

Transportation Systems for the New Normal: Towards a Better Normal

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ABSTRACT

Before the lockdown, transportation and traffic in urban areas were largely inefficient, unsafe, and unsustainable. These were associated with traffic congestion, unsafe roads, rising emission levels, and a dependency on fossil fuels that run most of the land-based transport. During the lockdown, traffic congestion largely disappeared, air quality improved, and road crash incidence was reduced with significantly fewer vehicles on the roads. Prior to the transition to General Community Quarantine (GCQ), various groups have called for reforms in transportation towards achieving a new normal. These mostly focused on active transportation such as walking and cycling, which are modes that have often been neglected in the planning and implementation of programs and projects that are supposed to improve the way people moved about (i.e., commuting). In addition, safety or risk assessments were undertaken for various transport modes. This paper discusses the conditions before, during, and after the lockdown. Assessments are made towards enabling a new normal where the transportation system is people-oriented rather than car-oriented. The conclusion is that we can have a “better normal” that involves a mass transit system backbone complemented by conventional public transport as feeders, and active transport as a major mode for enhanced mobility.

Keywords:

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INTRODUCTION

The pre-quarantine conditions or the old normal as people have now come to call the conditions prior to the lockdown were generally associated with congestion. We experienced traffic congestion along major roads such as EDSA and Commonwealth (Figure 1) and congestion in public transportation such as in a jam-packed MRT3 platform (Figure

2). This paper discusses the transport and traffic conditions before, during, and after the Enhanced Community Quarantine (ECQ) in Metro Manila and elsewhere in the Philippines.

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a. Congestion along EDSA



b. Congestion along Commonwealth Avenue

Figure 1. Road traffic congestion prior to the lockdown.



Figure 2. Public transport congestion.

This paper has the following objectives: (a) present the state of transportation in the old normal and during the nationwide ECQ; (b) assess the prospects of post-pandemic transportation; and (c) recommend the way forward for transportation and traffic, particularly in the local context.

TRANSPORT IN THE OLD NORMAL

The old normal is associated with the long commutes that people had to endure for typical trips such as those between homes and workplaces or homes and schools (i.e., work trips or school trips). The waiting time people before commuters could

get a ride if they were taking public transportation can be very long, and usually would depend on whether they were early to get out of their homes, workplaces, or schools, as well as the availability

(i.e., supply) of public utility vehicles during that time. Figure 3 shows the results of a survey conducted by Cerna (2019) that asked commuters how long they typically waited for a ride.

