APPENDIX
COMPREHENSIVE STORM WATER MANAGEMENT STUDY – AMEC 2006

STORMWATER MANAGEMENT PROGRAM MASTER PLAN

FORT WORTH

FORT WORTH, TEXAS
Comprehensive Storm Water Management Study

Phase I Project Documents

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SECTION 1 – INTRODUCTION

In September 2004, the City of Fort Worth hired the AMEC project team to assist with development of a Comprehensive Storm Water Management Program that will progress along two parallel tracks: (1) updating development policies and standards *(don't make things worse),* and (2) developing an enhanced, comprehensive storm water program managed by the City to correct existing deficiencies *(make things better).*

To establish lines of communications between the study team, City staff, stakeholders and the general public, three working committees were established:

- **The Storm Water Policy Advisory Committee (PAC)**. This committee, appointed by the City Manager, has been providing a broad based community sounding board for examining and recommending policy changes to the City Manager and ultimately the City Council. Regular meetings are held on the second Thursday of each month.

- **The Storm Water Technical Review Committee (TRC)**. This group, comprised of local engineering leaders involved in development and municipal engineering, is reviewing technical issues involved in storm water policy. A secondary role of this group will be to facilitate the extensive educational process that must occur when new policies are adopted. This group meets approximately every other Wednesday.

- **The Storm Water Internal Coordinating Committee (ICC).** This committee, drawn from City departments with a major stake in storm water programs, has been facilitating the study process and reviewing materials and recommendations going to the Storm Water Policy Advisory Committee and the Storm Water Technical Review Committee. Key departments represented are Transportation and Public Works, Engineering, Environmental Management, Parks and Community Services, Water, Planning, and Development. Regular meetings are held on the fourth Thursday of each month.

In this document, we have compiled and summarized the materials that were developed over the past several months in order to provide the PAC and the ICC with sufficient information to make informative storm water policy decisions. The results of this work through Phase 1 of the project were recommendations from the committees for an enhanced 5-year Storm Water Management Program and support for continuing to Phase 2 of the project to assess the potential of implementing a storm water utility in Fort Worth.

The documents and recommendations on design standards from the TRC will be compiled and distributed separately.

SECTION 2 - CURRENT STORM WATER PROGRAM

October 2004

I. INTRODUCTION

The City of Fort Worth's jurisdictional limits currently encompass about 313 square miles. Population was estimated at 534,700 in 2000 and grew to 577,500 in 2003, showing a rapid increase of 8% over 3 years. Through annexation and in-fill development, the population is projected to reach 772,000 by 2024. With this continued population and related economic growth will come increasing demands on the city's resources and infrastructure. To address the potential drainage and non-point source pollution issues that can come with increased urbanization, the City has begun to look at impacts both on a local watershed and more encompassing regional basis. Currently there are six (6) watershed studies underway in some of the more densely populated neighborhoods of the City to help establish priority needs and policies. Also, the City is taking part in the *integrated* Storm Water Management (*i*SWM) initiative, coordinated by the North Central Texas Council of Governments (NCTCOG), that will recommend ways for the region to achieve environmental goals and more effective storm water management. Concurrently, the City is undertaking a storm water management study to evaluate current activities, program needs, and potential funding methods for implementation of a comprehensive storm water program in Fort Worth. This report on current services is the first step in development of that comprehensive program.

II. ORGANIZATION

Currently, responsibility for the City's storm water related services is split between several departments, with the majority of activities being managed by the Transportation and Public Works Department (TPW), the Department of Engineering (DOE), and the Department of Environmental Management (DEM), with the exception of some activities that fit more naturally in other departments (such as planning policy, public information, emergency management, etc.). Within TPW, the Infrastructure Management and Street Services Divisions plan drainage projects and provide maintenance for drainage facilities throughout the City. Infrastructure Management investigates requests for drainage improvements, evaluates the need for major drainage studies and facilities, reviews drainage impacts related to new development, oversees the storm water system inventory process, and manages contracts related to the drainage program. The Streets Services Division provides maintenance for storm drains and drainage ditches, implements small drainage repair projects, and provides emergency response services during storm events.

DOE reviews construction plans for compliance with City design standards and policies, provides engineering design and project management for drainage capital improvement projects, performs site construction inspections and approvals, and manages easements and floodplain management maps and functions.

DEM"s Water Quality Division is responsible for maintaining and monitoring water quality in the City's urban lakes, rivers, creeks and storm drains. DEM manages the City's NPDES Storm Water Permit compliance and annual reporting. They inspect and monitor outfalls, industrial discharges, and construction site run-off; perform spill response activities; enforce environmental codes and water quality ordinances; provide public education materials that promote water pollution prevention; and maintain database and GIS information related to watershed management.

Other departments that play a role in storm water management include:

- Development Department – facilitates private sector development in compliance with City codes and policies. Through pre-development meetings and plat/plan review, drainage and floodplain issues are discussed and compliance requirements identified.
- Planning Department – develops citywide policies aimed at water quality protection and minimizing storm water flow impacts.
- Parks and Community Services (PACS) – Through the Park Dedication Policy, floodplain is often dedicated to PACS, requiring their involvement in the development plan review. Since much of the public drainage system runs through parkland, PACS performs routine maintenance (debris removal and mowing) on significant parts of the system.
- Water and Sewer Department – easements for water and sewer infrastructure often are located adjacent to storm drainage facilities, requiring coordination between the departments when dealing with alignment issues, pipe breaks, erosion, and access issues. The Water and Sewer and TPW field crews work cooperatively to resolve citizen concerns related to pipe breaks and flooding issues.
- Public Information Division, City Manager's Office – provides assistance with public outreach and education on storm water issues through assistance with education materials and website management.

The City's general organization structure is shown in Figure 1 on the following page.

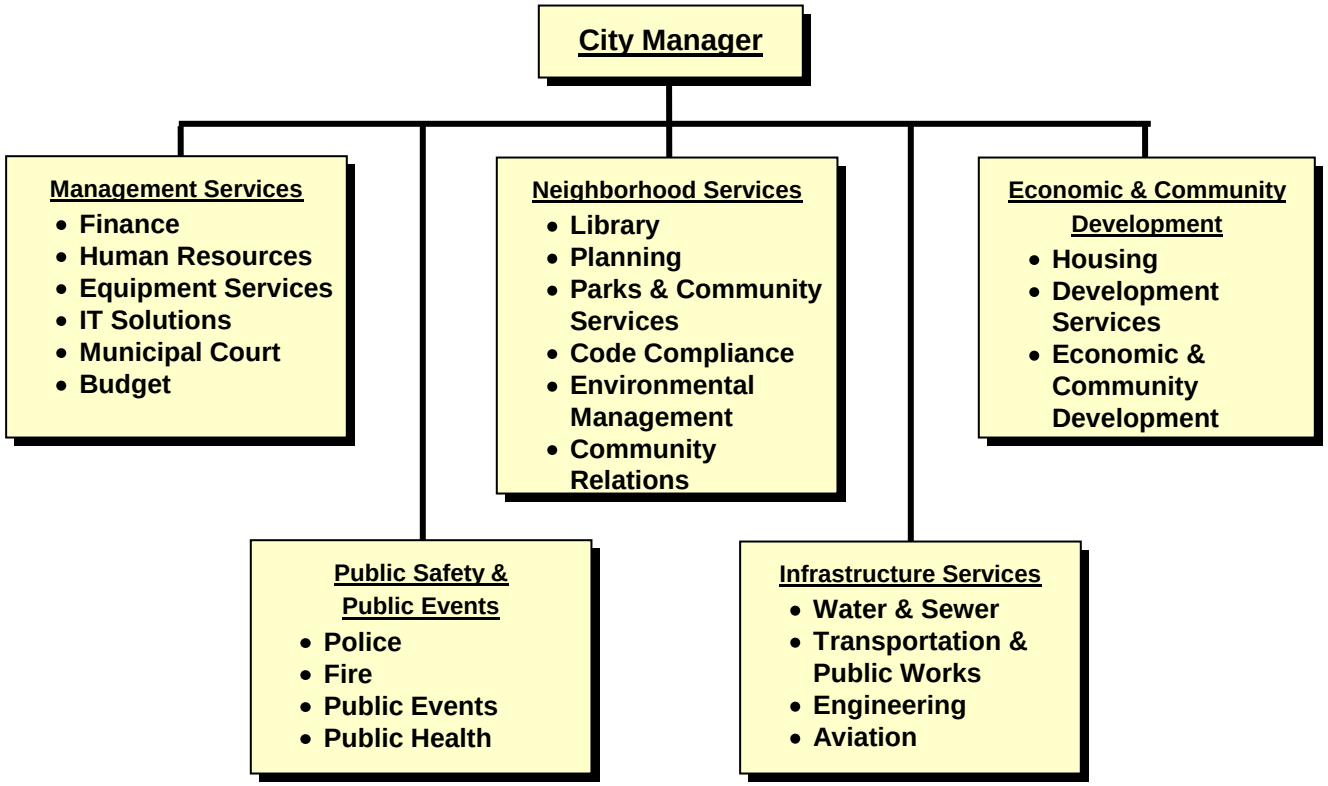


Figure 1. Fort Worth Organizational Chart

III. EXISTING STORMWATER MANAGEMENT PROGRAM

The City's storm water management program consists of many smaller operations that function together to meet the City's storm water needs. These various operations can be combined into eight (8) functional cost centers as shown in Table 1 below:

Table 1 - Functions	
Administration • Budget development • General Administration	Storm Water Planning • Watershed studies • Infrastructure improvement planning
Special Programs • Interagency coordination • Public education & outreach	Capital Improvements • Major capital improvements • Minor capital improvements
Operations & Maintenance • Routine system maintenance • Complaint tracking and response • Small in-house construction projects • Dam inspections • GIS/Inventory • Spill/Emergency response	Regulation & Enforcement • Standards development • Flood insurance (CommunityRating) • Floodplain management • NPDES compliance & reporting • Erosion & sediment control • Industrial compliance • Water quality monitoring

Engineering Design & Construction • Project development • Design of storm water improvements • Construction inspections • Construction contract management • Material Testing • Land Acquisition/Easements	New Development Review • Preliminary plat/plan review • Construction plan review • Community Facility Agreement compliance • Compliance inspections

The following section gives a summary of the storm water operations in the City of Fort Worth along with the associated departments responsibilities and their respective functions. It is important to understand that the departmental functions and responsibilities summarized below are only a part of what these departments do for the City.

ADMINISTRATION

TPW, Finance, Environmental Management, and Engineering:

- Oversee portions of the City's drainage system budget, including capital needs and operating budgets
- Handles administrative activities associated with on-going operation of the system (human resource issues, purchasing, payroll, etc.).

SPECIAL PROGRAMS

Public Information Department, City Manager's Office:

- There are no current special programs specifically for storm water. However, the City has established numerous ways to perform public outreach including use of web sites, neighborhood meetings, media information packets, and public presentations.

TPW:

- Works cooperatively with other local and regional agencies on storm water issues. Currently working with the NCTCOG on the *i*SWM guidelines. Also, attends meetings and working cooperatively to promote the Trinity River Vision Master Plan effort, being led by the Tarrant Regional Water District.

Environmental Management:

- Manages public education efforts related to storm water pollution control issues in compliance with the requirements of the City's NPDES Permit.
- Filed NPDES permit renewal application jointly with the Texas Department of Transportation and the Tarrant Regional Water District.

OPERATIONS & MAINTENANCE

TPW:

- Responsible for routine and emergency maintenance of the city-owned drainage system including:
  - Open channel, catch basin, storm sewer, and culvert cleaning,
  - Re-establishment of vegetation following construction or due to flooding/erosion, and
  - Work orders for minor repairs in response to system failures.
- Respond to citizen complaints related to storm water issues including flooding and erosion problems. Track city response and follow-up work.
- Responsible for vegetation maintenance within the City right-of-way.
- Perform small in-house construction projects
- Perform inspections of dams (over 6 feet in height) that contain and/or control storm water.
- Record locations of storm water facilities and easements for system inventory (GIS)
- Inspects condition of storm water infrastructure to determine maintenance needs.
- Implementing a High Water Warning System to warn of rising waters at critical flood prone roadways.

Environmental Management

- Responsible for clean up of spills of potentially hazardous materials that might impact surface water bodies.

Engineering:

- Maintains and updates Geographic Information System (GIS) system related to existing infrastructure inventory and new construction.
- Assists TPW, when requested, in investigating citizen complaints and evaluating drainage improvement needs.

Parks and Community Services:

- Responsible for cleaning creeks and mowing floodways within the park system.

ENGINEERING DESIGN & CONSTRUCTION MANAGEMENT

Engineering:

- Reviews system needs and develops capital project plan.
- Provides engineering support and technical design for capital improvement projects.
- Performs construction inspection, including materials testing.
- Manages construction contracts.
- Responsible for land acquisition and/or easements for capital construction projects.

TPW

- Designs small in-house drainage improvement projects

STORM WATER PLANNING

TPW:

- Managing the first phase of watershed studies being conducted in several sections of the City.
- Leading the development of the long-term stormwater management program**.**

Planning Department:

- Develops citywide policies aimed at water quality protection, stream preservation, and minimizing storm water flow impacts.

CAPITAL IMPROVEMENTS

Engineering:

- Responsible for implementing major and minor capital drainage infrastructure projects.

REGULATIONS AND ENFORCEMENT

Environmental Management:

- Manages NPDES compliance activities including the reapplication process and annual reporting.
- Enforces erosion and sediment control measures.
- Inspects and manages industrial compliance to protect against illegal or illicit dumping into storm drain systems
- Maintains and updates locations of storm water infrastructure components associated with compliance program.
- Performs water quality monitoring at various locations throughout the city.

TPW:

- Provides guidance and develops standards related to storm water management and drainage regulations.

Engineering:

- Review projects for compliance with floodplain management programs.
- Community Rating System (CRS) insurance programs.

NEW DEVELOPMENT REVIEW

Development:

- Provides guidance to developers on what city approvals are required for development.
- Schedules pre-development reviews and receives preliminary plats. Plats are distributed internally to various city departments for review and returned to Development for compilation of comments. The developer is then responsible for addressing all concerns

prior to final approval.

Engineering:

- Responsible for engineering plan review and construction control.

TPW:

- Reviews drainage studies and storm water related issues on preliminary plats and plans.
- Reviews development plans to ensure infrastructure is being designed in compliance with the Community Facilities Agreement.

IV. PRELIMINARY IDENTIFICATION OF PROBLEMS & NEEDS

Through interviews with staff and review of existing documents, we have identified a preliminary list of problems and known limitations within the existing storm water management program in Fort Worth. By discussing these issues and prioritizing needs, we will begin to build a more effective, comprehensive program that will address the major issues now impacting the City. The following list is presented in the same order as the above section on current services, by function, not by priority.

ADMINISTATION and ORGANIZATION

- Currently, storm water activities are spread across several departments resulting in a fragmented approach to budgeting, program planning, development review, complaint response, and capital improvements. Having a designated storm water leader would help to focus storm water activities and priorities and have one office that would be accountable for storm water management activities.

SPECIAL PROGRAMS

- Recent flooding events have raised the public consciousness about storm water control problems, however it appears that most residents don't understand the cause or the complexity of the problems. The comprehensive storm water management study will begin to address this issue through education about this particular study, but lack of resources is limiting a more comprehensive public outreach and education program.

OPERATION & MAINTENANCE

- The drainage maintenance staff, which consists of about 45 employees, is responsible for all routine and emergency maintenance for a city of over 500,000 residents. This group schedules maintenance reactively, that is, they respond to the most recent complaints or work on backlog, and do not have sufficient time to perform routine system maintenance. It is estimated that the maintenance staff will respond to hundreds of flooding or erosion complaints this year and will be sent to known problem areas ahead of any predicted rainfall event to try to minimize problems. The result of this reactive approach is that the level of service on the 100+ miles of public channel system that needs regular maintenance is extremely low. It is estimated that about 12 miles of channel get some maintenance on an

annual basis.

- The age and type of equipment available to the field staff is also affecting efficiency. Most major equipment is over 10 years old and needs regular maintenance and there is no redundancy or regular replacement schedule. Typical equipment needs include gradalls, dump trucks, large mowers, and boom trucks.
- Most information on the drainage system and public easements is on paper plans and warehoused at City Hall. When plans are needed, individuals have to manually retrieve documents for reference. Digitizing plans and having a computer database to aid in researching documents would improve efficiency of the field crews.
- Also, an inventory of the location and condition on the entire drainage system would be most helpful. Portions of such an inventory have been attempted over the last several years, but lack of resources has prevented this from being completed.
- Training and certifications in the areas of safety, confined entry, and concrete construction would be helpful to field staff in getting work done more safely and consistently.
- A significant amount of the floodplain in Fort Worth is within City parks. This results in the Parks staff being responsible for maintaining the floodplain (mowing and vegetation management), as well as debris removal in creeks. Currently, the Parks Department does not have the heavy machinery required for major cleaning. Increased collaboration between TPW and Parks maintenance staff might result in more efficient storm water related maintenance.

ENGINEERING DESIGN & CONSTRUCTION

- Engineering staff manages as many as 50 capital projects a year. This currently includes about 8 small drainage projects, which will total about $13 million when completed. However, the known backlog of drainage improvement needs is estimated at over $500 million and additional engineering resources (designers, contract managers, and inspectors) will be needed, along with the capital financing, to manage a higher volume of projects.

STORM WATER PLANNING

- Watershed studies are currently underway in six (6) small watersheds in the older sections of the City, covering less than 5% of the total drainage area. The first phases of these studies will help identify and prioritize drainage and infrastructure problems in these areas. Resources will be needed to implement recommendations from these studies as well as to fund similar studies in other portions of the City.

CAPITAL IMPROVEMENTS

- With a backlog of over $500 million in drainage system improvements, the City needs to establish a systematic approach to addressing these needs. Using the watershed studies to help prioritize needs in some areas is a beginning, however, the major issue will be establishing a consistent method of funding a more aggressive program while implementing other program changes (updated development standards, improved public education program, increased inspection and enforcement, proactive maintenance, etc.) to ensure that future growth won't exacerbate existing problems.

REGULATION & ENFORCEMENT

- The City's current Storm Drainage Criteria and Design Manual has not been significantly updated since 1967, though some minor changes were made in 1976, 1986, and 1994. Storm water management knowledge and technical controls have advanced significantly since the 1960's and Fort Worth has not kept up with these changes. The City is currently partnering with 64 other Texas communities and the North Central Texas Council of Governments to develop new guidance and policy documents to help manage storm water. Through a Technical Review Committee, which is discussing potential changes to the storm water standards, the City will bring forth recommendations in the next several months on how the standards should be updated. These updates, which will look at such issues as mitigating downstream impacts, setting grading standards, protecting water quality, and updating hydraulic calculations, will be an important step in managing future storm water problems in the City.

NEW DEVELOPMENT REVIEW

- Pre-development review meetings are now offered by the City, but are not mandatory. Making these meetings mandatory for any large scale development would allow discussions of drainage issues, floodplain management, easement, and maintenance issues before final plans are developed, saving both City reviewers and developers time and effort.
- TPW staff is currently responsible for plat and drainage study reviews, however, resources to perform this review are limited with only a portion of one engineer's time available for the dozens of projects that come through each week. To make sure the proper level of service is given to these reviews, additional resources need to be identified.
- Current development review can only be based on existing regulations and requirements and since the drainage standards are a 1967 version, reviews reflect these outdated rules. Enhancing development standards will allow more control over storm water management issues, such as requiring a grading plan, but will likely also require additional city inspection and enforcement resources to make them effective.

Fort Worth Cost Summary

Functional Cost Center	TPW	DEM	PACS	DOE	Estimated Costs
Infrastructure Reconstruction	$2,250,000	$0	$167,000	$0	$ 2,417,000
Operations & Maintenance	$2,537,080	$200,000	$242,000	$0	$ 2,979,080
Inventory/Condition	$60,288	$49,788	$0	$0	$ 110,076
Flood Insurance/Floodplain Management	$0	$0	$0	$222,800	$ 222,800
Master Planning	$286,248	$0	$0	$0	$ 286,248
New Development Review	$76,908	$0	$38,400	$0	$ 115,308
Regulation and Enforcement	$0	$1,074,154	$0	$0	$ 1,074,154
Administration/Management	$104,704	$0	$0	$0	$ 104,704
Public Education/Outreach	$0	$89,328	$0	$0	$ 89,328
Emergency Spill Response	$0	$204,800	$0	$0	$ 204,800
TOTAL	**$5,315,228**	**$1,618,070**	**$447,400**	**$222,800**	**$ 7,603,497**

SECTION 3 - RECOMMENDED GOALS FOR A MORE COMPREHENSIVE STORM WATER PROGRAM

JANUARY 2005

The City's goal is to manage storm water so that things don't get worse as new areas are developed while improvements in storm water management are made in the areas of the city that are already developed. We can accomplish these goals by:

- Developing detailed watershed plans that promote orderly growth and result in an integrated system of public and private storm water infrastructure
- Adopting development policies and standards that prevent flooding, preserve streams and channels, and minimize water pollution without arresting either new or infill development
- Improving maintenance and operating the storm water system in a more efficient and effective manner
- Fully complying with regulatory permit requirements including water quality protection goals
- Informing the public about storm water issues in the community
- Securing funding that is adequate for meeting these needs and is recognized by the public as fair and equitable

SECTION 4 - LEVEL AND EXTENT OF SERVICES DISCUSSION PAPER

JANUARY 2005

Issue

Stormwater program mandates, ranging from flood control and floodplain management to improved water quality in receiving streams, are now an integral part of the overall stormwater management strategy throughout the nation. In the past, moving runoff away from public roadways, off all property, and into the collection system, was the overall goal for managing stormwater. Comprehensive programs, as defined in the goals for the City of Fort Worth's program, must be quantified in terms of the "public" responsibility through the services that will be provided to achieve the community's goals for public safety and environmental protection. The limits or level of service (quantity or frequency) as well as the extent of the service (spatially or geographically) are a key to determining the cost of service to the community as well as assigning those costs to those who will pay for the services.

This discussion paper sets forth the structure for defining the level of service and the extent of service that will be provided by publicly funded activities in support of the goals for a comprehensive stormwater program. By describing how and where services will be administered, performed, and measured, the City will define its future storm water management program in the future. These service level goals may, of course, change gradually over time as the program is refined and expanded and as community needs and expectations are met.

I. Current Fort Worth Level and Extent of Services

A. Current Service Area Description:

In general, the City of Fort Worth is responsible for management of storm water through regulation, planning, maintenance, and capital improvements in the areas delineated by its corporate boundary. It also has planning and regulatory jurisdiction through zoning regulations in its extra territorial jurisdiction (ETJ).

B. Current Extent of Service Description:

The City defines its extent of storm water service as follows:

- The City performs planning and regulatory review on the drainage aspects on all development within the City limits. This review is performed early in the development process, usually at the plat/plan review stage, and consists of an assessment and comment on proposed drainage system components.

- City staff maintains the public storm water infrastructure through routine maintenance, remedial repairs, and response to citizen concerns and emergency

situations. The public system includes drainage facilities in public right-of-way or within public drainage easements.

- The City is responsible for on-site inspection of all public and private development to ensure compliance with approved plans. This inspection includes review of drainage away from structures to a limit of five (5) feet. Inspection is also performed on erosion and sediment controls on construction sites over one acre in size.

- The City assesses the need for capital storm water improvements within the City limits and is responsible for capital improvement construction and inspection.

- The City is responsible for compliance with the Federal National Pollution Discharge Elimination System (NPDES) permit that requires that the municipal storm water program meet Federal water quality criteria. Program requirements include water quality monitoring on local streams, industrial activity inspection, public education efforts, and implementation and monitoring of storm water control best management practices (BMPs) within the City limits.

C. Current Level of Service Description:
The City provides various storm water related services throughout the City, as more completely described in the Current Services Report. The following section identifies the current levels of service for the major functions of the storm water program

- The drainage maintenance staff is responsible for all routine and emergency storm water maintenance for a city of over 500,000 residents. This group schedules maintenance reactively, that is, they respond to the most recent complaints or work on the backlog of problems, and do not have sufficient time to perform routine system maintenance. It is estimated that the maintenance staff responds to over 1,000 flooding or erosion complaints annually and will be assigned to known problem areas ahead of any predicted rainfall event to try to minimize problems. The result of this reactive approach is that the level of service on the 100+ miles of public channel system and 60 miles of developed stream that need regular maintenance is extremely low. It is estimated that about 12 miles of channel get some maintenance on an annual basis, resulting in channel maintenance being completed every 8.3 years.

- As time is available, City staff is gathering field information necessary to complete an inventory of the existing storm water drainage system. Portions of such an inventory have been attempted over the last several years, but lack of resources has prevented this from being completed.

- A significant amount of the floodplain in Fort Worth is within City parks. This results in the Parks staff being responsible for maintaining the floodplain (mowing and vegetation management), as well as for cleaning creeks. Creek segments within Parks jurisdiction are targeted to be cleaned on a two year cycle, however, since the Parks Department does not have the heavy machinery required for

major cleaning, major work is added to the backlog list and done as time and money is available.

- The current Capital Improvement Plan budget funds 10 drainage improvements projects, scheduled to be completed in the next six (6) years, at a cost of about $13M. The known backlog of drainage improvement needs is estimated at over $300 million.

- Watershed studies are currently underway in six (6) small watersheds in the older sections of the City, covering less than 5% of the City's total drainage area. The budget for these studies is $1.3M over the next 6 years.

- City staff is currently working with a Technical Review Committee (TRC) to identify needed changes to the City's current Storm Drainage Criteria and Design Manual. This manual has not been significantly updated since 1967, though some minor changes were made in 1976, 1986, and 1994. The TRC will review such issues as mitigating downstream impacts, protecting water quality, and updating hydraulic calculations. The goal is to have recommendations by mid-2005.

- City staff is responsible for plat and drainage study review. Currently, dozens of projects come through each month and review is often cursory, limited by the availability of staff as only a portion of one drainage engineer's time is dedicated to these reviews.

- The City is responsible for performing at least 100 industrial compliance inspections per year. The inspections are scheduled based on pollution potential, complaints received, and past history. 108 inspections were done in 2003.

- The City has a public education and public outreach program to promote and publicize municipal storm water issues. It is estimated that over 10,000 citizens are reached annually through outreach efforts at schools, fairs, and community presentations and that over 30,000 brochures on storm water pollution and related issues are distributed each year.

- The City performs bi-annual water quality monitoring at eight designated stream locations throughout the city and performs wet weather screening at 30 outfall locations.

- The City is required to perform dry weather screening on the entire municipal storm system every 5 years. To meet this goal, the City must perform at least 126 screenings per year. In 2003, 199 screenings were done.

II. Goals of a More Comprehensive Storm Water Program

The City's goal is to manage storm water so that things don't get worse as new areas are developed while improvements are made in the areas of the city that are already developed. We can accomplish these goals by:

- Developing detailed watershed plans that promote orderly growth and result in an integrated system of public and private storm water infrastructure

- Adopting development policies and standards that prevent flooding, preserve streams and channels, and minimize water pollution without arresting either new or infill development

- Operating the storm water system in a more efficient and effective manner

- Fully complying with regulatory permit requirements

- Informing the public about storm water issues in the community

- Securing funding that is adequate for meeting these needs and is recognized by the public as fair and equitable

III. Program Gaps

There are several gaps between the current services being provided and the goals of a more comprehensive storm water program. Specific areas that need additions or enhancements to meet the program goals include:

- Master planning efforts that identify and prioritize capital and remedial system improvements and that establish the design conditions that need to be maintained to operate effectively
- Development standards that address the different issues in the central, older sections of the city versus new development in outlying areas
- Updating and enforcement of existing standards and regulations
- A maintenance plan that is proactive and efficient in scheduling routine maintenance activities and remedial improvements and that provides consistent services across the city
- Completion of a system inventory and condition assessment, in a GIS format, that includes easement locations and other pertinent information
- Increased use of technology to improve efficiency in field work, planning, and development review
- Increased public involvement through education and outreach to all parts of the community
- Stable funding source in place to meet the resource needs of the new program

IV. Recommended Enhanced Extent and Level of Services

To fill the gaps noted above, the first step is to further define the enhanced extent and level of services desired. It is recommended that the City begin by revising its current extent and levels of service by addressing the following:

A. Extent of Service:

- The City should exercise planning and regulatory authority, within its legal limits and mandates, over the entire drainage system, both publicly and privately owned. **How should the limits on authority over "private" development be defined?**

- Currently the City does not maintain unimproved streams outside public right-of-way or easements. **Should the City take over inspection and maintenance of all natural streams within the City limits to ensure proper open flow and to address water quality concerns of all drainage facilities within the City?**

- The City needs to ensure proper operation and maintenance of the total system by overseeing inspection of privately owned system components to ensure adequate maintenance on the private systems through executed maintenance agreements that limit City liability and clearly delineate the responsibilities of each party (i.e., owner and City). **In what cases should maintenance agreements be required and what should be the limits of the City's responsibility?**

- The City should establish working relationships with other local jurisdictions and agencies to ensure that planning takes into consideration projects and impacts that may affect more than one jurisdiction and that information and resources are shared to the benefit of all. **How do we define what this working relationship should look like?**

- The City needs to establish development standards that address both infill/redevelopment and new development. These standards should be developed in an open process to allow the community to review and comment on proposed changes and enhancements. **Should different parts of the city have different standards? How far downstream from a development should impacts be assessed?**

B. Level of Service:

The City should invest in resources sufficient to improve the current maintenance, operation, regulation, planning and capital improvements for the storm water system, including the protection of streams. The City also needs a proactive management strategy that anticipates challenges and has in place appropriate programs to provide for environmental protection and public safety, including protection from property loss. The City should adopt as a guiding principle that similarly situated properties and facilities be treated in a similar and consistent manner. This should be a long-term goal and a standard for evaluation of the effectiveness of the overall services provided on behalf of the public.

Some specific areas that require level of service enhancements include the following:

- The City needs an inventory and condition assessment of all drainage facilities and channels. This information should be collected and maintained in a GIS format. Parallel to the effort on the system inventory, should be an easement inventory that gives information on locations, owners, access conditions, etc. This information needs to be in a database for easy access by field crews and needs to be updated

on a regularly scheduled basis. **Over what time period should this work be done? How often should it be updated?**

- A citywide master plan needs to be undertaken that will assess the problems and needs of the storm water system from both a water quantity and water quality prospective. **Should this be done on a watershed basis? Over what time period should this work be done?**

- The City needs to establish a replacement schedule for infrastructure, as master plan information is available. The replacement standard should be set to meet build-out conditions in the watershed. **What percentage of the system should be scheduled for replacement/updating per year?**

- The City needs to increase maintenance resources to allow more timely routine maintenance of the entire system. **What is an acceptable level of routine maintenance – inspecting the entire system yearly with maintenance completed on a two to three year schedule?**

- The City needs to develop and maintain a database that tracks citizen complaints, response, follow-up activities, maintenance activities, backlog, etc. to provide information on system problems and to provide a way to measure service levels. **How will success of responses and maintenance be measured?**

- Additional resources need to be assigned drainage study reviews and field inspections of drainage structures to ensure that all projects get a comprehensive, quality review**. What level of resources should be assigned? Is turn around time or inspections per week an appropriate measure?**

- The City should expand its storm water public education and outreach program to targets all aspects of the Fort Worth community. **What level of resources should be assigned to this activity? Is spending per capita appropriate?**

- The City needs to increase resources to allow the backlog of capital improvement needs to be addressed. **What is a reasonable level of spending per year to address this backlog? Should high priority (public safety) projects be addressed first, followed by needs identified through the master plan and watershed studies?**

- The City needs to establish new design standards and policies that protect health and property while taking into account varied needs throughout the city. These new standards should include water quality protections and should be developed in an open public process over the next year. The City has committed to getting these standards in place as soon as possible. **How often should standards be reviewed and updated? Will additional resources be needed to get plans through the system in a timely manner? What is a "timely" manner?**

V. Summary

The information provided in the discussion above is meant as a first step in identifying the specific needs and possible solutions for the City of Fort Worth as it moves ahead in establishing a comprehensive storm water program. These recommendations will be reviewed with the Policy Advisory Committee to obtain input on the gaps identified and the solutions desired. Based on feedback from staff and the committee, more detailed information will be developed on potential solutions, including costs associated with various approaches.

APPENDIX: DEFINITIONS

The following definitions delineate the major segments of the service level policy issue.

- Service Area addresses the geographical area where the City is responsible for performing storm water management services through its storm water program, providing regulatory control, capital improvements, and maintenance. It defines the "outer geographic boundaries" of the City's program in actual application. The service area may be different from the jurisdictional limit of the City, which remains its legal corporate boundaries.

- Extent of Service addresses the application of specific storm water responsibilities and activities to the physical systems. It defines the "inner boundaries" of specific elements of the storm water management program in a manner similar to the way Service Area defines the outer boundaries. The defined Extent of Service guides decisions on how far up into the various types of systems the City should regulate, improve, and maintain storm water facilities and conveyance.

  Extent of service in terms of the physical system is often defined as limits of responsibility that the public assumes in providing direct services such as maintenance, capital construction and remedial maintenance. This can be stated in terms of physical ownership of the infrastructure (public versus private) as well as in terms of whose runoff is to be managed (runoff from public property). Historically, the extent of service provided by local governments for drainage has been limited to that part of the system located on public property. Over time, this has been expanded to include parts of the infrastructure that carry runoff from public property or where permanent easements have been granted through dedication or purchase.

  Extent of service for establishment of standards of performance for the drainage system, including regulatory oversight, is typically community wide. This requires the local government to have right of access for inspection of the entire system and is a critical component in the environmental protection role.

- Level of Service policy defines system performance objectives, the condition that should exist in each type of system, and/or how much protection is desired in

certain activities. The level of service also details how system performance and conditions should be judged, measured, estimated, or otherwise validated, and how productivity yardsticks can be used to guide management decisions.

Level of service is often defined in terms of frequency of service. For example, plan review for storm water systems is impacted by the amount of development and growth within the community. The City doesn't directly control the growth and development within the community so the numbers of plans to be reviewed are not used to define the level of service but the turn-around time for the review is a component of the level of service. If the standard is to achieve review of all drainage studies within 10 working days (from date of receipt to the date returned to the contractor or engineer), then the cost of service for the storm water program is impacted by this standard and sufficient staff and inspectors must be provided by the City to meet it.

Level of service can also be defined in terms of quantity of service in cases such as public education. The level can be measured directly by the amount and type of materials to be provided to the public. Regardless of what method is used (quantity, frequency or performance standard), the City has the opportunity to establish the level of service both desired and needed to achieve the goals set by the community for flood minimization as well as for water quality protection.

SECTION 5 - SUMMARY OF CITY OF FORT WORTH, TARRANT REGIONAL WATER DISTRICT, AND TEXAS DEPARTMENT OF TRANSPORTATION – PROPOSED TPDES PERMIT

AS RECEIVED FROM TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, WATER QUALITY DIVISION ON NOVEMBER 23, 2004.
Once approved, this permit will be in effect for 5 years.

Key Provisions

System -Wide Permit – The permit covers all areas, except any agricultural lands within the corporate boundary of the City of Fort Worth served by, or otherwise contributing to discharges from the Municipal Separate Storm Sewer System (MS4s) owned or operated by the permittees. The MS4 is located in Tarrant County, Texas. Discharge is via the MS4 to various ditches and tributaries that eventually reach the West Fork Trinity River, Lake Worth, Lake Arlington, Clear Fork Trinity River, Benbrook Lake, and Lower West Fork Trinity River.

Authorizations – The permit authorizes existing or new storm water point source discharges to waters of the state from the MS4. The following discharges are not authorized: non-storm water, industrial storm water, and discharges from a spill.

Responsibilities – Each permittee is individually responsible for:

- Compliance with permit conditions relating to discharges
- Storm Water Management Program implementation
- Compliance with annual reporting requirements
- Collection of representative wet weather monitoring data

Major elements of the City's permit are listed below:

- *Storm water collection system operation* – The city shall properly operate and maintain all facilities and systems of treatment and control which are installed or used to achieve compliance with the storm water management programs. Proper operation and maintenance includes appropriate quality assurance procedures.
- *Areas of new development and redevelopment* – The city shall implement a comprehensive master planning process (or equivalent) to develop, implement, and enforce controls to minimize the discharge of pollutants from areas of new development and significant development after construction is completed.
- *Roadways* – The public roads shall be operated and maintained in a manner to minimize discharge of pollutants, including those related to deicing or sanding activities.

