At-School Detention Is for Stormwater Too: Fort Worth’s Unique Public Partnership

Steven Eubanks, P.E., CFM
Ranjan Muttiah, Ph.D., P.E., CFM
Cannon Henry, P.E., CFM
Michael Owen, P.E.

City of Fort Worth, Texas
Why Detention?

• Flood hazards often due to undersized drainage systems
• Pipe and channel improvements can be very expensive
Why Detention?

• Conveyance improvements can push flooding downstream

• Legal implications for causing downstream impacts
Why Detention?

• Detention decreases flooding impacts continuously

• Detention is much cheaper to build (except for land costs)
Multi-Use Detention

• Historically, detention viewed as fenced-off drainage facility
• Ends up as eyesores and wasted land
Multi-Use Detention

Detention areas can be used for aesthetics and water quality
Multi-Use Detention

Detention areas can be used for recreation and open space.
Challenges to Detention

• Location! Location! Location!
• High cost of land
• Underground detention is very expensive
• Difficult to justify if flooding is sporadic
Which Brings Us to Eastern Hills

- Widespread flooding in neighborhood
- Worst at confluence
- Planning study led to improvement plan
- Included detention basin on vacant land next to school
Eastern Hills Detention Basin

- Developed concept for multi-use detention basin
- Pitched the idea to school officials
- FWISD agreed to let us use land if we would build it
City of Fort Worth
2004 CIP
Watershed Planning Study

Eastern Hills Drainage System

Proposed Multi-Purpose Storm Water Detention Basin

Benefits include:
- Reduced flooding downstream
- Improved storm water quality
- Multi-sport athletic field
CFW-FWISD Master Agreement

- FWISD grants easement at no cost
- City installs basin and some amenities: lighting, planting, irrigation, access, etc.
- City installs water quality features to keep trash from washing into basin
- Routine maintenance by FWISD
- WQ maintenance & major repairs by City
LID Workshop with FWISD

- Partnership began with Eastern Hills Detention Basin
- LID workshop with FWISD staff and architects
- FWISD committed to LID in projects
Projected $100,000 Savings
Luella Merrett Detention Basin

- Flooding due to small pipe at mid-block sump
- Lots of impervious area in watershed
- Pipe capacity improvements $2 million +
Luella Merrett Detention Basin

- Sloping play field at school suitable for detention
- Principal liked idea because of success of Eastern Hills
Summary: Building Partnerships

• Project funding is always a challenge—the needs outweigh available funds
• As cities redevelop, more need to retrofit older areas
• Combining detention with recreation brings community acceptance
• Partners can be schools, developers, business associations, etc.