Reviewer's report

**Title:** GIS and Environmental Epidemiology: spatial analysis of the effects of traffic-related air pollution on population respiratory health

**Version:** 2  **Date:** 14 December 2010

**Reviewer:** Jaime Hart

**Reviewer's report:**

Overall, the authors have done an excellent job responding to my comments. I just have a few remaining issues.

**Major Compulsory Revisions:**

1. The paper needs editing throughout by a native English speaker. The newly added sections need particular attention.

2. The authors have done a nice job adding information to the discussion about the strengths and weaknesses of their study. However, the discussion is still a bit hard to follow. It seems that the 10-12 paragraphs just listing the details and results of the other studies on this topic could be rewritten to convey the same information in much less space.

**Minor Essential Revisions**

1. On the Figures, the authors should provide a compass rose to note the cardinal directions. This will make the paragraph describing the areas around the road easier to follow, since it refers to the "central", "eastern", and "western" portions of the road.

**Discretionary Revisions**

1. With the addition of Table 2 (which I agree with), Table 1 seems unnecessary and just the information in the results section would be sufficient.

2. In the Abstract, I would change the first sentence to read:

"Traffic-related air pollution is a potential risk factor for human respiratory health. A Geographical Information Science System (GIS) approach was applied to examine whether distance from the Tosco Romagnola road has effects on respiratory health status."

so that it is clear from the abstract that you are looking specifically at this one large road.

3. In the new paragraph describing the Tosco Romagnola and the area around it,
there is a sentence that provides the SO2 and TSP levels. It is not clear if this is for the whole area around the roadway, or just on the "last western side". The authors should clarify, and if this is just for the general area, I would suggest deleting the sentence.

(4) In the methods paragraph on the skin-prick test, "almost one wheal" is unclear. Do the authors mean "at least one wheal"?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests