



# Lagos Non-Motorised Transport Policy

Empowering pedestrians and cyclists for a better city

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## 1. Executive summary

Lagos State faces the urgent challenge of developing a transport system that can meet the needs of a growing urban population and facilitate continued economic growth. The present trend toward increased use of personal motor vehicles presents several challenges, including growing traffic congestion, high rates of injury and death from traffic crashes, and an increasing burden from noise and air pollution. Growth in motor vehicle traffic is especially concerning for children, for whom increasing motorisation consumes safe spaces for play and travel.

Going forward, mobility planning should focus on people, not vehicles. Urgent steps are needed to ensure more equitable allocation of road space by incorporating a focus on walking, cycling, and public transport in the planning, design, managing, and budgeting stages of transport projects. Toward this end, the Lagos Metropolitan Area Transport Authority (LAMATA) on behalf of the Lagos State Government (LSG) has initiated the process of creating a Non-Motorised Transport (NMT) Policy to guide the implementation of transport systems that prioritise the needs of pedestrians and cyclists.

NMT provides basic mobility, affordable transport, access to public transport, as well as health and recreation benefits. Improving convenience, comfort and safety of walking and cycling reduces the demand for travel by personal motor vehicles, helping to alleviate the critical traffic challenges facing the state. Increased investment in NMT will complement existing efforts by LSG to expand public transport services through initiatives such as the bus rapid transit (BRT) system.

The NMT Policy incorporates the following components:

- **The policy vision, paired with time-bound, measurable goals** calling for the roll-out of NMT infrastructure across the state and increased use of NMT over the next 15 years;
- **Principles and standards for street design** emphasising safe, convenient access for pedestrians and cyclists;
- **Standards for built environment regulation** to ensure that private developments contribute to the public realm, creating a safe, attractive, and animated walking and cycling environment;
- **Street network planning guidelines** that encourage the creation of a finer grained network of streets to reduce walking distances and expand access to public transport;
- **Provisions for street management** that prioritise NMT users;
- **Measures to enhance funding for NMT** improvements and infrastructure;
- **A stronger institutional framework** for project implementation;
- **Communications initiatives** to build support for NMT initiatives and gather public input during the planning process; and
- **Performance measures** to monitor the effectiveness of the policy.

The policy has been developed following extensive consultations including stakeholder meetings and capacity building workshops. Successful implementation of the policy will be a function of the joint efforts of concerned stakeholders to develop a transport system that provides safe, equitable access for all road users.

## 2. Introduction

The Lagos Metropolitan Area Transport Authority (LAMATA) on behalf of the Lagos State Government (LSG) has initiated the process of creating a Non-Motorised Transport (NMT) Policy to guide the implementation of high quality transport systems. It aims to create a policy environment that supports increased accessibility by prioritising the use of walking, cycling, and public transport.

Too often, transport planning has concentrated on infrastructure, traffic costs, and benefits. Going forward, mobility planning should focus on people, not vehicles. In harmony with this new focus, the Policy seeks to achieve a more equitable allocation of road space by incorporating a focus on NMT and public transport (PT) in the planning, design, managing, and budgeting stages of transport projects. In adopting a NMT-PT based approach, Lagos aims to stabilise the use of personal motor vehicles (PMVs), thereby improving health, safety, and environmental quality, and enhancing social equity and economic activity.

The policy has been developed following extensive consultations including stakeholder meetings and capacity building workshops, culminating in a stakeholder conference in October 2017 that brought together representatives from the state and federal governments, private sector, non-governmental organisations, education institutions, and development partners. Successful implementation of the policy will be a function of the joint efforts of concerned stakeholders to develop a transport system that provides safe, equitable access for all road users.

## 3. Current conditions for pedestrians and cyclists

Lagos is one of the fastest growing cities in the world. With a population estimated between 18 and 20 million and an annual growth rate at 6 percent, it is set to become the third largest megacity in the world. In 2010, Lagos had a GDP of \$80 billion. If Lagos were a country on its own, it would be the eleventh-biggest economy in sub-Saharan Africa. It is the economic powerhouse of Nigeria, with a varied economy that comprises of manufacturing, transport, construction, wholesale, and retail trade and contributes 62 percent to national non-oil GDP.<sup>1</sup> In the absence of effective land use management and housing policy, the city has experienced rapid outward expansion and the proliferation of slums, estimated to house 75 percent of the city's population.<sup>2</sup>

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<sup>1</sup> Lagos State Development Plan. (2012).

<sup>2</sup> <http://data.un.org/CountryProfile.aspx?crName=NIGERIA>



**Figure 1: Lagos’s landscape is dominated by a host of users and vehicles, including pedestrians, cyclists, okadas (motorcycle taxis), kekes (three-wheelers), cars, danfos (minibuses), and heavy trucks. The diverse mix of transport services helps meet critical mobility needs but also creates a challenging environment for walking and cycling.**

The transport system in Lagos is predominantly road-based, and the available road infrastructure is greatly overstretched. Lagos residents rely heavily on informal paratransit modes such as danfos as well as taxi services such as kekes (three-wheelers) and okadas (motorcycle taxis). A smaller number of commuters travel on buses regulated by LAMATA and Lagos Bus Services Limited (LBSL). According to recent mode split data, 70 per cent of motorised trips are by paratransit modes.<sup>3</sup> Recent data on walking and cycling are not available, but non-motorised modes likely account for upwards of a third of all trips in the city. Walking is a component of almost all public transport trips, so almost all commuters walk as a part of their daily trips.

Numerous interventions over recent years have taken steps to address Lagos’ transport challenges. In 2002, the Lagos Urban Transport Project (LUTP), a World Bank-funded initiative, was launched to revamp and modernise public transport.<sup>4</sup> Key elements of the project included institutional reform, road rehabilitation, and bus operations improvements. A major component of the project was the introduction of a dedicated busway corridor, known as the BRT Lite. The corridor runs 22 km from CMS to Mile 12 and operates from 6:00 am to 10:00 pm with 220 buses.<sup>5</sup> The BRT currently operates with two operators: a private sector organisation called PRIMERO Transport Services and Lagos Bus Services Limited (LBSL), a Lagos State government owned asset Management Company. A 13-km extension running from Mile 12 to Ikorodu was recently completed. The corridor is median-aligned,

<sup>3</sup> Ministry of Land, Infrastructure, and Transport, et al. (2014). Lagos Urban Transport Master Plan.

<sup>4</sup> World Bank. 2016. Nigeria: Lagos Urban Transport Project. Retrieved from <http://documents.worldbank.org/curated/en/410431469427889576/pdf/103068-ppa-P074963-PUBLIC-IEG-r-nigeria-0716.pdf>

<sup>5</sup> Ministry of Land, Infrastructure, and Transport, et al. (2014).

providing for faster and more reliable operations with reduced interference from turning traffic. The full corridor is estimated to transport an average of 120,000 passengers per day.

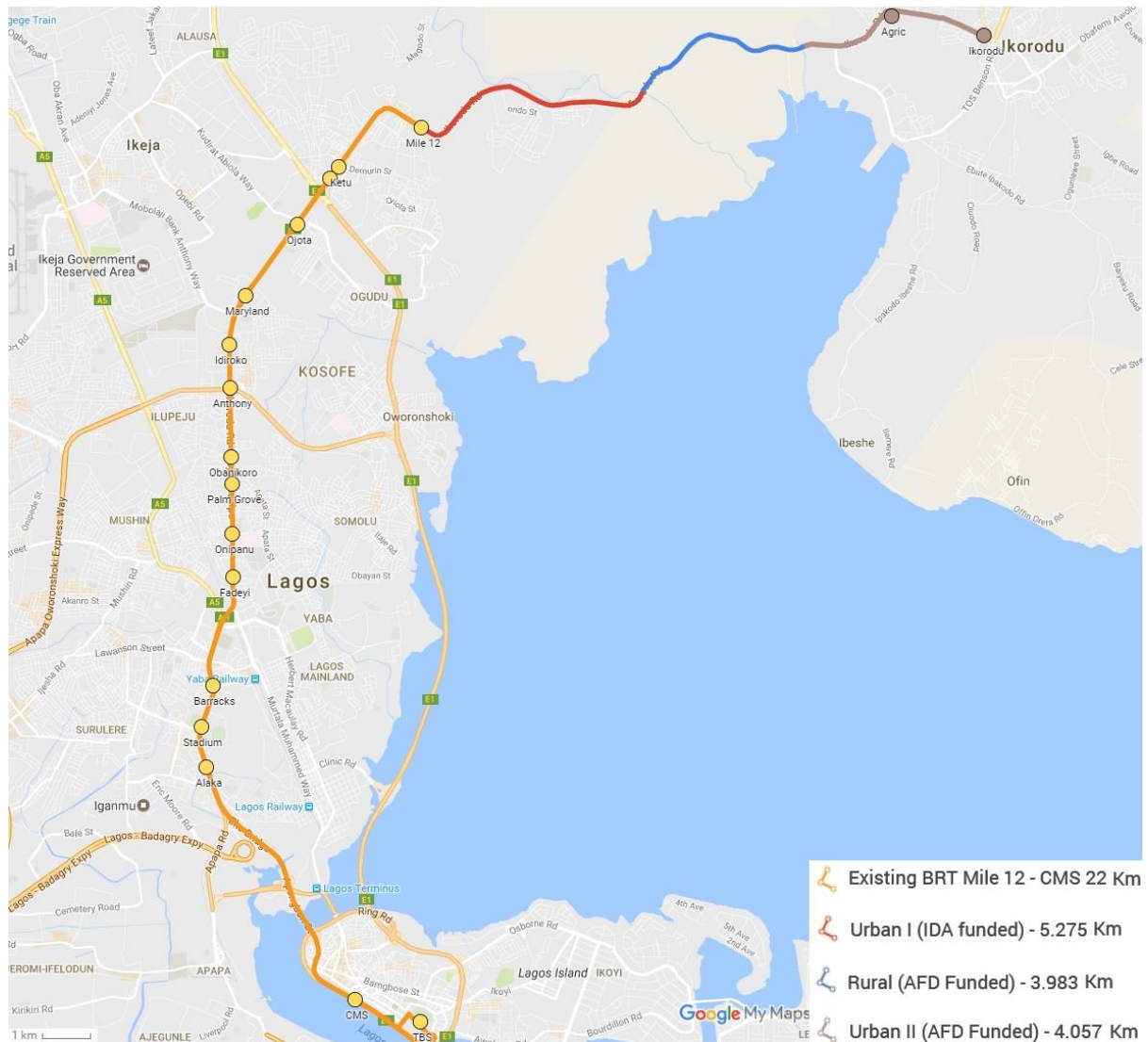


Figure 2: The BRT Lite corridor in Lagos stretches 35 km from CMS to Ikorodu and carries an estimated 120,000 passengers per day.

While the BRT has captured significant ridership, the corridor still constitutes a single route—far too little to serve the city’s massive urbanised area. Additional rapid transit lines are urgently needed to ensure that a majority of Lagos residents have access to high quality public transport. In the absence of ample NMT and public transport improvements, trends and forecasts point to increased growth of vehicles. The number of motor vehicles registered in Lagos more than tripled from 2002 to 2012, growing from approximately 300,000 to 1,000,000 vehicles. Motorcycles have grown at a much slower rate—presumably due to sustained government policies aimed at restricting their commercial use.

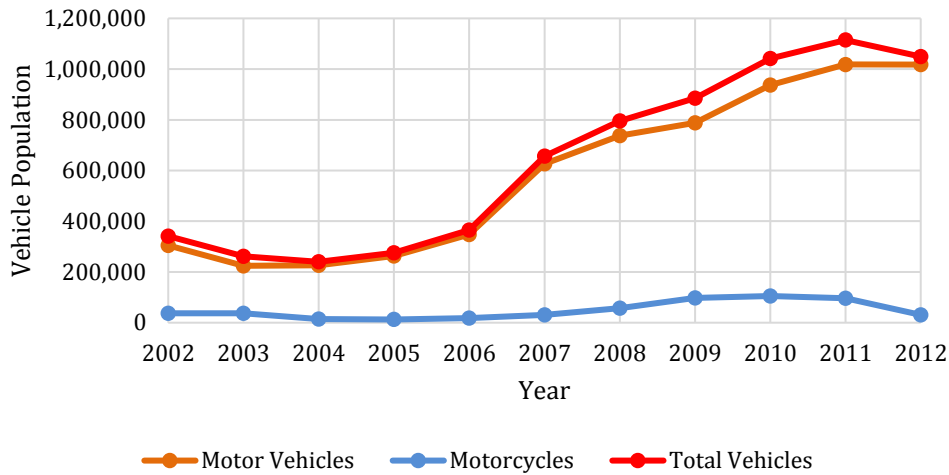
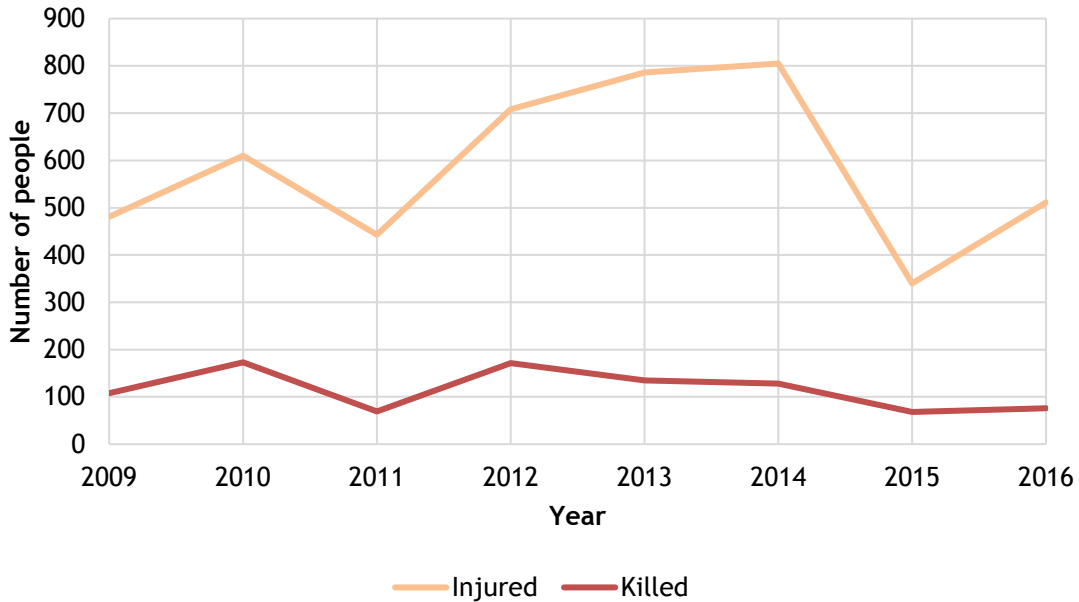


