

City of Fort Worth Stormwater BMP Pilot Study and Community Outreach Efforts

National Association of Floodplain and Stormwater Management Agencies

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Outline

- **Background**
- **Stormwater Initiatives**
- **Floatables and Sediment Control Pilot Study**
- **Public Education and Outreach**
- **Conclusions**
- **Next Steps**

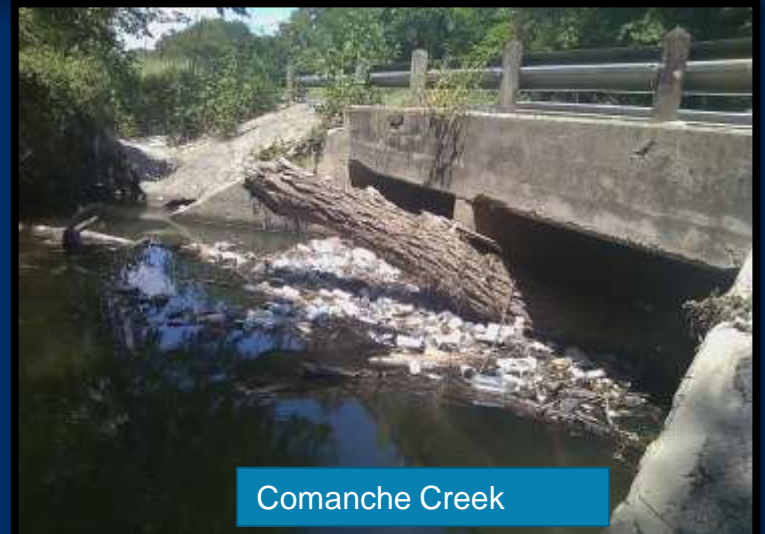
Background – City of Fort Worth

- **Fort Worth population**
 - 2011 740,000
 - 2030 1,200,000
- **Low taxes**
- **Limited regulations**
- **“All American City”**



Background – Environmental Setting

- Average annual precipitation 35”
- Intense local storms between long periods without rain
- Large areas drained by undersized pipes

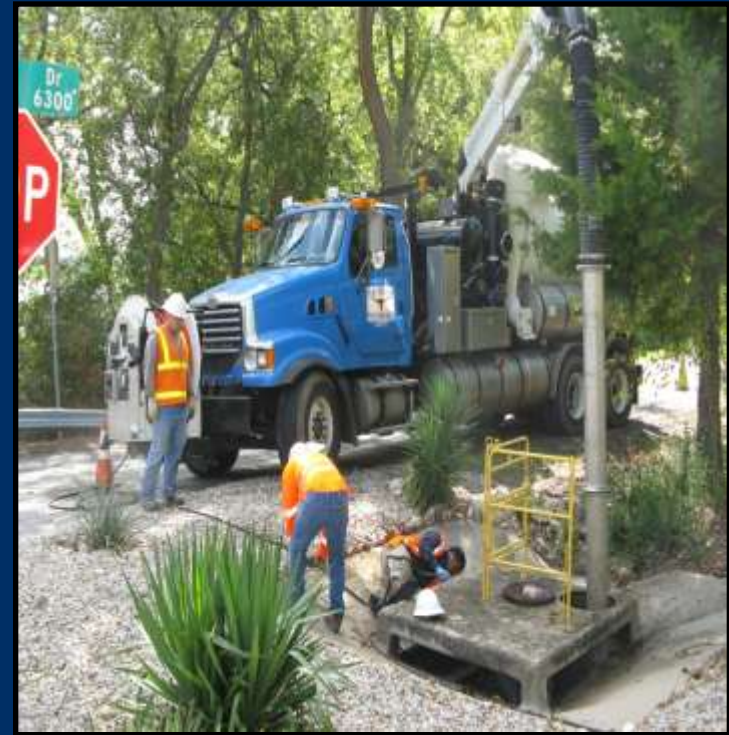






Background - Stormwater Funding

- **Stormwater Utility established in 2006 after severe flooding**
- **Budget**
 - 2006 \$7.6 M
 - 2012 \$31 M
- **CIP - \$40M/yr currently**
- **Water Quality not major driver**



Background - Stormwater Quality Regulations

- **2006 Design Manual (iSWM) - voluntary water quality design guidance**
- **2011 MS4 Permit - monitor/reduce floatables**



Stormwater Quality Initiatives

- **Tarrant Regional Water District**
 - End of Pipe controls at Trinity River
 - Trinity River Vision Re-development
- **2010 Stormwater Credit Program**
 - Financial Incentives for reducing pollution
- **Lake Water Quality Improvements**
 - Dredging and Green printing
 - Trash collection
- **Capital Improvement Projects**
 - Install BMP's wherever practical



