regulation : 40 CFR 122.26 (d)(2)---(iv)(A)(1) : (iv)(A)(3)

Compliance Objective : Remove the highest possible level of pollutants from streets, storm sewers, catch basins, and creeks using existing equipment, materials, and manpower. Monitor and control maintenance activities, including de-icing, to minimize impacts to water quality.

Primary Responsible Parties :

 # Traffic / Drainage
 # Streets
 # Solid Waste

Other Parties Involved :

 # Parks Department
 # Public Works

Program Elements

Street Cleaning
Roadway / Bridge Maintenance
Catch Basin Cleaning
Storm Drain Flushing
Storm Drain / Creek Maintenance
Detention / Infiltration Device Maintenance

Implementation Requirements :

Administrative Requirements

- Evaluation of Current Programs
- Establish Maintenance Schedule
- Record Keeping System

Maintenance Activities

- Prioritize Street Cleaning
- Periodic Cleaning of Trash & Debris, Including Floatables, from Streets, Catch asins, Creeks, etc.
- Removal of Excess Sediment from MS4
- Proper Disposal of Collected Wastes
- Inspection of Storm Sewers and Creeks
- "Minor" Repair of Structures
- Regulate De-icing Material Applic.
- Educate Employees on Proper Maintenance Techniques
- Continue Litter Abatement Program

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Monitor, Evaluate & Assess Existing Operations	24 Months
Select and Implement Alternatives if Feasible	36 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Pesticide and Fertilizer Use

Program Approach : Reduction of pollutants assoc. w/ pesticides, herbicides, and fertilizers

Type of Development Addressed : Existing and Future

Appropriate Federal Regulation : 40 CFR 122.26 (d)(2)(iv)(A)(6)

Compliance Objective : Provide education and training for municipal employees who apply pesticides, herbicides, & fertilizers in public right-of-way and at municipal facilities. Educate the "Public" on proper timing, application, and disposal of yard care products.

Primary Responsible Parties :

 # Parks Department

 # Public Works

Other Parties Involved :

Public Information

Health Department

Program Elements :

Pesticide/Fertlizer Use

Implementation Requirements :

#Administrative Requirements

- Annual employee license updating
- Public education of citizens

Reduction Measures

- Record keeping, spray logs, MSDS sheets
- Inventory control of chemicals
- Proper storage of materials
- Application & timing protocol
- Slow release fert. & less toxic chems
- Periodic soils testing for product use

#Employee Training

- Proper use, disposal, & storage
- Application policies & procedures

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Evaluation of Citywide Pesticide, Herbicide and Fertilizer Prog.	36 Months
Recommend. & Alternatives for Program	36 Months
Implement Recommended Changes	36 Months
Public Education	6 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Illicit Discharges & Improper Disposal Management

Program Approach : Remove most Non-Storm Water Discharges to MS4

Type of Development Addressed: Existing and Future

Appropriate Federal Regulation: 40 CFR 122.26 (d)(2)---(iv)(B) : (iv)(B)(1) : (iv)(B)(2) (iv)(B)(3) : (iv)(B)(4) : (iv)(B)(7)

Compliance Objective : Continue Dry-Weather Field Screening to identify illicit connections or illegal dumping . Correct non-storm water discharges when discovered. Modify Spill Response procedures where necessary. Isolate & attempt to correct Infiltration of Sanitary Sewers into MS4

Primary Responsible Parties :
- **# Engineering**
- **# Health**

Other Parties Involved :
- # Fire Department
- # Utility Operations
- # Streets/Drainage
- # Building Inspection

Program Elements :
- # Illicit Connection-Prevention
- # Illicit Connection-Detection & Removal
- # Illegal Dumping
- # Spill Response
- # Leaking Sanitary Sewer

#Implementation Requirements

#Administrative Requirements
- Update Dev. Review Procedures
- Revise Dumping Ordinances
- Evaluate Spill Response Procedures

Non-Storm Water Monitoring
- Field Screening
- Illicit Connection & Illegal Dumping Investigation & Follow-up Correction
- Enforce Dumping Ordinance
- Spill Response Upgrade
- Continue Sanitary Sewer Rehabilitation

#Employee Training
- Field Sreening
- Spill Response Team

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Hiring of Health Specialist	6 Months
Dry-Weather Field Screening	20% of the Major Storm Water Outfalls per permit year
Adoption of New Storm Water Ordinance	12 Months
Enforcement of Storm Water Ordinance	18 Months
Evaluation and Research Spill Response	18 Months
Implement New Spill Response Methods (if Needed)	24 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Used Oil and Toxic Materials Management

Program Approach : Provide options to citizens which allow for proper disposal of used oil and toxic materials.

Type of Development Addressed : Existing and Future

Appropriate Federal Regulation : 40 CFR 122.26 (d)(2)---(iv)(B)(6)

Compliance Objective : Promote and encourage businesses to provide a collection point for citizens to bring used oil. Provide educational assistance to solid waste transfer stations which collect used oil. Continue pick-up of household hazardous waste from citizens as landfill disposal permits.

Primary Responsible Parties :
 # Solid Waste
 # Public Works

Other Parties Involved :
Engineering

Program Elements :
Used Oil Recycling
Household Haz. Waste Education

Implementation Requirements

Administrative Requirements
- Compile business list of used oil collection sites
- Improve efficiency of existing collection programs
- Develop brochure for proper disposal of HHW

Collection Strategy
- Continue used oil collection from citizens and recycling at City Equipment Service Center
- Continue picking up small quantities of HHW until disallowed for disposal by landfills
- Promote NTMWD used oil collection points at various transfer stations in the City and County

Public Awareness
Provide information on proper disposal of used oil
- Provide information on proper disposal of HHW

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Promote Used Oil Drop Sites at Businesses & NTMWD	6 Months
Pick-up of Small Quantities of HHW	6 Months
Public Education for Proper Use & Disposal of HHW	6 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Industrial Inspection and Monitoring

Program Approach : Provide limited inspection, monitoring, and enforcement of industrial activity.

Type of Development Addressed : Existing and Future

Appropriate Federal Regulation : 40 CFR 122.26 (d)(2)---(iv)(A)(5) : (iv)(C) (iv)(C)(1) : (iv)(C)(2)

Compliance Objective : To examine pollution prevention plans of regulated industries. Inspection on a scheduled basis to ensure that industrial facilities are not polluting storm water. Develop policies, procedures, and forms to monitor and inspect priority facilities.

Primary Responsible Parties :
 # Health
 # Fire

Other Parties Involved :
Engineering

Program Elements :
Industrial Inspection
Industrial Monitoring

Implementation Requirements

Administrative Requirements
- Identify specific industries to inspect
- Obtain pollution prevention plans
- Establish policies for inspecting priority industries

Inspection and Monitoring
- Schedule inspections to match program needs
- Utilize standard forms & checklists for inspections
- Focus on use, storage& handling of toxic chemicals
- Recommend implementation of controls as necessary to address problems
- Conduct follow-up inspections to check controls
- Target and set priorities for monitoring
- Review sampling data from industries if available

Personnel Requirements
- 1 Environmental Health Specialist

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Hiring of Environmental Health Specialist	6 Months
Evaluate Policies / Procedures for Inspection of Indust.	24 Months
Recommend Overall Plan for Accomplishing Inspection	24 Months
Identification of Industries to Inspect	24 Months
Implementation of Industrial Facilities Inspection Plan	24 Months
Inspection of Industries	24 Months
Monitoring of Industries	24 Months

MUNICIPAL STORM WATER MANAGEMENT PROGRAM

Stream Bank Erosion Control and Drainage Problem Correction

Program Approach : To provide erosion control and stabilization for stream banks and correct drainage problems

Type of Development Addressed : Existing and Future

Appropriate Federal Regulation : 40 CFR 122.26 (d)(2)---(iv)(B)(6)

Compliance Objective : Identify and prioritize areas subject to stream bank erosion. Schedule on an annual basis the design and subsequent construction of erosion control at priority sites. Investigate existing and future drainage problems and construct appropriate structures to control flow.

