Comments on MBT Draft HIA, December 2017
From Dan Jaffe, University of Washington

First, this was a very rapid process. I feel that I could have given better/more detailed comments given more time. That said, here are my main comments.   There are several spots in the doc that need grammar cleanup.   But in interest of time, I will focus on main technical air quality/health issues:

Pg 9; middle of page. Add children to list of sens groups.
Pg 9: Last par. Need reference to specific sections in FEIS.   Need to discuss methodology- at least in brief with ref to specific sections in appendix.
I don't recommend use of the term "educated guess".   Its more than that.   But why can't you give a better estimate knowing fraction of population that has drivers licenses?

Pg 10/Fig 2:   Need to define "Contour30" (I assume it's the 30 in a million cancer risk??? Also need some geo references to this figure. Eg whereas in MBT, center of cities, etc.
As I discuss in comments below, I think the DPM effects are sig. under-estimated.
Pg 10/ next to last par: "..the largest area".   Misleading since the coal dust would ADD to the DPM risk.
Last line: "Medicare benefits.."   relevance?   Also, the figure of 500-600 feet seems low.   I have seen other studies suggesting this is more like 500-1000 meters.

Pg 11,: First few lines is not well stated.
First par, last line; "62%-89%"… This is important but not clear what this means.   Daily or annual std?
Last par: Seems like an important result. Does this reflect worse air quality in the region or something else?

Pg 36 middle of pg: The FEIS gives DPM emissions for Cowlitz of 0.87 t/year (1.82*0.48).   I think this is low.   Here is my calc.   I make the following assumptions:
A: Locomotives can transport 1 ton of freight 470 miles on a gallon of diesel. (This is probably true for transport at top speeds, not thru urban areas).
B: 40 million tons per year of coal shipped.
C: Coal is transported 20 km (12.4 miles) of transport thru Cowlitz county.
D: Measured DPM emission factor in 370 trains traveling thru Washington of 0.96 g DPM /kg fuel   (Jaffe et al 2014)
E: Conversion factors: 1 gal = 3.8 liters, D of diesel fuel = 0.85 kg/liter;
So to calculate/estimate annual DPM emissions using the emission factor we measured in 2013:
40e6 tons x 12.4 miles*1 gal fuel/470 ton-miles * 3.8 liters/gal * 0.85 kg/liter = 3.4 tons of DPM.
Or 4 times higher than the FEIS estimates.   So this clearly has an implication for the DPM cancer risk maps in the HIA.   The question becomes how much will the emission factors go down in the future? EPA has estimated these (see EPA ref in my 2014 paper), but do we really think they will go down by a factor of 4? And given the optimistic assumption above (470 miles per ton for one gal of fuel)?

Finally, you should note that while the federal stds will limit diesel emission factors for new locomotives, a local or state entity has no control over whether the transport companies actually upgrade their locomotives or where they choose to run the newest units.

P41, third par from bottom. Important to note that local agencies have no control over whether new or old locomotives or trucks are used.

P42/Table 9: Does this use the FEIS DPM emissions for 2028?   If so, then should either state likely low or that it will be significantly higher until new locomotives are used.   Also the 0.81 ug/m3 to annual average is very important. I assume this is all DPM?

P43, Next to last par: Confusing. First you say cancer is higher then states were not statistically higher…?

Pg 44; Table 9 shows inc of 0.8 ug/m3 for annual average. Seems quite important to me…
Third paragraph/last sentence: Does DPM really contribute to 82% of all cancers? !