Figure 3: The vehicle population is growing rapidly and if continued unabated threatens to aggravate Lagos’ transport problems.<sup>6</sup>

The trend toward increased motorisation is especially dangerous for the most vulnerable populations. Crash statistics show an increasing trend over time, with vulnerable road users such as cyclists and pedestrians accounting for a majority of the traffic deaths, even though these groups often have little or no access to the mobility benefits from motorisation.<sup>7</sup>



<sup>6</sup> Motor Vehicle Administration Agency and Lagos Bureau of Statistics. (2013).

<sup>7</sup> The significant drop in rate of persons killed between 2010 and 2015 seems improbable in the absence of long-term, focused interventions on road safety. This suggests there might be some inaccuracies in the collection of road safety data.

Figure 4: The number of people killed or seriously injured in road accidents over recent years.

The rise in motor vehicle use not only increases the risk of traffic accidents but also impacts public health by discouraging physical activity and burdening residents with noise and air pollution. This is especially concerning for children, for whom increasing motorisation consumes safe spaces for play and travel. There are fewer opportunities for children to engage in physical activity, such as walking or biking to school, because of long travel distances and hazardous streets. In many cases, a child's personal mobility extends no farther than the edge of a residential neighbourhood or gated compound. Even the local playing field often exists beyond the child's independent reach.

The needs of children and youth point towards implementation of “softer,” less threatening, and more inclusive transport systems. Efforts need to be directed towards improving access to high quality public transport, creating safe streets that are accessible to all, and ultimately reducing the amount of travel by automobile.

## 4. The path to sustainable transport

A good transport system connects people and boosts a city's economy. It should be sustainable—socially, economically, and environmentally. In Lagos, like many Nigerian cities, citizens aspire to the convenience, status, and comfort of private motorised travel, which translates into rapid motorisation and significant urban problems. Motorisation fuels spatial decentralisation and sprawl, which decreases general accessibility to economic and social opportunities for those who cannot afford PMVs. This in turn creates demand for more motorisation, which is a fundamental driving force behind increase in air pollution, transport related global greenhouse gas emissions, pressures for conversion of land to urban uses, dependency on petroleum and demands for expanded infrastructure.

When planning transport infrastructure and services, it is important to differentiate between mobility and accessibility. Mobility, which represents an individual's capability to move, is measured in terms of “how far do we go?” and “how quickly do we get there?” Accessibility describes the ability to reach social and economic opportunities, and is often measured in terms of the time, money, discomfort and risk that is required to reach such opportunities.

For example, in cities with high levels of congestion, citizens who travel by automobile may experience relatively poor levels of mobility (slow travel speed, low individual travel mileage). However, the cities themselves may be economically successful due to their accessibility (cumulative number of opportunities, activities that are clustered together, many travel options, overall low cost of travel). Transport systems exist to provide economic and social connections—travel is rarely an end in itself. Thus, a “good” transport system provides more accessibility per unit of mobility.

Local transport policies play an important role in influencing aspirations for PMVs and moderating the demand for motorised travel. Lagos recognises walking, cycling and the use of public transport as important modes to enhance accessibility and improve mobility. Thus, it is necessary to develop support and expand the use of these modes by:

- **Making walking and cycling safe and attractive.** NMT provides basic mobility, affordable transport, access to public transport, as well as health and recreation benefits. Improving conditions for NMT reduces the demand for travel by PMVs. Such improvements increase the



convenience, comfort and safety of walking and cycling and therefore benefit existing users as well as encourage new users.

- **Providing high quality public transport.** High quality buses, supported with terminals and depots makes public transport attractive even to personal vehicle users. To support the demand for PT, cities should also strive to provide mass rapid transit (MRT).
- **Stabilizing and/or reducing the use of PMVs.** Stabilizing the use of PMVs at today's level can be achieved through various mechanisms like reducing parking supply, charging for parking according to demand and employing several other appropriate including congestion charging. As the city provides attractive alternatives to PMVs, in the form of high quality NMT and PT facilities, people shift to these alternatives.

To achieve reasonable access for public transport and NMT users and stabilise the use of personal motor vehicles, Lagos will need to build at least 470 km of MRT, 900 km of footpaths, and 300 km of cycle tracks. Equally important, Lagos will need to adopt measures to check horizontal sprawl and promote transit-oriented land uses.

## 5. Design of the walking and cycling environment

Many public streets in Lagos operate with mixed-traffic, heterogeneous traffic streams containing motorised and non-motorised vehicles. This mix of vehicles consist of a wide range of dimensions and acceleration and speed capabilities meaning that there is not one convention for vehicle behaviour. Pedestrians also navigate these spaces, generally gravitating toward a position in the right-of-way that allows for uninterrupted movement. In most cases, the lack of usable, dedicated pedestrian spaces means that pedestrians share the carriageway with fast moving vehicles. High motor vehicle speeds along with the lack of dedicated spaces compromise NMT user safety. As vehicle speeds increase over 30 km/h, the chance of NMT fatalities increases dramatically. Thus, NMT users are by far the most exposed and vulnerable group on Nigerian streets. The quality of life for NMT users is much deteriorated; they can never relax when they are in or close to a street.



Figure 5: All streets should have safe, continuous space for pedestrian movement (left). Dedicated cycle tracks are an important component of a complete cycle network (right).

For NMT modes to be viable and convenient, NMT users need adequate infrastructure—slow-speed shared spaces, footpaths, cycle tracks, and greenways—on which to travel. Accommodating NMT involves two simple techniques that we will explore in greater detail:

- Systematic traffic calming to ensure that smaller streets are safe places for the mixing of pedestrians and other modes (shared lanes); and,
- Pedestrian and cycle infrastructure that is physically separated from motor vehicle traffic (by raised medians, vehicle parking lanes, bollards, landscaping, etc.) on larger streets.

Streets are public spaces for socialisation and commerce as well as mobility. The slow zone—whether the entire right-of-way of a small street or a separate space on a larger thoroughfare—is space for liveability<sup>8</sup>: for people to walk, talk, and interact, for doing business, for children to play. The provision of an adequate slow zone recognizes that streets themselves are destinations. It also enables streets to provide safe and uninterrupted mobility for all users regardless of their travelling speed.

The width available for vehicle movement widths affect vehicle operating speeds and therefore determines whether streets are safe for NMT users. Negotiations for limited right of way encourage slower vehicle speeds. Small streets with measures to reduce motor vehicle speeds can function as shared spaces for all modes: private vehicles, cyclists, pedestrians, etc. In reducing vehicle speeds, small streets give priority to pedestrians and cyclists who can then travel safely in the slow mixed traffic.

It is essential to provide dedicated space for pedestrians and cyclists on streets with moderately fast motor vehicle traffic. Pedestrian footpaths and cycle tracks along streets that are physically separated from moving motorised traffic by a barrier (such as a curb, landscaping, or vehicle parking) may also be provided to enable its users travel safely. The technique of creating “separated” cycle lanes or footpaths by carriageway striping is not an appropriate strategy to provide access to NMT users in the Nigerian context. While higher levels of separation involve increased construction cost and space requirements, there is a strong global correlation with NMT use and high-quality NMT infrastructure that is separated from fast and heavy motor vehicle traffic.<sup>9</sup> Dedicated NMT infrastructure also includes walkways and cycle paths that utilise an independent right-of-way (ROW), such as in a park or greenway.

Crossings and junctions are essential components of a well-connected street network. When properly designed, crossings and junctions allow pedestrians, cyclists and other NMT users to cross busy streets safely and conveniently. Many cities have sought to increase vehicle speeds by erecting barriers at junctions to prevent pedestrians and cyclists from crossing at grade. NMT users are thereby forced to use foot overbridges or subways, which are inconvenient, potentially unsafe with regard to sexual assault, eve teasing, and general crimes. When provided, such facilities are poorly lit and generally vacant of passers-by. Instead of providing grade-separated facilities, a more viable approach

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<sup>8</sup> Liveability implies that street designs recognise the relationship between the street and all of its users. Liveable streets are designed as public spaces that allow people to get from point A to B, but also support and encourage the activities people pursue in public spaces. Such streets are inclusive, multicultural, socially cohesive, economically vibrant, and full of life.

<sup>9</sup> Pucher, John and Ralph Buehler. (2008). Making cycling irresistible: Lessons from The Netherlands, Denmark, and Germany.” *Transport Reviews*. 28(4): 495-528.

is to create safe at-grade crossings that are accessible to all. At crossing points where multiple vehicle users interact, it is important to reduce vehicle speeds to safe levels (e.g. below 15 km/h).

Public streets are for public use therefore, their design must be accessible to all users irrespective of their age, ability, gender, income, race, ethnicity, or religion. An equity-based approach to NMT policy must ensure that providing services and infrastructure meet the needs of all users. LSG is responsible for meeting this obligation to equity and must ensure that transport vehicles, facilities, and services are conducive for people with disabilities.

Walking is attractive, safer, and can be highly productive when sidewalks are populated, animated, and lined with useful ground floor activities and services such as storefronts and restaurants. In turn, being closer to passing pedestrians and cyclists increases the exposure and vitality of local retail. In contrast, blank compound walls isolate the street from private uses and contribute to unsafe conditions for pedestrians. Building control regulations can help ensure that private developments contribute to the public realm, rather than functioning as isolated islands of activity.

## 6. Implementing the NMT policy

The Lagos NMT Policy represents a complete paradigm shift from existing development patterns toward a transport system that prioritises walking, cycling, and public transport as viable alternatives to car use. At present, walking and cycling have a negative image, perceived as having little relevance as solutions to traffic and mobility challenges. To tackle these perceptions, the policy proposes a bold set of interventions that recognise the critical role of NMT and elevate NMT modes dignified forms of transport. When it comes to promoting NMT, no single measure will suffice. A comprehensive approach to enhance conditions for cyclists, pedestrians, and other NMT users should include the following components:

- A progressive vision paired with quantitative goals for a 15-year planning horizon;
- Street design principles and standards;
- Built environment regulations;
- Street network planning guidelines that prioritise NMT;
- Enhanced funding for NMT improvements and infrastructure;
- A stronger institutional framework for project implementation; and
- Performance measures to monitor the effectiveness of the policy.

Achieving the ambitious goals outlined in the Lagos NMT Policy will require steady progress over time and strong political and public support. One way to build stakeholder buy-in is to implement demonstration projects to highlight the benefits of complete streets. Streets that experience high pedestrian volumes and serve as important access routes to public transport have potentials for significant impact. New walking and cycling facilities can also expand public access to waterfronts such as Lekki beach as well as areas of deep cultural significance, such as the Badagry Slave Route.

By initially focusing on projects with a high probability of success, LAMATA can build public enthusiasm for more widespread transformations. Over the course of these initiatives, it will be helpful to gather feedback from NMT users and other stakeholders to build public buy-in. Stakeholder engagement should call on even non-NMT users to contribute to and support the implementation of the policy because the social and environmental benefits of NMT go beyond the direct benefits to the

users themselves. While change may be difficult at first, determined efforts can help Lagos move toward making cycling and walking safe and enjoyable for all city residents.

## 7. NMT Policy

The following is the draft text of the Lagos State Government NMT Policy.

