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Testimony

Of

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City of Dallas, Texas

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Chairman Johnson, Ranking Member Boozman and members of the Subcommittee, thank you for this opportunity to provide testimony regarding efforts to address urban stormwater runoff. I am Tom Leppert, Mayor of the City of Dallas, Texas, and I'm here to share some of our experiences in the management of stormwater runoff.

Just last week we were honored to host a Sustainable Communities Conference in Dallas along with the Region 6 Office of the EPA and the North Central Texas Council of Governments. This highly successful gathering attracted over 900 local, state, federal, and foreign officials, as well as private and not-for-profit interests. We feel the high attendance is indicative of the enormous and growing interest in and emphasis on this topic across the country. The focus of the conference was building partnerships and sharing ideas about green infrastructure, low impact development, and other sustainability initiatives. Some of the best practices related to stormwater mitigation issues and strategies included:

- Tree Mapping and Planting Modeling;
- EPA's Green Infrastructure Partnership;
- Rain Gardens, Swales and Grass Pavers;
- Pervious Concrete Design, Construction, and Maintenance; and
- Life Cycle Costs and Environmental Analysis of Pavement Types.

The conference included several presentations by City of Dallas staff including topics such as:

- Urban Forestry and Sustainable Landscaping;
- Downtown Parks and Green Spaces;
- Green Building Codes and Green Building Efforts;
- City of Dallas Green Fleet Program;

- City of Dallas Lawn Mower Exchange Program;
- Implementation of the City of Dallas Idling Restriction Rules;
- McCommas Landfill Enhanced Methane Recovery Project;
- Green Ratings for Cities; and
- Green Dallas.

The City of Dallas staffed an exhibit booth with information on our stormwater management program and on green infrastructure projects recently completed or under construction in the City. The exhibit booth and Dallas-led sessions were all well-attended and stimulated interest. There were many follow-up questions and conversations regarding programs and initiatives that we have implemented along our journey to sustainability.

Additionally, the conference provided an opportunity to share best practices with our colleagues from across the country. For example, there were great presentations on the rain garden program in Kansas City and Philadelphia's green infrastructure program.

We were honored to play an active role in planning and hosting the conference for a number of reasons. Perhaps chief among those is our genuine commitment to leadership in environmental stewardship – not just in our own municipal operations, but also in terms of working with the private sector. Not too many years ago, you would not have found the City of Dallas included on very many lists of what we now commonly refer to as "green" cities. Just in 2006, the City entered into a consent decree with the EPA, Department of Justice, and State of Texas to address issues with our stormwater management program particularly in the areas of staffing and

housekeeping practices at City service and operations centers. Two and one-half years later, we are emerging as a municipal leader in both areas and beyond.

- We have increased staffing in the stormwater management program by 67 percent compared to 2003 levels and are maintaining staffing levels required in the consent decree.
- We are maintaining compliance with required inspections of outfalls, industrial facilities, and construction sites, and have adopted a culture of continuous process improvement to continue exceeding these requirements.
- We implemented an environmental management system to provide an overall framework for managing factors that affect the environmental performance of the City. We also went the extra mile to have it certified by undergoing a rigorous third party evaluation under the International Standards Organization 14001 (ISO14001) standard for environmental management systems.
- We are making progress with the Department of Justice and EPA on modifying one of our supplemental environmental wetland projects to make it greener by incorporating a pretreatment cell to remove even more pollutants from stormwater runoff.

Beyond the consent decree, we have adopted a sincere commitment to environmental stewardship and leadership. We have adopted greener city policy and we are revising our development and redevelopment code to make it easier for the private sector to adopt sustainable practices and ultimately make these green practices the standard. This commitment to environmental leadership is evidenced by recognition from several state and federal agencies including:

