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Mobility After COVID 19: Will Telecommuting be our "New Normal"?

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As we all shelter in place to do our part to stop the spread of the ***coronavirus disease 2019*** (abbreviated *COVID-19*) or *SARS-CoV-2*, those of us involved in planning and policy have to wonder how this pandemic will affect our communities moving forward. To date, more than 600,000 U.S. citizens are confirmed to be infected, and nearly 30,000 U.S. citizens have died due to the virus. About one-third of the infected cases were confirmed in New York City, which is the densest urban environment in the U.S. It seems that density plays a role in disease spread, and planning is an indispensable element in explaining why this pandemic is somewhat out of control.

I am a transportation planner, so of course I have been wondering about the relationship between COVID-19 and mobility. With the break of this virus, restaurants, bars, movie theaters, and gyms in many cities have shut down. Along with the economic recession, some people are still forced to perform their duties on site, some people can now work from home, and even worse, some people have lost their jobs. A series of negative consequences happen, vehicle miles traveled, transit use, carpooling, long-distance air travel, international trades, and the related tax revenue are all greatly reduced. Roads are no longer congested.

If you drive around the area you will quickly notice that roads are no longer congested. According to the Google COVID-19 Community Mobility Reports, Florida Chapter, mobility changes related to retail and recreation, grocery and pharmacy, parks, transit stations, workplaces, and residential are -57%, -33%, -70%, -70%, -45%, and +15%, respectively. Except mobility in neighborhoods that are slightly increased, all social mobilities are seriously constrained. Apple Maps is tracking mobility trends of the world, as shown in Figures 1-2.

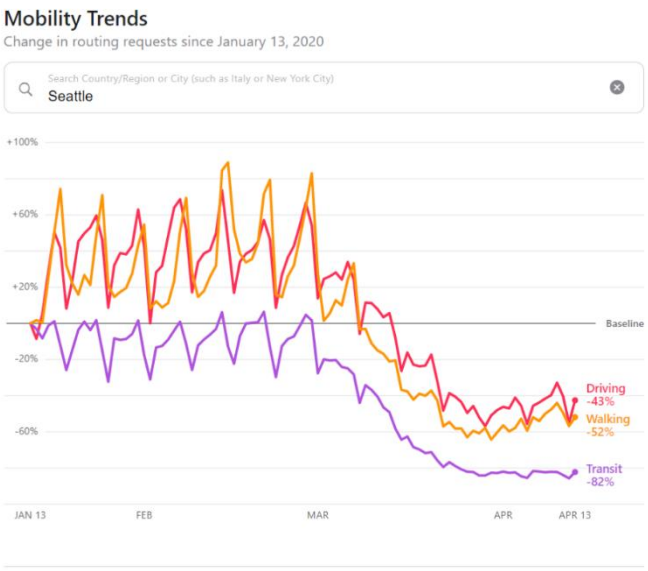

Figure 1: Mobility trends in Seattle (Source: Apple Maps Mobility Trends Reports)

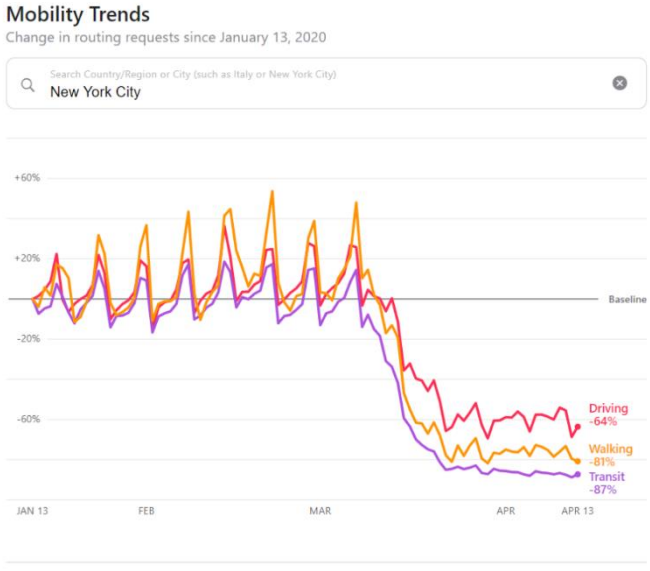

Figure 2: Mobility trends in New York City (Source: Apple Maps Mobility Trends Reports)