Primary Responsible Parties :
 # Engineering
 # Public Works

Other Parties Involved :

Program Elements :
Erosion Control- Stabilization
Erosion Control- Flow Control

Implementation Requirements

Administrative Requirements
- Prioritize erosion control and drainage problems
- Schedule design and construction of projects
- Inspect const. of erosion control & drainage struct.

Stream Bank Evaluation
- Field reconnaissance to investigate erosion
- Inventory of stream reaches experiencing erosion
- Ranking the severity of erosion at each stream reach
- Selection of reaches for protection by erosion control
- Design, construct,and inspect erosion control

Drainage Problems
- Inventory areas where inadequate drainage is present
- Examine alternatives to improve or correct problem
- Provide cost estimates and prioritize projects
- Design, construct, and inspect drainage structures

Schedule:

PROGRAM MILESTONES	Milestone Due Date Months From Effective Date of Permit
Evaluation of Stream BankErosion Sites	12 Months
Evaluation of Drainage Problems	12 Months
Construction of Stream Bank Erosion Control	24 Months
Construction of Drainage Structures	24 Months

CHAPTER TWO

TEXAS DEPARTMENT OF TRANSPORTATION

STORM WATER MANAGEMENT PROGRAM

Dated 6/14/94

iv. PROPOSED MANAGEMENT PROGRAM

The proposed Management program includes a planning process which involves public participation and necessary inter-governmental coordination.

iv A. Introduction

EPA regulations require the permittee submit a proposed operations and maintenance program which will be implemented during the life of the permit.

As previously discussed in (i) Adequate Legal Authority, 43 Texas Administrative Code (TAC) 25.8 requires TxDOT to maintain drainage facilities, perform litter pickup, and sweeping of roadways. As explained under the Fiscal Resources Section - V, TxDOT's budget for these activities is contingent on State Legislator approval. TxDOT will consider all of the maintenance contracts in future budget proposals during the 5 year permit term.

However, TxDOT's commitment to continue the maintenance functions (during the five year permit) described in this section is contingent upon budget approval and TxDOT's mandate under TAC.

iv A(1) Structural Control Operations and Maintenance

This section addresses the maintenance activities and maintenance schedules for structural control devices.

TxDOT currently has two separate Operations and Maintenance (O&M) contracts of structural control devices to reduce pollutants including floatables from discharging into the municipal separate storm sewer. These contracts include (1) Cleaning and reshaping of ditches and channels (2) Storm sewer and inlet cleaning **(See Appendix iv.A)**

The frequency with which the referenced O&M activities are performed is based upon the amount of debris removal per acre. In other words, the frequency of debris removal is adjusted to more frequent or less frequent depending upon the past volumes of debris generated from a given segment of highway right-of-way. The remaining O&M activities are scheduled as needed as determined by the Maintenance Supervisor in his/her jurisdiction.

The following structural pollution control devices, which are in consideration of future design projects, will have an inspection and maintenance schedule established.

Extended detention ponds
Sedimentation ponds
Filtration ponds
Vegetative controls/filters

Hazardous material traps

According to Dianna F. Noble, TxDOT Director of Environmental Affairs, the implementation of these new permanent structural control devices will be fully implemented by October 1995 for all future projects.

iv.A(2) New Enforcement Control Measures

This section addresses planning procedures including a comprehensive master plan to reduce the discharge of pollutants.

Development and implementation of Permanent Controls as discussed in Section 3 of original application is scheduled to be implemented in October 1994, according to Carlos Swonke, TxDOT Water Quality Section Head. TxDOT's manual entitled Storm Water Management Guidelines for Construction Activities dated September 1993, provides guidelines to prevent erosion from projects into the waters of the U.S.. Chapter 5 of this text, Structural Control Practices, has design guidelines for each structural control device. The design guidelines include height, width, depth, and drainage area requirements for each structural control devise. **See Publication 1 included**

TxDOT's Vegetation Management Program under the Construction and Maintenance Division, in conjunction with Texas Transportation Institution (TTI) - Texas A&M, have written specifications specific to vegetation management which all contractors for TxDOT must adhere. The specifications are as follows with the appropriate item specification number attached.

Furnishing and Placing Topsoil - Item 160
Sodding for Erosion Control - Item 162
Seeding and Erosion - Item 164
Fertilizer - Item 166
Vegetative Watering - Item 168
Soil Retention Blanket Item 169

These specifications were amended into the most recent revision of the manual, March 1, 1993. The specifications are routinely evaluated by TTI on a regional basis to determine optimum vegetation management.

TxDOT has constructed the 1.3 million dollar Riverside Annex Research Facility in College Station for the purpose of evaluating vegetation management practices. This research facility is operated by TTI and overseen by TxDOT's Vegetation Management Section.

iv.A (3) Roadway Maintenance

This section addresses the description of practices for operating

and maintaining public streets, roads and highways.

TxDOT currently has three contracts for maintaining public roadways to prevent pollutants into the storm sewer. These contacts are performed at frequencies which range from four to 26 times per year, based upon the amount of debris generated upon a given segment of highway. Copies of these contracts are included in **Appendix iv.B** and are entitled as follows.

1. Removing debris along guardrail
2. Debris removal from median, main lanes and shoulders
3. Cleaning culverts and sweeping highways.

iv.A(4) Flood Control Impacts

This section addresses the procedures to assure that flood management projects assess the impacts on the water quality and receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting is necessary.

Flood management project within TxDOT right-of-way are limited to drainage culverts adjacent to roadways and bridge crossings. The inspection of vegetation management into and adjacent to roadway is managed under TxDOT maintenance. The Bridge Section of the Construction and Maintenance Division of TxDOT is responsible for the inspection and maintenance of bridge crossings.

TxDOT institutes the program Bridge Inventory, Inspection and Appraisal Program (BRINSAP) Manual of Procedures, to inspect for scouring embankment deterioration etc.. All TxDOT bridges have been designed with embankment protection constructed of either concrete or rip-rap. The manual requires all bridges be inspected every two years. The inspection requires the inspector to note deficiencies in the channel banks, rip rap, toe walls, aprons, etc. and for problems that have developed from scouring or other mechanical damage. Included are checklist Bridge Inspection Record and Scour Vulnerability Examination and Ranking Form, form numbers 1085-1-12-89 and 113.1 respectively, which are utilized to identify problem areas which could result in sedimentation. Refer to **Appendix iv.C** The problem areas identified on the checklist are thus referred to the Design Section of TxDOT for repair.

iv.A(5) Landfill Monitoring

This program should address a monitoring program for any Municipal landfills or treatment, storage, or disposal (TSD) facilities. TxDOT does not own or operate any municipal landfills or TSD facilities.

iv.A(6) Pesticides/Herbicides Fertilizers

This section addresses a description of the program to reduce pollutants associated with the application of herbicides, pesticides and fertilizers.

All TxDOT herbicide and pesticide application operators are required to be licensed through Texas Department of Agriculture (TDA) prior to being allowed to apply herbicides or pesticides. TxDOT has a Memorandum of Understanding with the Texas Department of Agriculture to train and license our own applicators. See **Appendix iv.D.** TxDOT has two approved trainers, Roy Smith and Dennis Markwardt of the Vegetation Management Section, which are dedicated to train from the months of January through May. TxDOT has approximately 1300 licensed Application Operators statewide which have either receive the initial or continuing education required for licensing.

The text used during this training is entitled Herbicide Operations Manual developed by the Landscape Section of the Division of Maintenance and Operations.

iv.B Illicit Discharges/Improper Disposal

This section addresses a schedule to detect and remove illicit discharges into the municipal separate storm sewer.

iv.B(1) Inspection and Enforcement of Illicit Discharges and iv.B(2) Field Screening Program

The TxDOT inspection program will be performed by the maintenance contractors during debris removal from structural control devices. All contracts for cleaning of structural control devices have been modified to require the contractor to complete a written inspection form for illicit or discolored discharges. **Appendix iv.E** is the memorandum signed by TxDOT's Director of Maintenance which dictates the requirements of contractor to perform inspections. **Appendix iv.F** is a blank copy of the written inspection form.

