Ontario's Coal Tar Sealant Work 2009-11

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Outline

- Background – Work done by Environment Canada in 2009 and 2010
- 2010/11 University of Toronto Study

2009 Work

- Student conducted review for driveway sealers in Ontario
- Commercial use was very limited (if at all)
- Residential use by Do-it Yourself was still practiced
- Some local retailers sell Coal Tar products for driveway sealers

2010 Work

- Another student developed test plan to collect field samples and measure the impacts

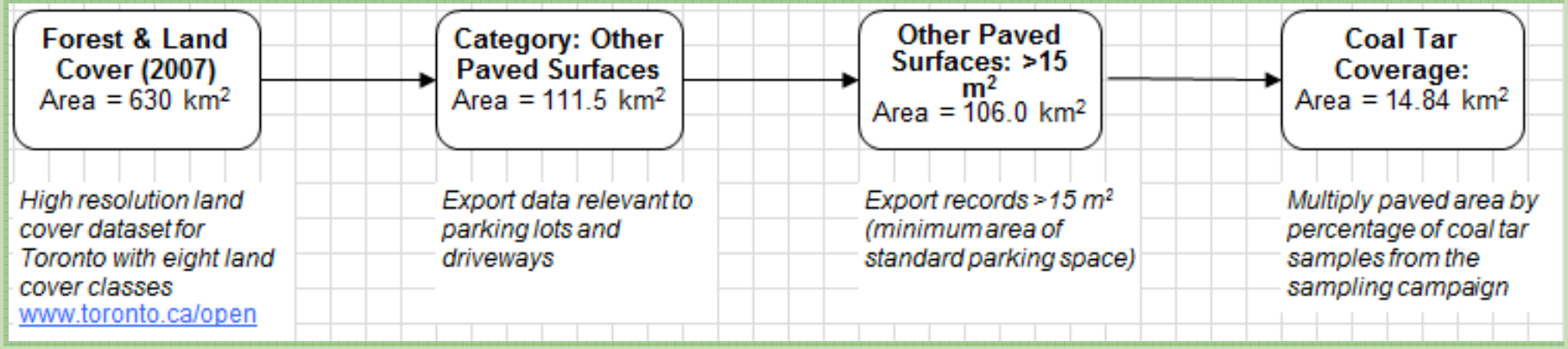
- Also surveyed contractors in the Greater Toronto Area
  - *Significant amount still use Coal Tar driveway sealer for their work*
    - *Better durability*
    - *Cheaper*
    - *Fewer complaints*

2010/11 Work

- Worked with University of Toronto
  - *More in-depth review and identification of Coal Tar Sealant (CTS) presence in the Greater Toronto Area*

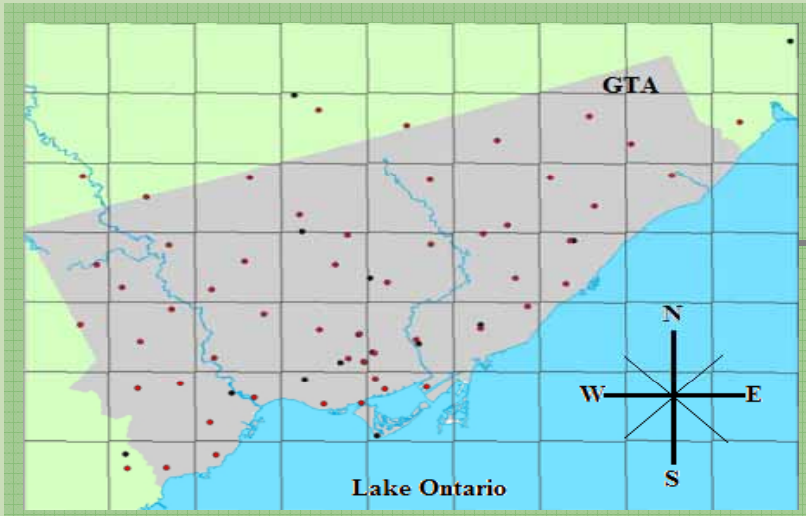
Method

- Scrappings (92) collected from 0.25 m^2 areas of commercial parking lots (47) and residential driveways (45)
- Extraction via dichloromethane to dissolve binder material
- Cleaned via solid phase extraction
- Analysed via Gas Chromatography – Mass Spectrometry
- CTS presence in Greater Toronto Area estimated by:



