Please find our responses to the valuable comments.  
  
  
Reviewer #1: This paper employs the space-time prism method and GTFS data to analyze the impacts of long-term and short-term disruptions on the Central Ohio Transit Authority (COTA) bus system in Columbus, Ohio. The study defines accessibility unreliability as the deviation between realizable accessibility and scheduled accessibility, providing a measure to assess the reliability of accessibility. The conclusions drawn from the analysis hold practical implications for local transportation planning and management. However, considering the publication guidelines set forth by JTG, this paper is not recommended for publication in the journal due to the following reasons:

We thank the reviewer for the comments. We are glad to hear that the reviewer acknowledges the practical implications of our research for local transportation planning and management. We believe that the study's findings are valuable for addressing accessibility unreliability in the COTA bus system as well as other bus transit systems. We use OSU football games and COVID-19 as two examples of the disruptions.

Insufficient Literature Review: The literature review lacks comprehensiveness and exhibits signs of selective inclusion. The three research gaps emphasized by the authors have already been addressed in multiple related publications in the field of complex networks and public transit planning. Consequently, the claimed contributions of this paper are difficult to substantiate convincingly.

Ambiguity in Definitions: The definitions of "Short-term disruption" and "Long-term disruption" are presented multiple times in the paper, leading to confusion. While it is relatively straightforward to comprehend disruptions based on their temporal duration, issues arise when disruptions fall within a time span of 2-6 days. Because the paper clarifies that the short-term disruptions are short in time span: typically, not exceeding a single day, while the long-term disruptions are longer in time span, which can last from weeks to months and years.

Methodological Considerations: While the authors emphasized the application of GTFS data is a valuable aspect of this research and has led to conclusions not previously explored, it is worth noting that the use of widely adopted public transit card data, with comparable precision and granularity, could have been an alternative approach.

We agree that smart card data is an equally important data source for public transit research.   
  
Superficial Conclusions: The findings of the study appear intuitive and do not surpass the scope of existing research or practical knowledge. Although the paper uncovers certain phenomena, it fails to delve into the underlying mechanisms behind the decline in accessibility and reliability. The lack of investigation into whether accessibility and reliability reduction are caused by high passenger volume at certain stations or station failures limits the paper's depth. The implications drawn from the conclusions might be relevant to local transportation planning in Ohio but cannot be generalized to other regions.  
  
In conclusion, the reviewer suggests that this paper may be more suitable for submission to a journal that primarily focuses on case study articles rather than JTG.  
  
  
  
Reviewer #2: This is an interesting manuscript that has good potential to be published in the JTG. However, I recommend a major revision of the manuscript because I argue that there are many rooms to be improved.  
  
#1. Literature review: It would be more beneficial to discuss more papers on the topic. For example, there are some empirical studies (e.g., Beck et al., 2020; Kim & Kwan, 2021) that report more "resiliency" of human mobility with respect to the pandemic. Although the author(s) 's paper largely focuses on transit, it would be fruitful to discuss how overall human mobility has changed related to the pandemic.  
  
Beck, M. J., Hensher, D. A., & Wei, E. (2020). Slowly coming out of COVID-19 restrictions in Australia: Implications for working from home and commuting trips by car and public transport. Journal of Transport Geography, 88, 102846.  
Kim, J., & Kwan, M. P. (2021). The impact of the COVID-19 pandemic on people's mobility: A longitudinal study of the US from March to September of 2020. Journal of Transport Geography, 93, 103039.

Thank you for the recommendation. We added these two papers to our review. We also made major revision to the literature review section  
  
#2. Section 3.2: There are already well-developed transit-based shortest travel time calculation tools, such as r5r (Pereira et al., 2021), but why do the authors need to develop a time-dependent Dijkstra algorithm? Also, if the authors develop the algorithm, how do the authors validate its results? In other words, how are the authors confident about the shortest travel time result obtained from their own algorithm?  
  
Pereira, R. H., Saraiva, M., Herszenhut, D., Braga, C. K. V., & Conway, M. W. (2021). r5r: rapid realistic routing on multimodal transport networks with r 5 in r. Findings.  
  
#3. Section 3.2. "One vehicle overtaking another in violation of the FIFO restriction is a rare event: we estimate from COTA data that 95% of the buses meet this restriction." How do the authors control the "95%" level in their shortest travel time algorithm?  
  
#4. Section 3: Please consider providing a brief section that provides the context of the study area, such as maps illustrating population density, major activity locations (e.g., football stadium, downtown), and major transportation networks. Since this crucial information is not presented, it was difficult to understand the geographic context of the study area. For instance, future readers of the paper should know that this analysis is based on Columbus (Ohio), which is a large-sized metro area, so their findings and implications might not be readily applicable to many other college towns, such as Lafayette (Purdue), Urbana-Champaign (UIUC), Charlottesville (U of Virginia), etc.  
  
