Do different types of impervious cover have different pollutant loading rates ?

Tom Schueler and Mark Sievers

July 15, 2014

ANSWER

- FINDING: Two national analyses of stormwater outfall monitoring data clearly indicate there is little or no statistical difference in the event mean concentration of total nitrogen, total phosphorus and total suspended solids between “generic” impervious cover and its commercial, residential, institutional, industrial, transport, road and freeway components.

- RECOMMENDATION: The Workshop Consensus is that no further subdivision of impervious cover is warranted on the basis of land use, given that they do not load differently (i.e, negative answer to the first criteria).

TN Storm concentrations as a function of catchment impervious cover (Tetra Tech, 2014b)

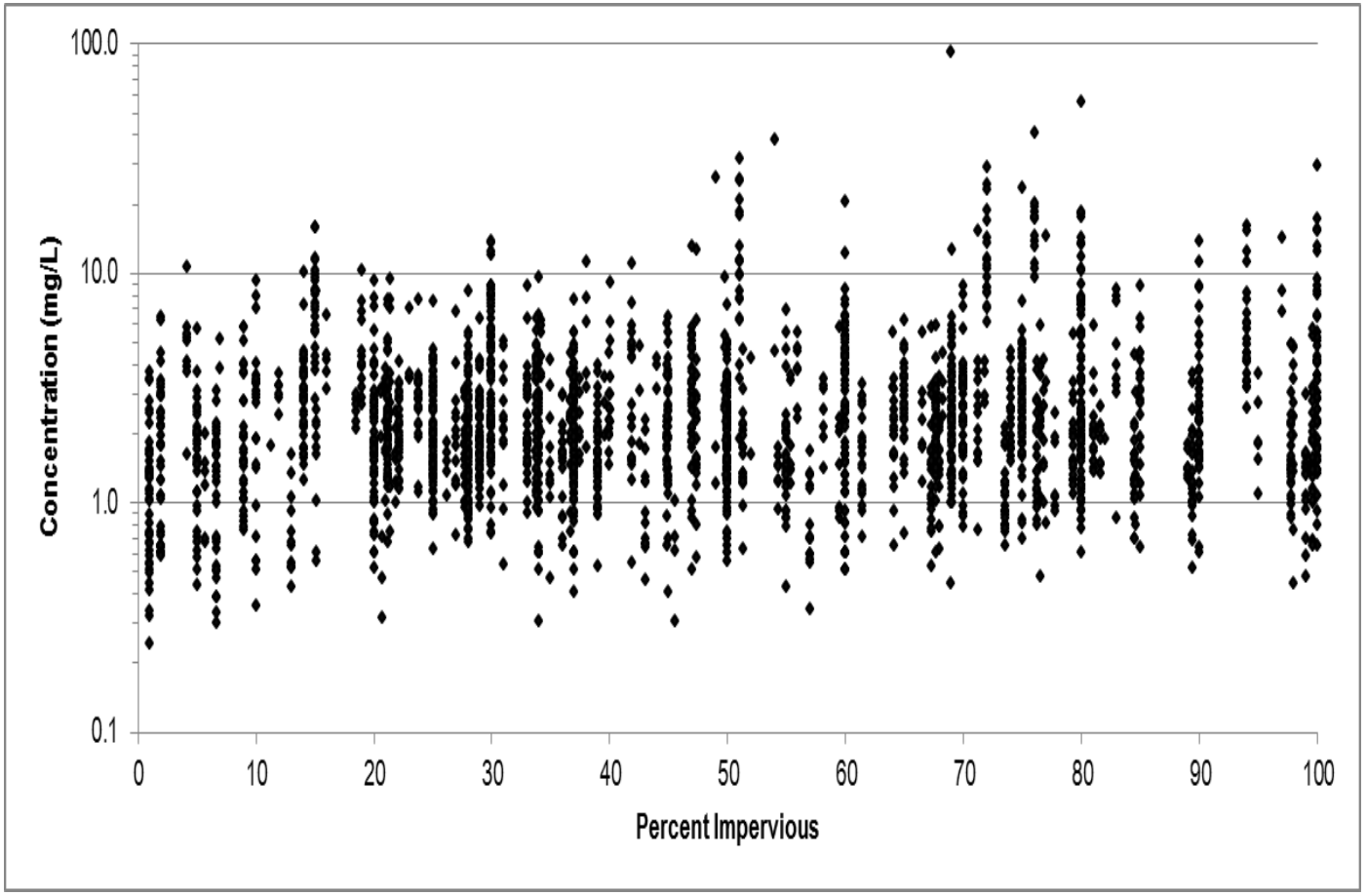
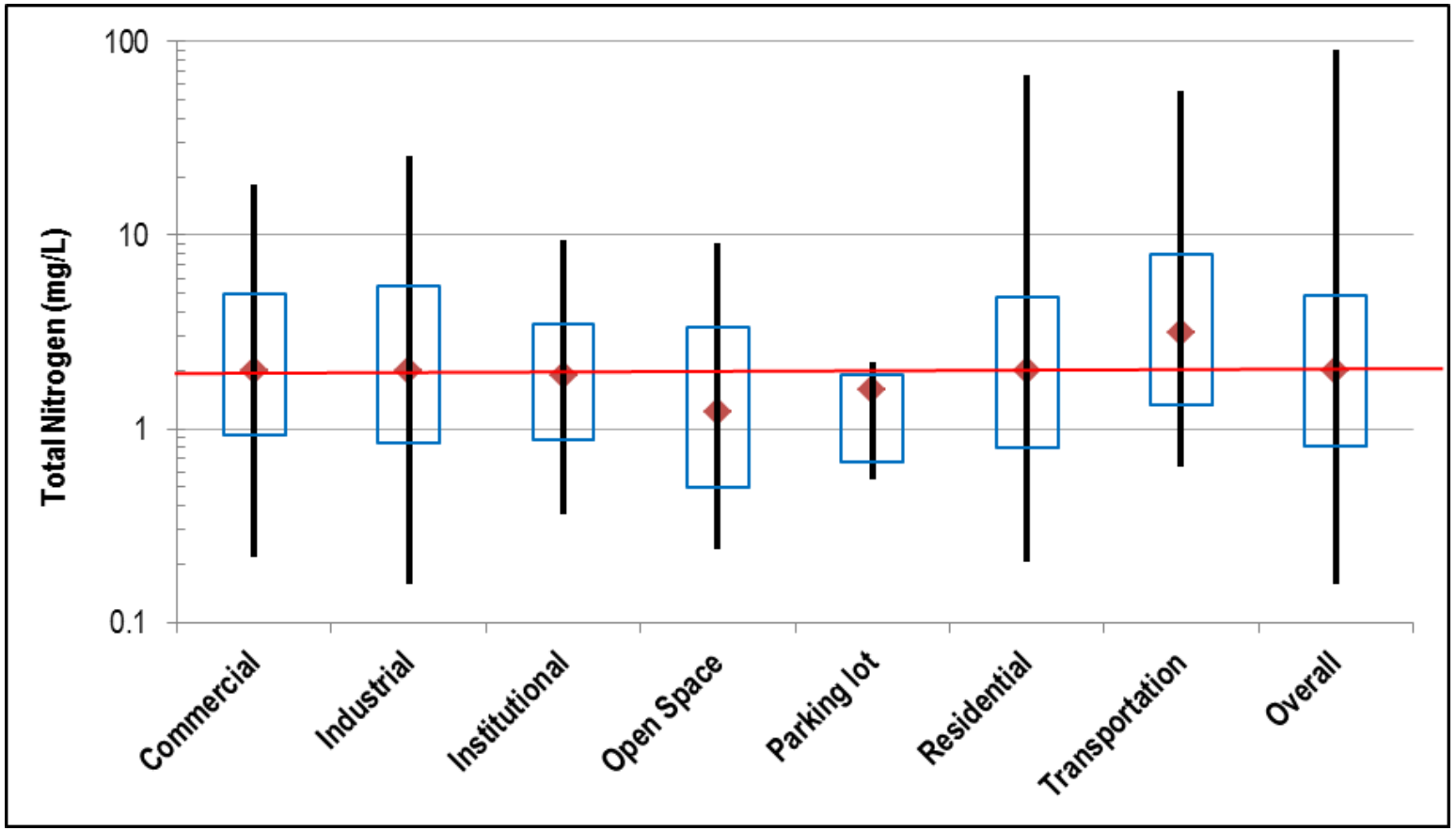
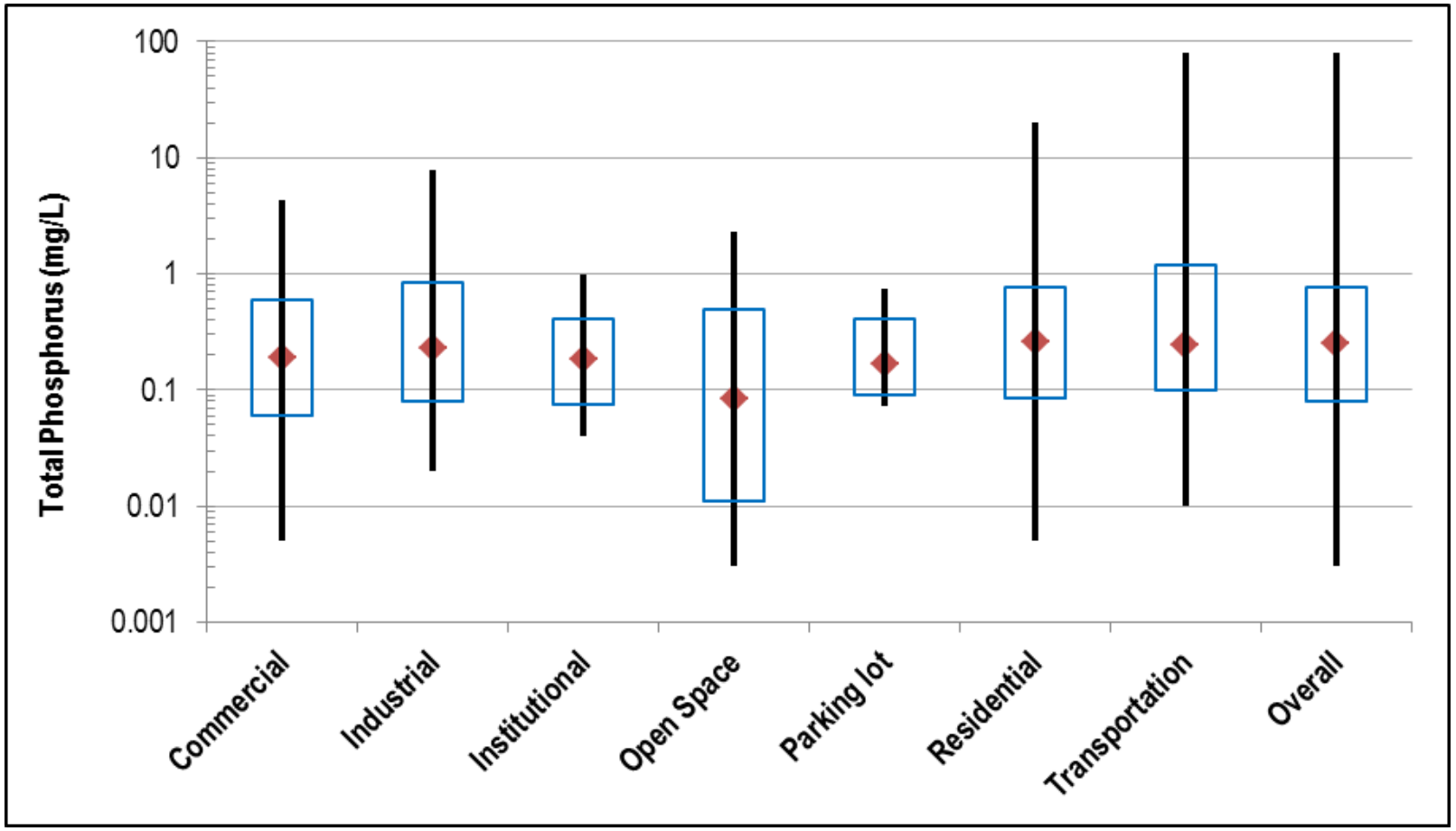


