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# Retracing the Routes: The Renaissance of Pedestrian and Railway Systems in Metro Manila's Intermodal Future

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Manila (Wright, 1909) has a longstanding history of railway and pedestrian infrastructure that dates back even before the turn of the 20th century (Williams, 1899). As early as 1875 (Williams, 1899), Manila completed the construction of the 150-mile Manila and Dagupan Railroad (Linn, 2019). The Insular Government of the Philippines, which was established in 1902, expanded the railway network to include two new railroad systems — the Luzon Island Lines, spanning 430 miles, and the Visayan Island Line, spanning 300 miles (Linn, 2019).

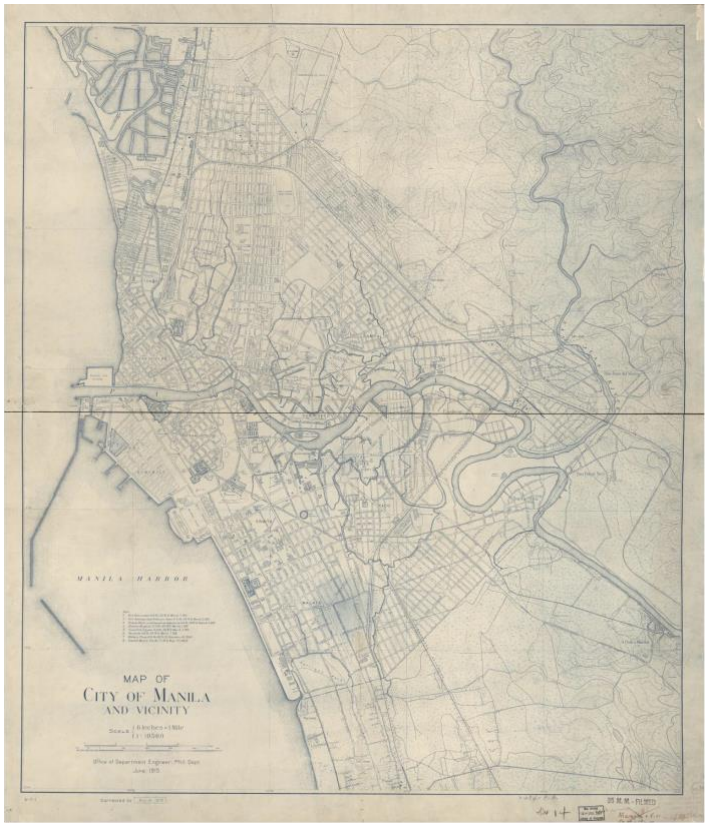


**Figure 1**. Map of the City of Manila and Vicinity (US Library of Congress, 1919)


**Figure 2**. Philippine Railway Station (Graves, 1902)

In the 1930s—Manila Railroad Company owned 1,140 kilometers of track (Boquet & Boquet, 2017). In the past century, Manila witnessed a significant shift from a railroad-focused transportation system to a car-centric approach, resulting in a drastic reduction in the prominence of rail networks(Boquet, 2013).

According to the 2020 Census of Population and Housing, the total population of the Philippines is 109,035,343 (PSA, 2020). Metro Manila, an administrative region composed of 16 highly urbanized cities and one municipality, holds 13,484,462 people, or 12.36% of the total population (PSA, 2020). In a five-year term period, the Philippines recorded an annual population growth rate of 1.63 percent — registering an increase of 8,053,906 since 2015 (PSA, 2020).

As urbanization, population growth (PSA, 2020), and modernization accelerated (Murakami, et.al, 2005), Manila saw a growing emphasis on private vehicle ownership and road infrastructure (JICA, 1985).

This shift was largely fueled by the perception of cars as symbols of progress and success (Nielsen, 2014). In a survey conducted by Nielsen, the Philippines ranked among the top 10 countries worldwide in terms of the intention to acquire a car within the next two years, noting that 76% of Filipino consumers intend to buy within this timeframe (Nielsen, 2014).