### 1. Vision

- 1.1. Lagos will be a city with a general sense of well-being through the development of quality and dignified environment where people are free to walk and cycle; equitable allocation of public space and infrastructure; and access to opportunities and mobility for all residents.
- 1.2. Lagos State Government (LSG) aims to:
  - 1.2.1. **Enable equitable access for all** by improving access and mobility for all residents; promoting social and economic empowerment through the provision of improved low-cost mobility; facilitating safe access for children; enabling gender equity through the provision of non-motorised transport (NMT) and public transport facilities that are safe for women to use; enabling inclusion of persons with disabilities by creating NMT facilities that follow principles of universal design; and by creating a changed culture that accepts the use of walking, cycling, and public transport as acceptable and aspirational means to move around in the city.
  - 1.2.2. **Optimise the use of resources such as space, funds, time, and energy** by investing in NMT and public transport modes that consume fewer resources per person-trip compared to personal motor vehicles (PMV) and by encouraging dense, compact, and mixed-use development that contributes to shorter trips and allows more people live and work close to PT facilities.
  - 1.2.3. **Improve road safety and personal security** by improving management of traffic conflicts; reducing road crashes, and deaths; and creating public spaces that are safe at all times of the day for all users.
  - 1.2.4. **Reduce local and global environmental impacts** of Lagos's transport system by expanding the use of zero-pollution NMT modes and low-pollution motorised modes, helping to improve the city's air quality.
  - 1.2.5. **Enable community participation by involving local residents, businesses, and other stakeholders** in the preparation of designs to foster the community's active use and sense of ownership of these spaces.

### 2. Goals

LSG aims to increase the use of walking, cycling, and public transport by creating a safe and pleasant network of footpaths, cycle tracks, greenways, and other facilities to serve all citizens in the metropolitan area. It will strive to meet the outcomes listed in:

- 2.1. Table 1 by designing streets consistent with principles of complete streets. LSG also urges other concerned agencies to take complementary actions to realise these goals.

**Table 1: Outcomes.**

Outcomes	5-year horizon	10-year horizon	15-year horizon
Increased share of sustainable modes (walking, cycling, and public transport)	At least 25% of the final goal.	At least 75% of the final goal.	The mode share of walking and cycling will increase to at least 50% of all trips and remain at or above this level. Public transport and paratransit trips will constitute 90% of all motorised trips.
Reduction in private vehicle kilometres travelled (VKT)	VKT by PMVs are no more than 20% above baseline levels.	VKT by PMVs are no more than 10% above baseline levels.	VKT by PMVs are no more than baseline levels.
Improved road safety	At least 25% of the final goal.	At least 75% of the final goal.	Fatalities are 10.0 or less per 100,000 population.
Improved air quality	At least 50% of the final goal.	100% of the final goal.	WHO ambient air quality norms for local pollutants will be met on at least 350 days a year. Greenhouse gas emissions will follow the overall targets set in Nigeria’s Nationally Determined Contribution. <sup>10</sup>

2.2. LSG will invest in walking, cycling, and public transport, and manage PMV use to meet the following output goals that contribute to achieving the desired outcomes listed above. LSG also urges other concerned agencies to take complementary actions to realise these goals.

**Table 2: Output goals**

Goal	5-year horizon	10-year horizon	15-year horizon
Improved infrastructure for walking	<ul style="list-style-type: none"> <li>At least 25% of the final goals.</li> </ul>	<ul style="list-style-type: none"> <li>At least 75% of the final goals.</li> </ul>	<ul style="list-style-type: none"> <li>All streets with a ROW of 12m or more have footpaths.</li> <li>All streets with ROW under 12m ROW have a footpath on one side and/or traffic calming measures.</li> </ul>
Improved infrastructure for cycling	<ul style="list-style-type: none"> <li>At least 25% of the final goals.</li> </ul>	<ul style="list-style-type: none"> <li>At least 75% of the final goals.</li> </ul>	<ul style="list-style-type: none"> <li>100% of streets are safe for cycling through the provision of dedicated cycle tracks or traffic calming measures.</li> <li>Bicycle parking slots are available free of charge every 100m on commercial streets.</li> </ul>

<sup>10</sup> Nationally Determined Contributions (NDCs) are pledges to reduce greenhouse gas emissions per the provisions of the 2015 United Nations Climate Change Conference in Paris.

			<ul style="list-style-type: none"> <li>• Development regulations mandate bicycle parking in all buildings.</li> </ul>
Improved reach of public transport	<ul style="list-style-type: none"> <li>• At least 25% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 75% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 80% of the population lives within 500m of a public transport stop/station with a service headway of 5 minutes or less.</li> </ul>
Improved reach of MRT	<ul style="list-style-type: none"> <li>• At least 25% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 75% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 50% of the population lives within 500 m of an MRT station with a service headway of 5 minutes or less.</li> </ul>
Emissions standards	<ul style="list-style-type: none"> <li>• At least 25% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 75% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• 100% of the matches or surpasses the Euro IV specification</li> </ul>
Universal access	<ul style="list-style-type: none"> <li>• At least 25% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 75% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• All public facilities-- NMT, public transport, public space, public buildings--are usable by everyone, regardless of physical ability.</li> </ul>
Management of PMV use	<ul style="list-style-type: none"> <li>• At least 50% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 75% of the final goal.</li> </ul>	<ul style="list-style-type: none"> <li>• All streets that have a parking occupancy of more than 60% during peak hours are brought under an IT-enabled parking management system with demand-based pricing.</li> </ul>

### 3. The role of streets


- 3.1. LSG recognizes that streets constitute a large portion of the city’s public space. Implementation of the NMT Policy will ensure that such streets will become:
- 3.1.1. Corridors for all modes of transport, with an emphasis on pedestrians, cyclists, and public transport.
  - 3.1.2. Inclusive and usable public spaces that provide access to users of different ages, incomes, and abilities, and are in compliance with Street Design Standards that are to be developed in accordance with this policy.
  - 3.1.3. Attractive and safe public open space corridors with generous landscaping, lighting, and greenery.
  - 3.1.4. A means of organising urban development patterns and encouraging the intensification of land uses along mass rapid transit (MRT) corridors.

- 3.1.5. Sustainable and healthy components of the Lagos state’s ecology, utilising available technologies to reduce the environmental impact of street systems and manage storm water following established principles of watershed planning.
- 3.1.6. Providers of access to public view corridors, light, and air.
- 3.1.7. Providers of habitat for urban wildlife.

#### 4. Principles of street design and management

- 4.1. LSG will use the following principles to guide street design and management in the city:
  - 4.1.1. Streets that support and invite multiple uses, including safe, active, and ample space for pedestrians, cycles, and public transport, are more conducive to the public life of an urban neighbourhood and efficient movement of people and goods than streets designed primarily to move personal motor vehicles.
  - 4.1.2. Decisions regarding the design and use of the city’s limited public street space will prioritise space for pedestrians, cyclists, and public transport over space for personal motor vehicles following the hierarchy of uses shown in Table 3. In some circumstances, the hierarchy may be adjusted somewhat. For example, when allocating space for a BRT corridor, public transport may take precedence over cycling.
  - 4.1.3. Where motor vehicles speed compromise the safety of NMT users, LSG will provide dedicated and physically separated facilities. NMT user safety should not come at the expense of personal motor vehicle speed or convenience. Therefore, LSG will prioritise at-grade solutions that minimise detours for NMT users rather than grade-separated facilities such as pedestrian subways and foot overbridges.

**Table 3: Transport framework priority by mode**

CONSIDER	MODE	
First	Walking	
	Cycling	
	BRT/buses	
	Paratransit (danfos, shared kekes)	
	Taxi services: kekes, okadas, taxis	
	Economic activities (Regulated > Informal)	
	Freight movement (Light > Heavy)	
	NMV goods carriers	
	Personal motor vehicle movement	
	Last	Personal motor vehicle parking



Street vending plays a crucial role in the economy of Lagos and vendors help improve safety as “eyes on the street.” LSG will provide dedicated vending zones particularly in areas close to MRT stations. LSG will form a partnership with vendors under which they will be expected to keep vending areas clean and well maintained.

- 4.1.4. Street designs will take into account the nature of adjacent land uses in order to provide usable on-street open spaces, enhance property values, and increase the safety and attractiveness of neighbourhoods.
- 4.1.5. Paved space in Lagos state is more than is needed for the safe and efficient movement of public transport, cycles, and private vehicles. LSG will encourage innovative solutions to convert such areas to public spaces and other public amenities.
- 4.1.6. Streets will be designed and maintained to address the unique characteristics and challenges of the watersheds and natural systems in which they lie; to reduce flooding of storm water and sewer overflow; and to facilitate the health of street trees and landscaping. Decisions regarding street designs will utilise techniques that reduce impacts on sewage and storm water systems through the planting of street trees and avoidance of impermeable surfaces.
- 4.1.7. The design and placement of signs, signals, utility structures, and related elements will minimize visual clutter.
- 4.1.8. The management and signalization of vehicle traffic has a significant impact on the quality and safety of all users, especially pedestrians, cyclists, public transport users, and operators in their street experience. So, decisions regarding these systems will consider and balance the impact on the street experience and safety for all users.
- 4.1.9. LSG will combine incentives for NMT use with disincentives for private vehicle use. Better cycling, walking, and public transport services increase the viability of initiatives meant to restrict private vehicle usage.

## **5. Street network**

- 5.1. LSG will provide a dense network of complete streets and paths that give priority to NMT modes. LSG will:
  - 5.1.1. Create a complete pedestrian network, linking all destinations and public spaces, accessible to all persons, and protected from motor vehicles. Such a network will be created by developing all streets in the city with walking facilities or by employing measures that improve pedestrian safety in shared spaces.
  - 5.1.2. Create a cycling network to ensure that streets are safe for cycling within a neighbourhood as well as across the city. LSG will identify streets for dedicated cycle tracks or create traffic calmed streets to ensure safety of cyclists on their entire travel route.

- 5.1.3. Support the creation of a citywide greenway network to improve access for pedestrians and cyclists and provide through access for pedestrians and cyclists in city parks and other public spaces.
  - 5.1.4. Improve the connectivity of the NMT network through the provision of at least 80 intersections per square km.
  - 5.1.5. Ensure that all new construction and redevelopment limits block sizes so that the longest block face is less than or equal to 100 m.
  - 5.1.6. Prohibit pedestrian cul-de-sacs and ensure that pedestrians have access to the shortest path for all journeys.
  - 5.1.7. Enhance access for non-motorised and animal-drawn freight vehicles in areas where such modes are common.
- 5.2. LSG will classify streets into four typologies, namely local streets, minor collectors, major collectors, and arterial streets, in accordance with their function, surrounding land use, and other characteristics:
- 5.2.1. **Local streets:** The primary function of local streets will be for local activities and access to properties and not through movement of traffic. They will typically have a ROW of less than 12 m and will discourage access by heavy vehicles. There may not be a dedicated footpath on such streets, but in such cases LSG will create shared space that gives priority to NMT modes. Various traffic calming elements will be employed to ensure that vehicle speeds are below 15 km/h—safe for intermingling of pedestrians, cyclists, and motor vehicles. LSG may allow vehicle parking where feasible.
  - 5.2.2. **Minor collector streets:** They are meant to serve local traffic and connect local streets to arterial streets. They will be designed with dedicated footpaths and a carriageway for vehicle movement. Speed reduction measures such as speed breakers and table-top crossings will be employed to limit vehicle speeds to 30 km/h and ensure safety of NMT users. Public transport may operate on such streets and LSG may allow vehicle parking where feasible.
  - 5.2.3. **Major collector streets:** These are meant for local traffic movement and connect local streets to arterial streets. They will have adequately sized footpaths, street furniture to cater to the adjacent land uses, and frequent pedestrian crossing opportunities. Public transport feeder buses as well as medium frequency main line buses may operate on such streets. The carriageway will be designed for a speed limit of 40 km/h. LSG may allow vehicle parking where feasible and may also implement cycle tracks on these streets if they form a part of a larger cycling network.
  - 5.2.4. **Arterial streets:** They are meant for motorised movement across the city. They will have adequately sized footpaths and street furniture to cater to the adjacent land uses and pedestrian crossing opportunities at intervals of 200 m. LSG will explore the possibility of implementing high-frequency and high-quality MRT, such as Bus

Rapid Transit (BRT), on these streets to improve public transport access. Speeds will be limited to 50 km/h. On-street parking will be restricted, except when there is space available for a service lane with parking.

- 5.3. Streets will be designed in accordance with their typology, following Table 6 in the Street Design Standards, Schedule A.
- 5.4. LSG will collaborate with stakeholders to identify and develop selected streets as special streets that limit access to motor vehicles (aside from emergency vehicles):
  - 5.4.1. **NMT-only streets:** In collaboration with key municipal and public stakeholders, LSG will identify locations where personal motor vehicle traffic can be prohibited and streets converted into pedestrian-only zones based on the amount of pedestrian traffic and the predominant types of uses.
  - 5.4.2. **NMT-public transport-only streets:** Personal motor vehicle traffic will be prohibited but public transport services will be allowed, in addition to pedestrians and cyclists. LSG will identify such streets based on the volume of NMT traffic and the need for movement of public transport modes.
  - 5.4.3. **Greenways:** LSG will develop a network of exclusive facilities for walking and cycling to expand public access to natural features such as water bodies, lakes, marshes, and parks. Motor vehicle traffic will be prohibited on this network. Such greenways will have a minimum clear width of 7 m to accommodate two-way movement of cyclists and pedestrians.