- In 2008, Dallas is largest city to become a member of the EPA's National Environmental Performance Track Program, which recognizes organizations that go above and beyond their environmental legal requirements to reduce the environmental impacts of their operations.
- In 2006, Dallas was selected as the first city to pilot the EPA's Sustainable Skylines Initiative that officially kicked off in 2007. The purpose of the program is to develop a holistic approach to sustainability. As a result of our participation:
    - $250,000 in initial funding has grown to $4M by developing partnerships with local agencies, organizations, and others interested in sustainability;
    - Numerous taxi cabs are being replaced to reduce emissions with funding from a local private foundation;
    - 40 green Habitat for Humanity homes have been built and are now occupied; and
    - 400 gasoline powered private lawn mowers were replaced and recycled to help reduce NOx emissions, again with help from a local private foundation.
- We were the first major U.S. city to implement an environmental management system covering the vast majority of our major operations which entailed achieving ISO 14001 certification.
- 41% of our entire fleet of over 5,000 vehicles and pieces of heavy equipment are either hybrid or run on alternative fuels.
- And lastly, Dallas is one of the largest purchasers of green power in the country even among private entities.

I would like to focus my testimony today on sharing Dallas' perspective regarding three topics:

1. Our experience with green infrastructure and low impact development;
2. The challenges to expanding the use of green infrastructure and low impact development; and
3. The impact of recently passed legislation.

Green Infrastructure and Low Impact Development in Dallas

The City of Dallas, like many other cities, is extremely interested in expanding our use of green infrastructure and low impact development best management practices in order to manage the quality of stormwater runoff. Stormwater runoff is best treated as close to its source as possible rather than using "end of the pipe" structural control solutions. Dallas has utilized several green infrastructure techniques and tools to treat stormwater runoff at its source.

We have adopted a strategy to require more sustainable and greener buildings and implementation is underway. The City established a Green Building Task Force, comprised of for profit builders, nonprofit and affordable housing providers, the North Texas Home Builders Association and other stakeholders. The Task Force met for several months in 2007 and 2008 to develop a set of green building standards that would work for the City of Dallas. The Task Force recommended a two-phase implementation strategy for the Green Building program, which was adopted by the City Council in April 2008.

Phase 1 of the Green Building Program becomes effective on October 1, 2009. This phase requires that homebuilders construct their homes to be 15 percent more efficient than the base energy code and meet four out of six high-efficiency water reduction strategies, including low flow faucets, showerheads, and toilets as well as use of ENERGY STAR rated appliances.

In Phase 2, the ordinance requires all homes to be built to a standard such as the LEED for Homes or the Green Built Texas (GBT) standard. LEED is the system developed by the U.S. Green Building Council for designing, constructing, operating, and certifying green buildings. There are four levels of LEED ratings – Certified, Silver, Gold, and Platinum. This is where stormwater management guidelines, as set forth by LEED, are incorporated into the Dallas Green Building ordinance. Green Built Texas is an initiative of the Home Builders Association. The program's guidelines address strategies for improving energy efficiency, water efficiency, indoor air quality, material usage, site management, waste recycling, and cleaner electricity. This includes points toward a 20 percent water use reduction and a minimum 17.5 percent increase in efficiency over the base energy code or the performance of an ENERGY STAR for homes with a HERS rating of 83 or less. The HERS Index is a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. The lower a home's HERS Index, the more energy efficient it is in comparison to the HERS Reference Home.

For commercial projects, Phase 1 of the new ordinance requires that buildings *less than* 50,000 square feet must:

1. Be 15 percent more efficient than the base energy code;
2. Utilize 20 percent less water than required by the current Dallas Plumbing Code;
3. Incorporate EPA's ENERGY STAR low-slope roof requirements for roof surfaces with a slope less than or equal to 2:12; and
4. Comply with outdoor lighting restrictions in order to reduce light pollution.

For commercial projects larger than 50,000 square feet, Phase 1 requires buildings to meet 85 percent of the points required under the appropriate LEED rating system for a certified level. This includes one point for 20 percent water use reduction, and a minimum two points for 14 percent more energy efficient than the base energy code requires.

Phase 2, requires all commercial projects to be LEED certifiable under the appropriate LEED rating system, or an approved alternate green building standard. Additionally, each project must implement a 20 percent water use reduction and be 17.5 percent more efficient than the base energy code.

Already, the City of Dallas has a growing inventory of 27 green municipal facilities that were built to achieve LEED standards in the Certified, Silver and Gold categories.