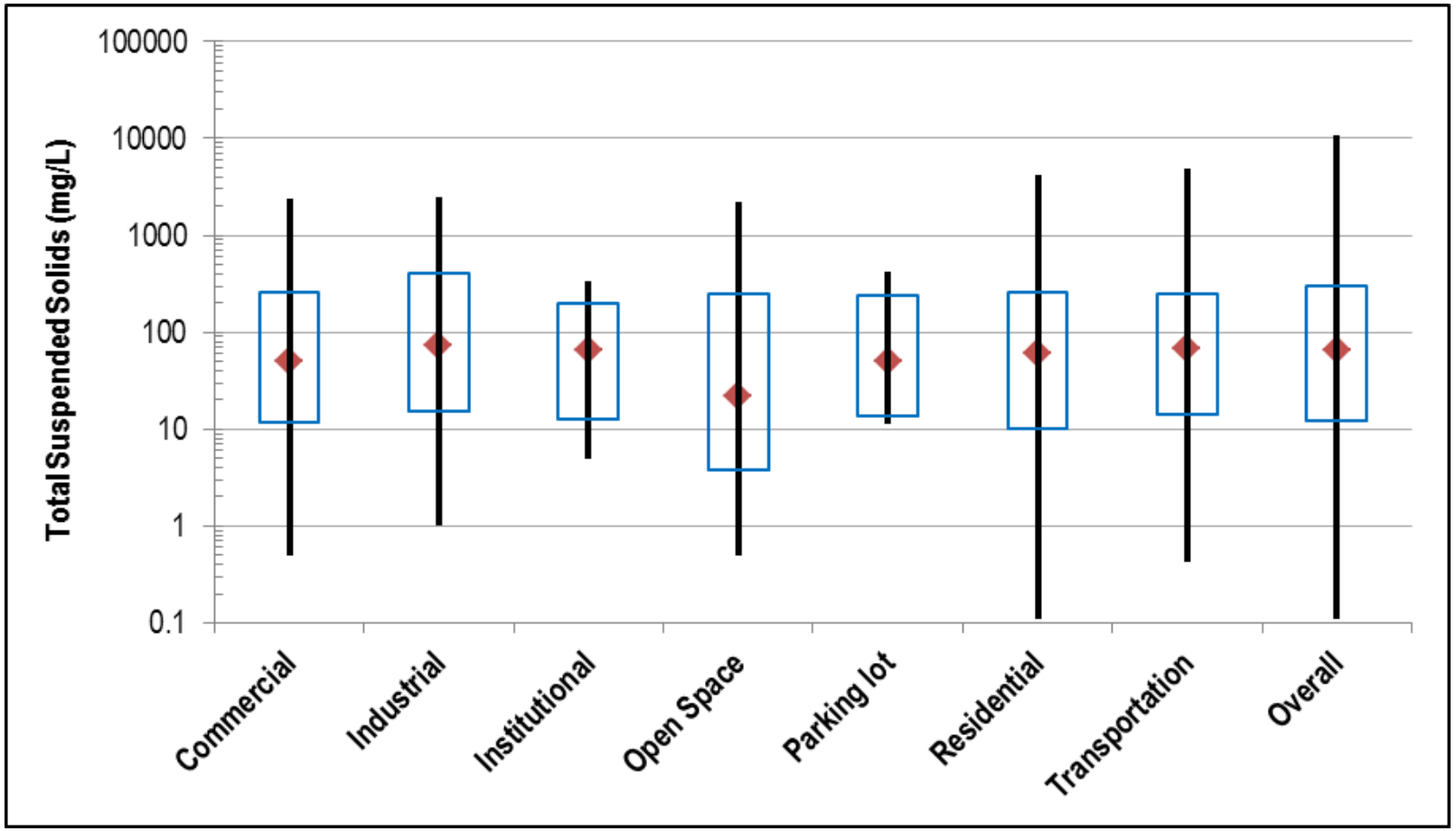
Figure 2: Comparison of TN EMCs on the Basis of Land Use Category