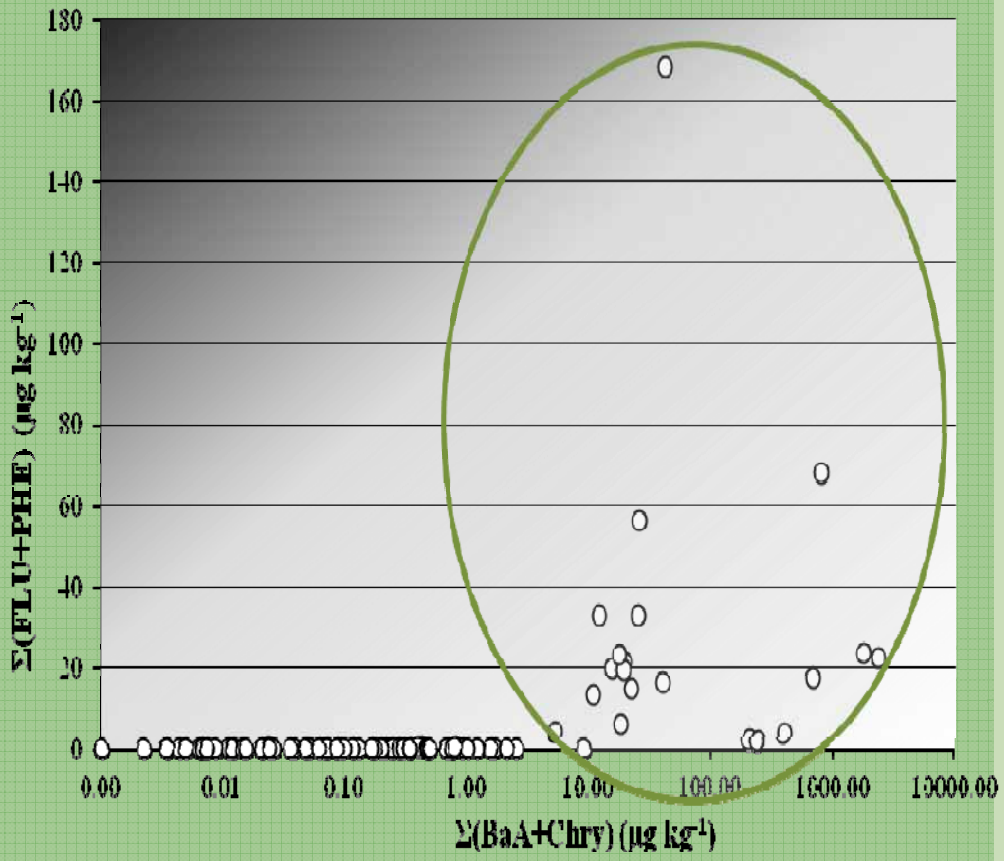
Summarised Sample Results

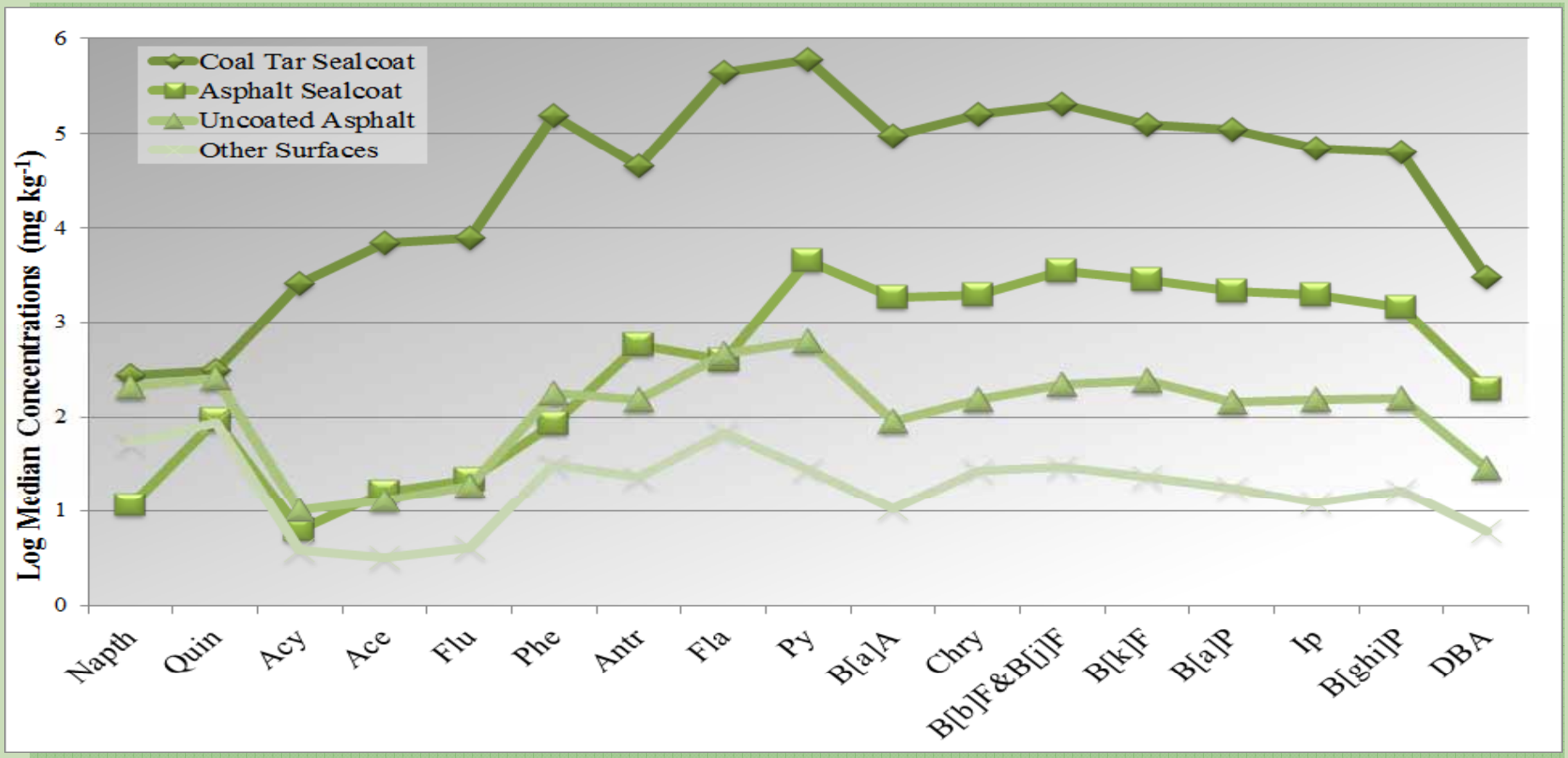
Material (Scraping)	**Concentration (mg/kg)**	
	This Study	Mahler *et al.* 2005
Coal Tar Sealant	130 – 24,000	9,500 – 83,000
Asphalt Sealcoats	2 – 61	340 – 2,000
Uncoated Asphalt	0.1 – 0.9	7.1 – 20
Other	0.02 – 0.1	-----