If an illicit discharge (discoloration or dry weather discharge) is observed, the contractor will contact the TxDOT Environmental Office for further investigation.

Additionally, TxDOT has requested the of City of Dallas to engage in a contract to perform dry weather monitoring at each of TxDOT's major outfalls during the life of the permit. Included in **Appendix iv.G** is a copy of our proposal to the City of Dallas to monitor our storm water outfalls.

iv.B(3) Storm Sewer Investigations

This section describes the procedures to be followed to investigate portions of the MS4 that based upon field screening, or other

information, indicate a potential for illicit discharge.

As described above in iv.B(1&2) the structural control maintenance contractors will be responsible for contacting TxDOT's District Environmental Office. The Environmental Office will respond by collecting samples for field analysis with a storm drain test kit. TxDOT has retained a Storm Drain Kit, Lamotte model SSDK, for the purpose of analyzing the following pollutants. (1). Total Residual Chlorine (2) Phenols (3) Total Copper (4) Detergents (5) pH (6) Color (7) Turbidity

In the event any of the seven parameters indicate elevated levels or a discoloration exist, a sample will be collected and analyzed suspected pollutants identified in 40 CFR 136 in accordance EPA SW846 testing Methods. This dry weather discharge drain will be reinspected between 4 and 24 hours of initial sampling. In the event the discharge is still present the inspector will perform the same sampling procedures as initially conducted.

iv.B(4) Preventing and Containing Spills

TxDOT Dallas contingency plan for preventing and containing spills is implemented by the Environmental Office. The Environmental Office is negotiating a contract with Emergency Response contractor for spill emergency services to be provided for any releases that occur on TxDOT right-of-way. This contract can be implemented any time the responsible party of the spill is not taking adequate measures, or the responsible party can not be identified.

Internally, the five members of the District Environmental Office are all trained at the Hazmat Technician level and provide response and assistance throughout the area when releases of hazardous materials affect, or threaten to affect, TxDOT right-of-way. A program is currently being developed to enhance this response to such releases. This program is being developed so that it functions as an integral part of law enforcement agencies (including DPS and Fire Departments) response activities within the Dallas metropolitan area.

Additionally, TxDOT Operates six Courtesy Patrol vehicles within Dallas to respond to emergencies. One of the functions the Courtesy Patrol is currently performing is minor spill response. All Courtesy Patrol personnel have received first responders awareness level training and all vehicles have been equipped with spill control materials. TxDOT will be purchasing 8 additional Courtesy Patrol vehicles during the next two years to increase their fleet.

The Courtesy Patrol has been provided the Environmental Office responders emergency contact phone numbers as well as their pager number. See **Appendix iv.H** for the list of emergency number which have been distributed.

iv.B(5) Public Reporting of Discharges

This program requires the applicant to promote, publicize, and facilitate public reporting of presence of illicit discharges. TxDOT will utilize the Public Affairs Office, Travel and Information Section, and outside entities such as Keep Texas Beautiful, to distribute information during the five year permit term. The following program are currently being implemented.

Transportation News

TxDOT's in-house newspaper is entitled Transportation News which is published quarterly. The "Earth Watch" Column of this publication is dedicated to environmental awareness and has been published since 1992. Karen LeFevre, Environmental Affairs Division, is the author of this column. This column edited and published through the Public Affairs office has received growing interest throughout TxDOT readers. **Appendix iv.I** is a copy of this April 1994 column publication entitled TxDOT, TNRCC to Battle Water pollution.

Don't Mess With Texas

The "Don't Mess With Texas" program fights roadside trash with funding from TxDOT. This program consist of radio and Television Public Service Announcements (PSA's) which feature Texas Celebrities requesting the public not to litter. Celebrities in the past have included the Texas Tornadoes, Willie Nelson, Little Joe y La Familia, Stevie Ray Vaughan, "Too Tall" Jones and Randy White of the Dallas Cowboys, The Fabulous Thunderbirds, Mike Scott of the Houston Astros, Johnny Dee and the Rocket 88's, Johnny Rodriguez, Omar and the Howlers, Johnny Canales, Mason Dixon, Jerry Jeff Walker, Joe Ely, Houston Oiler Warren Moon, Lyle Lovett, Marcia Ball, Tish Hinojosa, George Foreman, and Little Texas. For further information call 512-467-59[illegible].

Adopt-a-Highway

Non-celebrity PSA's have featured a tough motorcycle bunch called the Tyler Longriders which promote both the "Don't Mess With Texas" program and the "Adopt a Highway" program. The Adopt-a-Highway program is a two year contract between non-profit organizations and TxDOT for litter pick-up. TxDOT provides signs at the beginning and end point along the two-mile adopted highway segment with the name of the adopting organization. In return the organization is require to pick up litter four times per year. **Appendix iv.J** is a blank copy of the contract procedures for this program. Over 600 miles have been adopted in the TxDOT Dallas District. The is program has been promoted though the use of signs along the highway and has grown considerably since the conception in 1985. For further information call 512-467-5948.

Keep Texas Beautiful

To complement the "Don't Mess with Texas" media campaign, Keep Texas Beautiful Inc. (KTB) was selected to serve as the grass-roots

arm" of TxDOT's anti-litter program. KTB is a nonprofit environmental umbrella organization consisting of a network of private citizens, communities, industries, civic groups, schools, and government agencies. **Appendix iv.K** are several pamphlets that are distributed as public information at KTB exhibitions.

As part of its annual contract with TxDOT, KTB is responsible for administering the "Proud Community" environmental recognition program, promoting the enforcement of litter and illegal dumping laws, recruiting Adopt-a-Highway groups and helping organize and promote the "Great Texas Trash Off".

KTB is also responsible for administering the Governor's Community Achievement Awards program, which provides $700,000 in TxDOT landscaping funds each year to cities across the Lone Star State. This incentive program rewards communities of all sizes for implementing cleanup, beautification, recycling, litter law enforcement and environmental education programs.

TxDOT subsidizes the publications of KTB. Three of the publications KTB produces are Grassroots, Green Apple, and Reinforcement. See **Appendix iv.L, iv.M, and iv.N** included. Grassroots is a monthly publication, current circulation of 10,000, which is distributed to city officials such as mayors. The focus of this publication is to coordinate and update municipalities on environmental issues. Green Apple is a quarterly newsletter, current circulation 7,000, directed towards Teachers which offers environmental awareness teaching tools for developing teaching curriculums. Reinforcement is a quarterly publication, current circulation 8,000, directed to County Judges, Justice of the Peace Officers, and Code Enforcement Officers. This publication addresses illicit discharges enforcement on a statewide basis.

According to Yolette Gaces, Community Outreach and Illegal Dumping Enforcement Coordinator for KTB, Approximately 4.5 million Texans are contacted annually through one of the KTB programs. For further information on KTB call 1-800-CLEAN-TX.

(TxDOT plants and maintains the largest garden in the world with more than 800,000 acres included in its Vegetation Management Program. More than 50,000 trees and millions of seedlings have been planted over the last six years. Additionally, more than 50,000 pounds of wildflower seed are planted every year. TxDOT's annual landscaping budget is approximately $10 million.)

The Great Texas Trash-Off

Each spring, all Adopt-a-Highway and KTB groups are encouraged to participate in the "Great Texas Trash-Off". This statewide cleanup employs the efforts of thousands of volunteers who go out on the same day to get the trash of the highways and city streets and parks in time for the wildflower season. On April 9, 1994, some 100,000 volunteers collected five million gallons of litter. This event is widely publicized through TV and radio commercials, news

releases and local promotions. Radio stations across the state are invited to promote the Great Texas Trash-Off through on-air giveaways of Don't Mess With Texas litter bags and bumper stickers. For more information call 512-327-8810.

iv.B(6) Educational Activities for Used Oil etc.

