Proposed Conceptual Modification to City's Authorized CSO Plan

Sewer Separation and Stormwater Management
(with Emphasis on Flood Control)

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This Presentation Came About Because:

- Ongoing review of Wiedeman Proposal by PMT (meetings, discussions, refinements) -- sewer separation and stormwater management (flood control).
- Ongoing development of PMT refinement options, including 80% separation refinement.
- Realization that ongoing reviews of these two different refinements identified several key similar components, including:
  - -- Combination of full and partial separation in West Area
  - -- Smaller West Area tunnel system
  - -- Flexibility to offer relief to existing Peachtree sanitary trunk sewers
- Based on the above similarities, we agreed to identification of a single integrated refinement option, with realization that storm water management (flood control) requires separate funding and schedule.

This Presentation Includes Discussion of Two Refinement Options

Development of Wiedeman's Conceptual Refinement

- Prioritize public health with focus on eliminating sanitary overflows and provide adequate protection against flooding upstream and downstream of existing CSO facilities.
- Establish system of components that provide flexibility to adapt management schemes, meet future regulatory standards, minimize risk, provide incremental benefit and clean water.
- As necessary, consider a phased program that is flexible and can accommodate time requirements for additional data needs (hydrology).
- Promotes fair and equitable rate structuring.

PMT Refinement Option for 80% Separation

- Separate all combined sewer area except downtown urban core

Wiedeman Identification of Issues with Existing Combined Sewer System

- CSO facilities discharge to small streams that flow through neighborhoods and recreational areas for miles, prior to reaching rivers.
- 60+ CSO discharges per year on West Side (4 CSOs)
- 20+ CSO discharges per year on East Side (2 CSOs)
- Insufficient stormwater capacity within combined system contributes to localized flooding, impaired quality of life, impacts to public health, threatened economic development and real estate values.
- Proposed Consent Decree program does not address significant flooding problems downstream of CSOs on West Side.

Key Points of Wiedeman Refinement

Sewer Separation

- Focus on full separation of East Area (Ocmulgee) and partial separation of West Area (Chattahoochee) with a target to provide separated conveyance infrastructure for all but urban core.
- Separate East Area (Ocmulgee) without deep tunnel system
- Construct smaller West Area (Chattahoochee) tunnel system with extension to serve combined areas in the urban core (20% of combined sewer area) and with flexibility for future tie-ins with existing Peachtree sanitary trunk sewers.
- Construct West combined sewage treatment facility for ultimate incorporation into R.M. Clayton WRC.
- Utilize existing CSO facilities for screening stormwater.
- Coordinate separation construction with planned construction from other agencies (water, streets, parks, streetscapes, greenspace, private utilities).
- Focus on stormwater interceptors and collectors rather than sanitary for separation, attempt to parallel trunks

Key Points of Wiedeman Refinement

Stormwater Management (Emphasis on Flood Control)

- Address surcharging and flooding in combined areas upstream of existing CSO facilities, and as a result also address downstream flooding.
- Determine magnitude of recurrence and water quality issues for overflows upstream of CSO facilities.
- Develop hydrologic models to simulate conditions downstream of CSOs and coordinate flood control infrastructure both upstream and downstream.

Wiedeman Proposed Refinement to Authorized Plan -- East Side -- Ocmulgee

Sewer Separation

- Focus separation effort on non-urban core; combined urban core (small portion in East Side) may be easier served by extended West Side tunnel system.
- Hybrid separation -- Convert combined sewers to storm sewers (downstream) and sanitary sewers (upstream) within each basin, beginning downstream.
- Coordinate separation construction with planned construction from other agencies (water, streets, parks, streetscapes, greenspace, private utilities).
- Utilize existing CSO facilities as stormwater screening facilities.

Wiedeman Proposed Refinement to Authorized Plan -- East Side -- Ocmulgee

Stormwater Management (Emphasis on Flood Control)

- Determine scope, magnitude and water quality issues of overflows upstream of CSO facilities.
- Develop hydrologic model to evaluate constraints and downstream controls (upstream and downstream of CSO)
- Given the relative locations of the combined sewer basins within the larger Ocmulgee basin, downstream flooding does not appear to be an issue for separation.
- Construct limited detention upstream of McDaniel and Custer CSO facilities based on hydrologic concerns.
- Construct energy dissipation and detention as appropriate adjacent to CSO and/or downstream of existing CSO facilities.