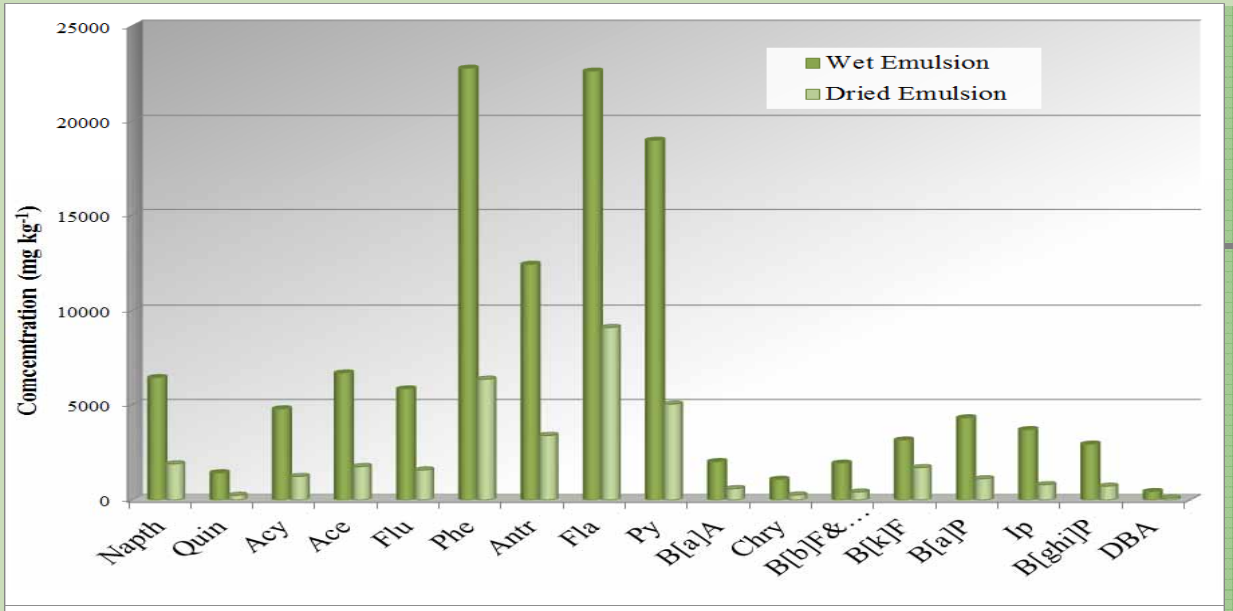
Sampling Locations

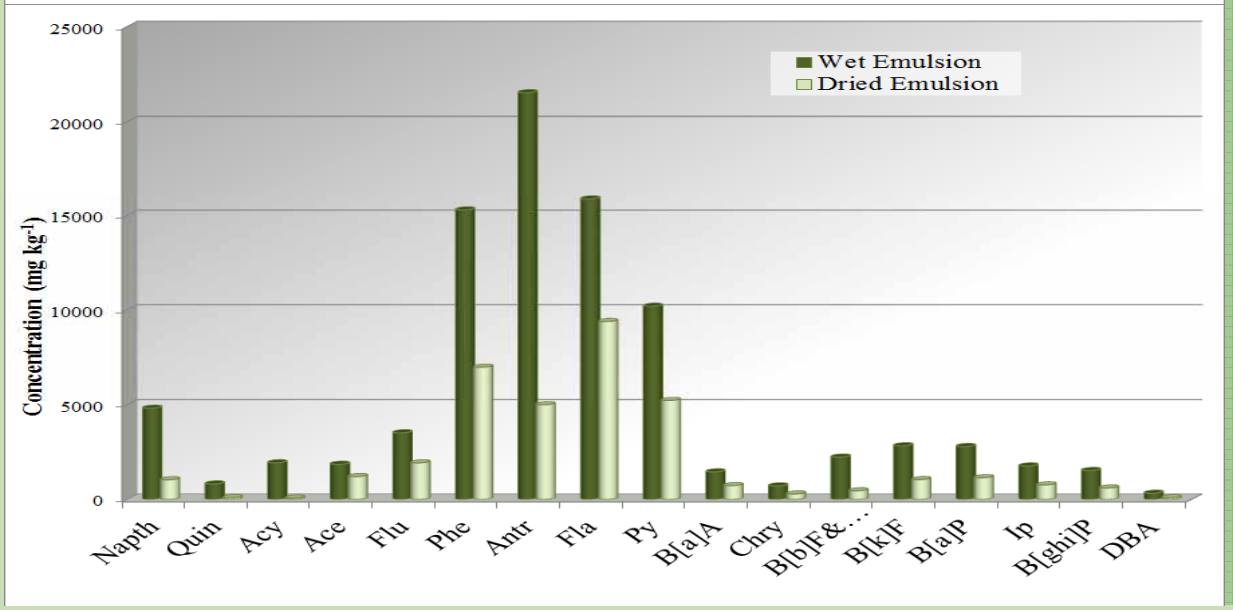
Highlighted area indicating samples containing Coal Tar Sealant material



