

# Basin Coordinating Committee Meeting #4

## Lower Blue River

### Combined Sewer System Basin



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*the future is clear*

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## PROGRAM GOALS

- **Minimize loss of life & injury and reduce property damage due to flooding;**
- **Improve water quality; and**
- **Maximize economic, social & environmental benefits.**



## PURPOSES OF TONIGHT'S MEETING

- *Discuss system alternatives and potential solutions*
- *Discuss potential green solutions*
- *Discuss how to present information at open house*



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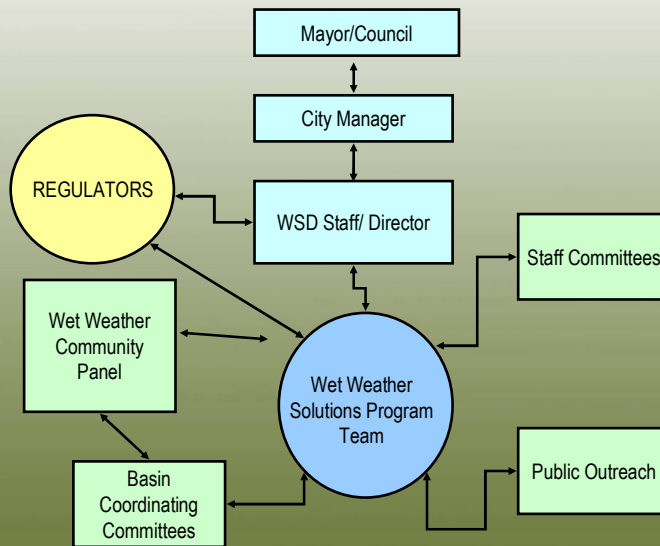
## MEETING PROCESS

- ✓ *Introduction to Wet Weather Solutions Program and goals of meeting process - #1*
- ✓ *Community values, priorities & streams- #2*
- ✓ *Potential technologies & strategies - #3*
- *Alternatives & recommendations for Open House - #4*
- *Open House - #5*
- *Recommendations for Community Panel - #6*

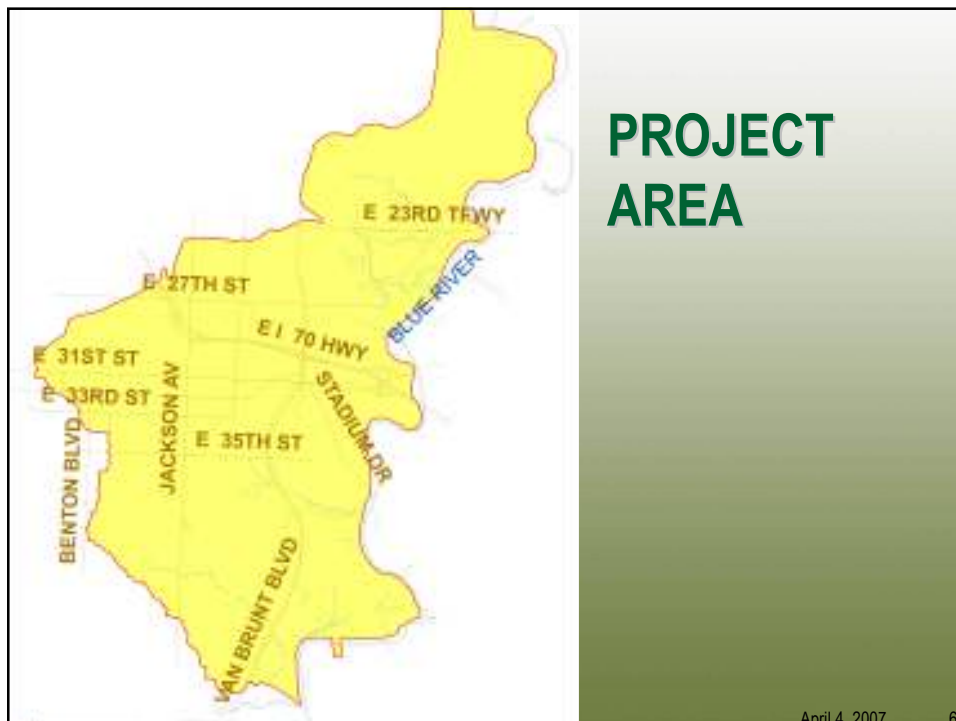
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## Information Gathering & Recommendation Flow Chart