## 6. Walking facilities

- 6.1. LSG will develop pedestrian facilities consistent with the street typologies listed in Section 5 and the Street Design Standards in Schedule A:
  - 6.1.1. LSG will create shared spaces or footpaths where there are none; and where footpaths exist, widths will be increased depending on pedestrian volumes in order to prevent pedestrian overflow onto the carriageway and to ensure continuity.
  - 6.1.2. LSG will create safe pedestrian crossings at intersections and midblock locations. Crossings will be designed with refuge islands and measures to ensure safe vehicle behaviour, including traffic calming (e.g., raised zebra crossings or speed bumps), signage, and signalisation.
  - 6.1.3. The entire walking network will be universally accessible.
  - 6.1.4. LSG will ensure that the pedestrian network offers continuous shade by preserving existing street trees and planting new trees at frequent intervals.
  - 6.1.5. LSG will implement walking improvements along important access routes to schools and other destinations that are frequented by children.

- 6.1.6. LSG will undertake measures to improve personal security through street lighting and surveillance mechanisms.

## **7. Cycling facilities**

- 7.1. LSG will develop bicycle facilities consistent with the street typologies listed in Section 5 and the Street Design Standards in Schedule A:
  - 7.1.1. LSG will develop dedicated cycle tracks as part of the cycling network on major collector and arterial streets with speeds greater than 30 km/h. There may not be dedicated cycle lanes on minor collector streets or local streets with speeds lower than 30 km/h streets, but in such cases LSG will create slow-speed carriageways that give priority to NMT modes.
  - 7.1.2. LSG will develop a city-wide cycling plan to ensure that all streets are safe for cycling. Dedicated cycling infrastructure will be developed on corridors identified in the cycling network.
  - 7.1.3. Cycling improvements will be implemented along important access routes to schools and other destinations that are frequented by children.

## **8. Bicycle sharing**

- 8.1. LSG will provide last mile connectivity to mass rapid transit stations via innovative schemes such as bicycle sharing. Bicycle sharing refers to the shared use of a common cycle fleet. With a smart card or other form of identification, a user can check out a cycle from a station and return it to any other station. These systems imply short-term cycle access and provide users with an environmentally friendly and low-cost form of public transport. The LSG bicycle sharing system will employ the following best practice features:
  - 8.1.1. A dense network of stations across the coverage area, with spacing of approximately 300 m between stations.
  - 8.1.2. A fully automated locking system at stations that allows users to check cycles in or out without the need for staffing at the station.
  - 8.1.3. Radio frequency identification devices to track where a cycle is picked up, where it is returned, and the identity of the user.
  - 8.1.4. Real-time monitoring of station occupancy rates through General Packet Radio Service (GPRS), used to guide the redistribution of cycles.
  - 8.1.5. Real-time user information provided through various platforms, including the web, mobile phones, and/or on-site terminals.
  - 8.1.6. Pricing structures that incentivise short trips, helping to maximise the number of trips per cycle per day, and expand access to the system for low-income users.

- 8.1.7. Cycles with specially designed parts and sizes to discourage theft and sale as whole or for parts.
- 8.2. Emerging forms of dockless bicycle sharing hold the potential to offer convenient, widespread access to shared bicycles. To ensure that such systems contribute to the overall goals of this Policy, LSG will develop dockless bicycle sharing regulations covering the use of street space, minimum standards for bicycle design, redistribution of bicycles, affordability, and open access to information on system usage.

## 9. Public transport facilities

- 9.1. LSG will design streets and public spaces that are integrated with and supportive of public transport services:
  - 9.1.1. LSG will provide bus stops, paratransit stops, and/or rapid transit stations at key destinations<sup>11</sup> and at frequent intervals.
  - 9.1.2. Bus stops will be located in the furniture zone or on bulb-outs in the parking lane, leaving clear space for pedestrian movement behind and allowing bus passengers to board without waiting and/or stepping into the carriageway.
  - 9.1.3. Bus lay-bys slow down the movement of public transport and paratransit services and make it difficult for drivers to dock close to the kerb. On corridors with scheduled bus services, LAMATA will construct bus stops adjacent to buses' line of travel to improve convenience for passengers and commercial speeds. Acceptable locations for bus bays include major public transport terminals where vehicles stop for a layover at the beginning or end of their journeys.
- 9.2. LSG will develop accessible multi-modal interchanges at MRT stations, bus stops, and intercity transport facilities in accordance with the hierarchy of modes listed in Table 3 and as per the following provisions:
  - 9.2.1. LSG will create clear, direct, and short transfers between rail systems, bus stops, and paratransit stops that minimise horizontal and vertical displacement. These pathways will comply with disability access guidelines and will offer consistency and clarity in station entrances and interfaces, spaces, layout, and visual cues. LSG will prioritise at-grade access to BRT stations.
  - 9.2.2. LSG will provide protection from rain and sun inside stations and stops and along connections between modes.
  - 9.2.3. LSG will coordinate feeder service schedules and routes with schedules of trunk services to minimise customer wait times.

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<sup>11</sup> Key destinations are the main places that people need to access including: municipal offices, public transport nodes and stations, common workplaces, schools, markets, shops, sites of worship, and recreation areas.

- 9.2.4. LSG will adopt priority measures to ensure the efficient movement of surface public transport modes, such as buses and kekes, to and from station areas.
- 9.2.5. LSG will provide clear and consistent wayfinding and signage to support efficient navigation in station areas. LSG will provide static information such as route maps, route destinations, and transfer opportunities.
- 9.2.6. LSG will provide for safe and efficient movement of pedestrians and cyclists in the influence areas around public transport stops and stations.
- 9.2.7. LSG will provide an attractive pedestrian environment on all approach streets within one km radius of MRT stations, particularly on routes serving major destinations.
- 9.2.8. LSG will provide clearly marked and protected access for pedestrians and cyclists at station areas to minimise conflicts, particularly at passenger pick-up and drop-offs, bus facilities, and parking access points. Station areas will incorporate ramps, tactile paving, and other features to secure access for persons with disabilities.
- 9.2.9. LSG will provide secure and plentiful bicycle parking at station entrances, with additional cycling amenities at high volume locations.

## **10. Street furniture**

- 10.1. LSG will implement and maintain street furniture as follows:
  - 10.1.1. LSG will provide street furniture, such as benches, waste bins, tables, public wayfinding signage, shelter, water taps, and other amenities to make streets an attractive place to spend time, promote sanitary conditions, serve a traffic calming function, and avoid unnecessary clutter.
  - 10.1.2. LSG will coordinate the placement of street furniture with other user amenities (especially advertising panels and utility boxes) to maintain a 2 m clear width path of travel for through movement of pedestrians and cyclists.
  - 10.1.3. LSG will scale the quantity of street furniture to meet demand, adjacent land uses, and street activity.

## **11. Built environment regulation**

- 11.1. LSG revise land use plans and building control regulations to incorporate the following standards:
  - 11.1.1. Ensure that at least 90 per cent of buildings have visually active frontages to create a pedestrian realm that is active, vibrant, and safe.<sup>12</sup> These could be in the form of

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<sup>12</sup> Visually active frontage measures the opportunities for visual connection between sidewalks and the interior ground floors of adjacent buildings. Not only shops and restaurants, but also workplaces, residences and all types of premises qualify.

actual openings and/or transparent frontages (windows/patios) that are visually penetrable and provide a means of passive surveillance.

- 11.1.2. Prioritise physically permeable frontage abutting public walkways.<sup>13</sup> This can include entrances to restaurants and cafes, storefronts, and residential housing that contribute to a vibrant public realm. The average number of shops and building entrances per 100 m of street frontage will be at least 5.
- 11.1.3. Adopt minimum build-to lines to ensure that private buildings are oriented towards the streets rather than towards internal plots and thus provide “eyes on the street.”
- 11.1.4. Eliminate minimum parking requirements and establish the maximum number of parking spaces that can be provided for personal motor vehicles in new developments. New developments will be required to create dedicated convenient and secure bicycle parking spaces, both for visitors and residents.
- 11.1.5. Ensure that front setbacks, where present, are not used for motor vehicular parking, but instead become an extension of the pedestrian environment.
- 11.1.6. Ensure that for residential buildings, compound walls are transparent above a height of 300 mm.
- 11.1.7. Ensure that for plots with frontage on more than one street, the main vehicle access, i.e. driveways, will be provided from the secondary street. To reduce pedestrian-vehicular conflicts, the average number of driveways intersecting pedestrian walkways will be limited to 2 or less per 100 m of block frontage.
- 11.1.8. Provide a diverse mix of uses, including employment, housing, regional attractions and public spaces to create a high quality urban environment, especially near mass rapid transit stations.
- 11.1.9. Encourage compact urban development by creating high density developments at, and around, MRT stations. Such developments will be integrated with the surrounding community through walking, cycling, and public transport.
- 11.2. LSG will take measures to discourage gated enclaves and adopt alternate measures to improve neighbourhood security.
- 11.3. LSG will ensure that its own buildings and properties contribute to a pedestrian realm is active and vibrant and complies with the provisions in Section 11.1.

## 12. Planning and implementation

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<sup>13</sup> Physically permeable frontage measures active physical connections through the block frontage via entrances and exits to and from storefronts, building lobbies, courtyard entrances, passageways, and so on.

- 12.1. To guide implementation of this Policy, LSG will develop NMT plans and regularly update them. NMT plans will be adaptable and flexible. They will include reporting on the existing scenario, evaluation of the past and current initiatives, identification of available funding resources, and implementation plans.
- 12.2. LSG will ensure that all projects involving construction of new streets or retrofitting of existing streets improve safety and convenience for NMT users per this Policy and the Lagos State Design Manual.
- 12.3. LSG will ensure that infrastructure projects take into account the impact on businesses operating in the project area and duly compensate them in cases where the work affects their activity.
- 12.4. LSG will prioritise NMT interventions in the following areas:
  - 12.4.1. Black spots with a high frequency of traffic crashes, particularly those involving NMT users.
  - 12.4.2. School zones.
  - 12.4.3. Locations with high NMT volumes.
- 12.5. In accordance with this Policy, LSG will create street design guidelines, known as the Lagos Street Design Manual (LSDM) (see Schedule B). The LSDM will be based on this Policy, as well as the Street Design Elements and Standards detailed in Schedule A.
  - 12.5.1. The LSDM will include standards and design guidelines for footpaths, cycle tracks, carriageway, BRT, and other street elements.
  - 12.5.2. The LSDM will detail out various street typologies. In accordance with Section 5 of this Policy and will include design templates for various street types based on land use, traffic characteristics, ROW and other criteria.
  - 12.5.3. The LSDM will include standards and design guidelines for intersections.
  - 12.5.4. The LSDM will include guidelines on materials to be used for various elements and construction detailing.
  - 12.5.5. The LSDM will include signage and road marking guidelines so that NMT elements are consistently branded to make the network of NMT facilities legible to all users.
  - 12.5.6. The LSDM will be provided in accessible online and hard copy formats.
- 12.6. All designs will comply with the street design guidelines as adopted by LSG. Where there are conflicting standards in guidance provided by agencies, LSG will prioritise NMT modes in the allocation of street space, the design of street design elements, and street management.
- 12.7. LSG will work with concerned agencies, such as the Federal Ministry of Transport, to develop street design standards consistent with the provisions of this Policy.



- 12.8. LSG will ensure that all transport-related planning, plans, and studies (including surveys, plans, forecasts and models, and implementation plans undertaken by professional staff, consultants and / or international agencies), even those without a specific focus on NMT, consider the impact of proposed interventions on NMT users and LSG's ability to meet the provisions of this Policy.
- 12.9. LSG will facilitate annual collection of data related to NMT users and user behaviour including but not limited to the gender, age, and income profiles of pedestrians and cyclists; cordon counts of pedestrian and cycle volumes; mapping of crashes involving pedestrians and cyclists to aid in the identification of black spots; and data on transport mode share. Such data will aid in the planning process as well as the monitoring of success in meeting the provisions in this Policy, as per Section 22.
- 12.10. LSG will require, where possible, that NMT user participation is included in transport-related planning processes.

### **13. Parking management**

- 13.1. LSG will effectively manage the use of personal motor vehicles by implementing a formal parking management program:
  - 13.1.1. LSG will develop a robust management system that improves the enforcement of no-parking zones and keeps personal motor vehicles from obstructing NMT facilities.
  - 13.1.2. LSG will clearly demarcate parking and no-parking zones. Footpaths, cycle tracks, and other NMT facilities will be designated as no-parking zones.
  - 13.1.3. LSG will control the supply of parking. On-street parking will be allocated only after providing adequate space for pedestrians, cyclists, trees, and street vending. In areas with good access to public transport, the parking supply will be reduced.
  - 13.1.4. LSG will manage parking demand by charging parking fees. The parking fee will be proportional to duration of parking and level of demand, with higher fee levels in areas with higher demand.
  - 13.1.5. LSG will ensure that footpaths, cycle tracks, and other NMT facilities remain free of encroachment by parked vehicles through design, enforcement, and fines.
  - 13.1.6. LSG will utilise all revenue collected from the parking management program to fund public transport and NMT improvements that support meeting the goals listed in this Policy.

### **14. Vending management**

- 14.1. LSG will manage vending as follows:
  - 14.1.1. LSG will recognise vendors through a formal licensing mechanism. Vendors, in turn, will be expected to comply with relevant regulations.

- 14.1.2. LSG will identify locations where there is existing and potential demand for goods and services of street vendors.
- 14.1.3. LSG will enhance and preserve existing culturally significant street vending markets.
- 14.1.4. LSG will provide supportive infrastructure such as cooperatively managed water taps, electricity points, waste bins, and public toilets.
- 14.1.5. LSG will regulate street vending by providing vendor infrastructure in locations that ensure the continuity of footpaths and cycle tracks.