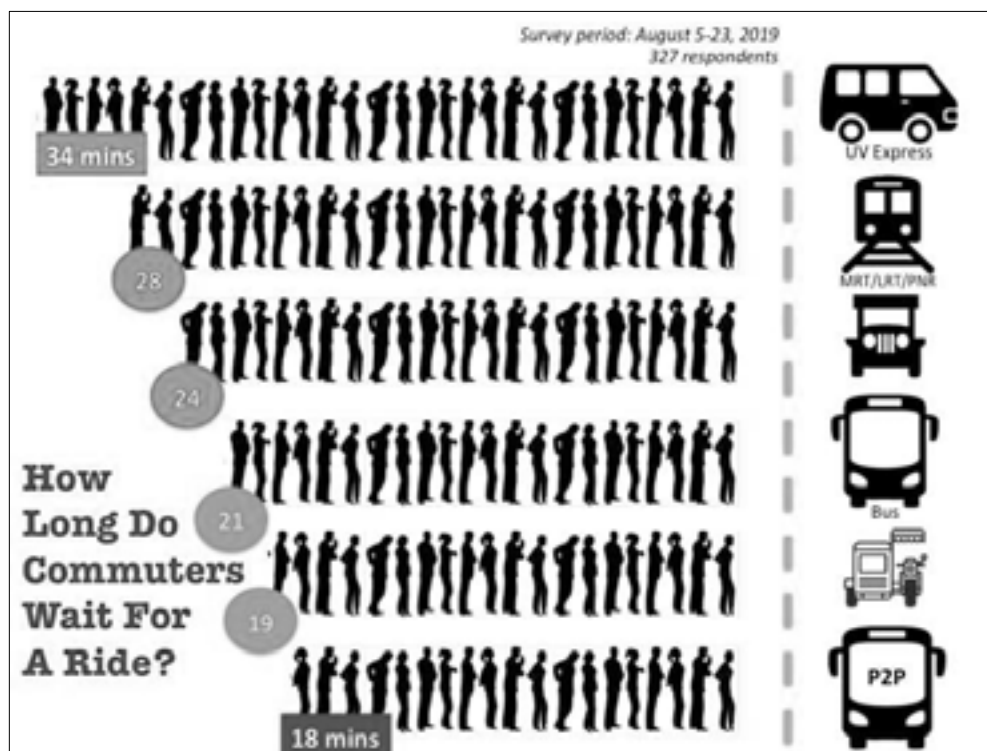


Figure 3. Waiting times for people taking various modes of public transport prior to the lockdown (Cerna 2019).

The time when people were able to get on their rides, they would have to endure long travel times that are basically a waste of time. These lost times could have translated to more productive use if people arrived earlier at their workplaces, schools, and homes. For example, instead of spending an extra one hour in traffic, that hour could have been used for work, study, or “quality time” with family.

Figure 4 shows the outcomes of the same survey undertaken by Cerna (2019) with illustrative travel times to the Ortigas Central Business District (Ortigas Center), the Makati Central Business District, and Bonifacio Global City. The more than two hours of travel times are equivalent to at least twice the travel times during the typical off-peak and perhaps even thrice the travel times during unholy hours (i.e., after midnight or very early morning).

Before the lockdown (16 March 2020), the transport mode shares in the Philippines leaned towards public transportation and non-motorized modes including walking and cycling. Private vehicle use ranged only from 7 to 12% of the mode share, with the higher dependence on car use associated with urban areas like Metro Manila and Cebu City. The trend in private mode shares was expected to continue over the long-term with estimates such as the one by the World Bank (2014) as shown in Figure 5 for various scenarios of transport development.

TRANSPORT DURING THE LOCKDOWN

During the lockdowns from mid-March to May 2020, however, there was suddenly much less traffic despite the demand for transport by front-

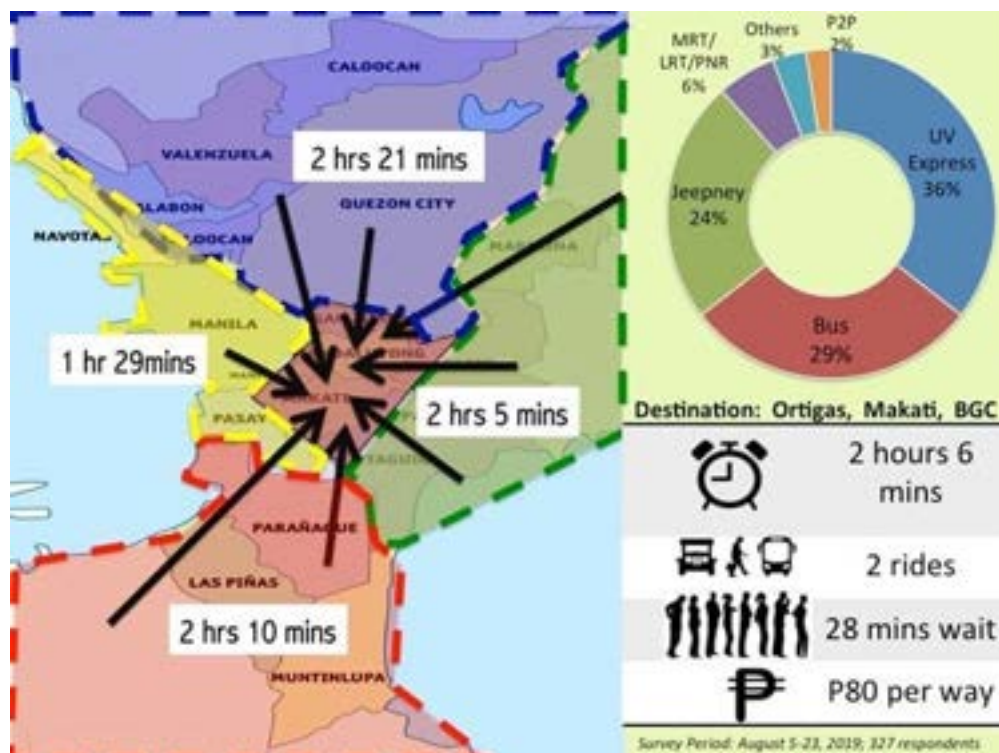


Figure 4. Illustrative travel times to Ortigas CBD, Makati CBD and Bonifacio Global City before ECQ (Cerna 2019).

