**Replication package explanatory file**

**Manuscript title:** COVID-19 Transmission in U.S. Transit Buses: A Scenario-Based Approach with Agent-Based Simulation Modeling (ABSM)

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**Replication package access**: Please contact the corresponding author to retrieve software code, data models and related modeling results.

**Data description:** The data retrieved from the modeling results are simulated datasets, and can be made available upon reasonable requests.

**Code description**: Our agent-based simulation model was constructed in NetLogo 6.1.1 and it was built on the MacOS Monterey Version 12.6 operating system. The official webpage of NetLogo (software download and user manual) can be found [here](https://ccl.northwestern.edu/netlogo/docs/), an open-source free application.

**Simulation software description:** The simulation model was built on NetLogo 6.1.1 with a “setup” button to reset modeling environment, and “go” and “forever-go” buttons to proceed with each simulation. There are scenario parameters that need users to specify using a set of sliding bars (e.g., infection probability varies from 0 to 100%). After the scenario parameters are selected, users need to click on “setup” button to allow the modeling environment ready for the selected scenario, then click on “forever-go” button to continue each simulation until the end of simulation time (tend = 720 min). Note that the “go” button is the manual button to proceed with each time step with a single click.

**Experiment design description:** This research work does not include any surveys and experiments.

**Others: To run models in backend without having to manually run by clicking “setup” and “forever-go” buttons for each simulation, users shall click on “Tools” tab 🡪 “BehaviorSpace”, and then specify the number of runs and scenario parameters in there to retrieve modeling results automatically.**