TNRCC's most recent campaign "You Dump it, You Drink It" was jointly produced by TxDOT and TNRCC which is included in **Appendix iv.O.** The TxDOT Travel and Information audio-visual section produced the 30-second Public Service Announcement (PSA) using TNRCCC script concept and campaign slogan. Debbie Snyder (512) 465-3062, TxDOT Video Producer of the Travel and Information Division, has provides the copies of this PSA to Channels 4,8,27,33,39 and 49. The video provides a the telephone number 1-800-64Texas for individuals to locate their nearest oil recycling facility in their neighborhood. This 1-800 number is operated by Clean Texas 2000, a non-profit waste recycling information network. Some of the participating stores accepting recycled oil include Wal-Mart, Jiffy Lube, Chief Auto Parts and Montgomery Ward's Auto Service Center.

The 1-800-64TEXAS will also direct citizen to authorized disposal facilities for their Hazardous Waste, such as Heat Energy Advanced Technology (HEAT) . HEAT of Dallas is registered with Clean Texas 2000 to direct the public to dispose of household hazardous waste and automotive fluids. HEAT has a permit to receive hazardous waste through the TNRCC. HEAT subsequently sends their waste to cement kilns to be burned as auxiliary fuels. Dave Vagnier, Sales Director for HEAT, has provided a list of acceptable materials they can receive. **See Appendix iv.P**

TxDOT will annually distribute information to direct citizens to proper disposal facilities. This information will be disseminated through public appearances of TxDOT by public concurrence as the State Fair of Texas and the Dallas Auto Show.

TxDOT will request each television station to provide a list of the times they have broadcast the PSA. Documentation of the broadcast commercials, as available, will be retained in the MS4 permanent files. PSA's will direct people to a phone number or location within the City of Dallas where they can take used motor oil, anti-freeze, and brake fluid.

TxDOT is a Storm Water Advisory Committee Member with NCTCOG. Some of the subcommittees oriented towards the public include; (1) Public Awareness Campaign Subcommittee (2) Lawn and Pest Management Committee (3) Household Hazardous Waste Task Force (4) Stop Illegal Dumping Task Force

TxDOT will annually distribute information to direct citizens for proper disposal. This information will be disseminated through TxDOT's Public Affairs Section.

TxDOT will be pursuing efforts with the Dallas County Fire Marshalls Office for recycling programs. The Dallas County Fire Marshall's Office has received a $206,000 grant from the TNRCC for implementing a Household Hazardous Waste program within the county. Shirin Youstuff, of the Dallas County Fire Marshalls Office, is coordinating this recycling program.

iv.B(7) Controls for Sanitary Sewer

This section should address the applicants programs and/or controls to prevent the infiltration of sanitary sewage into the storm drain. TxDOT right-of-way does not have any TxDOT owned sanitary sewer lines. However TxDOT requires permits for sanitary sewer lines which cross highway right-of-way. The Right-of-Way Division of TxDOT requires the municipality to submit plans for the sanitary sewer design prior to installation. TxDOT requires all sanitary sewer lines crossing right-of-way to be encased with steel according to American Society of Testing Materials (ASTM) specifications. See "Water and Sanitary Sewer Installation" requirements included in **Appendix iv.Q**

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

Annual Maintenance
Replacement in Advance of Paving Projects
Environmental Data Acquisition System
Reduction Studies and Rehabilitation Plans

Refer to Section 4.15 Wastewater Infiltration Control Program, City of Dallas Part II Permit Application dated November 16, 1992.

John King, City of Dallas Program Manager Wastewater Supervisor, is responsible for implementing the above referenced programs which also include sanitary sewers crossing or located on TxDOT right-of-way.

iv.(C) Landfills, TSD facilities and Industrial Facilities.

TxDOT does not operate any of these.

iv.(D) Construction Sites

This section addresses the program to implement and maintain structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction sites.

iv.D(1) Site Planning

This section addresses procedures for site planning in

consideration of water quality impacts.

Site planning is addressed in the Advanced Project Development (APD) Section of the Design Division. All projects are required to adhere to the procedures set forth in the Design Division Operations and Procedures Manual Part IIB entitled Environmental and Public Involvement Procedures During Project-Specific Planning and Development. See **Appendix iv.R** included. This text reflects the regulations cited under Title 40 CFR Chapter V, Council on Environmental Quality, Parts 1500 - 1517. Parts 1500 through 1508 of this title provide regulations applicable to and binding to all federal agencies (in our case FHWA) for implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969. Parts 1509 though 1517 provide indexing for preceding parts.

The level of significance of the project will determine level of public involvement and research conducted. There are three classes of actions which prescribe the level of documentation established in the NEPA process: Class I. Environmental Impact Statements; Class II, Categorical Exclusions, and Class III, Environmental Assessments. Class I projects are actions that may significantly affect the quality of the human environment which would require an Environmental Impact Statements (as regulated under 23 CFR 771) to be prepared and submitted to Federal Highway Administration. In addition, TxDOT conforms to the EPA's Notice of Intent for all construction Project in excess of five acres as required.

Class II Categorical Exclusions are relatively small scale projects which based on past experience with similar projects do not involve significant environmental impacts.

Class III Environmental Assessments are all proposed highway improvements that are not clearly categorical exclusions. The environmental assessment is prepared by the department for the FHWA in consultation for the FHWA to determine if an EIS is necessary.

All environmental documents for site planning are submitted for review to TxDOT's Environmental Affairs Division for review and subject to public comment prior to approval.

iv.D (2) Best Management Practices

TxDOT's Best Management Practices is primarily addressed in the Stormwater Pollution Prevention Plan (SW3P) which is required by TxDOT policy for any construction site (regardless of acreage disturbance). The SW3P is address in the TxDOT document Storm Water Management Guidelines for Construction Activities.
See separate text included

iv.D(3) Site Inspection

This describes the procedures for identifying priorities for

inspecting sites and enforcing control measures. TxDOT construction inspectors are trained by supervisors to adhere to the Construction Standards handbook as mentioned previously in section iv.A(2). Inclusive in the handbook are vegetation management practices as previously identified in section iv.A(2).

iv.D(4) Education and Training

TxDOT's construction manual entitled "Standard Specifications for Construction of Highways, Streets and Bridges" regulates construction standards. Specifically Items 162 & 164 "Sodding for Erosion Control" and "Seeding for Erosion Control", respectively, are standards to prevent erosion. These items were added to the most recent March 1993 revision to the construction manual.

The primary TxDOT personnel for ensuring proper vegetation is attained on new construction projects is the Construction Inspector. TxDOT - Dallas District has requested all Design Engineers and Construction Inspectors to attend the Vegetation Management course that have not completed training in this area. Vegetation Management, TxDOT training course number 861385, is instructed by the Vegetation Management Section of TxDOT. **See separate text** included entitled "A practical guide to the establishment of vegetative cover on the right-of-way.

CHAPTER THREE

TEXAS TURNPIKE AUTHORITY

STORM WATER MANAGEMENT PROGRAM

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(Revised June 10, 1994)

INTRODUCTION

JOINT APPLICATION

This Part 2 of the National Pollutant Discharge Elimination System Application for Discharge from a Municipal Separate Storm Sewer System (the "Authority Part 2") is filed by the Texas Turnpike Authority, an agency of the State of Texas (the "Authority"), as a joint application with the City of Dallas (the "City").

The City previously filed Part 2 of its National Pollution Discharge Elimination System Permit Application for Discharges from Municipal Separate Storm Sewer Systems ("City of Dallas Part 2") on November 16, 1992. The Authority has requested from the City that it be allowed to join the City as a Co-applicant. The final consent to this request may not be received until the Authority and the City finalize the interlocal agreement between them. It is not anticipated that this agreement will be finalized until this Permit Application is approved by the EPA.

