Memorandum

DATE August 7, 2009

TO Members of the Transportation and Environment Committee:
Linda L. Koop (Chair), Sheffie Kadane (Vice Chair), Jerry R. Allen, Tennell Atkins, Carolyn R. Davis, Angela Hunt, Delia Jasso, Pauline Medrano and Ron Natinsky

SUBJECT Adoption of iSWM Briefing

Attached is the "iSWM Manual" briefing that will be presented to you August 11, 2009.

Please contact me if you need additional information.

Jill A. Jordan
Assistant City Manager

c: The Honorable Mayor and Members of the City Council
Mary K. Suhm, City Manager
Thomas P. Perkins, Jr., City Attorney
Deborah Watkins, City Secretary
Craig Kinton, City Auditor
Judge C. Victor Lander, Administrative Judge
Ryan S. Evans, First Assistant City Manager
A. C. Gonzalez, P.E., Assistant City Manager
Forest Turner, Assistant City Manager
David Cook, Chief Financial Officer
Jeanne Chipperfield, Director, Budget and Management Services
Edward Scott, Director, Controller’s Office
Helena Stevens-Thompson, Assistant to the City Manager – Council Office
Rick Galceran, P.E., Director, Public Works and Transportation
Theresa O’Donnell, Director, Development Services
Zaida Basora, AIA, LEED AP, Director, Building Official
Adoption of
iSWM

Presented to the Transportation and Environment Committee
August 11, 2009
iSWM (INTEGRATED STORM WATER MANAGEMENT) MANUAL

PURPOSE

• Explain the iSWM manual and the proposed adoption of the iSWM manual into the City’s drainage design criteria, which is used in public projects and private sector development projects (e.g., design and construction of alleys, storm drainage systems, and culverts).
BACKGROUND

- Traditionally, in development projects and street designs, engineers have focused only on the quantity of storm water (i.e., flooding) and not water quality.
- The EPA, through National Pollutant Discharge Elimination System (NPDES) permits, is now looking at both the quantity and quality of storm water runoff.
- Consequently, NCTCOG and over sixty area cities began meeting to also consider storm water quality in development projects and street designs.
BACKGROUND

• Through these meetings, NCTCOG developed the iSWM manual to help area cities implement more environmentally friendly approaches for storm water management.

• The iSWM goal is to manage storm water runoff as close to the development site as possible to reduce:
  – the volume of the development runoff and
  – the pollutants leaving the development site.

• NCTCOG and the other area cities completed the iSWM manual in January 2006 with the aim that each area city would adopt the iSWM manual and add their own local criteria to supplement the iSWM manual’s regional approach.
BACKGROUND

- In 2007, as part of the green building initiatives, a Subdivision/iSWM Task Force was formed. The task force included citizens, professional groups, developers, and staff members.
- The task force concentrated their efforts on storm water management and suggested that the City adopt the iSWM Manual.
- In February 2008, city council authorized a contract with Freese and Nichols to develop our local criteria and to update the City’s drainage design criteria to include the iSWM manual.
BACKGROUND

• The task force has worked with Freese and Nichols to draft the City’s local criteria for development.
• At the request of staff, Freese and Nichols established a website link to the City of Dallas green website, which has the draft local criteria, the iSWM manual, other green building related information, and COG’s website.
• The task force held four public meetings (two in October 2008, one in December 2008, and one in January 2009) to receive input from the development and professional community on adopting the iSWM manual, the draft local criteria, and proposed incentives.
iSWM MANUAL REQUIREMENTS
For any development or redevelopment project,

• Assess and mitigate downstream impacts (City already requires).
• Assess discharge from the site to minimize downstream bank and channel erosion (City already requires).
• Control conveyance of runoff within and from the site to minimize flood risk to people and property (City already requires).
• NEW: If the impervious area is increased more than five percent over existing conditions, developer must either:
  – Treat the storm water runoff on-site at developer’s cost; or
  – Use a certain number of integrated site design practices in lieu of treatment (i.e., preservation of open space/natural features, natural pathways for drainage, or pervious surfaces).
INTEGRATED SITE DESIGN PRACTICES

The following practices are listed in the iSWM manual:
• Create/preserve undisturbed natural areas such as:
  – Use natural drainage ways.
  – Wetlands.
  – Undisturbed forest.
  – Conservation easements.
• Use natural drainage way instead of constructing man-made storm sewer systems, such as:
  – Natural open channels.
  – Preserve natural flows.
  – Direct runoff to natural drainage ways, ensuring that peak flows and velocities will not cause channel erosion.
INTEGRATED SITE DESIGN PRACTICES

• Preserve riparian buffers by:
  – Conserving natural areas along stream, wetlands or shorelines.

• Use open space development:
  – Conservation areas.
  – Open space.
  – Clustering development.

• Incorporate creative designs, such as:
  – Eco-rooftops/roof gardens.

• Avoid steep slopes:
  – Build on flat areas of development.
  – Preserve natural state of GSA next to escarpment.
INTEGRATED SITE DESIGN PRACTICES

• Minimize siting on porous or eroding soils:
  – Locate buildings on portions of a site with least permeable soils.
  – Avoid siting on highly erodible soils.
  – Conserve areas with highly permeable soils such as sand.

• Drain rooftop runoff to pervious areas:
  – Drain rooftops to permeable areas on site.
  – Use vegetated areas to filter rooftop storm runoff.
  – Use vegetated infiltration basins/rain gardens to capture rooftop runoff.
INTEGRATED SITE DESIGN PRACTICES

• Fit design to terrain:
  – Preserve natural drainage ways.
  – Provide vegetated swales.
  – Leave undisturbed vegetation on slopes.

