

Ballona Creek Bacteria TMDL Implementation Options

Objective	Implementation Option Group	Specific Implementation Option	Considerations	
Reduce or Eliminate Flow to Creek	FLOW SOURCE CONTROL (Institutional)	Irrigation Control/ Oversight Canvass water purveyors for use distribution data Institutional Educational Programs Fix leaking Water Supply/Infrastructure	Remote Controlled Irrigation Systems - CIMIS linkage Review IRP to understand irrigation water use by area Control the flow to control bacteria Staff to fix broken sprinklers (cheaper then persuading owners) Wet weather - limited to minimal help with implementation due to size of flows	
	FLOW SOURCE CONTROL (Structural/Physical)	Reduce % Impervious On-site Storage and Re-use On-site Percolation/ Groundwater Recharge Promote use of "grey" water systems Wet Weather - Promote use of Cisterns at individual properties	Develop design standards for residents Identify large flow non-receiving water opportunities Local infiltration basin at catch basin near parks and schools Identify school yards near large drains Look at landuse layer to determine open space/park/school areas for possible BMP siting Identify a "Control" stormdrain or small catchment to pilot project	
	DIVERSION	Treatment Plants Dry weather - Low-flow Diversions to POTWs (for treatment and reuse). Wet Weather - Diversions to POTWs not practical or limited to very small flows due to minimal excess wet weather capacity Dedicated Urban Run-Off Plant (for treatment and Re-use/discharge)	Placement of treatment important to consider An additional treatment plant at bottom of watershed is double-duty (LA River Experience - high percentage of treated effluent during dry weather) Depending on site, could serve as dilution for smaller drains Possible treatment placement option - bottom of Compton (before estuary) Wet Weather - very limited except for very small flows due to limited reuse potential	
Reduce bacteria in discharges and/or creek flow	TREAT & RETURN	Treat and Return Dry weather - temporarily divert and disinfect (Use UV or O3). Wet weather, temporarily divert, store, partial solids reduction and disinfect (Use UV or O3).	Disinfection only or treat other pollutants?	
	SOURCE CONTROL (BACTERIAL)	Bacterial source control (residential/open space vs. commercial)	Implementation timeline too long? "Focused" san surveys to identify hot spots - target regular water in gutters Limits on sanitary surveys - ephemeral sources Use SCCWRP study as a starting point for identifying hot spots Identify problem sources before they get into the stormdrain system TMDL compliance for doing watershed inspections Task City/County field staff with investigating water in gutters	
			"Reverse" Sanitary Survey	Target flow or bacteria concentration hot-spots? Hot spots hard to identify; variability for both bacteria and flows Limits are so low; therefore important to control both flow high bacteria sources Identify low flow high concentration sources and high flow low concentration sources
			Control high load sources	Natural bacteria sources (including wildlife and biofilms) Same high contributing land uses as during wet weather (as identified by SCCWRP)? Use to run pilot studies
			Understand High-Load Sources	
			Identify Landuses that are Contributing Dry-weather Bacteria	
	Identify a Control Drainage Watershed			
IN-STREAM SOLUTIONS	Stream Restoration Daylight to Prevent Growth/Re-growth; restore streams to natural condition	Treat water before daylighting? Reverse policies to culvert open channels Mapping of all natural and open drains; Identify land uses to "daylight" conduits Is there data to support whether daylighting will attenuate bacteria concentrations enough? Natural creek can attenuate other pollutants as well Wet weather - of limited potential except possibly at very low flows		
Other Options or Combination of Options	Multi-phase Approach	Simple, short-term solutions at outset, then gather more info for specific correction of hot-spot problems	Cities need some commitment that good faith efforts satisfy some demands for some time.	
	Pilot Project	Single Catchment Area with Mix of Landuses	Review SMB Restoration Study and SCCWRP studies - divide BC into sub-watersheds to site pilot project	