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## COMBINED SEWER OVERFLOWS

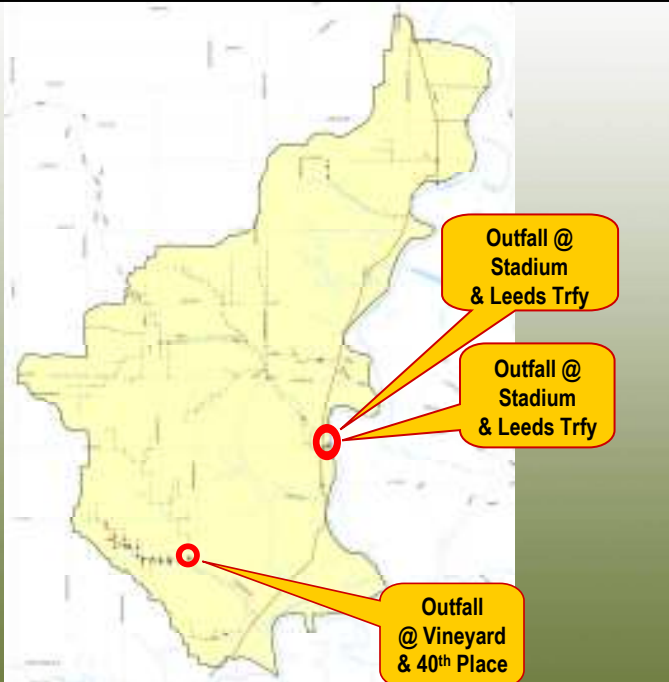
- *19 Outfalls to Receiving Streams*
- *On average, approximately 161 million gallons per year of Combined Sewer Overflow*
- *80% of average annual overflow occurs at three overflow locations*

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## Outfall Locations



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## Base Improvements



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## Lower Blue River Base Improvements