Wiedeman Proposed Refinement to Authorized Plan -- West -- Chattahoochee

Sewer Separation

- Determine West tunnel storage and conveyance requirements based on serving combined flows for entire urban core (20% of combined area).
- Alignment of West tunnel should consider future tie-ins with sanitary system to provide relief to existing Peachtree sanitary sewer trunks (assumes future separation of urban core converts West tunnel to sanitary tunnel)
- Alignment of West tunnel should consider extension options to serve the small portion of urban core on the East, (across the ridge line) allowing easier full separation of East basins.
- West combined sewage treatment facility at R.M. Clayton site should consider future incorporation into R.M. Clayton WRC (assumes future separation of urban core converts West tunnel to sanitary tunnel).

Wiedeman Proposed Refinement to Authorized Plan -- West -- Chattahoochee

Sewer Separation (Continued)

- Hybrid separation -- Convert combined sewers to storm sewers (downstream) and sanitary sewers (upstream) within each basin, beginning downstream.
- Sewer separation plan should address storm water capacity limitations upstream of the CSO facilities.
- Sewer separation strategy to focus on non-urban core combined sewer areas -- longer term “targets of opportunity” will exist in the downtown core.
- Sewer separation strategy to incorporate inventory of developments that have separated systems discharging to combined trunks.
- Sewer separation strategy to focus on immediate gains with appropriate hydrologic constraints.

Wiedeman Proposed Refinement to Authorized Plan -- West -- Chattahoochee

Stormwater Management (Emphasis on Flood Control)

- Develop hydrologic model and constraints to coordinate storm flows in the larger Peachtree Creek basin; model must incorporate conditions downstream of CSOs and upstream into Dekalb County (not addressed by current plan).
- Current authorized plan does not address downstream flooding in Peachtree Creek, based on upstream flows outside City of Atlanta (time of concentration).
- Determine scope, magnitude and water quality issues of overflows upstream of CSO facilities.
- Construct limited detention upstream of West CSOs based on hyrologic concerns.
- Upgrade downstream conveyance capacity, energy dissipation (as necessary), and additional detention (covered or uncovered).

Proposed Evaluation of Wiedeman Refinement

- Refine scope and examine technical feasibility, constructability, easement acquisition and other issues
- Develop preliminary estimates of cost and schedule
- Evaluate benefits against other refinements
- Previous work efforts (RMR and Pre-design to date) will significantly reduce time required to complete analysis

Key Components of PMT Refinement

Sewer Separation

- Separate all but urban core within combined area (80% separation) -- separate entire East Side + Greensferry, partially separate North Avenue, Tanyard and Clear Creek -- achieve 97% separation of total City system.
- Smaller West tunnel (40% of authorized plan) may allow use of R.M. Clayton WRC to treat combined sewage (advanced treatment)
- If smaller West tunnel discharges to WRC, can possibly route all sanitary flow from 3 partially separated basins into tunnel, which offers significant relief of existing Peachtree trunk sewers (no flow from Tanyard/CC)
- Hybrid separation -- Convert combined sewers to storm sewers (downstream) and sanitary sewers (upstream) within each basin
- Coordinate separation construction with planned construction from other agencies (water, streets, parks, streetscapes, greenspace, private utilities).

Key Components of PMT Refinement

Stormwater Management

- Separation plan (sizing of separate storm sewers) to address surcharging and flooding upstream of CSO facilities, where practical
- Utilize CSO screening facilities for stormwater
- Additional stormwater management improvements will require future stormwater utility

Benefits / Impacts of 80% Separation Refinement

- Achieves 97% separation of total City system
- Eliminates East tunnel system; eliminates East CSO treatment facility and possibly West CSO treatment facility (if West tunnel flow can be routed to WRC); eliminates 3 CSOs (McDaniel, Custer, Greensferry).
- Possibly offer significant relief to existing Peachtree Trunk sewers (if West tunnel flow can be routed to WRC) -- eliminate current sanitary and combined sewage flow from Tanyard and Clear Creek.
- Possibly provides advanced treatment (at WRC) for combined sewage from urban core (arguably the most polluted 20% of combined area)
- 3 remaining CSOs (North Avenue, Tanyard and Clear Creek) see avg 4 CSOs/year, but total sanitary flow much reduced due to partial separation. Possible screen storm flow during 60+ smaller storms per year.
- Tradeoff -- captures 99%+ of total annual sanitary flow from combined area; but captures and treats only 20% of total annual storm flow
- To Be Determined -- Schedule (2007?) and Cost (less than authorized plan?)