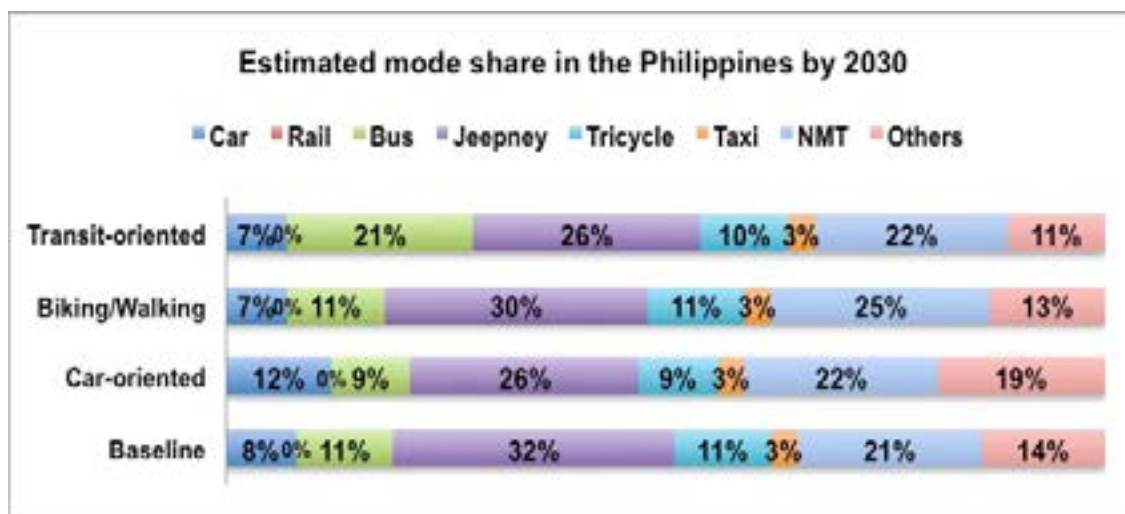


Figure 5. Estimated modes shares in the Philippines (WB 2014).

liners. The latter refers mainly to doctors, nurses, and other medical staff but later also referred to people who were considered essential workers including those in transportation and logistics and skeleton staff for manufacturing and other critical industries. It was also during the lockdowns and this need for transport that people rediscovered biking and walking, as many had little choice but to walk or cycle between homes and workplaces.

There is a lot of photo evidence showing the reduction in traffic during the lockdown. An example

of this is the photo in Figure 6 showing only a few vehicles along what is usually a severely congested Epifanio Delos Santos Avenue (EDSA), which is perhaps the busiest thoroughfare in the country.

A more robust visualization for transport is in terms of mobility trends tracked by Apple (2020) from using baseline traffic from January 13, 2020. Figure 7 shows the mobility trends for the Philippines while Figure 8 shows the mobility trends for Metro Manila.



Figure 6. EDSA traffic during the enhanced community quarantine (ECQ) period (Inquirer.net).

The three graphs in Figure 7 and 8 represent mobility in terms of driving, mobility in terms of walking, and mobility with respect to transit. For all three, a dramatic reduction in trips from mid-March could be noted, when the nationwide ECQ was imposed.

The only exceptions were the checkpoints where routine inspections were done to ensure only those with quarantine passes or authorized person outside residence (APOR) passes may travel during the lockdown. Congestion occurred at checkpoints as a limited number of lanes were available to travelers and inspections took some time to ascertain the

validity of passes. An example of a checkpoint is shown in Figure 9.

The benefits of reduced motor vehicle traffic during the lockdowns included cleaner air. This afforded clear views as far as the eye could see. For example, photos taken by the author from Antipolo before and after the lockdown show the difference between a smoggy metropolis (Figure 10a) in February 2020 and one with clearly cleaner air (Figure 10b) in June 2020, which even shows the cityscape with Mt. Natib in Bataan province (across Manila Bay) visible in the background.