Consequently, investment in railway infrastructure and maintenance waned, leading to the decline and even abandonment of many rail lines (Daguio, 2016). For instance, in Manila, only 77 kilometers remain operational (Lamentillo, 2021), in the network which

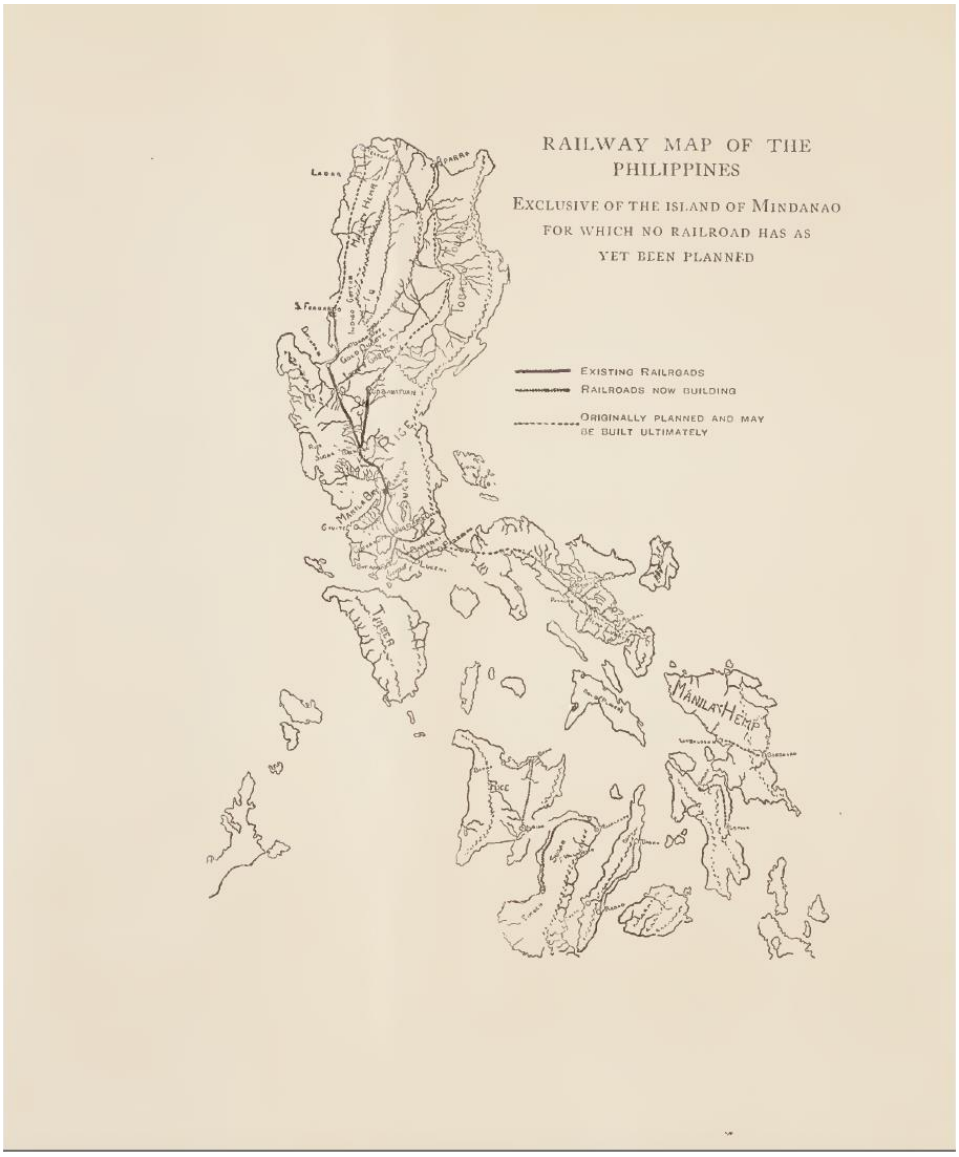


**Figure 3.** 1909 Railway Map of the Philippines (Wright, 1909)

at its peak spanned 1,140 kilometers (JICA, 2014). This transition to a car-centric approach has had wide-reaching implications, including increased traffic congestion (JICA, 2015), air pollution (Krupnick, et.al, 2003), and noise pollution (Ramirez-Villoria, 1998). The abandonment of an intermodal transport facility in favor of a car-centric approach resulted in traffic jams in Metro Manila, which cost the metropolitan 3.5 billion php a day (CNN, 2018) and about 27,000 premature deaths annually due to air pollution (Farrow, Miller, and Myllvirta, 2020).

According to the National Air Quality Status Report conducted in 2015 by the Department of Environment and Natural Resources, it was found that 65% of air pollutants originated from mobile sources including automobiles, motorcycles, trucks, and buses (DENR, 2015).

In recent years, Metro Manila has experienced a resurgence in the development of railway and pedestrian infrastructure (JICA, 2019), signaling a positive shift towards a more sustainable and efficient transportation system (JICA, 2014; Lamentillo, 2021).