- *Flood control projects* – The city shall assess the influences on receiving water for all flood control projects. Where feasible, new flood control structures must be designed and constructed to provide pollutant removal from storm water.
- *Pesticide, herbicide and fertilizer application* – The city shall develop and implement controls to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied to public rights-of-way, parks, and other municipal property.
- *Improper discharges and disposal* – The city shall develop a storm water management plan to prevent illicit non-storm water discharges to the MS4; to control overflows or infiltration from sanitary sewers into the MS4; and to reduce the discharges of floatables and household hazardous wastes into the MS4.
- *Spill prevention and response* – The city shall continue and improve, as necessary, existing programs which prevent, contain, and respond to spills that may discharge into the MS4.
- *Industrial and high risk runoff* - – The city shall continue and improve, as necessary, existing programs to identify and control pollutants in storm water discharges from municipal landfills; from other storage or disposal facilities for municipal waste; from hazardous waste treatment or storage facilities; and from other industrial or commercial discharges which could contribute a substantial pollutant loading to the MS4.
- *Construction site runoff* – The city shall implement a program to reduce the discharge of pollutants from construction sites. This program shall include requirements for use of on-site controls, inspection requirements, appropriate training of construction site operators, and notification to building permit applicants of their responsibilities under the NPDES/TPDES permitting program.
- *Public education* – The city shall implement a public education program that promotes, publicizes, and facilitates the following: reporting of illicit discharges or improper disposal of pollutants; proper management and disposal of used oil and household hazardous wastes; and proper use and disposal of pesticides, herbicides, and fertilizers.
- *Monitoring and Screening programs* – The city is required to perform several types of monitoring and screening:
  1. Dry weather screening to detect the presence of illicit connections and improper discharges
  2. Wet weather screening to identify and address any excessive levels of pollutants being discharged.
  3. Industrial and high risk runoff monitoring to identify any pollutants from landfills or other industrial or commercial facilities.
  4. Representative storm event monitoring to characterize the quality of storm water discharges to the MS4.
  5. Floatables monitoring at two locations to estimate the amount of floatables being discharged to or from the MS4 annually.
- *Annual report* – The city shall submit an annual report on permit compliance no later than March 1 of each year.

SECTION 6 - ENHANCED STORM WATER PROGRAM ELEMENTS

FEBRUARY 2005

This paper summarizes a range of program elements, including estimated cost, to address program priorities previously developed by the Committee and staff. The discussion is somewhat general in nature with details provided to identify the difference between a minimal approach, a moderate approach and an aggressive approach to storm water services in the City. Cost estimates are based on staff estimates and past experience in other places, as applied to the City of Fort Worth. Final costs will be based on specifics that are not determined at this time (i.e. overhead costs, labor rates, and timing of implementation).

This projected program reflects a "building block" approach in which the foundations of the program are laid while the current pressing problems are addressed at an adequate level. The distribution of costs through program efforts will change as it becomes clearer which program elements will go forward in a more aggressive manner, and which ones will be delayed. Thus, this should be considered a "work in progress". Consideration was given to the Committee's input on program needs and priorities that translate into various funding allocations.

Operations and Maintenance

Operations involve issues of extent of service, level of service and investment in the drainage system through remedial repairs. Currently, the City maintains the drainage system on public properties and rights-of-way and on property where the drainage system is carrying public water from City rights-of-way or properties. Responses to citizen calls and emergency maintenance activities account for a majority of the current field crews' workload, leading to a minimal level of service for routine maintenance on the system. Remedial repairs are improvements to the drainage system that include some smaller construction/reconstruction efforts and spending on these activities is estimated at about $40,000 per year.

Routine Maintenance

Minimum: The City will maintain the current level of service and level of investment in remedial repairs, emergency maintenance and citizen response. The City will add resources to fund and equip four additional field crews, dedicated to maintenance of the existing system. This resource allocation will allow inlet cleaning operations to double to 20% of the 16,000+ inlets per year and will double the amount of culvert cleaning and channel maintenance now being performed. This increase is projected to provide maintenance on over 20% of the system per year. $150,000 has also been included in cost estimate to fund annual replacement of outdated equipment to allow more efficient and reliable operations.

Moderate: The City will add resources to fund and equip seven new field crews. Six of these crews will be dedicated to routine, scheduled maintenance of the system and one crew will be dedicated solely to vegetation control. This would allow routine system maintenance to be completed on a 3 to 4 year cycle and will provide for consistent, vegetation control program. The City will provide appropriate equipment in support of the additional staff maintenance resources including $250,000 per year for equipment maintenance and replacement.

Aggressive: The City will add the resources identified under the moderate option and add:

- 3-person general maintenance crew with vactor to clean inlets bi-annually
- 4-person crew for remedial repairs
- 4-person crew to increase the level of service for routine maintenance to over 35% per year
- 2 new administrative staff to manage reporting, tracking, budgets, complaint, response, fleet maintenance, human resources, etc.
- $300,000 a year in additional capital equipment to allow redundancy in case of equipment failures.

The estimates below would be in addition to the estimated $3.4 million currently being spent annually on operations and maintenance activities.

Minimum	Moderate	Aggressive
$560,000 – staff $500,000 - operations	$ 980,000 – staff $ 1,000,000 - operations	$ 1,435,000 - staff $ 1,800,000 - operations

Inventory and Conditions Assessment

A GIS-based inventory of the storm water system, as well as of floodplains, streams, and easements, is important to move to a proactive approach to storm water system development and service delivery. The current inventory is limited with much of the system information on hard copies that have not been updated in many years. The Government Accounting Standards Board Rule 34 (GASB 34) requires public entities to provide a valuation of infrastructure systems as part of the City's accounting practices. Valuation and a conditions assessment can be done in concert with the inventory of the drainage system, providing baseline data for planning and operations purposes.

Minimum: The City will inventory the system and will gather condition and more detailed system information for other purposes, including utilization of data for system maintenance and system performance analysis. It will be GIS based and will serve as a basis for developing automated analysis of system conditions. This level of mapping will allow the City to move toward a more proactive role as well as provide the planning and development community with greater information in designing and expanding the system. The inventory and conditions assessment will be done in four years, with the older parts of the city completed in the first two years. Funding estimates include resources to maintain and update information. It is estimated that three 2-person field crews plus a supervisor will be required for this work along with GPS and programmable field computers.

Moderate: The inventory and conditions assessment will be done in three years, with the older parts of the city completed in the first 18 months. Funding estimates include resources to maintain and update information. It is estimated that four 2-person field crews plus a supervisor will be required for this work along with GPS and programmable field computers.

Aggressive: The City will outsource the services as described under the moderate approach and complete the entire city in two years. Funding estimates include resources to maintain and update information.

Minimum	Moderate	Aggressive
$ 450,000/year for 4 years	$600,000/year for 3 years	$ 1.2M/year for 2 years

Training

City staff need to have regularly scheduled training in safety, equipment operation, environmental and legal requirements, computer skills, community relations, etc. In addition, field crews should have opportunities and support to obtain appropriate certifications and licenses. Having a well-trained staff results in more effective and efficient use of resources.

Minimum: Annual safety and operational training for any staff who routinely work in the field. This would include maintenance crews, inspectors, equipment operators, construction crews, field engineers, surveyors, etc.

Moderate: In addition to minimum training outlined above, include job specific training for all city staff that have contact with the public. Include training on communication skills, computer use, legal and environmental issues and provide financial support to obtain certifications or professional registration in areas such as concrete work, surveying, engineering, architectural design, etc.

Aggressive: Provide resources to hire a training coordinator to oversee services as outlined in the moderate approach above and to track impact of training activities on service levels.

Minimum	Moderate	Aggressive
$ 50,000	$112,500	$170,000

Planning

Master planning has been identified as a priority element of Fort Worth's enhanced storm water management program. A comprehensive master planning effort will provide the essential road map for developing and managing all aspects of a successful storm water program. It is anticipated that this effort will require substantial time and resources, including the active participation of a stakeholder advisory group. The master plan would establish priorities for subsequent modeling, engineering work, maintenance activities, and regulatory compliance.

Master Planning

Minimum: Establish a planning process to include assessment of physical system needs, maintenance services, development impacts, engineering and program management needs. Begin the master planning by focusing on the areas of the community that are known to have the most critical problems. Complete the master plans on the system in five years and provide continued updating and maintenance of the process.

Moderate: Proceed with the planning process described under the minimal approach, but add completion of the master plans in four years and start implementation of the plans, including establishing maintenance priorities and detailed modeling and basin plans of sub basins by year two. Provide for continued planning updating and maintenance.

Aggressive: Following the same degree of implementation as in the moderate approach, except complete the master plans in three years with continued indefinite planning process support.

Annual costs for the various approaches above are estimated as follows:

Minimum	Moderate	Aggressive
$500,000	$750,000	$900,000

Capital Improvements

Capital improvements involve two key elements: major capital improvements, which are generally long-term and involve funding in excess of $250,000, and minor capital improvements, which can generally be completed fairly quickly and cost less than $250,000. Total reinvestment in the drainage system has averaged less than $3 million a year, limiting the ability of the City to address long-standing system needs and problems, a backlog that is currently estimated at over $500 million.

Capital Improvement Funding

Minimum: The City will increase 3-fold its current average expenditure for capital improvements to $9 million a year. This funding can be utilized for payment of interest for bond debt and/or to address several capital projects each year. It is recommended that 10% of this total be set aside for minor capital projects that can have a more immediate effect on local problems throughout the City. This would buy-down the $500 million backlog in about 55 years. This approach also includes resources to fund two new project engineers to handle this increased workload.

Moderate: The City will increase 5-fold its current average expenditure for capital improvements to $15 million a year, with 10% set aside for minor capital improvements. This would buy-down the $500 million backlog in about 33 years. This approach includes four new project engineers and one new contract administrator to handle contract and budget issues.

Aggressive: The City will increase 9-fold its current average expenditure for capital improvements to $27,000,000 a year with 10% set aside for minor capital improvements. This would buy-down the $500 million backlog in about 21 years. This approach would include six new project engineers and one new contract administrator.

The following costs represent new spending, in addition to the $3M currently being spent.

Minimum	Moderate	Aggressive
$ 6,150,000	$ 12,350,000	$ 24,500,000

Regulation and Enforcement

The current staff manage the NPDES program very effectively. The regulatory area where oversight is lacking is in the area of development review of drainage issues. Regulations are currently being reviewed and updated and it is expected that one result will be a more pro-active review including more focus on conceptual plan review and improved design practices. The City is growing at a rapid pace and it is important to have the resources available to review projects early in the process, in a timely manner, and to follow-up with inspection of construction to ensure compliance with the approved plans. One of the most efficient ways to prevent long-term maintenance problems is to perform due diligence during the planning stage.

Updated Development Review Practices

Minimum: The City will assign a full-time engineer to the review and enforcement of storm water management issues, with specific focus on ensuring best management practices are incorporated in new and re-development projects.

Moderate: In addition to the minimum approach described above, the City will add an additional field inspector to spot check construction activities to ensure compliance with approved drainage plans and with sediment and erosion control plan requirements.

Aggressive: The City will assign a second staff engineer, in addition to the resources included under the moderate approach above, to work pro-actively with developers to prepare conceptual and design plans that minimize impacts on downstream properties.

Minimum	Moderate	Aggressive
$75,000	$120,000	$190,000

Special Programs

Special programs include public education and technology enhancements. Public education is a regulatory requirement under the NPDES regulations and has been identified as a key program element in obtaining public support for storm water program activities.

Public Education and Outreach:

Currently the City spends about $90,000 per year on storm water related public education activities and estimates that they reach 25,000 to 30,000 citizens per year. With a population of approximately 580,000, this results in per capita spending of about $0.15 per year that reaches about 5% of the city's citizens. EPA, in their NPDES guidance documents, suggests a minimum spending level of $0.25 per capita to provide a basic level of public education and outreach on water quality issues.

Minimum: Raising the current spending to $0.25 per capita per year will provide a 67% increase in funds that could be used to target a larger portion of the community, perhaps through direct mailings.

Moderate: $0.40 per capita will provide the opportunity to utilize multiple media sources to distribute the messages on flood control and water quality as well as other key stormwater information important to the community.

Aggressive: $0.50 per capita and a full-time staff person to develop and coordinate storm water program public outreach activities and volunteer efforts. Engaging the public, residents and businesses has been found to be a cost effective approach to improving system performance and protecting public health and safety, as well as water quality.

The following estimates represent increases in funding:

Minimum	Moderate	Aggressive
$ 55,000	$ 142,000	$ 240,000

Technology Utilization:

Technology utilization provides tools to increase productivity, moving from reactive to proactive responsiveness and includes the use of GIS tools for analysis of maintenance, tracking of complaints and responses, automation of models and master plans, and mapping needs. Automation of system components information, with access through the City's web page, could provide important education and management tools.

Minimum: The City will purchase "off the shelf" software for use in database management, customer service request tracking and maintenance work management. Use of off the shelf software usually results in an organization changing practices in order to fit the software, but it can be cost effective in the long run. It limits the City to the functionality of the software but can improve overall program management. Annual funding for software maintenance would be included.

Moderate: The City will purchase off the shelf software but utilize the assistance of an information system consultant to customize the software to meet the specific needs and conditions within the City. Funds will be programmed to continuously support the technology to ensure that it remains effective and serves the City appropriately. This includes some funding for training of employees as well.

Aggressive: The City will develop automated tools for Master Planning, basin model analysis (reducing the time it takes to complete needed analysis of development

impacts), and operations and maintenance tracking. There will be funding for training and on-going maintenance of the tools.

Minimum	Moderate	Aggressive
$50,000	$100,000	$150,000

Administration:

Leadership was identified as a key issue in providing the community with a clearly identified point of contact to take responsibility for ensuring effective storm water system management across department boundaries. It is not intended that the City centralize, by reorganization, the services currently provided by the Transportation and Public Works Department, the Department of Engineering, the Department of Environmental Management, and others, but to establish a storm water champion position that will have the responsibility of coordinating and facilitating effective delivery of a comprehensive service to the community.

Storm Water Program Leadership

Minimum: A Storm Water Program Manager position would be created to centralize responsibility for managing the enhanced comprehensive program. The position would not have new funding, but would come from reassigning existing staff.

Moderate: A new Storm Water Program Manager position would be added to centralize responsibility for managing the enhanced comprehensive program. The need for creating an additional position is driven by the need for consistent oversight of the master planning activities, addition of maintenance staff, expanded public education program and other program demands.

Aggressive: Same as Moderate with one additional technical staff person added to address the increased workload for project management, design and plan review coordination.

Minimum	Moderate	Aggressive
$ 0	$ 100,000	$ 170,000

Summary

The program elements above can be mixed and match to reflect the priorities of the community and are presented to show the spectrum of costs associated with varying levels of service provided. To show more graphically the financial differences between a minimal approach, a moderate approach, and an aggressive approach, the following table summarizes the potential annual costs for various program elements. These are base costs for discussion purposes and do not reflect wage adjustments, overhead costs, inflation, etc.

Program Element	Minimum	Moderate	Aggressive
Routine Maintenance	1,060,000	1,980,000	3,235,000
Inventory & Assessment	450,000	600,000	1,200,000

Training	50,000	112,500	170,000
Master Planning	500,000	750,000	900,000
Capital Improvements	6,150,000	12,350,000	24,500,000
Updated Development Review	75,000	120,000	190,000
Public Education & Outreach	55,000	142,000	240,000
Technology Utilization	50,000	100,000	150,000
Storm Water Program Leader	0	100,000	170,000
Totals	$8,390,000.00	$16,254,500.00	$30,755,000.00

PAC Recommendation – Increased Program Costs

Based on discussion of the elements described above, the Policy Advisory Committee recommends a program that reflects the f0llowing levels of service and expenditures.

Activity / Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20
Maintenance	1,060	1,060	1,980	1,980	3,235	3,235	3,235	3,235
Inventory & Assessment	1,200	1,200	100	100	100	100	100	100
Master Planning	1,000	1,000	1,000	500	500	100	100	100
Infrastructure Reconstruction	6,150	6,150	6,150	12,350	12,350	12,350	12,350	12,350
Public Education	55	55	55	55	55	55	55	55
Technology / Database	150	100	100	100	100	100	100	100
Drainage Reviews	75	75	75	75	75	75	75	75
Safety Training	50	72	112	112	112	112	112	112
Storm Water Leader	170	170	170	170	170	170	170	170
Totals - New Program	**9,910**	**9,882**	**9,742**	**15,442**	**16,697**	**16,297**	**16,297**	**16,297**
Existing Program	7,600	7,600	7,600	7,600	7,600	7,600	7,600	7,600
Comprehensive Program	**17,510**	**17,482**	**17,342**	**23,042**	**24,297**	**23,897**	**23,897**	**23,897**

*all values are in thousands of dollars

* not adjusted for inflation

SECTION 7 - FUNDING OPTIONS REPORT

March 2005

Introduction

This report summarizes alternative programs and describes the funding mechanisms available to the City of Fort Worth to support its chosen storm water management program. The experiences of other communities indicate that one or two primary funding sources are usually needed to ensure on-going, comprehensive storm water program capability. Secondary funding mechanisms are sometimes used to supplement the primary funding source(s), enhance overall funding equity, and meet specific needs that are not generally applicable to an entire city or limited service area.

The storm water management funding requirement in Fort Worth will be driven in large measure by the program strategy and priorities that are adopted. Our analysis of the City's current spending on storm water management operational and capital expenditures reveals that approximately $7.6 million has been budgeted for the 2005 fiscal year (Oct. 1, 2004 through Sept. 30, 2005). There are currently about 200,000 acres (313 square miles) of land area in the City of Fort Worth. Thus, the estimated expenditures equate to approximately $38/acre annually.

Executive Summary - Conclusions

Having evaluated the storm water problems and needs facing the City of Fort Worth, it is evident that the storm water issues in the City are significant and that a long-term comprehensive approach to storm water management is needed. Without benefit of data from master planning, which is just getting underway, we can only estimate the total funding need over the next five years. Currently the City spends approximately $7.6 million per year on storm water management. Working with staff and the Policy Advisory Committee (PAC), we have developed a ***recommended enhanced storm water program that would increase total spending by $10 million to about $18 million in year 1 of the new program and would steadily grow to $25 million by year 5***. Substantial portions of these costs are associated with capital infrastructure reconstruction ($6 million to $12 million a year). Other major cost components will include master planning, a system inventory and assessment, and increased routine system maintenance.

For this program to be successfully implemented, a dedicated funding source needs to be established. Having looked at the various funding options available, the most likely primary sources for meeting the city's financial requirements are property tax increases or a storm water utility fee. We have been able to estimate the impact on the tax rate for the recommended enhanced program, but do not have sufficient information to identify the

potential storm water fee and rate structure required to meet the City's needs. ***It is recommended that the City proceed with a storm water utility rate study and a more detailed funding analysis*** to determine the most appropriate combination of funding options to implement the enhanced storm water program as quickly as possible.

Alternative Programs

Our experience working with numerous cities and counties throughout the United States enables us to characterize the typical cost of various program levels ranging from "incidental" to "exceptional". A description of each program level is included in Appendix A. The table below summarizes these various programs, compares them to the City's existing program and the proposed program the Policy Advisory Committee selected during their last sessions.

PROGRAM	Annual Cost/Acre	Annual Fort Worth Program
"Incidental" – Few, if any, improvements to major drainage infrastructure; no scheduled maintenance; completely reactive	**$25**	**$5 million**
City of Fort Worth – Existing Program – Limited major drainage improvements; limited maintenance; mostly reactive	***$38***	***$7.6 million***
"Minimal" – Routine maintenance primarily responsive rather than preventive; basic compliance with the requirements of NPDES permits but nothing additional; few major remedial repairs or capital improvements	**$50**	**$10 million**
"Moderate" – Routine maintenance typically more organized; remedial repairs are addressed on a priority basis as funding permits; water quality protection actively pursued; some major capital improvements, though rarely extensive construction programs unless they use bonding to expand the purchasing capacity of their available resources	**$75**	**$15 million**
City of Fort Worth – Proposed Program – "Aggressively" improved master planning and inventory/condition assessment; "moderate" increase for capital improvement program; "minimal" increase to routine maintenance	***$119 by year 5***	***$23.9 million by year 5 (phased in)***
"Aggressive" – Carefully planned and administered program; monitored for performance; routine and remedial maintenance are normal elements of operational programs; preventive level of service (as opposed to reactive); water quality programs fully comply with NPDES requirements; extra elements such as adopt-a-stream teams that volunteer to remove trash/debris from channels; up-to-date and adopted master plans for drainage infrastructure; routinely build capital improvements each year in accordance with their plans (usually employ bonding to increase capital spending capacity).	**$150**	**$30 million**
"Exceptional" – Routine maintenance programs highly organized; system performance closely monitored; remedial repairs are done as problems become apparent, usually in advance of any structural	**$250**	**$50 million**

failure; regulatory programs very strong and effective; water quality programs often exceed the requirements of NPDES permits; have detailed master plans that are being diligently pursued; make extensive use of bonding for capital projects that provide very high levels of service.		

Local Government Funding Overview

Local governments employ a variety of funding methods to support storm water programs. They are grouped generally into four categories: taxes, fees, exactions, and assessments.

Taxes are intended primarily as revenue generators. The most common taxes include property, income, and sales. Taxes are used for the diverse general purposes of local government and, with some exceptions (such as special local option sales or earmarked taxes) have no particular association with the activities or improvements they are used to fund. Most are broadly applied, though exemptions from certain types of taxes are common. For example, properties used for religious purposes or owned by governments are often exempt from property taxes.

Fees (service charges) are tied to the objectives and costs of a specific function or facility. They are not established simply to generate revenue, as is the case with taxes. For example, utility service charges for water supply, wastewater treatment, storm water management, and solid waste are structured to recover the cost of those programs, not to generate revenue that is then used for other purposes as well. Similarly, parking fees are often used to pay for parking structures. The fee each customer is charged must be related to its use of or impact upon the facilities or services funded by the fees. This linkage is termed “rational nexus”. Fees must have a substantial relationship to cost of providing the services and/or facilities.

Exactions are related to the extension of an approval or privilege to use. For example, cities and counties often charge franchise fees to cable and phone companies for the privilege of locating their lines in public rights-of-way. Such franchise fees are exactions. Licenses, tap fees, impact fees, fees paid in lieu of providing on-site detention, capital recovery charges of various kinds and mandatory dedication of infrastructure during development may also be considered exactions in some cases.

Assessments are geographically or otherwise limited charges levied for improvements or activities that are of direct and special benefit to those who are being charged. The benefit must be direct, i.e. tied to a specific and quantifiable “improvement” in the usefulness of the subject property. It must also be a special benefit that is not realized generally in the broader community or area. Assessments are most commonly used to fund capital improvements that meet localized needs, such as sidewalks in residential communities or the extension of a water line to serve a few properties. However, ongoing assessments have also been used to fund maintenance and operation of facilities, most commonly when the initial capital construction is also funded by assessments.

Storm Water Management Funding

City, county, and special-district storm water management programs in Texas and across the United States employ a number of mechanisms as their primary source of funding. Common sources include property and other general taxes, service fees, franchise fees, sales taxes, income taxes, gas taxes, user fees, and capital recovery fees. Most city and county storm water management programs are funded from general revenues. Storm water service fees have been adopted in more than 400 communities nationally to wholly or partially pay for storm water management programs. They are most commonly implemented under the auspices of a "utility". Several Texas cities, including Arlington, Austin, Dallas, Irving, and San Antonio, have established storm water utilities pursuant to Section 402 of the Texas Codes, which specifically authorizes "municipal drainage utilities".

Special assessments have also been widely used in the past, although usually in limited applications rather than as a general source of programmatic funding. A few communities have used special local option sales taxes, most commonly dedicated to funding storm water capital improvements. State shared motor fuel tax revenues are used by many cities and counties to pay for storm water system maintenance in road rights-of-way. Federal and state grants and loans provide support for some aspects of storm water management programs, including flood control, mitigation for highway construction impacts, habitat protection, and water quality management.

Analysis of Storm Water Funding Mechanisms

A variety of funding mechanisms fall under the general categories of taxes, service fees, exactions, and assessments. This report examines those most commonly used for storm water management programs, including the following:

- General Fund appropriations
- Storm water service fees
- Environmental fees
- Special assessments
- Bonding for capital improvements
- In-lieu-of-construction fees
- System development charges
- Impact fees
- Federal and state funding opportunities

Cities and counties across the United States have used all of these funding mechanisms in some manner, though not necessarily for storm water management programs. Legislative authority, program mission, priorities, and many other considerations are factored into the storm water funding decisions of individual counties and cities. There is no single funding mechanism that is best in every setting. Some are better suited to operations and maintenance, while others are appropriate only for capital improvements or specific

regulatory activities. Some indirect capitalization funding is also derived from developer contributions, most notably in the form of contributed infrastructure and drainage easements in new subdivisions. Texas cities have used and/or are using several of these funding mechanisms.

General Fund Appropriations

The City's appropriations for storm water management operations and capital projects are concentrated in the Transportation and Public Works Department (TPW), the Department of Environmental Management (DEM), and the Department of Engineering (DOE) with the primary revenue sources being the City's General Fund, the Environmental Fee, and general obligation bonds. Our analysis indicates that total spending on storm water management operations and capital investment has ranged between $6 million and $8 million annually in recent years. Operational expenditures are estimated to be more than one-half of the total expenditures annually, with capital spending representing about 30% and regulation and compliance about 15%.

Much of the variance in spending from year to year is explained by the capital improvement and remedial repair projects. The City's capital improvement program (CIP) is based on a six-year bond period. It typically includes some known storm water capital improvement needs, but only a few are funded each cycle. The current six-year storm water CIP is funded at approximately $13 million for an average annual planned expenditure of about $2.2 million. The current backlog of identified storm water capital needs is estimated at over $500 million.

To put the current level of storm water management funding in context, the City's total budgeted expenditures for 2004/2005 are estimated at $776.9 million. Budgeted General Fund expenditures are $424.5 million. Based on our estimates, appropriations for all storm water management costs are about 1% of the total operating budget.

Several sources contribute to the City's General Fund revenues. Property tax revenues total approximately $231.6 million, sales tax revenue about $76.5 million, and other local taxes, fees, and fines about $117.4 million. Due to economic growth, the City's property tax rate was reduced from $0.9735 per $100 in FY1994-95 to an adopted rate of $0.865/$100 in FY 2001-02. This rate has been held constant through FY2004-05. It is estimated that each $0.01 of the property tax generates $2.67 million of revenue.

Sales taxes are the second largest source of revenue and are estimated at $76.5 million for FY2004-05. The total sales tax rate is 8.25% with 6.25% being State sales tax, 1.0% the City sales tax, 0.5% for the Crime Control & Prevention District and 0.5% for the Fort Worth Transportation Authority. The sales tax generates about 9% of total operating revenues and 18% of General Fund revenues. A 0.1% increase in the sales tax would generate about $925,000 annually. Sales tax revenues have essentially not increased during the past four years.

Based solely on these figures, it would appear that the City's General Fund has sufficient revenue capacity to support an increase in storm water management funding, either through a reallocation of current resources or a property tax increase. To address the program needs identified to shift the level of service to a "moderate" level, an increase of $0.04 on the tax rate would be needed to generate approximately $10.6 million in additional property tax revenue. This would amount to an increase of about 5% in the property tax rate. If the Council reallocates current revenues it would diminish funding for other City priorities. It is uncertain whether the City Council or the public would approve additional property or other taxes to provide funding for storm water management or tolerate a shift in funding priorities. There is no required dedication of general revenues to specific purposes from year to year, and shifting priorities tend to shift appropriations.

Even if an increased allocation of General Fund resources might be sufficient to support the storm water management program for the foreseeable future, there is a question regarding equity in apportioning storm water costs relative to those revenue sources. General revenue funding sources do not correlate to specific applications. There is no direct relationship between general revenue sources and the cost of storm water operational programs or capital investment needs. Storm water costs are primarily a function of the peak rate and total volume of storm water runoff that is generated by each property and what must be done to address flooding concerns and to meet NPDES permit conditions, which do not correlate to property value. Thus, property taxes do not correlate with the factors that influence the cost of storm water management.

This contrasts markedly with service fees, special assessments, and exactions, which to varying degrees are expected to reflect some association between the funding mechanism and the purpose(s) to which the revenues are applied. For example, property taxes are based on a "taxation" philosophy. Their purpose is simply to raise undesignated, general revenue based on the assessed valuation of properties. Many properties are exempt from all or a portion of property taxes for a variety of reasons ranging from religious and agricultural use to homestead exemptions.

Storm Water Service Fees

Texas cities are empowered to establish storm water utilities and adopt storm water service fees under Section 402 of the Texas Codes, which specifically authorizes "municipal drainage utilities", or MDUs. Over a dozen Texas cities have shifted to utility funding of some or all of their storm water management costs in the past decade. For most, service fees are a primary funding mechanism for their storm water management programs. Notable entities with utilities include Dallas, Arlington, Austin, and San Antonio. Storm water management utilities are treated as enterprise accounting units by most Texas jurisdictions that have established them. Service fees appropriately constituted and adopted to support such enterprise accounting units can be set and increased by locally elected officials without a ballot measure.

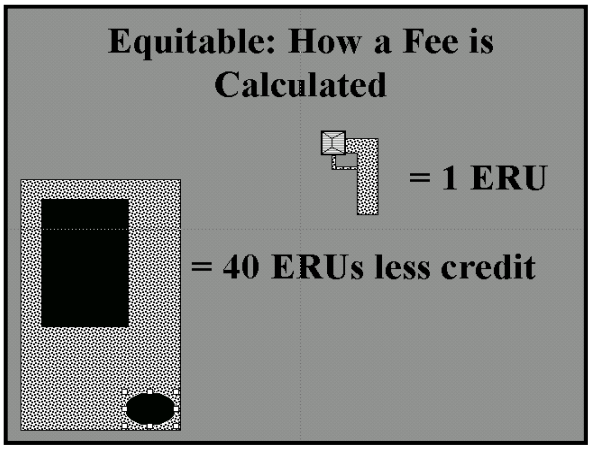
Storm water utility service fee rates have been the subject of numerous court challenges. Service fee rate structures that have been accepted by the courts in various states include examples based on impervious area, gross area and intensity of development, and a combination of impervious area and percentage of imperviousness. The courts have supported application of storm water service fees to both private taxable properties and to public tax-exempt properties. Charges to federal and state properties have been upheld. The courts have generally given great deference to locally elected officials in structuring service fee rates, and have demonstrated a reluctance to intervene unless the adoption process or resultant fees are seriously flawed. Local officials are responsible for deciding what is appropriate for their communities, particularly in service fee rate design decisions.

The design of a storm water service fee rate structure can be relatively simple or very complex. Rates may include regular periodic charges to recover on-going costs of services and facilities and also one-time or infrequent charges intended to recover the expense of specific services, such as plan review fees. The rate structures currently in use by Texas cities tend toward the simple end of spectrum, and most are based on impervious area and/or land use characteristics. The statute prohibits charging storm water service fees to undeveloped properties, which may influence the preference toward an impervious area rate structure.

In most instances, storm water service fee rate structures are based on the conditions on properties that affect the peak rate of runoff, total volume discharged, and pollutant loadings on receiving waters. A majority of storm water rate methodologies are based solely on the amount of impervious area (roofs, paved areas, etc.).[1] Impervious coverage increases both the proportion of rainfall that runs off the land and the peak rate of discharge. Service fee rate methodologies based solely or primarily on impervious area are used in more than two hundred other counties and cities, including several in Texas. Storm water rates have also been based on the gross area of properties and a factor that reflects the intensity of development, including Bellevue, WA, Cincinnati, OH, and Beaufort County, SC. A few cities and counties have incorporated both gross area and impervious area or the percentage of imperviousness into their rate calculation, including the City/county of Denver, Colorado.

[1] Responses to a survey conducted in 1999 by the National Association of Flood and Stormwater Management Agencies (NAFSMA) indicated that 51 percent of all respondent utilities had rate structures based solely on impervious area.

Equivalency units are often used in rate structures to normalize between dissimilar properties. If the 2,500 square foot number shown in the graphic is assumed to be "typical" of single-family residential properties in a community, it might be termed an Equivalent Residential Unit (ERU). The service fees applicable to various non-residential properties might be thought of as the number of single-family residences each represents in the form of storm water runoff impact or service demands. The graphic presents a simple example of how storm water service fee rates are commonly structured, using a small house and a commercial property as examples. Assume that the example house has 2,500 square feet of impervious area (rooftops, driveway, sidewalk, etc.) and the commercial establishment has 100,000 square feet, or forty times as much impervious area as the house. Thus, in the example the commercial property would have forty ERUs. Under most storm water service fee rate structures, such a commercial property would be charged about forty times the fee billed to a single-family residence.



The latitude allowed in service fee rate design decisions extends to the use of credits and offsets against the service fees and other modifications to the basic concept. Credits against storm water service charges are most often designed to account for the mitigative effect of on-site controls and activities, and provide an incentive for on-site control by reducing the service fees for properties where storm water impacts are mitigated in some manner. Ongoing reductions in fees are usually predicated on a property owner's continuing compliance with an approved design and operating standards established by the city. Credits can also be used to fine-tune financial participation across the community, recognizing that some properties lie within areas that demand less service than others. Credits against service fees usually continue as long as the applicable standards are met or the activities or functions are provided, which implies that their functionality must be verified from time to time.

As distinguished from credits, offsets are one-time, dollar-for-dollar allowances provided for in rate ordinances to recognize extraordinary private expenses that produce a public benefit. They are not normally conditional or based on continuing compliance with operating standards. For example, assume that a developer installs a storm water detention system that provides storage capacity in excess of that normally required by City regulatory standards. The excess capacity reduces the City's cost of attaining a given service level through upstream regional detention and/or downstream public storm water conveyance systems and protective works. A one-time offset against a storm water service fee might be granted to the developer in that case for the additional incremental capital expense incurred to provide the excess capacity in the public system.

Credits are relatively common in storm water rate structures. Offsets are not common. The authority to adopt credits and offsets is generally encompassed by the basic service fee ratemaking powers provided to locally elected officials. That authority enables local elected officials to establish a variety of storm water service fees and appurtenant rate modifiers such as credits and offsets to achieve what they believe is an equitable allocation of costs in their local situation. Courts in several states have cited the existence of conditional credits as a characteristic of service fees (as distinguished from taxes and assessments). They view credits as evidence that a storm water service fee is a properly designed service fee and is not a tax in disguise.

The flexibility allowed in service fee rate design also enables local officials to adjust basic methodologies to fit special circumstances and objectives. This has resulted in such modifications as simplified residential rates, base rates to recover fixed costs per account, declining block rates, and surcharges for special services, localized capital costs, and/or increased levels of service. Simplified residential service fee rates are common, and many communities have a flat-rate charge for all single-family residential properties. Others divide residential customers into two or three categories. Service fee charges to non-residential properties are normally higher than residential charges, reflecting the greater runoff they typically generate. Such properties are also typically more diverse than single-family residential parcels, and their impact on storm water programs and systems varies more, so flat rates are not appropriate in such applications. For example, a “commercial” property may be a half-acre convenience store or a twenty-acre retail center.

Monthly residential storm water service fees in Texas typically range between $2.00 and $6.00, although some programs charge $10 and even more. The revenue generated by a periodic storm water service fee is a function of the design of the rate structure and the make up of the community. If a utility fee is determined to be an option for Fort Worth, land use, lot size, number of developed parcels, and other related data will be examined to estimate the potential rate needed to generate increased funds for storm water management.

A storm water service fee can be coordinated with other funding methods. Revenue from service fees and other funding sources examined in this report (including the City’s General Fund) can be melded to tailor the distribution of costs as the City Council sees fit. A storm water utility could have a limited service area, excluding other areas from the service fee but also from the services of the utility or authority.

Equity of funding is a key consideration in designing and applying a service fee. Storm water service fees may be applied to tax-exempt (public) properties as well as privately owned taxable properties, which broadens financial participation. As noted above, credits can be given against storm water service fees to encourage and reward responsible storm water management. Credits may also compensate for activities performed by property owners that are beneficial to the City’s storm water management program.

The stability of revenue from a storm water service fee ensures that long-range scheduling of capital improvements and operations can be done with reasonable assurance that funding will be available. Service fees for enterprise funds are considered dedicated funding that cannot be diverted to other uses. This encourages accountability and long-term stewardship of the financial resources.

The biggest potential disadvantages of a storm water service fee are its high visibility and the cost of development and implementation. Regardless of technical distinctions between "taxes", "exactions", "assessments", and "service charges", any form of government funding will be viewed by a majority of citizens and property owners as a "tax" and will thus be potentially unpopular. However, the high degree of visibility associated with a separate storm water fee might actually turn out to be a plus if it convinced the community that the City's storm water program is a serious effort to fix long-standing flooding problems and reduce storm water pollution.

Environmental Fees

The City of Fort Worth charges a special environmental protection fee to fund federally mandated projects associated with protecting storm water quality throughout the City. The Department of Environmental Management has several major programs that are funded from the environmental protection fee including NPDES compliance, construction inspection, spill response, the Environmental Collection Center, storm water monitoring, and public education. The Environmental Protection Fee is charged on residential and commercial water bills and is projected to generate about $3.4 million for FY2004-05. This fee was voter approved and is specifically designated for storm water quality protection. To use funds from this fee or to raise this fee for use on storm water operations or capital improvements would require a special referendum to change its purpose and/or raise the amount of the fee.

Special Assessments

The present-day concept of special assessments evolved from historic English ditch law concepts that were originally conceived to pay for drainage of farmlands. The ditch law assessment concept was transferred to the United States from England during colonization, along with many other local government funding practices. In time it was transformed into "special assessment district" or "improvement district" funding. Special assessments have since been applied to many other capital infrastructure needs in addition to drainage.

