INTRODUCTION

Description of Contents

This document binder is intended to include materials developed as part of creation and evaluation of CSO control approaches and alternatives beginning in early 2007 and culminating is selection of a preferred project alternative, currently scheduled for May 2010. As of this date, this document includes materials developed by the project team from March 2007 through December 2009. At the end of December, 2009, the project team evaluated nine alternatives and selected three alternatives from that group for refinement in the first and second quarters of 2010. As of February 2010, that work is ongoing. When the process to select a preferred alternative is completed in May 2010, documentation for this phase of the work will be added to this document.

Summary of Alternatives Development Process

The alternatives development process has several distinct steps, each culminating in a decision. The process is summarized in the following table. The summary table shows the location in the binder of the relevant documents. Included with these documents are agendas, notes, presentation materials, and graphics associated with each key process step.

Alternatives Development Process Steps	Decisions, Key Information, Outcomes	Milestone Dates	Location in this Binder

CSO Project Transfer Document	• Basis of project scope
	• Transmitted CSO control objectives, planning criteria including peak flows and storage volumes required to meet control objectives.
	• Listed anticipated project budgets
	• Set basis of costs
	• Set target schedule
	• Listed recommended project alternatives
	  o Barton – single storage at two possible locations with pump station upgrade
	  o Murray – single storage at Lowman Beach Park
	  o Magnolia – single storage at two possible locations.
	  o North Beach – single storage at pump station site and pump station upgrade.
		May 16, 2006	**Tab 1**

Scope of Work (excerpts)	• Establish planning boundaries for project
	• Establish regulatory constraints
	• Recognized need to investigate additional options –
	  o Storage
	  o End of Pipe Treatment
	  o Conveyance to downstream existing downstream treatment
	  o Peak flow reduction (demand management)
	  o I/I control (North Beach basin only)
		January 2, 2007	**Tab 1**

Planning Confirmation, Flow Projections	• Flow projections, updated by county	**March 2007 – January 2010**	**Tab 2**
Planning Confirmation Workshops	• Workshop #1 presented initial approaches and	**March 20, 2007**	**Tab 2**

and Briefings	alternatives. • Workshop #2 evaluated alternatives and eliminated some. • Ecology briefing to familiarize the agency with the projects	**May 30, 2007 and August 16, 2007** **August 16, 2007**	
Preliminary Planning Confirmation	• Draft TM202.1 Planning Confirmation • Draft TM203.1 Selection Criteria • Confirmation of CSO control approaches • Confirmation of planning boundaries • Initial Alternatives Identification and Evaluation • Initial Selection Criteria • Initial relative costs • Initial review and selection workshops • Initial elimination of CSO control approaches that didn't meet initial selection criteria or tests for feasibility.	**December 11, 2007**	**Tab 2**
Flow Monitoring and Analysis	• Scope provided for field investigation of combined sewer flows at sub basin level. • Results showed where majority of flows originate. • Assisted in identifying areas for dispersed storage.	**December 2007 – June 2008**	**Tab 3**
GIS Analysis/Modeling	• County GIS analysis established connectivity to aid in evaluation of demand management alternatives. Focus on number of rootops connected to CSS. • GIS analysis by Carollo determined footprint areas of rooftops for estimating number of rooftops per sub basin.	**June 2008 – September 2008**	**Tab 3**
Hydrololgic/Hydraulic Modeling	• Established models at sub basin levels to generate sub basin flow contributions and check bottom of basin storage volumes • Decision made by county to use county model	**July 2008 – July 2009**	**See Binder 2**

	results in preference to consultant model. Modeling suspended. • Sub basin contributions as percentage of total used initial data from flow monitoring adjusted to county model to estimate sub basin storage volumes.		
Expanded Alternatives Creation and Analysis	• Data from flow monitoring and GIS analysis used in conjunction with field reconnaisance to create and describe expanded group of alternatives including dispersed storage and demand management options. • Potential storage and/or treatment sites identified. Sites expanded to out of basin locations for Magnolia Basin. • Tunnel and pipe storage options examined and described. • Rectangular storage tank standardized sizing developed. • Alternatives described, up to ten in each basin. • Expansion and refinement of criteria begun in July (See Binder #3)	**July 2009 – August 2009**	**Tab 4** **See Binder #3**

Development of Alternatives for Basins	• Refinement and development of alternatives descriptions.
	• Development of contstruction, property acquisition, street use and life cycle costs
	• Development of technical approach schematic designs to support criteria evaluations by team.
	• Evaluation and ranking and reduction of number of alternatives from eleven options in Magnolia, nine in Barton, ten in Murray to three in each basin.
	  ○ Barton Basin Alternatives –
	  ▪ 1A Bottom of Basin storage
		September 2009 – December 2009	**Tab 4**

	▪ 1E – Storage in Upper Fauntleroy Way. ▪ 1F – Storage near Fauntleroy School o Murray Basin Alternatives ▪ 1A – Storage in Lowman Beach Park or nearby. ▪ 1D – Storage in Beach Dr. and Murray Ave. ▪ 1F – Pipe and Tank storage in Beach Dr. and east of Beach Dr. ▪ 5A – Stormwater disconnection/storage o Magnolia Alternatives ▪ 1A – Bottom of basin storage ▪ 1F1 – Storage on 23rd Ave. ▪ 2A – Convey and treat ▪ 5A – Stormwater Disconnection/storage • North Beach basin evaluation put on hold due to re-evaluation of flows by county • Dispersed storage options (more than one storage facility dispersed throughout basins) dropped from consideration. • Demand management options dropped from consideration. • End of Pipe treatment options dropped from consideration. • Convey and treat option for Magnolia retained and warrants further feasibility analysis by county. • GSI option added to Barton Basin by county as result of GSI feasibility analysis.		

Alternatives Evaluation of three alternatives	• Evaluation and refinement of three alternatives leading to recommended project. • Risk analysis and draft risk register.	**January 2010 – May 2010**	**Tab 5 (to be added in June 2010)**