The research aims to investigate the experience of Metro Manila, one of the most dense metropolis in Southeast Asia, regarding their efforts to build an intermodal transportation network and expand their respective railway networks and pedestrian infrastructure. The primary objectives of this study are to examine the Philippines' pull out from a car-centric orbit (Pritchard, 2022), the mainstreaming of pedestrian and railway infrastructure, and the shift towards an intermodal transportation network in the Philippines' Build Build Build (Lamentillo, 2021) and subsequently Build Better More(BSP, 2023) using the Avoid-Shift-Improve Mobility Approach (Transportation Urban Mobility Initiative, 2019). By studying Metro Manila as a case study this research seeks to provide valuable insights and lessons learned that can inform future urban planning and development strategies in other cities, particularly in Southeast Asia, facing similar transportation and mobility challenges.

## Avoiding Road Dependency: Build, Build, Build's Vision for Intermodal Integration

The "Build, Build, Build" program is the medium-term infrastructure strategy used during the term of former President Rodrigo Duterte to boost infrastructure investment in the Philippines (Lamentillo, 2018). Its objective is to raise infrastructure spending as a percentage of the country's Gross Domestic Product (GDP) from 5.4 percent in 2017 to seven percent by 2022 (Lamentillo, 2018). This exceeded the average of 2.4 percent set by the previous six administrations over the past fifty years, making it the largest allocation of funds for infrastructure in Philippine history (Lamentillo, 2018).

While there were significant investments in improving road infrastructure as shown by the completion of 29,264 kilometers of roads and 5,950 bridges during 5 years (Lamentillo, 2021), the commitment of Build Build, Build, and its subsequent evolution to Build Better More, to an intermodal transportation network, which includes roads, bridges, rail systems, seaports, airports, bicycle lanes, and pedestrian infrastructure is evident (Lamentillo, 2021).

Construction of rail infrastructure, which includes numerous stages, was postponed (Calica, 2010) indefinitely by several administrations due to its complex and time-consuming process that often extends beyond a single presidential term. Unlike road projects or other smaller-scale initiatives like seaports, airports, or ferry systems, which can be completed within a relatively shorter timeframe of around three years, rail projects require extensive planning, design, land acquisition, engineering, and construction processes.

In recent years, the Philippines has witnessed a significant resurgence in the construction of alternative transportation options. For instance, from 2016 to 2022, 214 airport projects and 451 commercial and social/tourism seaport projects have been completed (Lamentillo, 2021). Moreover. the Department of Transportation has taken the lead in spearheading various

railway projects (Bautista, 2023), including the LRT 1 Cavite Extension, MRT Line 7, MRT 4, and the construction of the country's first subway system after a 40-year hiatus and six different administrations (Lamentillo, 2021).

In partnership with Japan International Cooperation Agency, it has also initiated the creation of a 30-year Master Rail Plan for the Greater Capital Region, which aims to increase rail density and rail share of trips in GCR at par with major Asian Cities Tokyo, Shanghai, and Seoul. (Bautista, 2023).

## Shift: Metro Manila's Transition to Diverse Transportation Options

Investing in infrastructure that embraces walkability is crucial for the Philippines. The findings of the 2011 study by the Asian Development Bank, which examined walkability and pedestrian facilities in Asian countries, like Manila, emphasize the potential for foot and bicycle travel in the Philippines (Leather, et.al.,2011), primarily "because the average distance traveled per trip is low" (Lamentillo, 2020). According to the Metro Manila Urban Transport Integration Study (JICA, 1999), approximately 35% of locations can be reached within a 15-minute walk or bike ride (Lamentillo, 2020). However, despite this proximity, the majority would still prefer to use paratransit vehicles such as jeepneys or tricycles, as well as cars, due to the absence of appropriate pedestrian infrastructure (Lamentillo, 2020). Under the Build, Build, Build, a notable achievement was the completion of Laguna Lake Highway in 2019, which not only provided a crucial link for vehicular traffic but also marked a milestone as the first expressway in the country to incorporate dedicated bicycle lanes (Lamentillo, 2022). The project set a significant precedent and sparked a cultural shift in transportation, which became more prominent during the COVID-19 lockdown when public transportation operations were suspended and physical distancing measures were imposed on public vehicles (Lamentillo, 2022

