

MINUTES
CITY COUNCIL COMMITTEE ON THE ENVIRONMENT
November 2, 2015

After determining that a quorum of the Committee on the Environment of the Denton City Council was present, the Committee on the Environment thereafter convened into an Open Meeting on Monday, November 2, 2015 at 1:36 p.m. in the City Council Work Session Room 215 E. McKinney, Denton, Texas.

Present: Council Member Dalton Gregory, Council Member Joey Hawkins and Council Member Keely Briggs

Also Present: Howard Martin, ACM; Kenneth Banks, Environmental Services and Sustainable Director; Katherine Barnett, Sustainability and Special Projects Adm; Deborah Viera, Environmental Compliance Coordinator; Matthew Hendrix, Storm Water Specialist; Kathy Jack, Conservation Program Coordinator; Kim Mankin, Administrative Supervisor and Annie Bunger, Administrative Assistant III

1. REGULAR MEETING:

A. COE15-012

Consider approval of the Committee on the Environment meeting minutes of October 5, 2015.

Approved as circulated

B. COE15-011

Receive a report from Dr. Fouad Jaber, Texas A&M Agrilife Extension, and hold a discussion regarding the use of porous concrete and related materials in development and construction.

Dr. Jaber talked about why we need to treat stormwater. There was information on the local hydrologic cycle. Naturally very little of rainwater ends up in a river. When it does it is very clean as it runs through sand and captures the pollutants. When we urbanize we move trees and actually convert the land to impervious, what is not impervious we add grass and grade it in a straight fashion where it runs toward the street. As a result you have larger amount of water faster flow and add pollutants. Jaber then showed a graph of an area pre-development and post development. There was some discussion how a 100 year storm is calculated which for this area is nine and a half inches in a 24 hour period.

Jaber talked about the prevention of stormwater pollution including better management, reducing stormwater volume and reducing contaminant content. All rivers and lakes need protection including the coastlines, riparian zones and pathways to the water body.

Low impact development was introduced with examples of rain garden bio-retention areas, porous pavements, green roofs and rainwater harvesting.

Types of permeable pavement includes; paver blocks, porous asphalt, porous concrete, turf paver and expanded shale mix.

Gregory asked about freezing weather and permeable pavement, would there be pot holes like with traditional pavement. Jabar answered no, they are commonly used in New York and other areas with freezing temperatures. When you get rain that sits on non-porous materials it ices. With the porous materials it flows out. Jabar has this material in his parking lot in Dallas, this Committee can go and look if they would like. The material has been there for two years and have no signs of cracks or other problems.

Gregory asked what is more cost effective, porous asphalt or porous concrete. Jabar answered asphalt is cheaper but has its own set of issues. Average concrete is \$6 per square foot. Porous asphalt \$8-\$9 per square foot, porous concrete \$10-\$12 per square foot, paver blocks are more expensive probably \$16 per square foot. There are other items such as piping that would also figure into the costs.

Gregory then asked the cost comparison for turf paver and expanded shale mix. Jabar answered the both cost in the range of \$5 per square foot. Remember they are limited in use.

Hawkins asked if the current code or ordinances allow for if a developer uses porous materials. Banks answered Denton has a maximum parking standard where most cities have a minimum parking standard. If you exceed the maximum allowed amount of parking spaces for the type of use the code requires you to use permeable surfaces in that exceedance.

Jabar asked if there is a drainage requirement. Banks answered there is, the drainage requirement is sized to the impermeable surfaces and the permeable surfaces are not going to add an addition to that drainage requirement. This addresses the stormwater quality and quantity.

Gregory added at least part of the parking lot on Exposition that will be re-build could be convertible from parking to green space. Another portion of the parking lot could be porous surface so we would have experience with it. Gregory then asked if there are any in the City. Banks answered Fire Station 7, Hunter added the new Wastewater Treatment Administration building has impervious pavement.

Jabar showed pictures of typical applications. Paver material is not recommended for heavily traveled streets, but works well on lightly used slower streets or alleyways.