This permit application is intended to be a part of the City of Dallas Part 2 and the Authority is hereby requesting that it be regarded as co-applicant with the City for the permit requested in the City of Dallas Part 2, as supplemented by this Authority Part 2, and that they be co-permittees under the final co-permit with each having the responsibilities and duties for the permit conditions relating to the discharges from the storm sewer system for which it is the owner.

Section 1 - Legal Authority
[40 C.F.R. 122.26(d)(2)(i)]

The Texas Turnpike Authority (the "Authority") is an agency of the State of Texas created and empowered by the Texas Turnpike Authority Act (the "Act") to construct, maintain, repair, and operate turnpike projects and to issue revenue bonds for the purpose of paying for the costs of turnpike projects. Tex. Rev. Civ. Stat. Ann. Act. 6674v. (See Appendix E of the Part 1 submittal of the Authority)

Pursuant to its statutory authority, the Authority constructed and operates the Dallas North Tollway (the "Tollway") and the Mountain Creek Toll Bridge (the "Toll Bridge"). As part of the construction of both the Tollway and the Toll Bridge, a storm water sewer system was installed to collect, drain and transport storm water runoff from the Tollway or the Toll Bridge to naturally occurring drainage channels or to existing municipal separate storm water systems. The predominant functions of the Tollway system are (i) to accept storm water from drainage areas within the Tollway right-of-way and (ii) to act as a conduit for the City storm water draining from one side of the Tollway to enable it to flow into the City storm water system on the other side of the Tollway. The exclusive function of the Toll Bridge system is to accept storm water runoff from the approach roadways to the bridge or from the bridge itself.

To satisfy the requirements of 40 C.F.R. 122.26(d)(2)(i)(A), the Authority intends to enter in an interlocal agreement ("City Interlocal Agreement") with the City in which the City will acknowledge that the ordinances of the City for controlling the contribution of pollutants by storm water discharges associated with industrial activity to the City of Dallas municipal separate storm sewer system are also applicable to discharges that impact the Authority separate storm sewer. An initial draft of this City Interlocal Agreement is included in Appendix A-1 of the Part 1 submittal of the Authority. The Authority has the legal authority to enter into this City Interlocal Agreement.

To satisfy the requirements of 40 C.F.R. § 122.26(d)(2)(i)(A), the Authority has the legal authority under the Act to prohibit the use of any Tollway or Toll Bridge right-of-way for industrial activity. It should be recognized that the Tollway and Toll Bridge municipal separate storm sewer systems do not extend beyond their respective right-of-ways and no industrial activities take place or are allowed to take place within those right-of-ways. The only way in which a discharge associated with industrial activity can impact the Tollway or Toll Bridge separate storm sewer system is as a conduit for the City of Dallas municipal separate storm sewer system. Except for the City of Dallas, the Authority does not allow any connections directly to its system. To satisfy the requirements of 40 C.F.R. § 122.26(d)(2)(i)(B) and (C), the Authority has the legal authority under the Act to prohibit illicit discharges to the Authority storm sewer system and to control discharges into the

system from spills, dumping, or disposal of materials other than storm water. First, as to any discharges directly into the Authority separate storm sewer system, the Authority has the legal authority to prohibit the use of any Tollway or Toll Bridge right-of-way for any purpose other than motor vehicle traffic. Thus, the only type of discharge possible directly into the Authority system is from a motor vehicle. Second, as to discharges that occur indirectly as a result of the operation of the Tollway system as a conduit for the City system, the Authority has the authority to enter into the City Interlocal Agreement in which the City agrees to enforce its own ordinances against such discharges.

To satisfy the requirements of 40 C.F.R. § 122.26(d)(2)(i)(D), the Authority intends to enter into the City Interlocal Agreement. Under this Agreement, the City agrees to comply with the terms of the anticipated NPDES storm water discharge permit issued to it as to the City of Dallas separate storm water sewer system. Thus, by monitoring the permit compliance by the City and having the authority to require compliance under the City Interlocal Agreement, the Authority has the legal authority to control the contribution of pollutants from the City of Dallas system into the Tollway separate storm sewer system.

To satisfy the requirements of 40 C.F.R. § 122.26(d)(2)(i)(E), the Authority has the legal authority under the Authority to require compliance with the permit as to all activities within the Tollway or Toll Bridge right-of-ways. As to activities beyond these right-of-ways, the Authority has the legal authority to enter into and enforce the City Interlocal Agreement.

To satisfy the requirements of 40 C.F.R. 122.26(d)(2)(i)(F), the Authority has the legal authority under the Act to carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance or noncompliance with the permit, including the prohibition on illicit discharges, as to activities within the right-of-way of the Tollway and Toll Bridge. For activities beyond these right-of-ways, the Authority has the legal authority to enter into and enforce the City Interlocal Agreements.

The legal authority of the City to control discharges to the municipal separate storm sewer system owned by it are described in Section 2 of the City of Dallas Part 1.

This discussion of the legal authority of the City in Section 2 of the City of Dallas Part 2 is hereby incorporated into this Authority Part 2 by this reference. This same legal authority is sufficient to control discharges from property adjacent to the Tollway or the Toll Bridge to the separate storm sewer system owned by the Authority.

Section 2 - Source Identification
[40 C.F.R. 122.26(d)(2)(ii)

Major Outfall Locations

All major outfalls from the Tollway storm water system were reported in the Part 1 application of the Authority.

Facilities Discharging Storm Water to MS4s

Section 2 of the City of Plano Part 2 is incorporated into this submittal by this reference. Except to the extent storm water received from the City MS4 carries storm water discharges associated with industrial activity, the Tollway does not directly receive storm water discharges associated with industrial activity. These discharges into the City MS4 will be controlled by the City pursuant it its management plan.

Section 3 - Discharge Characterization
[40 C.F.R. 122.26(d)(2)(iii)]

The Characterization Plan, dated April, 1992 of the North Central Texas Council of Governments and the Regional Urban Storm Water Management Task Force submitted with the City of Dallas Part 1, and as revised and submitted with the Part 1 NPDES Storm Water Permit Applications for the cities of Arlington, Garland, and Irving, Texas is incorporated into this Authority Part 2 by this reference. This Characterization Plan, when complete, will be filed with the EPA as a separate report.

The Authority has agreed to participate with TxDOT and to fund equally one of the sampling events called for in the Characterization Plan. A copy of this agreement is attached as Appendix A-2 to the Authority Part 1.

The characterization date, estimates of annual and seasonal pollutant loadings, event mean concentrations, and proposed monitoring program will be provided by the Authority in accordance with the Compliance Schedule set forth in Section 8.

Section 4 - Proposed Management Program
[40 C.F.R. 122.26(d)(1)(v)]

4.1 Introduction

In regard to the quality of storm water runoff associated with transportation activities, it is the intent of the Authority to develop a comprehensive management plan and establish design criteria and guidelines both to comply with the NPDES criteria and to establish a proactive stance regarding water quality issues. The Authority has requested that the Texas Department of Transportation and the Authority work together to finalize a management plan for storm water runoff associated with transportation actions. The following plan is virtually identical to the proposed management plan of the Texas Department of Transportation.

4.2 Development and Implementation of Permanent Controls

This section includes a description of permanent structural and non-structural control measures to reduce pollutants from roadway runoff and how the controls will be developed and incorporated into the planning process. In the past, the Authority has not found it necessary to utilize permanent storm water control measures. As a result of the NPDES requirements and other water quality concerns, the Authority is developing this program to assist in addressing water quality issues in the early stages of project development and throughout the construction of the project. The program will be phased into the existing project development process and will provide guidance on the appropriate levels of mitigation to minimize the impacts to water quality resulting from highway runoff.

