Appendix C
Green/Gray Cost Comparison Process Table

Objective	Screening Level	Refinement Level	Items that Need Better Definition to Support Analysis
Identify characteristics of tributary area under assessment	Gross characterization of area (imperviousness/ perviousness); identification of obvious opportunities for stormwater control (e.g. large parcels; already separated stormwater) Larger subareas	Better definition of impervious by land use type such as: - Parking lots - Residential properties - Large roof areas - Local streets - Major streets Segregate impervious area into directly connected and not directly connected areas More thorough identification of already separated areas	GIS layers to support development; such as the impervious area types identified; directly or indirectly connected impervious area.
Identify volume of control required for CSO performance target	Look at volume required for area of interest (in total) Assume 85% volumetric control annually	Look at volume required by sub area within area of interest Various levels of CSO control (to develop a curve)	Good surrogate event for the 85% criterion – may vary by CSO area dependent on the flow to treatment (area specific) Volume of storage for other control types
Identify benefit for conveyance level of service of CSO control	Look at existing and future level of service of downstream conveyance with green infrastructure provided (model analysis using available model representation); define conveyance upgrades required for level of service with/ without green	Look at conveyance capacity at a more local level. Define conveyance upgrades required for level of service with/ without green	Refined understanding of hydrology/ flow response within combined areas
Define types of controls for green infrastructure management of CSO	Identify large site specific controls Identify control types by land type (e.g. parking, roof, street) Quantify for total study area	Refine quantification for subareas Define “subtypes” of green control (for example – streets could be permeable pavement or bioretention)	Develop standardized concepts to achieve various levels of control

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Develop cost assessment for unit practices for green infrastructure	Apply level of control uniformly across area; define total volume controlled by practice type, such as: - Large practices - Parking lots - Local streets (differential cost if other work is performed or total cost if no other work is performed) - Roof area control	Optimize based on volume controlled/ $; requires more site specific development of practices and costing (at least to some degree)	Cost development for standardized concepts and refined costs for unique applications Better definition of design standards
Define offsetting savings for capital costs	Use a "best professional judgment" curve for offset of gray costs OR use linear curve although this is not defensible. Roughly estimate conveyance cost value	Extend to subareas within the system. Address specific known problem areas (basement or street flooding).	Develop cost curves for gray practices that are partially offset – for example smaller tunnel or reduced capacity basin
Define operational costs/ benefits for green infrastructure and gray	Ignore	Increase detail and apply definitions that are developed	Unit savings for reduced flow to treatment Definition of amount of flow removed from system through green practices (e.g. permeable pavement evaporation or bioretention infiltration or disconnected downspout infiltration).
Develop implementation programs			Develop approaches to reduce impacts of private property impervious area; Define approaches to reduce street widths over time
Product	Screening level: - Gray costs - Green costs (for comparison)		