The assessment concept as originally applied to storm water drainage improvements was predicated on apportioning the costs of drainage control to farmers in a given area in relation to the direct and special benefits they individually derived, usually in the form of increased crop yields and grazing use on their lands. This led to assessment methodologies that were associated with the value of the enhanced use of the land rather than the demands placed on the drainage systems or increases in the land valuation itself.

Such approaches are generally referred to as “non ad-valorem” special assessments, i.e. not based on property value. As the concept has evolved to urban/suburban applications, “ad-valorem” special assessments based on property value have also been instituted by local governments for a variety of purposes, including storm water management and flood control. Ad-valorem special assessments apportion costs on the basis of the assessed value of the properties benefited by the improvement, rather than in relation to enhancement of the use or value of the property. In some cases, “assessments” have been structured to reflect the cost of maintaining facilities or systems such as water works and wastewater treatment plants. In these cases, the charges more closely correspond to service fees than to traditional assessments

While the practicality of non ad-valorem drainage special assessments has been demonstrated in agricultural applications, several inherent shortcomings of special assessment funding as applied to urban and suburban storm water drainage systems have become increasingly evident in recent years. The chief drawback to the traditional special assessment methodology is that the distribution of costs must be proportionate with the direct and special benefit accruing to each property being assessed. Typically, the benefit must be definable, quantifiable in some economic manner, and available to the property being assessed within a practical timeframe.

General benefits accruing to all properties as a result of an improvement cannot be used to justify a special assessment; for example, the general benefit of better access along arterial roadways that are not subject to frequent flooding because adequate drainage systems have been installed. Furthermore, some costs simply do not fit the direct and special benefit apportionment model. For example, it would be exceedingly difficult to apportion the cost of storm water quality programs on the basis of direct and special benefit accruing to individual properties.

The courts have established substantially different standards for special assessments compared to those applied to service fees. Special assessments must comply with more restrictive technical standards based on direct and special benefit. The courts accord more latitude to local elected officials in the realm of setting service fee rates. Fully complying with the standards set by the courts for special assessments requires more precise and costly data than is needed to support a service fee rate structure, which must simply be fair and reasonable in its general application, non-discriminatory, and non-confiscatory.

Bonding for Capital Improvements

The City of Fort Worth is authorized by state statute and its charter to use bonding to pay for capital improvements to infrastructure, including storm water systems. Bonds are not a revenue source, but simply a method of borrowing. Debt service is dependent on other revenue sources for funds to meet the debt obligations of the bonds. Bonding is most commonly used to pay for major capital expenditures, such as improvements and acquisition of land, easements, major equipment and other costly capital assets. Capital expenditures can also be funded through annual budget appropriations, but annual

revenues appropriate to storm water management are often insufficient to pay for major capital expenditures on a “pay-as-you-go” basis.

The chief advantage of bonding is that it allows construction of major improvements or acquisition of other costly assets to be expedited in advance of what can be funded on a pay-as-you-go basis from annual budget resources. Bonding does so by spreading the costs over time. It is analogous to buying a house or car by borrowing money and paying it back, with interest, over time. The major disadvantage of bonding is the interest expense, which increases the cost of capital projects, land acquisition, etc. Even though bonding involves paying interest on the debt, it may be an efficient and conservative financial mechanism. The interest expenses may be offset partially by the avoided cost of inflation in the value of capital projects and assets such as land. In the case of storm water management, expediting a capital project by several years through bonding may also result in significant public and private savings if flooding or other damaging impacts and costs are avoided.

Two types of bonding are typically available to cities, general obligation bonding and revenue bonding. General obligation bonding incurs a debt that has first standing with regard to public assets and is backed by the "full faith and credit" of the issuing agency. All revenues, including various taxes, may be used to service a general obligation debt. In contrast, revenue bonding is supported only by specified revenues and is not backed by the full faith and credit of the issuing agency. Creation of a separate source of revenue that is earmarked specifically for storm water management (e.g., a storm water service fee) would allow the City to sell revenue bonds to pay for capital improvements if market acceptance was attained. However, because revenue bonding is not usually backed by the full faith and credit of the City, such issues typically incur a slightly higher interest rate in the bond market.

Bonds are not intended to be used as a funding mechanism for day-to-day operations, but there is some flexibility in using bond funds for some operating expenses. For example, there is not a clear distinction between some remedial repairs and new construction. As a result, bonding might be used to fund major remedial repairs that could reasonably be considered an operating expense. Many of the storm water systems in Fort Worth are aging. Substantial repairs and/or replacement with larger systems are likely to be identified in future master planning. Bonding might also be used to acquire land and easements for maintenance access to creek channels and ditches.

In-Lieu-of-Construction Fees

In-lieu-of-construction fees are not specifically authorized by the Texas Statutes, but we believe they could be adopted as one element of a comprehensive storm water service fee rate methodology. They also might be considered to be incidental to the application of the City’s police powers in the form of development and land use regulations, and therefore could be suitable for City enactment as regulatory fees.

In-lieu-of-construction fees are sometimes confused with impact fees, but there are several key differences. In-lieu-of-construction fees are typically a substitute for requiring on-site solutions. In contrast, impact fees are most appropriate in situations where on-site solutions are impractical. They are generally used to pay for off-site measures that mitigate impacts that cannot be dealt with on-site. For example, assume that a proposed shopping center is projected to clog nearby roads with traffic. Making on-site improvements cannot solve the traffic problem. An impact fee might be charged to help pay for additional traffic lanes and/or signalization on the roadways for some distance away from the shopping center, thus relieving the traffic impacts created by the development. Assume that the same shopping center might also increase runoff and cause downstream flooding. An on-site solution to such impacts often exists, e.g., on-site detention. However, on-site detention may not be an attractive option for either the developer or the City. A regional detention system might offer greater hydrologic efficiency and better reliability. In addition, elimination of the on-site detention requirement could free up valuable land for commercial use. Charging developers a fee in-lieu of requiring an on-site detention system in such instances may be preferable to builders, the City, and the general public if a more efficient regional solution is available.

Flexibility is an important facet of in-lieu-of-construction fees. The City can selectively utilize them. In some cases the City might prefer to have the developer deal with impact mitigation on-site. In others, a regional solution may be superior. For example, the increases in peak rate and total volume of runoff into a local creek from a proposed shopping center development might be mitigated by: 1) requiring an on-site storm water detention system; 2) improving the downstream creek channel with protective works; or, 3) building a regional detention facility off-site. The first option would be funded solely by the developer(s), and in many cases might be the City's preferred approach. The latter two solutions involve a regional solution and usually imply City responsibility for the improvements and on-going maintenance. They might be funded in part through in-lieu-of-construction fees charged to the developer(s) and others that would be served by such a regional facility.

In-lieu-of-construction fees are often attractive to developers, who are relieved of responsibility to design, install, and maintain on-site systems. The operational advantages of one regional, publicly-operated facility versus several on-site systems managed by private property owners make in-lieu-of-construction fees an attractive option for the City. Attempting to solve the drainage problems created by new development simply by imposing regulatory requirements has not proven effective or efficient. A multitude of privately managed systems that require periodic inspections to ensure performance pose long-term inspection and enforcement burdens for the City. The issue then becomes how to maintain equitable financial participation in the cost of more economical regional facilities by both developers and property owners, especially when improvements are designed in part to mitigate the potential storm water impacts of specific developments. In-lieu-of-construction fees are one tool for creating an equitable apportionment of the costs.

The major advantage of in-lieu-of-construction fees is that the City would not solely bear the capital expense for regional detention and other systems that are built, in part, to mitigate the runoff impact created by private development projects. Developers can be required to financially participate in the best available solutions to the impact of their projects through such fees, regardless of whether the solutions are on-site or regional. The long-term maintenance and regulatory problems of numerous on-site detention systems would also be avoided.

The most significant disadvantage of in-lieu-of-construction fees is that they rarely generate sufficient revenue to "front-end" the cost of construction of regional detention facilities or enlarged conveyance systems and protective works. This dictates that other revenues be available to build regional facilities in a timely manner. As a result, the taxpayers or ratepayers are often burdened with the initial cost. In-lieu-of-construction fees can provide partial compensation to the taxpayers or ratepayers for such costs. It is also necessary that well-refined capital improvement plans be available in order to determine the cost of the necessary regional improvements, which serves as the basis for setting in-lieu-of-construction fees.

Implementation of an in-lieu-of-construction fee is probably not practical in Fort Worth until master planning is well underway. Further consideration of an in-lieu-of-construction fee can be deferred until a more refined capital improvement strategy has been adopted with specific priorities for regional detention and other improvements that obviate the need for on-site solutions.

System Development Charges

System development charges are also known as capital recovery charges, capital facilities fees, utility expansion charges, and by other titles. They are not specifically provided for by authorizing legislation in the Texas Statutes, but might be appropriate as a component of a comprehensive service fee rate structure.

In most applications system development charges provide a mechanism whereby developers participate in paying for excess capacity that was previously built into a public system in anticipation of their needs. Building in extra capacity at the outset is usually a more economical and prudent long-term system development policy than attempting to increase service capacity to meet the demands of growth on a case-by-case basis as it occurs. In effect, a system development charge allows a deferral of participation in the capital cost of a facility until a property is developed and makes use of the provisional capacity.

There are several ways of structuring and calculating capitalization charges, including the growth-related cost allocation method, the system buy-in approach, the marginal incremental cost approach, and the value of service methodology. In most cases, system development charges are related solely to capital costs, as opposed to operating

expenses, although some justification may exist in certain circumstances for incorporating long-term operating expense associated with system capacity into a capitalization charge.

When applied as part of a comprehensive storm water service fee rate structure, capitalization charges should be designed in a manner consistent with the basic rate methodology employed. For example, most storm water service fees are based on impervious area. The obvious implication is that only developed properties are charged a service fee. Undeveloped properties do not have impervious area and therefore are not charged. However, if capital facilities are being funded by the service fee and are designed with future conditions and service demands in mind, including the impact of growth, service capacity is being provided for properties that are not participating financially through an impervious area methodology. The excess capacity being incorporated into the system is being paid for solely by currently developed properties under that scenario. A capitalization charge can serve as a recapture mechanism to ensure a fair and reasonable allocation of the capital costs among all properties using the facilities over time. The calculation of a capitalization charge may also include a system depreciation factor so that a development built near the end of the useful life of a storm water facility pays only for the portion of the life cycle when it is using the capacity provided.

Some communities have adopted service fee rate methodologies that bill undeveloped as well as developed properties by basing charges on gross area and some factor reflecting development intensity. This is more common when extensive major capital improvements are being funded and built and it is desirable to spread the cost as widely as possible to keep service fees low. A gross area rate methodology may preclude the need for a capitalization charge to recapture deferred financial participation if it is structured to ensure that undeveloped properties participate equitably in capital costs. However, this approach also poses a potential inequity. The apportionment of costs to the undeveloped properties is based on speculation that all undeveloped properties will be developed to the assumed design condition, and that development will occur within the life cycle of the facilities, which may or may not be reasonable assumptions. A system development charge that recaptures financial participation when development occurs may be more equitable.

Impact Fees

Impact fees have been associated with a variety of public infrastructure components across the United States. They are often popular with existing residents who wish to see developers pay the entire cost of new capital facilities. Naturally, they are just as often highly unpopular with developers.

Specific applications of impact fees have been the subject of a great deal of litigation nationally. An unusual aspect of impact fees is that state courts around the country have been notably inconsistent in their definition of them and in decisions on their application. General standards have evolved for adopting and applying such fees and been institutionalized in legislation in several states, including Texas. Development sector interests, particularly home builders, have taken the offensive and gained adoption of

impact fee laws in several states that impose so many administrative burdens and limitations on use of the fees that they are essentially impractical as a funding source for storm water system improvements in those states.

In general, impact fees are appropriate only in situations where the impact of new development on existing infrastructure systems is: 1) measurable and certain; 2) of definable geographic or systemic extent; 3) quantifiable in terms of the incremental capital investment that will be required to maintain (not attain) an adequate service level; and 4) not resolvable by on-site improvements. The last two points are critically important in terms of storm water management systems. Impact fees cannot be used to bring an inadequate existing system up to an adequate service level, and thus are not useful in correcting deficiencies that currently exist in the storm water system in Fort Worth. Impact fee revenues must also be earmarked for specific projects or uses, must be expended relatively quickly, and, if not spent for the stated purpose, must be returned to the developer.

All of this makes impact fees impractical for storm water management in many situations and almost certainly so in addressing most of the capital needs in Fort Worth. The crux of the problem is that few of the local storm water systems that have problems could be described as providing an adequate level of service at the present time. The master planning process will reveal more specific data on the number and location of inadequate drainage systems in the city. In most cases, it cannot be reliably demonstrated that an individual development project requires system capacity exceeding what would be provided by an adequate drainage system if one was in place. It is likely that the City would have to bring a system up to an adequate level of service before applying an impact fee to a development or spending impact fee revenues on a project that would maintain adequacy. An impact fee would therefore generate little revenue and place burdensome administrative demands on the City to manage and track the use of the funds. A storm water service fee rate methodology directly incorporating capital costs and/or a complementary system development charge offer better opportunities to ensure that new development participates fairly in the cost of improving facilities.

Federal and State Funding

The City has all necessary authority to make use of Federal and State government grants and loans that might be available to help support its storm water management program. The only action needed is to apply for and accept various grants and loans. The problem is that there is limited funding available from these sources. Potential grant and loan program sources that could provide some storm water funding include:

- The United States Army Corps of Engineers which sponsors some major drainage construction projects,
- The Department of Transportation Federal Highways Administration which has funds for mitigation of highway construction impacts on watercourses,

- Community development block grants which may be used for infrastructure improvements that enhance neighborhoods, including storm water management projects, and
- The Federal Emergency Management Agency (FEMA) provides emergency response assistance following devastating floods.

Other federal funding applicable to local storm water management provides advisory assistance and cooperative programs, including programs of the United States Geological Survey and the Natural Resources Conservation Service. These funding sources are of limited application to Fort Worth's day-to-day storm water program at the present time, but are worth pursuing on a specific project basis. Long-term, as investment in capital improvements increases and as storm water quality management pursuant to the City's NPDES permit advances, state and federal agencies may be more practical sources of support for special purposes.

APPENDIX A

ALTERNATIVE PROGRAMS

Our experience working with numerous cities and counties throughout the United States enables us to characterize the typical cost of various program levels ranging from "incidental" to "exceptional".

What we describe as ***"incidental"*** storm water programs are essentially minimal and react strictly to complaints, typically spend about $25/acre per year. Such programs usually involve few if any improvements to major drainage infrastructure or any scheduled maintenance.

What we consider to be ***"minimal"*** programs in terms of meeting needs include maintenance that is primarily responsive rather than preventive, basic compliance with the requirements of NPDES permits but nothing additional, and few major remedial repairs or capital improvements. We have observed that such programs typically require spending of $50/acre/year. A program that corresponds to our definition of a minimal program would require approximately $10 million annually in a community of Fort Worth's size.

"Moderate" storm water programs (in our estimation) involve spending between $75 and $100/acre/year. At this level routine maintenance is typically more organized, remedial repairs are addressed on a priority basis as funding permits, and water quality protection is actively pursued. Moderate storm water programs typically include some major capital improvements, though they rarely have extensive construction programs unless they use bonding to expand the purchasing capacity of their available resources. Most storm water utilities generate $75/acre/year or more, enabling them to attain at least the "moderate" level of service. At $75/acre, this level of spending would amount to $15 million annually in Fort Worth.

"Aggressive" programs are conducted by less than ten (10) percent of the communities with which we are familiar. They typically involve spending of $150/acre/year or more. Most advanced programs are carefully planned, administered, and monitored for performance. Both routine and remedial maintenance are normal elements of their operational programs. Most have attained a preventive level of service (as opposed to reacting only after problems are discovered). Their water quality programs fully comply with NPDES requirements, and many provide extra elements such as adopt-a-stream teams that volunteer to remove trash and debris from channels. They typically have up-to-date and adopted master plans for drainage infrastructure and routinely build capital improvements each year in accordance with their plans. Many have employed bonding to increase capital spending capacity. At this level, storm water programs are more likely to participate in cooperative efforts with other departments or agencies, such as development of geographical information systems or greenway acquisition and improvements along streams. The more advanced programs have typically also been able to garner federal and

state grant and loan funding for various purposes. Applied to Fort Worth, this would imply spending of about $30 million per year.

"Exceptional" programs around the country, in our opinion, number less than a dozen. They include highly regarded examples such as Tulsa, OK, Charlotte, NC, Orlando, FL, Fort Collins, CO, and Bellevue, WA. Some of these programs are spending more than $250/acre/year. They have routine maintenance programs that are highly organized and system performance is closely monitored. Remedial repairs are done as problems become apparent, usually in advance of any structural failure. Their regulatory programs are typically very strong and effective, and their water quality programs often exceed the requirements of NPDES permits. Most have detailed master plans that are being diligently pursued, and make extensive use of bonding for capital projects. These are programs that build capital improvements that provide very high levels of service, approaching or exceeding the one hundred year storm event demands in many cases. Like the advanced programs, they obtain federal and state grant and loan support because of the quality of their programs. An exceptional program of this order in Fort Worth would likely require annual spending of $50 million.

SECTION 8 - STORM WATER POLICY ADVISORY COMMITTEE SUMMARY REPORT

April 2005

Executive Summary

In October 2004, a Storm Water Policy Advisory Committee (PAC) was appointed by Council to assist the City with assessing their storm water management needs and to craft policy and program recommendations to address these needs. The PAC held six meetings between November 11, 2004 and March 24, 2005. The findings and recommendations resulting from these meetings are summarized below.

1. Having evaluated the storm water problems and needs facing the City of Fort Worth, the PAC believes that the storm water issues in the City are significant and that a long-term comprehensive approach to storm water management is needed.
2. The PAC recommends that storm water be made a higher financial priority among City programs.
3. The PAC recommends that specific goals be established to manage storm water so that things don't get worse as new development occurs and that improvements be expedited in areas currently experiencing problems.
4. Based on a study of current services and known problems, the PAC recommends that the gaps in the existing program be filled by addressing the following priority needs:
   - Improve routine drainage system maintenance
   - Perform a complete system inventory and conditions assessment
   - Perform comprehensive master planning to establish an integrated approach to system maintenance, capital improvements, and watershed management
   - Increase public education and outreach efforts
   - Increase resources dedicated to drainage development reviews
   - Provide appropriate technology to allow efficient response, tracking, and monitoring of storm water activities
   - Provide safety and technical training to storm water staff
   - Establish a storm water leadership position to be responsible for managing the enhanced storm water management program
5. Working with City staff and a storm water management consultant, the PAC has developed a recommended enhanced storm water program that would increase total storm water spending by $10 million to about $18 million in year-one of the new program and would steadily increase total program spending (existing and new costs) to about $24 million by year-5 and beyond.

6. The PAC recommends that the current level of funding ($7.8 million) be maintained, at a minimum, and that additional revenue be dedicated to storm water to reach the levels noted above.
7. The PAC recommends that the City proceed with a storm water utility rate study and detailed funding analysis to determine the most appropriate method to fund the enhanced storm water program.
8. The PAC believes it is important that they continue to serve in a policy review role throughout the utility assessment phase of the project.

FORT WORTH, TX
STORM WATER POLICY ADVISORY COMMITTEE
MEETING MINUTES

Policy Advisory Committee Meeting #1
November 11, 2004, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Fred Closuit	Eunice Givens	Bobbie Shosty
Walter Dansby	Tim Keleher	Will Stalworth
Ken Dunson	Melissa Lindelow	Sandy Swinnea
Rev. Ralph Emerson	John Maddux	Gary Teague
Gary Gilley	Linda Morgan	Gordon Wells

Consultants:
Jean Haggerty, AMEC
Keith Readling, AMEC

City Representatives:
George Behmanesh, TPW
Don McChesney, TPW

Meeting Agenda

1. Welcome and Introductions
2. Current Storm Water Issues
3. Overview of the Comprehensive Storm Water Management Study
4. Role of the Advisory Committee
5. Background on Current Services
6. Discussion of Goals and Objectives for the Storm Water Program

Welcome and Introductions

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting with a welcome message for the committee members and thanked everyone for their commitment to helping the City work to develop a comprehensive storm water program. He described some of the recent flooding problems that have occurred in the City and talked about the changing regulatory climate. He stated the City's commitment to building a comprehensive program that would protect the City from further problems and would be more proactive in addressing community needs. Mr. Behmanesh introduced the City project team and then asked committee members to introduce themselves.

When asked if the committee thought the community was adequately represented, the question was raised whether small residential developers were represented. Melissa Lindelow responded that many of her clients were smaller developers and she could represent that voice. It was also pointed out that there was no Hispanic representative present. Mitchell Espinosa from the Hispanic Chamber of Commerce had been appointed but was not in attendance. It was noted that City staff would follow-up and make sure he or another Hispanic member would attend future meetings.

After introductions, the meeting was turned over to Don McChesney, the City Project Manager, who gave a brief overview of the meeting's agenda. Mr. McChesney then discussed other storm water activities that are taking part in parallel with this committee's efforts. These include the appointment of a Technical Review Committee

(TRC) that is examining updating technical drainage standards and the involvement of the City with the North Central Texas Council of Governments (NCTCOG) in the development of a regional storm water manual (iSWM) that will provide guidance on integration of water quantity and quality controls. In response to a question on the schedule for these other activities, Mr. McChesney offered to send committee members a schedule of meeting dates.

Overview of the Storm Water Management Study

Jean Haggerty, AMEC Project Manager, then presented a summary of the storm water management study. She explained that the comprehensive plan will be built using a staged approach. The first step is to examine current services while establishing the goals and objectives of what storm water management should look like in Fort Worth. Interviews with staff have recently been completed and a summary report will be prepared and forwarded to the committee for background. The committee in the meantime will help define the goals and objectives of what the program should accomplish.

Once objectives are identified, then gaps between existing services and future program needs will be identified. Needs in all areas of storm water management will be evaluated including capital improvements, maintenance, regulatory compliance, operations, engineering, and development review. A program will then be developed that includes specific activities that need to be undertaken to meet the objectives. In response to a question about how decisions will be made on the level of effort that should go into each part of the program, it was explained that various levels of effort can be identified with the committee recommending whether the City should be providing a minimum, a moderate or more robust program for each part of the program.

After developing a 5-year program and estimating costs for these services, the committee will discuss options for funding the program. We'll examine various options including utility fees, bonds, development fees, taxes, etc. The final product from this committee will include recommended policies, a 5-year program, and a funding strategy.

Standards Review and Updates

While the program plan is being developed, the City is also reviewing their drainage control requirements. Existing standards have not been significantly changed since 1967. The City is in the process of asking for public comment on an interim policy meant to insure that drainage problems do not get any worse, while beginning a longer term examination of new standards requirements. The City is working with NCTCOG and other local agencies on reviewing the iSWM documents to see which aspects of the regional guidance may be applicable to Fort Worth. A Technical Review Committee has been established to look at the technical aspects of new standards. Gary Teague is a member of both the TRC and the Policy Review Committee so there will be a liaison between the two groups. When asked about how these two committees relate, there was discussion about the roles of each. The Policy Advisory Committee should be identifying the goals that any new standards should achieve and the TRC will develop technical standards that meet those goals.

Communications Plan

The third part of the comprehensive storm water study includes implementation of a communications plan that will increase awareness of storm water issues and get public input on policy and technical program plans. A draft plan is being developed and includes the setting up of the Policy Advisory Committee, the Technical Review Committee, and an internal coordinating committee. The plan will also include tactics for getting the message out including use of the City website, development of media materials, scheduling of public events, and regular briefings to City Council.

Role of the Policy Advisory Committee

Ms. Haggerty presented some ground rules that will help the committee accomplish its mission of providing meaningful feedback and dialogue on storm water policy issues. She outlined the need to be respectful of all opinions, to work toward consensus, to think about what is in the best interest of the City and its residents, and to actively participate. Background information will be sent via email to all committee members approximately one week prior to the next meeting. Please read this information and be prepared to discuss.

Current City Storm Water Services

Ms. Haggerty gave an overview of the many types of storm water related services that the City now provides and explained how these services are spread out over several different departments. Transportation and Public Works (TPW) is responsible for maintenance of channels, flood response, drainage study reviews, dam inspections, and watershed studies; the Engineering Department manages capital projects, construction inspections, mapping/GIS activities, and floodplain issues; Department of Environmental Management handles NPDES compliance and reporting, water quality monitoring, industrial compliance, and erosion and sediment control programs; Parks Department maintains much of the drainage way as it is on parkland; and Development oversees the plat and plan review and construction plan approvals. More details on current services will be provided to the committee prior to the next meeting.

Community Expectations

Keith Readling, AMEC Senior Consultant, then lead a general discussion on what were the committee member's ideas on what storm water should be in Fort Worth. Mr. Readling was asked about how other communities are handling storm water management issues. He talked about AMEC's experience in other communities and how most of the problems are universal, i.e. flooding due to undersized or inadequate infrastructure, backlog of capital needs, not enough resources to keep up with maintenance needs, increased regulatory requirements, stream degradation, and dated development requirements or review process. Many communities are pursuing a similar path as Fort Worth by developing an action plan, reaching out and educating the public about the need for storm water management, and looking for stable ways to fund the capital and maintenance needs.

The group then identified issues that they felt should be addressed in the storm water management plan including:

- Existing programs – are they effective

- Downstream impacts of new development
- In fill development – need for infrastructure support
- Coordination with neighbors and their governments (watersheds don't recognize city limits)
- Active lobbying to ensure the legislature knows Fort Worth's issues
- Preventative maintenance program
- Water quality protection
- Detention policy – balanced approach

At the next meeting we discussed focusing on program objectives and the existing services discussion.

The meeting adjourned at 4:50 PM.

Next Meeting

The next meeting of the Policy Advisory Committee is scheduled for December 9, 2004 at 3 PM.

Policy Advisory Committee Meeting #2
December 9, 2004, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Fred Closuit	Jim Harris	John Maddux
Gene Oehl (for Walter Dansby)	Eunice Givens	Linda Morgan
Melissa Dailey	Brian Johnston	Will Stalworth
Ken Dunson	Russell Laughlin	Gary Teague
Rev. Ralph Emerson	Melissa Lindelow	Gordon Wells

Non-Committee Members:

Keith Readling, AMEC	George Behmanesh, TPW	Sheilah Tucker, Ware
Don McChesney, TPW	Julie Westerman, TPW	Nancy Grieser

Meeting Agenda

7. Welcome and Introductions
8. City Council Strategic Goals
9. Storm Water Issues in Fort Worth
10. Existing City Services and Programs
11. Input on Direction of the Program
12. Development of Draft Goals

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting with a welcome message for the committee members and introduced several new committee members. He then reviewed the City Council Strategic Goals, explaining the City's desire to be a safe, clean, and attractive city that provides diverse opportunities for economic growth. Mr. Behmanesh stated that it was a goal of the City and TPW to promote orderly growth through working cooperatively with the development community and others interested in revitalization and economic opportunities. This goal is in support of the Council strategic goals, which he summarized as "Making Fort Worth the most livable city in Texas."

Mr. Behmanesh then turned the meeting over to Don McChesney, the City Project Manager, who gave a presentation on the typical storm water problems facing the City. Examples of problems included flooded streets, ditch and stream erosion, blocked culverts, overgrown vegetation in channels, water pollution concerns, failing infrastructure, and construction inspection issues. Mr. McChesney gave background on these problems and showed slides of several examples. The presentation gave examples from all sections of the City to demonstrate the widespread nature and variety of the maintenance issues they now face. After reviewing typical problems, Mr. McChesney then described some of the solutions that they are working on. He gave an overview of the High Water Warning System now being piloted at low-grade road crossings and showed before and after slides of capital improvements put in place over the past several years. He noted that more needs to be done in terms of maintenance, planning, and capital improvements but their resources are limited.

Keith Readling then presented an overview of the existing program and how much the city is currently investing in storm water programs. Currently the City invests about $9 million a year in storm water related activities. This includes $1.3 million to be spent over the next 2 years on 7 watershed studies, about $2 million a year in capital drainage improvements, $2.5 million on operations and maintenance of the system, and $1.8 million on permit compliance and water quality issues. However, spending at this rate leaves a backlog of capital and maintenance needs in excess of $300 million.

Next the Committee was asked for their input on what the goals for the storm water program should be. After discussion about current efforts related to planning, maintenance, and water quality protection, the committee suggested the following goals:

- Prepare a master plan and coordinate with other regional plans
- Maintain the system in an efficient manner
- Develop a public education program that addresses quality and quantity issues and that changes over time as the public learns more about the issues
- The policies need to be driven by the master plan and solid science which should focus on promoting economic health and development
- Program needs to comply with water quality permits.

These goals then need to be tied in to the larger goals of managing the storm water program so that we don't make things worse as new areas are developed while putting in place a process that will make things better in the areas of the City that are already developed.

Under the goal of "not making things worse" some specific suggestions included:

- Identify "fair" funding sources without arresting economic growth
- Operate the system at design conditions (through more effective maintenance)
- Set different requirements for new development vs. re-development (recognize constraints are different and solutions must be different)
- Use master planning to control growth and annexation and look at impacts before adding to the inventory of infrastructure
- Minimize water degradation from new development
- Re-evaluate development standards; look at regional vs. city
- Evaluate opportunities for increased efficiency in O&M across department lines
- The master plan needs to include needs assessments and prioritization, an implementation plan for capital and O&M improvements, and a cost/funding strategy that examines impacts on growth and customer services

Under the goal of "making things better", the following suggestions were offered:

- Address "Greenfield" growth
- Develop drainage master plans that identify:
    - Capital needs for flood control
    - Capital needs for deteriorating/failed systems
    - Maintenance planning in the older sections of the city vs. maintenance planning in newer developed areas.
- Evaluate cost/benefit for flood control vs. buy-outs. Include possible grant funding.
- Evaluate bond funding vs. new revenue streams for drainage improvements
- Educate the public about needs and to garner support

At the next meeting we will discuss level and extent of service and identify how other communities are meeting their storm water needs.

The meeting adjourned at 5 PM.

Next Meeting

The next meeting of the Policy Advisory Committee is scheduled for January 13, 2005 at 3 PM.

Policy Advisory Committee Meeting #3
January 13, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Fred Closuit	Jim Harris	John Maddux
Gene Oehl	Eunice Givens	Bobbie Shosty
Melissa Waelti-Dailey	Brian Johnston	Gordon Wells
Tom Keleher	Joe Schneider	Alan Thomas
Gary Gilley	Melissa Lindelow	

Non-Committee Members:

Jean Haggerty, AMEC	George Behmanesh, TPW	Sheilah Tucker, Ware
Don McChesney, TPW	Julie Westerman, TPW	Nancy Grieser
Chuck Silcox, City Council	Steve Eubanks, TPW	Jeana Booker, TPW

Meeting Agenda

- Welcome and Meeting Minutes Review
- Final Goal Statement
- Summary of Drainage Survey Responses
- Preliminary Benchmark Survey Findings
- Extent and Level of Service Discussion

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and introduced a special guest, City Council member Chuck Silcox. Mr. Silcox spoke briefly, thanking the committee for working on this important project and emphasizing his commitment to establishing a comprehensive, effective storm water program in the City.

Mr. Behmanesh then turned the meeting over to Jean Haggerty to present the final program goals. The committee agreed that the goals, as summarized, were representative of their priorities, but wanted to make sure that improved maintenance of the system was more clearly identified as a major goal and that water quality protection was identified as a key piece of the regulatory compliance goal. It was agreed that a summary of the City's most recent NPDES permit will be distributed to the committee so that they can learn more about the federal requirements which the City must comply with annually.

Next, Don McChesney gave a presentation on the responses to the City's recent Drainage System survey. Over 560 responses were received through early January and complaints were typical of areas and problems regularly encountered by TPW field crews. The major types of problems reported were flooding (29%), stagnant water (20%), blockages and debris (19%), and erosion (13%). Problems were reported from all sections of the city and were typically within a City right-of-way (41%), on respondent's property (40%), or on neighboring private property (11%). The City is in

the process of tabulating the data, investigating the complaints received, and notifying respondents of their actions.

Mr. McChesney then gave an update on the Benchmark Survey that the City is conducting to compare Fort Worth's storm water program to other cities' programs. Eight cities have been contacted and asked to answer questions about their storm water programs. Three cities, Austin and San Antonio, TX and Bellevue, WA, have responded so far. Preliminary results show that these cities have more comprehensive programs than Fort Worth, including routine maintenance schedules, stream protection programs, and on-site water quality controls. The development policies in these three communities include requirements for stream protection buffers, grading controls, and residential density limits that are not currently applied in Fort Worth. Each of these communities already has a storm water utility in place and spends more money per capita on storm water management. As more information is compiled, a copy of the Benchmark Survey results will be distributed to the committee.

Mr. McChesney also addressed the issue of rising capital need estimates. In 2003, identified storm water capital needs were estimated at $218M. In 2004, after a series of community meetings, the list of projects was updated and the estimate grew to over $350M. In early 2005, additional needs were identified in the Roadway Flooding Hazard study that pushed the estimate over $500M. This number will continue to evolve as watershed studies and system conditions assessments are completed, but for planning purposes we will use $500M to represent the magnitude of the existing capital backlog.

The meeting was then turned back over to Jean Haggerty who led a discussion of the current extent and level of storm water services in the City and identified the key gaps between the existing services and the program goals. The major gaps discussed including the following:

Existing Service	**Program Goal**	**Gaps**
Watershed studies being done on 5% of city – with focus on modeling and quantity issues	Comprehensive master planning done to identify priorities and cost-effective solutions (including WQ issues)	Resources are needed to address planning needs of remaining 95% of city. Also, need to begin looking at water quality issues, not just quantity controls, throughout the city.
Development approvals based on 1967-era design standards with limited field inspection and enforcement	Up-to-date standards that protect from flooding & erosion without slowing growth	The City needs standards that are based on sound, up-to-date science. These standards need to reflect the community goals of continued growth and protection of public health and safety. Also sufficient resources need to be available to effectively enforce the requirements
Reactive maintenance that covers about 12% of the open channels per year.	Proactive, prioritized, scheduled, effective, maintenance program	The city needs resources to provide scheduled, tracked maintenance on all aspects of the city storm water system.

Incomplete inventory and easements on paper plans	Complete inventory of facilities and easements as well as conditions assessment in GIS/data format	The city needs dedicated resources to perform a system-wide inventory and conditions assessment. This needs to be in a user-friendly format and updated on a regular schedule.
Staff using outdated equipment and technology	Resources for acquiring and training staff on appropriate hardware, software, and field equipment	The city needs to update technology and equipment and provide appropriate training to ensure operations are being performed efficiently and effectively.
Spending $2M - $3M a year on capital needs with a $500M backlog	Fair, stable funding source in place to allow implementation of much needed capital improvements	In order to address the capital backlog, an increased level of spending must be dedicated to storm water needs for the foreseeable future.
Public education and outreach performed as required by NPDES permit	Effective education and outreach that informs all aspects of the community about storm water issues and ways to get involved	More effort and resources need to be dedicated to reaching all parts of the community.

After agreeing that this list identified the major gaps in the existing program, the committee moved on to discuss specific extent of service issues. The first issue revolved around the question of whether the City should ever provide "public" services on "private" property. Public property is generally defined in Fort Worth as in the public right-of-way or on public easements. "Public water" impacting a property is generally defined as water discharging from a "public" way. The City is currently responsible for dealing with public water and with drainage issues on public property. There was considerable discussion about not having the City bail out properties that have flooding problems not involving public water. It was generally agreed that the City should continue to provide services only on public parts of the system, as currently defined, and only assist with "private" issues when public safety or other essential service is involved

The next issue discussed involved the need to ensure that all parts of the drainage system are operating properly. The NPDES regulations mandate that the owner of the municipal sewer system (in this case the City) is responsible for ensuring that all aspects of the system, both public and private, operate as designed. Storm drainage plans for private improvements are currently reviewed by the City prior to construction, but no on-site inspection of the actual construction takes place. City building inspectors and erosion and sediment control inspectors review other critical aspects of construction, but more needs to be done to make sure drainage plans are constructed and maintained as designed. Some committee members expressed the concern that developers now pay fees for inspection services and may not be getting quality service. Often developers also hire their own inspectors to make sure work is being done to their satisfaction. One suggestion was to allow developers to hire their own inspectors and have them certify to the City that the work was done properly and not have City inspectors on site. After a lengthy discussion of construction quality control problems, the focus shifted to premature street failure problems. George Behmanesh then suggested that the

committee re-focus on storm water issues and offered to meet with the development members of the committee after the meeting.

The next extent of service discussion dealt with the potential of extending services to cover all natural streams, not just those in public right-of-way or easements. It was agreed that this may be beneficial in the long-term, but the City has too many existing maintenance needs and this would just stretch resources even further, so will not be considered at this time. This is an issue that could be further examined in the master planning effort.

At this point in the discussion, the meeting was concluded due to time constraints. At the next meeting we will continue the discussion of enhanced services and begin identifying the program elements, that combined, will result in a comprehensive program.

