

REFINEMENT OPTIONS – STORMWATER MANAGEMENT

The City's Pre-design Consultant developed stormwater water quality plans for each of the combined sewer basins (assuming each basin is fully separated). The plan uses "Best Management" engineering practices or features to reduce pollution from stormwater runoff, with a stated goal of 80% removal of suspended solids. The water quality features can include:

- Ponds (retention and micropools)
- Bioretention Zones (rain gardens)
- Buffers/Swales
- Underground Storage Vaults/Sand Filters
- Enhanced Swales (linear swales)

The plans incorporate use of the existing combined sewer system (converted to storm sewers).

The PMT oversight team has refined the stormwater management water quality plan developed for the Greensferry basin into a "Greenway" plan for water quality (treatment) and detention (flood control), using storm water ponds, other treatment /detention features, and surface greenways. The "Greenway" approach "links" the stormwater management features to linear greenways and existing City parks. The PMT oversight team will be able to also develop "Greenway" plans for Clear Creek and Stockade basins, representing about 35%+ of the total combined area, and associated construction and capital costs. These will be extrapolated to an estimated construction and capital cost for a total "Greenway" plan. This will be completed by end of September.

The estimated construction cost (excluding land and non-construction capital cost components) of the "Greenway" approach for the Greensferry basin is about the same as the construction costs for the water quality plan for Greensferry – about \$12 million. Cost savings were identified associated with consolidating the smaller ponds into larger 'greenway ponds' and using large ponds; and with using ponds in lieu of more structural treatment technologies. Cost increases were identified with implementing greenway improvements (streetscapes, etc). Overall, the net effect offset each other.

Estimated Construction and Capital Costs for Stormwater Management Water Quality Plan

Refinement Options	Estimated Capital Costs (Without Land Costs)	Estimated Capital Costs (With HDR Land Costs)
100% Separation (Entire Combined System)	\$520 million	\$710 million
Refinement Option No. 1 (27% Separation)	\$140 million	\$192 million
Refinement Option No. 2 (40% Separation)	\$208 million	\$284 million
Refinement Option No. 3 (50% Separation)	\$260 million	\$355 million
Refinement Option No. 4 (80% Separation)	\$416 million	\$568 million

Note – above estimated costs of stormwater management for 27% through 80% separation options were calculated as a ratio of 100% separation costs – thus are subject to significant refinement.

Visits and information gathered from other cities, especially Austin, indicate that stormwater management improvements are a long-term venture and must be implemented on a "opportunity" basis, tied closely to future redevelopment. Implementation is dependent on future stormwater utility and funding.