• Reduce the limit of clearing and grading:
  – Preserve more undisturbed natural areas on a development site.
  – Protect natural conservation areas and other site features.

• Locate development in less sensitive areas:
  – Use natural site features to prevent/mitigate storm water impact.
  – Lay out site to minimize the hydrologic impact of structures and impervious surface.
INTEGRATED SITE DESIGN PRACTICES

• Use buffers and undisturbed areas:
  – Direct runoff towards buffers and undisturbed areas.
  – Use natural depressions for runoff storages.
• Use vegetated swale design:
  – Open vegetated channels along roadway.
  – Grass channels and enhanced dry swales in developments.
  – Storm water rain gardens.
  – Storm water curb extensions.
• Create parking lot storm water islands:
  – Integrate porous areas such as landscape islands, swales, filter strips and bio-retention areas in parking lot design.
INTEGRATED SITE DESIGN PRACTICES

• Reduce parking footprint:
  – Consider using parking structures and shared parking.
  – Use alternative porous surface areas.
• Use fewer or alternative cul-de-sacs (hammerhead turnaround).
Examples of Porous Paver Surfaces
(Sources: Invisible Structures, Inc.; EP Henry Corp.)
Comparison of a Traditional Residential Subdivision Design with an Innovative Site Plan Developed Using integrated Site Design Practices.
RESIDENTIAL SUBDIVISION #2 – integrated SITE DESIGN
RESIDENTIAL SUBDIVISION #2 - CONVENTIONAL DESIGN

RESIDENTIAL SUBDIVISION #2 - INTEGRATED SITE DESIGN
iSWM PROCEDURES

• An iSWM site plan will be required for all developments larger than three acres.

• The iSWM site plan must show:
  – existing site conditions,
  – proposed development, and
  – integrated site design practices that the developer will use.

• If the impervious area is increased more than five percent over existing conditions, developer must either:
  – Treat the storm water runoff on-site at developer’s cost; or
  – Use a certain number of integrated site design practices in lieu of treatment.
iSWM PROCEDURES

• Each integrated site design practice has an assigned number of points.
• If the development earns the minimum points required using integrated site design practices, no on-site treatment is required.
• If the development exceeds the minimum points required using additional integrated site design practices, incentives may be available to developers.
PROPOSED INCENTIVES

• The following incentives may be offered to developers who exceed the minimum points required using integrated site design practices in their development:
  – Reduced ROW requirements in residential subdivisions.
  – Narrower pavement widths for minor streets.
  – Bar ditches in lieu of curb and underground storm sewer pipes / culverts for subdivisions with lots that are 7,500 square feet or more.
  – Reduced parking requirements for warehouse / industrial / retail (not including restaurants).
  – Increase density in a community unit development.
  – Reduced tree mitigation requirements.
BENEFITS OF ADOPTING iSWM MANUAL

• Reduces the volume of storm water runoff leaving the site, which also provides an opportunity for groundwater recharge.
• Higher quality of storm water runoff leaving the site.
• Promotes green space/natural drainage pathways and preserves natural creeks.

IMPLEMENTATION OF THE iSWM MANUAL:

• On March 19, 2009, the mayor testified before the United States House of Representatives Committee on Transportation and Infrastructures Subcommittee on Water and the Environment and discussed implementing the iSWM manual in the following three phases.
STAFF RECOMMENDATION - PHASE I

RECOMMENDATION

• The iSWM manual will be recommended as part of the drainage design criteria, but not required.
• Developers will be required to provide an iSWM site plan so that staff can begin gathering information on iSWM practices and effectiveness.

ACTIONS REQUIRED

• Amend Dallas Development Code Section 51A-8.601 to provide that the iSWM manual is recommended as part of the drainage design criteria, but not required. ZOAC and CPC must make a recommendation to City Council on the code amendment.

TIME FRAME

• Implement fiscal year 2009-2010.
STAFF RECOMMENDATION - PHASE II

RECOMMENDATION

• iSWM manual is recommended as part of the drainage design criteria, but not required.
• Determine the incentives that may be offered to developers for using iSWM integrated site design practices.
• Adopt local criteria to include incentives and supplement the regional iSWM manual.

ACTIONS REQUIRED

• Amend Article IV (zoning regulations), Article VIII (plat regulations), and possibly other articles to provide incentives. ZOAC and CPC must make a recommendation to City Council on code amendments.
• Adopt by resolution amendments to the iSWM manual through the local criteria, including incentives for using integrated site design practices. Local criteria for the iSWM manual is recommended as part of the drainage design criteria, but is not required.

TIME FRAME

• Implement fiscal year 2010-2011.
STAFF RECOMMENDATION - PHASE III

RECOMMENDATION
Assess effectiveness of the iSWM manual practices. Brief city council within three years of implementing Phase I on the findings, and make a recommendation on whether the iSWM manual should be mandatory.

TIME FRAME
• Implement fiscal year 2012-2013.
Other Storm Water Treatment Programs

City of Austin

• Requires the developer to treat the storm water runoff for any new development or redevelopment.

• Maintains treatment facilities for residential developments, developer maintains treatment facilities for nonresidential development.
Other Storm Water Treatment Programs

City of Austin

- Allows developers to pay an impact fee in lieu of design/construction and maintenance of treatment facilities.
  - Impact fee is based on the
    - type of development and
    - Area of imperviousness
  - For a five acre development that is 70% impervious, fee is approximately $100,000.
Other Storm Water Treatment Programs

Nationwide
• Seattle, Washington; Portland, Oregon; and Maryland, North Carolina have policies similar to Austin for treatment of storm water runoff.
Questions?