Average Annual Overflow =  
3.57 million gallons

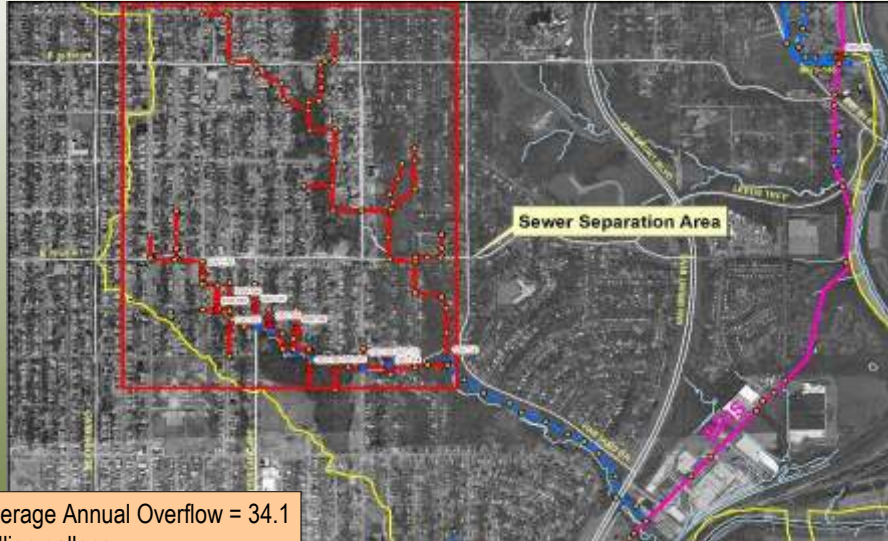
Capital Cost = \$1.6 Million

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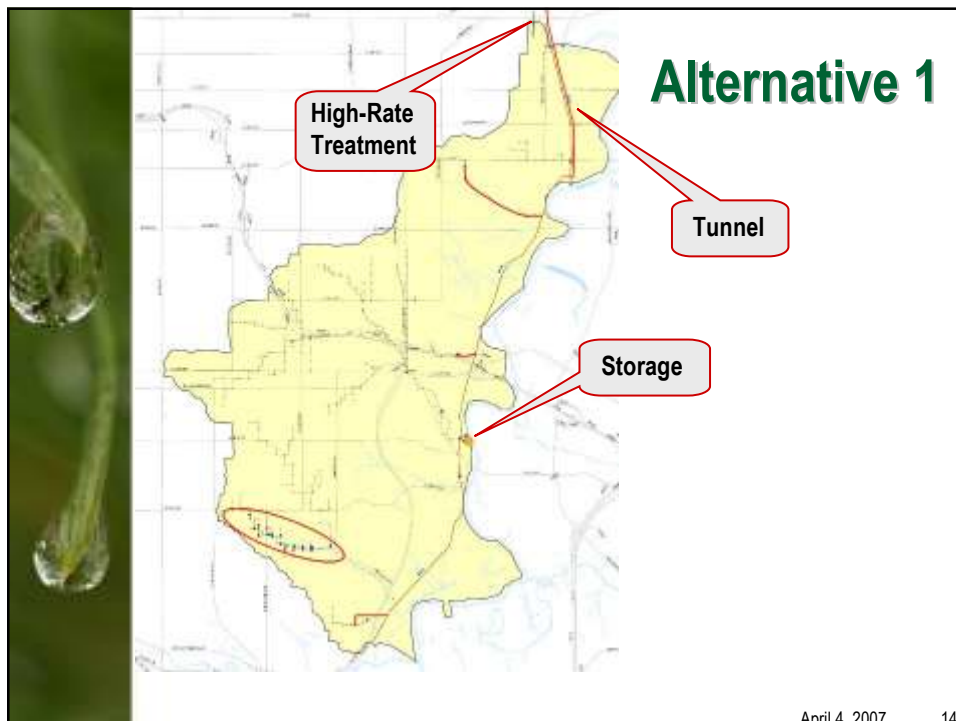
## Base Improvements - 40th & Monroe Area



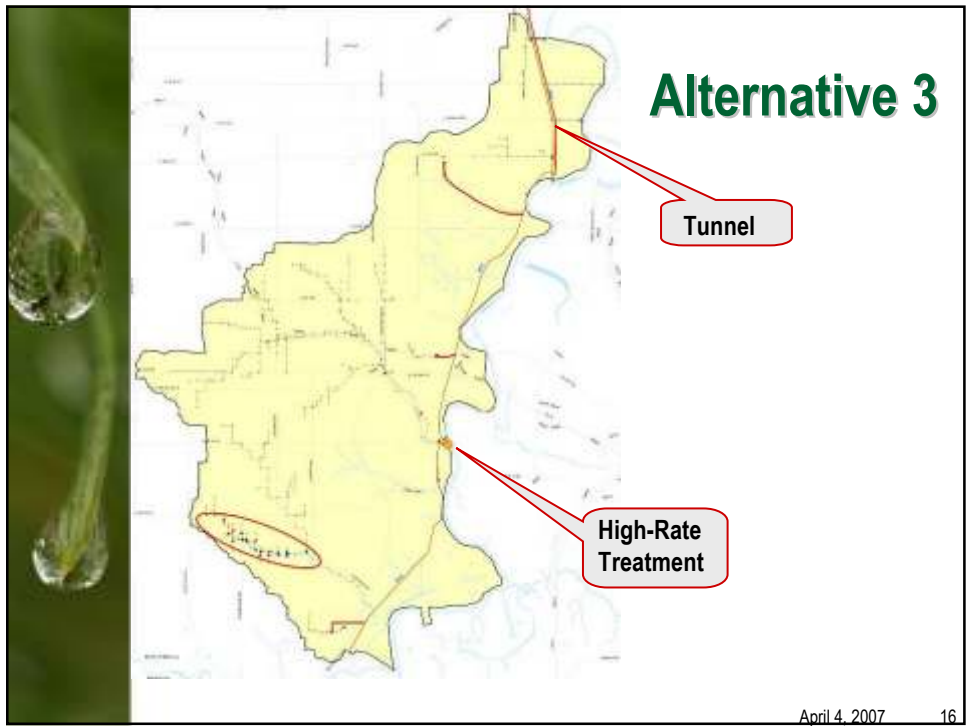
Average Annual Overflow = 34.1 million gallons