## **15. Traffic management**

- 15.1. LSG will manage streets and intersections with a focus on pedestrian and cyclist mobility and safety for all road users:
  - 15.1.1. Signal phases will include adequate time for pedestrians.
  - 15.1.2. Green phases will be timed to facilitate cycle and public transport movement.
  - 15.1.3. Motor vehicle users will give the right-of-way to pedestrians, cyclists, and emergency response vehicles.
  - 15.1.4. LSG will carry out additional enforcement and enhance fines for speeding violations and violations of NMT user right-of-way in school zones.
- 15.2. LSG will regulate the entry of heavy vehicles into urban areas (especially central business districts) during the day and manage the loading and unloading of goods in urban areas to minimise disruption for other transport system users. Loading activities should happen behind buildings.

## **16. Street maintenance**

- 16.1. LSG will institute a repair and maintenance programme to keep all footpaths and cycle tracks in a good state of repair and cleanliness.
- 16.2. LSG will provide designated spaces for trash collection so that trash containers and trash collection activities do not hinder the use of NMT facilities.
- 16.3. LSG will adopt a zero-tolerance approach for managing encroachments on footpaths. LSG will remove all temporary and permanent obstructions that force pedestrians to walk on the carriageway. LSG will relocate vendors as per the provisions of Section 10.
- 16.4. Construction projects that may compromise the use of NMT infrastructure will be required as part of their building approval requirement, to obtain LAMATA approval for plans indicating how the project will ensure safe, alternative means for pedestrian and bicycle circulation during the implementation phase. In addition, developers will be responsible for constructing a high-quality footpath that meets the standards in this policy along the property frontage.

- 16.5. LSG will conduct maintenance, replacement, and cleaning to ensure that all street furniture elements (especially waste bins) remain in usable and sanitary condition.

## **17. Utility management**

- 17.1. LSG will manage service utility providers to ensure that access points for storm water, sewage, electricity, telecommunications, and other services meet the following standards:
  - 17.1.1. Access points for underground and over-ground utilities will be designed in such a way that they do not conflict with NMT user movements. Manhole covers will be levelled with footpaths, cycle tracks, and the surfaces of other NMT facilities. Utility access points will be designed to minimise disruption from maintenance.
  - 17.1.2. Storm water systems will be designed so that storm water drains off of NMT infrastructure into appropriate channels and catch pits. At no point will footpaths, cycle tracks, or other NMT facilities lie at the lowest level in the street cross section, except in the case of NMT-only streets. Storm water facilities will be maintained regularly to prevent flooding of NMT infrastructure. LAMATA will encourage the construction of covered drains to expand the available space and improve safety for NMT users.

## **18. State leadership**

- 18.1. LSG will provide the necessary leadership by emphasising the paradigm shift from current urban transport planning methods to the new focus on NMT and sustainable urban transport.
- 18.2. LSG will proclaim NMT as priority modes and will issue policy guidelines and instructions to professionals regarding priorities in the design of transport facilities.
- 18.3. LSG will conduct extensive training and outreach to LSG engineers, administrators, and elected officials on NMT user needs, design principles and promotion strategies.
- 18.4. LSG will encourage and provide incentives for its own employees to walk, cycle, and use public transport as part of their daily commuting.
- 18.5. LSG will urge other institutions to prioritise non-motorised modes in physical designs, regulations, management practices, and investment plans for transport systems.

## **19. Public awareness**

- 19.1. Working with relevant federal agencies, LSG will carry out a public information campaign through traditional media, social media, and other channels to build support for the NMT Policy. The campaign will cover the following themes:
  - 19.1.1. The benefits of NMT and the goals of the Policy.
  - 19.1.2. Safe user behaviour on the part of motor vehicle drivers, including speed control and the need to give the right-of-way to pedestrians and cyclists.

- 19.1.3. Information on NMT and public transport travel options available in Lagos.
- 19.1.4. Progress updates on NMT projects and opportunities for public input.
- 19.2. LSG will arrange regular events in support of active commuting such as monthly car-free days and cycle-to-work days.
- 19.3. LSG will introduce a curriculum covering road safety and the benefits of walking and cycling for primary and secondary school students.
- 19.4. LSG will explore alternative programs with the local business community to promote and encourage NMT use. For example, LSG may reduce the business taxes / fees, waive enforcement of parking requirements, or utilise other financial incentives to reward businesses or organisations that provide employees, customers, or the general public travelling by NMT modes. Recognised NMT-supporting amenities include, but are not limited to the following:
  - 19.4.1. Incentives for employees to commute by NMT modes (or public transport).
  - 19.4.2. Disincentives for the use of personal motor vehicles, such as parking fees that reflect the true costs of personal motor vehicle ownership and use.
  - 19.4.3. Secure bicycle parking.
  - 19.4.4. Availability of a fleet of well-maintained cycles for employees to use for short errands or trips from the office.
  - 19.4.5. On-site employee changing rooms with showers.
  - 19.4.6. Cycle repair stations with maintenance supplies such as tools, pumps, and tubes, or a dedicated cycle maintenance staff at the company premises.
  - 19.4.7. Cycle-related training for employees, covering safe cycle routes to work, safe riding skills, bicycle maintenance, driver training (share the road with bicyclists), or other related topics.
  - 19.4.8. Use of NMT-based local logistics and courier services.
  - 19.4.9. Cycle rallies or other cycle-related events for employees.
  - 19.4.10. Sponsorship of a local riding club or cycle racing team (e.g., employee, local, youth, professional).
  - 19.4.11. Sponsorship of footpaths, cycle tracks, bus shelters, or other street elements.
- 19.5. LSG will support efforts to appreciate the city's history and traditions through neighbourhood walking and cycle tours. LSG will specifically create way-finding signage and network maps to guide participants.

## 20. Funding

- 20.1. LSG will provide sufficient budgetary support to build and maintain the necessary NMT infrastructure. Specifically, LSG will ensure that at least 40 per cent of its street infrastructure budget is allocated to NMT infrastructure.<sup>14</sup>
- 20.2. LSG will channel foreign loans, grants, and investments toward projects that improve conditions for NMT users.
- 20.3. LSG will deposit 50 per cent of parking fee and outdoor advertisement revenues in the Transport Fund. These funds will be allocated toward sustainable transport.
- 20.4. LSG will generate additional funding for NMT infrastructure through public private partnerships. LSG will explore opportunities for financial incentives to reward businesses or organisations that invest in sustainable transport initiatives.

## 21. Institutional framework

- 21.1. Successful implementation of street design projects will involve cooperation among multiple stakeholders. LSG will develop appropriate frameworks to coordinate with the following key departments, both at the state and local levels.

**Table 4: Key agencies and responsibilities.**

Ministry	Responsibility
State Ministry of Transportation	Develop and propagate transport policies and fund infrastructure improvements towards an integrated multi-modal transport system
State Ministry of Physical Planning & Urban Development	Develop building control rules and planning regulations
State Ministry of Works & Infrastructure	Design, construct, and maintain the state road network
Federal Road Safety Corps (Lagos Sector Command)	Enforce traffic rules, educate street users, and advise relevant state agencies where improvements are required to improve safety
Lagos Metropolitan Area Transport Authority (LAMATA)	Plan, design, construct, maintain, and oversee the public transport system and declared (strategic) road network
Lagos State Physical Planning Permit Authority	Issuance of building construction permits.
Lagos State Building Control Agency	Enforcement of building control regulations.
Lagos State Urban Renewal Agency	Planning and design of urban renewal areas.
Lagos State Traffic Management Authority (LASTMA)	Regulate, control, and manage traffic operations

<sup>14</sup> In a typical cross section, NMT elements comprise at least 40 percent of the ROW. For example, on a 24 m street with a 6.5 m carriageway in each direction, the remaining cross section elements total 12 m, or 54 percent of the cross section width.

Lagos State Parks and Gardens Agency (LASPARK)	Manage street landscaping
Lagos State Environmental Sanitation Corps (LAGESC)	Remove encroachments on public rights-of-way and manage vending

21.2. To improve inter-agency coordination at the city-level, LSG will set up and convene regular meetings of an NMT Committee to review proposed designs, guide implementation, and monitor performance over time. The Committee will include with the following members:

21.2.1. Representative from Ministry of Transportation (MOT) (Chairperson)

21.2.2. Representative from LAMATA (Secretariat)

21.2.3. Representative from Lagos State Traffic Management (LASTMA),

21.2.4. Representative from Nigeria Police Force (NPF), Lagos Traffic Department

21.2.5. Representative from Ministry of Physical Planning and Urban Development (MPP&UD)

21.2.6. Representative from Lagos State Physical Planning Permit Authority

21.2.7. Representative from Ministry of Works & Infrastructure (MOW&I)

21.2.8. Representative from Lagos State Environmental Sanitation Corps (LAGESC)

21.2.9. Representative from Federal Road Safety Corps (FRSC), Lagos Command

21.2.10. Representative from Lagos State Safety Commission (LSSC)

21.2.11. Representative from Vehicle Inspection Service (VIS)

21.2.12. Representative from Lagos State Parks & Gardens Agency (LASPARK)

21.2.13. Representative from non-government or community organisations

21.2.14. Representatives from LGAs/LCDAs

21.2.15. External consultants/experts/academics

21.3. Preparation of detailed street designs require qualified staff trained in basic transport planning and urban design principles. LSG will set up a NMT Design Review Subcommittee of the NMT Committee to oversee the detailed design, construction, and maintenance of streets. The NMT Design Review Subcommittee will include the following members:

21.3.1. Representative from Ministry of Transportation (MOT) (Chairperson)

21.3.2. Representative from LAMATA (Secretariat)

- 21.3.3. Representative from Lagos State Traffic Management (LASTMA),
- 21.3.4. Representative from Nigeria Police Force (NPF), Lagos Traffic Department
- 21.3.5. Representative from Ministry of Works & Infrastructure (MOW&I)
- 21.4. The NMT Design Review Subcommittee will be responsible for the following:
  - 21.4.1. **Planning and monitoring of complete streets:** Developing a comprehensive, city-wide street network plan and the LSDM, and periodically revising them as needed; developing an implementation plan, with timelines and budgets; maintaining a database of topographic survey data and database of as-built drawings; monitoring project implementation; and monitoring performance metrics to evaluate impact.
  - 21.4.2. **Design review for infrastructure projects:** Engaging with consultants to review detailed designs for infrastructure projects; overseeing works at various stages; and monitoring NMT facilities following implementation.
  - 21.4.3. **Capacity building:** Convening conferences, workshops, and seminars to disseminate best practices in street design among city officials, consultants, and others.
  - 21.4.4. **Community engagement and advocacy:** Building support for and communicating benefits of street design projects to the public through advocacy campaigns, media, and others; conducting public stakeholder meetings as required; and mediating conflicts among stakeholders during implementation.
- 21.5. LSG will also partner with academic institutions and technical organisations to conduct training programs to train officials, engineers and staff in the basics of street design.

## 22. Performance measurement

- 22.1. LSG will measure the effectiveness of the NMT Policy using the indicators listed in Figure 1. The NMT Committee Secretariat will report on these indicators to the Committee on an annual basis.

**Table 5: Performance indicators**

Goals	Indicator	Desired direction
Increased mode share for sustainable transport modes	Mode share of walking, cycling, and public transport	Increase
	Mode share of personal motor vehicles	Decrease
Improved infrastructure for pedestrians and cyclists	Coverage of footpaths (fraction of 12+ m streets with footpaths)	Increase
	Coverage of cycle tracks (fraction of 12+ m streets with cycle tracks)	Increase
Reduced use of personal motor vehicles	Mode share of personal motor vehicles	Decrease
	Mode share of shared modes of transport	Increase

Improved reach of public transport	Fraction of the population living within 500 m of a public transport bus stop with a service frequency of at least 12 buses per hour	Increase
Improved reach of MRT	Length of MRT network	Increase
	People near transit (within 500 m of MRT)	Increase
Universal access	Fraction of public transport and NMT facilities that are universally accessible	Increase
Improved quality of public transport	Size of bus fleet: high quality public transport buses per 100,000 population	Increase
Improving traffic safety	Fatalities per 100,000 population per year	Decrease
Improving air quality	Number of poor air quality days	Decrease

- 22.2. LSG will create an inventory of footpaths and cycle tracks, conduct surveys of transport system users, and compile other records to measure progress as per the indicators listed above.
- 22.3. LSG will commission progress reports that indicate compliance with this Policy, performance as per the indicators listed above, and progress toward achieving the goals outlined in Section 2. LSG will make progress reports available for public scrutiny and feedback.



## 8. Regulations: Street design elements and standards

LSG recognises that NMT and public transport are major modes of transport across the city and adopts the following design standards and guidelines to develop infrastructure that supports and expands the use of these modes.

### 1. Street typologies

1.1. LSG adopts the street typologies listed in Table 6 to guide the design of street according to their role in the transport network and local conditions.