Lake Como

Floatables and Sediment Control Pilot Study

- **General Objective**
Identify practical methods to minimize the City's pollutant discharge
- **Specific Objectives**
 1. Efficiency and Cost Effectiveness
 2. Reduce system blockages
 3. Educate Public



Vactor Truck Downtown

Pilot Study—BMP Selection Criteria

- **Effective for removing debris and floatables**
- **Inexpensive and easy to install**
- **Easy to maintain using existing equipment and procedures**
- **Not subject to frequent repair**

Pilot Study – Selected BMPs

Beginning-of-Pipe BMPs



Automatic Retractable Screen (ARS) at inlet throat

Pilot Study – Selected BMPs

Beginning-of-Pipe BMPs



Connector Pipe Screen (CPS) inside catch basin/vault

Pilot Study - Selected BMPs

(courtesy of WCS)



Pilot Study - Procedures

- **Inspection** – 0.5” or biweekly
- **Cleaning/Maintenance**
- **Sweeping**
- **Trash Characterization**
- **Sediment Analysis**
- **Rainfall Monitoring**
- **Documentation** (repairs, collection expenses, classification, monitoring, lab analysis)



Pilot Study – Study Areas

- Downtown (City Hall area)
- Lake Como
- John Peter Smith Hospital
- Paschal High School – Public Education
- Lake Worth – Sediment issues