  
#5. Results: I encourage the authors to improve the graphic quality of the figures. For instance, Figure 1 seems to be generated without careful editing in graphics, such as alignment, margin, color, font, etc. This is a minor issue and does not affect the scientific quality of the manuscript, but, considering the high impact of the journal (JTG), the figures can be improved.  
  
#6. Results: Please consider providing tables that report the descriptive statistic of key values, such as accessibility scores each day. This would be helpful to understand the results that are only presented in figures.  
  
#7. Results (Section 4.1): This can be an important question related to the study design. How are the authors confident that the short-term disruption is only affected by the football game rather than other issues, such as weather (e.g., thunderstorms), accidents, and others? Were the authors able to control these external factors so that they could purely observe the impacts of the football game? At least the authors may want to provide detailed available contexts (e.g., whether there were serious traffic accidents or major weather events, such as thunderstorms and tornado warnings) and discuss the potential limitations of not controlling those factors. Moreover, regarding the research design, the authors can consider including more dates that do not host games and comparing the results. The current research design does not allow us to understand the true impact of football games on accessibility scores. Lastly, many universities, on game day, provide additional or special transit services to address unusually-high travel demand. Did the authors consider this or at least discuss it (i.e., potential impacts on the analytical results)?  
  
#8. Figure 2: It is unclear how to interpret Figure 2. For example, what does it mean by peak? Please consider providing clear descriptions of this figure.  
  
#9. Figure 3: Given the fact that game hours are different on each date (see Figure 1), how could this aggregated figure tell meaningful information? It might be helpful to have an x-axis in a different way, such as an hour from the game start time. For instance, 0 denotes the game start hour, -1 indicates 1 hour before the game start hour, and +1 indicates 1 hour after the game start hour. By doing so, the figure can consider different start hours of games.  
  
#10. Figure 6: The legend (color break) can be misleading because the red indicates negative values in the first figure but not in the second figure. Please fix this cartographic issue.  
  
#11. (Page 15) "The two measures' spatial patterns are very similar:": This argument can be assessed more quantitatively. At least, the authors can consider producing kernel density maps or providing a summary table (e.g., accessibility score change average in terms of downtown vs. suburban, etc.) to provide evidence for their claim. From the perspective of the reviewers, this figure does not support the argument.  
  
#12. (Page 15) "We find that football games are correlated with exceptional high unreliability in local public transit system." Could the authors consider revising this phrase? It sounds a bit weird to say that "football games are correlated" with something. Probably, a better way to say can be that football games affect the unreliability of the local public transit system.  
  
#13. (Page 16) "We suggest that more public transit systems should use real-time data to monitor system performance and guide future system." This statement seems to be less relevant to the manuscript. Many transit agencies already use real-time data (e.g., real-time dashboards). The implications might focus on the methodological limitations of existing studies that do not utilize real-time data. However, more fundamentally, this study did not show the conventional approach (that does not use real-time data) is misleading the finding related to the disrupted transit services and accessibility scores. Thus, I argue that this implication cannot be derived based on this study's findings. Similarly, the policy implications of this study could be more specific. It is trivial to say that transit agencies should address uncertainties caused by events. Probably, the authors can consider highlighting the spatial pattern of their findings (e.g., Figures 4 and 6) so that their findings can provide important implications for formulating place-based transit policies.  
  
#14. Limitation (Page 16): Another limitation can be the potential MAUP issue with the analysis. For instance, the station-level analysis might not be useful for formulating the policy (especially equity-related analysis), and thus, aggregated-level analysis can be preferred in some cases (Javanmard et al., 2023).  
  
Javanmard, R., Lee, J., Kim, J., Liu, L., & Diab, E. (2023). The impacts of the modifiable areal unit problem (MAUP) on social equity analysis of public transit reliability. Journal of Transport Geography, 106, 103500.  
  
  
  
Reviewer #3: This study examined the resilience of transit system, by comparing the scheduled and actual travel time of COTA in Columbus, Ohio under two scenarios: the football game and the COVID-19 pandemic. The topic is interesting and the methods are solid. I just have some minor suggestions:  
  
1. I would suggest the authors better justify how COVID-19 pandemic might influence transit reliance. It would definitely affect transit ridership, but since the study focused on accessibility reliance, it would be nice to discuss how it might impact on the accessibility and travel time.  
  
2. It is a bit hard to recognize the spatial pattern from the figures. Besides the variance across stations, maybe the authors could try to plot the variation across raster grids or census tracts, to better visualize the pattern.