When determining the potential of a project to impact water quality, the designer/planner should take into account the existing quality of receiving water at the site. For the purposes of this management plan, the source for this determination will be based on the Texas Water Commission's (TWC) stream segment classification system as referenced from the "State of Texas Water Quality Inventory" and 31 Texas Administrative Code Chapter 307 entitled "Texas Surface Water Quality Standards." Using the stream segment classification system, the TWC and the Texas Parks and Wildlife Department have published documents which list "Use" and "Quality" designations for each waterway segment.

Using this available information, sensitive waters can be identified in the early stages of project development and the design can incorporate appropriate mitigation measures. For the purposes of this program, the quality of receiving water has been classified into three categories: Exceptionally High, High, and Moderate. The stream segment numbering system does not cover all of the waters of the state; therefore, if any perennial stream is affected by a roadway project which does not have a segment designation then that water shall be considered a "High" quality receiving water.

The Texas Department of Transportation has compiled a list of the waterways in the

The Texas Department of Transportation has compiled a list of the waterways in the state that fit in the "Exceptionally High" category. Since the recommended mitigation measures should be considered minimal standards, additional measures may be considered. The classification of the quality of receiving waters is as follows:

- **Exceptionally High**: These are waters that have been designated "Exceptional Quality Aquatic Habitat" by the TWC or have been identified as providing Endangered/Protected Species Habitat by the Texas Parks and Wildlife Department. Also included is the recharge zone of the Edwards Aquifer, portions of which have been designated a sole source aquifer by the EPA.

- **High**: Three or more designated uses as taken from the Texas Surface Water Quality Standards, or any perennial stream not having a segment designation.

- **Moderate**: Two designated uses.

In assessing the need to incorporate permanent water quality control measures into highway construction projects, the quality of receiving water will be factored against traffic volume. There are several variables that might affect the quality of runoff from a roadway, including rainfall characteristics, traffic type, and surrounding land use, but traffic volume appears to be the best single determining factor and traffic volume data is easily obtainable.

The use of 30,000 vehicles per day (or Average Daily Traffic - ADT) as a dividing point is based on two Federal Highway Administration (FHWA) publications. In *Effects of Highway on Receiving Waters: Procedural Guidelines for Environmental Assessments*, (Pub. No. FHWA/RD•84-065. July 1985) the authors concede that anticipated impacts to water quality are highly subjective, but they go on to state that greater impacts might be anticipated where traffic volume exceeds 30,000 ADT and drainage is by curb and gutter. Also, in *Pollutant Loadings and Impacts From Highway Storm Water Runoff* (Pub. No. FHWA/RD-88•006, 007, 008, and 009. April 1990), the findings indicate that pollutants in runoff from urban highways, which usually had greater than 30,000 ADT (compared to the rural highways in the study that had less than 30,000 ADT), were found to be higher in concentration by a factor of three. For all intents and purposes runoff from extremely low volume roadways (<1500 ADT) will have no impact on receiving waters, therefore permanent controls will generally not be required on such roadways. If the cost of the permanent runoff control measures for any project is substantial relative to the overall project costs, then the measures will be subject to review.

The Texas Department of Transportation has developed a table that correlates the traffic volume and quality of receiving waters to a level of permanent storm water management measures applicable to highway projects. The levels should be considered as guidance to be used during project planning and design for construction of new location roadways and major reconstruction projects. The ADT will be based on a 20-year design

projection.

• Level I
This designation pertains to projects that have the highest potential to affect water quality and require the highest degree of mitigation consideration. Preventive measures appropriate for consideration at this level include:

- extended detention (wet/dry) pond,
- sedimentation pond,
- filtration pond,
- vegetative controls/filters, and
- hazardous material traps.

• Level II
This designation pertains to projects that have a moderate potential to affect ambient water quality depending on project specific conditions. Preventive measures appropriate for consideration at this level include:

- low volume dry or wet detention basins,
- vegetative controls

• Level III
This designation pertains to projects which have a minimal potential to impact water quality depending on project specific conditions and only if drainage is by curb and gutter. Drainage through a grass-lined channel will typically attenuate any contaminants in runoff -from this level of project.

4.2(a) Description of Permanent Control Measures

Upon identification of a potential turnpike storm water runoff pollution problem, a management measure (or measures) shall be implemented to the extent practicable to effectively abate the runoff impact on receiving waters through pollutant removal and retention. There are five primary management measures considered cost-effective for pollutant removal from highway runoff. The management measures are:

- extended detention (wet/dry) pond,
- sedimentation pond,
- filtration pond,
- vegetative controls/filters, and
- hazardous material traps.

Extended Dry or Wet Detention Basin -- An extended detention basin is a runoff storage basin with increased runoff residence time sufficient to remove settleable pollutants to acceptable levels. A wet detention basin has a permanent pool of water. To be effective in removing pollutants there must be sufficient runoff detention time. Expected performance is uncertain as it has been observed to range from poor to excellent depending on the basin's

size relative to the following five characteristics which should be considered in the design:

- watershed area,
- vegetative cover of watershed,
- seasons,
- soil erodibility, and
- storm characteristics.

Since a particular detention basin may exhibit variable performance characteristics depending on the foregoing five characteristics, the long-term average performance shall be considered rather than analyzing individual events. General design criteria are as follows:

- Hydrograph centroid shall be delayed through control from a small orifice in the release structure.
- Extended detention shall normally be limited to two-year runoff events.
- Hydrograph delay time shall be at least 24 hours.
- Runoff in excess of a two-year event shall normally be passed through the basin with peak discharge controls only.

A wet detention pond is designed so that the contributing drainage area and/or groundwater is capable of supporting a permanent pool. This pond provides pollutant removal through settling of particulates and biological uptake of soluble contaminants.

<u>Sedimentation pond</u> -- A sedimentation pond is a storage basin with sufficient volume to isolate and contain the "first flush" of runoff for an extended residence time sufficient to remove settleable pollutants to acceptable levels. The typical residence time is between 24 and 40 hours with a first flush volume of one-half to one inch of runoff either from impervious areas or the entire drainage area.

<u>Filtration pond</u> -- A filtration pond is a storage basin with sufficient volume to isolate and contain the first flush of runoff which filters runoff through a porous medium (sand filter) to remove settleable pollutants to acceptable levels. The "first flush" volume should be equal to one-half to one inch of runoff either from impervious areas or the entire drainage area.

<u>Vegetative Controls/Filters</u> -- These shall commonly be used in conjunction with other measures to pre-treat runoff. The most common vegetative controls/filters are:

- Grassed channels, waterways, ditches, or swales designed to inhibit erosion and enhance the settling of suspended solids.
- Overland flow through a filter strip where such strips consist of grass or forested vegetation designed to filter pollutants from sheet flow runoff and increase filtration.

These management measures can be used alone or in combination to address site-specific turnpike project runoff pollution problems. Available information is insufficient to readily determine which management measure is the most effective in removing a specific pollutant from highway runoff; effectiveness is a function of numerous variables related to site conditions, highway design, and other factors. Research is currently underway to determine the overall effectiveness of each of these management measures and to further refine the procedures for their design and operation.

Vegetative controls can be used in combination with other effective management measures to increase pollutant removal, provide filtering of suspended solids for permanent control structures, and reduce erosion and scour at inflow discharges to infiltration basins, detention basins, and wetlands. Combinations are particularly advantageous where the desired length of grass-lined channel or width of overland flow is unobtainable.

Hazardous material traps (HMT) -- An HMT is a storage facility used to capture and contain a hazardous spill on the highway facility. It typically provides for a capacity of 8,000 gallons, and contains a self-draining outlet and an emergency cut off to contain any spilled materials. It captures the initial volume of runoff from the highway while bypassing any runoff when full.

Miscellaneous -- Relatively effective low-cost management measures that are not necessarily site specific are:

- Curb elimination -- Omitting curbs or providing discontinuous curbs (periodic gaps) encourages the transport of storm water runoff off the roadway into vegetated roadside areas. These vegetated roadside areas can be designed and maintained to effectively remove pollutants before the runoff enters any receiving waters. Gaps must be consistent with essential traffic control and highway safety requirements.