A permeable pavement experiment was conducted on a parking lot in Dallas comparing five types of pavement. There were 25 experimental stalls among 52 total functional stalls. There was a perforated underdrain piping system with a total thickness of 16 inches. This was hydrologically separated with concrete curbs. The analysis was shown on a bar graph. Volume reduction rates were as follows: PICP, 71 percent; pervious concrete, 74 percent; grass pavers, 78 percent; and gravel pavers, 93 percent.

Results for the experiment concluded the percent contribution other than TSS appeared high because of the minute amounts found in the control runoff. Nitrate and orthophosphate concentrations were still low in general from all treatments. Permeable pavement is constructed to collect runoff from paved areas with a minimum amount of soluble chemicals in the water and TSS is the major target pollutant.

Briggs stated that in preparation for the 100 year flood the City has taken natural creek beds and busted them up and filled them with 50 feet of concrete, is this type of concrete better for that application. Jabar asked if the channels are being lined. Staff agreed. Jabar said he is a natural stream restoration specialist. Pervious channel is an eco-system that needs the soil. There is a cross section design of the system that needs to be looked at. Systems can be put in the watershed everywhere and guarantee that less water will end up in the channel and there would be no need for channelization. There are budget issues with different systems.

Banks added that some of the approaches that were talked about today would prevent excessive flows for the future and as new development happens. Jabar agreed and added that if someone donated \$2 million to restore a stream, if you are going to urbanize the watershed more all the money would be wasted because the flow would increase. In order to prevent and protect the investment in the streams low impact development is necessary.

Gregory asked as we are performing the street rebuilding projects of using more pervious asphalt would it slow down the storm drains. Banks answered one of the key issues would be the extra flow that is generated from all the new development that is coming into the city. The new subdivision is going to be comprised of streets but would have additional sources of imperviousness or conveyance of water. There are homes and sloped yards all designed to move water off of the site. These types of methods that deal with one component of low impact development but actually putting in other types of stormwater management is a broader context. That can be dealt with traditional methods like detention facilities but can also we dealt with much more distributed methods like at Rayzor Ranch.

Briggs stated she was referring to the concrete channel that was constructed a couple of weeks ago and asked if there are plans to do more channels the same way. Martin answered it depends on which channel that is being talked about. **Briggs stated there are a lot.** Martin stated those that were never designed to carry the 100 year flood will technically have to be enlarged. When you get to the undeveloped component of the City those have not been concreted they are natural. The example is the area that goes by Woodrow by the old animal shelter which is all natural, that will not be concreted. The areas in town that are developed and being developed currently will more than likely receive come kind of rebuild that would include concrete channel lines.

Gregory suggested asking for an item regarding the channels.

Martin added what we are talking about here are more applicable to the upper parts of the watershed and new development versus those that are already developed with an undersized drainage channel existing.

Gregory asked if there are any funds available from TCEQ or other organizations that would want to promote more use of this type of paving.

Jabar stated that every year the TCEQ has 319 funds available for Cities and other entities to actually install best management practices that reduce non-point source pollution. There is no better example for a City than low impact development.

Gregory asked if we apply for those. Banks answered yes, we have received \$1.3 million since the 2005 Management Practices that have been installed.

Gregory added that this was very informative.

C. COE-15-013

Receive a report and hold a discussion regarding the new Municipals Stormwater Permit for the City of Denton.

David Hunter gave this presentation. The Watershed Protection Divisions main goal currently is the Phase II MS4 Stormwater Permit and be compliant with the Clean Water Act.

The origins of the watershed protection program go back many years to the pretreatment program. One value is the program started in the early 1990's, they had the technical understanding of handling waste, load and inspections.

Storm-Water Phase II permitting went online in 2003 for cities under 100,000. Texas didn't start their permitting process until 2007. This includes the Clean Water Act and the Safety Water Drinking Act.

Our water goes down to Lake Lewisville which is one of our drinking water supplies. Contaminants are easier and cheaper to control in the watershed (pollution prevention) than to remove once in the reservoir, via Water Treatment Plant.