Next Meeting

The next meeting of the Policy Advisory Committee is scheduled for February 10, 2005 at 3 PM.

Policy Advisory Committee Meeting #4
February 10, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Russell Laughlin	Linda Morgan	John Maddux
Gene Oehl	Eunice Givens	Bobbie Shosty
Melissa Lindelow	Nancy Grieser	Gordon Wells
Gary Teague		

Non-Committee Members:

Jean Haggerty, AMEC	George Behmanesh, TPW	Sheilah Tucker, Ware
Don McChesney, TPW	Julie Westerman, TPW	Jeana Booker, TPW
Steve Eubanks, TPW		

Meeting Agenda

- Welcome
- Summary of Joint TRC/PAC Meeting
- Discussion of Draft NPDES Permit Requirements
- Continued Discussion of Level and Extent of Services
- Exercise on Identifying Priorities

Welcome

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and summarized the agenda. He asked for any comments on the latest meeting minutes and hearing none, he turned the meeting over to Don McChesney to give an overview of the joint Technical Review Committee/Policy Advisory Committee (TRC/PAC) meeting held on February 2, 2005.

Highlights of February Joint TRC/PAC Meeting

Don gave a brief overview of the joint TRC/PAC meeting. Members from the Policy Advisory Committee were invited to the bi-weekly Technical Review Committee meeting in order to get a better understanding of the technical drainage issues on their agenda. Several members from the PAC attended and heard a presentation from Andy Reese on various approaches to addressing development requirements. The key issues discussed included major flooding problems, channel protection, and treatment options for local water quality concerns.

Don invited the PAC members to sit in on any of the open TRC meetings which are held every other Wednesday and told the committee that another joint meeting is planned for April when the TRC members will be invited to attend the monthly PAC meeting. Don then turned the meeting over to Jean Haggerty who began with a brief summary of the City's draft NPDES permit requirements.

Summary of Draft NPDES Permit Requirements

Jean reviewed several key sections of the draft permit and told the group that they could pick up complete copies of the draft document on their way out from City staff, if they were interested. The permit is a joint permit with Tarrant Regional Water District and Texas DOT, which means all three co-permittees, must file consistent storm water management plans. The City compiles permit information from all three parties and files an annual report, due each March. The two major requirements of the permit affecting the PAC deliberations are: (1) the City has primary responsibility for the proper operation and maintenance of the public storm water system and (2) the City is required to develop and implement a master plan to minimize discharge of pollutants from development activities. Other activities now being managed by the City in compliance with their permit include illicit discharge prevention, spill response, industrial and construction run-off monitoring and control, water quality monitoring, and public education.

Extent and Level of Services Discussion

Next, Jean briefly summarized the three key extent of service policies agreed to at the last meeting including:

- City will provide services only on public property and easements, on problems dealing with public water, and when the problem is a public health or safety concern.
- It is the City's responsibility to have appropriate plans and regulations in place and have the enforcement capability to ensure that the storm water system is operating properly.
- Services will not be extended to private portions (i.e. undeveloped stream segments) of the system until current needs are more fully addressed.

The group next discussed the provision of storm water maintenance services on creeks and floodways through parkland. Currently, Parks provides very basic maintenance (i.e. debris removal) on this portion of the public storm system. Discussion revolved around including maintenance for these system segments through public parkland as part of the storm water maintenance service. This would result in more consistent maintenance service and be more efficient, as the storm water crews would have the appropriate equipment and training to maintain these creek segments. It was noted that the creeks through the parks need to remain as natural as possible to reflect the aesthetics of a park environment.

The final extent of service discussion focused on the role of the storm water program in supporting re-development in downtown and the central city areas. Should the storm water standards be different or provide incentives to support in-fill and redevelopment in these areas? There was considerable discussion about what drives development and how the storm water program should support the City's comprehensive plan. However, it remains unclear because of the lack of technical information on the existing system limits and problems, how this could be accomplished. The need for a master planning process becomes evident when trying to discuss these issues. The committee identified the need, not just for a master plan, but for a comprehensive master planning process, which will, look at comprehensive goals (including land use and development issues), organizational needs, technical and operational priorities, capital cost/benefit analysis,

competing funding issues, etc. The master planning process needs to be on going and maintained in a manner to provide consistent direction to the storm water program.

The issue of organizational challenges related to storm water was also discussed. Currently, different departments provide different storm water services with no one person responsible for the coordinated functioning of the parts. TPW, through this comprehensive study, has established an internal coordinating committee to begin to address this needed coordination. It was generally agreed that a storm water champion has to be identified to carry through the successful development, coordination, and implementation of a comprehensive program.

Program Priorities

The final topic of the day was the identification of the program priorities. Several key program elements have been identified by staff and by the committee over the past few months including the following:

- Master Planning
- Improved Development Review
- Scheduled routine maintenance program
- Capital program expansion
- Updated standards and design practices
- Inventory & conditions assessment
- Increased public education
- Centralized tracking database
- Scheduled assets/equipment replacement program

There was then discussion about how to prioritize these needs. In order to get a better sense of how this committee thought funding on these elements might be prioritized; each committee member was given ten “dollars” and asked on which program elements they would prefer to see their money spent over the next 5 years. Of the $110 in total funding that the committee members had, they spent their money on the following:

- Improved Maintenance - $24
- Increased Capital Program - $19
- System Inventory & Assessment - $15
- Master Planning - $24
- Scheduled Asset/Equipment Replacement - $10
- Established Tracking & Monitoring Database - $10
- Enhanced Development Review Process - $0
- Increased Public Education - $8

It was agreed that a balanced program needs to be developed that will address resources and timing for each of these important elements, but there is an immediate need to begin master planning and improve routine maintenance of the system.

At the next meeting, we will talk in more detail about various approaches for building the storm water program.

Next Meeting: The next meeting of the Policy Advisory Committee is scheduled for March 10, 2005 at 3 PM.

Policy Advisory Committee Meeting #5
March 10, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Joe Schneider	Gary Gilley	John Maddux
Gene Oehl	Eunice Givens	Bobbie Shosty
Brian Johnston	Nancy Grieser	Gordon Wells
Gary Teague	Tim Keleher	Alan Thomas
Will Stallworth		

Non-Committee Members:

Jean Haggerty, AMEC	George Behmanesh, TPW	Sheilah Tucker, Ware
Don McChesney, TPW	Julie Westerman, TPW	Jeana Booker, TPW
Steve Eubanks, TPW		

Meeting Agenda

- Welcome
- Progress of Technical Review Committee
- Discussion of Program Elements and Levels of Service
- Building a Five Year Program
- Identifying Preliminary Funding Issues

Welcome

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and summarized the agenda. He emphasized the importance of reaching agreement on the major storm water program elements so that we can estimate new program costs. He then turned the meeting over to Don McChesney to give an overview of the Technical Review Committee's (TRC) progress on updating the development standards and policies.

TRC Progress

Don gave a brief overview of the latest TRC meeting, which was held on March 2nd. To date, the TRC has made progress on several key issues, including downstream flooding issues, runoff estimation, concept plan review, channel preservation, and water quality protection. To help reach consensus around several important issues, three subcommittees were formed to develop recommended approaches on channel design and protection issues, on storm drain hydraulics, and on hydrology, including runoff

coefficients and detention storage. The subcommittees will be meeting weekly and will report back to the full committee in late March.

At the next regular PAC meeting scheduled for April 14th, representatives from the TRC will present their preliminary findings and discuss their process at a joint PAC/TRC meeting.

Don then turned the meeting over to Jean Haggerty who began with a request for any comments on the minutes from the last meeting. No comments were received.

Jean then summarized the funding priorities identified at the last meeting to make sure everyone was comfortable with the findings. The committee agreed with the priorities established and that the key items were identified.

Program Elements and Levels of Service

Jean reviewed the methodology behind the Program Development discussion paper that had been forwarded to the committee members for review. Basically, for each program element that had been identified as in need of enhancement, three levels of service were identified and discussed. A minimum, moderate, and aggressive level of service (LOS) were identified and a cost estimated to provide that LOS. The plan for the afternoon's meeting was to walk through each program element and, as a group, select the LOS that the committee would prefer.

Jean briefly discussed current program spending and gave examples of storm water program elements that were identified as underfunded (routine maintenance), appropriately funded (NPDES compliance), and not currently funded (safety training). The enhanced program elements will only address underfunded or non-funded priority issues. There was discussion about how maintenance money is now spent and it was noted that 20-25% is now spent on routine maintenance while 75-80% is spent on reactive, complaint or emergency driven maintenance. The goal is to turn this around and be performing scheduled, routine maintenance that will help minimize emergency and citizen response needs. It was noted that having a systematic routine maintenance program in place may increase system capacity by returning the facilities back to design levels and impact the need for new facilities.

The current capital spending on storm water is estimated at about $2.5 million a year. There was a question about whether the capital work that private developers (estimated at $45 million a year) are doing should be counted in the capital spending. After discussion it was agreed that the money we are including in this study is that being spent by the City for infrastructure reconstruction and is addressing community capital needs, not new, private development. Though the continued private development will impact the City's long-term program needs because the City will eventually maintain the new drainage systems being installed.

This led to a discussion about why Department of Engineering design and construction plan review costs aren't included in the existing storm water program costs. Costs for preliminary plan/plat and CFA review that are related to the drainage system are included, but the review of the final documents is not. The preliminary reasoning was that only a small portion of this is drainage related and that the cost is covered by

development review fees. It was agreed that we will look again at the developer fees paid and see what percentage goes to drainage issue review.

As the different proposed levels of service for maintenance were reviewed, there was discussion about outsourcing some of this work. The resources needs identified have been based on what it would cost the city to add crews and equipment, but these resources could just as easily be used to outsource maintenance activities and equipment replacement programs. This is a decision that management can make once the resources and needs are more fully identified.

The group supported the aggressive level of routine maintenance as a goal, but felt that the program should build to that, not try to get there immediately. It was also noted that there needs to be a way to assess the difference that the more aggressive maintenance program is having, so that the community can be sure it is getting its money's worth. A tracking and monitoring program needs to be in place to be able to evaluate the impact.

Recommended Program Development

The committee next focused on the various approaches for each program element and identified the following as their preferences for the first five years of the enhance program:

- Routine Maintenance – minimum approach first 2 years, moderate approach year 3 and 4, with goal of establishing aggressive approach for year 5
- Inventory and Assessment – aggressive approach starting in year 1
- Master Planning – aggressive approach starting in year 1
- Infrastructure Reconstruction (changed from Capital Improvements) – minimum for years 1-3, then moderate following master plan findings in years 4 and 5.
- Public Education – minimum program starting in year 1
- Technology/Database Management Improvements – aggressive in year 1 to get systems in place, minimum after year 1 for maintenance needs
- Drainage Reviews (changed from Development Review) – minimum approach starting in year 1
- Safety Training (changed from Staff Training) – minimum approach in year 1 with increase to moderate approach by year 3
- Storm Water Program Leader – aggressive approach starting in year 1.

Results: this will give us an order of magnitude cost of service in order to assess the level of funding needed to cover these additional costs.

Preliminary Funding Issues

The next topic the committee will discuss will be funding options. There was discussion about the impact on the tax rate of the various options. It was noted, for example, that with a $0.01 tax rate increase estimated to raise about $2.5M in revenue, funding the proposed aggressive program (an increase of $30M) would require a tax increase of $0.12 or about 14%. It doesn't seem likely that this level of increase would be supported for a storm water program, so other options need to be evaluated. A combination of options, such as general funds, fees, and bonding may be more acceptable. This issue will be discussed in more detail at the next meeting.

At the end of the meeting, the group was shown a video that recorded major local residential flooding during a storm in June 2004.

Next Meeting

The next regular meeting of the Policy Advisory Committee is scheduled for April 14, 2005 at 3 PM. ***(Note: the date for next meeting has been revised. The next meeting is scheduled for March 24th at noon.)*** We will discuss in more detail various options for funding the enhanced storm water program and identify the key issues for inclusion in the committee's recommendations to the Council.

Policy Advisory Committee Meeting #6
March 24, 2005, 12-3 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Alan Thomas	Gary Gilley	John Maddux
Gene Oehl	Eunice Givens	Ralph Emerson
Robert Gleason	Nancy Grieser	Ken Dunson
Gary Teague	Jim Harris	

Non-Committee Members:

Jean Haggerty, AMEC	Robert Goode, TPW	George Behmanesh, TPW
Don McChesney, TPW	Julie Westerman, TPW	Jeana Booker, TPW
Steve Eubanks, TPW	Khal Juafari	Sheilah Tucker, Ware

Meeting Agenda

- Welcome and Schedule Update
- Lunch
- Technical Review Committee Update
- Finalizing Recommended Enhanced Program
- Funding Options Discussion
- Summary of Recommendations
- Report to Council

Welcome

While lunch was being served, George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and summarized the agenda. He explained that the project schedule had been accelerated in order to present our preliminary recommendations to Council on April 12th and thanked those in attendance for adjusting their schedules. George introduced Robert Goode, the Director of TPW, who was present to hear the committee's program and funding discussions first-hand.

George then turned the meeting over to Don McChesney to give an overview of the Technical Review Committee's (TRC) progress on recommending revisions to the City's development standards and policies.

TRC Progress

Don gave a brief overview of the on-going TRC work. The group continues to have weekly subcommittee meetings, focusing on channel design and protection issues, on storm drain hydraulics, and on hydrology, including runoff coefficients and detention storage. The TRC is using the *iSWM* as a framework for their discussions while developing specific recommendations for Fort Worth.

Originally, representatives from the TRC were scheduled to present their preliminary findings and discuss their process at a joint PAC/TRC meeting in April. This meeting has been postponed and will be rescheduled once the TRC has finalized their recommendations.

Don then turned the meeting over to Jean Haggerty who began with a request for any comments on the minutes from the last meeting. No comments were received.

Jean then briefly summarized the work completed by the committee so far. She reviewed the recommended primary program goals, the program priorities, the specific program elements requiring additional funding, and the program implementation strategy. The committee reaffirmed that they agreed with the goals, priorities, program elements, and proposed levels of service identified.

Finalizing the Recommended Storm Water Program

Jean reviewed the enhanced program that had been recommended at the previous meeting. Based on the comments received at the March 10th meeting, a table was developed to show the various recommended levels of service and associated cost for each enhanced program element. The recommended program increases spending by $9.9 million in year one and grows to an increase of $16.2 million by year 5. These costs are in addition to the $7.8 million currently being spent annually on storm water. The committee discussed each of the program elements and recommended the following revisions and/or clarifications:

- The estimated costs for Technology/Database updates and maintenance are too low. Increase spending to cover training, software updates, and maintenance.
- Since GIS and Technology overlap, make sure these systems are compatible.
- Master Planning needs to be more clearly defined. This is meant to be conceptual planning, modeling, and coordination with detailed design and implementation costs covered in the capital/infrastructure reconstruction costs. The planning needs to help establish priorities and CIP cost estimates. Consider increases to master planning expenditures for years 4 and 5.
- It needs to be clear that the enhanced program is an increase to existing funding to fill the program gaps and that the existing $7.8 million needs to continue to be budgeted for storm water.
- Expand the program table to show that this is not just a five-year program, but just the first 5 years of a long-term program. Project out expenditures for 25 years.
- The capital/infrastructure reconstruction costs being estimated for the first 5 years are meant to chip away at the known backlog. Highest priority projects that protect against loss of life need to proceed while the planning process gets underway. The additional $43 million recommended for the first 5 years will just address the most pressing problems. The master planning work will identify and prioritize more long-term needs.

Next, Jean gave the committee an overview of how their existing and proposed storm water programs compared with programs nationally. Based on an annual cost per acre, Fort Worth currently spends about $39/acre. This is considered below “minimum” spending. The proposed enhanced program has a goal of spending $119 per acre by year 5 of the program. This will result in a program rated between “moderate” and

"aggressive". Program costs for other cities were shown to give a general idea of how Fort Worth compares to them – based on the cities selected (San Antonio, Dallas, Austin, and Bellevue, WA), Fort Worth currently spends considerably less per acre. The committee suggested that other city data be evaluated, including those that pay less per acre or that have similar amounts of undeveloped land.

The committee took a 15-minute break at 1:30 pm

Funding Options Discussion

The committee next focused on the various funding options available for supporting the enhanced storm water program. Three primary and six secondary funding options were discussed. The three primary options that can raise sufficient revenue to support major parts of the recommended storm water program were identified as General Funds (from taxes and fees), storm water user fees, and general obligation bonds. It was recommended that the secondary options, including impact fees, system development charges, grant funds, etc. should be considered in the future to help keep other revenue requirements to a minimum.

Jean presented information to the group on the possibility of generating revenue from the General Fund. The current total Fort Worth city budget for 2004-2005 is $777 million. Of this, approximately 1% or $7.8 million is dedicated to storm water. The majority of this $7.8 million comes from General Fund appropriations with additional funding from the Environmental Fee revenue (to manage NPDES compliance and water quality issues) and from general obligation bonds (to fund watershed plans and some capital reconstruction). Based on the projected enhanced program costs, in the first year of the new program the City would need an additional $10 million in revenue to cover costs. Since a one cent increase in the property tax is projected to raise about $2.6 million in revenue, relying on tax revenue alone would require about a 4 cent increase or re-appropriation of funds to cover the enhanced program in the first three years, with additional revenue needed as the program grows in future years.

Jean explained that an alternative to relying on property taxes is the establishment of a storm water user fee or utility. Similar to a water or sewer utility fees, the money raised would be dedicated solely to storm water programs. Numerous other cities in Texas and across the U.S. have established utilities including San Antonio, Arlington, Denton, Richland Hills, and Dallas. Jean discussed some of the advantages to having a service fee, including:

- Results in a long-term stable funding source that does not compete yearly for revenue
- The rate is set based on the program developed. This allows flexibility in setting priorities and resultant rates.
- The fee is based on a methodology that is storm water related and is seen as more equitable by the community than just raising taxes.
- The funds raised through the fee are dedicated solely to storm water.
- Storm water fees are common throughout Texas and there is a good database established of methodologies and rate structures that Fort Worth can look at for comparison.
- Fort Worth could potentially add the fee to the water utility bill, making use of the existing billing and collections system.

The potential negative side to establishing a storm water utility is that it may be perceived as a "rain" tax and that is takes time and money to set-up. Public education and outreach is needed to inform the public about the utility and how the money would be tracked and spent.

The committee discussed these two key options and made the following comments/suggestions:

- Expecting the City to raise taxes to pay for this entire enhanced program may be unrealistic, but it should be emphasized that the Council needs to make storm water management more of a priority. Re-appropriating additional funds to storm water should be a City priority.
- There is not enough information available for the committee to make a recommendation on how to fund the program.
- A storm water utility makes sense in concept, but the specifics of who gets billed and how much need to be determined.
- We don't have sufficient information available to know what a storm water rate would look like at this time so we should continue with this study to establish a proposed rate structure and billing methodology.

Summary of Recommendations

The committee reaffirmed that they had reached consensus on the following items:

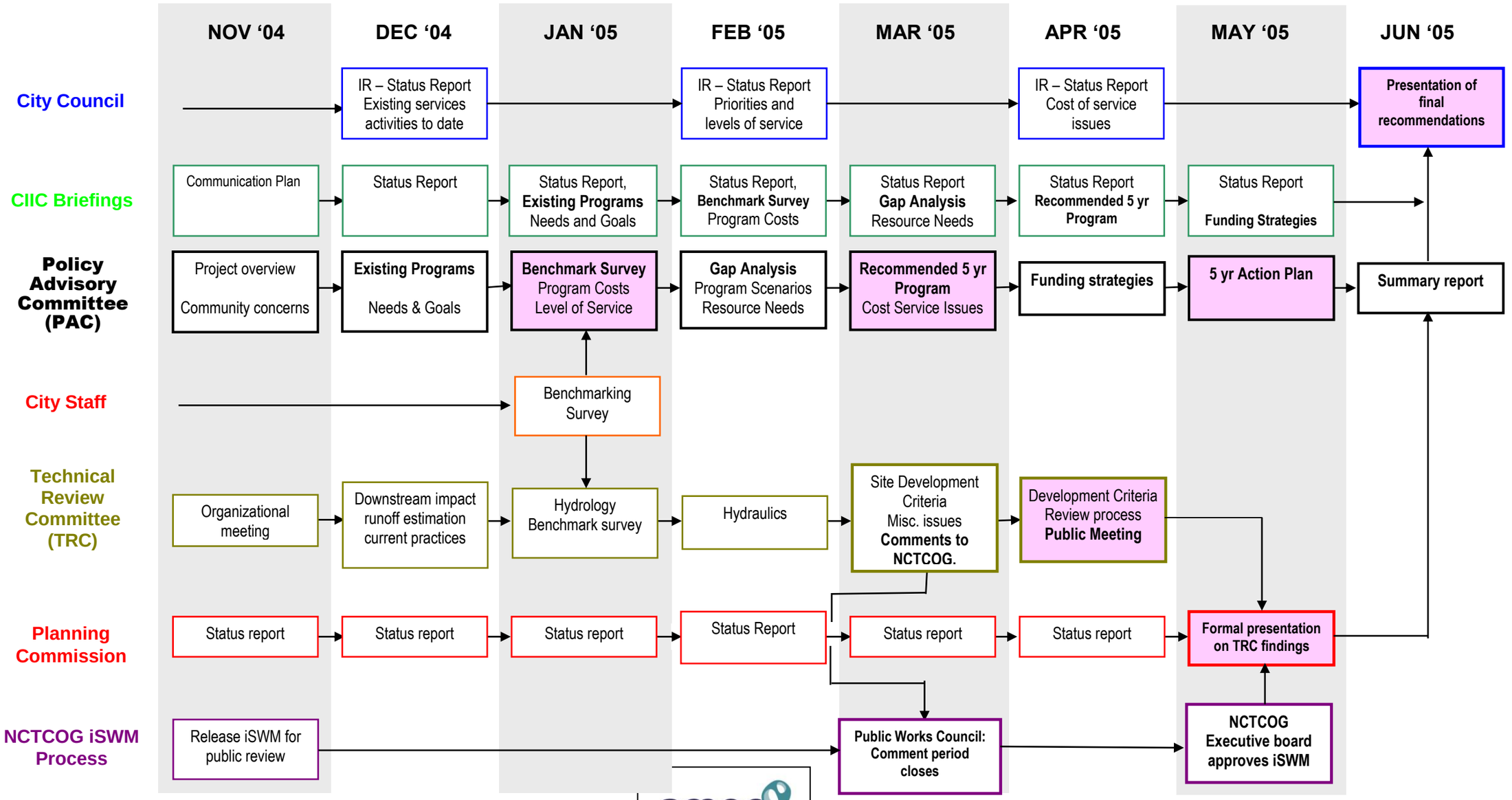
- Storm water management needs to be a higher priority in the City of Fort Worth.
- The committee supports the goals, priorities, and enhanced program that has been developed through the Policy Advisory Committee.
- The committee recommends that City Council give approval to proceed with a storm water service fee rate study.
- The committee recommends that the PAC continue its involvement in the next phase of the storm water management study.

Jean stated that a summary report of the committee's work would be developed over the next week and forwarded to the members for comment. This will include an executive summary and copies of discussion papers, policy recommendations, and meeting notes. The executive summary will be used as the basis of discussion with the Council on April 12th. All members of the Policy Advisory Committee are invited to attend the Council meeting. More specific information on time and place will be distributed in early April.

The City staff thanked the committee members for their work during this first phase and adjourned the meeting at 2:55 PM.

Comprehensive Storm Water Management Study

Key Activities Flow Chart – Nov 2004



FORT WORTH, TEXAS
Comprehensive Storm Water Management Study

Phase II
Project Documents

Presented by:
AMEC Earth & Environmental
101 West Friendly Avenue
Greensboro, North Carolina

July 2006

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Section 1 - Introduction

Project Summary

In September 2004, the City of Fort Worth hired the AMEC project team to assist with development of a Comprehensive Storm Water Management Program that would examine and develop an enhanced, comprehensive storm water program managed by the City to correct existing deficiencies. This project was split into two phases: the first to determine the needs of the program and the second to examine ways to fund the program. The Phase I work was completed in May 2005 and recommended that the City proceed with the implementation of a storm water utility to help pay for much needed storm water improvements. The City Council approved the Phase I recommendations in June of 2005 and authorized the AMEC team to proceed with a storm water rate study and implementation plan. Phase II than began by reconstituting both the citizen Policy Advisory Committee and the internal review committee to provide feedback on policy issues related to the potential implementation of the storm water utility. The goal was to have recommendations to City Council on a rate structure by December 2005 and, upon approval, to begin billing in the summer of 2006.

The goals for completion of the rate study and implementation plan were met as scheduled and the Fort Worth City Council approved a drainage utility ordinance, establishing the legal basis for the utility, in March 2006. A second ordinance establishing the rates for the utility was approved in April 2006. Billing for the utility is scheduled to begin in July 2006.

In this document we have compiled and summarized the materials from Phase II that were developed in order to provide City staff and the Policy Advisory Committee with sufficient information to make informed storm water management decisions.

SECTION 2 – POLICY AND DISCUSSION PAPERS

Section 2A – Storm Water Utility
Implementation Data Track Strategies

June 2005

Introduction

In order to assess the best method to allocate the costs for a storm water program to potential payers within a user-fee system, a number of issues must be evaluated in detail. The task of creating a storm water fee and distributing that fee to all customers in the service area is a two-part effort. First, an account database must be created that contains all potential customers and their associated calculated fees. Secondly, the fees must be billed to the customers through a new or existing billing system formatted specifically for the storm water fee. This report will recommend an approach for both generating the storm water fee and distributing the fee through billing.

Recommendation

AMEC recommends that impervious areas for all non-single family parcels be captured using manual extraction from existing aerial imagery and the existing Tarrant County Appraisal District parcel layer; through a process of automated and manual parcel overlay, data capture and photo-interpretation. We recommend that these calculated storm water fees be conveyed to the storm water ratepayers on the existing water bills, and we recommend that the periodic updating of impervious features and bills be accomplished annually through a semi-automated satellite-based update.

This recommended approach strikes the best balance between competing factors of initial cost, data quality, ease of ongoing customer service, simplicity, public acceptance, and utility for other purposes. A full description of the issues associated with generating a utility fee and conveying that fee to customers is provided below.

Details: Generating a Storm Water Fee

Essential Data Elements

At a minimum, the initial Master Account File (MAF) is a database of customer accounts containing associated storm water fees for each account. Generally, storm water user fees are parcel-based calculations involving the amount of impervious area (IA) on the parcel, or a combination of IA and another quantifiable measure, such as gross area (GA) of the parcel. The IA of the parcel is often made up of existing data layers maintained by the City or County and often augmented by the use of current aerial imagery. In some cases land use and GA are used to estimate the IA of a parcel.

Because of the parcel-based nature of the fee, additional information describing parcels must also be obtained. The Tax Assessor database is often used to identify property land use, owner name, and tax-exempt status. These property characteristics help determine how various storm water fees are calculated and potentially how the fees are actually billed. In some instances, a land records database or other property-related database may be more appropriate than the assessor information.

Thus, there are four basic data elements required to generate a stormwater fee: 1) parcels, 2) impervious features (or a surrogate for impervious features like land use), 3) aerial imagery (in most cases), and 4) the tax assessor database, that comprise the fundamental pieces needed to construct an account file. Other data may be used to augment the calculation of bills or differentiate property types, but these four elements typically provide the basis for the storm water MAF. Of these four elements in Fort Worth, the parcels and tax assessor database have been reviewed by AMEC.

Parcel Data Layer

The parcel data layer represents the foundation for billing storm water fees in a typical methodology designed to estimate the amount of impervious surface per individual parcel, whether by features or land use. The spatial integrity and horizontal accuracy of the parcel layer is essential to the accuracy of the calculated fee. Only that area within the boundaries of a parcel will be considered for IA calculations. Parcel boundaries that actually encroach upon adjacent improvements create slivers of area that are potential areas of billing dispute. However, accurate storm water fees do not require accuracy at the square foot level; much like accurate water bills do not require meters accurate to one gallon. The fees are based upon the idea of an Equivalent Residential Unit or ERU.

The ERU is the amount of impervious area on a typical single-family residential (SFR) parcel. The ERU is usually based on a sample of various SFR properties, resulting in a median value of IA for the sample that then becomes the ERU for the utility service area. The ERU can be a combination of IA and GA where the IA is often a percentage of the GA based on a sample of SFR properties. In both cases, the ERU is based on a median value of impervious area for either a sample of SFR properties or the total population of SFR properties. When non single-family residential (NSFR) properties are billed, the total amount of IA per parcel is divided by the ERU, resulting in a number of billing units that are multiplied by the rate to obtain a monthly fee. So, if an NSFR property contains 20,000 square feet of IA and the ERU is 2,500 square feet, the property is billed for 8 ERUs (or billing units) per month.

Because of the use of the ERU, measurement of impervious surface and the horizontal accuracy of parcel boundaries need to be reliable, but not exact, as the size of the ERU will somewhat compensate for the inherent accuracy issues of parcels and impervious data. Impervious surface data is often captured manually using photo-interpretation techniques. Parcel data is often “off” horizontally by 3’ – 10’ when merged with ortho-rectified aerial imagery. So, a property line that is “off” by 8’ and is 100’ in length might attribute 800 square feet of IA to the wrong parcel. A theoretical ERU of 2,500 square feet will often compensate for these and others accuracy errors inherent in GIS data layers. AMEC has not yet reviewed any aerial imagery for the City, so a discussion of overlay compatibility cannot be addressed at this time.

The Tarrant County Appraisal District maintains a parcel data layer containing 210,708 parcels for the City of Fort Worth. Duplicate testing of the parcel identification field (PIDN) revealed 805 duplicates out of the group of 210,708 Fort Worth parcels. A sampling of these duplicate situations revealed many legitimate cases where the parcel was split by a road into 2 separate polygons, retaining the same parcel ID number. There were some examples in the sample that appeared to be Parcel ID errors. Overall, the parcel data layer appears to be well-maintained and would serve as an adequate basis for billing for storm water in the County.

Tax Assessor Database

The Tarrant County Appraisal District database represents information related to parcels that facilitates the creation of a storm water utility master account file. Parcels within the jurisdiction of Fort Worth are coded as CITY = ‘026’. The STATE_USE_ code contains land use information that would be used for initial parcel classification (SFR, NSFR) and further classification (condo common land, etc.) later in the storm water utility implantation process. The database also contains information concerning market value of land and improvements as well as living area of SFR properties.

Parcel Classification and SFR Tiering

Storm Water utilities routinely designate properties within the system as SFR and NSFR. Often, SFR properties are not processed through a system of calculations for impervious area and are simply assigned a flat rate (1 billing unit). The logic behind this is based on the idea that, generally speaking, the variation in impervious area for SFR properties is less than the variation among different types of NSFR properties. In addition, SFR properties comprise an average of 85% of the total properties in the City or County. The remaining 15% represent the mix of properties (commercial, industrial, multi-family, etc.) containing the greatest difference in amount of impervious area. It is often not cost-effective to acquire impervious area calculations for every single SFR property in a project area, due mainly to the relative homogeneity of this property group. Therefore, resources are often only applied to the NSFR group for detailed calculations.

It is important to note that political pressures within a City or County often demand that SFR properties be "tiered" in some manner so that all SFR property owners are not paying the same fee. Tiering breakpoints are usually based on a distribution of the IA of the population of SFR properties. A simple methodology involving 2 tiers might include a "baseline" tier where each property is charged for 1 ERU. The other tier would represent "smaller" properties (in terms of IA) where properties are charged for some portion of an ERU.

Rate Strategy Options

A strategy must be selected that allows for the creation of storm water fees from available data within the City. The goal is to either capture or calculate impervious area within the properties of the City or create a surrogate of impervious area derived from other available data sources. There are a number of potential strategies available to the City, each with an associated cost and resulting accuracy. The methodologies that follow range from creating surrogate impervious data from tax assessor information, to a manual capture of impervious features within individual properties.

1. Tax Database Impervious Surrogate

Information in the Tarrant Appraisal District database would be used to act as an impervious surrogate to estimate the amount of impervious area per property by "mining" information used by the tax assessors in determining tax values (such as heated square footage of buildings, parking lot areas, etc.). This method would require an extensive analysis of the database and subsequent sampling of properties to determine if the option is feasible. There is no way to know if this option is feasible without this analysis. This method demands that the billing of the storm water fee be administered through the tax bill as opposed to the City water/sewer utility system. Although an exact cost is not known for this option, and it is unknown whether this option will even work, a planning level estimated cost would be about $200,000.

Pros

- Minimal effort for the City.
- Automated processes (by tax assessors) resulting in impervious updates.

Cons

- Potentially the least accurate method for obtaining impervious information; significant potential for incorrect bills.
- Tax billing system must be used as the billing mechanism.
- Tax-exempt properties likely have no or inaccurate data from appraisers.
- Utility bills derived in this way "feel" like a tax, not a utility.

2. Land Use Sampling

In this method, using the State Use Codes found in the Tarrant Appraisal District data, properties can be aggregated into categories such as Commercial, Industrial, Ranch Land, Quadriplex, etc. Each land use category is sampled (through photo-interpretation and manual extraction of impervious features) and a median impervious percentage for each category is derived. The median impervious percentage is multiplied by the Gross Area (GA) of each parcel to obtain the predicted amount of impervious area for each property within the category.

The number of samples acquired for each category may be critical to the accuracy of the predicted result. As expected, larger sample sizes result in greater effort and cost. However, it is frequently the case that land use codes as maintained by the tax appraisal files relate poorly to impervious area. The statistical measures that can be used to gauge the accuracy of this measure may show so little correlation between imperviousness and use code as to make this method untenable.

In addition, steps may be needed to alleviate the resulting high fees for large, relatively undeveloped parcels, since only a limited number of categories of land use will be available, and the least intensive use code may have a large impervious range (e.g. if the least intense category is 0-12% impervious, and 6% imperviousness is assumed for properties in this category, then large parcels that are lightly developed would pay at 6% imperviousness, resulting in disproportionately large fees). This strategy, often referred to as a declining block rate structure, provides a variable formula (based on the property GA) for properties within a category.

An estimated cost for developing the MAF using this method is $150,000.

Pros

- Moderate effort, lower than measurement.
- Land Use Sampling has been used in other storm water utilities in Texas.

Cons

- Large variations for the percentage of IA can exist within a land use category, resulting in a potentially significant number of incorrect bills.
- Methodologies involving GA are often coupled with the use of a declining block rate structure, which can be complicated and confusing for both the City and the general public.
- Customer service effort is higher than with many other methodologies because of the variations in imperviousness and the “coarseness” of the measure used.

3. Satellite Imagery / Image-Processing / Annual Updates

AMEC can provide a satellite imagery-based impervious data product based on imagery from the DigitalGlobe QuickBird satellite. DigitalGlobe is an AMEC business partner, and their Quickbird satellite produces imagery with an approximate 2.0’ pixel resolution, which is the best commercially available imagery. Using an automated process, the imagery is processed through an algorithm that automatically classifies pixels as impervious or not impervious, based on prior input from analysts about what to look for and patterns in the data to recognize. The resulting impervious data is then intersected with the parcel data layer and impervious area per property is tabulated. The initial output is then edited by analysts for obvious processing errors and then submitted for review to AMEC. AMEC then human-processes the impervious data layer through a QA/QC component for editing of errors that potentially would result in a change in number of ERUs assigned to a property.

This impervious data product would result in impervious data for all properties (SFR and NSFR) within the City storm water service area. Impervious data associated with SFR properties would facilitate SFR tiering, if that need did exist.

Impervious data generated in this method could be updated annually. Using a technique known as "change detection", satellite imagery from year to year could be updated more automatically, but would still include a human QA/QC effort, and the resulting impervious data layer would remain more consistent. This would eliminate the continuous "paper trail" of site plans and field checks to verify impervious changes throughout the City. The estimated cost for implementing this solution is $300,000. The estimated cost of annual updates is $125,000.

Pros

- Complete impervious data layer for all parcels, facilitating the tiering of SFR properties.
- Consistent impervious data layer from year to year where only area of changed impervious surface is highlighted.
- Minimal effort for City.
- More accurate results than Impervious Surrogate or Land Use Sampling methods.
- No need for added City staff to track impervious changes.
- Low ongoing customer service effort due to annual updates and new imagery.

Cons

- Still relatively new application of satellite technology.
- Not as accurate as Manual Extraction method.

4. Manual Extraction / Monthly Updates

AMEC would use existing City/County imagery to manually extract and digitize impervious features for all NSFR properties in the City. This process would result in a highly accurate impervious data layer for NSFR properties only. The impervious layer is then intersected with the parcel data layer and impervious area per NSFR property is tabulated. SFR properties would be assigned a flat rate of 1 ERU. AMEC would build the impervious data layer and provide a comprehensive QA/QC process to validate the data.

Updates to the impervious data layer would be performed by City staff -- probably on a weekly or monthly basis. These updates would probably be based upon site plans within the City. The updates would either be recorded in tabular form (used as a related table to the billing file) or as graphic updates to the impervious data layer. The estimated cost of the initial MAF development using this method is $300,000.