As of April 14th, in Seattle and New York City accordingly, walking is reduced by 52% and 81%, driving is reduced by 43% and 64%, and riding transit is reduced by 82% and 87%. Mobility index provided by Cuebiq Maps shows that mobility is roughly decreased by 25% on weekdays and decreased up to 71.5% on weekends. The prediction indicates this trend will maintain for a period of time.

For many of us, the sight of empty roads might be seen as a silver lining of our *stay-at-home* orders. After all, no one enjoys congestion, and our environment will surely appreciate reduction in auto-generated pollution. But there will be a high price to pay as well. The Highway Trust Fund, which is heavily reliant on gas taxes and tolls, is decreasing. There will be a huge deficit in all kinds of tax revenue, to the detriment of our state and local governments, with the hope that Congress might fill this gap in the following year. I would expect that biking may not decrease that much in New York City because it is a safer mode for commuting and shopping compared with other modes. Also, people are now switching to non-peak hours for activities because of the reduction in exposure to the disease.

In one year, hopefully, scientists will develop the vaccine to prevent this virus from infection. But will people revert to normal travel behavior once the virus is in control and the economy recovers? We are unsure how long the fear of this virus will linger. If the fear lasts a longer period of time, more people may move out of the dense urban environment and change their travel behavior. For a long time, planners have been advocating for compact development and multimode transportation. People criticize sprawl for it "wastes" various resources, such as land and energy. But now, more people may favor the low-density suburban life and driving alone, even if they will have to spend more time and money on transportation.

Mind you, there are dense areas that have done a good job of containing COVID-19 cases – Hong Kong, Singapore, and Tokyo are international examples; San Francisco is a U.S. example. Inside the U.S., density appears to be a significant explanatory variable for disease spread, while comparing with other world cities, density seems to lose its explanatory power. But the very striking images from New York City, where the impacts of the virus have been devastating, could have a lasting impact on Americans as they make choices about where to live.

There are also positive trends triggered by this virus. In the first place, E-commerce marketing, supply chain management, and home delivery services are further developed. For example, Amazon has hired 100,000 more warehouse and delivery workers. Secondly, telecommuting and teleconferencing have improved. People are getting used to meeting by Zoom, Skype, and Microsoft Teams. Many cities were concerned of congestion mitigation before the COVID-19 outbreak. When the economy recovers, the habit of working from home can be encouraged for certain types of jobs, if the performance is not impacted by telecommuting and teleconferencing. This action may greatly help mitigate congestion in many large cities. Thirdly, although some people may not have a desire for these, the air quality has improved, the noise is reduced, and the environment is in a better condition.

So what can we do to mitigate the negative consequences? There are certain actions that have been taken throughout the U.S. Firstly, taking New Jersey and Philadelphia as examples, transit and train riders are required to wear face masks while the states remain on coronavirus lockdown, as shown in Figure 3. Many other states have followed this order. Secondly, Uber Eats provides free delivery to save small business owners and help people staying at home to get food; meanwhile, Uber is distributing free disinfectants and face masks to its drivers, as shown in Figures 4-5. However, these actions are far from adequate.

Figure 3: Philadelphia officials force a rider without a face mask to leave the bus (Source: PhillyTRU)

Figure 4: Uber Eats delivery services (Source: Nicolò Campo)

Figure 5: Uber driver with disinfectant and a face mask (Source: Yara Nardi)

If you are interested in discussing how transportation planners can anticipate the impact of COVID-19, please contact me at **pengchen@usf.edu**.