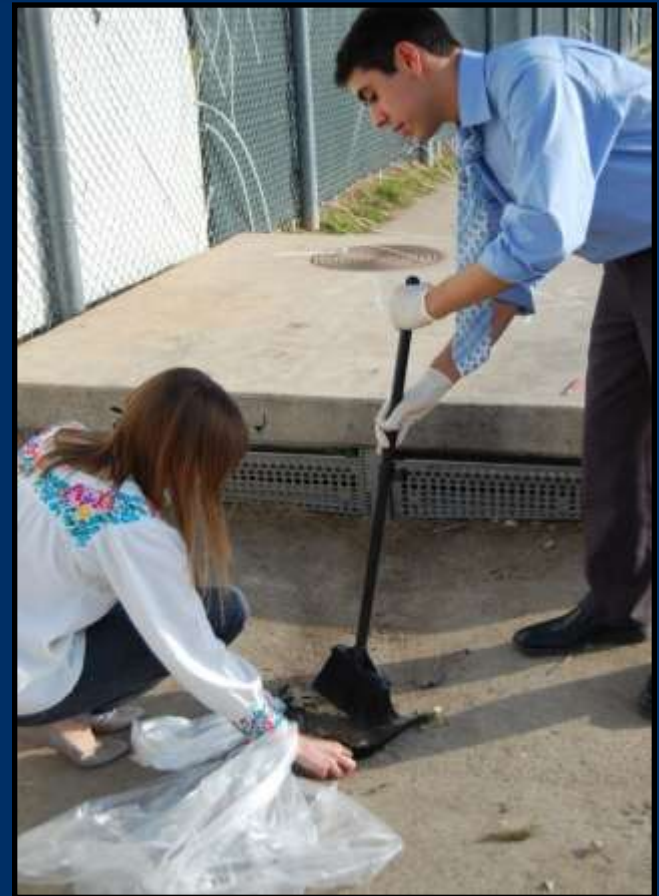


Pilot Study – Paschal High School



BMPs

Pilot Study – Paschal High School



Trash Collection

Pilot Study – Paschal High School



Trash Classification

Pilot Study: Characterization

Lake Como



Downtown



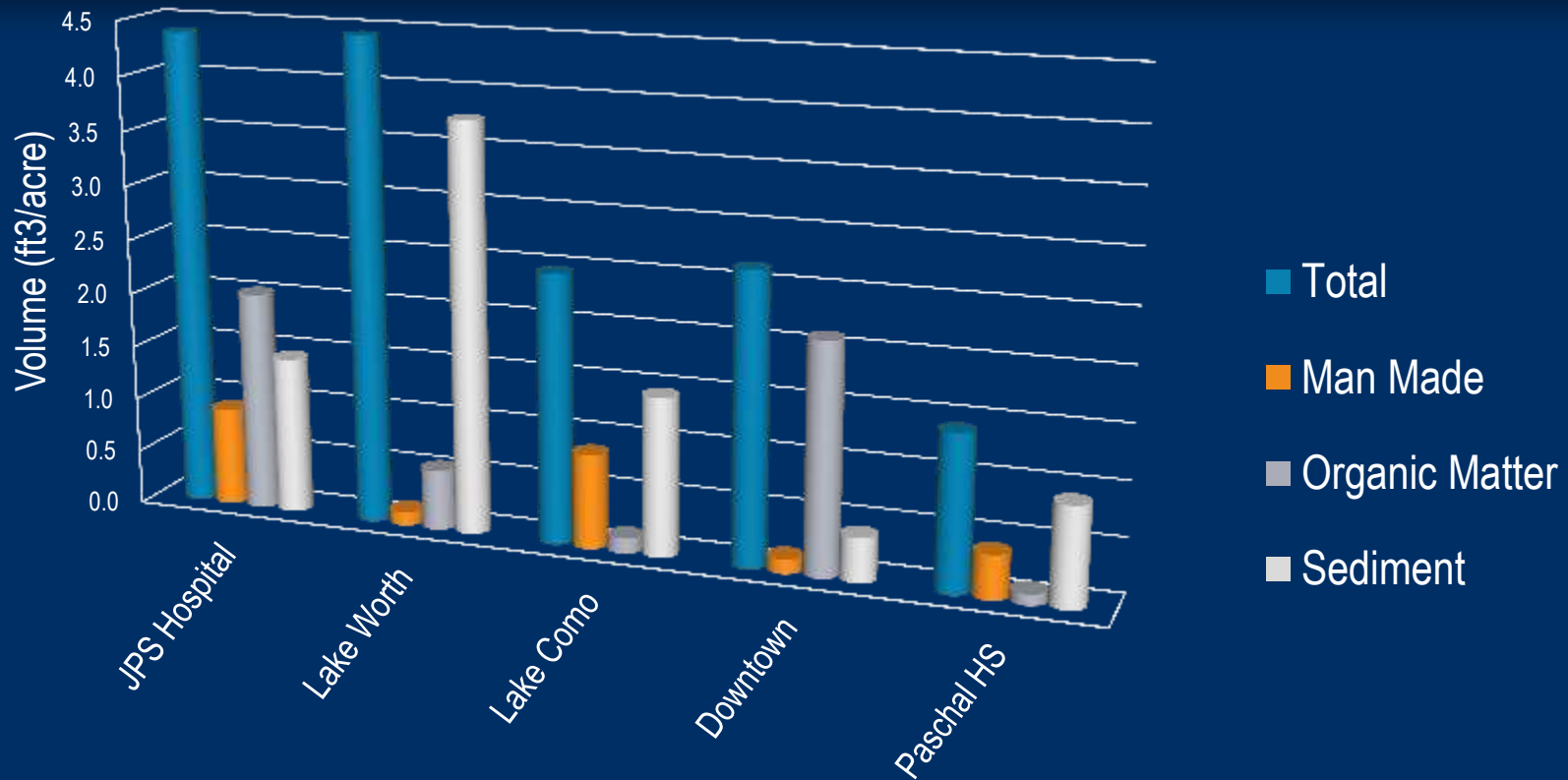
JPS Hospital



Lake Worth



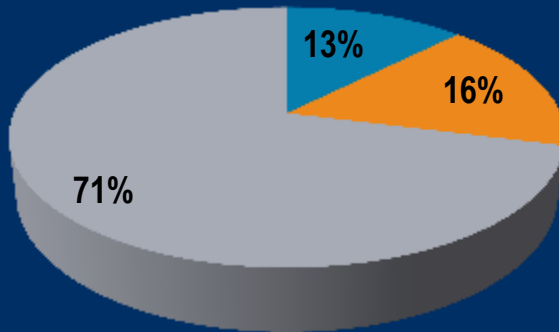
Pilot Study – Characterization Results



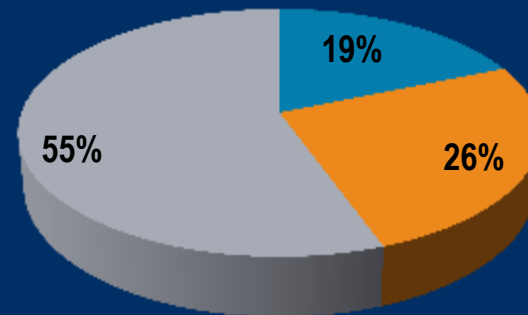
- 15 CF/acre retained in 9 months (130 acres)
- Amount of trash varies by area
- Neighborhood socio-economic conditions significant
- Substantial sediment collected in each area

Pilot Study – Characterization Results

% Retained By Weight (72 lbs)



% Retained By Volume (375 CF)