Timeline of the Texas Stormwater Permitting:

2003 Construction Permit (2003-2008)

2006 Industrial Permit (MSGP) (2006-2011)

2007 Phase II MS4 Permit (2007-2012)

2011 Industrial Permit Reissued

2013 Construction Permit Reissued

2013 Phase II Stormwater Permit Reissued

MS4 Definition: A conveyance or system of conveyances owned by the U.S., a state, city, county, town, or other public entity that discharges to waters of the U.S. and is designed / used to collect or convey storm water. The systems is not a combined sewer.

Gregory asked as the City gets larger will there be more of a requirement for more mitigation activities of the stormwater before it gets into the lake. Hunter agreed and added with the new permit the City is called a large or category 4 phase II. The City is the largest of the phase II and has more requirements to mitigate any pollution.

Hunter stated that under the law the City regulated what is called the urbanized area of Denton. Banks added that both universities are required to have their own MS4 permit. It is like having two cities within a City.

Requirements of the stormwater permit include:

Develop and Implement Comprehensive Storm Water Management Program (SWMP):

Reduce Pollution in Storm Water to the Maximum Extent Practicable (MEP) – federal standard
Protect Water Quality

Meet Water Quality Requirements of Clean Water Act and Texas Water Code

Required inside of UA only

Include Six Minimum Control Measures (MCMs):

Programs and Controls

Best Management Practices (BMPs)

Compliance under the new permit has Denton as a Large Phase II MS4

The six minimum measures include:

Public Education, Outreach, and Public Involvement

Illicit Discharge Investigation and Elimination

Construction Regulation

Post Construction

Municipal Good Housekeeping and Pollution Prevention

Industrial Sources

Public Education outreach and involvement:

All permittees shall develop, implement, and maintain comprehensive stormwater education and outreach program to educate public employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges can have on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater. Examples include: Stream Clean, Great American Clean Up Jazz Fest, Redbud Days, Website and Facebook, Survey Research, Brochures, Reverse Litter and DTV.

Gregory stated we could have a Committee on the Environment meeting at the Wastewater Treatment Plant.

Illicit Discharge Detection and Elimination (IDDE)

All permittees shall develop, implement and enforce a program to detect, investigate, and eliminate illicit discharges into the small MS4. The program must include a plan to detect and address non-stormwater discharges, including illegal dumping to the MS4 system. The stormwater map is online.

New requirements include:

Dry Weather Screening

Source Investigation

Identification of Priority Areas

Field Screening

Field Observation

Construction site stormwater runoff control.

All permittees shall develop, implement and enforce a program requiring operators of small and large construction activities, as defined in Part I of this general permit, to select, install, implement, and maintain stormwater control measures that prevent illicit discharges to the MEP. The program must include the development and implementation of an ordinance or other

regulatory mechanism, as well as sanctions to ensure compliance to the extent allowable under state, federal, and local law, to require erosion and sediment control.

Stormwater compliance map was reviewed.

Post-Construction Stormwater Management in New Development and Redevelopment.

All permittees shall develop, implement and enforce a program, to the extent allowable under state, federal, and local law, to control stormwater discharges from new development and redeveloped sites that discharge into the small MS4 that disturb one acre or more, including projects that disturb less than one acre that are part of a larger common plan of development or sale. The program must be established for private and public development sites. The program may utilize an offsite mitigation and payment in lieu of components to address this requirement.

As with changes the sites will be required to be inspected.

Hunter then talked about pollution prevention and good housekeeping for municipals operations. Examples include street sweeping, home chemical collection center, and dyno dirt. Those are things that are sustainable that keep the pollutants off of the streets.

New requirements for stormwater compliance include:

Operation and Maintenance and Materials Management Programs

Training and education

Inventory of Sites

Assessment of Operations

Regular Inspection of Sites

Storm Sewer System Operation and Maintenance and Cleaning

Sweeping Waste Management Program

List of Problems areas

Facility Assessment and Prioritization

The monitoring program was then talked about.

