Response to Reviewer 2 Comments

Thank you for your comments which improve the quality of my manuscript and readability. I tried my best to apply all of your comments to the script and explain the changes. I also attached the revised version of the manuscript, where you can find out all the changes with red color sentences.

(1) Please elaborate on the importance of using multiple temperature indices (e.g. WBGT) versus using air or surface temperature alone. The advantages and disadvantages of the two different approaches should be presented in the results and summary section.

Thank you for your comments. I added following sentences in conclusion.

In this study, four temperature indices were used to analyze the effects of road components and roadside vegetation on temperature reduction. $T_{(ra)}$, $T_{(g)}$, and $T_{(\mathrm{st})}$ showed that the road trees and median vegetation tended to lower the roadside temperature, and $T_{(g)}$ and $T_{(st)}$ were more sensitive to the temperature reduction than $T_{(ra)}$. The results indicate that the roadside temperature $T_{(ra)}$ is more suitable than the ambient air temperature for the temperature reduction analysis. The air temperature data is easy and cheap to get from the meteorological stations but difficult to get the actual roadside temperature because the stations are located away from the road. During the data collection, I found that ambient meteorological factors such as humidity and wind affected the $T_{(ra)}$. The $T_{(g)}$ results indicated that $T_{(g)}$ enables to exclusion of these effects and clarifies the temperature changes. The $T_{(st)}$ results showed the temperatures of pavements were also reduced with those road characteristics and roadside vegetation too. The temperatures of road pavements are sensitive to solar radiation, pavement materials, and vehicles. $T_{(st)}$ allows measurements of temperatures for the pavement and separate analysis of roadways and sidewalks. However, the measurement device is expensive and delicate to handle the device, and it takes a great amount of time to analyze the data. It also requires trained researchers for data collection and handling the data. Regardless of these drawbacks, analysis of the surface thermal temperature gives a better understanding of actual temperature changes.

(2) Were these roads built in four different locations with the same materials?

Yes, the following sentences explained them in section 2.1.

At all sites, the surfaces were typical black asphalt-pavements and light gray concrete interlocking paved sidewalks. All sites have higher than two stories buildings along roads. During the study period, the four sites presented similar traffic volumes, road widths, and road profile compositions, as well as similar wind and solar radiation patterns. The main differences between the sites were the roadside vegetation and cross-sections.

(3) Please provide clear photographs. Use a high-resolution camera to take photos.

I changed the maps, photographs and illustrations Fig1, 2 and 3 for the clear photographs images. The photos were taken during data collection on the same day by Infra Thermal Imager which allowed both visible and thermal images at the same time.