



Non-structural BMP Effectiveness Street Sweeping – Status Update



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Technical Working Group Members

James Fortuna – County of Orange

Matt Yeager – Riverside County Flood Control & Watershed Protection District

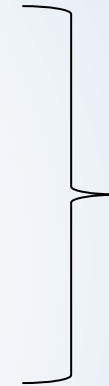
Wayne Chiu – Region 9 Water Board

Ivar Ridgeway – Region 4 Water Board

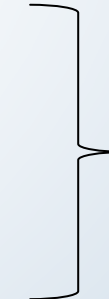
Hamzeh Ramadan – Caltrans

Jill Murray – City of Santa Barbara

Lara Barrett – County of San Diego



Initial work plan development

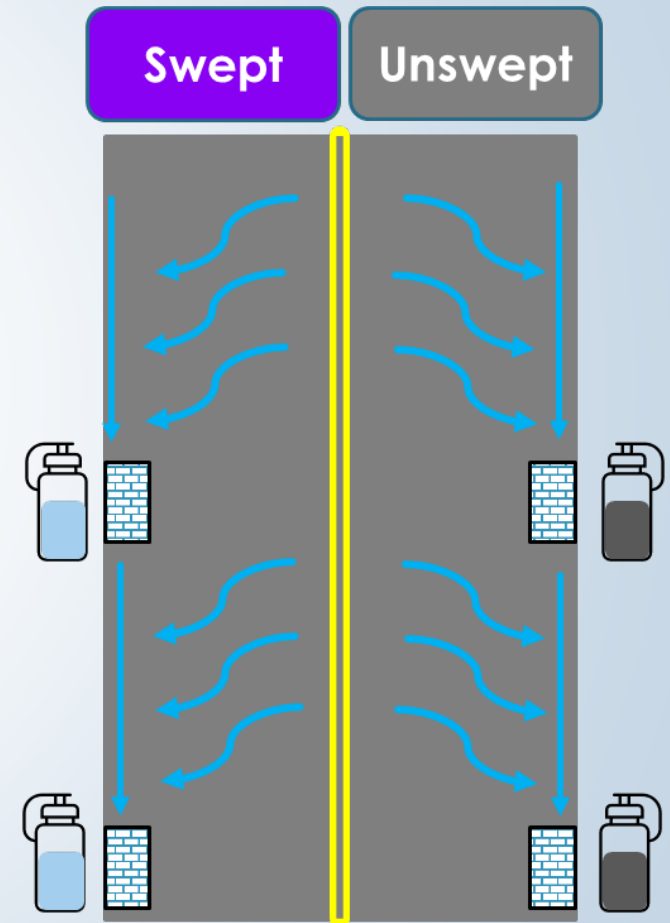


New contributors for implementation



Project Scope - Pilot Test

- ▶ Primary Goal: establish method
 - ▶ Swept vs Unswept streets: can we measure a difference in runoff water quality?
 - ▶ Use synthetic rainfall to eliminate confounding environmental variables
- ▶ Approach: Build apparatus & conduct pilot tests
 - ▶ 3 synthetic storm events & 2 natural events
- ▶ Anticipated Outcomes: Proof of concept on experimental methods





Analytes

- Solids
 - Nutrients
 - Trace metals
 - General chemistry
 - PAHs
 - Indicator bacteria
 - Microplastics
 - Toxicity
- Originally included
in Workplan**
- New!**
**Analysis funded by
City of Santa Barbara**



Synthetic Rainfall Generator



Rainfall Intensity
→ 1.25 in/hr

Uniform Footprint
→ 14ft x 6ft



Site Selection – Study Criteria

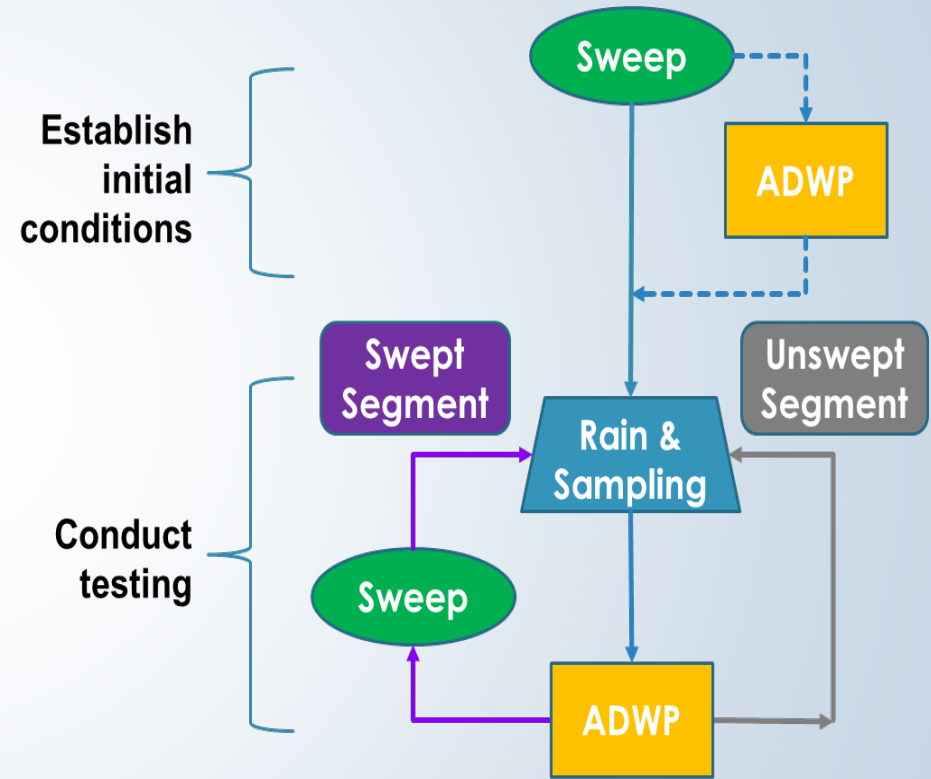
- Heavily-trafficked asphalt surfaces (road or parking lot segments)
- Easily identifiable catchment area
- Street sweeper technology:
 - Vacuum assisted and/or regenerative air
 - Excludes mechanical broom sweepers
 - Potential to collect swept materials
- Ability to control sweeper program (i.e., sweep only according to our schedule)
 - Consistent characteristics of swept & unswept catchments





Next Steps

- ➔ Technical working group chooses one suitable site for testing – ASAP
- ➔ Complete construction and testing on synthetic rainfall generator – June 2023
- ➔ Field testing and data collection – July 2023



ADWP = antecedent dry weather period



Questions?



- ▶ Edward Tiernan, Ph.D. & Elizabeth Fassman-Beck, Ph.D.

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