The City has 88 sites in and around the City.

Continuous Monitoring at ends of Watershed and in Lake Lewisville

Permanent Monitoring Sites

Volunteer Monitoring

Water Quality

Benthic Monitoring

Rainfall Monitoring Sites

Zebra Mussels Monitoring in Lake Lewisville

A map of the sites were shown as well as instrument information.

The use of the data that is collected can show water quality trend analysis, regulatory compliance and the use with GIS to characterize watersheds and find hot spots.

Maps with areas of elevated Diazinon concentrations from March 2001 and April 2001 were shown. This product was 'D-listed' in 2003 by the EPA. The City had problems with this product concentration at the Wastewater Treatment plant.

Briggs asked if the EPA had not banned this product, what as a City could we do in a situation like this. Hunter answered that since the stormwater is a separate system a lot of our focus went to closing up cracks in the sanitary sewer system where that stormwater was leaking in. The other part had to do with public education and outreach,

Hunter added that the question was asked if there was money received in a 319 grant. The money has been received and a portion used on the Hickory Creek Water Protection Plan which essentially tries to handle some of the water quality impacts from post construction. It also looked at places like Cole Ranch and how to address water quality with a large development a master plan community.

Hunter gave examples of where our current water quality Best Management Practices are located: Dog Park at Lake Forrest, Fire Station 7, Airport, Cross Timbers Park, and South Lakes Park.

Benefits of Denton's Watershed Protection Permit include many up-front expenditures paid for by grants. Partnership with Universities and other entities provides experience, expertise and additional resources. Bottom line is more extensive program at less cost, greater opportunities for outreach, education and public participation.

Across the City the Stormwater Permit is not just Watershed Protection other entities include:

Wastewater

Water

Solid Waste

Parks and Recreation

Library

Streets and Drainage

Planning and Building Inspection

Gas Well Regulations

Police and Fire

Community Improvement Services

Transportation

Current Staff includes:

1 Manager (Also over Industrial Pretreatment Division)

1 Watershed Coordinator

1 Environmental Compliance Coordinator

1 Stormwater Specialist

1 Stormwater Inspector

3 Interns

Regional Projects/Partnerships:

NCTCOG - Stormwater Group and Public Works Group

National Weather Service

Reverse Litter

Evapotranspiration Network

Local Stakeholders – Residents and Businesses
Additional MS4s - UNT/TWU/Denton County and Other neighboring Cities

With the new stormwater permit:

Denton being classified as a Large Phase II MS4 - More regulatory requirements, tracking and inspections.

Good News! – Because of the approach we took 14+ years ago we are really in compliance with most aspect of the new permit.

Other City Departments are doing a lot that counts for our regulatory compliance.

The Stormwater Management Plan is located on:

www.DentonWatersheds.com

D. COE15-014

ACM Update:

1. Matrix.

CONCLUDING ITEMS

A. Under Section 551.042 of the Texas Open Meetings Act, respond to inquiries from the Committee on the Environment or the public with specific factual information or recitation of policy, or accept a proposal to place the matter on the agenda for an upcoming meeting AND Under Section 551.0415 of the Texas Open Meetings Act, provide reports about items of community interest regarding which no action will be taken, to include: expressions of thanks, congratulations, or condolence; information regarding holiday schedules; an honorary or salutary recognition of a public official, public employee, or other citizen; a reminder about an upcoming event organized or sponsored by the governing body; information regarding a social, ceremonial, or community event organized or sponsored by an entity other than the governing body that was attended or is scheduled to be attended by a member of the governing body or an official or employee of the municipality; or an announcement involving an imminent threat to the public health and safety of people in the municipality that has arisen after the posting of the agenda.

Gregory - Sustainability Plan Workshop – December or January

Briggs - Green Sense Program to extend to Commercial

Briggs - Increase funds for Green Sense Program

Briggs - Report on Methane Emissions and air pollution

Briggs - Strategy that the City has for purchasing a tree stand

The meeting was adjourned by consensus at 3:37 p.m.