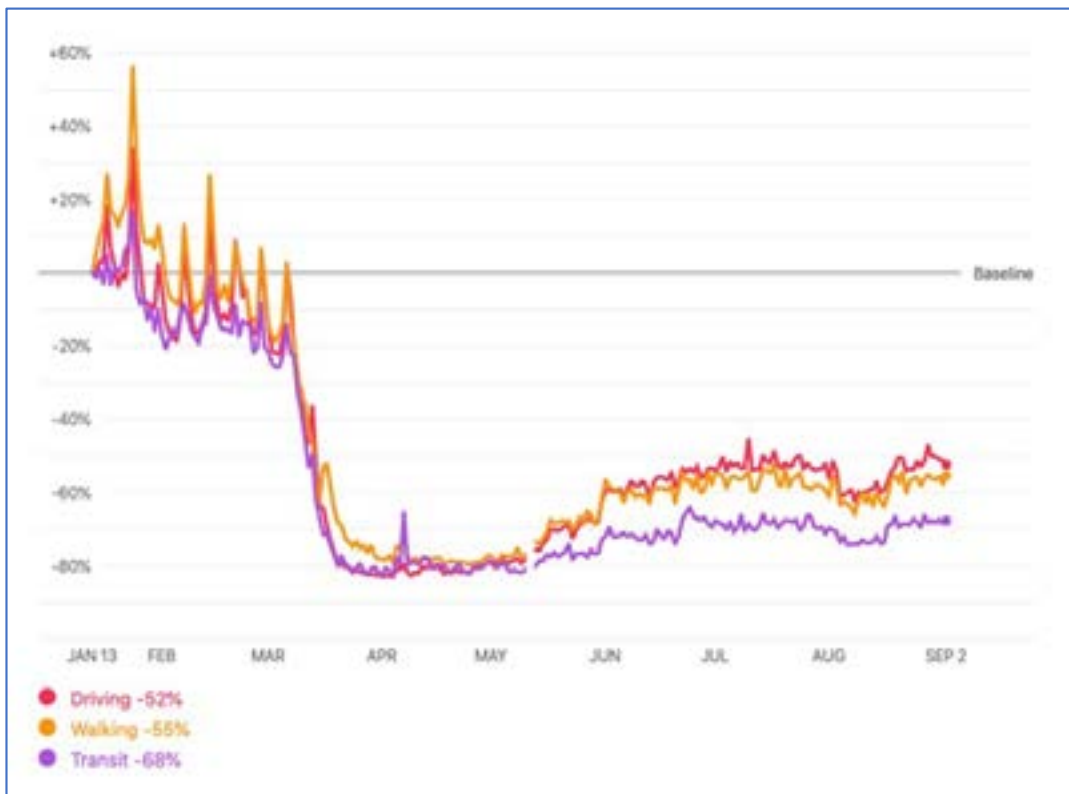


Figure 7. Mobility trends for the Philippines (covid19.apple.com).