Pros

- Most accurate of impervious rate strategies.
- Highly accurate mapping aids in customer service.

Cons

- Most expensive and time-intensive of all methods.
- Requires continuous updates and effort from the City.

Details: Billing of the Storm Water Fee

There are essentially three options for billing storm water fees: billing through a local water utility or authority, billing through the real estate tax bill, or billing through a separate 3rd party billing system. This section will mainly focus on the local water/sewer and tax bill options. Each option has advantages and disadvantages:

1. Fort Worth Water Utility

Using the local water billing system has several advantages; the use of the water billing system supports the concept of a utility service for the storm water fee; the water utility bills quarterly which would provide a steady revenue flow for a storm water utility; and using the established water billing system could allow regular opportunities to provide storm water information to the public.

The use of water utility represents a significant challenge in merging parcel-based accounts with meter-based accounts. The labor potentially needed to successfully merge the two billing systems should not be underestimated. The fundamental issue of linking the two systems will most likely require using physical addresses as the link between both the water utility and the parcel-based storm water fees. Much more will be known about the details of this process when a more extensive examination of the 2 systems occurs.

Another challenge of using the water utility as a billing mechanism is the issue of service area. AMEC does not know at this time if the City provides water service for all areas of the City.

2. Tax Bill

From a technical perspective, the Tarrant County real estate bill represents the least challenging option for billing storm water fees. Parcel-based fees can be translated to this bill much easier than using a meter-based account system. Similar efforts for other Counties have generally involved 4 to 6 weeks of effort.

3. Separate Billing System

The separate billing system or “stand-alone” billing option is generally the most flexible solution for storm water billing. Storm Water fees can be billed on the cycle that best suits the City’s needs and resources. Typically, this option is also the most costly alternative due to the potential purchase of hardware, software, or 3rd party contracts to maintain the system.

Billing Option Summary
Water Utility Bill

Pros:	Cons:
Supports the concept of a “utility” service for a storm water fee.	Difficult to merge property-based MAF with meter-based billing system.
Provides consistent cash flow on a monthly basis.	Properties that don’t have water/sewer service (i.e. parking lots) will need to be added to system.
Billing and accounting system in place that would require minimal adjustment to add additional fee.	Unoccupied properties require billing of storm water fee though other fees may be suspended.
Can be used as a methodology for direct communication to the public.	Properties with multiple meters may require splitting storm water fee.
Address standardization within the billing database will help with merging files.	

Tax Bill

Pros:	Cons:
Storm Water fee is property-based making link between MAF and tax database relatively easy.	Requires high level of customer support and education to support tax office.
Bill is delivered to property owner, regardless of land use or occupancy.	May require redesign of bill format.
Master account file updated annually.	Non-taxable property data may not be current and will need update.
Billing and accounting system in place.	

Separate Billing System

Pros:	Cons:
Supports the concept of a “utility” service for a fee.	Expense of creating a new billing and accounting system (staff, hardware, software, office space, etc.)
Cash flow can be continuous throughout the year – very flexible.	Collection of delinquent accounts may be more challenging.
Can be used as a means of direct communication to the public.	Must set up new fiscal controls for receipt of payments.

Section 2B – Draft Rate Structure Policy

August 2005

Background Discussion

Utility rate development practice requires that like properties are treated equally within the application of the rate structure. To establish a class of properties within the rate structure, you must be able to distinguish those properties based on a unique factor. All properties having that "unique" factor are treated equally, applying the rate structure in the same way. The unique factor is based on the way the property relates to the rate methodology (i.e., imperviousness). You cannot choose uniqueness, for example, of "brick structures" for a separate class within the rate structure because brick building material is not part of the rate methodology and it does not have a correlation to storm water demand for service. You cannot use property value or ability to pay, as they too have no correlation to the rate methodology.

Residential Rate Modification

Rate modification to address residential properties is often considered within storm water utility rate structure. Residential properties typically have the greatest homogeneity of development of all property within the community. In addition, the revenue generation from residential property is usually 30 to 40 percent of the total revenue, but is often 80 to 90 percent of the total accounts. The following factors are used in determining the methodology for establishing the residential rate(s):

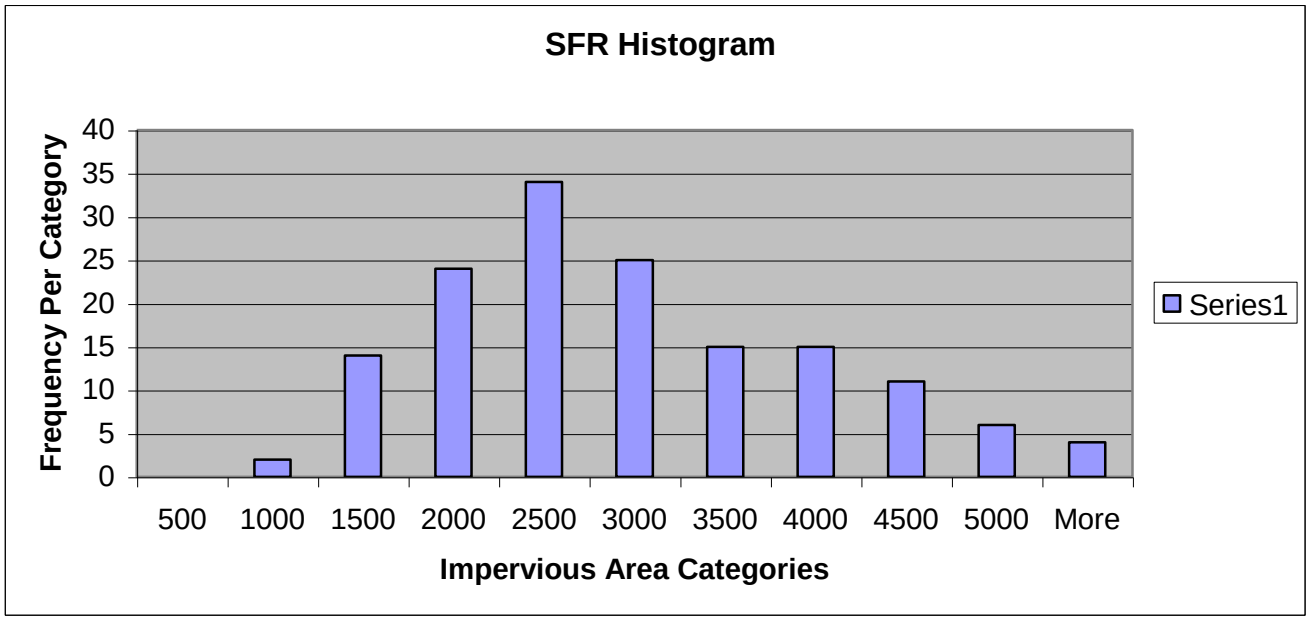
- Availability of data on the amount of impervious coverage on individual lots.
- Variability of the impervious features (structure footprint, driveway length and presence of other structures on residential lots).
- Cost and process for long-term maintenance of the account file for residential properties.

Data Availability

Flat rates are often used in dealing with residential properties to provide balance between the cost of detailed property-by-property analysis and the establishment of the utility in an efficient and cost effective manner. If data does not exist on impervious coverage for each residential property, then the use of a flat rate or series of flat rates is appropriate, using statistical analysis of a sample of properties to determine the "average" or "median" conditions. In addition, this is often more cost effective and manageable in the long-term. This is the process being proposed in Fort Worth to determine the residential rate.

Equivalent Residential Unit

Based on a random sample of 240 single-family residential properties in Fort Worth, the average impervious area per parcel was found to be 2,600 square feet. This will be used as the equivalent residential unit (ERU) for the utility. The histogram below shows the distribution of imperviousness per parcel sampled.



Due to the diversity in housing stock throughout the City, the sample information will be compared to other tax and zoning information to determine the most appropriate means for assigning each residential property a "tier" that will designate whether that property is likely to have less than average imperviousness, average imperviousness, or above average imperviousness. At this time, we are proposing either three or four residential tiers.

Section 2C – Draft Rate Base Policy Paper

August 2005

Rate Base

The "rate base" is defined as those properties that would be charged a storm water user fee within the City of Fort Worth. To establish this rate base, the City must have a method of identifying who will pay the fees for services. It is recommended that imperviousness be the basis for the fee in Fort Worth, as discussed at previous Policy Advisory Committee meetings.

In general practice and through utility law, the users of the utility service (e.g., water, gas, electric) pay for service on some measurable basis. In the case of storm water, all property with imperviousness becomes the universe of those who will pay. Modifying factors can be considered, but the initial definition of who will be charged is defined by the presence of imperviousness.

Initially, the answer of who should pay is all properties with some level of imperviousness. (We are not considering who should receive the physical bill each month as that is a decision reached within the functionality of the billing system, such as owner versus occupant). No other factor is being considered for the user fee allocation at this time, so the initial question is:

Is there imperviousness present on the property?
If the answer is yes, then the parcel will generate a service fee.
If the answer is no, then the parcel will not generate a fee.

The next question in establishing the rate base is, **"Who will be charged the fee?"** Here we address how the fee will be levied and often introduce the issues of ability to pay, ownership of the parcel, tax status of the owner and other complexities. It is in this discussion that consideration is given to how City properties are charged; how all other government entities are treated; if there is special treatment for the low income population, etc. We consider these issues as possible "exemptions" to the rate base since all properties with imperviousness are within the initial defined universe of payers.

Exemptions

Exemptions, based on legal precedence and general practice, should be considered based on one of two factors: (1) legally defined exemptions within the State law that authorizes storm water utilities; or (2) exemptions that should be considered based on the rate method chosen (i.e., should the City charge for road-imperviousness). Utility law does not provide for exemptions based on income, tax status or other such factors.

To address equal treatment, fees must be tied to the rate methodology when considering an exemption. A correlation between the rate method (imperviousness) and the financial relief provided to the property owner should be established. Therefore, ability to pay, assistance for the elderly, non-profit status, non-taxable status and other such socially based issues should not be factors for consideration in establishing exemptions. Often where it is important to address these issues, a community will create a separate policy, outside the utility rate analysis, allowing for relief measures to be put in place. (Many utilities work with social agencies or establish their own social program to assist those who cannot pay or provide relief during extreme demand for a utility service such as electric power in a harsh winter).

Two considerations are often given in storm water utilities for exemptions when using imperviousness as the rate methodology. The first is property that is developed in such a way that it minimizes its impact upon the stormwater program so that the government's storm water costs are reduced. Property developed to minimize the need for public services can also be addressed through a credit mechanism within the user-fee system, rather than an exemption. This ensures that the impact-reduction activities are sustained over the life of the system.

The second possible exemption is the roadway network, both publicly owned and privately owned (roadway does not include "driveway" in the definition). Exempting the roadway network from the user-fee is a common practice. It recognizes that the roadway drainage system is an integral part of the storm water collection system.

Recommendations

Recommendations for modifying the rate base should cover the following issues:

1. Exemptions will only be granted for those properties specifically exempted by Texas state law and for the roadway system.
2. The City should establish a credit policy for those properties that reduce the demand for service.
3. Any "relief" programs to assist those that may be unable to pay should be handled by establishing a set-aside program to the storm water utility.

Section 2D – Fort Worth Storm Water Utility Rate Study Policy Discussion

August 2005

A. Program Organization: How the utility will be organized and managed.

- **Organization:** The utility will be housed within TPW in a new division.
- **Management:** An Assistant Director will be appointed in Year 1 to provide centralized leadership, responsibility and accountability for all aspects of the storm water program.
  - **Administrative Staff:** Additional administrative staff will be needed for customer service support, improved public outreach, Master Account management (new development, evaluation of requests for credits, etc.), and budget management.
    -- Customer Service Coordinator will be hired in Year 1 who will be responsible for database management, customer service inquiries, administrative and coordination with other departments.
    -- Additional administrative support, yet to be determined, will be added in TPW Management Support, to provide budgetary support for the expanded storm water program.
  - **Mandated Regulatory Programs:** DEM will continue to provide mandated water quality regulatory functions, environmental expertise, and emergency spill response services.
  - **Public Outreach:** DEM will expand its current outreach program to cover the full range of storm water management needs, including capital improvements, drainage maintenance and operations, and development control. Expanded services will be paid for out of storm water utility fees.
  - **Flood plain regulations:** Current floodplain and associated Federal program oversight responsibilities will continue to be housed in DOE, at least for the short term. The storm water utility would, however, seek to improve coordination of floodplain ordinances with development controls presently administered by TPW.
  - **Parks Services:** PACS will continue to provide drainage maintenance in parks through the third year of service, FY FY2009/2010.
    --The storm water utility will pick up 50% of existing park drainage services in FY 2010/2011, and 100% in FY 2011/2012.

B. Program Cost Estimates

- **Tracking of Expenditures:** All expenditures for storm water programs to be managed by the storm water utility would be tracked by the storm water utility, regardless of source.
- **General Fund:** General fund expenditures by TPW will be capped at the FY 2005/2006 level. Beginning in FY 2008/2009, General fund expenditures by TPW would be reduced each year until these functions are funded solely by utility fees.
- **Environmental Fund:** The Environmental Fund will continue to pay for water quality regulatory programs currently managed by DEM. (Storm water fees will, however, be used to expand public education and outreach activities as outlined in the PAC Summary Report).
- **CIP:** Capital improvements funding will depend solely on utility funding as soon as the current CIP funds are expended.

C. Rate Structure Issues

- **Exemptions:** Based upon PAC input, no exemption other than those that are mandated by state statues. City departments and other governmental agencies will pay storm water utility fees, (only roads will be made exempt); properties owned by non-profits will be assessed.
- **Hardship relief*:*** Extraordinary circumstances that might warrant relief will be discussed with the PAC (Arlington, for example, provides for relief for retired/over 65 citizens).

D. Credits

- **Purpose:** Credits would be promoted by the City to encourage good design and maintenance practices and to reduce the need for future corrective actions by the City.
- **Eligibility:** Only facilities that exceed minimum requirements will be eligible for credits.
- **ISWM Water Quality & Channel Protection:** Credits would accrue for channel protection and water quality protection that conform to standards provided by iSWM Tier 2.
- **Detention:** Detention facilities constructed solely to provide required downstream flood protection will not qualify for credits unless it can be demonstrated that water quality and channel protection benefits will be also be provided. Existing facilities, however, could be retrofitted to partially or completely meet water quality or channel protection controls.
- ***Miscellaneous Credits:*** Some credit may need to be worked out for other measures that contribute to channel and water protection goals, such as tree conservation, reductions in impervious surface, etc. (list and ways this could be done are almost limitless). *A maximum credit percent should be established*. (Credits should be sized to create the appropriate incentive but without substantially reducing revenues).
- **Application:** Credits would be given only after application and documentation is submitted by the property owners.
- **Discontinuation:** Credits would be discontinued whenever:
  --Owner of facility fails to maintain facility in accordance with adopted city standards.
  --Development requirements are changed requiring such facilities to be provided to meet minimum standards.

E. Public Outreach: The following issues should be discussed publicly during the rate study:

- Any major revisions to the program.
- The process used to prioritize capital improvement needs.
- Credit options.
- The rate structure and how the program affects the rate.
- Additional details concerning services to be provided, including organizational changes to improve service delivery.
- How design policy is being updated to prevent downstream impacts.
- The rate study should be discussed with specific stakeholders and with the general public before the Council decision.
- Information on the progress of the rate study and the recommendations to be made to Council.
- After action by the council, information on the rate and billing schedules.

Note: this direction for preliminary policy issues per Robert Goode and Don McChesney
August 23, 2005

Section 2E - Fort Worth Storm Water Management Study
Funding Options Summary

September 2005

At the March PAC meetings, we reviewed the detailed Funding Options Report and discussed the potential funding options to support the recommended enhanced storm water program. The following is a summary of the options discussion.

A. General Fund appropriations –
- a. Would require at least a $0.04 tax increase to cover additional $10.6M needed in first year of new program or a reallocation of funds from other city programs.
- b. Not specifically dedicated to storm water services or tied to program goals.
- c. Based on property value, not impact on storm water system.
- d. Tax exempt properties are excluded.

B. Storm water service fees –
- a. Process established by Texas law.
- b. Sufficient revenue can be raised to specifically meet the needs of the program.
- c. Dedicated, stable, long-term funding source.
- d. Equitable distribution of costs across the developed community.
- e. Flexible in allowing for credits or other rate modifiers (i.e. tiers).

C. Environmental fees –
- a. Set-up specifically to address permit compliance and water quality protection. Would require legislation to add fees to cover other storm water program needs.

D. Special assessments –
- a. Limited application to capital improvements only.
- b. Distribution of costs must be directly tied to benefit to each property and must be assigned a quantifiable value.
- c. Politically unpopular.

E. General Obligation Bonds –
- a. Appropriate for capital improvements, but not for operations.
- b. Requires paying interest on borrowed money.
- c. Intense competition for funding – inadequate to meet storm water capital needs.

F. System development charges –
- a. Excess capacity is built into the system and then developers participate in paying for access to this capacity.
- b. Pays for capital costs only.
- c. Limited to new areas of development.

G. Federal and state funding opportunities –
- a. Limited storm water funding available.
- b. Worth pursuing for regional approaches and large flood control projects.

Conclusion
For the enhanced storm water program to be successfully implemented, a **dedicated, stable funding source** needs to be established. The storm water utility option bests meets the needs for additional funding for storm water.

Section 2F – Storm Water Management Program
Billing System Discussion

September 2005

In determining the recommended billing delivery system for a storm water utility fee in Fort Worth, the Water Department billing system was identified as the preferred method as (1) it would minimize the cost of administration through use of existing systems and (2) the fee for services would fit more appropriately on a utility bill than a tax bill. At this time, we are building a cost model to reflect all costs associated with the start-up and operation of the utility and need input from the Water Department staff to help identify needed billing resources.

At a minimum, the billing system must address the following components:

1. **Account set-up:** The system must address the addition of new accounts, establishing monthly bills for each property in the service area. Prior to setting up the new accounts, parcel data will need to be tied to the Water Department accounts through address matching or other available means.
2. **Management of the Master Account File:** Once an account is set up the monthly charge will not change unless there is a change in impervious coverage (or other determined measurement). A tracking system for the addition of impervious coverage must be established for non-residential properties and these changes will result in updates to the Master Account File
3. **Customer service:** It is important that customers are able to easily receive information and referrals to appropriate staff for direct assistance in addressing storm water concerns. Sufficient staff must be available to handle initial customer calls, to address billing problems, and to handle billing corrections and changes.
4. **Appeals and adjustments:** The billing system must accommodate adjustments to bills based on appeals to the utility administrator.
5. **Credits:** The billing system must accommodate credits for properties that will be established to encourage positive behavior and private investment in storm water controls beyond those required by regulation.
6. **Accounting and Reconciliation:** The billing system must support an accounting process that monitors and accounts for the revenue and expenditures of the storm water utility.

To help estimate costs for the billing portion of the utility, we would like to discuss which of the above services the Water Department could provide and what is the cost of those services to the utility. Some specific questions we would like to address include:

- Will the existing billing software need to be modified to handle the storm water fee? How long might this take and how much would it cost?
- What is the current billing cycle – do all customers get billed monthly? How many accounts per billing cycle?
- What is the easiest format to use to share data? Access database, flat file, Excel spreadsheet, etc. Who would we coordinate with at the Water Department on the issue of file transfer?

- What services can the department offer in terms of customer service support, accounting, or reporting? Can we estimate how many additional staff hours might be required to perform each of these services?
- How will we calculate what portion of the bill delivery gets charged to the utility?
- Are collections a big issue? What is a typical delinquency rate for water?
- How will delinquent accounts be handled?
- Can a test bill be run prior to live billing? How much notice would likely be needed to run the test, make corrections, and finalize?
- How will Water Department be reimbursed for costs? Indirect cost allocation, per storm water account, other?

Section 2G – Fort Worth Storm Water Utility Billing Process Outline

December 2005

In order to include the storm water fee on the Water Department utility bills, several key actions are required. To ensure that all parties understand these actions, the following sections lay out the steps involved to set up the billing, provide on-going billing services, and provide customer service.

1. **Setting up the utility billing** – the goal is to add the storm water fee to the existing water utility billing system in time to begin billing the storm water fee by July 1, 2006. The following major actions have to occur to meet our deadline.
    A. Match the parcel database (based on TAD addresses) to the Water billing database. Preliminary review of the two databases by AMEC showed that 88% of developed properties from TAD matched at least one address in the Water database. The next step is to review and resolve the 20,000 plus parcels that did not match. Water Dept staff will take the lead on this activity and have already put together a flowchart showing the process they will use to match as many parcels as possible.
    B. Make determination on how to bill parcels that match one TAD record to several Water database records (1:many) or that match many TAD records to one Water database record (many:1). Exception reports created during the address matching process will be reviewed jointly by Water and TPW (or their consultant) to determine appropriate account billing.
    C. Based on results of above activities, determine which accounts will be billed as storm water only. Again, this will be determined jointly with Water and the TPW consultant.
    D. In order to add the storm water fee to the Water database, modifications to the HTE billing software are required. Water Dept will take the lead in managing these changes. In order to understand the specific modifications needed, the following is a summary of how the billing Master Account File will be set up.
        i. AMEC will create a Master Account File (MAF) in a standard format (Excel or Access) that can be uploaded into HTE. The MAF will include the following information: parcel IDs, billing name and address and a code that identifies parcels as residential or non-residential.
        ii. For residential parcels, the billing tier will be identified along with their applicable billing units (i.e. tier 3, 1.5 ERUs). TAD data for livable square footage and number of garage spaces will be supplied for customer service purposes, as either part of the MAF or as a separate file, as desired.
        iii. For non-residential parcels, the number of billing units will be supplied (i.e. 20 ERUs). Total measured impervious area can also be supplied by AMEC for customer service purposes, if desired.
        iv. AMEC will provide a code (to be determined jointly with Water Dept) to show storm water only accounts and give ERUs for these accounts.
        v. Once the final rate is established for an ERU, this will be the fee multiplier for all parcels. The Water database will do the final calculation of the fee. For example, if the rate is set at $3.00, a tier 3 residential property bill will be 1.5 ERUs X $3.00 = $4.50 and a non-residential property with 10 ERUs will be 10 X $3.00 for a monthly fee of $30.00.
        vi. Changes, additions, or modifications to the billing should only be done through an update of the MAF. TPW will maintain the MAF and any changes, including changes to TAD data, will be incorporated and approved by them and then

forwarded to the Water Dept for upload. This should be done on a pre-approved schedule (quarterly or monthly, as to be determined by further discussion between TPW and Water Dept.) TPW will assign an account manager to provide coordination with Water Dept on updates.

vii. The utility rate will be reviewed and updated once a year on October 1, to coincide with beginning of fiscal year.

F. Reformat the Utility bills to add storm water fee and create storm water only bills. This task will be led by Water Dept with input from TPW.

G. Perform Beta testing of storm water billing system to QA/QC process. This process will be managed by Water Dept and any problems encountered resolved jointly with Water Dept and TPW.

2. On-going billing services – the goal is to use the existing Water Dept infrastructure to support cost-effective billing support services. The costs for this support will be included in the calculation of the utility fee and reimbursed to the Water Dept based on a Memorandum of Understanding between the departments. The on-going services are expected to include:

- Monthly billing of storm water fees.
- Regularly scheduled modifications to accounts to reflect changes and additions based on uploading MAF changes.
- Activities related to accounting of storm water fees.
- Customer service call center support.
- Forwarding of billing problems to TPW.
- Annual changes to billing rate and recalculation of the fees
- Collections.

3. Start-up customer service support – it is expected that a new fee on the Water bill will create increased calls to customer service. To meet this need, Water Dept will employ 10 -12 additional customer service representatives to handle calls. TPW agrees to provide training and to fund these positions (including hardware and other office needs) for the first several months of the utility going on line. It is expected that once the public gets used to the new fee that the number of calls will decline and the number of on-going service reps will be cut. This decision will be based a joint evaluation by Water and TPW of storm water related calls being received after 90 days.

4. Schedule – In order to meet the target date of July 1, 2006 to send the initial bills, the following milestones need to be met.

- Address matching substantially complete by April 1.
- Completion of Master Account File by May 1 (this is dependent on address matching).
- Modifications to HTE software complete by May 1.
- Final Rate approved by Council by May 1.
- BETA testing of billing system complete by June 1 (this is dependent on MAF completion and HTE modifications).
- Hiring and training of customer service staff by June 15.

Section 2H – Preliminary Analysis of Single Family Residential Tiering Options

December 2005

This document describes steps taken and outcomes achieved in meeting the goal of establishing an accurate method to tier single family residential detached (SFRD) properties in Fort Worth into four different tiers for the purpose of storm water billing. The outcome of tiering would be to charge a flat-rate storm water fee to each SFRD property based on which tier the property falls into. The tiers would be based on the predicted impervious area of the property.

A sample of 240 SFRD properties was accurately measured to establish the impervious area on each (this same sample also yielded the ERU estimate). Using the known impervious area for this sample, we sought to find other known information about each SFRD parcel that might correlate to the impervious area. The idea here is to predict the impervious area for an SFRD property using available data from the tax database or other available sources.

In order to perform statistical analysis on the data, the measured impervious area for the sample was transformed through a log-normal transformation to establish a normal distribution of data. Impervious area data is historically skewed, and was skewed in this sample as well; the log-normal transformation is critical to perform defensible statistics on the data.

The transformed variable is called LN100, and is equal to 100 times the natural logarithm of the impervious area.

The following variables were evaluated for their relationship to the (transformed) measured impervious area of SFRD properties:

1. Gross lot area from the GIS (measured area).
2. Gross lot area (from the tax database).
3. Garage capacity (from the tax database).
4. Number of bathrooms (from the tax database).
5. Living area (from the tax database).
6. Swimming pool existence (from the tax database).

The variables with the strongest relationship to measured impervious area were living area and garage capacity. No other variables related to impervious area at the 95% confidence level.

A linear regression model was developed to establish the line of best fit for predicting LN100 with living area and garage capacity. The line of best fit is described by:

LN100 = 716.047 + living area * (0.033211) + garage capacity * (13.41)

Because the ultimate goal is to accurately predict which tier a SFRD property should be billed at (this is not exactly the same as finding the line of best fit because of the discretization that occurs), a series of iterative tests were run to find the best prediction equations depending on the specific goal. 81,792 trials were run wherein the intercept, the living area coefficient, and the garage capacity coefficient were varied to arrive at the best prediction equation. This best outcome is achieved from the following prediction equation:

LN100 = 699.000 + living area * (0.047) + garage capacity * (12.200)

The goal of this tiering process is to place about half of the properties into the Tier 2 category (the next-to-smallest range), with proportionately fewer properties placed into the largest ranges (Tiers 1 and 2). With that goal set, the "breakpoints" and ranges are as follows:

Tier	Low	High	Median	Percentage of Properties
1	0	2028	1587	About 25%
2	2028.1	3474	2600	About 50%
3	3474.1	5345	4410	About 18%
4	5345.1	n/a	6365	About 7%

Thus, properties with predicted impervious areas between 0 and 2,028 square feet would be placed in Tier 1; those with predicted impervious areas between 2,028.1 and 3,474 would be placed into Tier 2, etc. If tiering is employed, then the flat rate charge for each tier should be generally based on the median impervious area of the properties in that tier. The median value for Tier 2 is also the median value for the entire sample, so the ERU is 2,600 square feet.

Section 2I – Summary of Master Account and Billing System Policy Issues

February 2006

Background

In accordance with the recommendations from the Storm Water Advisory Committee and after review by City management, the City has drafted rate ordinance language that specifies what the rate structure and methodology will be for the storm water utility. The following is an excerpt from the draft rate ordinance:

A. The City Council finds that impervious cover increases runoff and associated pollutants. For the purposes of calculating the Drainage Utility Fee, an ERU shall be the established standard billing unit. One ERU shall be billed at two dollars and ninety cents ($2.90). Each Benefited Property shall be categorized as one of the following:

1. **Residential Property.** Tiers of Residential Property shall be determined based on the most recent Tarrant Appraisal District property data. The median single family residential parcel in Fort Worth has been determined to have approximately 2,600 square feet of impervious area or surface or one (1) ERU.

2. **Non Residential Property.** Fees for Non Residential Benefited Properties shall be based on the total estimated impervious area on each parcel divided by 2,600 square feet to determine the number of ERUs or billing units.

3. **Multi-Family Residential Property.** Fees for Multi-Family Residential Benefited Properties shall be based on the total estimated impervious area on each parcel divided by 2,600 square feet to determine the number of ERUs or billing units.

B. The City Council finds that it is equitable to assess the Drainage Utility Fee to each Residential user on the basis of four (4) Residential tiers as follows:

Tier	Garage Capacity (Number of Spaces)[1]	Living Area (Square Feet)[1]	Residential Storm Water Monthly Rates
Tier 1 (0.5 ERU)	0	0 to 1300	$1.45
	1	0 to 1040	
	2	0 to 781	
	3	0 to 521	
	4	0 to 262	
Tier 2 (1 ERU)	0	1301 to 2475	$2.90
	1	1041 to 2215	
	2	782 to 1956	
	3	522 to 1696	
	4	263 to 1437	
Tier 3 (1.5 ERU)	0	2476 to 3393	$4.35
	1	2216 to 3133	

	2	1957 to 2874	
	3	1697 to 2614	
	4	1438 to 2355	
Tier 4 (2 ERU)	0	3394+	$5.80
	1	3134+	
	2	2875+	
	3	2615+	
	4	2356+	

[1] – As recorded by Tarrant Appraisal District

C. The City Council finds that it is equitable to assess the Drainage Utility Fee to each Non Residential user on the basis of the number of ERU's in a parcel, which shall be obtained by dividing the estimated impervious area or surface by 2,600 square feet. The calculated number of ERU's will be rounded to the nearest whole integer to determine the monthly fee.

D. The City Council finds that it is equitable to assess the Drainage Utility Fee to each Multi-Family Residential Property owner and user on the basis of the number of ERU's in a parcel, which shall be obtained by dividing the estimated impervious area or surface by 2,600 square feet. The calculated number of ERU's will be rounded to the nearest whole integer to determine the monthly fee.

The draft ordinance does not specify the details of how bills to each property will be delivered, who gets the bill, how bills are split for multiple owners, or what the minimum billing unit will be. These, and other operational policy decisions, are being identified and discussed in the context of developing the framework for setting up the billing, maintaining the accounts, and providing customer service. In order to help identify and clarify these various issues, several policy discussion points are identified below and draft recommendations have been made on how to deal with each issue. The following information is meant to generate discussion about the appropriate policies for Fort Worth to put in place to ensure that the Master Account File development and storm water utility billing is done in a consistent, efficient manner. These draft recommendations will be reviewed with senior City staff prior to finalizing the policies.

Single family residential accounts –

- The fee for single family residential properties will be determined based on an estimate of their impervious area. This estimate includes two variables, livable square footage and number of garage spaces, as determined by TAD data.

- The TAD data gets updated on an on-going basis. For our first billing in July, a date should be chosen as the capture date so that we avoid dealing with changes during the testing and first bill cycle. What date should be chosen as our target? Suggest April or May 1.
  How often should a complete update of TAD data be uploaded to the billing system? Preliminary discussions have identified updates be done on a monthly basis.

- Texas law states that a property shall be exempt from the provisions of any rules or ordinances adopted by a municipality pursuant to the Drainage Utility Act including:

a subdivided lot, until a structure has been built on the lot and a certificate of occupancy has been issued by the municipality in which the property is located.

Since adding a new water account to a property may happen prior to a certificate of occupancy being granted, how will the water department know when to start billing for storm water services? For single family accounts, it has been recommended that when the TAD data gets updated, this will also imply that a CO has been received and a bill can then be generated.

- If the livable square footage of a parcel identified as single family is listed as 0 (zero) in the TAD database, how should this property be billed? The TAD website says that their data entry typically runs between 4 and 6 weeks behind receipt of the data from the County. Should a new account only be added after the TAD data on livable square footage is entered or should a minimum amount be billed after the CO and the account adjusted later based on the TAD data entry?
  It has been suggested that an account can be created with a value of $0.00001, which would result in the account being billed at zero until the TAD data is available at which time the appropriate billing amount will be entered.

- The use of the tiers for residential properties includes single families and duplexes. If a property is a duplex with two different water accounts, typically the bill would be split.
  A code needs to be developed to identify duplexes with split bills.

Non-residential and multi-family accounts –

- The ordinance states that for all non-residential and multi-family (NSF) parcels the ERU calculation will be rounded to the nearest whole integer. However this would result in those properties with less than 1300 sq feet of impervious area not being billed as their rate would be rounded to zero. It is recommended that a minimum billing unit be determined after looking at the financial implications of that decision and that a clarification be made to the ordinance that says accounts will not be rounded to zero.

- Some parcels will have multiple accounts and/or multiple owner/tenants. This may result in the need to assign the bill to one owner/tenant or to split the bill across several accounts. It is recommended that a policy be adopted that provides a process to be followed when deciding how to assign the storm water fees to the water billing system. An outline of the policy was prepared and emailed to the City by John Styron on 2-22-06

- If a bill for a parcel is to be divided among several customers, how will it be divided? Since the impervious data is not subdivided by use on a parcel, we recommend dividing evenly by the number of customers sharing the bill. For example, if the parcel has 15,000 sq feet of impervious area, we first calculate the numbers of ERUs on the parcel (15,000/2600 = 5.77), we round this to 6, and then divide by 3. Each customer would be billed 2 ERUs.

- How often will the NSF Master Account File be updated? We recommend the MAF be updated monthly (or on the same schedule as the TAD updates).

- The City prorates new and final charges for water services; will this also be done for storm water? It is recommended that the same policy be followed for storm water as for other utility services.

- There will be a need to set-up storm water only accounts. How many of these will there be? We don't have a final answer to this, but we expect that developed parcels without a meter may account for several thousand accounts and that parcels that don't match a water account may also be added as storm water only.

- What will happen if not all accounts and parcels are matched by the targeted billing date? It is recommended that those accounts which are believed to be correct get billed first and any accounts for which there are doubt get delayed until the billing information is correct and are added later.

Other Billing Related Questions

- How will the storm water fee amounts be tracked and credited to the enterprise fund? How often will deposits and reports be generated?

- It has been discussed that the storm water fee would be credited to the bill prior to the water fees to allow the option of termination of water service. What needs to be done to ensure that this billing hierarchy is in place?

- If a customer believes their TAD data is incorrect, they will need to contact TAD directly. The City needs to meet with a representative from TAD to make sure they know how we are using their data and to make sure that appropriate advice is given to customers who want to contact TAD. Who will make this contact and when? Don McChesney will take the lead in coordinating with TAD.

Section 2J – Notes with Examples of Parcel Matching

February 22, 2006

Examples of 1 Parcel matching to multiple Water Accounts
And
1 Water Account matching to multiple Parcels
(Non-Residential)

1 Parcel matching to multiple Water Accounts

Example 1
Owner of property has 2 or more water accounts on property; no other utility customers on property.
Solution: Apply storm water fee to one of the water accounts.

Example 2
Owner of property is one of multiple water customers on property.
Solution: Apply storm water fee to owner's water account.

Example 3
Owner of property has multiple water accounts on property; other water customers exist on property.
Solution: Apply storm water fee to 1 of the owner's water accounts.

Example 4
Owner of property does not have a water account on property; 1 water customer on the property.
Solution: Apply storm water fee to the existing water account.

Example 5
Owner of property does not have a water account on property; multiple water customers on property.
Solution: Create new account and apply storm water fee to the OWNER.

Example:

GIS_LINK	Parcel_Owner	Parcel_Address	Water_Customer_Address	Water_Customer
45580-19-AR3	LBM Management, LP	5016 Trail Lake DR	5016 Trail Lake DR	Billy J. Daniel Barber
			5020 Trail Lake DR	Sherard L Parrish
			5022 Trail Lake DR	Finley, Connie M
			5034 Trail Lake DR	Corronado Sr, Robert R
			5036 Trail Lake DR	Southern Formals, Inc.
			5038 Trail Lake DR	Myers, John
			5048 Trail Lake DR	Patsy Ruth Glenn

Multiple Parcels matching to 1 Water Account

Example 6

Multiple parcels (same owners) intersecting a single building; 1 water customer unrelated to the parcel owner.

Example:

GIS_LINK	Parcel_Address	Parcel_Owner	Water_Customer	Water_Customer_Address
8650-14-1A	1800 15th AV	Puma Partners, LLC	Hayes, Tracy	1800 15th AV
8650-15-1A	1900 15th AV	Puma Partners, LLC		

Potential Solution: Jorge and group identify the related parcels and flag them for aggregation; AMEC sums impervious area for both parcels and calculates new single ERU to be billed to the single water customer; AMEC modifies storm water account file to incorporate these types of aggregations.

Potential Solution: The single water account is billed for only the ERUs associated with 8650-14-1A; new account is created to bill Puma Partners, LLC for the ERUs associated with 8650-15-1A.

Example 7

Multiple parcels (multiple owners) intersecting a single building; 1 water customer that is also one of the parcel owners.