- Man Made
- Organic Matter
- Sediment

130 Acres

34 Inlets

Pilot Study - Sediment Analysis

- **Petroleum products trapped with sediment**

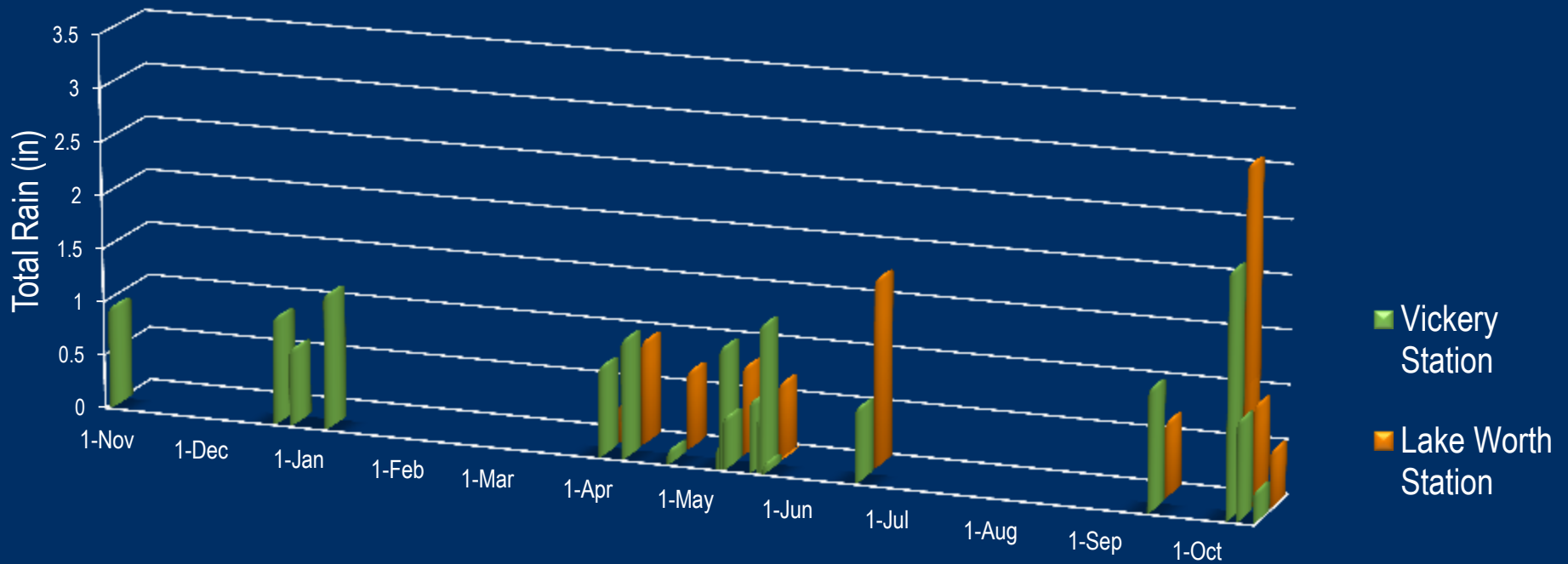
(Observed levels not hazardous)