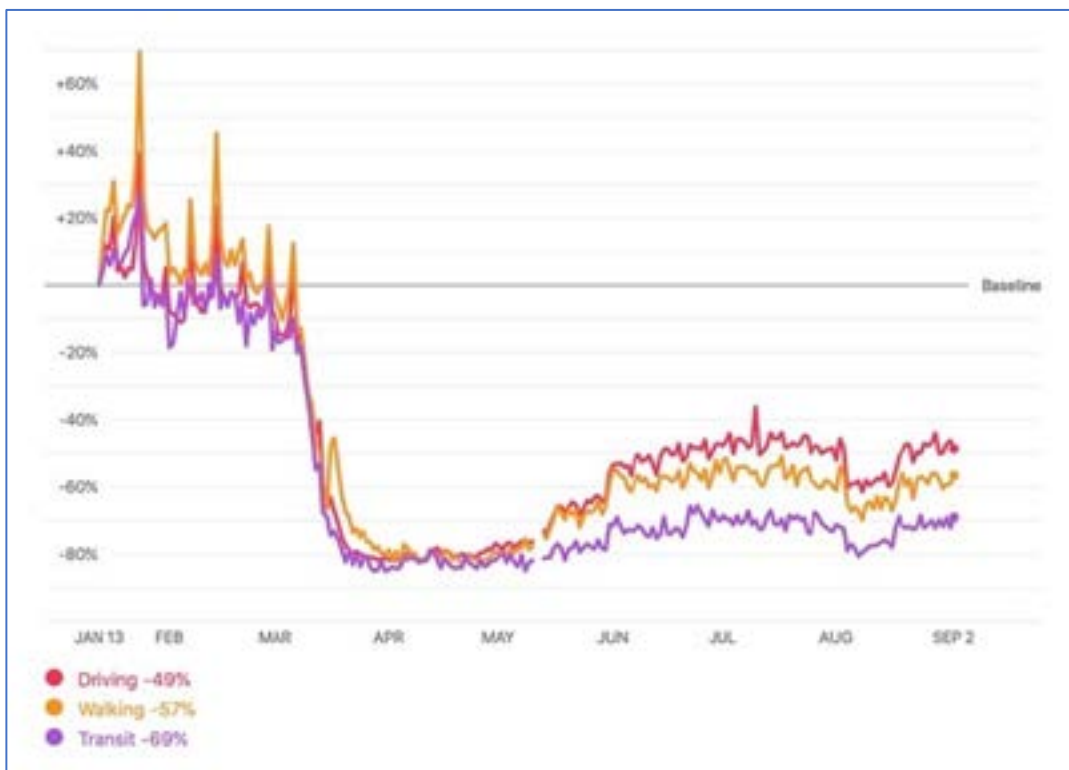


Figure 8. Mobility trends for Metro Manila (covid19.apple.com).



Figure 9. Typical checkpoint during ECQ (rappler.com).

However, with open roads and fewer vehicles, motor vehicle speeds in general and private vehicles, in particular, were observed to run faster and often recklessly. While there are no official speed measurements in Metro Manila, but elsewhere, there is strong evidence of an increase in vehicle speeds (Masri 2020). These have led to a high incidence of fatal road crashes as higher speeds correspond to higher likelihood of fatalities for people involved in the crashes. Among the casualties of these crashes during and after the lockdown were frontliners who, with the lack of public transport, opted to ride bicycles for their commutes. Such incidences of fatal crashes were somewhat surprising given that many occurred along wide roads that have enough spaces for cyclists and pedestrians to share with motorists.

POST-ECQ TRANSPORTATION

Prior to the lifting of the ECQ in June 2020, the government and other sectors conducted their assessments of transportation modes. These

include the following examples of risk assessment from the Transportation Science Society of the Philippines (TSSP) (Figure 11) (TSSP 2020).

Transport modes were classified as having high risk, high to moderate risk, moderate to low risk, and low risk. These assessments were based on the concept of exposure that is similarly employed in road safety assessments. Exposure is assessed with respect to time, volume, and distance. That is, the longer the travel time, the higher the risk of exposure. The more people and vehicles involved, the higher risk of exposure. Longer distances of travel also mean higher risks of exposure. These led to the policies and health protocols including distancing that were imposed on transportation.

Transport modes such as motorcycle taxis and traditional jeepneys were assessed as high risk without any interventions. That is, if there were no disinfection protocols, physical distancing or other measures applied to reduce risk of infection among passengers. Modes assessed to have moderate to high risk include conventional buses, taxis and transport network vehicle services (TNVS)

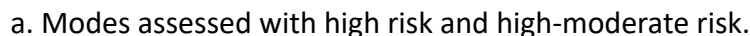


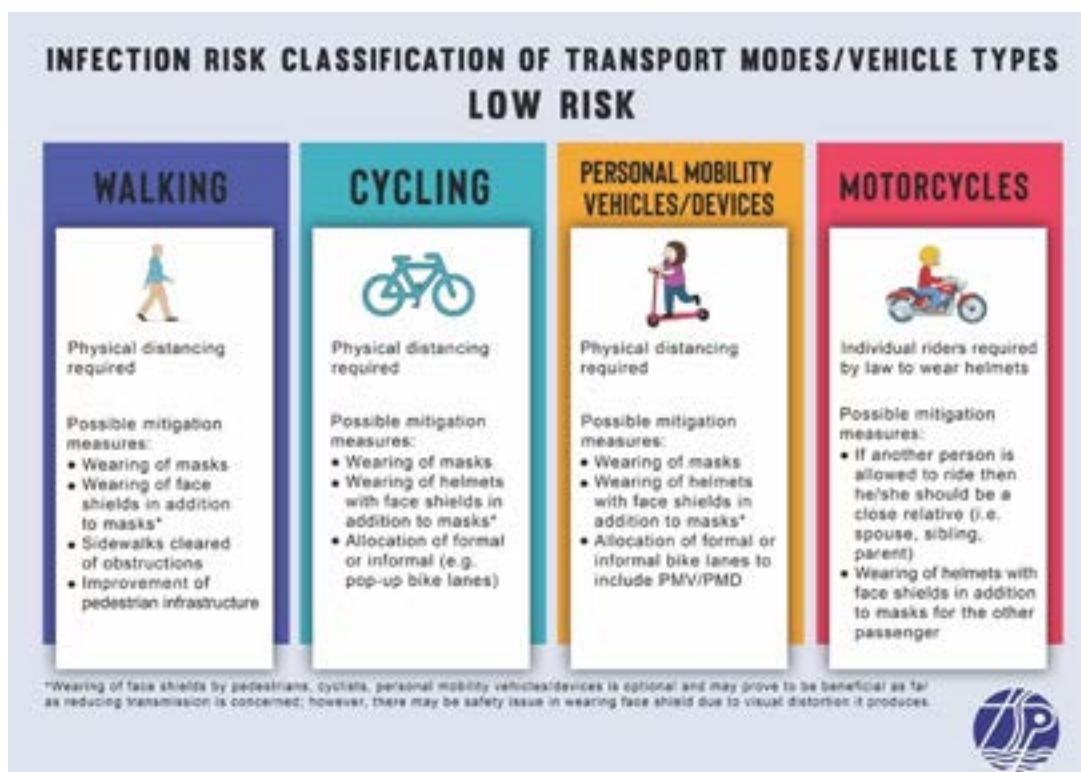
a. Metro Manila smog before ECQ.



b. Metro Manila just after ECQ.

Figure 10. Metro Manila air quality visual before and after the lockdown.





c. Modes assessed with low risk.

Figure 11. Infection risk assessment of transport modes (TSSP 2020).

or rideshare/ridesource vehicles such as those of Grab.

The TSSP also released a position paper on “Public Transportation after ECQ”, where they outlined the necessary measures for transport to be operational and effective in light of the restrictions due to the pandemic. These include physical distancing and disinfection protocols already mentioned in the infection risk assessment the society released earlier. Most significant perhaps is their assessment of public transport requirements on the supply side considering the reduced travel demand due to work-from-home schemes and the restrictions imposed on non-essential trips.

During the GCQ (from June 2020), however, there was a sudden surge in motor vehicle use; most especially private transport due to the lack of public transport services available to commuters. This resulted in familiar scenes of traffic congestion

not just at checkpoints but along many roads along typical commuting routes.

On the positive side, however, a significant increase in the number of cyclists and the promotion of active transport appears to be a promising development. Figure 14 shows cyclists along Commonwealth Avenue just after ECQ was lifted.

Some cities have responded by putting up pop-up or temporary bike lanes to enable cyclists to travel safely and separated from motor vehicle traffic. Agencies like the Department of Transportation (DOTr), Department of Public Works and Highways (DPWH), and Metropolitan Manila Development Authority (MMDA) have taken notice and now have initiatives to include the bike lanes along EDSA as shown in Figure 15.



Figure 12. Post lockdown traffic along Marcos Highway (Philippine Star 2020).



Figure 13. Commuters lined up along road waiting for public transport.



Figure 14. Cyclists along Commonwealth Avenue (Bikers United Movement 2020).



Figure 15. EDSA bike lane (Bikers United Movement 2020).

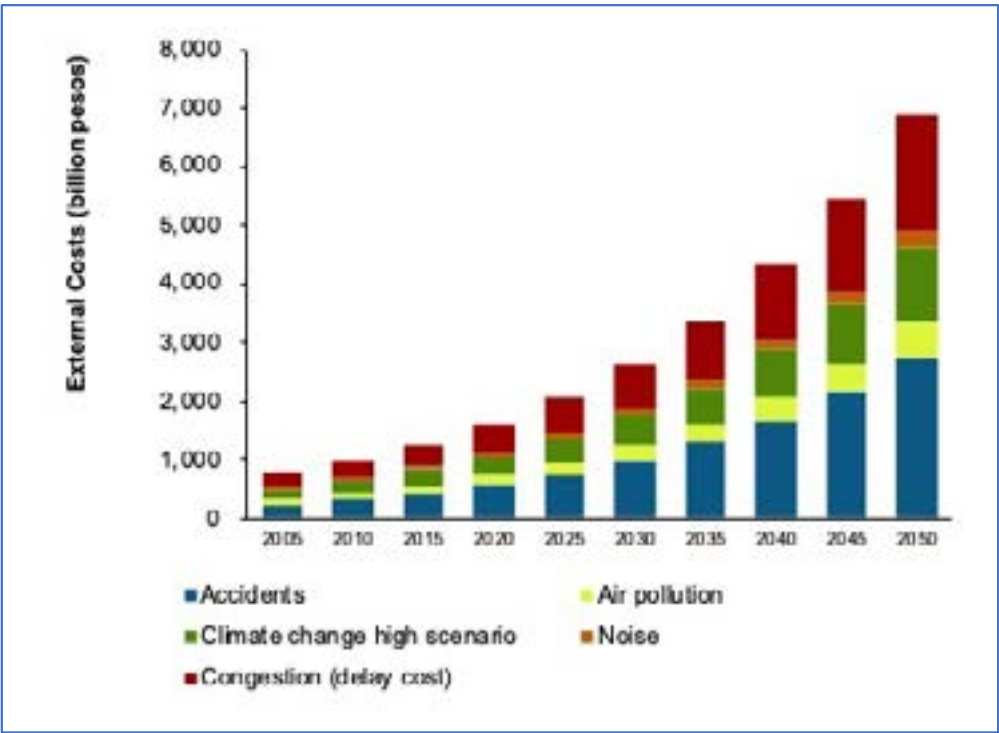
ASSESSMENT

The current situation should make us rethink our future image for transport. What do we want for transportation in the “new normal” to be? Is it a transportation system that is more efficient, more equitable, and inclusive than what we had before and is coming back now? Is it a car-centric system? Or should it be a people-centered one?

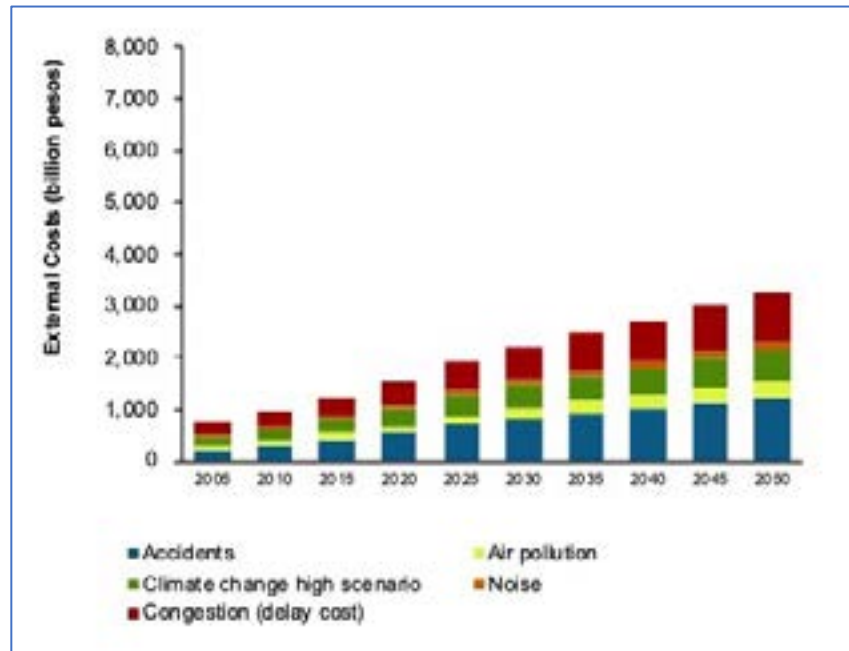
For large cities including capital cities or regions such as Metro Manila, the future image of public transportation may be one that is extensive, modern, and efficient and will consist of a mass transit network comprised of rail and bus transit, modern jitneys as feeders, hybrid or electric cars, and of course, bikeways and pedestrian facilities (Regidor and Javier 2014).