Example:

GIS_LINK	Parcel_Address	Parcel_Owner	Water_Customer	Water_Customer_Address
25678C--1	800 12th AV	RGA Family Partners, LP	Medcor Medical Condo Assoc.	800 12th AV
25678C--1	800 12th AV	Medcor Associates Ltd		
25678C--2	800 12th AV	Kent, Allen S MD		
25678C--2	800 12th AV	Medcor Associates Ltd		
25678C--3	800 12th AV	Yellow Rose Properties		
25678C--3	800 12th AV	Medcor Associates Ltd		
25678C--4	800 12th AV	Medcor Associates Ltd		
25678C--5	800 12th AV	Medcor Associates Ltd		
25685-2-2R2A	800 12th AV	Medcor Associates Ltd		

Potential Solution: Jorge and group identify the related parcels and flag them for aggregation; AMEC sums impervious area for all 9 parcels and calculates new single ERU to be billed to the single water customer (Medcor Medical Condo Assoc.); AMEC modifies storm water account file to incorporate these types of aggregations.

NOTE: For situations such as example 7, it is difficult to bill this group in any other way. Although multiple owners are listed, each GIS_LINK has Medcor Associates Ltd associated with it. Also, all parcels involved have the same parcel address assigned from TAD.

Section 2K – Impervious Area Calculations for NSFR Parcels

May, 2006

Impervious Area / ERU Calculations

Impervious Area was calculated for NSFR parcels in Fort Worth by processing the amount of impervious area (square feet) within each NSFR property boundary. For NSFR properties that are made up of 2 polygons (usually a property split by a road right-of-way), the total amount of impervious area for both polygons is processed and assigned to the GIS_LINK number of that parcel. ERUs for each NSFR parcel were calculated by dividing the total impervious area by 2,600.

Aggregation of Adjacent NSFR Properties

The initial billing file contained 1 record for each NSFR parcel:

GIS_LINK	ImpervArea	ERU
38195-1-1A	283738.5832	109

A decision was made by the City to aggregate NSFR parcels where adjacent parcels were owned by the same owner. AMEC was asked to perform the majority of the initial aggregations using 3 files provided by Jorge Villalobos. These files consisted of:

1. A list of NSFR properties that the City suspected were vacant, but were potentially parcels where small amounts of impervious area from an adjacent parcel (same owner) fell onto the "vacant" parcel. In these cases, any impervious area found on the "vacant" parcel was aggregated with the adjacent parcel containing the vast majority of the impervious area.
2. A list of properties that the City could not match to a Water Department account, generally suspected as a parking lot. In many cases, the parcel containing the parking lot was aggregated with an adjacent parcel (same owner) that did match to an existing Water Department account.
3. A list of properties where the City had detected multiple parcels associated with a single Water Department Account. This example often involved multiple, adjacent parcels (same owner) containing a single building where the parcels were then aggregated together to the single existing Water Department account.

A typical aggregation of 3 adjacent NSFR parcels under the ownership of "Meador Moorman EST":

An additional field was added to the initial billing file to indicate to the City those parcels that should be aggregated for billing purposes. Using the example illustrated above, these 3 parcels are aggregated and each assigned one of the parcel's TAD account number for the subsequent processing done by Jorge Villalobos:

GIS_LINK	ImpervArea	ERU	AGGREGATE
38195-1-1A	283738.59	109	06543731
38195-1-1B	82934.12	32	06543731
A1638-2C03A	81520.92	31	06543731

The total stormwater fee for these 3 parcels (172 ERUs) will be billed to one of the existing Water accounts within the 3 parcels.

Issues Involving Aggregation

As AMEC began aggregating adjacent NSFR parcels, a number of issues arose and AMEC took the following actions based on input from the City.

While working with the City's list of suspected "vacant" NSFR parcels, AMEC discovered a number of situations where the suspected vacant parcel only contained a relatively small amount of impervious area that was blurring over from an adjacent parcel of different ownership. In these cases, it was determined that the City would not generate a stormwater-only account for this parcel and the parcel was reclassified from NSFR to Vacant.

Parcel owned by "Educational Employees CU FW" contains 233 sq. ft. of impervious area (blue) from adjacent parcel and was reclassified from NSFR to Vacant

In addition, while working with the City's list of suspected vacant NSFR parcels, there were situations where a "vacant" property containing a small amount of impervious area was adjacent to not only same-owner properties, but properties of different owners also. In these situations, the property was not aggregated to adjacent owners because the impervious area within it blurred over from different owner properties also. These vacant properties were reclassified from NSFR to Vacant.

SECTION 3 – STORM WATER POLICY ADVISORY COMMITTEE

Section 3A – Policy Advisory Committee Meeting 1

June 9, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Fred Closuit	John Maddux
Robert Gleason	Bobbie Shosty
Brian Johnston	Gordon Wells
Gary Teague	Alan Thomas

Non-Committee Members:

Jean Haggerty, AMEC	Steve Eubanks, TPW	Sheilah Tucker, Ware
Jeanette Powell, AMEC	George Behmanesh, TPW	Amy Cannon, TPW
Don McChesney, TPW	Julie Westerman, TPW	Robert Goode, TPW
Chuck Silcox, Mayor Pro-tem		

Meeting Agenda

1. Welcome & Project Update
2. Scope & Schedule for Phase II
3. Storm Water Utility Public Policy Issues
4. Rate Methodology Recommendations

Welcome & Project Update

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting, welcomed everyone and introduced Mayor Pro-tem Chuck Silcox.

George was asked to clarify the charge of the Policy Advisory Committee (PAC) for Phase II. The charge is to report to the City Council on a potential storm water utility, including program elements, program costs, utility rates and revenues. The goal is to present a limited number of storm water utility options to the Council. These options will address tiered program funding levels and the associated utility rates.

George then turned the meeting over to Jean Haggerty to provide an overview of the scope of work for Phase II, the project schedule, policy issues and rate methodology.

Scope & Schedule for Phase II

Jean Haggerty presented a brief Power Point presentation that outlined an overview of Phase II of the Comprehensive Storm Water Management Study. The project scope of work includes evaluating and choosing a rate methodology, establishing the rate base, determining the rate structure, assessing the impacts of using the Water Department billing system, establishing a credit system, determining the utility rate and preparing a draft rate ordinance.

The project schedule is:

- Begin Phase II – June 1, 2005
- Reconvene Policy Advisory Committee – June 9, 2005
- Present Rate Recommendations – November 2005
- Submit Draft Ordinance to Council – December 2005
- Prepare Draft Master Account File – January 2006
- Test Billing System – March 2006
- Finalize Master Account File – May 2006
- Send First Bill – June 2006

The PAC schedule is:

- Today – Identify specific areas of concern
- August – Rate structure and methodology
- September – Exemptions, credits, billing issues
- October – Program adjustments, revenue needs
- November – Rates and recommendations

It was suggested by the committee that legal issues, such as required exemptions, by moved up and discussed at the August meeting.

Storm Water Utility Public Policy Issues

Following the presentation of the project scope and schedule, a group exercise to identify PAC concerns was held. The attending PAC members were divided into three groups to discuss the following questions with respect to Fort Worth:

1. As spokespeople for your community, what information do you need to make a recommendation on the utility concept?
2. What are your major concerns or fears?
3. What will be your expectations once a utility is in place?

The three groups discussed these questions among themselves for approximately 15 minutes and then reported back to the PAC. A summary of their reports is provided in Table 1 below. Jean then provided a general summary of the identified PAC issues:

- The PAC would like additional information on what the City is already doing for storm water.
- Public education should be a major focus of the City.
- The storm water program needs to be clearly and concisely defined.
- The PAC would like to be advised on lessons learned and level of service from other storm water utility communities, as well as who does/does not have a utility in the same market area.
- The City needs to provide basic services and maintain what it builds.

Table 1: Summary of PAC Policy Issues

Question	Group 1	Group 2	Group 3
What information do you need to make a recommendation on the utility concept?	• Hear from other storm water utility representatives about their lessons learned.	• Clarify what the program will fund. • Updated development standards that control new development and prevent problems. • Lessons learned from other cities.	• A storm water master plan to identify and prioritize problem areas. • Cost/Benefit analysis. • Reliable information. • A process for establishing priorities.
What are your major concerns or fears?	• Cash flow – what % goes to administration? • Who collects and handles fees? • Don't want to hit large commercial or fixed income residents too hard.	• Correcting old problems without creating new ones and how to fund both at the same time. • How to reduce the $550M backlog of repairs. • Equitably distributed fees with few exemptions. • Political process may override taking appropriate action.	• The storm water program will not be a priority unless the benefits are understood. • The problems are not clearly defined or understood.
What will be your expectations once a utility is in place?	• Increased fees mean increased expectations. • Broad-based rate with minimal exemptions. • Educate citizens on where funds are being used. • A utility board to set rates, handle appeals and arbitration, and act as a liaison between residents and the City.	• Use public education to clearly define "the problem" and the benefits to residents. • Show measurable progress.	• Fix problems using the biggest bang for the buck approach.

Rate Methodology Recommendations

Following the group session, the AMEC presentation was continued. Rate information on other utilities was presented and rate methodology was discussed. Rate methodology is the basis on which the user fee is charged and it must be:

- Supported by the data available
- Reasonably related to the cost of providing services
- Fair
- Consistently applied across the service area
- Relatively easy to update and maintain

The rate methodology can have modifying factors. Issues for consideration in utility rates include, but are not limited to, exemptions, utility management/oversight, emergency reserves, bonding, overhead charges and revenue needs.

The PAC requested a copy of the legislation regarding exemptions from utility coverage and the allowable rate methodology. AMEC will provide that legislation to the PAC members before the next meeting. A brief discussion of exemptions followed. There are two exemptions provided in state law, agencies owning/controlling their own storm water collection system and property that is not yet developed. The term "developed" is tied to issuance of a Certificate of Occupancy. Non-profit agencies may be exempted and additional guidance will be provided later in the project. There is currently no legislation on oversight boards. The utility oversight mechanism must be defined by City ordinance.

It was noted that rate information provided should focus on other neighboring communities (i.e. Round Rock and Georgetown). In general, it would be useful to understand what programs and supporting rates are used in communities of similar composition. It would also be useful to know who does not have a utility.

Impervious area is accepted as a legal basis for setting a storm water utility rate because it directly links the use of the system with the fee that is charged. Impervious area is land cover including buildings, pavement, gravel roads, recreation facilities (e.g. tennis courts), etc. Runoff volume increases in direct proportion to impervious area and pollutant loadings in streams increase in proportion to a watershed's impervious cover.

Land use methodology was discussed with respect to determining impervious cover using aerial photography, tax data (planimetrics), digitizing and satellite imagery. Satellite imagery was presented as a new technology that can provide accurate data and easy updates. While some small communities may digitize their parcels by hand, the City of Fort Worth has over 200,000 parcels and would be labor intensive to digitize. Current recommendations include using satellite imagery, but this option needs to be further investigated before the City decides which methodology will work best.

Advantages of using satellite imagery include:

- Imagery in 2' pixels (highest quality commercial)
- Pixels are categorized as impervious or not (automated algorithm)
- Impervious boundaries are calculated
- Covers all properties, regardless of use
- Can be updated yearly using "change detection"

Next Meeting

The next regular meeting of the Policy Advisory Committee is scheduled for August 11, 2005 at 3 PM. ***(Note: There is no PAC meeting in July).*** In August we are planning to discuss rate structure and methodology in more detail.

Section 3A – Policy Advisory Committee Meeting 2

August 11, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Ralph Emerson	John Maddux	Abby Gamboa
Nancy Grieser	Bobbie Shosty	Eunice Givens
Tim Keleher	Gordon Wells	Russell Laughlin
Gary Gilley	Alan Thomas	Gene Oehl
Will Stallworth		

Non-Committee Members:

Jean Haggerty, AMEC	Chuck Silcox, Mayor Pro-tem	Carter Burdette, Councilman, District 7
Don McChesney, TPW	George Behmanesh, TPW	Amy Cannon, TPW
Steve Eubanks, TPW	Julie Westerman, TPW	Sheilah Tucker, Ware

Meeting Agenda

1. Welcome & Design Policy Update
2. Local Utility Experience
3. Rate Structure Discussion
4. Public Outreach Plan
5. Capital Needs Ranking Criteria

Welcome & Project Update

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and welcomed everyone, including special guests Mayor Pro-tem Chuck Silcox and Councilman Carter Burdette. George also introduced new committee member Abby Gamboa from the Near Northside Partners Council

George briefly reviewed the meeting agenda and stressed the importance of getting input and assistance with the City's public outreach efforts. George then turned the meeting over to Don McChesney to provide an update on the progress being made on revising the storm water design standards and policies.

Design Standards Update

Don reported that the City has been closely coordinating their design standards update with the North Central Texas Council of Governments' (NCTCOG) work on a regional design manual. Based on revisions suggested by the City's Technical Review Committee (TRC), NCTCOG has proposed a new approach to implementing design updates. They are now recommending a tiered regional approach which would allow communities to phase in revised standards. Tier 1 would include issues new design standards related to downstream flooding, velocity controls, and conceptual site plan review; Tier 2 would cover more comprehensive channel and water quality protection; and Tier 3 would address regional watershed studies.

It is Fort Worth's plan to develop their own special requirements and recommend that Tier 1 standards, as appropriate, be adopted. The TRC has been working diligently on coming up with standards and policies that will be effective in Fort Worth. They have volunteered hundreds of hours of their time to help the City with this issue and the target for completion of this task is November 2005.

Local Utility Information

As a result of some questions at the last PAC meeting, Don McChesney called several local municipalities to learn more about their storm water utility experiences. Don provided information on the average monthly residential storm water utility rate for ten Texas utilities which ranged from a low of $1.30 in Arlington to a high of $6.00 in Watauga. Based on his conversations with 4 communities, he provided a summary of their experiences and lessons learned.

- Arlington – implemented their utility in 1990 and established a minimum fee of $1.00 for the average home. They have tried to raise rates several times, but have met resistance, and are now in the process of working with a committee to develop an expanded program and appropriate rate. Their lesson learned was to take the time to develop the needed program and set the rates required the first time.
- Denton – implemented their utility in 2002 and did the parcel database work in-house. This took longer than planned and resulted in an over estimate of expected revenues. The result was they fell behind schedule and had to cut back on their planned CIP to match revenues.
- Haltom City – implemented their utility in 2004 with the driver being a need for CIP funds. During the process of developing their program, they realized that they also needed to fund improved maintenance and expanded their original recommended plan. They emphasized the need to sell the concept to the public and be visible when the utility goes on line.
- San Antonio – implemented their utility in 1993 and based their rate on land use with caps on non-residential parcels. This resulted in residents paying a disproportionate share of costs and revenues lower than needed. They have had several rate increases over the years to make up the shortfall and are now in the process of getting proposals to develop an impervious database to help distribute costs more appropriately.

Phase II – Rate Structure Discussion

Jean Haggerty next presented an update on the Phase II work to date and led a discussion on the proposed rate structure approach. AMEC has recently acquired the aerial photography for Fort Worth (from NCTCOG) and the parcel database from the Tarrant County tax system. Using this data, it was determined that there are over 209,000 parcels in the City, of which approximately 20,000 are non-residential, developed properties. In order to establish a rate, impervious surface on all non-residential properties will be digitized and measured. Also, we will sample several hundred single-family lots to determine the average impervious cover on residential property. Based on this sample, we will examine the best method of estimating the impact of each property on storm water management. Tiering the residential properties has been recommended and after review of information on the distribution of imperviousness on residential property, we will assess the best method to establish a property's tier (i.e. lot size, heated square footage, zoning, etc). The committee discussed the need to have several tiers so that those on smaller lots or with less development would not be paying the same as large, fully paved lots. After the sampling is complete, we will provide the committee with information (including a histogram) that will help determine the equivalent residential unit and help set the appropriate number of tiers. It was generally agreed that using impervious cover and estimating residential rates was a fair approach.

After spending significant time discussing the residential approach, the comment was made that the non-residential properties are likely to be a bigger concern. This is typically the case – that 80 to 90% of the parcels in a community are residential properties but that only about 40% of revenues come from the residential fees. That is why we propose to actually measure the impervious surface on non-residential properties and base their fee on a multiplier of the average or equivalent residential rate.

The next issue discussed was the need for credits for properties that are providing detention or other means of minimizing run-off from their lots. Typically, a utility offers credits for improvements to property that alleviate storm water impacts. As we progress on establishing the rate criteria we will revisit this issue and discuss under what circumstances a credit should be given, how this could be applied for, and if there should be a cap on the amount of a property's credit (i.e. 25 or 30% of the fee).

Exemptions are another part of the rate structure that needs to be examined. Under current Texas law, certain properties must be exempted (i.e. undeveloped property in its natural state or subdivided lots without a certificate of occupancy). Roads are also generally exempted as they are considered part of the conveyance system. Based on preliminary discussions, the committee agreed that in order to spread the cost across the community, no additional exemptions (other than those required) should be granted unless there are extraordinary circumstances. The point was made that once you grant an exemption, it is nearly impossible to take it back. This issue will also be revisited as the rate is finalized.

We will also be looking more closely at the program recommended during Phase I of this study to ensure that we have clearly delineated the program requirements and revenue needs. Currently, the program calls for about $18M to be spent on storm water during each of the first 3 years of the utility. The preliminary rate will be developed assuming that $1.8M will continue to be collected from the Environmental Fee and spent on NPDES compliance programs, about $3M will be contributed to storm water from the General Fund, and the current capital program will contribute about $2M, until it expires in 2008.

Public Outreach Plan

The City is in the process of developing a public outreach plan to start educating the public about storm water activities and management needs. An outline of the preliminary plan was presented to the committee members and they were asked for their input on other ideas. The following is a summary of additional suggestions and comments about public outreach:

- **Neighborhood Associations**: Feed neighborhood associations news releases and other information so they can distribute to their members by newsletters.
- **Dissemination of Flood Information**: Provide information about where real problems are not just the "horror stories." It was suggested to use that map that shows needs throughout the City.
- **When to begin**: It was suggest that outreach should be delayed until cost issues are pinned down, but most of the members agreed with the need to get general information out quickly and that several months of outreach will be required.
- **Cumulative Impacts**: There was concern voiced about cumulative impact on developers with respect to other development fees and charges. The Council should be aware of the overall impact when deciding on the utility fee.
- **City Council Participation**: it was suggested that City Council needs to be discussing storm water issues more publicly.

- **Blame Game**: It was noted that it is important not to blame anyone, specifically developers. This has been a long building problem, standards have changed, we understand storm water better now, and the message should be that we're all in this together.
- **Quality of Life**: It was suggested that the message should emphasize quality of life--positive message--as opposed to a negative one.
- **Current Programs**: It was suggested that the video show existing services and current outreach programs such as Turn Around Don't Drown (and similar outreach programs of DEM) and call for individual efforts.
- **Continuing Outreach**: The outreach has to continue after the utility is implemented to show how the money is being spent and to inform the public of progress being made**.**
- **Email Program**: It was suggested that email outreach be used.
- **Bilingual:** Materials should be available in English and Spanish (at a minimum).

Shooting of the video is planned for September and we would like to include some footage from the PAC, so we will likely have the videographer at the next PAC meeting in September.

A Target Group Referral form was distributed to the committee members. Anyone interested in acting as a contact with local groups or who would be willing to help with public outreach in other ways is asked to fill out the form and return it to Julie Westerman.

Capital Needs Ranking System

In response to questions received at a prior meeting, Don McChesney provided a brief overview of the current system used by TPW to rank storm water projects. The goal is to have an objective way to rank projects for the CIP and to provide support for funding requests. Any questions or suggestions for improving this method are welcomed.

Next Meeting

The next regular meeting of the Policy Advisory Committee is scheduled for September 8, 2005 at 3 PM.

Section 3A – Policy Advisory Committee Meeting 3

September 8, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members

Walter Barber	Fred Closuit	Tracy Delce
Nancy Grieser	Bobbie Shosty	Eunice Givens
Tim Keleher	Melissa Lindelow	Joe Schneider
Garey Gilley	John Maddux	Gary Teague

Non-Committee Members

Jean Haggerty, AMEC	Susie Sweeton, DEM	Susan Whittenberger, DPH
Don McChesney, TPW	George Behmanesh, TPW	Michael Crenshaw, Hallf
Steve Eubanks, TPW	Julie Westerman, TPW	Sheilah Tucker, Ware

Meeting Agenda

1. Welcome & Funding Options Summary
2. Public Outreach Activities Update
3. Rate Base Policies
4. Credit Policy Discussion
5. Rate Structure and the Projected ERU

Welcome & Project Update

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and welcomed everyone, including special guests Susan Whittenberger and Susie Sweeton, who are assisting TPW with public outreach activities. George also introduced new committee member Walter Barber from the Fort Worth League of Neighborhoods.

After briefly reviewing the meeting agenda, George responded to a question from Garey Gilley concerning the funding options discussed by the group last March. A one page summary of that discussion was distributed as part of each member's meeting packet. George then turned the meeting over to Jean Haggerty to provide an update on the proposed public outreach activities.

Public Outreach Activities

Jean told the committee that the storm water video is now in production and a camera will run during the PAC meeting to supply some background footage for the video. Interviews with several PAC members and City staff are scheduled for later in September.

Staff members from several City departments, including Environmental Management, Public Health, and Neighborhoods, are now assisting TPW with preparation of outreach tools including a brochure, fact sheets, and a PowerPoint presentation to be used to inform the community about the storm water program and proposed utility. Development of outreach tools and preliminary presentations to targeted local groups are scheduled to be ready by the end of October. The Targeted Group Outreach form is scheduled to be on the City's storm water website within the next few weeks.

Rate Base Policies

The committee briefly reviewed the base rate discussion from the previous meeting and concurred with the use of imperviousness as the measure for the storm water fee and that the only exemptions will be those required by law and for roads and railroad beds. There was a question about capturing sidewalks or other impervious area used by a property, even though the sidewalk is outside the parcel boundaries. Only the impervious areas within the parcel lines will be billed to each property. Sidewalks or other appurtenant surfaces would likely fall within City rights-of-way.

The issue of including a relief program for low-income residents in the utility was introduced. Though it was recognized that this fee could pose a burden on some low-income or fixed income households, it was generally agreed that this should be treated as a social relief program, similar to that used to assist residents that cannot afford to pay other utility bills. Having tiers for smaller residential properties will help somewhat with this issue. Also, there is a state grant program that the City now uses that helps with water and heating bills and the City can look into using this process to also address storm water fees. The consensus was that this is a political decision to be left to Council and not built into the rate structure. The committee wants everyone treated equitably in regards to paying the fee.

Credits Discussion

Next, the group discussed the potential of having a credit program to reduce charges to properties that provide a positive benefit to the storm water program. Issues discussed included the use of a credit to promote proper maintenance of storm water detention facilities or to promote good design practices that would minimize run-off or pollutant loads. Again the consensus of the group was that maintenance and good designs should be regulated through enforcement and updating of design standards and that properties should not get a credit for doing what they should already be doing. There was discussion about the City's inability to enforce current maintenance agreements without taking owners to court. It was strongly agreed that the City needs tougher requirements to make sure owners properly maintain their facilities.

The committee also asked about what this type of program might cost and, based on other communities experience, it was estimated that it could possibly be several hundred thousand dollars per year. In maintaining that the costs for storm water should be spread across the community as much as possible, it was recommended that a credit program not be pursued at this time. It was noted that the Council may want to add a credit program or other suggested program change and that we should be prepared to show them what the implications to the rate would be for adding program elements. The recommendation from the PAC needs to be clear that these issues were discussed and rejected in order to keep the rate as low as possible.

Rate Structure

Next, Jean reviewed the results from sampling 240 single family properties randomly selected from throughout the City. Using the COG aerial photography, GIS analysts measure the impervious surfaces on each property. The sample results showed properties with a low impervious cover of about 800 sq ft to a high of over 10,000 sq ft. The median value for the sample was 2,600 sq ft and it is recommended that this be used as the equivalent residential unit (ERU) to determine the number of billing units for non-residential properties. For example, if a commercial property was found to have 13,000 sq ft of impervious surface on their parcel, the 13,000 would be divided by 2,600 to determine that that parcel has 5 billing units. This is 5 times the median impervious area of a single family

property in Fort Worth. We are actually measuring the impervious area on all non-residential parcels in Fort Worth (about 16,000) and will divide the measured amount by the ERU to determine their bill.

For developed residential properties (over 160,000 in Fort Worth) we are not measuring the imperviousness on each parcel as this is expensive, time consuming and difficult to manage updates. We are instead proposing to place residential properties into tiers. Currently we are looking at 3 tiers. This will allow properties with less imperviousness to pay less than those with more. We will review the sample results and compare these results to other database information (gross area, heated sq footage, land use codes, etc.) to see the best match for determining which property goes in each tier. This information will be brought back to the committee next month for review and discussion.

There were several comments about making sure that we keep this process simple and make it easy to explain to the public. Concerns were raised that a low income home will be paying a similar fee as a high-end downtown condo. It was pointed out that this is about the impact on generating storm water run-off and if these properties have similar amounts of impervious area then they will be billed a similar amount for storm water, however the more expensive condo will still be paying more taxes to cover other city services.

A final topic of discussion was the potential need for some type of board or advisory committee to be put in place to make sure that the program as recommended gets implemented and that decisions around such issues as capital spending prioritization have some public review. The committee thought this might help insure the public that the process won't be politicized. It was suggested that a board similar to the one appointed for the Water Department be considered to advise the storm water management team. As we prepare final recommendations for the Council, we will revisit this issue.

Next Meeting

The next meeting of the Policy Advisory Committee is scheduled for October 13, 2005 at 3 PM.

Section 3A – Policy Advisory Committee Meeting 4

October 13, 2005, 3-5 p.m.
Meeting Minutes

In Attendance:

Committee Members:

Walter Barber	Eunice Givens	Garey Gilley
Russell Laughlin	Bobbie Shosty	Will Stallworth
John Maddux	Alan Thomas	Gary Teague
Jon Vidaurri		

Non-Committee Members:

George Behmanesh, TPW	Don McChesney, TPW	Jean Haggerty, AMEC
Steve Eubanks, TPW	Julie Westerman, TPW	Sheilah Tucker, Ware
Bennett Howell, Haltom City	Jeanette Powell, AMEC	

Meeting Agenda

1. Welcome & Project Review
2. Haltom City Utility Experience
3. Additional Information on the ERU
4. Residential Tiering Discussion
5. Cost of Service Update – Billing & Customer Service Impacts
6. Schedule for Final PAC Meetings
7. Wrap-Up and Questions

Handouts

- Haltom City Storm Water Utility Council Presentation, September 27, 2004
- Draft Ordinance, City of Haltom City
- Municipal Storm Water Utility Fees
- Steps Haltom City Took to Develop a Storm Water Utility, October 13, 2005
- Comprehensive Storm Water Management Study – Phase 2, October 13, 2005

Welcome & Project Review

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and welcomed everyone, including special guests Jon Vidaurri, Chair of the Arlington Heights Flood Committee, and Bennett Howell, Haltom City Engineer.

George briefly reviewed the meeting agenda. He also pointed out that there will be a November workshop for Council members and the PAC will wrap up in December. George then turned the meeting over to Bennett Howell to provide an informational presentation on Haltom City's new storm water utility.

Haltom City Utility Experience

Bennett Howell provided an informational presentation on the Haltom City storm water utility. A handout of slides was provided to attendees. Haltom City is roughly 12 square miles with a

population of 40,000. It is 90-95% developed and has two major creeks that divide the city into thirds. Approximately 25% of the city is in the floodplain.

It took about a year to convince the City Council to pursue a storm water utility. Once the consultant was in place, there was a Council recall and the utility was put on hold for seven months. The new Council was aggressive in pursuing the utility. The City had to look at the big picture to prevent focusing on particular political agendas and the utility implementation process took about eight months. An audit of the water meter billing system was performed concurrent with developing the storm water utility Master Account File and there are approximately 15,000 accounts.

There were a lot of phone calls when the bills first went out. It is important to be able to explain the fee and the program. Because the call center was not informed enough to explain these things, Bennett took many of the calls himself. There were roughly 1,000 calls the first month.

The program included a 5-year Capital Improvement Plan (CIP) of known projects. A new crew and equipment were needed, and money for bonds, write-offs (delinquent accounts) and indirect costs, such as billing, were included in the program. The consultants developed a cash-flow model and broke the costs into nine costs of service groups with varying levels of service. When presented to Council, they chose a rate (and associated program) that was higher than the rate recommended by staff. The rate is a flat fee for residential customers ($4.89) and commercial pays $40.99 per acre of impervious surface. This equates to the same fee per square foot for everybody. Tiered rates were investigated, but were too complicated and unmanageable for a small city.

Bennett stated that you must decide how bad you want to fight for impervious coverage during program development. In Haltom City, gravel and flex parking are not currently allowed by ordinance, but these types of impervious are grandfathered. There are no exemptions for churches, schools, etc. because they make up roughly 10% of the city. The city properties were exempted because it was perceived as shifting funds from one pot to another. There is one state facility within the city limits, and they requested and were granted an exemption from the program based on a letter from the Attorney General's office. Credits are available for storm water retention/detention facilities that meet current design standards, but there are currently none. Vacant lots are not charged – if there is no water bill, there is no storm water utility fee. Duplexes, triplexes and quadplexes are charged residential rates with the bill pro-rated for the number of units on the property. Apartments are charged commercial rates.

Bills are included on the water bill and sent to the water bill account holder. The water can be shut off if the storm water utility fees become delinquent. The water rates change periodically, so the city tries to keep the storm water rate steady. The billing software must be compatible with the Master Account File database. Haltom City uses an off-the-shelf billing software package and the billing department is just provided with the dollar amount to bill. A pilot billing run was performed to ensure proper upload of the data, and it was a mess.

Maintenance makes all the "splash" in the storm water program, because it is a highly visible use of utility funds. All equipment was labeled and projects in highly visible areas were performed first. High visibility was key.

Haltom City also applied to FEMA for a change to the Community Rating System which could lower insurance rates in the floodplain by 25% and 5% elsewhere. This was possible due to the Master Drainage Plan performed under the storm water utility.

The utility ordinance was effective November 2004. Since then a million dollars worth of equipment has been purchased through bonds and six crew members were hired. A consultant was hired to perform a Master Drainage Plan, including a model of the open and closed storm water collections systems and a digitized map for the NPDES permit.

Staff worked hard to educate the Council. There were eight storm water presentations to Council prior to adoption of the ordinance. Informing the public is the hardest and most important thing. The city is still getting calls after a year. Public outreach included bill stuffers, newsletters, newspaper articles, and public hearings.

A brief question and answer period followed the formal presentation and the following issues were discussed.

Most private detention ponds in Haltom City are aesthetic and not designed for storm water management. However, credit can be received if it can be demonstrated that the facility is built to current design standards. There are no facilities receiving credits at this time.

The program revenue is over one million dollars a year. A write-off of 30% was assumed, but it has been closer to 15%. There are a large amount of rental properties and the city is trying to re-write the ordinance to make the property owner responsible for payment. Renters frequently leave without paying. The city has hired recovery agencies and implemented payment by credit card to minimize delinquent accounts.

Haltom City has separate irrigation water meters and those accounts are not billed. Fire meters are also not billed.

$300,000 was borrowed from the general fund to do emergency drainage projects that could not wait. The utility is paying this loan back to the general fund with interest. Bonds were sold as soon as the utility was approved. The city had reserves elsewhere, so they did not wait for the utility to generate the money. Equipment was purchased with 20-year bonds.

Prior to the utility, there was no maintenance other than emergency response. Now they are finding ditches they didn't even know existed. Although the city does not expect to ever totally catch up with maintenance on failed systems and upgrades, they are making progress. The city backlog is around $200 million and 90% of the pipe is undersized. Older parts of the city have no designed storm drainage system. The newer parts are designed for the 25 – 100 year event. Most of the system is designed for a 5-year event and the city is approximately 60% residential and 40% commercial.

The biggest problem is that Route 121 and the railroad make great dams. One creek and two culverts under RT 121 and the railroad cannot be addressed by the city. Most of the city's floodplain is upstream of these bottlenecks. The Trinity River back-up also causes some of the city's flooding and cannot be addressed by the City alone. One project that is underway with the Army Corps could reduce the 100-year event by 85% on Little Fossil Creek; however this is on hold due to funding limits.

Following Bennett's presentation, Jean Haggerty led the meeting and provided additional information on the ERU.

Additional Information on the ERU

Jean presented a PowerPoint and distributed a handout of her slides (Comprehensive Storm Water Management Study – Phase 2, October 13, 2005). She explained that the Equivalent Residential Unit (ERU) is based upon the average imperviousness on single family homes. The median home in Fort Worth has approximately 2,600 square feet of impervious area – this is the ERU. The large range of imperviousness on single family (SFR) homes generally leads to a tiered rate. For single family homes, we estimate the amount of imperviousness, but for commercial properties we measure the actual imperviousness.

As a follow-up to last month's meeting, AMEC was asked to also review any correlation between impervious area and appraised housing value. This exercise indicated that there is no correlation between value and imperviousness. Further, if the storm water fee was based on the home value rather than the impervious area, then it would be a tax instead of a fee. It was asked if AMEC could run an additional calculation that examined appraised value per square foot versus imperviousness, Jean agreed to look at that data and report back.

Next, AMEC ran over 170,000 statistical trials of correlations to find the best correlation between the amount of impervious area on a SFR and TAD property data. Based upon the findings of the statistical model, there is a strong correlation between two out of the TAD values – living area and garage capacity. These two factors will become the indicators for imperviousness for single family residences.

Residential Tiering Discussion

Again, based on several statistical trials, the best match for the data available would result in three residential tiers with approximately 20% in the lowest tier, 60% in the middle tier, and 20% in the highest tier. This division of the tiers provides the best correlation for tiering and is based on a computed factor for TAD living area and garage capacity (the indicators for imperviousness). The break points for tier cutoff are:

- Low < 1,857 Impervious Predictor (a computed factor, not square footage)
- Middle 1,857 – 3,686 Impervious Predictor
- High > 3,686 Impervious Predictor

Recently the City provided AMEC with updated parcel data which has added another 8,000 parcels to our original count, so these numbers may change slightly. A "flat rate" will be charged for each residential tier. The only point that customers can argue is that the TAD data is incorrect for living area and garage capacity. This simplifies the program by eliminating arguments over impervious area such as gravel, flex space, etc.

Condos and town homes are currently being evaluated because garage capacity may not be an accurate indicator for these types of properties. We may have to run an independent sample for those properties.

Using the process based on TAD values as indicators is justifiable, repeatable and reliable. The computations are scary looking, but can be explained in simple terms. X is the unit rate and is determined by the needed revenue divided by the number of billing units. The residential rates will be approximately:

- Low Tier = X times 0.58
- Middle Tier = X times 1.0

- High Tier = X times 2.02

Cost of Service Update – Billing & Customer Service Impacts

The storm water utility fee will be billed on the water bill. The software used for the water billing will have to be modified to accommodate the storm water fee. It will have to address storm water only accounts, add fields for storm water billing, etc. The cost of service must account for these changes, as well as how often TAD and the Master Account File will be updated. TPW will maintain the Master Account File. Customer service is also a key component of the cost of service. We are currently working through many costs of service issues, including how to bill mall occupants, storm water only accounts, etc.

Bills will be sent to the water account holder when possible. Water can be shut off to delinquent accounts. The Water Dept. currently has a delinquency rate of about 2%, which is good. Irrigation meters are separate from regular water accounts and will not be billed.

Customer service will be very important, particularly when the first utility bills go out. The worst case scenario is to not have an immediate answer for people who call in. We expect that 8 or so trained customer service representatives will be needed for the first few months. We will be working on these details through July (the first billing). It will not be perfect, but we need to have a process prepared in order to fix things quickly when an issue arises.

Schedule for Final PAC Meetings

At the November 10 PAC meeting we will discuss various rate scenarios. Do we have a rate that is high initially and covers all five years, or one that stays low for a few years and then significantly increases? Both approaches raise the same amount over the five year period, and ultimately it will be a Council preference on which approach to use. AMEC recommends doing a rate study in year 4 or 5 to revise the program and the rate accordingly in year 6. This requires explaining to the public that the rate is just for five years and there are many factors affecting the future rate, which will be studied.

There will be a workshop for Council in mid-November which will cover the process, the recommended policy; program needs and what could go right/wrong. The PAC expressed strong support for the policy that the amount of general fund money now being spent on storm water be continued in order to keep the rate low and that the storm water ordinance be specific that storm water funds be only spent on storm water activities and cannot be drained for other City purposes.

November is the final scheduled PAC meeting, but we would like to have one more meeting in early December to look at the draft ordinance and wrap things up. We will plan to have a lunch meeting.

As supporting information for the next meeting, AMEC will chart fees in other cities so we can compare rates, and prepare a one page white paper with briefing points that will be discussed with Council.