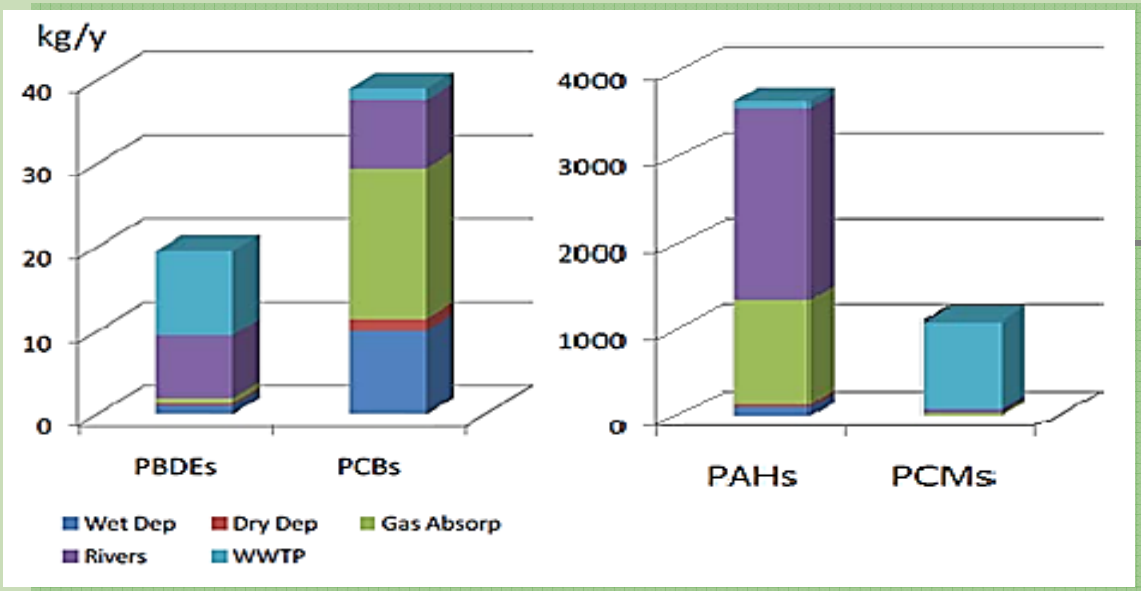


- Samples containing Coal Tar Sealants had much greater PAH concentrations than other samples (Y-axis is a log scale)



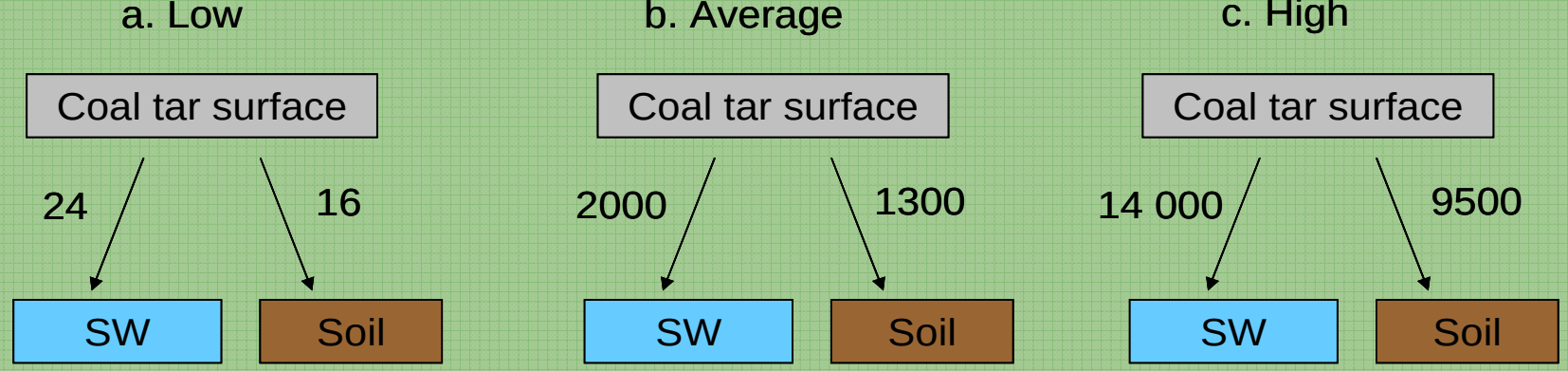


- PAH in two commercially available coal tar sealcoat emulsions
- "Wet" is the original material from the container
- "Dried" has been dried for ~48 hours
- High loss of compounds during drying, due to volatilization



PAH loading from Toronto to nearshore Lake Ontario (Diamond *et al.* 2010).

Estimated loadings to surface water from CTS wash-off



Units: kg/y

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