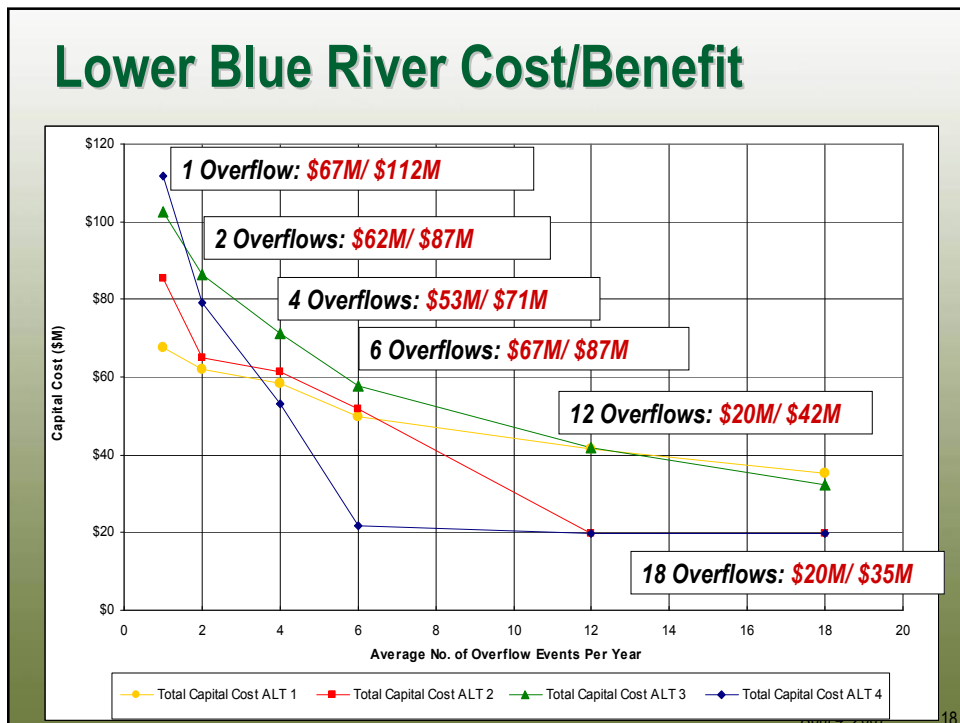
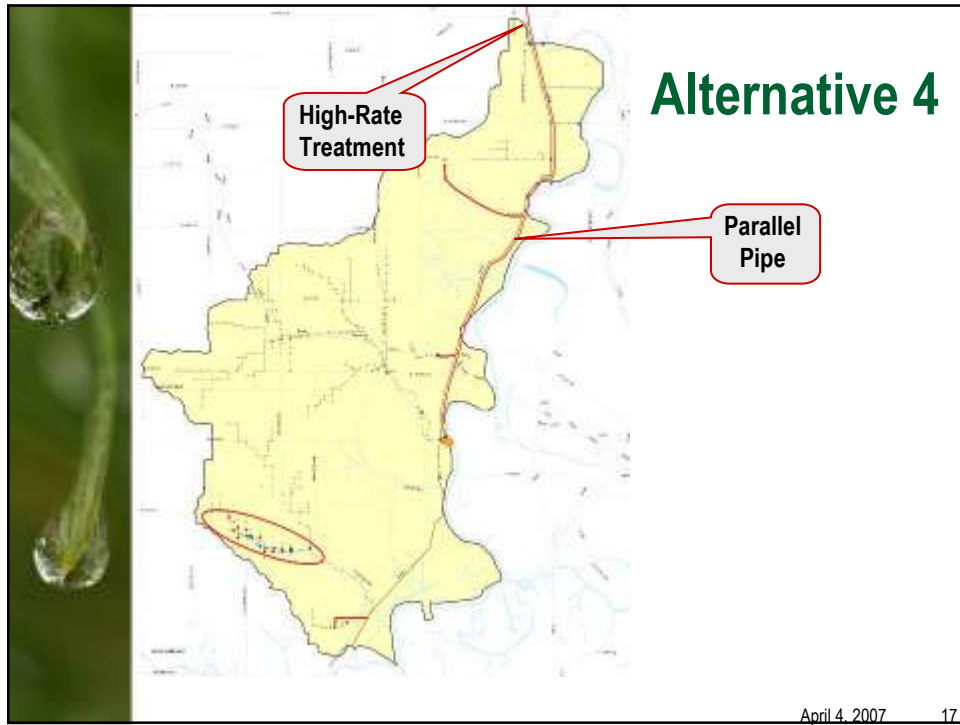
Capital Cost = \$13.0 Million

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## Some Alternatives Involve Tunnels - Why?