Many studies have pointed to the benefits of people-centered transportation systems. These include the consideration of alternative scenarios

over the long term using the “Avoid, Shift, Improve” framework (ASIF) vs. the Business-As-Usual (BAU) case that is the “old normal”. ‘Avoid’ refers to trips that can be avoided usually through travel demand management schemes aimed at reducing transport or traffic demand such as vehicle restraint measures in the form of number coding or truck bans. ‘Shift’ refers to the promotion and use of higher capacity modes like buses and trains rather than low capacity ones like cars and motorcycles. And ‘improve’ refers to improving systems including transport facilities, vehicles and fuels in order to increase efficiencies while reducing energy requirements and emissions. Figure 16 shows the results of studies for long term strategies for reducing carbon emissions from transport for the Philippines as part of a study on ASEAN (Regidor and Javier 2014).



a. Business as usual (BAU) transportation.



b. Transportation applying “avoid, shift, improve” framework.

Figure 16. External costs of transportation for the Philippines (Regidor and Javier 2014).

Backcasting simulations were employed to estimate external costs (i.e., costs associated with externalities such as accidents, pollution, noise, and traffic delay). ASIF basically puts emphasis on people rather than on vehicles and should result in improvements in both mobility and accessibility. These are the foundations for sustainable transport that have been pushed through various initiatives over the years in one form or another.

CONCLUSION

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Such policies will encourage the rethinking and redesign of roads for these to be more people-centered rather than car-centric. Of course, there should also be incentives for local government units despite the obvious benefits that such rethinking can bring about to communities.

Policies should also lead to more (not less) research to support the improvement of transportation systems including tools to quantify the benefits of active transportation, particularly on people’s commutes and their overall health and well-being. These should translate into information and education campaigns that use materials such as the one shown in Figure 17 that are based on research findings pertaining to active transportation.



Figure 17. Benefits of walking (walkBoston).

Needless to say that in order to come up with relevant outcomes, researchers need to collaborate with various sectors including advocacy groups who are pushing for transport reforms. There should be conscious and sustained effort for us not to return to the “old normal”. We have seen how terrible transportation was then and have glimpsed if not experienced a “better normal.” As such, we should strive to preserve these gains and use these to

realize a sustainable transportation system for the future.

REFERENCES

Apple [internet]. Mobility Trends Reports, [cited 2020 October 24]. Available from: covid19.apple.com.

Bikers United Movement [internet]. Gallery, [cited 2020 October 24]. Available from: <https://bikersunitedmovement.org/gallery>.

Cerna T. 2019. Survey of commuting characteristics in Metro Manila. unpublished study.

Clean Air Asia. 2014. A Study of Long-Term Transport Action Plan for ASEAN (Phase 3), Final Report.

[DILG] Department of Interior and Local Government. 2020. Guidelines for the Establishment of a Network of Cycling Lanes and Walking Paths to Support People's Mobility, Memorandum Circular No. 2020-100, July 17, 2020.

Masri L. 2020. "Car crashes deadlier as drivers speed during lockdowns," Reuters via ABS-CBN News. [cited 2020 October 24]. Available from: <https://news.abs-cbn.com/spotlight/06/27/20/car-crashes-deadlier-as-drivers-speed-during-lockdowns>.

Philippine Daily Inquirer [internet]. Photo on ECQ, [cited 2020 October 24]. Available from: <https://www.facebook.com/inquirerdotnet>.

Philippine Star [internet]. Photo on post-ECQ traffic congestion [cited 2020 October 24]. Available from:

Rappler [internet]. Photo on checkpoints, [cited 2020 October 24]. Available from: <https://www.facebook.com/rapplerdotcom>.

Regidor JRF, Javier SFD. 2014. Long term strategies for low carbon transport systems in the Philippines. Proceedings of the 7th ASEAN Environmental Engineering Conference, Hotel Centro, Puerto Princesa, Palawan, Philippines, November 2014.

[TSSP] Transportation Science Society of the Philippines (internet) Public Transportation After ECQ, Position Paper. 2020. <http://ncts.upd.edu.ph/tssp/index.php/2020/06/15/position-paper-on-public-transport-after-ecq/>

walkBoston, Infographic: walk your way to help, <https://walkboston.org/2017/03/06/walk-your-way-to-health/> [Last accessed: 8/29/2020]

World Bank. 2014. Transportation Infrastructure Development Framework Plan for the Philippines, Final Report, National Economic and Development Authority.

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