For example, our new Timberglen Branch Library was designed to achieve **LEED-silver** certification. Among other features, it includes two 50,000 gallon underground cisterns used to collect stormwater runoff for irrigation and grey water reuse on-site. Not only does this feature save money by lowering the amount of potable water used for irrigation and non-consumption activities, it decreases the amount of urban stormwater runoff and allows us to manage the runoff close to its source. In the final analysis, this facility exceeded design expectations and was awarded a **LEED-gold** certification. We think our stormwater techniques had a lot to do with obtaining this higher LEED certification.

The design of our South Central Police Substation, also designed to achieve **LEED-silver**, obtained **LEED-gold** in the final analysis. The station opened in 2008 and includes a permeable pavement for its overflow parking area. Because the surrounding site was less densely developed, it was important to preserve greenspace and to treat the stormwater runoff prior to discharging it to the natural drainage system. Permeable pavement was selected as an appropriate tool in this instance and again we are able to manage stormwater runoff close to its source.

Green infrastructure and low impact development tools to address urban stormwater runoff were incorporated into the design of several additional municipal, LEED registered or certified projects constructed in the last several years including the new animal shelter, Fire Stations 33, 38, and 40, the Hensley Field Operations Center, the Northwest Service Center, the Bachman Lake Branch Library, and the Jack Evans Police Headquarters. A variety of green infrastructure practices were used on these projects including:

- Roof-top and ground level cisterns for collection of rainwater for use in irrigation;
- Permeable paving to reduce runoff and increase both infiltration and pollutant removal;
- Bio-retention for on-site stormwater runoff treatment prior to discharge off-site; and
- Separators to divert fire engine and apparatus wash water from the storm drainage system.

Another important effort underway is updating our development code to incorporate the concept of integrated storm drainage design to increase the use of green infrastructure and other low impact development tools. The goals are to incorporate drainage planning in the early stages of site development and to address post-construction control of urban runoff in a much more structured fashion. Both have been challenging tasks and I'd like to share some of these challenges with the Committee.

Challenges to Expanding Green Infrastructure / Low-Impact Development

One of the largest obstacles we are facing is obtaining the buy-in of developers and their engineers. Developers think that green infrastructure will add additional costs and some

indicate that they won't build in the first few cities that enact these requirements, preferring instead to develop in cities without these requirements. As a former CEO for a major international construction company I can tell you that building and developing green **does not** automatically mean higher construction costs and it is imperative for the sake of future generations that everyone begins to move in this direction and this has to start with education.
In order to successfully implement change in this area significant training resources will be necessary educate the developer and engineering communities. This is the only way to convince developers that incorporating green infrastructure into their planning does not mean making their projects infeasible from a cost perspective.

Our efforts to make our development code more green began by participating in a regional effort coordinated by the North Central Texas Council of Governments several years ago to craft an Integrated Stormwater Management (iSWM - pronounced "I swim") guidance document. To date, however, very few cities have adopted this regional document as part of their development code and very few developers are using it. As we prepared to adopt the guidance as part of our development code we conducted a very open and inclusive public involvement process and found home builders were not very receptive to the concept. As a result, we are utilizing a phased approach whereby we would initially upgrade our drainage design criteria to include use of the iSWM tools as recommended, but optional, in the first phase.

It is our hope that our phased in approach will allow the City and developers to use the integrated design practices without seeking waivers from the current standards and also provide additional time for an extensive education and outreach campaign. Phase two might include offering

incentives to developers to adopt these practices. For example if certain levels of green infrastructure and low impact development techniques are used, we may:

- Allow more dense development which adds directly to the developer's bottom line;
- Reduce parking requirements in warehouse and industrial projects, which again, positions the developer for additional profit; and
- Reduced of right of way width requirements in residential subdivision projects, which would puts money into the developer's pocket.

The City of Dallas would be the first city in Texas to implement such program. In Phase three, we would assess effectiveness and consider making the use of the green infrastructure tools mandatory. Again, we are looking at offering incentives to encourage the development community to adopt these more sustainable practices.