- *Significant Overflow Volumes to Store and Treat*
- *Integrated Approach for Overflow Control Program and Stormwater – Cost-Effective Solution for Both Programs*
- *Least Disruption to Community in this Developed Urban Basin*

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## Deep Tunnel Storage



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## DEEP TUNNEL SHAFTS

*Have Minimum Disruption*



During Construction

INTERMEDIATE ACCESS  
SHAFT

Charleston, SC

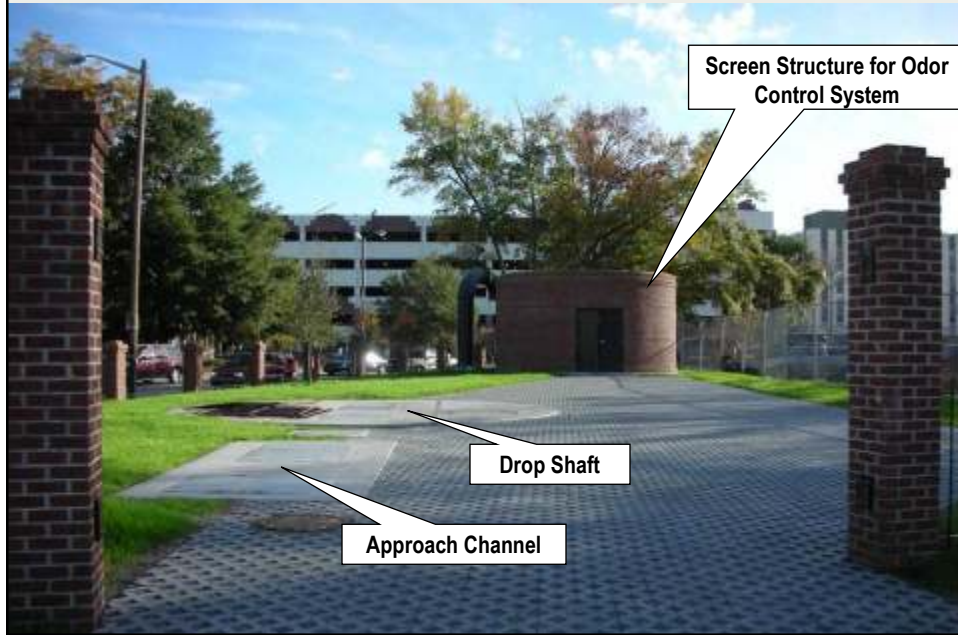


Completed Project

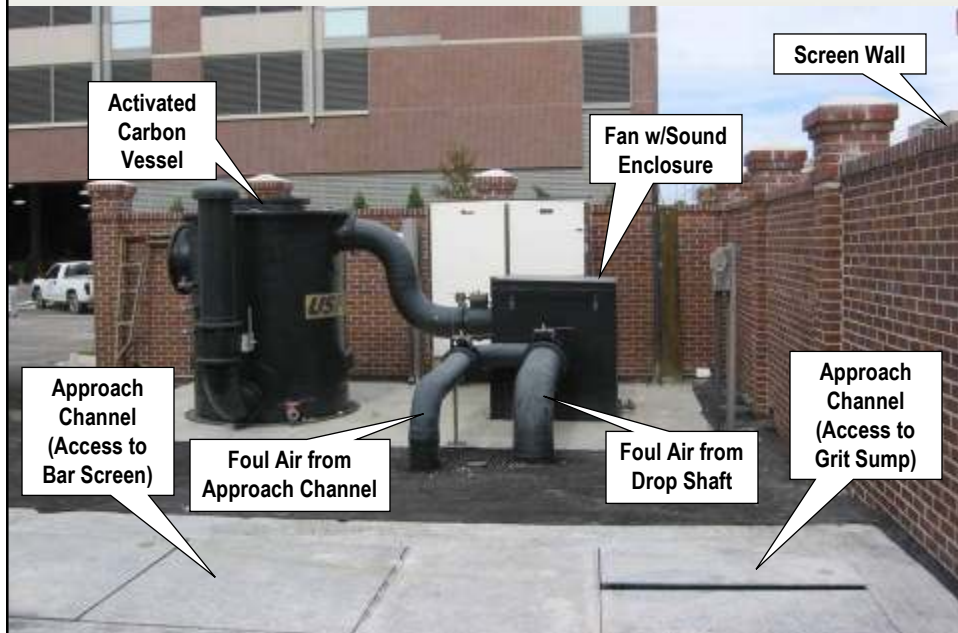
INTERMEDIATE  
ACCESS SHAFT  
East Chicago, IN