Table 6: Street typologies

Features	Local	Minor collector	Major collector	Arterial
Functions	Access to adjoining uses with little through traffic. Some roadside activity.	Local traffic movement and to connect to arterial streets. Moderate roadside activity.	Local traffic movement and to connect to arterial streets. Moderate roadside activity.	Meant for movement across the city. Significant road side activity.
Speed limit	20 km/h	30 km/h	40 km/h	50 km/h
Footpath clear width	2 m on at least one side; may also be designed as shared space	2 m on both sides	3 m on both sides	≥ 3 m on both sides
Cycling	In mixed traffic	In mixed traffic	May have dedicated cycle tracks if part of the cycling network	May have dedicated cycle tracks if part of the cycling network
Carriageway	3.5-5.5 m or shared space with priority to NMT modes	4.5-6.5 m, undivided; for two way movement	<5.5 m per direction	6 m (2 lanes)-9 m (3 lanes) per direction
Public transport	No	Feeder service	Feeder buses & medium frequency mainline bus services (<30 buses/h)	High speed/ high frequency bus service (≥30 buses/h). may have dedicate lanes
Medians and mid-block openings	Not applicable	No medians; Pedestrians can cross the carriageway anywhere	Intermittent median with a width of at least 1 m; Pedestrian crossings with a median refuge at least every 50 m; Median openings for vehicular movement permitted	Continuous Median of at least 1 m width; Pedestrian crossing with a median refuge at least every 200 m; No median openings for motor vehicles movement except at intersections

Intersections		Open at all intersections	When crossing an arterial, may be open and signalised; When crossing a major or minor collector, open and unsignalised	When crossing another arterial, open and signalised; When crossing a major collector, open and signalised; When crossing minor collectors and local streets, closed except for NMT users; At least one intersection every 500 m
At-grade pedestrian crossings at intersections	Raised speed table	Raised speed table	Not raised when signalized; Otherwise, raised speed table	Not raised
Typical ROW	<12 m	12-18 m	18-24 m	>24 m
Speed Reduction measures	Speed bumps, chicanes, etc.	Speed bumps, speed table crossings	Speed table crossings	Speed table crossings; traffic signals
Vehicle type	No heavy commercial vehicles	No restrictions except during certain times of the day	No restrictions except during certain times of the day	No restrictions except during certain times of the day
On-street parking	If space permits	If space permits	If space permits	Only from service lane, if one exists; short-term drop-offs and pick-ups may be allowed

## 2. Footpaths

2.1. Footpaths must meet the following standards:

2.1.1. Footpaths will include space for business frontage (frontage zone<sup>15</sup>), space for pedestrian mobility that is at least 2 m wide in residential areas and 2.5 m in commercial areas (pedestrian zone<sup>16</sup>), and space for landscaping and street furniture (furniture zone<sup>17</sup>) (Figure 6).

2.1.2. The height of footpaths will not exceed 150 mm above the carriageway.

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<sup>15</sup> A frontage zone provides a buffer between street-side activities and the pedestrian zone. Next to a compound wall, the frontage zone can become a plantation strip.

<sup>16</sup> A pedestrian zone provides continuous space for walking and should be clear of any obstructions, level differences, or other obstacles to pedestrian movement.

<sup>17</sup> A furniture zone is a space for landscaping, furniture, lights, bus stops, signs, and private property access ramps

- 2.1.3. Footpath surfaces will be evenly paved and smooth for all users, including those on wheelchairs.
- 2.2. LSG will pursue all means to free up space for footpaths such as removing or realigning vehicle parking, junction boxes, and other obstructions and will prioritise street amenities such as street furniture, landscaping, and trees over vehicle parking.
- 2.3. Footpaths should be continuous even at property entrances for uninterrupted pedestrian movement. The height of the footpath should remain the same. To provide access to private properties, vehicle ramps should be provided in the furniture zone with a 1:6 gradient (Figure 2). Bollards should be installed to prevent vehicles from parking on the footpaths, leaving a clear width of at least 1.2 m for wheelchair access between at least one set of bollards.
- 2.4. LSG will ensure that all rail overbridges and rail underpasses have pedestrian access. The LSG will also seek opportunities to provide pedestrian access on flyovers where such access provides a mobility or safety benefit for pedestrians.

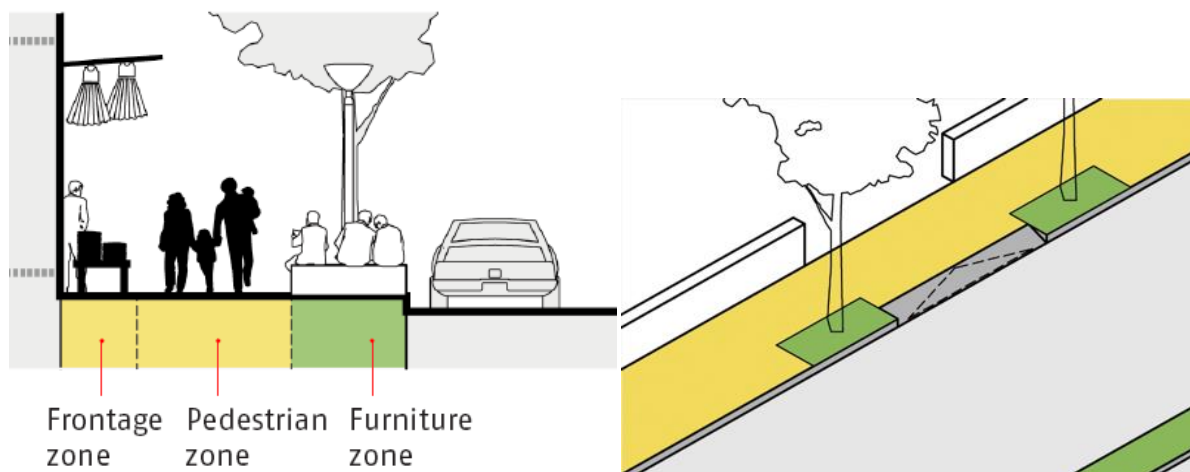


Figure 6: Footpaths should follow the zoning system, with a continuous pedestrian zone of at least 2 m (left). At property entrances, footpaths should remain at the same level, with vehicle ramps at a 1:6 gradient in the furniture zone (right).

### 3. Pedestrian zones

- 3.1. NMT-only streets will incorporate plazas, seating, trees and structures for shade, space for organised street vending, cycle parking, and access for emergency response vehicles.
- 3.2. All motor vehicle traffic will be prohibited, using barriers and enforcement to prevent their entry and encroachment of NMT space. Commercial deliveries to properties on such streets will be accomplished outside of normal business hours.

### 4. Pedestrian crossings: Midblock

- 4.1. All pedestrian crossings will be at grade. LSG may create skywalks to link railway or public transport terminal to pedestrian bridges with key destinations provided that doing so does not compromise at-grade NMT infrastructure.
- 4.2. Pedestrian crossings will be provided at frequent intervals in order to improve safety and enhance compliance with designated crossings. Crossing locations and spacing will be informed by local conditions. In general crossings will be designed according to street typology as follows:
  - 4.2.1. On local streets, pedestrians will be allowed to use the entire right-of-way, in the case of a shared space, or, if a footpath is provided, pedestrians will have the right to cross the street at any location.
  - 4.2.2. On minor collector streets, pedestrians will have the right to cross the street at any location.
  - 4.2.3. On major collector streets, medians will include pedestrian refuges providing safe street-level crossing opportunities at least once every 50 m. Formal marked crossings will be installed at least once every 100 m.
  - 4.2.4. On arterial streets, at-grade pedestrian crossings with median refuges will be provided at least once every 100 m and every 200-400 m for rapid transit corridors.
- 4.3. At un-signalised crossings, raised speed table crossings will be constructed. Speed table crosswalks will have a minimum width of 3 m, be elevated to the level of the adjacent footpath, and have ramps for motor vehicles with a slope of 1:6 (Figure 7).
- 4.4. Medians will be designed as surmountable pedestrian refuge islands to enhance pedestrian safety. Streets with 4 or more traffic lanes will have medians with pedestrian refuges of minimum 2 m depth and 3 m width, with bollards located in the refuge space to enhance pedestrian safety.
- 4.5. Grade-separated facilities such as foot overbridges and subways are often unsafe and inaccessible to many users, and inconvenient for all pedestrians. Therefore, the facilities that involve a significant vertical displacement of pedestrians will not be permitted on urban streets. Such facilities will only be considered in the context of limited access expressways.

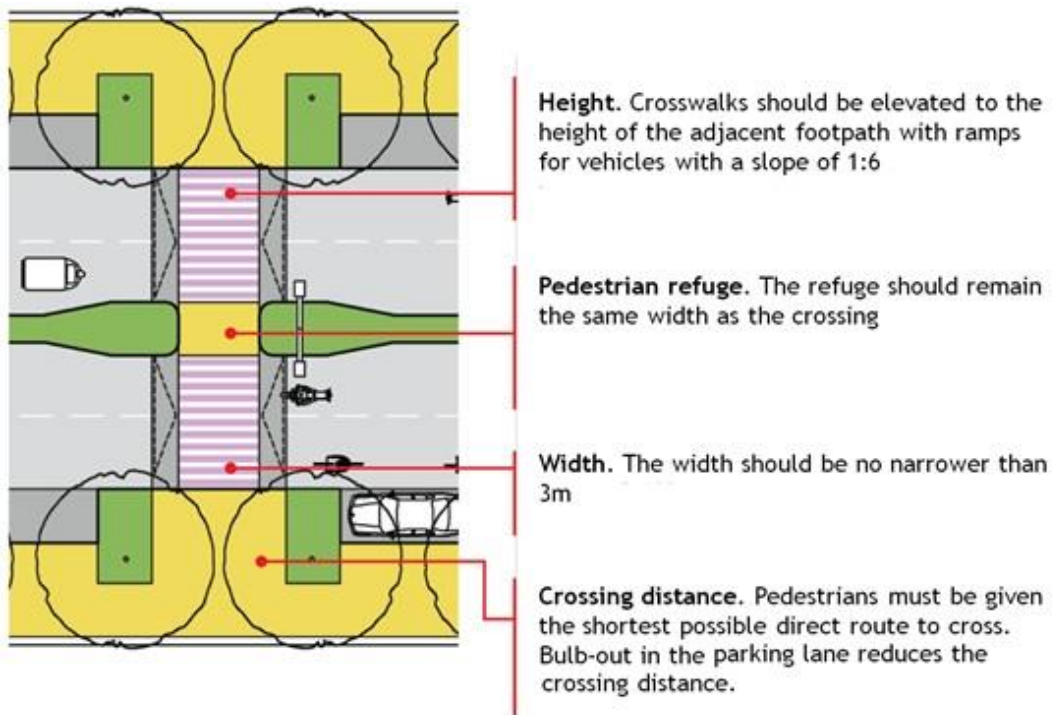


Figure 7: Raised pedestrian crossings are preferred as they reduce vehicle speed, thereby increasing pedestrian safety.

## 5. Pedestrian crossings: Intersections

- 5.1. At un-signalised intersections, raised crossings will be provided to ensure pedestrians can cross safely. They will be elevated to the level of the adjacent footpath, with ramps for motor vehicles with a slope of 1:8 (Figure 8).

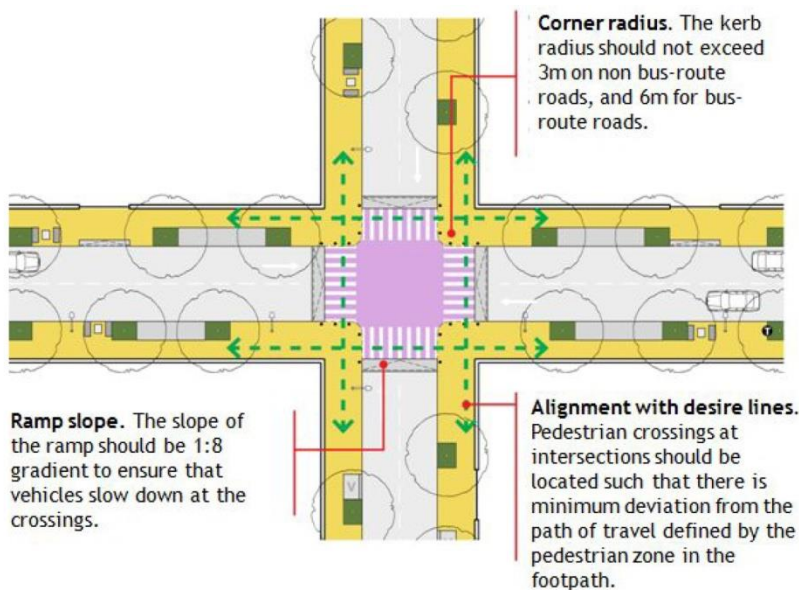


Figure 8: Raised pedestrian crossing at intersection

- 5.2. Smaller turning radii increase pedestrian safety by reducing vehicle speeds. Inner turning radii at intersections will not exceed 4 m on streets without bus service and 7 m on streets with bus service.
- 5.3. Pedestrian crossings at intersections will be designed to minimise crossing distances and follow pedestrian desire lines.
- 5.4. Tactile warning tiles will be installed at intersections so that people with visual impairments know where vehicles and pedestrians interact. Detectable tiles will be applied consistently throughout the city in order provide useful orientation cues for pedestrians.

