A-54: Washing of Light Rail Vehicles and Elevated Guideways

Stormwater runoff (rainwater and snow melt) is the largest source of pollution to our lakes, streams and Puget Sound. King County requires businesses to implement measures to protect our shared waters. If the requirements below do not prevent pollution, additional measures are necessary.

Definition:

Light rail in King County and more broadly in the Puget Sound region ranges from smaller, lighter, shorter trains that mostly to exclusively share right of way with street traffic, hence are limited by those speeds, and have stops fairly close together; i.e., commonly referred to as streetcars, trolleys, or trams – to larger, heavier, longer trains that mostly run on exclusive right of way, and run at higher speeds between stations that are spaced further apart. In all cases to date, these are powered through overhead bare copper wires referred to as overhead catenary systems (OCS). Light rail excludes heavy gauge diesel-electric intercity trains.

The following best management practices (BMPs) apply to the cleaning or washing of light rail vehicles (LRV) and elevated guiderails.

Required Operational BMPs

- Conduct LRV washing in a dedicated LRV washing facility in which the washing occurs in an enclosure and drains to the sanitary sewer.

Dedicated Light Rail Vehicle Washing Facility

- LRVs should go through the following steps during a wash cycle: pre-rinse, detergent, brush/scrub, final rinse, and then blowers. LRVs are targeted for washing one time per week.
- The following are details on the wash cycle steps:
    - Pre-Rinse: Vehicles are sprayed with water (either reused or fresh) upon entering the facility. Sprayers should be placed to reach maximize the top and sides surface area of the vehicle to be washed.
    - 2. Detergent: Vehicles will next be sprayed with an approved detergent. Sprayers should be placed to maximize the surface area of the vehicle to be washed.
    - 3. Brush/Scrub: Brushes will be placed along the wash track to scrub the vehicle sides and tops to remove accumulated materials. Brushes should be placed to maximize the surface area of the vehicle to be washed.
    - 4. Final Rinse: Vehicles will be sprayed with a final rinse. Sprayers should be placed to maximize the surface area of the vehicle to be washed. Vehicles will be rinsed at least once.

  - 5. Blowers: After the final rinse, the LRV will travel through a set of blowers to dry the vehicle, reducing potentially contaminated wash water from leaving the facility.
- Detergent Selection
  - Minimize the use of water and detergents in washing operations when practicable.
  - Use phosphate-free biodegradable detergents when practicable.
  - Use the least hazardous effective cleaning products available.
  - The selected detergent should meet requirements of the local county's Certified Industrial Hygienists to protect wash facility operators and shall go through the approval process for the local jurisdiction associated with the washing facility's wastewater discharge permit.

Applicable Guiderail Washing Operations

- Conduct elevated guideway washing with a dedicated vactor truck that collects and contains water sprayed onto the elevated guideway. All elevated guideway washing activities shall only take place during track downtimes.
- Elevated guideway washing BMP components include:
  - **Frequency:** Due to limited service down time, frequency is determined by light rail operational performance needs to clean the elevated guideway.
  - **Areas of Focus:** The entire elevated guideway area shall be washed with additional emphasis placed on the rail and rail seat.
  - **Vactor Truck:** A vactor truck shall be used for all elevated guideway washing activities. The truck shall be designed to vacuum up water sprayed during the cleaning process. The water will be properly discharged to the wastewater collection system, with approval from the owner, when the truck returns to the maintenance facility (see A-54: *Urban Street Maintenance* for the management of street waste solids and liquids)

    Upon return to the maintenance facility, discharge timing shall be determined in coordination with washing and rinsing flushing intervals to for compliance will all permits.
  - **Elevated Guideway Drains:** All runoff from elevated guideway washing will be contained, collected and disposed of with the vactor truck water.

Additional Information

- Potential pollutants can include: metals, hydrocarbons—such as oil and grease, oxygen demanding substances, pH, sediment, pesticides and other pollutants.
- *Stormwater Pollution Prevention Manual*, Chapter 3: Commercial and Multifamily BMPs
  - A-11: Cleaning or Washing of Tools and Equipment
  - A-13: Vehicle Washing and Steam Cleaning

  - A-18: Vehicle and Equipment Repair and Maintenance
- Washington State Department of Ecology's Vehicle and Equipment Wash Water Discharges/Best Management Practices Manual https://fortress.wa.gov/ecy/publications/summarypages/95056.html

For more information or assistance contact the King County Stormwater Services at 206–477–4811 and visit kingcounty.gov/stormwater.