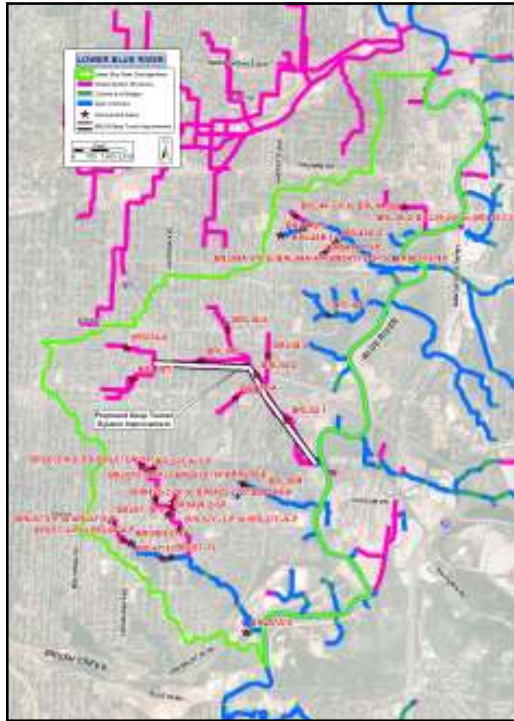
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## DEEP TUNNEL SHAFTS - AESTHETICS



## DEEP TUNNEL SHAFTS – ODOR CONTROL





## Lower Blue River Stormwater Improvements

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## Stormwater Improvements Summary

- *Includes relief pipe systems, culverts, detention basins, and a deep tunnel*
- *Integration of the Combined Sewer Overflow and Stormwater plans will continue*
- *Potential costs savings will be identified and refined as part of the final alternative*
- **Lower Blue River Stormwater System Capital Costs = \$60-65 million**

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## GREEN SOLUTIONS

- *Meant to reduce amount of water in the system*
- *Provide water quality improvement*
- *Can be considered amenities for the community*



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## BMP Locator Map



- *Greater than one acre*
- *Outside the Floodplain*
- *Depressional Contours*
- *Flat Open Space*
- *18 Potential Opportunity Areas*

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## Bioretention/ Bioswales Alternative in 40<sup>th</sup> and Monroe Area



Black Lines  
outline the Right-  
of-Way

Red dashed lines  
are probable  
locations of  
Bioswales

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## Bioretention/ Bioswales Example



Examples from  
Venema Creek  
in Seattle,  
Washington

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## Green Filter Enhancements: Catch Basin Retrofits

Completely Surrounded by Pavement



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## Green Filter Enhancements: Catch Basin Retrofits



*Low cost neighborhood enhancement*

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## Low Impact Development Best Management Practices (BMPs)

- *Imperviousness Minimization & Disconnection*
- *Green Roofs*



Bioretention



Downspout  
Disconnection

- *Permeable Pavers*
- *Stormwater planters*
- *Bioretention/Bioswales*

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## Where Do We Go From Here With The Green Solutions?

- *Demonstrate Effectiveness with Modeling*
- *Demonstrate Effectiveness on the Ground Pilot Projects*
- *Explore Multiple Benefit Opportunities*
- *Assess Potential Combined Sewer Overflow Volume Reduction During Refinement of Alternatives*
- *Build Consensus – Elevate Awareness*

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## WHAT CAN YOU DO?



10,000  
**Rain  
Gardens**

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## NEXT STEPS OF BASIN PLANNING

### Upcoming Meetings

- **Open House – Meeting #5**  
Tuesday, May 15<sup>th</sup> 7:00-9:00 p.m.  
Palestine Missionary Baptist  
Church of Jesus Christ  
3619 E. 35<sup>th</sup> St. KCMO 64128
- **Recommendations for  
Community Panel –  
Meeting #6**



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**QUESTIONS?**

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