Next Meeting

Upcoming meeting dates include:

- November 10th PAC Meeting at 3:00 pm
- November 15th Council Workshop
- Early December Final PAC Meeting
- Late December Ordinance to Council

Section 3A – Policy Advisory Committee Meeting 5

November 10, 2005, 3-5p.m.
Meeting Minutes

In Attendance:

Committee Members:

Walter Barber	Fred Closuit	Abby Gamboa
Nancy Grieser	Bobbie Shosty	Eunice Givens
Gordon Wells	Robert Gleason	Russell Laughlin
Garey Gilley	John Maddux	Gary Teague
Jon Vidaurri	Gene Oehl	Will Stallworth

Non-Committee Members:

Mayor Pro Tem Chuck Silcox	Councilman Carter Burdette	George Behmanesh, TPW
Robert Goode, TPW	Don McChesney, TPW	Julie Westerman, TPW
Steve Eubanks, TPW	Sheilah Tucker, Ware	Jeanette Powell, AMEC
Jean Haggerty, AMEC	Wyntress Ware, Ware	

Meeting Agenda

1. Welcome & Project Update
2. Modifications to Program
3. Residential Tiering Options
4. Billing Units Estimate
5. Preliminary Program Rate
6. Program Discussion
7. Wrap-Up and Adjourn

Handouts

- PAC Slide Presentation, November 10, 2005

Welcome & Project Update

George Behmanesh, Assistant Director of Transportation and Public Works (TPW), opened the meeting and welcomed everyone, including special guests Mayor Pro Tem Silcox and Councilman Burdette.

George gave a brief overview of program updates. Based on preliminary numbers, it appears that the rate will be lower than expected due to large number of billing units. Also, the City will be able to bond sooner than anticipated, as early as the second year of the utility. George told the committee that staff is recommending some program modifications including changes to the PAC recommended plan and residential tiering options.

Modifications to Program

George explained that City staff reviewed the PAC recommended program to ensure it could be implemented efficiently and effectively. Refinements were made to allow the program to grow at a steady pace. Capital Improvement Projects (CIP) for infrastructure reconstruction were accelerated

using debt financing starting in Year 2 of the program. A Planning Engineer position was added to develop projects. Expenditures for replacing outdated maintenance equipment were increased and vegetation management services were expedited by expanding contract services. Development review was beefed up to ensure a thorough, timely review. Watershed spending was adjusted based on preliminary results from the current watershed studies. Other PAC recommended program components remain unchanged.

Two line items were added to the program – overhead (billing, etc.) and fund balance. Overhead numbers were not previously available and are still under development.

Staff also recommends that the utility stand alone and pay for itself, and therefore recommends phasing out general funds. Staff is ok with the PAC not supporting that position and will present both to Council. Phasing out these funds frees the funds up for other resources and is in keeping with the water utility structure, which is self-funded and does not use general funds. Since every city facility will pay a storm water utility fee, the city is still paying into the utility by "charging" the general fund. If the above changes are approved, the Staff recommended program will provide an additional $32M in services than the PAC recommended program.

There was discussion centered on phasing out general funds and accelerating implementation through bonding. Eliminating the $3M in general funds does have an impact on the utility rate, but goals can still be met. There was PAC concern that the allocation model has changed, resulting in a smaller percentage of funds being spent on maintenance. Concern was also raised that there is insufficient funding in the current programs for public education and outreach.

Residential Tiering Options

George turned the discussion over to Jean who presented information on a modified tiering approach. The previously presented tiering model included three residential tiers divided into 20% low, 60% mid, and 20% high, with rates of 0.5x, 1x, and 2x the ERU rate, respectively. There was a big jump from the middle tier to the higher tier, where the fee was double. To address this, Staff recommends adding a fourth tier with respective rates of 0.5x, 1x, 1.5x, and 2x. This 4-tier approach still results in approximately 180,000 billing units and would break down as follows:

Tier	Predictor Value	Rate Formula	Distribution
1	< 2,000	0.5 x ERU Rate	25%
2	2,001 – 3,500	1 x ERU Rate	50%
3	3,501 – 5,150	1.5 x ERU Rate	18%
4	> 5,150	2 x ERU Rate	7%

The residential predictor value is still based on the livable area and garage capacity, as found in the TAD. The predictor is not exact. It estimates the impervious area of a parcel so that each property can be placed into the correct residential tier. Examples of each tier were presented using aerial photography, measured impervious area, TAD livable area and TAD garage capacity.

For non-residential properties, we are still billing on the actual measured impervious area. The non-residential rate formula is impervious area / 2,600 s.f. * ERU Rate. Examples were presented to demonstrate average commercial and large commercial properties.

Billing Units Estimate

Approximately 75% of the non-residential measurement is complete and the following *preliminary* estimates of 180,000 residential billing units and 170,000 non-residential billing units were provided. The revenue is split pretty evenly with approximately 51% residential and 49% non-residential.

Preliminary Program Rate

Jean then discussed the preliminary rate information. The projected rate was presented based upon the preliminary number of billing units and the program revenue needs. This rate was based upon incomplete data, but should be accurate to within +/- 10%. The modified recommended program resulted in a projected ERU rate of $2.90/month (+/- 10%), for year 1, while the PAC recommended program resulted in an ERU rate of $2.76/month (+/- 10%). It was requested that this rate information not be publicized since it is preliminary and the Council has not yet seen it.

The rates for the five-year program projection were presented for both the PAC recommended program and the modified program. Projections were through FY 2010/11, and contained an "extra" quarter year of revenue which is generated during the last quarter of FY2005/06 when the first bills will be going out. At the end of Year 5, the desired program should be in place and the rate should stay relatively steady.

The modified program steps up the rate gradually over the five-year period, to correspond with increasing program needs and services. The PAC recommended program shows a dramatic increase in the rate during the last two years of the 5-year projection. Because customer service needs and accounting costs go down after the first few years, the PAC recommended program shows a decreasing rate until Year 4, when a large increase is needed to fund CIP projects. Program needs and lessons learned cannot be predicted too far in advance, so it is recommended that a new rate study be performed in Year 5.

A chart of average monthly single family residential storm water utility user fees was presented and clearly shows that the proposed preliminary Fort Worth rate of $2.90 is well below the state average of $3.66. Although the rate will gradually increase over the five year planning period to approximately $4.62, the rates of other cities can reasonably be expected to increase over time as well.

Program Discussion

It was agreed that the program rate should match the program needs with incremental increases over time, rather than a big jump all at once. It was also agreed that it is too soon to put an appropriate credit policy in place, although an advisory committee should begin to address credits and impacts, possibly with the assistance of the Technical Review Committee that is working on revising the design standards. This is expected to be several months' worth of work to develop appropriate credit policies and manuals. The credits should employ suitable criteria and incentives to develop property in a storm water friendly manner.

It was agreed that additional funding needs to be included in the program to perform necessary public education and outreach. The public needs to understand the nature of the program and that the rate is going to increase over time. The program needs will also change over time. Master planning will increase the project backlog, but the program is based on the best currently available information. There also needs to be a general understanding that water quantity is the current focus, but water quality issues will become a larger part of the program down the road.

The PAC agreed that the modified program presented to Council should:

- Incorporate increased funding for maintenance,
- Incorporate increased funding for public outreach / education,
- Include the PAC recommendation to keep general funds, and
- Recommend an ongoing advisory committee to guide implementation of the storm water utility program.

Next Meeting

Upcoming meeting dates include:

- November 15th Council Workshop at 1:00 pm
- December 8th Final PAC Meeting/Celebration 11am-1pm at Botanic Gardens
- January 2006 Ordinance to Council

Section 3B – Policy Advisory Committee Phase II Recommendations

DRAFT NOVEMBER 2005

The following is a summary of the PAC recommendations related to Phase II of the Comprehensive Storm Water Study. The object of Phase II is to perform a rate study for implementation of a possible storm water utility in Fort Worth.

Phase II Recommendations:

In Phase II, the PAC held five additional meetings between June 2005 and November 2005. Below is a summary of their Phase II findings and recommendations:

1. **Rate Methodology –** the Policy Advisory Committee recommendation is to use impervious area as the measurement of impact on services. This recommendation was based on the following:

   The Policy Advisory agreed that the rate methodology must be:
   - Fair.
   - Supported by available data.
   - Bear a reasonable relationship to the cost of providing services.
   - Consistently applied.
   - Relatively easy to update and maintain, and
   - Simple to explain to the public.

   Using these criteria, use of impervious cover as the measure of storm water impact was chosen. This has previously been accepted as an appropriate measure for setting storm water fees as runoff volume increases in direct proportion to impervious cover.

2. **Rate Base –** the Policy Advisory Committee recommendation is that the rate base will include all developed property within the City-limits of Fort Worth.

   The Policy Advisory Committee agreed that the rate base should be spread evenly and equitably across the community. To accomplish this, all properties that have measurable impervious area will be included in the rate base, regardless of ownership or land use. The only exceptions to this policy are those properties that are required to be exempted by law. By spreading the storm water fee equitably across the community, it will keep the rate as low as possible. Again in support of this policy, no credits or other rate modifiers are being recommended.

3. **Rate Structure –** The Policy Advisory Committee recommends that the rate structure have two components. The first component for non-residential property will require measurement of the amount of impervious area on a parcel. The total impervious area will then be divided by the Equivalent Residential Unit (ERU) to ascertain the number of billing units for that parcel. The second component will be for residential property, where a predictor of imperviousness based on livable square footage and garage space will be used to assign a parcel into one of four tiers.

The Policy Advisory Committee agreed to the two component structure based on discussion of the following issues:

Non-Residential Approach

- The approximately 20,000 non-residential, developed parcels in Fort Worth will be subject to measurement of the impervious area on each parcel. This will be done using a manual process that measures impervious area per parcel using the 2005 aerial photography that the City obtained from the North Central Texas Council of Governments (COG).
- The total measured impervious area per parcel will be divided by the calculated Equivalent Residential Unit (ERU) of 2,600 square feet. The ERU was determined using a sample of impervious area from a random selection of 240 single family parcels in Fort Worth. The actual impervious are on the sample properties was measured and the results showed that the median impervious area was approximately 2,600 square feet.
- For comparison sake, a non-residential property with 26,000 square feet of impervious area has approximately 10 times the impact of the median single family home and will be billed 10 ERUs – 10 times the median single family's bill.

Residential Approach

For residential property, a projection of impervious area was made on each developed parcel using a multiplier of livable square footage and garage space capacity. The data used in these projections came from the Tarrant Appraisal District database. The decision to use this approach was based on several factors:

- Measuring impervious area on 165,000 residential parcels would be costly and time consuming. It would also be difficult and costly to maintain the data.
- Statistical trials were then run against the ERU sampling, referred to above, to assess ways to approximate impervious area using available data. Using a combination of livable square footage and garage spaces resulted in predicting accurate tier assignments in over 87% of the residential sample.
- Due to the diversity in housing stock and impervious cover in Fort Worth, residential tiers are recommended. This allows the smaller homes with less impervious area to pay less than the median home and those with more will pay proportionately more.
- The use of livable square footage and garage capacity is easy to explain and to understand and the data is maintained by TAD.
- Since the TAD data is the basis of the bill rate, there can be no complaining about what rate a household is paying. If the TAD data is correct, then the tier is correct. If the TAD data is incorrect, then changes must be made through TAD. This minimizes customer service and data management issues.

4. **Program Costs –** the Policy Advisory Committee recommends that the program as outlined in Phase 1 be used as the basis of determining the revenue needed for the utility.

5. **Rate Establishment –** the Policy Advisory Committee recommends that the storm water program drive the rate. The total revenue needed to perform the recommended services divided by the total billing units as determined by the above described rate structure will result in the accepted rate. The preliminary estimate for this rate is between $2.75 and $3.00 per ERU per month for year 1.

6. **General Fund Contribution –** the Policy Advisory Committee recommends that the City continue to fund storm water services from the General Fund at the maximum level possible. This will help to keep the rate low and provide base funding for the storm water program.

7. **Scheduled Rate Reviews –** the Policy Advisory Committee recommends that the rate established for the utility be reviewed and adjusted on a regularly scheduled basis of no more than every five (5) years.

8. **Rate Increases –** the Policy Advisory Committee recommends that the rate be set at start-up to cover the first five years of the program so that rate increases do not have to go through Council and public approval every year.

9. **Public Advisory Role –** the Policy Advisory Committee recommends that a citizen-based policy advisory committee or board be established to continue with review of storm water policies and programs.

10. **Public Outreach –** the Policy Advisory Committee recognizes the need for extensive public outreach to educate and inform the citizens and businesses in Fort Worth about the enhanced storm water program and possible storm water utility implementation.

SECTION 4 – CITY COUNCIL INFORMATION

Section 4A – Storm Water Project Summary

October 2005

In September 2004, the City of Fort Worth hired the AMEC project team to assist with development of a Comprehensive Storm Water Management Program that would examine and develop an enhanced, comprehensive storm water program managed by the City to correct existing deficiencies. This project was split into two phases: the first to determine the needs of the program and the second to examine ways to fund the program. The following is a summary of the Phase I work, completed in May 2005, and the Phase II work, which is on-going.

Phase I

Transportation and Public Works (TPW) staff along with a citizen-based policy advisory committee (PAC) and an internal review committee (comprised of members from various city departments) began work in October 2004, to assess the City's storm water management needs and to craft policy and program recommendations to address these needs. The major findings and recommendations resulting from these meetings are summarized below.

1. Having evaluated the storm water problems and needs facing the City of Fort it was determined that the storm water issues in the City are significant and that a long-term comprehensive approach to storm water management is needed.
2. It was recommended that specific goals be established to manage storm water so that things don't get worse as new development occurs and that improvements be expedited in areas currently experiencing problems.
3. Based on a study of current services and known problems, it was recommended that the gaps in the existing program be filled by addressing the following priority needs:
    - Improve routine drainage system maintenance
    - Perform a complete system inventory and conditions assessment
    - Perform comprehensive master planning to establish an integrated approach to system maintenance, capital improvements, and watershed management
    - Increase public education and outreach efforts
    - Increase resources dedicated to drainage development reviews
    - Provide appropriate technology to allow efficient response, tracking, and monitoring of storm water activities
    - Provide safety and technical training to storm water staff
    - Establish a storm water leadership position to be responsible for managing the enhanced storm water management program
4. Based on these priorities, a recommended enhanced storm water program was developed that would increase total storm water spending by $10 million to about $18 million in year-one of the new program and would steadily increase total program spending (existing and new costs) to about $24 million by year-5 and beyond. This program is summarized in the table below:

Activity / Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20
Maintenance	1,060	1,060	1,980	1,980	3,235	3,235	3,235	3,235
Inventory & Assessment	1,200	1,200	100	100	100	100	100	100
Master Planning	1,000	1,000	1,000	500	500	100	100	100
Infrastructure Reconstruction	6,150	6,150	6,150	12,350	12,350	12,350	12,350	12,350
Public Education	55	55	55	55	55	55	55	55
Technology / Database	150	100	100	100	100	100	100	100
Drainage Reviews	75	75	75	75	75	75	75	75
Safety Training	50	72	112	112	112	112	112	112
Storm Water Leader	170	170	170	170	170	170	170	170
Totals - New Program	**9,910**	**9,882**	**9,742**	**15,442**	**16,697**	**16,297**	**16,297**	**16,297**
Existing Program	7,816	7,816	7,816	7,816	7,816	7,816	7,816	7,816
Comprehensive Program	**17,726**	**17,698**	**17,558**	**23,258**	**24,513**	**24,113**	**24,113**	**24,113**

*all values are in thousands of dollars

* not adjusted for inflation

1. It was recommended that the current level of funding ($7.8 million) be maintained, at a minimum, and that additional revenue be dedicated to storm water to reach the levels noted above.
2. It was recommended that the City proceed with a storm water utility rate study and detailed funding analysis to determine the most appropriate method to fund the enhanced storm water program.

City Council reviewed these recommendations in April 2005 and voted to approved the recommendations and proceed with Phase II, a storm water utility rate study.

Phase II

Phase II began in June 2005. Both the PAC and the internal review committee continue to meet monthly to review policy issues related to the potential implementation of a storm water utility. The goal is to have recommendations to City Council on a rate structure by December 2005 and, upon approval, to begin billing in the summer of 2006.

To date, the following policy issues have been discussed and these preliminary recommendations are being followed:

1. The rate methodology will be based on the impervious area on a developed parcel of land.
2. Impervious area will be measured on non-residential parcels based on recently acquired aerial photography. Impervious area on residential parcels will be estimated based on aerial photography-based sampling and Tarrant Appraisal District data.

3. All parcels within the City limits will be included in the fee structure, except those specifically excluded by law. Those legal exclusions include vacant, undeveloped property, state institutions of higher education, roads, and properties that have and maintain a self-contained storm water system.
4. Residential properties will be placed in a 3 or 4 tiered system dependent on an estimate of the impervious area on their parcel.
5. The utility fee will be billed through the Water Department utility billing system.
6. Initial revenue targets to be raised by the utility will be in the $10-$12 million range.

Phase II work is continuing with work still remaining on determining a recommended rate, creating a billing Master Account File, and educating the public about the storm water program and potential utility fee.

SECTION 4B – PRESENTATION EXCERPTS

Stormwater Management Workshop – Presentation EXCERPTS

FORT WORTH

Presented to the

City Council

By the
Transportation and Public Works Department

November 15, 2005

Where are we now?

Gaps in Service

Existing	Desired
Minimal capital program – **over $500 million backlog**	**Funded capital program** (stable funding source) that reduces backlog in a reasonable timeframe
Reactive maintenance	**Proactive**, **prioritized, scheduled**, effective, maintenance program
Incomplete inventory	**Complete inventory and condition assessment** of facilities
Planning – Limited studies (5% of city) focused only on water quantity issues	**Comprehensive master planning** - Setting priorities with cost-effective solutions (including water quality issues)
Design Standards - 1967 era with limited enforcement	**Up-to-date standards** that protect from flooding & erosion without slowing growth
Outdated equipment/technology	**Up-to-date** hardware, software, and field equipment
Public Education primarily limited to water quality issues (NPDES)	Effective education/outreach on **all aspects of storm water issues**

How do we get there?

Program Enhancements

- ✓Increase **Infrastructure Reconstruction**
- ✓Improve system **maintenance**
- ✓Implement a System **inventory** and **conditions assessment** program
- ✓Perform more Master **planning**
- ✓Enhance **development review**
- ✓Increase **public education** and outreach

Where do we want to be?

Program Goals

- **Prevent flooding**, preserve streams, and minimize water pollution without arresting development
- **Operate the storm water system** in a more effective manner
- **Inform the public** about storm water issues
- **Fully comply** with regulatory requirements

Alternative Programs

- Policy Advisory Committee (PAC) developed initial *Enhanced Program* to address the identified gaps and accomplish the Program Goals.….**first 5 years** of an ongoing Program

- Using PAC Program as a baseline, Staff/Consultant Team developed 3 "*Modified*" Alternative Programs …..**first 5 years** of an ongoing Program

"Modified" Programs

- Alternative 1 – Decrease General Fund support
  - Accelerate Infrastructure Reconstruction (bonds)
  - Increase Operation/Maintenance; Master Planning; Drainage Review; Admin; Public Education/Customer Service
  - Decrease General Fund Support for TPW drainage programs
- Alternative 2 – Keep General Fund support
  - Same as above except the General Fund Support is maintained at current levels and the Utility funding level dedicated in Alternative 1 is maintained as well…resulting additional funds allocated to Fund Balance
- Alternative 3– Keep General Fund support
  - Same as Alternative 1 except that the Fund Balance is not increased thus allowing for lower rates.

PAC Recommended Program

Program Element	Current Program	Year 1	Year 2	Year 3	Year 4	Year 5
Infrastructure Reconstruction (includes '04 Bonds)	$2,417,000	$8,500,000	$ 8,500,000	$ 8,500,000	$14,800,000	$14,800,000
Operations/Maintenance	$2,979,000	$4,000,000	$4,000,000	$5,000,000	$5,000,000	$6,200,000
Inventory/Condition Assessment	$110,000	$1,300,000	$ 1,300,000	$ 200,000	$ 200,000	$200,000
Floodplain Management	$223,000	$250,000	$250,000	$250,000	$250,000	$250,000
Master Planning	$286,000	$1,300,000	$ 1,300,000	$ 1,300,000	$ 800,000	$ 800,000
New Development Review	$115,000	$200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Regulation/Enforcement	$1,074,000	$1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000
Admin/Management	$105,000	$270,000	$ 270,000	$ 270,000	$ 270,000	$ 270,000
Public Education/Customer Service	$89,000	$150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Technology update, Safety Training	$0	$200,000	$200,000	$ 200,000	$ 200,000	$ 200,000
Emergency Spill response	$205,000	$210,000	$ 210,000	$ 210,000	$ 210,000	$ 210,000
Overhead (Billing/GF fee/ etc)	$0	$1,190,000	$1,240,000	$1,290,000	$1,340,000	$1,390,000
Fund Balance	$0	$200,000	$300,000	$ 300,000	$ 400,000	$ 400,000
PROGRAM TOTALS	$7,603,000	$18,900,000	$19,000,000	$19,000,000	$24,900,000	$26,200,000

Modified Program – Alternative 1 (reduced GF support)

Program Element	Current Program	Year 1	Year 2	Year 3	Year 4	Year 5
Infrastructure Reconstruction (includes '04 Bonds)	$2,417,000	$7,500,000	$10,500,000	$15,550,000	$16,850,000	$17,650,000
Operations/Maintenance	$2,979,000	$5,000,000	$6,000,000	$6,800,000	$7,300,000	$8,000,000
Inventory/Condition Assessment	$110,000	$1,000,000	$ 1,000,000	$ 700,000	$ 250,000	$250,000
Floodplain Management	$223,000	$250,000	$250,000	$250,000	$250,000	$250,000
Master Planning	$286,000	$1,500,000	$ 1,500,000	$ 1,650,000	$1,500,000	$1,700,000
New Development Review	$115,000	$300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Regulation/Enforcement	$1,074,000	$1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000
Admin/Management	$105,000	$300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Public Education/Customer Service	$89,000	$250,000	$ 250,000	$ 250,000	$ 200,000	$ 200,000
Technology update, Safety Training	$0	$200,000	$200,000	$ 200,000	$ 200,000	$ 200,000
Emergency Spill response	$205,000	$210,000	$ 210,000	$ 210,000	$ 210,000	$ 210,000
Overhead (Billing/GF fee/ etc)	$0	$1,190,000	$1,240,000	$1,290,000	$1,340,000	$1,390,000
Fund Balance	$0	$200,000	$300,000	$ 300,000	$ 400,000	$ 400,000
PROGRAM TOTALS	$7,603,000	$19,100,000	$23,200,000	$29,000,000	$30,300,000	$31,800,000

Modified Program – Alternative 2 *(keep GF support, inc fund balance)*

Program Element	Current Program	Year 1	Year 2	Year 3	Year 4	Year 5
Infrastructure Reconstruction (includes '04 Bonds)	$2,417,000	$7,500,000	$10,500,000	$15,550,000	$16,850,000	$17,650,000
Operations/Maintenance	$2,979,000	$5,000,000	$6,000,000	$6,800,000	$7,300,000	$8,000,000
Inventory/Condition Assessment	$110,000	$1,000,000	$ 1,000,000	$ 700,000	$ 250,000	$250,000
Floodplain Management	$223,000	$250,000	$250,000	$250,000	$250,000	$250,000
Master Planning	$286,000	$1,500,000	$ 1,500,000	$ 1,650,000	$1,500,000	$1,700,000
New Development Review	$115,000	$300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Regulation/Enforcement	$1,074,000	$1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000
Admin/Management	$105,000	$300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Public Education/Customer Service	$89,000	$250,000	$ 250,000	$ 250,000	$ 200,000	$ 200,000
Technology update, Safety Training	$0	$200,000	$200,000	$ 200,000	$ 200,000	$ 200,000
Emergency Spill response	$205,000	$210,000	$ 210,000	$ 210,000	$ 210,000	$ 210,000
Overhead (Billing/GF fee/ etc)	$0	$1,190,000	$1,240,000	$1,290,000	$1,340,000	$1,390,000
Fund Balance	$0	$1,200,000	$2,300,000	$ 3,000,000	$3,100,000	$3,100,000
PROGRAM TOTALS	$7,603,000	$20,000,000	$25,200,000	$31,700,000	$33,000,000	$34,500,000

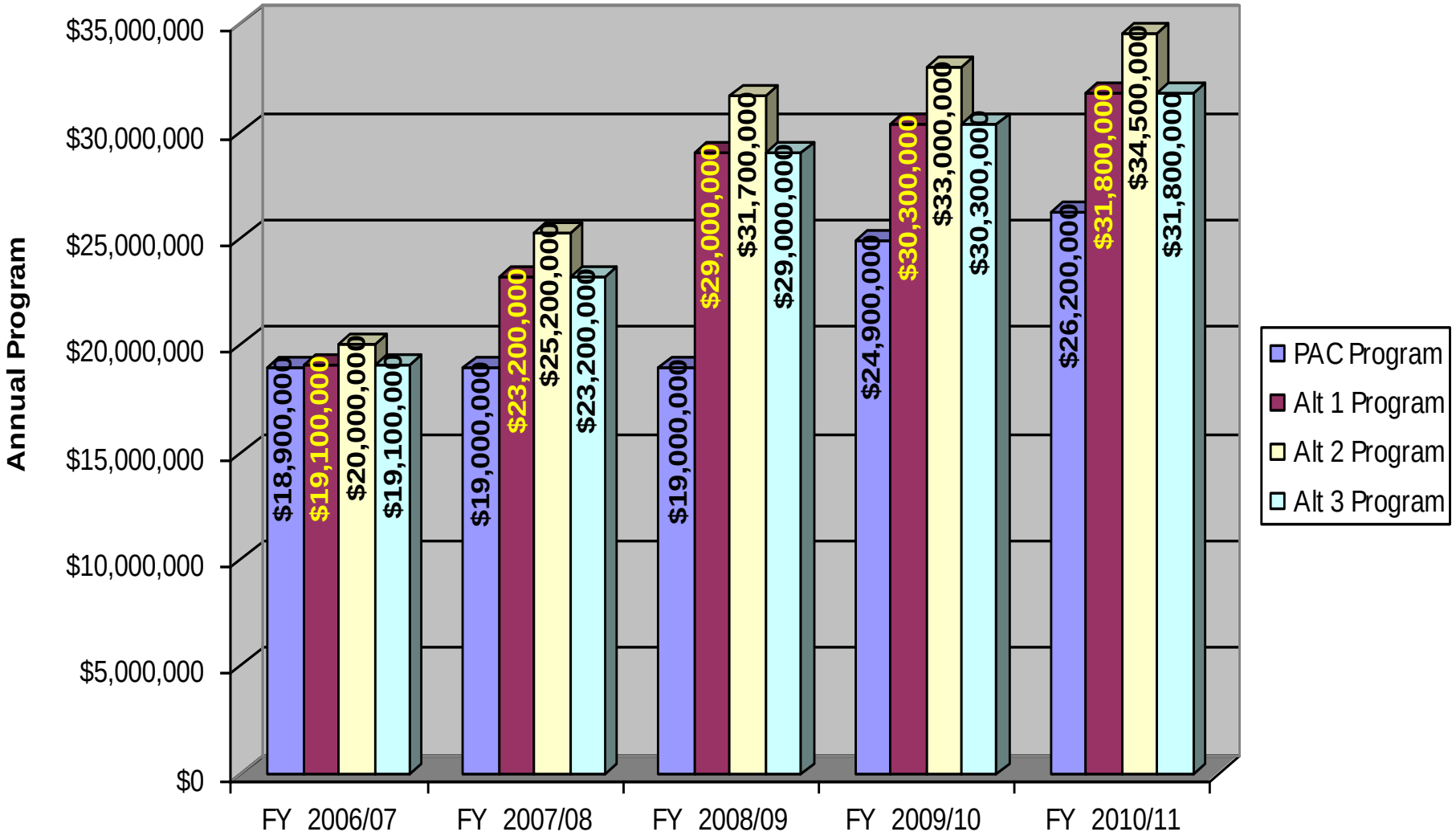
Modified Program – Alternative 3 *(keep GF support, reduce rate)*

Program Element	Current Program	Year 1	Year 2	Year 3	Year 4	Year 5
Infrastructure Reconstruction (includes '04 Bonds)	$2,417,000	$7,500,000	$10,500,000	$15,550,000	$16,850,000	$17,650,000
Operations/Maintenance	$2,979,000	$5,000,000	$6,000,000	$6,800,000	$7,300,000	$8,000,000
Inventory/Condition Assessment	$110,000	$1,000,000	$ 1,000,000	$ 700,000	$ 250,000	$250,000
Floodplain Management	$223,000	$250,000	$250,000	$250,000	$250,000	$250,000
Master Planning	$286,000	$1,500,000	$ 1,500,000	$ 1,650,000	$1,500,000	$1,700,000
New Development Review	$115,000	$300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Regulation/Enforcement	$1,074,000	$1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000	$ 1,100,000
Admin/Management	$105,000	$300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Public Education/Customer Service	$89,000	$250,000	$ 250,000	$ 250,000	$ 200,000	$ 200,000
Technology update, Safety Training	$0	$200,000	$200,000	$ 200,000	$ 200,000	$ 200,000
Emergency Spill response	$205,000	$210,000	$ 210,000	$ 210,000	$ 210,000	$ 210,000
Overhead (Billing/GF fee/ etc)	$0	$1,190,000	$1,240,000	$1,290,000	$1,340,000	$1,390,000
Fund Balance	$0	$200,000	$300,000	$ 300,000	$ 400,000	$ 400,000
PROGRAM TOTALS	$7,603,000	$19,100,000	$23,200,000	$29,000,000	$30,300,000	$31,800,000

Alternative Programs (1st 5 years)

Program Element	PAC Program	Modified: Alt 1 Decrease General Fund $	Modified: Alt 2 Keep GF $, inc. Fund Balance	Modified: Alt 3 Keep GF $, lower rates
Infrastructure Reconstruction	$55,100,000 ($7 M in 2004 Bonds)	$68,050,000 ($7 M in 2004 Bonds+$45 M in New Bonds)	$68,050,000 ($7 M in 2004 Bonds+$45 M in New Bonds)	$68,050,000 ($7 M in 2004 Bonds+$45 M in New Bonds)
Operation and Maintenance	$24,200,000	$33,100,000	$33,100,000	$33,100,000
Inventory/Condition Assessment	$3,200,000	$3,200,000	$3,200,000	$3,200,000
Floodplain Management	$1,250,000	$1,250,000	$1,250,000	$1,250,000
Master Planning	$5,500,000	$7,650,000	$7,650,000	$7,650,000
New Development Review	$1,000,000	$1,500,000	$1,500,000	$1,500,000
Regulation/Enforcement	$ 5,500,000	$5,500,000	$5,500,000	$5,500,000
Admin/Management	$ 1,350,000	$1,500,000	$1,500,000	$1,500,000
Public Education/Customer Service	$745,000	$1,000,000	$1,000,000	$1,000,000
Emergency Spill response	$ 1,050,000	$1,050,000	$1,050,000	$1,050,000
Other (Technology update, Safety Training)	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Overhead (billing, GF fee, etc.)	$6,450,000	$6,450,000	$6,450,000	$6,450,000
Fund Balance	$1,600,000	$1,600,000	$12,700,000	$1,600,000
PROGRAM TOTALS	$107,950,000	$133,400,000	$144,500,000	$133,400,000

Alternative Programs



Service Fee Rates

- Recommendations for rates:
  - **Rate Methodology**
    - ✓Use **impervious surface area** as the measure of each properties' impact on storm water management

Service Fee Rates

- Recommendations for rates:
  - **Rate Base**
    - ✓All developed properties should be part of the rate base. Only those legally required to be exempt should be excluded.
    - ✓Evaluate Credits
      - Develop a proposed Credit Policy for future developments that construct stormwater management facilities (e.g. water quality features) that are substantially more than City regulations would require…
      - Recommend forming a committee (Technical Review Committee members?) to begin exploring Policy

Service Fee Rates

- Recommendations for rates:
  - **Rate Structure**
    - ✓Develop a tiered billing structure for residential properties (based on approximation of impervious cover)
    - ✓**Use a single basis for all rates = Equivalent Residential Unit (ERU)…** set by sampling single family residential units and determining median value of impervious surface
    - ✓All properties, both Residential and Non-Residential, will be billed a multiple of the **ERU**

Proposed Service Fee Rates

- **Residential**
  - ✓Use **ERU of 2,600 square feet** (impervious surface)
  - ✓Use a **4 tiered residential structure**
    - ✓Allocates costs equitably based on size of structure
  - ✓Estimate impervious surface based on TAD data

- **Non-Residential**
  - ✓Each developed parcel will be measured
  - ✓Billed based on # of ERU's within measured impervious surface

Proposed Service Fee Rates

- **Proposed Residential Tiers (based on *estimated impervious surface*):**
  - Tier 1 = 1 – 2,200sf (25% of residences)
  - Tier 2 = 2,201 - 3,400sf (50% of residences)
  - Tier 3 = 3,401- 4,800sf (18% of residences)
  - Tier 4 = 4,801 and greater (7% of residences)

Monthly Rate Projections (PAC)

	FY 2005/06 (last ¼)	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	FY 2010/11
Residential						
Tier 1	**$1.34**	**$1.34**	**$1.32**	**$1.28**	**$2.17**	**$2.26**
Tier 2 (ERU)	**$2.68**	**$2.68**	**$2.63**	**$2.56**	**$4.34**	**$4.51**
Tier 3	**$4.01**	**$4.01**	**$3.95**	**$3.84**	**$6.51**	**$6.76**
Tier 4	**$5.35**	**$5.35**	**$5.26**	**$5.12**	**$8.68**	**$9.02**
Non-residential	**SF/2,600 x $2.68**	**SF/2,600 x $2.68**	**SF/2,600 x $2.63**	**SF/2,600 x $2.56**	**SF/2,600 x $4.34**	**SF/2,600 x $4.51**

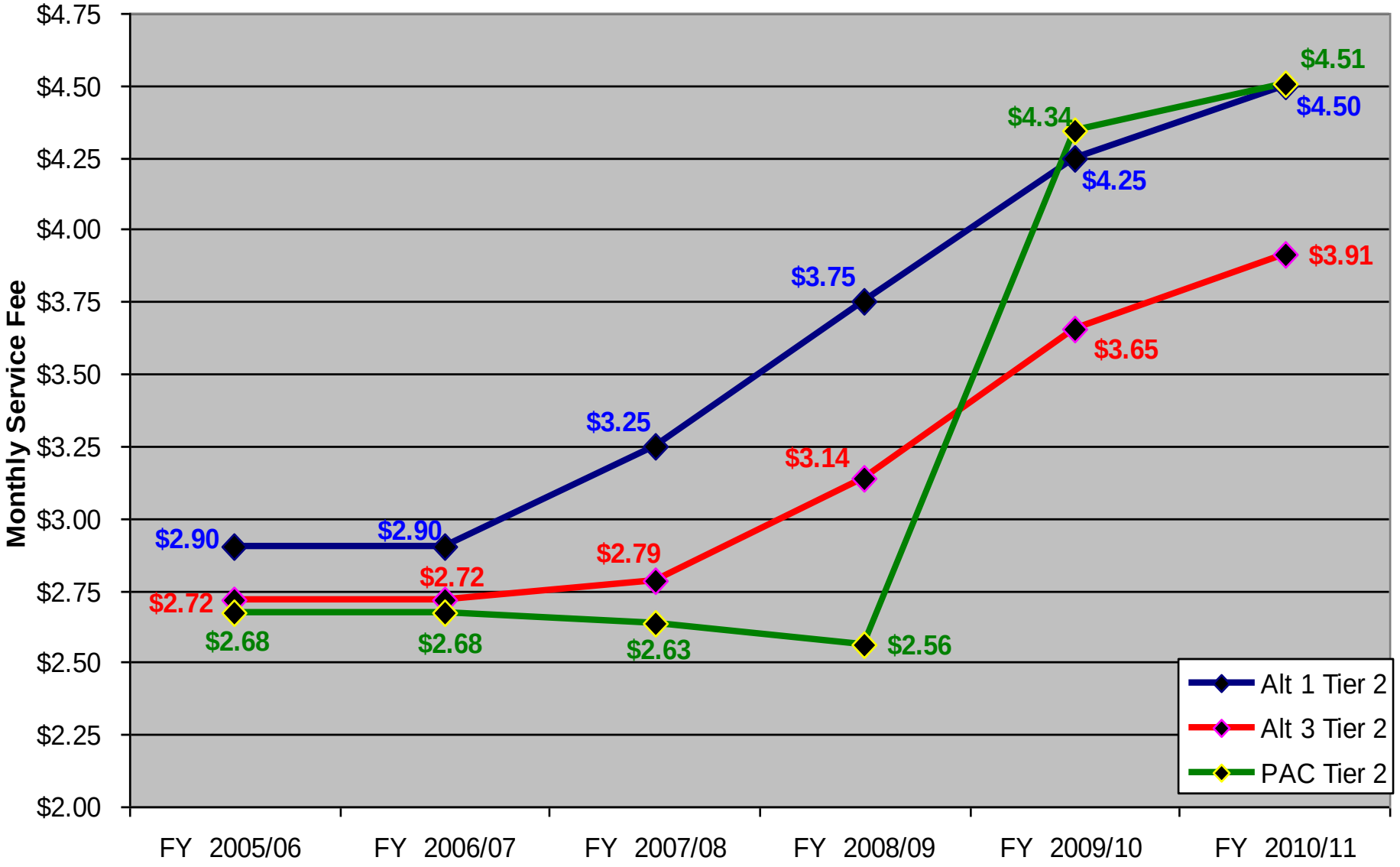
Monthly Rate Projections
Modified Program – Alternative 1 and 2