Earlier while highlighting some of the green design features of our South Central Police Substation I mentioned that we included permeable pavement on the overflow parking area. Ideally, to address both urban stormwater runoff and the heat island effect that plague urban environments, we would likely have chosen a pervious concrete application for all of the paved areas. Pervious concrete would not only help treat stormwater runoff but also reflect rather than absorb heat throughout the day, resulting in lower ambient temperatures, which leads to lower building cooling costs, which leads to lower energy consumption, which leads to reduced air emissions and fossil fuel consumption. Engineers have traditionally relied upon compressive strength as a key design element for concrete. Unfortunately, the porous nature of pervious concrete that allows it to allow runoff to infiltrate into the ground and remove pollutants also precludes the standard strength testing methods that have been used on traditional concrete for

decades. Determining the structural strength is crucial because it gives an indication of how much load or weight a pervious concrete pavement structure can handle. Basically, this drives the decision of whether it should only be used in the construction of sidewalks and light vehicle parking areas or if it can safely and cost-effectively be used to construct neighborhood streets. Having a standard method of assessing the material's strength is critical to expanding its use and realizing the tremendous potential of urban stormwater runoff and urban heat island benefits of pervious concrete. The American Concrete Institute has developed fairly robust design specifications for pervious concrete, but they note that additional work is needed in the area of determining the strength of the material. Perhaps this is an area in which Congress can direct the National Institute of Standards and Technology or some comparable group to address this issue.

The second challenge I would like to mention is again related to the expanded use of pervious concrete pavement, but also a number of other green infrastructure tools that we think have tremendous potential for addressing urban stormwater runoff and the urban heat island effect. Consistent with Dallas' commitment to leadership in the area of sustainability in general, we see a tremendous opportunity to significantly expand the use of these tools by serving as a model for municipalities throughout our region and beyond.

In order to do this, **it is necessary to equip and train city staff** to properly install and maintain green infrastructure. We see staff development as a huge opportunity to better position ourselves to install and properly maintain the types of green infrastructure that will be absolutely critical as we all move further along the journey of sustainability. In 1991, the City of Dallas created a stormwater utility in order to provide funding for compliance with EPA's unfunded municipal

stormwater mandates. The utility's first annual budget was $8.25M. As the cost of compliance and the amount of infrastructure to maintain has increased over the past 17 years, so have the stormwater fees charged to our property owners. A 2008 survey of 58 stormwater utilities throughout Texas indicated that annual revenue ranged as high as $51M and operations (including compliance) and maintenance were consistently reported as the primary expenses in each of those communities. In Dallas for the current fiscal year, the adopted budget is $35.1M consisting of nearly $30M in maintenance, operations and compliance expenses and approximately $5M in debt service and administrative expenses. I see green infrastructure as a real opportunity to enhance environmental stewardship and potentially reduce the cost of compliance long-term. In order to take advantage of this opportunity, we must prepare our infrastructure maintenance staff in the means and methods of installing and maintaining green infrastructure. As leading cities located in diverse climates and geographies are able to show successful implementation of the various tools at our disposal, the result will be increased confidence among other cities to adopt these tools. I believe as more cities within a watershed implement and begin to require these tools as standard development practices, the cost of compliance for the watershed region will decrease over time. One method to make progress in this area is to ensure that municipal maintenance staffs across the nation are equipped and trained to install these tools as retrofits.

Recent Legislation

I commend the House of Representatives for the recently passed Water Quality Investment Act of 2009 (HR 1262). As you are aware, this legislation includes reauthorization of the Clean Water State Revolving Fund Program which is vital to the expansion of the use of green

infrastructure and low impact development tools. The legislation also provides important funding designated for small and rural communities which ultimately helps level the playing field by enabling smaller communities to address wastewater treatment needs and other funding to manage, reduce, reuse, or treat municipal stormwater including the use of low-impact development tools. When smaller communities get on board, regional watershed management becomes possible. We are also pleased that there is funding in the American Recovery and Reinvestment Act designated specifically for green infrastructure projects. This will be tremendously helpful in expanding the nation's use of green infrastructure to address stormwater management.

In Conclusion

I would like to commend the Subcommittee taking up the issue of urban stormwater runoff. I appreciate the opportunity to share from the perspective of a large city that has utilized several green infrastructure tools as part of our renewed commitment to environmental leadership. Despite current obstacles, cities across the nation like Dallas are implementing and supporting the expanded use of green infrastructure and low impact development tools and techniques. These tools are vital to addressing the overarching challenges of urban stormwater runoff and the urban heat island effect. Reauthorization of the Clean Water State Revolving Fund Grant program is vital to expanding the use of these tools and your continued support is appreciated.