

Rain Garden Impact on Contamination

Pollutant	Typical Roadway Concentration	Average Removal Efficiency	Effluent Concentration	Water Quality Standard
Suspended Solids	78 mg/L	73%	21 mg/L	10 mg/L
Lead	51 µg/L	43%	29 µg/L	1.3 µg/L
Copper	11 µg/L	63%	4.1 µg/L	6.4 µg/L
Zinc	129 µg/L	74%	34 µg/L	59 µg/L
Polycyclic Aromatic Hydrocarbons (PAHs)	2.1 µg/L	90%	0.2 µg/L	0.2 µg/L

Contamination Literature

- “Comparing Properties of Water Absorbing/Filtering Media for Bioslope/Bioswale Design”
<http://www.dot.state.mn.us/research/reports/2017/201746.pdf>
 - Highly comprehensive paper on the impact of bioslopes & bioswales (comparable to a rain garden) on several roadway pollutants. Specifically, Table 2.1 and Table 2.2 are highly informative.
- “Removal and Fate of Polycyclic Aromatic Hydrocarbon Pollutants in an Urban Stormwater Bioretention Facility”
<https://pubs.acs.org/doi/10.1021/es802090g>
 - Great paper demonstrating the impact that bioretention cells (e.g. bioswales) can have on PAH levels. Polycyclic Aromatic Hydrocarbons (PAHs) are known to have respiratory effects & are suspected carcinogens generated by the release of petroleum products (tire dust, car emissions, plastics, etc.).
- “Road Dust Lead (Pb) in Two Neighborhoods of Urban Atlanta, (GA, USA)” <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3397361/>
 - Outlines lead levels typical in road dust samples collected in Atlanta.