## 6. School zones

- 6.1. NMT route plans will be created for all schools to determine the routes and NMT modes used by students to reach the schools.
- 6.2. Along major school access routes, the following interventions will be employed to improve access and safety:
  - 6.2.1. The speed limit will be restricted to 30 km/h or below within a 200 m radius of the school and traffic calming elements will be installed to ensure that vehicles follow the speed limit.
  - 6.2.2. Traffic calmed pedestrian crossings will be installed, meeting or exceeding provisions of Sections 4 and 5. Additional protection may include flashing beacons.
  - 6.2.3. Signs indicating school zone presence, pedestrian crossings, and speed limits will be installed to remind drivers to treat the area with special care and attention.

## 7. Landscaping

- 7.1. All footpaths and cycle tracks should have a continuous tree lines to provide shade and improve the aesthetics of the streetscape.
- 7.2. Placement of landscaping should be coordinated with other street amenities (especially advertising panels and utility boxes) to maintain a clear path of travel for pedestrians and cyclists so as to not obstruct through movement.
- 7.3. Height of trees should be maintained so that it does not hinder the visibility of all road users. Tree canopies will have a minimum clearance of 3 m from the surface of the footpath to ensure better visibility for pedestrians.
- 7.4. Native trees will be planted to minimise irrigation and maintenance requirements and for prolonged tree life.
- 7.5. All trees will be protected with tree pits that allow maximum soil exposure enabling water and air to get to the roots.

## 8. Bus stops

- 8.1. Bus stops provide safety and comfort for passengers while waiting and will be placed at 200-400 m intervals so that passengers can easily access the nearest stop by foot.
- 8.2. Placement of bus shelters will maintain the continuity of footpaths and cycle tracks. This may imply diverting the footpath, cycle track, or service lane behind the bus shelter.
- 8.3. Bus stops will be placed adjacent to the bus linear line of travel so that a bus does not need to pull over to the left. If there is parking space between the footpath and the carriage way, bus stops will be located on the bulb-out of the parking lane.
- 8.4. Bus stops shall be sufficiently spaced from an intersection based on the bus frequencies and traffic volumes so as not to obstruct flow of traffic.
- 8.5. Stops will be managed to allow buses to only drop and pick passengers and prohibit buses from holding at the stop for long periods. Where long stay buses are necessary, these should be accommodated at high quality terminal stations at the ends of the bus corridor.
- 8.6. The length and width of a bus stop will vary depending upon passenger demand. However, it is recommended that bus stops be at least 2.5 m wide which is adequate for seating arrangements.
- 8.7. Seating will be more than 450 mm above the finished floor level. The finish floor level will not exceed 150 mm above the carriageway.



Figure 9: Bus stops should be placed adjacent to buses' linear line of travel and should allow for continuous footpath and cycle tracks.

## 9. Street lighting

- 9.1. Street lighting should be provided such that the longitudinal dimension is equivalent to three times the pole height, and horizontal dimension is slightly longer than the pole.
- 9.2. The table below indicates pole height and spacing options. The spacing between two light poles will be approximately three times the height of the pole.

**Table 7: Pole height and spacing metrics**

Street type	Pole height (m)	Spacing (m)
Footpath or Cycle track (< 5 m width)	4.5 - 6.0	12 - 16
Streets with ROW of 9 m or less	8 - 10	25 - 27
Streets with ROW of more than 9 m	10 -12	30 - 33

- 9.3. Poles will be no higher than 12 m to reduce undesirable illumination of private properties.
- 9.4. Additional lighting should be provided particularly at black spots, areas of sexual harassment and/or violence, areas of personal crime, and areas of isolation.
- 9.5. The placement of street lighting should be coordinated with other street elements so that they do not impede proper illumination.
- 9.6. A single row of light posts is generally sufficient for streets up to 12 m wide.
- 9.7. On wider streets, dual lights can be mounted on a single central post.

## 10. Street vending

- 10.1. Street vending should be accommodated where there is demand for their goods and services. Well-planned vending zones allow formal and informal vending to coexist together without compromising pedestrian and cyclist mobility.
- 10.2. Vending areas should be positioned in the furniture zone of the footpath in order to ensure the continuity of footpaths and cycle tracks.





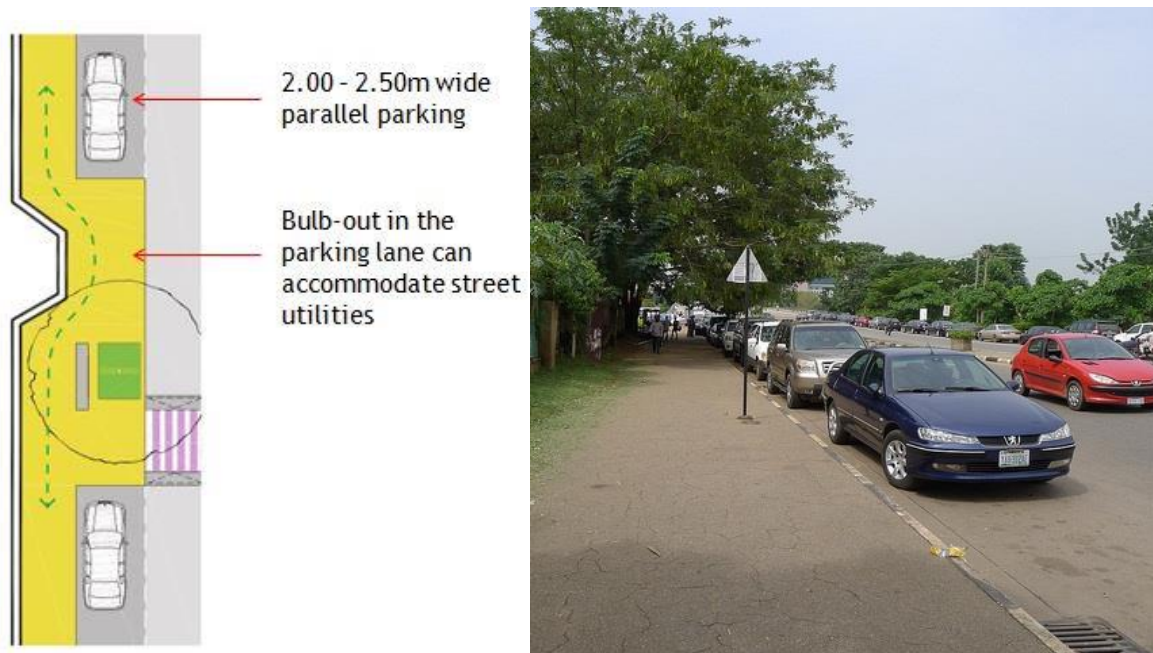
**Figure 10: Street vendors should be accommodated to enliven public spaces without compromising the continuity of cycle tracks and footpaths.**

## **11. Street furniture and amenities**

- 11.1. Street furniture will be located where it is likely to be used. Furniture is required in larger quantities in commercial hubs, market areas, junctions, bus stops, railway stations, and public buildings, and on streets with high pedestrian activity. Refuse collection furniture / waste bins will be provided at frequent intervals (e.g. every 20 m) on streets with large numbers of pedestrians and commercial activity. Public toilets will be placed at every 500–800 m.
- 11.2. Most street furniture, especially benches and tables, will be placed where it receives shade and does not obstruct pedestrian through movement.
- 11.3. Street furniture can be installed in bulb-outs of parking lanes. Similarly, a landscaping strip can be discontinued with street furniture on hardscaped spaces.

## **12. On-street parking**

- 12.1. On-street parking should be clearly designated, managed, charged and restricted in volume. Parking areas should be allocated after providing adequate space for pedestrians, cyclists, trees and landscaping, and street vending.
- 12.2. Parallel parking is the preferred parking layout in terms of the area occupied per car. The same parking layout can be used as perpendicular parking for two-wheelers. Parking bays will have a preferred width of 2 m, maximum width of 2.5 m, and length of 5 m. The same area can be used to park five two-wheelers. Additional buffer may have to be provided at either ends of the parking bay for safe entry and exit of vehicles from these parking bays.
- 12.3. Unlike footpaths and cycle tracks, parking lanes need not be continuous. On-street parking may be provided where space is available in the public right-of-way, but authorities will prioritise the provision of NMT infrastructure.



**Figure 11: Parallel parking for cars is the most efficient parking layout, as compared to perpendicular and angular parking.**

- 12.4. Parking signs will be erected that clearly communicate parking rules to the public. All signs will be located so as not to hinder pedestrian and cyclist movement, preferably in the furniture zone of the street.
- 12.5. Designated parking is often laid with similar material used on the adjacent carriageway- asphalt or concrete. Differentiated surface material such as paver blocks may also be used to distinguish space allocated for parking.
- 12.6. Bicycle parking spaces will be equipped with supporting infrastructure to lock the cycles.

### **13. Storm water drainage**

- 13.1. LSG will develop a city-wide storm water management master plan to address potential flooding and nonpoint source pollution. The master plan will consider the increasing demand for additional storm water capacity, the topography of an area and study of water body outlets.
- 13.2. Decisions regarding street designs will utilise techniques that reduce the impacts on the storm water system and increase the permeable surface area, through the planting of some trees and landscaping, and minimising unnecessary pavement. Design treatments will reduce storm water overflow and support the health and maintenance of street trees and landscaping.
- 13.3. Storm water drains will be designed based on local hydrology data. The size of the drain begins at minimum 450 mm at the start point and then varies based on the capacity at the outflow point. The depth of the catch pit can vary from 450–1,000 mm.

- 13.4. Catch pits will be located in the buffer at regular intervals, depending on their size and the catchment area, and the lowest point of the street cross section. The lowest point in the cross section will occur on the carriageway; and, footpath, cycle track, bus stops, and street vending areas will be at a higher level.
- 13.5. Manholes are generally located on footpath and its cover will be flushed for smooth through movement of pedestrians. They will be avoided on cycle tracks and if unavoidable, will be level with the surrounding surface.

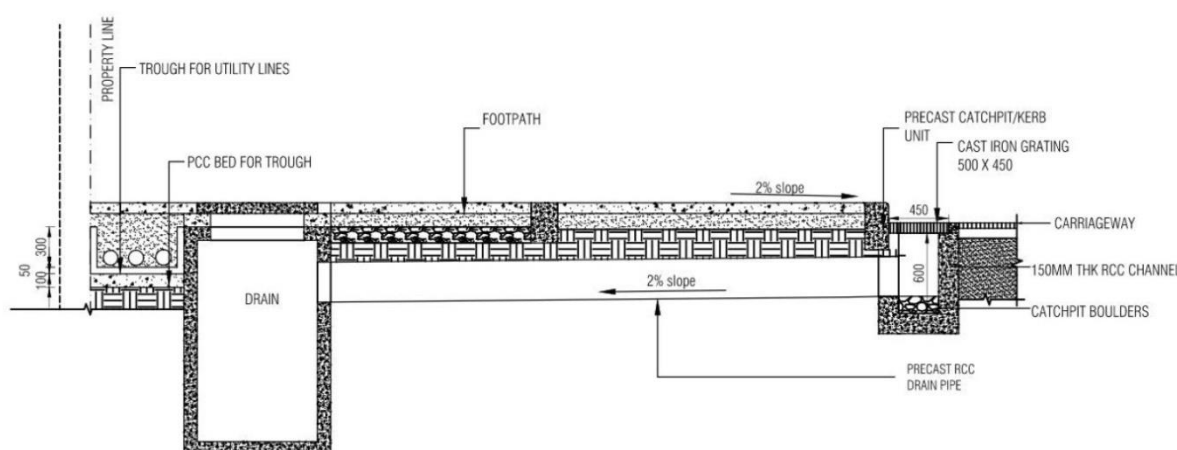


Figure 12: Typical storm water drain layout under a footpath.

- 13.6. Drain lines will be laid at approximate 2 per cent incline to encourage gravitational flow of water. Incline of the road also serves as a channel for storm water, directing it into catch pits that are protected with grating to prevent solid waste from entering the chambers.
- 13.7. Catch pits are designed such that silt collection happens in the chamber trough before the water flows through the RCC pies into the main storm water drain and it can be periodically cleared.

#### 14. Other utilities

- 14.1. LSG will work with service utility providers to ensure that access points for storm water, sewage, electricity, telecommunications, and other services meet standards.
- 14.2. LSG will manage service utility providers to ensure that access points for storm water, sewage, electricity, telecommunications, and other services are designed in such a way that they do not conflict with NMT user movements; manhole covers should be in level with footpaths, cycle tracks, and the surfaces of other NMT facilities; and, utility access points should be designed to minimise disruption during maintenance.

#### 15. Cycle tracks

- 15.1. Cycle tracks will have at least 2 m of clear space per direction for one-way movement and 3 m for two-way movement. They will be elevated 100-150 mm above the carriageway. A buffer of 0.5 m between the cycle track and parking areas or the carriageway will be constructed.
- 15.2. Cycle tracks should have a smooth surface: asphalt or concrete. Paver blocks should be avoided.
- 15.3. Painted cycle tracks, without segregation, will be discouraged as they are likely to be encroached by parked vehicles.
- 15.4. Cycle tracks should be provided on streets that have more than 100 motor vehicles and 400 cyclists during peak hour. On routes with more than 200 motor vehicles per hour, cycle tracks should be provided even if the cycle traffic is less than 100 per hour.