	FY 2005/06 (last ¼)	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	FY 2010/11
Residential						
Tier 1	**$1.45**	**$1.45**	**$1.62**	**$1.87**	**$2.12**	**$2.25**
Tier 2 (ERU)	**$2.90**	**$2.90**	**$3.25**	**$3.75**	**$4.25**	**$4.50**
Tier 3	**$4.35**	**$4.35**	**$4.87**	**$5.62**	**$6.37**	**$6.74**
Tier 4	**$5.80**	**$5.80**	**$6.50**	**$7.50**	**$8.50**	**$8.99**
Non-residential	**SF/2,600 x $2.90**	**SF/2,600 x $2.90**	**SF/2,600 x $3.25**	**SF/2,600 x $3.75**	**SF/2,600 x $4.25**	**SF/2,600 x $4.50**

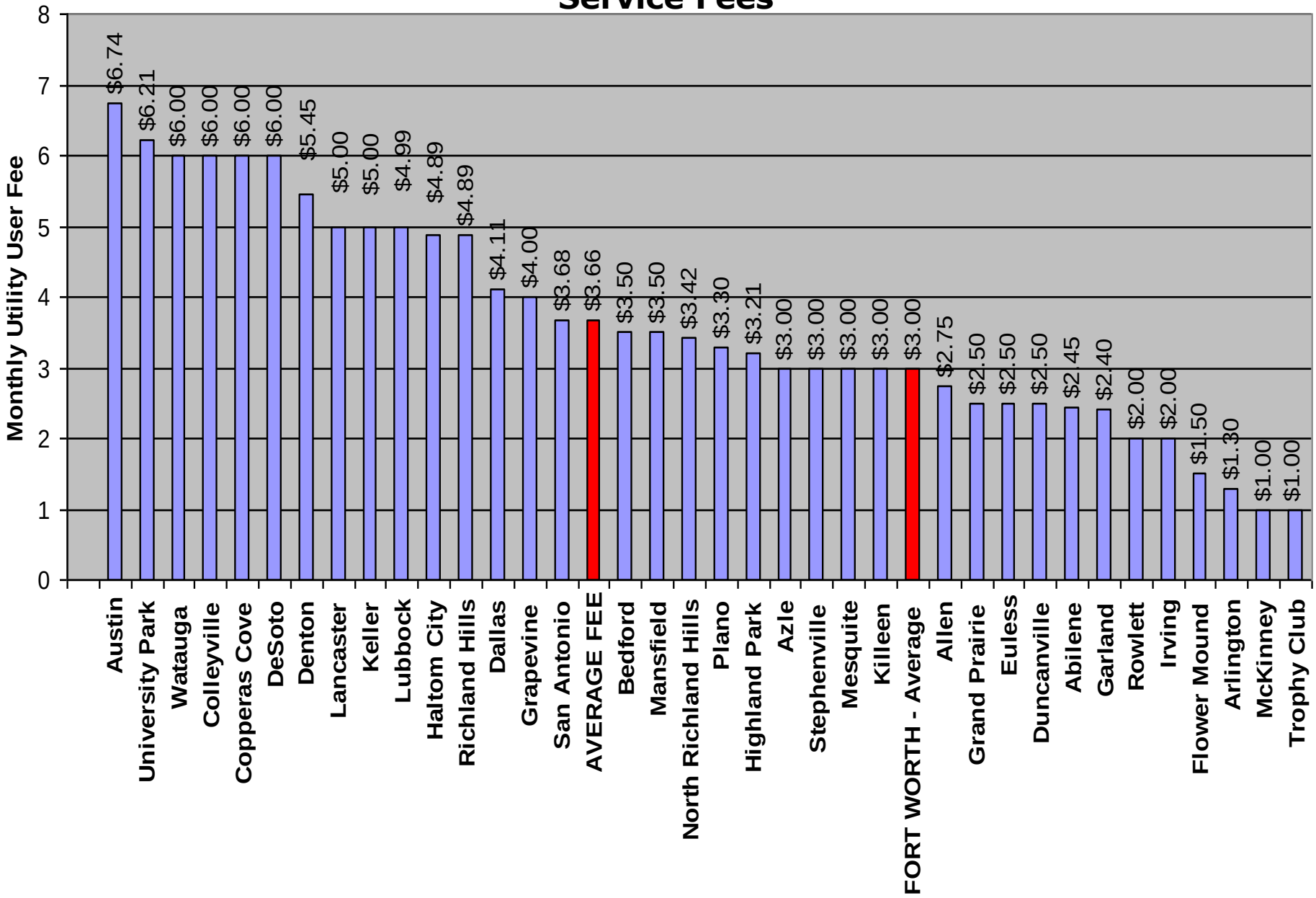
Monthly Rate Projections
Modified Program – Alternative 3

	FY 2005/06 (last ¼)	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	FY 2010/11
Residential						
Tier 1	**$1.36**	**$1.36**	**$1.39**	**$1.57**	**$1.83**	**$1.96**
Tier 2 (ERU)	**$2.72**	**$2.72**	**$2.79**	**$3.14**	**$3.65**	**$3.91**
Tier 3	**$4.08**	**$4.08**	**$4.18**	**$4.70**	**$5.48**	**$5.87**
Tier 4	**$5.44**	**$5.44**	**$5.57**	**$6.27**	**$7.30**	**$7.87**
Non-residential	**SF/2,600 x $2.72**	**SF/2,600 x $2.72**	**SF/2,600 x $2.79**	**SF/2,600 x $3.14**	**SF/2,600 x $3.65**	**SF/2,600 x $3.91**

Residential Tier 2 (ERU) Comparison



Average Monthly Single Family Residential Stormwater Utility Service Fees



Benchmarking – Sample Small Commercial Tract

City	Monthly Stormwater Service Fee
Austin	$129.54
Denton	$70.79
Watagua	$56.64
Fort Worth	$43.50
San Antonio	$43.35
Dallas	$30.22
Richland Hills	$24.90
Arlington	$13.00

Benchmarking – Sample Large Commercial Tract

City	Monthly Stormwater Service Fee
Austin	$391.98
Denton	$214.23
San Antonio	$133.91
Watagua	$171.40
Fort Worth	$127.60
Dallas	$91.45
Richland Hills	$74.69
Arlington	$39.00

Recommended Stormwater Program

Program	Annual Cost Per Acre	Annual Fort Worth Program
"Incidental" – Few capital improvements; completely reactive maintenance	**$25**	$5 million
City of Fort Worth – *Existing Program* – Limited improvements; mostly reactive maintenance	**$38**	**$7.6 million**
"Minimal" – Routine maintenance; basic NPDES compliance; few major capital improvements	**$50**	$10 million
"Moderate" – Organized routine maintenance; priority based remedial repairs; water quality protection actively pursued	**$75**	$15 million
"Aggressive" – Carefully planned and administered program; preventative maintenance; full NPDES compliance; up-to-date master plans; major Capital Program	**$150**	$30 million
City of Fort Worth – *Potential Program* – "Aggressive" master planning, inventory, drainage reviews, maintenance; "moderate" CIP	**$160**	**$32 million by year 5**
"Exceptional" – Highly organized routine maintenance; very strong and effective regulatory programs; water quality programs exceeding NPDES requirements; implementing detailed master plans; extensive Capital Program	**$250**	$50 million

Next Steps

- Public Hearings -- December, January, *February**
- Draft ordinance to Council– late January *(to adopt Utility) and mid-February (to adopt rates)**
- First utility bills -- next summer
- Begin developing Credit Policy

**** After talking with the City Manager, we've revised the schedule for public hearings and ordinances***

SECTION 5 – STORM WATER DRAINAGE UTILITY ORDINANCES

Section 5A – Ordinance Establishing Municipal Drainage Utility

Ordinance No. _____

AN ORDINANCE OF THE CITY OF FORT WORTH, TEXAS, ESTABLISHING A MUNICIPAL DRAINAGE UTILITY SYSTEM TO BE KNOWN AS THE CITY OF FORT WORTH STORM WATER MANAGEMENT PROGRAM; PROVIDING FOR EXEMPTIONS FROM THE ORDINANCE; PROVIDING THAT THIS ORDINANCE SHALL BE CUMULATIVE OF ALL ORDINANCES; PROVIDING A SEVERABILITY CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, within the City of Fort Worth ("City") there is an existing drainage system which has been developed over a number of years for the purpose of collecting and disposing of storm water runoff; and

WHEREAS, it is necessary and essential to ensure that the collection of storm water runoff and control of storm water within the City limits adequately protects the health, safety, and welfare of the citizens of the City including, but not limited to, the protection from loss of life and property caused by surface water overflows and surface water stagnation; and

WHEREAS, it is necessary and essential that the City address the various environmental issues that may further burden its storm water and drainage infrastructure requirements; and

WHEREAS, the City Council has examined the manner and time of the giving and publishing of the notice of a hearing to consider this proposed ordinance and has found that notice of said hearing was duly, properly and legally given; and

WHEREAS, the City Council has found that the City will, and hereby directs City staff to, establish a schedule of drainage charges against all real property in the proposed service area subject to charges, provide drainage service for all real property in the proposed area upon payment of drainage charges (except real property that is exempt from such charges), and offer drainage service on nondiscriminatory, reasonable, and equitable terms; and

WHEREAS, Chapter 402, Subchapter C of the Texas Local Government Code (the "Act"), as amended, authorizes the City to establish a municipal drainage utility system within the boundaries of the City; and

WHEREAS, the Act authorizes the City to provide rules for the use, operation and financing of the system; and

WHEREAS, the Act authorizes the City to prescribe bases upon which to fund the System and to assess the fees and charges to support the System; and

WHEREAS, the Act authorizes the City to provide exemptions of certain governmental entities or persons from the payment of these charges; and

WHEREAS, through this ordinance, the City desires to adopt the Act and declare the drainage system of the City to be a public utility; and

WHEREAS, in setting the schedule of charges for storm water service, the calculations shall be based on an inventory of the parcels within the City and the development on the benefited properties; and

WHEREAS, it is the intent of the City to fund a drainage utility system that fairly and equitably allocates the cost of storm water control to properties in proportion to storm water runoff potential for each type of property.

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT WORTH, TEXAS:

SECTION I.
FINDINGS REQUIRED BY LAW

The City of Fort Worth City Council hereby adopts Chapter 402, Subchapter C of the Texas Local Government Code and finds that the City will, and hereby directs City staff to:

1. Establish a schedule of drainage charges against all real property in the proposed service area subject to charges;

2. Provide drainage service for all real property in the proposed area upon payment of drainage charges (except real property that is exempt from such charges); and

3. Offer drainage service on nondiscriminatory, reasonable, and equitable terms.

SECTION II.
DEFINITIONS

The following definitions apply to the authorizing and the operation of the Drainage Utility System.

1. **City**: means the City of Fort Worth.

2. **Service Area** means all that area of land located within the city limits of the City of Fort Worth. Upon the effective dates of full annexation of additional lands into the City of Fort Worth, each such fully annexed additional land shall become part of the Service Area.

SECTION III.
ESTABLISHMENT OF THE CITY OF FORT WORTH DRAINAGE UTILITY SYSTEM

The Service Area is hereby declared to be a drainage utility system and shall be known as the City of Fort Worth Storm Water Management Program. A drainage utility fee shall be imposed on each improved parcel within the City for services and facilities provided by the City of Fort Worth Storm Water Management Program, except as to exemptions provided for by law or by this ordinance. For purposes of imposing the drainage utility fee, all eligible parcels within the City shall be classified into categories assigned by rules to be hereafter set by ordinances of the City.

SECTION IV.
ADMINISTRATIVE PROVISIONS

A. **Review by City Council.** If, after at least five (5) years of substantially continuous operation of the City of Fort Worth Storm Water Management Program, the City Council determines that the system should be discontinued, the powers under the Act should be revoked, and the provision for financing municipal storm water and drainage costs should be made by using other revenues, the City Council may adopt an ordinance that in effect, after providing notice and a public hearing as required by the Act, discontinues the City of Fort Worth Storm Water Management Program.

B. **Program Implementation.** By the passage of this ordinance, the City makes no representation that all of the city's drainage problems will be immediately remedied and the City Council is given full discretion in establishing the time and quantitative priorities in expending funds as the same become available to meet the storm water needs of the city on a reasonable basis. The passage of this article shall not be construed to relieve private landowners, developers or other individuals or entities from providing drainage improvements pursuant to the ordinances of the City and the laws of this state which relate to drainage, storm water or storm water improvements.

SECTION V.
DRAINAGE UTILITY FUND

A. **Drainage Utility Fund.** The City shall establish a drainage utility fund which may consist of one or more accounts. All drainage utility fees shall be deposited as collected and received into this fund, and shall be used exclusively for the drainage services as stated in Local Government Code Section 402.044(2), which includes, but is not limited to the following:

1. The cost of the acquisition of land, rights-of-way, options to purchase land, easements, and interests in land relating to structures, equipment, and facilities used in providing drainage for the benefited property;

2. The cost of the acquisition, construction, repair, and maintenance of structures, equipment, and facilities used in draining the benefited property;

3. The cost of architectural, engineering, regulatory compliance, legal, and related services, plans and specifications, studies, surveys, estimates of cost and of revenue, and all other expenses necessary or incident to planning, designing, providing, or determining the feasibility and capability of structures, equipment, and facilities used in draining the benefited property;

4. The cost of all labor, machinery, equipment, furniture, and facilities necessary or incident to the provision and operation of draining the benefited property;

5. The cost of funding and financing charges and interest arising from construction projects and the start-up cost of a storm water facility used in providing drainage for the benefited property;

6. The cost of debt service and reserve requirements for revenue bonds used to finance structures, equipment, and facilities which are pledged against securities or obligations issued by the municipality; and

7. The administrative costs of a drainage utility system, including but not limited to, labor, billing,

accounting and collection.

B. **Drainage Fund Accounting.** The revenues collected from drainage utility fees must be segregated and completely identifiable from other City accounts.

SECTION VI.
EXEMPTIONS

The following entities or persons shall be exempt from this Ordinance:

A. Any property to which a mandatory exemption under Chapter 402.053 of the Local Government Code applies, including without limitation:

1. Property with proper construction and maintenance of a wholly sufficient and privately owned storm water system that does not discharge under any storm frequency events or conditions to waterways controlled or maintained by the City;

2. Property held and maintained in its natural state, until such time that the property is developed and all of the public infrastructure constructed has been accepted by the City for maintenance; and

3. A subdivided parcel or lot, until a structure has been built on the lot and a certificate of occupancy has issued, or the municipality has taken another official action to release the property for occupancy.

B. Any property to which a mandatory exemption under Chapter 430.003 of the Local Government Code applies, including without limitation:

1. A state agency; and

2. A public institution of higher education.

SECTION VII.
CUMULATIVE

This Ordinance shall be cumulative of all provisions of ordinances and of the Code of Ordinances of the City of Fort Worth, Texas, as amended, except where the provisions are in direct conflict with the provisions of other ordinances, in which event the conflicting provisions of the other ordinances are hereby repealed.

SECTION VIII.
SEVERABILITY CLAUSE

It is hereby declared to be the action of the City Council that the phrases, clauses, sentences, paragraphs and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such

unconstitutional phrase, clause, sentence, phrase, paragraph or section.

SECTION IX.
EFFECTIVE DATE

This Ordinance shall take effect upon adoption as required by law.

APPROVED AS TO FORM AND LEGALITY:
David Yett, City Attorney

By: _____
Assistant City Attorney

ADOPTED:_____

EFFECTIVE:_____

Section 5B – Ordinance Establishing Drainage Utility Rates

ORDINANCE NO._____

AN ORDINANCE AMENDING SECTION 12.5-340 "CATEGORIES OF DRAINAGE UTILITY RATES" OF CHAPTER 12.5 "ENVIRONMENTAL PROTECTION AND COMPLIANCE" OF THE CODE OF THE CITY OF FORT WORTH (1986), AS AMENDED, BY REVISING AND ADDING CERTAIN RATES AND CHARGES; MAKING THIS ORDINANCE CUMULATIVE OF PRIOR ORDINANCES; REPEALING ALL ORDINANCES AND PROVISIONS OF THE FORT WORTH CITY CODE IN CONFLICT HEREWITH; PROVIDING A SAVINGS CLAUSE; PROVIDING A SEVERABILITY CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, on January 10, 2006 the City Council of the City of Fort Worth held a public hearing in the City Council Chambers located at 1000 Throckmorton Street, Fort Worth, Texas for the purposes of receiving public comment on a proposed ordinance to establish a municipal Drainage Utility System; and

WHEREAS, on January 24, 2006 the City Council of the City of Fort Worth adopted Ordinance No.___ to establish a municipal Drainage Utility System (M&C G-15066); and

WHEREAS, on January 24, 2006 the City Council of the City of Fort Worth also adopted Ordinance No.___ to amend the City Code by adding Division IV to Article III, Section 12.5-336 through 12.5-347 to Chapter 12.5, entitled "Municipal Drainage Utility System" by which the rules and regulations of the Drainage Utility System would be governed (M&C G-15067); and

WHEREAS, on January 10 and January 24, 2006, the City Council directed the City to provide storm water service for all real property in the proposed service area in a nondiscriminatory, reasonable, and equitable terms; and

WHEREAS, Chapter 402, Subchapter C of the Texas Local Government Code (the "Act"), as amended, authorizes the City to establish a municipal Drainage Utility System within the boundaries of the City; and

WHEREAS, the Act authorizes the City to provide rules for the use, operation and financing of the system; and

WHEREAS, the Act authorizes the City to prescribe a basis upon which to fund the municipal Drainage Utility system and to assess the fees and charges to support the municipal Drainage Utility System; and

WHEREAS, in setting the schedule of charges for Drainage Utility Service, the calculations are based on an inventory of the parcels within the City and the development on the Benefitted Properties; and

WHEREAS, the Act authorizes the City to provide for funding of future construction of the Drainage Utility system from a contribution of the Drainage Utility Fee;

WHEREAS, it is the intent of the City to fund a Drainage Utility System that fairly and equitably allocates the cost of storm water control to properties in proportion to storm water runoff potential for

each type of property.

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT WORTH, TEXAS:

SECTION 1.

That Section 12.5-340 "Categories Of Drainage Utility Rates" of Chapter 12.5 of the Code of the City of Fort Worth (1986), as amended, is hereby amended to be and read as follow:

SECTION 12.5-340 CATEGORIES OF DRAINAGE UTILITY RATES.

(A) The City Council finds that impervious cover increases runoff and associated pollutants. For the purposes of calculating the Drainage Utility Fee, an ERU shall be the established standard billing unit. One ERU shall be billed at two dollars and ninety cents ($2.90). Each Benefitted Property shall be categorized as one of the following:

(1) **Residential Property**. Tiers of Residential Property shall be determined based on the most recent Tarrant Appraisal District property data. The median single family residential parcel in Fort Worth has been determined to have approximately 2,600 square feet of impervious area or surface or one (1) ERU.

(2) Non Residential Property. Fees for Non Residential Benefitted Properties shall be based on the total estimated impervious area on each parcel divided by 2,600 square feet to determine the number of ERUs or billing units.

(3) Multi-Family Residential Property. Fees for Multi-Family Residential Benefitted Properties shall be based on the total estimated impervious area on each parcel divided by 2,600 square feet to determine the number of ERUs or billing units.

(B) The City Council finds that it is equitable to assess the Drainage Utility Fee to each Residential user on the basis of four (4) Residential tiers as follows:

Tier	Garage Capacity (Number of Spaces)[1]	Living Area (Square Feet)[1]	Residential Storm Water Monthly Rates
Tier 1 (0.5 ERU)	0	0 to 1300	$1.45
	1	0 to 1040	
	2	0 to 781	

	3	0 to 521	
	4	0 to 262	
Tier 2 (1 ERU)	0	1301 to 2475	$2.90
	1	1041 to 2215	
	2	782 to 1956	
	3	522 to 1696	
	4	263 to 1437	
Tier 3 (1.5 ERU)	0	2476 to 3393	$4.35
	1	2216 to 3133	
	2	1957 to 2874	
	3	1697 to 2614	
	4	1438 to 2355	
Tier 4 (2 ERU)	0	3394+	$5.80
	1	3134+	
	2	2875+	
	3	2615+	
	4	2356+	

[1] – As recorded by Tarrant Appraisal District

(C) The City Council finds that it is equitable to assess the Drainage Utility Fee to each Non Residential user on the basis of the number of ERU's in a parcel, which shall be obtained by dividing the estimated impervious area or surface by 2,600 square feet. The calculated number of ERU's will be rounded to the nearest whole integer to determine the monthly fee.

(D) The City Council finds that it is equitable to assess the Drainage Utility Fee to each Multi-Family Residential Property owner and user on the basis of the number of ERU's in a parcel, which shall be obtained by dividing the estimated impervious area or surface by 2,600 square feet. The calculated number of ERU's will be rounded to the nearest whole integer to determine the monthly fee.

(E) The City Council finds it equitable to provide for funding of future construction of the Drainage Utility system through a contribution from the Drainage Utility Fee.

(F) The City Council may review the schedule of rates at any time and may, by ordinance, increase or decrease said rates within the schedule, upon a reasonable determination that said increase or decrease is warranted.

SECTION 2.

This ordinance shall be cumulative of all provisions of ordinances and of the Code of the City of Fort Worth, Texas (1986), as amended, except where the provisions of this ordinance are in direct conflict with the provisions of such ordinances and such Code, in which event conflicting provisions of such ordinances and such Code are hereby repealed.

SECTION 3.

It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses and phrases of this ordinance are severable, and, if any phrase, clause, sentence, paragraph or section of this ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this ordinance, since the same would have been enacted by the City Council without the incorporation in this ordinance of any such unconstitutional phrase, clause, sentence, paragraph or section.

SECTION 4.

This ordinance shall take effect on _____, 2006.

APPROVED AS TO FORM AND LEGALITY:

_____
Assistant City Attorney

ADOPTED:_____

SECTION 6 – STORM WATER UTILITY CUSTOMER SERVICE TRAINING

Section 6A – Customer Service Training Agenda

Draft Agenda – Fort Worth

- Review of Storm Water Program and Service Fees
- Timing of Roll-out
- Role of customer service reps
- Info on what has been already provided to the community
- Who will likely be calling
- Types of questions/requests expected
- Call tracking – software changes, info to be gathered
- Reference materials – Manual, FAQs quick reference
- General info:
    - Program information
    - Utility fees/calculation
    - Drainage services
- When and how to pass on calls
- Appeals/dispute resolution
- Role play:
    - Program issues
    - Fees/billing disputes
    - Drainage issues/service calls
- Questions/Feedback

Section 6B – Fort Worth Storm Water Utility
Quick Reference – Frequently Asked Questions

DRAFT March 2006

What is storm water? Storm water is the runoff from your property that comes from rain. When the rain hits any hard surface, such as your roof or driveway, it cannot soak into the ground so it runs off your property. Uncontrolled runoff can lead to flooding, erosion, and pollution problems. Because storm water runoff is untreated, pollutants end up in lakes and other water resources. In addition to adding pollutants to storm water, urban development increases the amount and speed of runoff that occurs, so that downstream properties flood, channels and streams erode over time, and natural beauty and habitat may be lost.

Why are properties in Fort Worth being charged a storm water fee? Fort Worth is one of the fastest growing cities in the U.S. today, with a population predicted to exceed one million by 2025. This projected growth, coupled with a drainage system that is now decades old, is presenting new challenges and increased needs in order to control flooding and its impacts. In the last five years, eight people have lost their lives due to flooded roadways and over 300 homes and businesses have suffered major flood damage. A review of capital and maintenance problems revealed that the City already has a backlog of $500 million in storm water projects and that maintenance crews are under-funded to meet the needs of an ever-expanding system. These longstanding storm water management issues must be addressed now to protect our people and our property and the storm water fee is being implemented to provide funding to address these needs.

Who will be charged this fee? All owners of developed property in Fort Worth will be charged a user fee for storm water services. This includes residential property owners, businesses, apartment complexes, public facilities, city facilities, and churches.

How is this fee determined? The storm water fee is calculated based on the amount of hard surface on your property. If you own a single-family residence, your property is placed in one of four tiers depending on the livable square footage of your home and the number of garage spaces you have, according to the Tarrant Appraisal District database. The current fees for single-family properties range from $1.45 per month for small homes with limited parking to $5.80 per month for large homes with parking for several vehicles.

Tier	Garage Capacity (Number of Spaces)[1]	Living Area (Square Feet)[1]	Residential Storm Water Monthly Rates
Tier 1 (0.5 ERU)	0	0 to 1300	$1.45
	1	0 to 1040	
	2	0 to 781	
	3	0 to 521	
	4	0 to 262	
Tier 2 (1 ERU)	0	1301 to 2475	$2.90
	1	1041 to 2215	

	2	782 to 1956	
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	1	2216 to 3133	
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Tier 4 (2 ERU)	0	3394+	$5.80
	1	3134+	
	2	2875+	
	3	2615+	
	4	2356+	

[1] – As recorded by Tarrant Appraisal District

Other non-residential and multi-family property owners in the City will be charged a multiple of $2.90 for every 2,600 square feet of hard surface on their property.

How does the City decide which storm water projects they will do first? The City Transportation and Public Works staff uses a ranking system to determine the highest priority storm water improvements in the community. The ranking is based on how severe the problem is in terms of public safety, the number of households and commuters impacted, and other quantitative criteria. Those projects that are more severe and effect larger portions on the community are scheduled first.

Can the fee be used to fund other programs, like the Police and Fire Departments? No. Fees collected via the "municipal storm water utility" will provide dedicated funding to implement the storm water program. The fees go to a special enterprise account that can only be spent collecting and managing storm water runoff. The fees may not be used for any other services and are not part of the general fund.

Will our fee ever increase or decrease? If so, who decides how much and when? The fee has been set and will increase slightly every year for the first five years of the program. For the first year the fee per billing unit (or ERU) will be $2.90 a month and this is scheduled to increase to $4.50 a month by year 5. It is not known whether fees will increase or decrease after that time. The City leadership will assess future needs after this initial planning period and may then increase or decrease the fee depending on the needs of the storm water program.

Will the creation of a storm water utility reduce the tax rate? No, but most of the much-needed improvements in the storm water system will now be covered through the storm water utility fee. This in turn may reduce the need for a future tax increase.

Our building is shared by multiple businesses. How will they be billed? The property will be billed the same way as it is billed for its water and sewer charges; i.e., if the property owner now gets the water bill and charges a rental fee to each business, this will be handled by billing the owner. If individual businesses have their own meter and get their own water and sewer bill, their storm water charge will be included on their water bill.

Do government entities, such as the state, city and county, pay storm water fees for their properties? Yes, since the fee is based on how much of a demand your property places on the drainage system, all developed Federal, City, and County property is included and will pay storm water fees. State properties, however are excluded from paying the fee based on Texas state law.

I represent a tax-exempt organization. Do we have to pay the storm water fees? Yes, all developed property in the City is subject to the storm water fee. It is based on the demand a property places on the storm water management system.

Can the fee be waived? No**.** Every effort has been made to make this fee as equitable and fair as possible so that all properties that contribute to the storm water demand share the costs. There are no exemptions to paying the fee.

What if I find an error in the storm water fee calculation? Will fee corrections be made? If so, are they retroactive? Our customer services representatives are glad to assist you in reviewing the calculation. If there is an error with the calculation, your bill will be reviewed and your fee will be adjusted. The fee adjustment will be retroactive for up to one year.

Where can I get more information about the Storm Water Utility and storm water management? You can find more information about the storm water utility and the storm water management program on the City's website at www, _____. You can also ask questions of the storm water management personnel in the City by calling 817-392-2104.

I keep hearing that the city has a storm water project backlog of over $550 million. Where can I see the list of those projects? The projects are listed on the Fort Worth website or you can call xxx for more information.

How can I get a project added to the list? You can report a storm water problem to the Transportation and Public Works Department. They will investigate the problem and add it to the list if determined to be a public storm water system issue. You can reach the storm water management personnel in the City at 817-392-2104.

SECTION 6C – POWERPOINT PRESENTATION

Customer Service Training

Fort Worth
Storm Water Utility

May 2006

Agenda

- Short Video Presentation on Storm Water
- Brief Background on the Utility
- Handling Customer Service Calls
  - Types of questions
  - Tools and support
- Role Play Exercises

How did we get here?

In 2004, after serious flooding problems resulted in property damage and citizen safety concerns, the City began a comprehensive study to evaluate their storm water needs.

With stakeholder input the City identified several major gaps in services:

- **$500 M Backlog in Capital Improvement Needs**
- **Reactive maintenance activities**
- **Outdated design standards**
- **Lack of public outreach**
- **Piecemeal planning**

How was the Storm Water Program Developed?

Citizens' Policy Advisory Committee and City staff developed a five-year plan to start addressing the concerns.

Goals:

- Increase infrastructure reconstruction
- Improve system maintenance
- Implement a system inventory
- Perform more master planning
- Enhance development review
- Increase public education and outreach

It was agreed that to achieve the stated goals, a new utility fee was necessary to fund improvements.

How much will it cost?

	05/06 (last ¼)	06/07	07/08	08/09	09/10	10/11
Residential						
Tier 1	$1.45	$1.45	$1.62	$1.87	$2.12	$2.25
Tier 2 (ERU)	$2.90	$2.90	$3.25	$3.75	$4.25	$4.50
Tier 3	$4.35	$4.35	$4.87	$5.62	$6.37	$6.74
Tier 4	$5.80	$5.80	$6.50	$7.50	$8.50	$8.99
Non-residential	SF/2,600 x $2.90	SF/2,600 x $2.90	SF/2,600 x $3.25	SF/2,600 x $3.75	SF/2,600 x $4.25	SF/2,600 x $4.50

- The new comprehensive storm water program calls for an increase in spending of **$13M to $20M** a year over the first 5 years.
- Money will be dedicated to storm water projects only and will fund high priority capital improvements, increased maintenance and development review, community-wide planning, regulatory compliance and public education.

What does this mean to you?

The decision to implement a storm water utility fee will impact the type and volume of customer calls you receive. The first utility fee will be billed on the monthly utility bill starting with the July cycle.

By answering the questions customers have, you will help educate the public about the new utility.

By answering the questions the customers have, you will help ensure the success of the new utility.

Frequently Used Terms

Storm Water Program – All activities that the City performs that relate to capturing, transporting, regulating, and managing storm water runoff. This includes new construction and reconstruction, development reviews, regulatory compliance, floodplain management, inlet cleaning, ditch maintenance, etc.

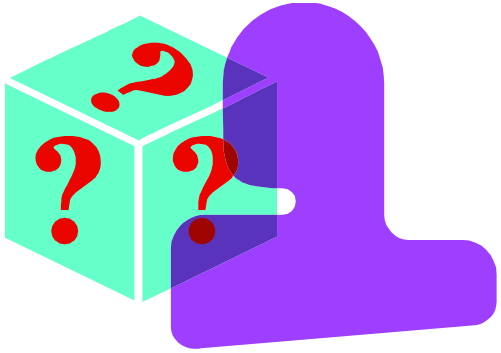
ERU – Equivalent Residential Unit

The billing unit that measures the impact of a property on storm water generation. It is the median amount of hard surface on single family properties. The ERU for Fort Worth is 2,600 square feet.

Tiers - The Fort Worth utility has four billing tiers for single family residential properties . Each tier pays a different fee amount based on number of garage spaces and living square footage of a residence.

Most Frequently Asked Questions

Some general frequently asked questions will be:



- What is this new fee on my bill?
- What will I get for my money?
- What happens if I don't pay the fee?
- Who decided on this fee?

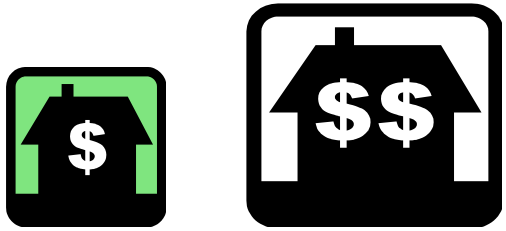
Try to be as comfortable as possible with answering these questions. Many of the calls that will come in during the first few weeks will be the same questions from many users.

A list of top FAQs and answers has been developed to help with the most common, anticipated questions.

Determining the Fee

Some basic questions you might hear are:

- **How was my fee determined?**
- **Why was my property assigned tier X?**
- **How do you know how much hard surface is on my property?**



Fees are determined using the following steps:

1. **The amount of hard surfaces on a parcel is used as the relative measure of each property's impact on storm water runoff**
2. **The billing rate is based on equivalent residential units (ERU) of 2,600 square feet**
3. **Four residential tiers were set based on <u>estimated</u> amounts of hard surfaces on property. This is determined by using TAD data on livable square footage and garage space.**
4. **Non single family residential property is charged a multiplier of the ERU based on measured impervious area.**

Billing

Some frequently asked billing questions will be:

- How and when will I be billed?
- Does my fee go up if it rains?
- Can the fee be waived?
- If I find an error in my bill, how do I correct it?

The goal is to resolve the majority of questions during this first phone call or visit.

Handling the call promptly and courteously will help alleviate the customer's concern.

However, there will be customers that need additional assistance. These calls are forwarded to TPW.

Disputes/Problem Callers

Some frequently heard statements will be:

- I can't afford to pay this bill!
- This is just another tax!
- I don't have this much hard surface on my property!
- I refuse to pay!

If you can't resolve the customer's concern, refer the caller to the TPW Storm Water Coordinator for follow-up.

Help!

At these times, TPW is there to help.

If you can't resolve the customers concern, follow these steps:

1. **Enter information and comments in PeopleSoft.**
2. **Escalate call to TPW queue.**

TPW staff will be working the queue daily and will follow-up with customers within 24 hours.

Account Review (Appeal) Process

1. Customer information and comments are entered into PeopleSoft.
2. Call is escalated to TPW queue.
3. TPW staff follows-up with customer within 24 hours to discuss concerns and investigate the inquiry.
4. TPW staff sends letter with Appeals Form for customer to complete and return to the city with documentation supporting appeal.
5. Appeal form and documentation is received back from customer and is reviewed.
6. A field investigation is performed by TPW staff.
7. A determination on the appeal request is made within 30 days after receipt of customer's appeal information.
8. Notification of resolution is sent to the customer by TPW staff. TPW staff request fee adjustments if needed and closes case.

Outreach Update

Property owners in Fort Worth have been and will continue to be notified about the new Storm Water Utility fee several different ways:

- **Ad campaign (May 1- August 15)**
- **Local media newscasts**
- **Presentations at neighborhood associations and civic events**
- **Water bill inserts**
- **Articles in City Times and on City Page**
- **Information on Cable Channel 7**
- **Flyers and brochures**

Call Tracking

Storm water customer calls will be tracked using the same system that you are currently using for other utility related questions. The system has been modified to include information related to storm water and is designed with several additional categories for storm water classification:

1. Storm Water Billing
    - •Residential
    - •Non-residential
2. Storm Water General Information
3. Storm Water Flooding Concerns/Reports
4. Storm Water Escalation

Each incoming call will be tagged with one of these designations.

Customer Service

What is your role in the Storm Water Utility?

- You will answer the majority of customers' questions and resolve their concerns to the best of your ability.
- You will track storm water related calls.
- You will forward unresolved calls to TPW.

Who will be calling?

- Single family homeowners
- Multi-family tenants
- Commercial businesses
- Neighborhood representatives
- Fixed income residents
- Elderly and disabled
- Non-profit representatives

Anyone else who gets a bill!

Tools

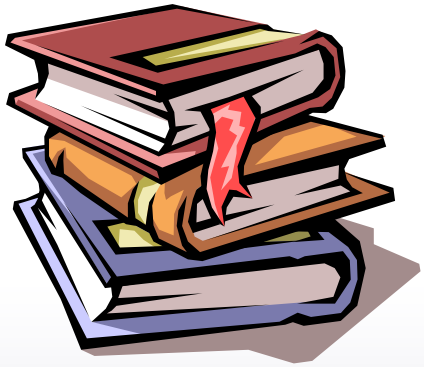
Frequently Asked Questions – Quick Reference Sheet

Inquiry and Complaint Manual - May 2006

TPW PIO and Storm Water Staff

AMEC – on-site support

Website – www.Fortworthgov.org/stormwater



General Advice

- Act business-like, yet warm and friendly
- Listen
- Answer what you can, pass on what you can't
- Don't explain more than you have to
- Don't make up an answer
- Be courteous and pleasant
- Empathize with the caller

Role Playing

How will this help?

It will help you become more comfortable with possible concerns and questions surrounding the new user fee.

It will familiarize you will some of the terminology that will be used.

Questions

???

SECTION 7 – PHASE II PROJECT FLOW CHART

Comprehensive Storm Water Management Study

Flow Chart of Key Project Activities – Phase II