

Managing Wet Weather with  
Green Infrastructure Workshop

**LOW IMPACT DEVELOPMENT and  
SAN ANTONIO DRAINAGE ORDINANCES**

February 17-18, 2009



Presented by

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**San Antonio Unified Development Code**

- 35-504 Storm Water Management
  - *The purpose of this section is to provide adequate measures for the retention, detention and distribution of storm water in a manner that minimizes the possibility of adverse impacts on both water quantity and water quality during development. Innovative runoff management practices designed to meet the provisions of the UDC, enhance the recharge of groundwater, and maintain the function of critical environmental features are encouraged.*

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**San Antonio Unified Development Code**

- 35-504(b)(1) Regional SWM Program
  - *The city of San Antonio has determined that regional storm water management is preferable to site specific storm water mitigation. ... The regional storm water management program allows developers to participate in the program rather than constructing the on-site detention controls required by this Section [where there will be no adverse impact].*

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## San Antonio Unified Development Code

- 35-504(b)(6)&(7)
  - *Peak storm water runoff rates from all ... development shall be less than or equal to the peak runoff rates from the site's predevelopment conditions for the 5-year, 25-year and 100-year design storm events, except as provided in § 35-504(b)(1), above.*
- Summary
  - *Developers don't have to fix problems... but they can't make them worse.*

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## Regional Storm Water Program

- Why Regional ?
  - Maintainable
  - Predictable (can be modeled)
- Options
  - Fee
  - Detention
  - Mitigation
- Challenges
  - Cost of regional facilities
  - Encouraging developers to provide detention

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## Regional Facility- Example



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## Why do we care ?



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## Why do we care ?



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## Why do we care ?



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## Low Impact Development Options

### ▪ BioRetention / Bioswales

#### ▪ Pro

- Extended runoff time.
- Increased percolation encourages base flow
- Attractive

#### ▪ Con

- Difficult to predict / model detention effect



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## Low Impact Development Options

### ▪ Rainwater Harvesting

#### ▪ Pros

- Re-use (Reduced Water Bills)
- Can be attractive
- Above Ground = Less Expensive
- Easy to create hybrid systems
- Easy to calculate impact

#### ▪ Con

- More expensive to make attractive



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## Low Impact Development Options

### ▪ Rainwater Harvesting



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## Low Impact Development Options

- Multi-Use Facilities  
(Park and Detention Pond)
- Pro
  - Multi-Uses = more bang for the buck
- Con
  - Takes Land ?
  - ??



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## Low Impact Development Conclusion

- Low Impact Development Practices can help decrease peak runoff volumes.
- Maintenance and other issues make modeling impacts difficult.
- Systems are untested, flow reduction must be determined / agreed upon.
- Hybrid systems, are best option.
  - combine water quantity reduction and water quality protection measures.

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**QUESTIONS ?**



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