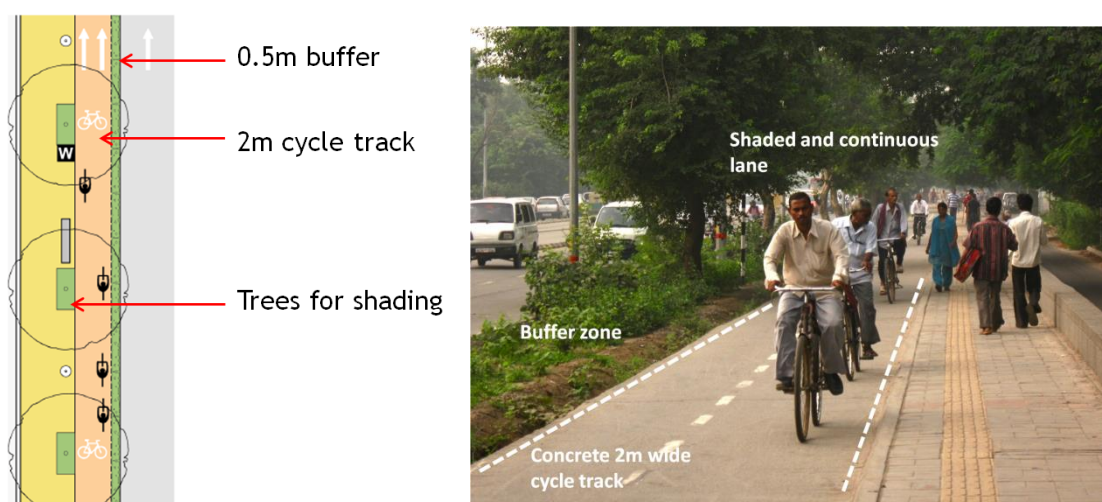


Figure 13: Cycle tracks should have a minimum width of 2 m and an elevation of 100-150 mm above the carriageway. Trees along the cycle track provide shade and comfort for cyclists.

## 16. Traffic calming elements

- 16.1. Traffic calming elements ensure pedestrian and vehicle safety by reducing at least speed and potentially also the volume of motor vehicles. Traffic calming slows down vehicles through vertical displacements, horizontal displacement, real or perceived narrowing of carriageway, material/colour changes that signal conflict point, or complete closure of a street.
- 16.2. Raised zebra pedestrian crossings will be implemented as traffic calming elements (see Section 4.3).
- 16.3. Pedestrian islands of varying shapes, sizes, and located, will be located within the right-of-way in shared spaces. Pedestrian islands require vehicles to navigate around them, thus, reducing vehicle speeds.

- 16.4. Parallel parking lanes can be designed as chicanes, alternating between the two sides of a street to prevent vehicles from speeding.

## 17. Carriageway

- 17.1. The primary purpose of a carriageway is vehicle mobility. A carriageway provides dedicated space in the middle of the street right-of-way for motorised vehicles that is separated from space for walking, cycling and stationary activities.
- 17.2. Street space will be allocated to the carriageway after adequate usable space has been reserved for walking, cycling, street vending and trees. Otherwise, such activities will spill over onto the carriageway, compromising motor vehicle throughput as well as the safety and comfort of all users.
- 17.3. LSG will design vehicle carriageways that maintains a constant width to ensure a smooth flow of vehicles.
- 17.4. LSG will employ street designs that define clear boundaries through curbs and material differences.
- 17.5. LSG will employ a wide variety of traffic calming techniques, including reduced carriageway widths and speed breakers at frequent intervals to reduce motor vehicle speeds (see Section 16).
- 17.6. Carriageway designs will be tailored to the purpose of the street:
  - 17.6.1. On local streets, carriageways will be designed as shared spaces where motor vehicles, pedestrians and cyclists coexist. Speeds in shared spaces will be maintained at 20 km/h or less through traffic calming elements to ensure safety of pedestrians and cyclists.
  - 17.6.2. On minor collector streets, carriageways will have a maximum width of 6.5 m for two-way movement, with adequate traffic calming elements to maintain vehicle speeds at 30 km/h or less.
  - 17.6.3. On major collector streets, carriageways will have lane widths of 2.75-3.25 m (3.0 m preferred) and a 1 m median that has frequent cuts for vehicle movement. Vehicle speed should be maintained at 40 km/h or less.
  - 17.6.4. On arterial streets, carriageways will have lane widths of 3.0-3.5 m (3.25 m preferred) and a 1-2 m median without cuts for vehicle movement except at intersections. Vehicle speed should be maintained at 50 km/h or less.
- 17.7. LSG will review one-way carriageways, unless they are necessary to accommodate rapid transit (such as BRT) corridors or pedestrian zones. Where one-way streets are sanctioned, the LSG will provide for two-way movement for NMT modes.

## 18. Bus rapid transit

- 18.1. LSG will develop a city-wide mass rapid transit network plan, including bus rapid transit (BRT) corridors that offer high-capacity and high-quality public transport by providing an exclusive right-of-way for BRT buses.
- 18.2. A BRT should be sited on street with moderate to high demand for public transport that is over 2,000 pphpd.<sup>18</sup> A well designed BRT system can carry up to 45,000 pphpd.
- 18.3. BRT corridors will have dedicated median bus lanes that are physically separated from mixed traffic lanes. Dedicated lanes are crucial for ensuring the buses can move quickly and avoid congestion. The width of a BRT lane will be 3.5 m, plus 0.3-0.5 m buffer space next to mixed traffic.
- 18.4. The BRT system will have high quality stations with platforms that match the level of the bus so that passengers can enter and exit quickly and easily without climbing steps. Centrally located BRT station require 3-4 m in the cross section. Larger widths may be required if the demand is high.
- 18.5. Stations will be equipped with smart off-board fare collection to enhance passenger convenience and improve efficiency.
- 18.6. Footpaths, that meet the design guidelines outlined in Section 2, will be constructed on BRT corridors.
- 18.7. At-grade pedestrian crossing will be provided at reasonable intervals to ensure safety of pedestrians. Pedestrian crossings at stations must be elevated to the height of the adjacent footpath, with a slope of 1:10 for buses.
- 18.8. Where space permits, cycle tracks that meet the design guidelines outlined in Section 15, will also be constructed on BRT corridors.

## 19. Summary

- 19.1. A summary of various street elements and their specifications is presented below. The LSG will use these guidelines to inform the development of a Street Design Manual.

**Table 8: Street element standards**

Street element	Specifications	Minimum width (m)	Maximum width(m)
Footpath	Clear walking space	2.0	*
	Residential area, including furniture zone and frontage zone	3.5	

<sup>18</sup> Passengers per hour per direction

	Commercial area, including furniture zone and frontage zone	5.0	
	High intensity commercial area, including furniture zone and frontage zone	6.5	
Tree pit	Can be surfaced with permeable pavers to increase the usable walking space	1.0	*
Bus shelter	Should be placed in footpath furniture zone	2.0	*
Cycle track	One-way	2.0	*
	Two-way	3.0	*
Buffer	-	0.5	*
Parking	Parallel Parking	2.0	2.5
Carriageway lane	Local street**	2.75	3.0
	Minor collector	2.75	3.25
	Major collector	2.75	3.25
	Arterial	3.0	3.5

\*Width as per requirement

\*\* On local streets, meandering carriageways and shared space designs can improve safety.

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## 9. Definitions

**Accessibility:** Facilities offered to people to reach social and economic opportunities, measured in terms of the time, money, comfort, and safety that is associated with reaching such opportunities.

**Average trip length:** The average distance covered by a transport mode for a trip, measured in kilometres.

**Bus rapid transit (BRT):** High quality bus-based mass transit system that delivers fast, comfortable, reliable, and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations, and excellence in marketing and customer service.

**Complete streets:** Streets that are designed for all users, including pedestrians, cyclists, public transport passengers, and personal motor vehicles, including all modes of mobility as well as street vending, trees, street furniture, and other elements.

**Greenway:** A waterway or strip of land with exclusive facilities for cycling and walking.

**Mass rapid transit (MRT):** A high quality public transport system characterized by high capacity, comfort, overall attractiveness, use of technology in passenger information system, and ensuring reliability using dedicated right of way for transit vehicles (i.e. rail tracks or bus lanes).

**Mobility:** Conditions under which an individual is capable to move in the urban environment.

**Mode share:** The share of total trips carried out by a particular mode of urban transport, including walking, cycling, bus, paratransit, rail, keke, two-wheeler, or car.

**Non-motorised transport (NMT):** Human-powered transport such as walking and cycling.

**Nationally Determined Contribution (NDC):** National pledges to reduce greenhouse gas emissions per the provisions of the 2015 United Nations Framework Convention on Climate Change Conference of the Parties in Paris.

**On-street parking:** The space occupied by vehicles to park along the edge of the street.

**Paratransit:** Service operated by the private sector on a shared or per seat basis along informally organised routes with intermediate stops. The service may or may not have a predefined fare structure. The term “intermediate public transport (IPT)” means the same but is avoided in this document for consistency. Common paratransit modes include danfos and shared kekes.

**Public transport (PT):** Shared passenger vehicles that are publically available for multiple users. In this document, the term “public transport” is used to refer to, MRT, paratransit and formal road-based public transport services.

**Parking management:** Pricing, enforcement, and other mechanisms used to guide parking operations to ensure the efficient use of street space.

**Right-of-way (ROW):** The width of the road, taken from the compound wall/property edge on one side of the road to the compound wall/property edge on the other side of the road.

**School zone:** All streets and greenways within a 200 m radius of a school.

**Sustainable transport modes:** The following modes are categorized as “sustainable modes” of urban transport because when compared with personal motor vehicles, they consume the least amount of road space and fuel per person-km and also entail lower infrastructure costs: walking, cycling, and public transport (including a regular bus service as well as MRT systems).

**Traffic calming:** Traffic calming measures ensure pedestrian and vehicle safety by reducing at least speed and potentially also the volume of motor vehicles. Traffic calming slows down vehicles through vertical displacement, horizontal displacement, real or perceived narrowing of carriageway, material/colour changes that signal conflict points, or the complete closure of a street.

**Vehicle kilometres travelled (VKT):** Vehicle kilometres travelled by all the personal motor vehicles (in a city) in one day.

## 10. Abbreviations

BRT	Bus rapid transit
DPR	Detailed project report
ECS	Equivalent car space
LSG	Lagos State Government
LSDM	Lagos State Design Manual
MRT	Mass rapid transit
NDC	National Determined Contribution
NMT	Non-motorised transport
NOx	Nitrogen oxides
PM	Particulate matter
pphpd	Persons per hour per direction
SPV	Special purpose vehicle
TDM	Travel demand management
TOD	Transit-oriented development
UTF	Urban transport fund
VKT	Vehicle kilometres travelled

## 11. Stakeholder engagement

Date	Event	Participants
30 Sep 2016	Street design principles and standards workshop	<ul style="list-style-type: none"> <li>• Lagos Metropolitan Area Transport Authority (LAMATA)</li> </ul>
6 Dec 2016	Introduction to the Lagos Non-Motorised Transport Policy	<ul style="list-style-type: none"> <li>• LAMATA</li> <li>• Ministry of Transport (MOT)</li> <li>• Ministry of Environment (MOE)</li> <li>• Ministry of Works and Infrastructure (MoWI)</li> <li>• Lagos Drivers Institute (LASDRI)</li> <li>• Federal Road Safety Corps (FRSC)</li> <li>• Private sector</li> <li>• School representatives</li> <li>• Heinrich Böll Stiftung and other civil society groups</li> </ul>

26 Oct 2017	Stakeholder Conference on the Lagos Non-Motorised Transport Policy	<ul style="list-style-type: none"> <li>• Lagos Metropolitan Area Transport Authority (LAMATA)</li> <li>• Ministry of Transport (MOT)</li> <li>• Ministry of Works &amp; Infrastructure (MOW&amp;I)</li> <li>• Ministry of Physical Planning &amp; Urban Development (MPP&amp;UD)</li> <li>• Ministry of Environment (MOE), Ministry of Justice (MOJ)</li> <li>• Ministry of Economic Planning &amp; Budget (MEPB)</li> <li>• Ministry of Tourism, Arts &amp; Culture (MTAC)</li> <li>• Lagos State Waterways Authority (LASWA),</li> <li>• Lagos State Infrastructure Maintenance &amp; Regulatory Agency (LASIMRA)</li> <li>• Lagos State Physical Planning Permit Agency (LASPPA)</li> <li>• Lagos State Parks &amp; Gardens Agency (LASPARK)</li> <li>• Lagos State Drivers Institute (LASDRI)</li> <li>• Lagos State Environmental Sanitation Corps (LAGESC)</li> <li>• Vehicle Inspection Services (VIS)</li> <li>• Federal Ministry of Transport (FMOT)</li> <li>• Federal Road Safety Corps (FRSC)</li> <li>• Nigeria Police Force (NPF) Traffic Department</li> <li>• Transport Growth Initiative (TGI)</li> <li>• Heinrich Böll Foundation</li> <li>• Lagos Urban Network</li> <li>• Joint National Association of Persons with Disabilities</li> <li>• Cycology Cycling Club</li> <li>• African Cycling Foundation</li> <li>• Power Systems FOT-K Consort</li> <li>• Shuttlers</li> <li>• Agence Française de Développement (AFD)</li> <li>• University of Lagos</li> <li>• National Union of Road Transport Workers (NURTW)</li> </ul>
6 Mar 2018	Review of NMT Policy and street design standards	<ul style="list-style-type: none"> <li>• Lagos Metropolitan Area Transport Authority (LAMATA)</li> </ul>