

Maintenance

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Project Title: Prefabricated Wash Rack Systems

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Evaluation of Prefabricated Wash Rack Systems

The evaluation will provide a guiding document that allows the California Department of Transportation (Caltrans) to facilitate an improved wash rack decision making process for installing and operating portable wash racks systems.

WHAT IS THE NEED?

Caltrans is interested in prefabricated above-ground wash rack systems for large snow removal vehicles, loader, vacuum trucks, and other service vehicles to reduce operating and installation costs and improve environmental compliance while shortening the time of engineering, procurement, and licensing. A detailed study, trial, and evaluation of these systems needs to be conducted for Caltrans to better understand their benefits and configurations. The Caltrans District 3 procurement of a complete prefabricated above-ground wash rack system in South Lake Tahoe provides an opportunity for this study and could serve as a model for other Caltrans highway maintenance stations in need of near-term wash rack upgrade solutions.

WHAT ARE WE DOING?

The research will investigate the benefits, costs, and configurations of commercially available prefabricated wash rack systems compared to customized stationary wash rack systems. The deliverables would include evaluation of wash rack systems for Caltrans operations and different equipment cleaned, cost/benefit analysis, including annual maintenance and depreciation between fixed and portable units, configuration analysis, and a final report including recommendations. The research will also analyze wash rack wastewater and its compliance with municipal sewer districts and assess if it can be recycled as brine to be put on the roads during the winter to further increase the systems' water usage efficiency and reduce salt application. The usability under changing conditions such as weather and climate will be analyzed, as well as options to add mitigating technology for hazardous or excess materials or increase capacity.



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WHAT IS OUR GOAL?

This research will provide guidelines that allow Caltrans to begin installing and operating portable wash racks systems throughout the State of California. This will streamline the existing difficult process required to permit and install permanent installations, leading to better efficiency.

WHAT IS THE BENEFIT?

Enhanced understanding of these systems will allow Caltrans to better benefit from them operationally, but more importantly it will yield significant sustainability benefits and reduce costs.

WHAT IS THE PROGRESS TO DATE?

The research team completed a preliminary report on documenting Caltrans purchase and installation processes for portable wash rack. The team worked on researching wastewater regulations for relevant areas with wash rack systems. An updated draft survey on user feedback was compiled and distributed to the project panel for their review. The research team developed a framework for the cost-benefit analysis that includes maintenance, electricity, water, auxiliary materials such as filter material, soap, nozzles, etc.

IMAGES

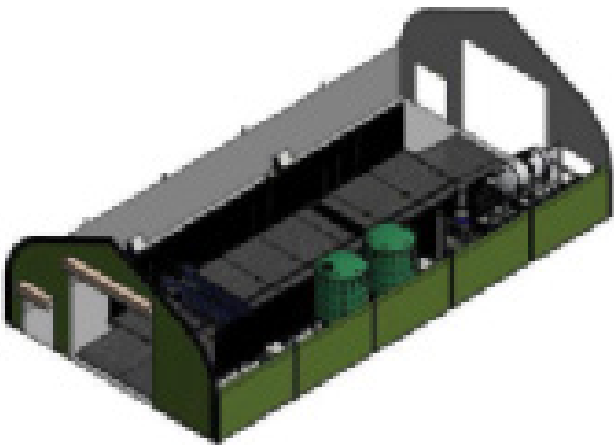


Image 1: Caltrans District 3 EST Co. Prefabricated Wash Rack System