- Litter control -- Litter control programs will, as a secondary purpose, achieve pollutant reduction through the elimination of pollution sources.

- Reduction of direct discharges -- Avoid the direct discharge of turnpike runoff into receiving waters or groundwaters by using effective management measure(s).

    - Reduction of runoff velocity -- Encourage bed load deposition by lowering velocities through gradient reduction using drop structures and/or baffles as well as by providing heavily vegetated waterways.

    - Establish and maintain vegetation -- Dense vegetative cover and limited

mowing with no grass removal provides pollutant reduction through filtration, sediment deposition, infiltration, and to a limited extent, biological assimilation of pollutants by the vegetation.

4.2(b) Effectiveness of Management Measures

At this time only qualitative ratings of management techniques can be offered. This is due to the variance in the design and management of these measures as well as the intangible site-specific factors that determine the runoff characteristics and pollutant loads. Since mitigation is often a function of a high ADT, which in turn commonly occurs near urban areas, any additional right-of-way may be very costly. As such, cooperative storm water management agreements with local governments to share the benefits and cost is encouraged.

4.3 Erosion and Sedimentation Control During Construction

This section describes the storm water control measures for construction activities. Also applicable to this section are the NPDES General Permit requirements for construction activities.

The major water quality issues associated with turnpike construction activities are the processes of erosion and sedimentation. Accelerated erosion and sedimentation can occur at times in conjunction with the construction of highway and transportation facilities. The accelerated process can result in significant impacts such as safety hazards, expensive maintenance problems, unsightly conditions, instability of slopes, and the disruption and/or destruction of ecosystems. Due to these potentially adverse effects, the minimization of the erosion and sedimentation processes during highway construction shall be included in the total design process of highway projects.

4.3(a) General Guidelines

The design of erosion and sediment control systems involves the application of common sense planning, scheduling, and control actions that will minimize the adverse impacts of soil erosion, transport and deposition. In order to meet the objectives of the management plan for construction, activities the following basic guidelines shall govern the development and implementation of a sound erosion and sediment control plan:

- Plan the highway project to fit the particular topography, soils, drainage patterns and natural vegetation as much as practicable. In general, areas with steep slopes, erodible soils and soils with severe limitations should be avoided when possible.
- Construction sequencing. A sequence of construction should be developed that minimizes the potential erosion and sedimentation impacts. The

achieved as soon as practicable as the work progresses

- Apply erosion control practices to prevent discharge of sediments offsite. This principle relates to using practices that control erosion on a site to prevent excessive sediment from being produced. Efforts should be made to keep soil covered as much as possible with temporary or permanent vegetation, erosion control blankets or with various mulch materials. Other practices include diversion structures to channel surface runoff from exposed soils and using slope drains where grades may be prone to erosion.
- Apply perimeter control practices to protect the disturbed area from off-site runoff and to prevent sedimentation damage to areas downgradient of the construction site. This principle relates to using practices that effectively isolate the construction site from surrounding properties, and especially to controlling sediment once it is produced and preventing its transport from the site. Diversion structures, swales, dikes, sediment traps, vegetative and structural sediment control measures can be classified as either temporary or permanent depending on whether or not they will remain in use after construction is complete.
- Keep runoff velocities low and retain runoff on the site. The removal of existing vegetative cover and the resulting increase in impermeable surface area during construction will increase both the volume and velocity of runoff. These increases must be taken into account when providing for erosion control. Keeping slope lengths short and gradients low, and preserving natural vegetative cover can keep storm water velocities low and limit erosion hazards. Runoff from the development should be safely conveyed to a stable outlet using storm drains, diversion structures, stable waterways or similar measures. Conveyance systems should be designed to withstand the velocities of projected peak discharges. These facilities should be operational as soon as possible.
- Stabilize disturbed areas immediately after final grade has been attained. Permanent structures, temporary or permanent vegetation, mulch, stabilizing emulsions, or a combination of these measures, should be employed as quickly as possible after the land is disturbed. Temporary seeding, mulches and other control materials can be most effective where or when it is not practical to establish permanent vegetation or until the vegetation is established. Such temporary measures should be employed immediately after rough grading is completed, if a delay is anticipated in obtaining finished grade. The finished slope of a cut or fill should be stable and ease of maintenance should be considered in the design.
- Implement a thorough inspection, maintenance and follow-up program. This last principle is vital to the success of the management of runoff from construction activities. A site cannot be effectively controlled without thorough, periodic checks of the erosion and sediment control practices.
- The Authority generally expects to follow the standard TxDOT specification for "Erosion, Sedimentation and Water Pollution Prevention and Control" in all construction projects.

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4.3(b) Storm Water Pollution Prevention Plans

A storm water pollution prevention plan shall be developed for each construction site covered by the NPDES general permit for construction activities. The plan shall describe and ensure the implementation of practices that will be used to reduce the pollutants in storm water discharges associated with the construction site and to assure compliance with the terms and conditions of the general permit. The Storm Water Pollution Prevention Plan must be completed prior to the commencement of construction and shall include the following items:

1. Site Description. Each plan shall, provide a description of pollutant sources and other information as indicated:

   a. A description of the nature of the construction activity;

   b. A description of the intended sequence of major activities that disturb soils for major portions of the site;

   c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities;

   d. An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

   e. A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which are not to be disturbed, the location of major structural and nonstructural controls identified in the plan the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water; and

   f. The name of the receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site.

2. Controls. Each plan shall include a description of appropriate controls and measures that will be implemented at the construction site. The plan will clearly describe for each major activity the appropriate control measures and the timing during the construction process that the measures will be implemented. The controls will be implemented in accordance with the

4.4 Turnpike Operation and Maintenance Activities

Preserving water quality while maintaining and operating the turnpike system presents a complex challenge. The Authority continues to review and improve its maintenance activities so as to minimize the potential to impact the natural environment.

Water quality and storm water runoff issues in maintenance and operations may be summarized using seven categories:

- Vegetation Management
- Earth Disturbing Operations
- Material Storage/Stockpiles
- Disposal Practices
- Spill Response
- Inspection of Permanent Structures
- Other

4.4(a) Vegetation Management

Overall, the Authority's effort to control storm water runoff and its success in water quality conservation rely heavily on roadside vegetation management. The Authority addresses its right-of-way vegetation in a four-level vegetation management plan, with levels determined by using average daily traffic (ADT) and descriptions of surrounding property use. This statewide guide harmonizes with the local climate, topography, plant life and levels of urbanization to:

- ensure the safety of the traveling public
- enhance environmental protection
- mitigate erosion, and
- promote coordination and efficiency in maintenance activities.

Vegetation management along the roadside consists of propagation and control of vegetation. Control of vegetation growth is accomplished by physical and chemical means. Physical methods of weed and brush control may include hand-pulling, hoeing, plowing, cultivating, trimming and mowing. The most economical means of control is by using herbicides. Herbicides have been developed to control vegetation with a minimum of harm to the environment. On an annual basis, the Authority utilizes very small quantities of herbicides and pesticides.

4.4(b) Earth Disturbing and Maintenance Operations

The Authority on rare occasions engages in earth-disturbing operations during regular maintenance of roadways. These operations do not presently meet the definition of construction activities as regulated by the NPDES program but the Authority encourages the use of controls to limit erosion and sedimentation resulting from these projects.

inspector. Under no circumstances shall the Contractor deviate from this plan without written authorization from the Engineer. The purpose of this form is, 1) to provide an easy and effective inspection report, 2) to provide the Contractor with updates for the work required, 3) to provide a track record of troublesome areas so that they can be identified, analyzed and modified to minimize maintenance and maximize performance, and 4) to provide a report of activities in accordance with the NPDES general permit requirements and the storm water management plan.

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checked.

- Understanding the process of identification and disposal.
  Testing the waste for hazardous characteristics.

4.4(e) Spill Response

The Authority rarely discovers or is notified of hazardous material spills on turnpike right-of-way. The Authority maintains a Hazardous Materials Emergency Response Guidebook that sets forth its response procedures.