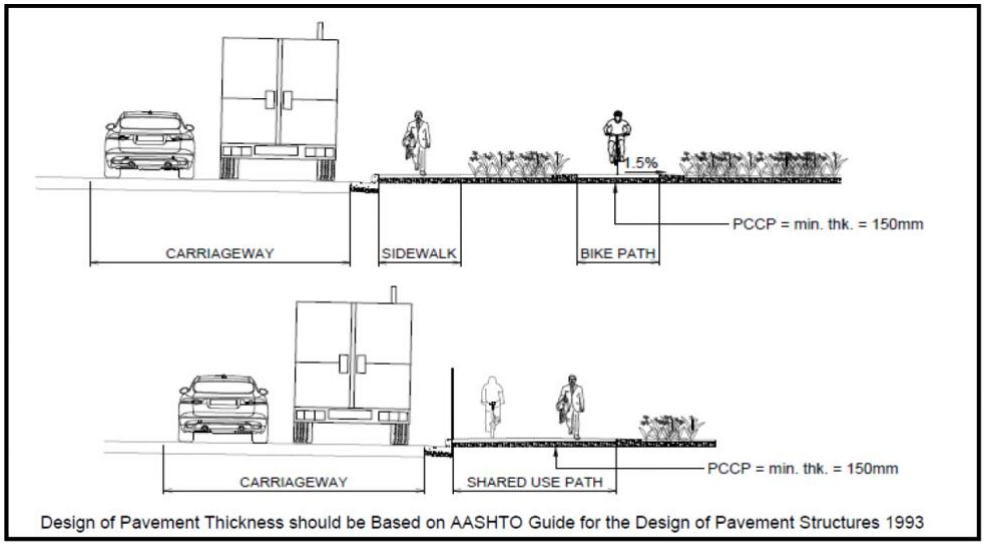


**Figure 4.** Class I (Shared Use Path or Bike Path) involves the identification of a designated path, completely separate from the roadway, that is exclusively reserved for bicycles or shared with pedestrians (DPWH Department Order 88, 2020)

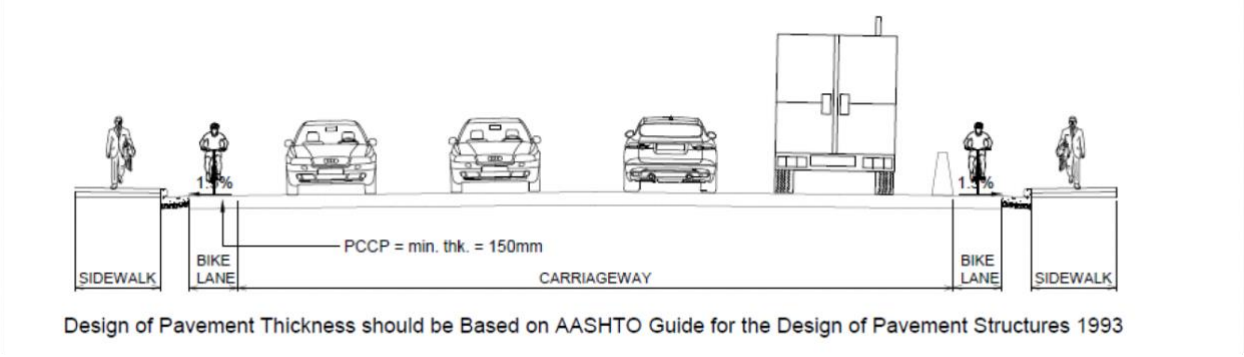


**Figure 5**. Class 2 designates a portion of the roadway for exclusive bicycle use, which is distinguished by a paint strip, curb, or barrier. (DPWH Department Order 88, 2020)

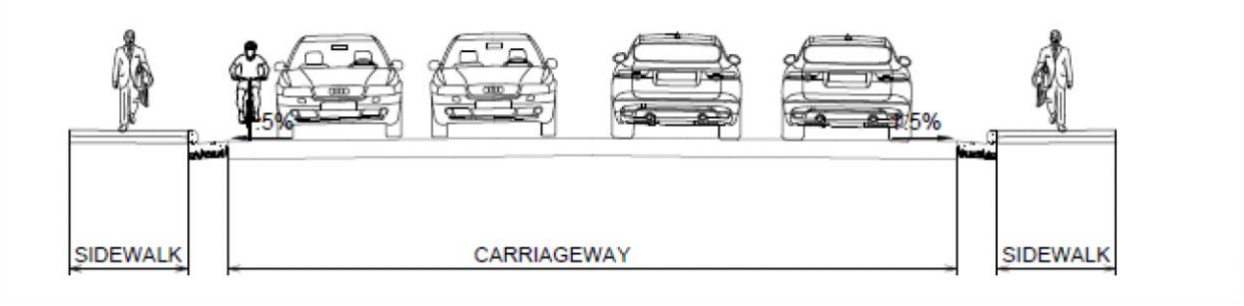


**Figure 6**. Class 3 pertains to situations where limited carriageway width poses a challenge, and a section of the roadway that has been officially designated and marked as a bicycle route may also be used by motor vehicles. (DPWH Department Order 88, 2020)

The successful implementation highlighted the importance of ensuring safe and convenient access for pedestrians and led to the enactment of Department of Public Works Highways Department Order 88 (Villar, 2018). Bicycle Facilities are classified into three categories: Class I or Shared Use Path or Bike Path, Class II or Separated Bike Lane using Pavement Marks or Physical Separation and Class III or Shared Roadway (Villar, 2018).