- **PCBs and pesticides not found**

- **Metals and nutrients – to be determined**



Pilot Study - Rainfall Patterns

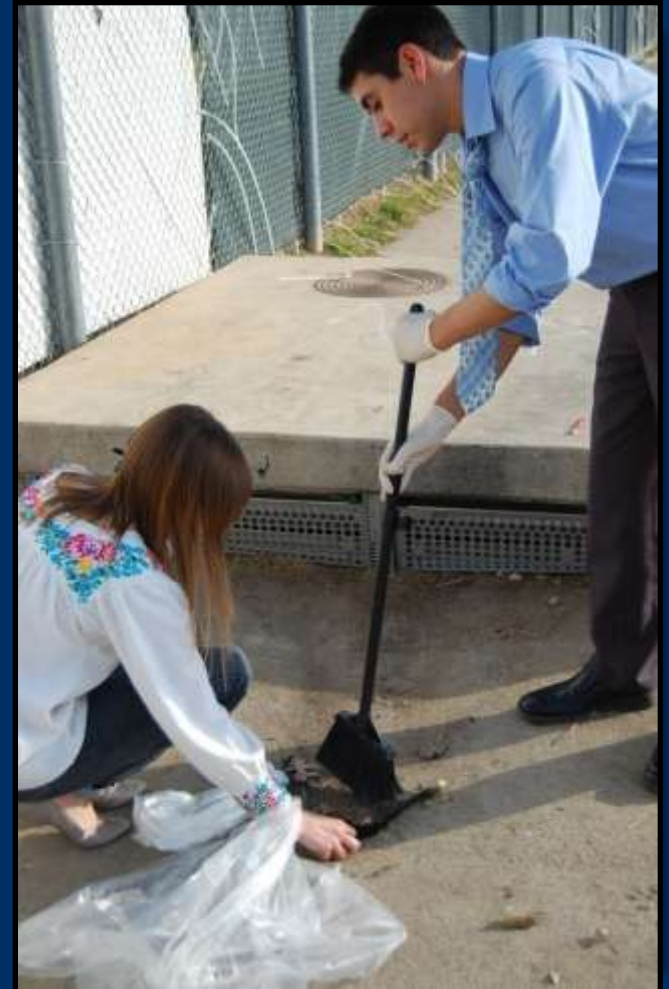


Pilot Study – Inlet Trash Accumulation

- **Every inlets cleaned once a quarter for data collection purposes**
- **Few inlets required cleaning because of capacity limitations**
- **Average cleaning frequency - TBD**

Public Education

- **BMP Pilot Project**
 - Student Presentation to Council
 - Reports to Council
 - Media



Public Education

- **Stormwater Credits**
 - Consultant assistance to help schools qualify structural BMP's
 - Develop curricula for Education Credit (schools)
 - “Adopt a Creek”



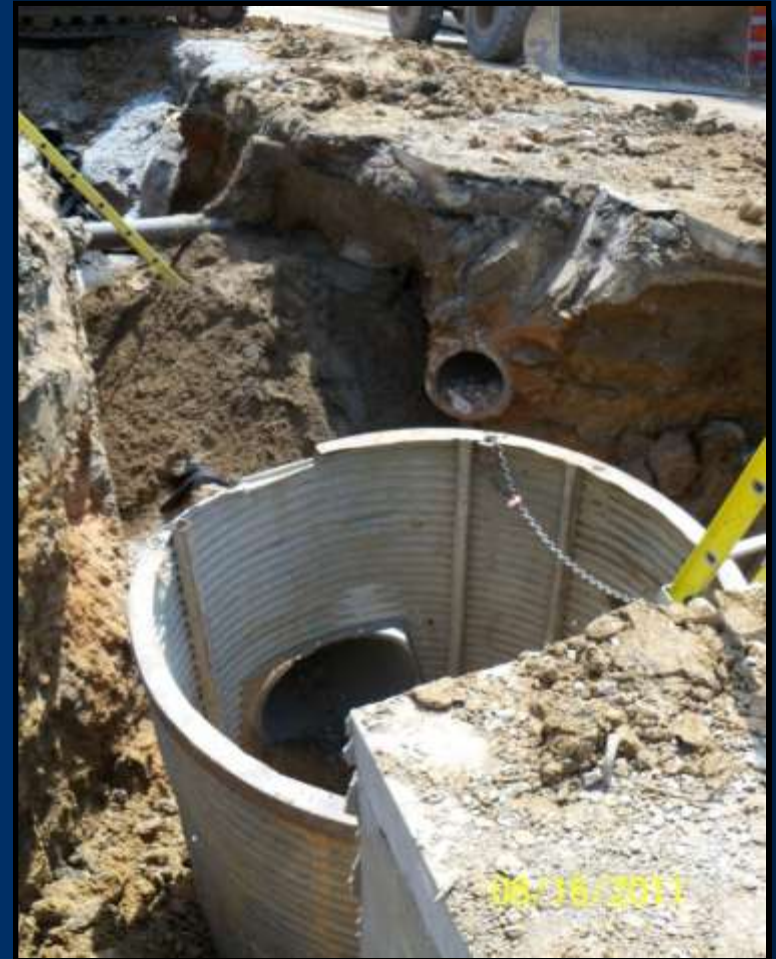
Public Education

Credit:
Detention
Basin or
Bio-swale?



Public Education

- **Capital Improvements**
 - Incorporate BMP's wherever practical
 - Special consultants to identify BMP opportunities
 - Publicize success stories



Public Education

- **Outreach to Engineers**

- Update of stormwater standards and policies
- Training workshops
- Lunch & Learn sessions



Conclusions

- Inlet controls are effective for removing floatables, debris and sediment
- Flushing - not a major issue
- No significant BMPs maintenance
- Frequency of cleaning appears reasonable—once-twice/year on average

Next Steps

- **Install inlet controls at selected new sites**
- **Modify design of screens and vaults to test BMP efficiency**
- **Complete pilot project by end of 2012**
- **Add 2 boom BMP's in 2012**
- **Continue outreach**

Questions



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