4.4(f) Inspection of Permanent Structures

Section 4.2(a) describes typical permanent structural controls utilized in connection with roadways to control the discharge of pollutants into storm water runoff. The Authority at this time utilizes no permanent structural controls in association with the Tollway or Toll Bridge. Thus, this management plan does not at this time contain a maintenance or inspection schedule. If a permanent structural control is installed in connection with the Tollway or Toll Bridge, a maintenance and inspection schedule will be developed.

4.4(g) Other Maintenance Considerations

Deicing Activities - Removal of snow and ice from the roadway is considered work of great importance and is classified as an emergency operation that takes precedence over all other work. The work is executed as expeditiously as practicable so that roads are maintained in as good a working condition as possible. During and after the icy conditions, inspection should be made of the conduct of the work and to insure proper cleanup operations.

Deicing salt is used on a limited basis by the Authority. The preferred method of maintaining a safe roadway during icy conditions is through the use of sand without salt. Only during the most severe conditions will salt be mixed with the sand, at approximately 100 pounds of salt per cubic yard of sand.

4.5 Detection and Removal of Illicit Connections; Illicit Discharges and Improper Disposal

The Tollway's storm drainage systems conveys runoff from areas within the City and outside the Tollway right-of-way and, therefore, may be vulnerable to illicit discharges and improper disposal to the City MS4 system. To detect and remove these types of illicit discharges and improper disposal that occur beyond the Tollway right-of-way, the Authority will rely on the terms of the City Interlocal Agreement and the enforcement by the City of its storm water ordinance. The Authority will annually review the inspection, enforcement, and screening activities of the City as to these areas for which the Tollway storm water system acts as a conduit from one portion of the City system to another. The program to detect and eliminate illicit discharges and improper disposal to the storm drainage systems under Authority control and within Tollway right-of-way will consist of the following:

- periodic inspections and daily workday monitoring of activities,
- immediate cessation of any on-going attempt to install illicit connections
- immediate removal of any illicit connections

The normal inspection and maintenance activities performed by the Authority will include screening for potential environmental problems within the storm drainage systems. This will include visual inspections for dry weather discharges or other indications of potential undesirable environmental impacts. Due to the its lack of enforcement powers the Authority has outside the Tollway right-of-way, coordination with the City will be established to report and remedy illicit connections. Upon detection of a potential illicit connection, the Authority will investigate the source to the limits of the Tollway right-of-way and then report the problem to the source and other responsible regulatory agencies.

4.6 Public Awareness and Education

Specific emphasis on educating the general public and Authority personnel are important and integral aspects of a storm water management program. Many pollution problems can be avoided by having an informed populace willing to participate in improving storm water quality. The Authority is committed to participating in:

- Regional programs 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;
- Educational, public information, and other activities to facilitate the proper management and disposal of used oil and toxic materials; Appropriate educational and training guidelines for Authority planners, highway designers, construction site personnel and maintenance personnel; and appropriate funds necessary to perform the goals stated above.

The Authority hereby adopts by this reference the schedule of educational activities described in the City of Dallas Part 2. As provided in the City Interlocal Agreement, the Authority will reimburse the City for a portion of the costs incurred by the City in the development and implementation of the City's public awareness program.

Section 5 - Assessment of Controls
[40 C.F.R. 122.26(d)(2)(v)]

Estimating the reduction of pollutant loads entering municipal storm sewers resulting from the implementation of Authority's management plan would be difficult to predict at this time. Even a review of the literature reveals that any one particular control may have varying effectiveness. For example, according to one study the capability of a wet pond to remove zinc from highway runoff varied from 13 to 92 percent. The comprehensive nature of the Authority's storm water management plan makes it more difficult to estimate reduction in pollutant loads. The plan stresses avoidance of water quality impacts through education and pre-project planning. This in itself should significantly reduce pollutant loads resulting from Authority activities.

Section 6 - Fiscal Analysis
[40 C.F.R. 122.26(d)(2)(vi)]

Because of the limited number of outfalls involved with and the limited size of the areas impacted by turnpike projects, the fiscal impact of implementing the Authority's management plan is not expected to be substantial and the Authority has sufficient operating revenues and reserve funds to fund the plan. Under the Act, only funds generated by the Tollway or the Toll Bridge may be utilized in connection with each project. Each project generates sufficient funds from operations to allow the Authority to accomplish the activities described in its Storm Water Management Plan.

Section 7 - Roles and Responsibilities of Co-Applicants [40 C.F.R. 122.26(d)(2)(vii)]

In order to place the role and responsibilities of the Authority and the City in the proper context, it is necessary to review the size and function of the Authority storm sewer system within the City of Dallas system.

The combined surface acreage of the Tollway and the Toll Bridge is 0.5515 square miles or approximately 0.16% of the surface acreage within the City of Dallas. The Authority is responsible for only 35 storm water outfalls in the entire City. Moreover, the Tollway storm sewer serves two functions: (1) its predominant function is to act as a conduit between the City of Dallas storm sewer system or drainage areas within the City on one side of the Tollway to the City system on the other side; and (2) it gathers storm water that falls directly on its right-of-ways and channels it to the City system or discharges directly into creeks or other natural drainage channels.

Thus, the number of storm water outfalls for which the Authority is responsible is extremely small in comparison to the total number of outfalls within the City system and the discharges from these outfalls carry predominantly storm water generated beyond the boundary of the Tollway right-of-way.

Finally, the nature of the storm water runoff generated by the Tollway and Toll Bridge is unique; obviously, no industrial activity takes place within Authority right-of-ways. The only activity that takes place is motor vehicle traffic.

The most accurate way to describe the respective roles and responsibilities of the City and the Authority is to summarize the important provisions of the City Interlocal Agreement:

1. Paragraph 3: The City and the Authority shall each be responsible for the construction, operation, maintenance, and inspection of storm drainage facilities that it owns and operates.

2. Paragraph 5: Each party will comply with the terms of their own respective permit applications and with those portions of the permit applicable to their respective operations,

3. Paragraph 6: Each party will be responsible for its own storm water management plan.

4. Paragraph 7: The storm water ordinances adopted by the City will be

applicable to any violations caused or occurring within the Authority right-of-way.

5. Paragraph 8: Each party, as part of its storm water management, will adopt and implement procedures to investigate and detect illicit connections, unlawful discharges, and improper disposal

6. Paragraphs 8 and 11: When illicit discharges are detected, the city and the Authority will cooperate and consult with one another as to the appropriate action.

7. Paragraph 16: Each party will participate in the wet-weather monitoring program being coordinated by the North Central Texas Council of Governments.

8. Paragraph 17: The Authority will participate and reasonably reimburse the City for any on-going dry-weather field screening or wet weather monitoring required by the EPA.

9. Paragraph 20: The Authority and the City will participate in a public awareness program.

10. Paragraph 21: The Authority and the City will cooperate in the preparation and filing of any annual system-wide report required by the EPA.

Section 8 - Compliance Schedule
[Clean Water Act §402(p)(4)(B)]

The Authority will comply with the following schedule):

1. 60 days from this permit application revision: Calculate and provide the characterization data, estimates of annual and seasonal pollutant loadings event mean concentrations, and proposed monitoring program as required by 40 C.F.R. §122.26(d)(2)(iii)(A)-(D).

2. 90 days from permit issuance: Finalize and fully execute the City Interlocal Agreement.

3. 90 days from permit issuance: Finalize agreement with the City of Dallas concerning the responsibility of the Authority for reimbursing the City for the cost of the performance of "dry weather" field screening and "wet weather" monitoring.

4. One year from permit issuance and annually: Review and revise, if appropriate the Storm Water Management Program.

5. One year from permit issuance and annually: Review the public awareness and education programs of the City.

6. One year from permit issuance and annually: Review City compliance with its Storm Water Management Plan to the extent it impacts the Tollway or TollBridge.