This landmark legislation, which was signed in 2020 by former Secretary Mark Villar, made it mandatory for the government to include bicycle facilities at the planning stages of all government-initiated road and bridge projects, thus ensuring safer and more accessible pathways for pedestrians and cyclists (Lamentillo, 2020). Now, national and local governments have established more bicycle lanes nationwide with the completion of several bike lane networks, including the 29 km Metro Cebu Bike Lane and the 54.7 km Metro Davao Bike Lanes (Lamentillo, 2022).

The increased government investment in pedestrian infrastructure and the adoption of the succeeding government of the same policy (Bonoan, 2022) has sparked a remarkable cultural shift in the Philippines, leading to a significant rise in the number of Filipino families

Metro Cebu Bike Lane Network (Jover, 2021)

embracing biking as a preferred mode of transportation, even in the post-pandemic era. According to the Social Weather Stations survey, cycling still emerged to be an essential mode of transportation post-pandemic — "with at least one out of three families saying they use bikes" (Philstar, 2023).

**Improve: Enhancing Mobility in Metro Manila**

The Philippine Government has been actively investing in the expansion and development of public transportation infrastructure in Metro Manila (PCO, 2023). However, it is important that the government also adopts medium-term strategies that will immediately address the transportation challenges, encourage behavior change, and promote sustainable transportation practices.

The government can use Transport Demand Management Strategies, like Mobility-as-a-Service (Farahmand, 2021), Carpooling and Ridesharing Programs (Shaheen, 2018), Parking Restrictions (Marsden, 2006), Congestion Pricing Schemes (De Palma & Lindsey, 2011), Road Pricing Schemes (Cavallaro, et. al., 2018), Intelligent Transportation Systems (Qureshi and Abdullah, 2013), Active Transportation Promotion (Saidla, 2019) that discourage private vehicle use during peak hours. The government might also consider expanding its current Bus Rapid Transit (BRT) System and look at potential BRT corridors in Metro Manila identified in a 2014 Research Study, particularly the routes of Quezon Avenue and Commonwealth Avenue as well as Alabang Zapote Road and Sucat Road (Sigua, Ricardo, 2014).

Implementing an integrated fare system that allows for seamless transfers between different modes of public transportation (Bianchi, 2012), and a communication campaign aimed at educating the public on the benefits of public transportation and the importance of sustainable travel choices will also be beneficial in the transition to an intermodal transportation network (Abroms and Maibach, 2008).

## Conclusion

The Philippine Government's push towards an intermodal transportation network in Build, Build, Build and subsequently Build, Better More presents a promising solution for Metro Manila's mobility and transportation challenges (Lamentillo, 2022). By avoiding dependence on road-based infrastructure, the metropolis can alleviate traffic congestion (Brnjac, Badanyak, and Babi, 2007), reduce pollution (Ramalho, M & Santos, T., 2021), and enhance sustainability (Mihyeon and Amekudzi, 2005). Moreover, the shift towards diverse transportation options, which utilize rail, water, air, and pedestrian transportation systems will greatly improve overall mobility and accessibility for residents (Oostendorp, et.al, 2019).

However, it is crucial to acknowledge the current societal limitations that hinder this transition. The deeply ingrained car-centric culture (Nielsen, 2014), coupled with resistance to change, poses significant challenges. To successfully facilitate the shift, there must be a concerted effort to address behavior change and promote alternative modes of transportation (Abroms and Maibach, 2008). This requires comprehensive public awareness campaigns, incentives for using sustainable transportation (Chenikwi, & Cynthia, 2023), and investments in infrastructure that prioritize pedestrians, cyclists, and mass transit systems (Jansson, & Pyddoke, 2010).

In summary, by embracing the avoid-shift-improve framework and initiating a shift from car-centric planning to an intermodal transportation network, Metro Manila can overcome the limitations posed by road-based infrastructure. Through the promotion of diverse transportation options and the necessary behavior change, the metropolis can enhance mobility, reduce congestion, and create a more efficient, sustainable, and livable urban environment for its residents.

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