TP concentration statistics from NSQD and literature review for general land uses.



TSS concentration statistics from NSQD and literature review for general land uses



The urban sediment gap

TSS concentration statistics from NSQD and literature review for general land uses.							
		Concentration (mg/L)					
Land Use	**Count**	**Min.**	**mean**	**Max**	**10th percentile**	**Median**	**90th percentile**
Commercial	887	0.50	112.97	2,385	11.82	50.40	254.40
Industrial	581	1.00	167.84	2,490	15.00	73.00	402.00
Institutional	57	5.00	84.90	340	12.60	64.26	199.27
Open Space	139	0.50	99.39	2,180	3.80	22.00	248.40
Parking lot	11	11.24	103.82	425	13.45	49.50	241.00
Residential	2,186	0.11	123.48	4,168	10.00	60.00	262.50
Transportation	460	0.42	126.22	4800	13.99	66.68	244.60
Overall	6,324	0.11	140.44	10,700	12.00	64.42	300.00

Sediment Load from Outfall Monitoring (simple Method) = 0.12 t/ac/yr

CAVEAT: outfall monitoring data does not tell us the whole story

Outfall monitoring only tells us what washes off impervious surfaces into the storm drain, and is silent about downstream and groundwater nutrient sources. These sources can produce potentially significant nutrient loads via:

- Fertilizer leaching
- Streambank erosion
- Sewage exfiltration and overflows
- Groundwater migration
- Relict and existing septic systems
- Illicit discharges
- Drinking water transmission loss
- BMP return flows

Discussion (15 min)

- Alternative views (e.g., streets, open space)
- Other key points
- What about lC Layers ?

- ARE WE IN CONSENUS ON THIS QUESTION ?